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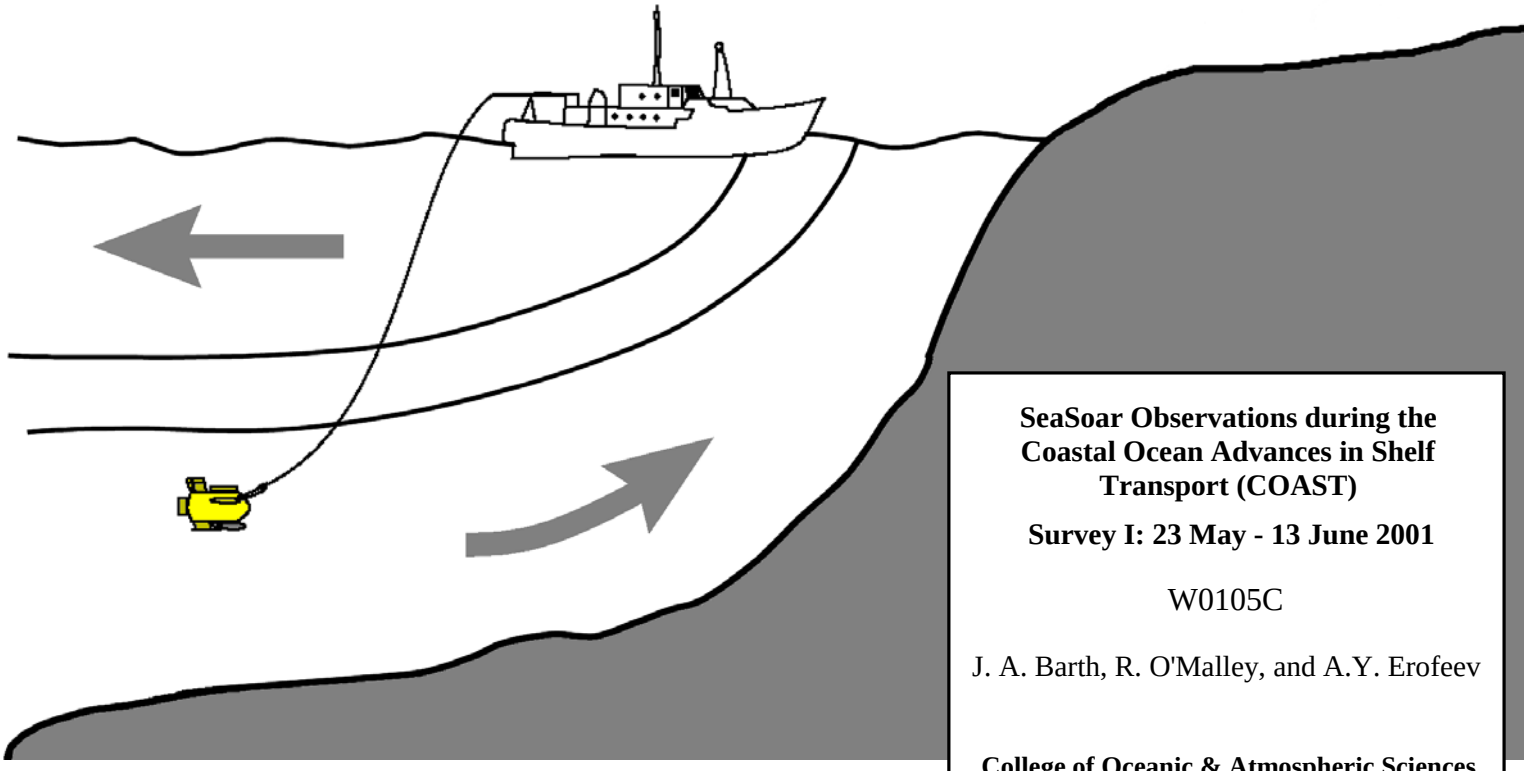
Coastal Ocean Advances in Shelf Transport



SeaSoar Observations during the Coastal Ocean Advances in Shelf Transport (COAST)

Survey I: 23 May - 13 June 2001

W0105C

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Introduction

As part of the Coastal Ocean Processes (CoOP) project Coastal Ocean Advances in Shelf Transport (COAST), this was the first of two cruises in 2001 to study cross-shelf transport processes in a wind-driven coastal ocean. The project includes field experiments off the Oregon coast and coordinated ocean circulation/ecosystem and atmospheric modeling. We made intensive observations primarily to the north of Newport, Oregon, in a region of relatively simple topography. We also sampled in an area to the south of Newport, centered on Heceta Bank (Figure 1).

A variety of instruments were used: a towed, undulating vehicle (SeaSoar) to measure temperature, salinity, microstructure (MicroSoar) and phytoplankton fluorescence; a shipboard Acoustic Doppler Current Profiler (ADCP) to measure water velocity; a towed, four-frequency bioacoustics unit (HTI) to detect large zooplankton and larval fish; a multiple net system (MOCNESS) to obtain zooplankton samples; and a surface sampler to obtain clean seawater for determination of its iron content. We worked in close coordination with the R/V Thomas G. Thompson, aboard which other COAST scientists conducted vertical profiling.

We towed SeaSoar and the HTI bioacoustics instrument on a grid of east-west sections ranging from 43.75 to 45.25N and from about the 45-m isobath to 60-100 km offshore (Figure 1). This "big box" grid was occupied five times during the cruise, interspersed with three finer scale SeaSoar/ADCP/HTI mapping surveys near the moorings on line 2 (the Cascade Head or "CH" line) and one finer scale mapping centered on line 6 (the Cape Perpetua or "CP" line). Additionally, we had seven repeat sections in a butterfly pattern, centered on the CH line. The R/V Thomas G. Thompson concentrated their sampling along the CH and CP lines.

The winds started with a strongly upwelling favorable (southward) wind during the initial Big Box 1 mapping survey (Figure 2). However, as the cruise went on, the conditions oscillated between downwelling (northward) and upwelling. Each of the SeaSoar/ADCP/HTI sampling grids is indicated by gray shading in Figure 2, and the timing of CTD and zooplankton net tow stations is shown along the top.

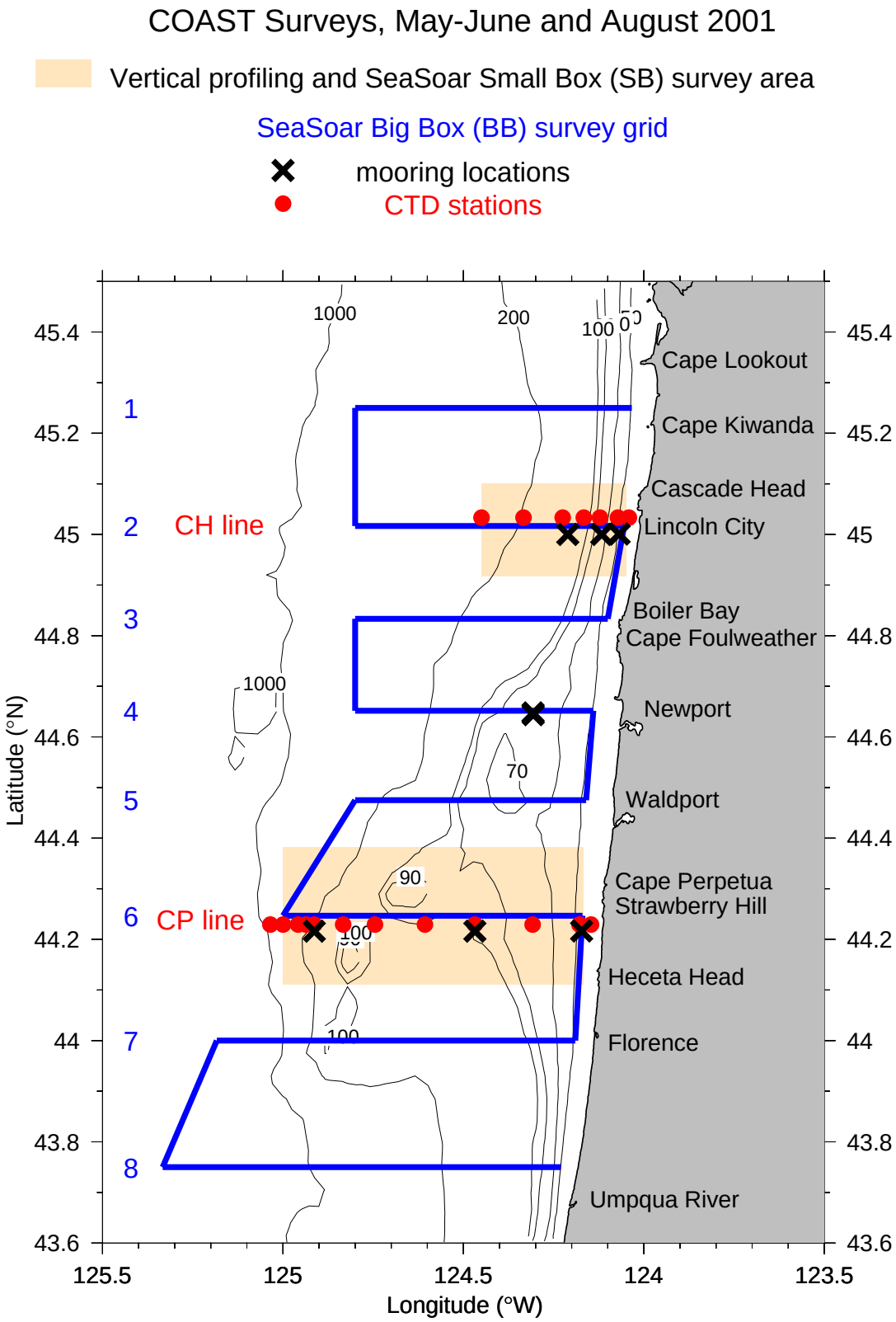

Figure 1: Map of the central Oregon continental shelf and slope showing the normal locations of the SeaSoar sampling lines. Big box (BB) sampling lines are numbered 1-8. The locations of the COAST moorings and CTD stations are indicated. Bottom topography is in meters.

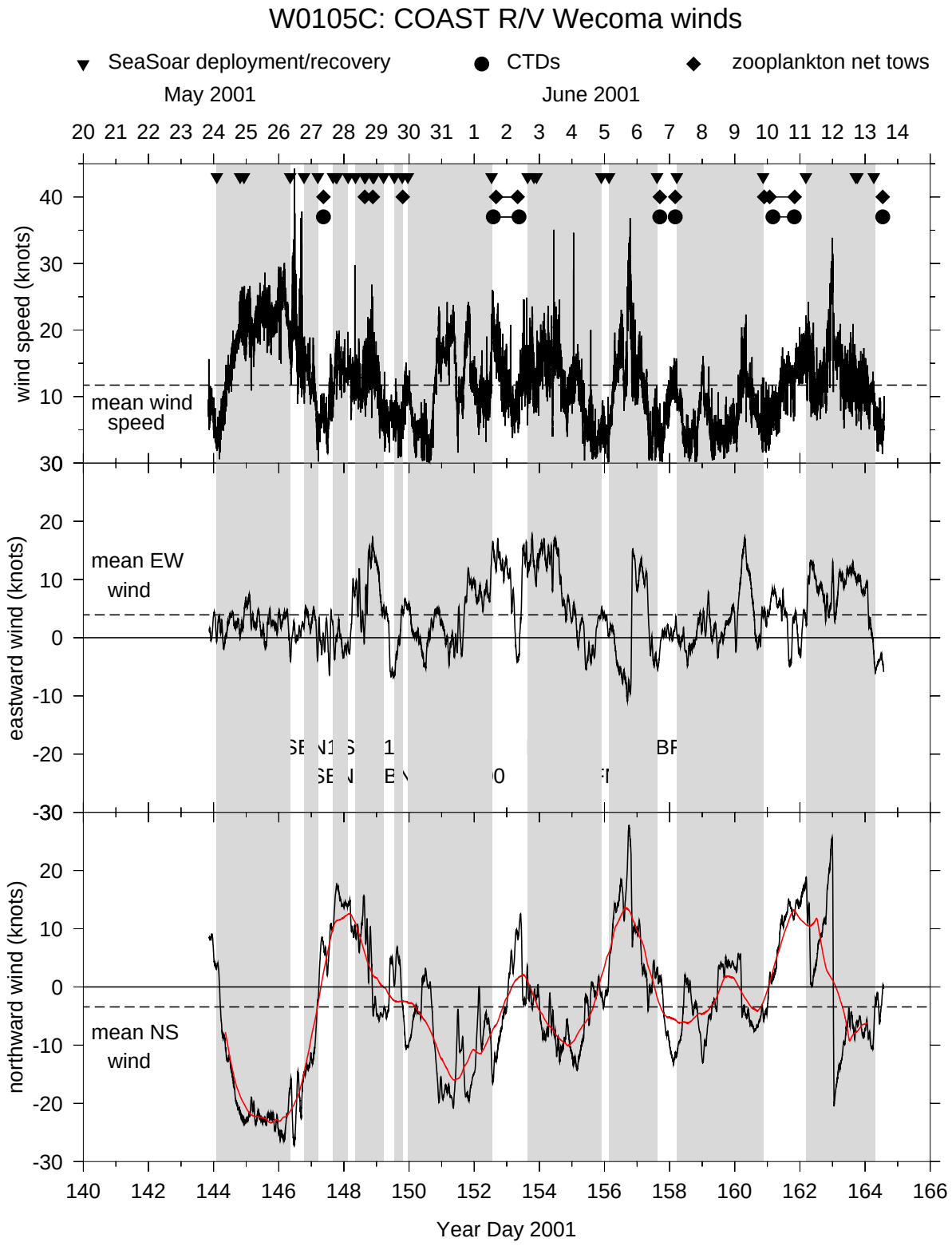

Figure 2: Wind as measured from the R/V Wecoma and cruise activities.

The SeaSoar (Pollard, 1986) instrument suite was similar to that used during previous OSU field work (e.g., Barth et al., 2001), with the notable exception that a microstructure instrument, MicroSoar (Dillon et al., 2003), was mounted on the bottom. A Sea-Bird Electronics (SBE) 9/11+ conductivity-temperature-depth (CTD) instrument was mounted inside SeaSoar with dual, pumped T/C sensors mounted pointing forward out of the nose of SeaSoar. A Western Environmental Technology Laboratories (WET Labs) nine-wavelength light absorption and attenuation instrument, ac-9, was mounted on top of SeaSoar in a rigid saddle and with a streamlined nose cone to minimize drag (Barth and Bogucki, 2000a). Water for the ac-9 was pumped from an inlet/outlet just above the CTD T/C sensors in the nose of SeaSoar. Two WET Labs FlashPak fluorometers (WET Labs, 1997) both equipped to measure chlorophyll fluorescence at 685 nm, but with one using blue excitation (440 nm, 30 nm bandpass) and the other using green excitation (490 nm, 30 nm bandpass), were mounted alongside the ac-9 on top of SeaSoar and received the same pumped water as the ac-9. A photosynthetically active radiation (PAR) sensor was mounted on the top surface of the SeaSoar vehicle's tail fin. A Seapoint fluorometer tuned to detect fluoroscein dye was mounted underneath SeaSoar's tail fin as an aid in locating a dye patch released from R/V Elakha on 31 May. At the end of tow 12, an In Situ Ultraviolet Spectrophotometer for nitrate (ISUS) was mounted on top of the SeaSoar, taking the place of the ac-9, the Flash PAKs, and the fluoroscein fluorometer. The SeaSoar vehicle was also equipped with an engineering package measuring pitch, roll and impellor rotation rate. The three engineering sensors were connected to the analog-to-digital channels of the SBE CTD.

A new aspect of the SeaSoar power and data telemetry, necessitated by the large data rates of the MicroSoar, was the use of a fiber-optic tow cable and a custom, OSU-designed underwater fiber optic unit (UFO). The steel armored 5/16" tow cable had 3 copper conductors each with a fiber optic strand interwoven in the copper wires. Power was sent down the copper conductors to the UFO, which then supplied power to the MicroSoar and one SBE pump used for the bio-optics plumbing. The temperature of the UFO case was monitored via an A/D channel on the SBE CTD. The SBE CTD power and data telemetry were sent on the copper conductors. An Ethernet connection was established over the optical fibers between the MicroSoar submerged and deck unit computers. The SeaSoar vehicle was towed on this bare (i.e., no streamlined fairing) cable from a trawl winch onboard Wecoma. The vehicle profiled from the surface to around 115 m and back in

approximately 4 minutes at the deep ends of the east-west survey lines, and it took about 1.5 minutes to cycle down to 40 m and back at the shallow, inshore ends of the lines.

Cruise Narrative

The R/V Wecoma sailed at 2000 on 23 May 2001 (all times UTC; plus seven hours from Pacific Daylight Time) from Newport, Oregon with a scientific party of sixteen aboard (Table 1). We transited north to the inshore end of line 1 off Cape Kiwanda (Figure 1). Along the way we visually inspected the inshore ends of SeaSoar lines 1-4 for crab pot locations. The shipboard ADCP was started up shortly after leaving port (2009) as was the underway system (2035). As we transited, the iron sampler was prepared for deployment. Later (2354) we started logging the underway 5-m flow-through ac-9 and the scattering sensor (ECO-VSF), followed by calibrating the SeaSoar's ac-9 on deck. At approximately 0000 on 24 May we passed close to the R/V Thomas G. Thompson on the inshore end of the CH line (line 2). On our arrival off Cape Kiwanda (line 1) no crabpots were detected in the vicinity, and we decided to deploy for our first mapping survey. At 0210 (May 24) the HTI was deployed off the east end of line 1, followed by the Seasoar (0220) and the pumped iron sampler (0250), starting tow 1 and the first big box mapping (BB1) (Figure 4a). The 5-m flow-through nitrate analyzer was not functioning, but the silicate and phosphate measurements continued to be collected for nutrient analysis.

We gathered data along lines 1 and 2, and then continued on to line 3. Ten minutes into towing on line 3 (going from shallow to deep) we snagged our first crab pot (1500). It was removed with no apparent damage and the survey continued along line 3. However, later along this line (1730) it was observed that the conductivity sensor had failed on the MicroSoar (previously only showing intermittent failures). It was decided to recover the SeaSoar (1929) at the offshore end of line 3 and to inspect the MicroSoar.

While the MicroSoar was being worked on, the SeaSoar's ac-9 flow tubes were cleaned, and it was observed that the ac-9 pump mount bolts were bent and the pump bracket had pulled off the support bar (presumably from catching the crab pot earlier on line 3). This was repaired.

Table 1: W0105C cruise participants and their primary responsibilities (all from Oregon Statue University unless indicated otherwise).

Jack Barth	Chief Scientist	SeaSoar
Zanna Chase (MBARI)	Scientist	Iron
Zhongqi Cheng (LDEO)	Technician	Iron
Anatoli Erofeev	Scientist	MicroSoar
Linda Fayler	Marine Technician	SeaSoar
Dale Hubbard	Technician	Nutrients/pCO2
Toby Martin	Marine Technician	SeaSoar/communications
Robert O'Malley	Technician	SeaSoar
Michael Ott	Scientist	MicroSoar/SeaSoar
Scott Pegau	Scientist	Bio-optics
William Peterson * (NOAA/NMFS)	Scientist	Zooplankton
Steve Pierce	Scientist	ADCP/HTI
Anders Roestad	Technician	MOCNESS/HTI
Malinda Sutor	Graduate Student	Bio-optics/TAPS
Daryl Swensen	Marine Technician	SeaSoar/MOCNESS
Mitch Vance + (NOAA/NMFS)	Technician	Zooplankton
Marc Willis	Marine Technician Superintendent	SeaSoar

* disembarked on 4 June

+ embarked on 4 June

Meanwhile, inspection of the conductivity sensor on the MicroSoar showed some water inside; this was dried out and a dessicant bag added. No other damage was seen, however, and it was reinstalled on the SeaSoar. The SeaSoar was then redeployed (2039) for a dip test of the MicroSoar. No conductivity signal was present in the MicroSoar stream, and the SeaSoar was recovered again (2058). On deck, however, the conductivity channel worked fine, implying some type of ground loop problem.

We deployed the SeaSoar (2223, May 24) for the start of tow 2 at the offshore end of line 4. Even though the conductivity signal was still not present in the MicroSoar data stream, it was decided to finish the big box mapping sequence without it. While towing between lines 4 and 5 on the inshore side, we observed the COAST aircraft overflight by John Bane at 0320. Towing continued for the next day and a half until we finished with line 8, and the SeaSoar was recovered (0830, 26 May), followed by the HTI (0839). Anatoli Erofeev began his work trying to locate the ground loop in the MicroSoar while we transited northward to the offshore end of line C (just south of line 2). During the transit, Anatoli reproduced the failure while the MicroSoar was on the bench. An internal connection with the pressure case was suspected, and the pressure case was wrapped in electrical tape and reassembled. We arrived at the western end of line C (1703) and began reattaching the MicroSoar to the SeaSoar. By 1800 the MicroSoar was back on the SeaSoar, only to find that the MircoSoar's communication was down (although the power draw was as expected). We decided to continue with our planned intensive survey, centered on Cascade Head (line 2), the first of three such mappings. The HTI was deployed (1831) followed by the SeaSoar (1838), starting tow 3 and beginning the SBN1 (small box north 1) mapping survey (Figure 4b).

SBN1 starts offshore on line C, goes inshore, heads north, and heads offshore again on line B (same as line 2). While heading offshore on line B, we snagged a crab pot on the HTI (2217). The SeaSoar was hauled in to 10 meters behind the ship, and the ship slowed to 1.5 knots. The crab pot came off the HTI, only to have it snag on the SeaSoar! As we circled back to where we initially came off course to clear the HTI, the crab pot came off the SeaSoar as well. Within half an hour (2243) the SeaSoar snagged a second crab pot, but this also slipped off. Meanwhile, the R/V Thomas G. Thompson was doing station work at CH-6, and we passed by at 0020 (May 27).

We completed line A on SBN1 and recovered the SeaSoar (0450, May 27) in preparation for station work. The MicroSoar was removed from the SeaSoar and set up for bench tests in the lab. It was observed that some of the communication pins had shorted. Meanwhile, the ac-9 on the SeaSoar was calibrated, and then the plumbing that connected the "a" and "c" tubes was replaced, removing a right-angle junction. We then rigged for vertical zooplankton net tows, and transited to CH-1.

Upon arriving at CH-1 (0610) we recovered the iron sampler in order to do the station work. Station work along the CH line proceeded for the next seven+ hours, as shown in Table 2. See Table 3 and Figure 3a for CTD station locations. Figure 3b and 3c show summary locations for the net tows and TAPS bioacoustic profiles, respectively. We then transited to the offshore end of line A in preparation for a second occupation of the small box north mapping (SBN2).

Table 2. May 27 Station Work on the CH Line

station	time	task
CH-1	0632	CTD
	0645	vertical net tow
	0655	TAPS profiler
CH-2	0725	CTD
	0740	vertical net tow
CH-3	0820	CTD
	0830	vertical net tow
	0848	TAPS profiler
CH-4	0926	CTD
	0943	vertical net tow
CH-5	1023	CTD
	1048	vertical net tow
	1100	TAPS profiler
CH-6	1151	CTD
	1214	vertical net tow
CH-7	1316	CTD
	1344	vertical net tow
	1352	TAPS profiler

Table 3: CTD stations during W0105c

Cast	Name	Date (2001)	Time (UTC)	Latitude (N)	Longitude (W)	Depth (m)
1	CH-1	27 May	0632	44 59.99	124 02.48	30
2	CH-2	27 May	0725	44 59.99	124 04.23	51
3	CH-3	27 May	0820	44 59.97	124 07.28	83
4	CH-4	27 May	0926	44 59.95	124 10.01	107
5	CH-5	27 May	1023	44 59.96	124 13.47	138
6	CH-6	27 May	1151	45 00.02	124 19.96	182
7	CH-7	27 May	1316	44 59.97	124 27.05	321
8	CP-12	01 Jun	1407	44 13.47	125 02.08	930
9	CP-11	01 Jun	1521	44 13.46	125 00.01	524
10	CP-10	01 Jun	1911	44 13.52	124 57.54	351
11	CP-9	01 Jun	2007	44 13.46	124 56.25	169
12	CP-8	01 Jun	2051	44 13.47	124 54.88	139
13	CP-7	01 Jun	2307	44 13.48	124 50.03	103
14	CP-6	02 Jun	0002	44 13.55	124 44.63	109
15	CP-5	02 Jun	0118	44 13.49	124 36.39	107
16	CP-4	02 Jun	0509	44 13.48	124 28.07	102
17	CP-3	02 Jun	0629	44 13.53	124 18.55	82
18`	CP-2	02 Jun	0739	44 13.59	124 10.68	52
19	CP-1	02 Jun	0912	44 13.49	124 08.91	36
20	CH-7	06 Jun	1652	44 59.99	124 27.16	322
21	CH-6	06 Jun	2018	45 00.02	124 20.06	183
22	CH-5	06 Jun	2123	44 59.94	124 13.46	137
23	CH-4	07 Jun	0005	44 59.96	124 10.04	105
24	CH-3	07 Jun	0049	44 59.99	124 07.34	83
25	CH-2	07 Jun	0244	44 59.97	124 04.35	52
26	CH-1	07 Jun	0416	44 59.97	124 02.49	27
27	CP-10	10 Jun	0408	44 13.50	124 57.43	329
28	CP-12	10 Jun	0753	44 13.46	125 02.03	950
29	CP-11	10 Jun	0908	44 13.48	124 59.97	523
30	CP-9	10 Jun	1032	44 13.47	124 56.20	169
31	CP-8	10 Jun	1105	44 13.53	124 54.80	138
32	CP-7	10 Jun	1216	44 13.52	124 49.99	107
33	CP-6	10 Jun	1316	44 13.55	124 44.63	110
34	CP-5	10 Jun	1436	44 13.47	124 36.42	107
35	CP-4	10 Jun	1550	44 13.50	124 28.12	98
36	CP-3	10 Jun	1722	44 13.50	124 18.45	79
37	CP-2	10 Jun	1826	44 13.54	124 10.70	50
38	CP-1	10 Jun	1912	44 13.60	124 08.74	35
39	CP-0	10 Jun	1954	44 13.60	124 08.02	23
40	NH-5	13 Jun	1301	44 39.14	124 10.56	59

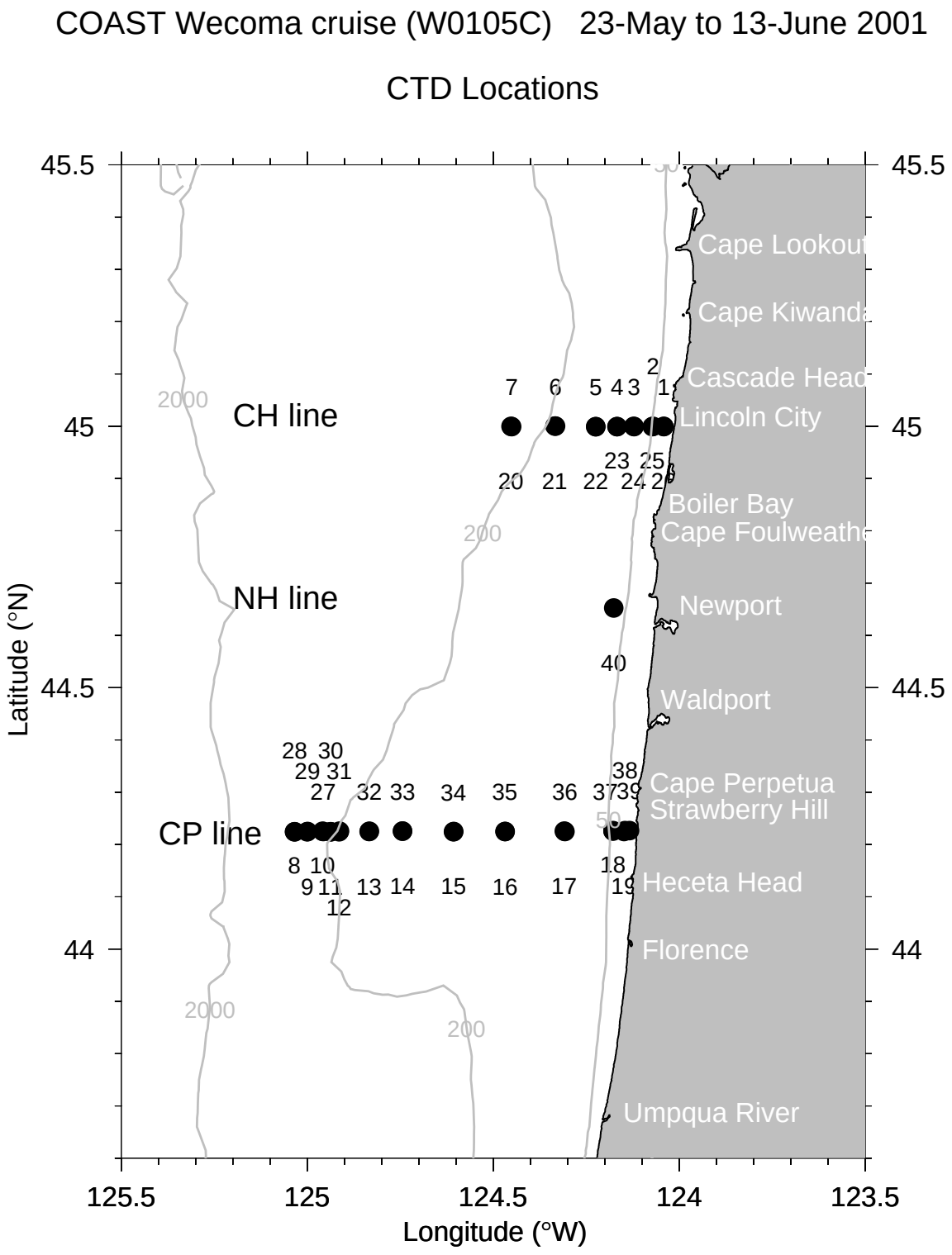

Figure 3a. CTD station locations during W0105C. Bottom topography in meters

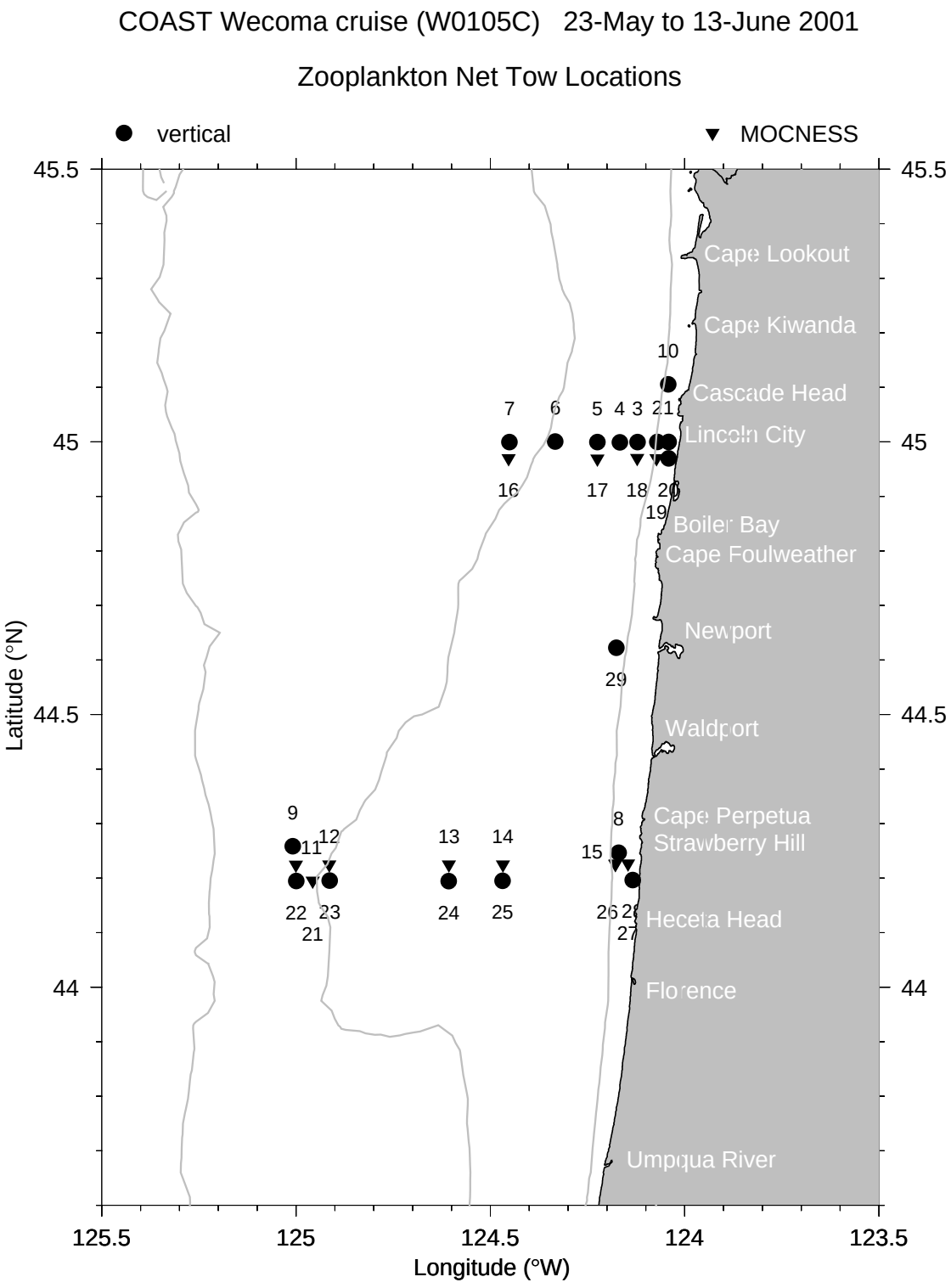

Figure 3b. Zooplankton net tow locations during W0105C. Bottom topography in meters

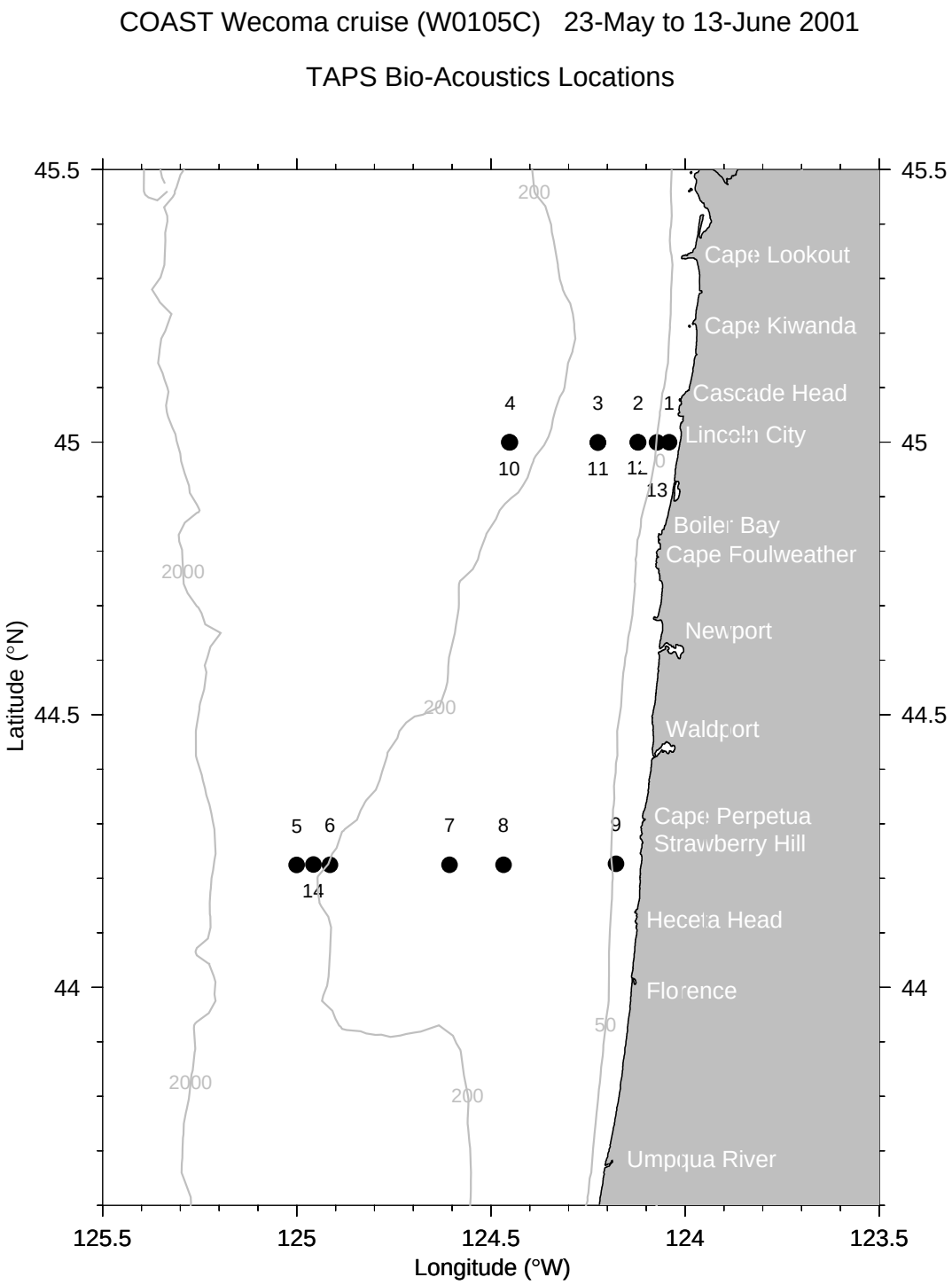

Figure 3c. TAPS bioacoustics locations during W0105C. Bottom topography in meters

We arrived at the west end of line A (1500, May 27)) and remounted the MicroSoar on the SeaSoar. The SeaSoar was deployed (1606), starting tow 4 and beginning the SBN2 mapping (Figure 4c). The MicroSoar appears to have been repaired, and the data looked good. However, we soon hung up another crab pot on the SeaSoar (1740), and we brought in cable and slowed the ship. We needed to recover the SeaSoar (1813) and disentangle the pot. The ac-9 had been pulled loose, which we repaired as we circled back to the spot where we snagged the pot. The SeaSoar was deployed again (1855) and we continued with tow 4, finishing line A. We ran the inshore connection between lines A and B and headed offshore (2101). However, another crab pot was snagged (2134), but came off without needing to recover the SeaSoar. We were able to then finish line B and line C without further incident, recovering the SeaSoar on the inshore end of line C (0308, May 28) finishing tow 4 and SBN2. We also recovered the HTI (0310) and the iron sampler (0316) in preparation for a high-speed transit to our southern intensive study area. Before departing, the ac-9 on the SeaSoar was again calibrated. We then transited four+ hours to the offshore end of line D (Figure 4a).

We arrived at the western end of line D, and deployed the HTI (0810, May 28), the SeaSoar (0817), and the iron sampler (0824). This was the start of tow 5, and the beginning of the small box south mapping (SBS1) (Figure 4d). The R/V Thomas G. Thompson had also moved to the southern intensive area and was doing station work. During the tow, the bridge needed to bring the ship sharply off line D in order to avoid vessel traffic. We recovered the SeaSoar at the inshore end of line E (1517) and did a vertical net tow (1524). The SeaSoar was then redeployed (1550), continuing as tow 5a. As we headed offshore on line E we diverted to the south to avoid the R/V Thomas G. Thompson, with our closest pass at 1730. At the end of line E we again recovered the SeaSoar (2119) and did another vertical net tow, this time to 100 meters. The SeaSoar was redeployed (2207) and continued on, now designated tow 5b. We surveyed line F without incident, and finished SBS1, recovering the SeaSoar (0515, May 29), HTI, and iron sampler at the inshore end of line F. We then did the seven+ hour transit back to the northern study area (centered on Cascade Head) for our third pass on small box north, followed by a transfer of supplies with the Elakha.

We arrived at the inshore end of line B and deployed the HTI (1305, May 29) and the SeaSoar (1309), starting tow 6 and the beginning of SBN3 (Figure 4e). However, shortly into the tow (1321) R/V Wecoma had a loss of power and bow thruster control. We hauled in the SeaSoar to 20 meters of towing cable, but the power was soon restored (1328). We then continued along line B, and then line A, finishing SBN3. The SeaSoar was recovered (1910) along with the iron sampler as we prepared for our meeting with the R/V Elakha. First, however, we completed a vertical net tow (1926) and then recovered the HTI (1937).

We then proceeded to our rendezvous with the R/V Elakha. We transferred our section and map plots to them, to assist with their planned dye release test, and they delivered a backup ac-9 as well as a colorimeter for the nonfunctioning nitrogen channel of the nutrient analyzer.

Meanwhile, the ac-9 had been calibrated on the SeaSoar, and it was observed that the connector pins for the PAR sensor were badly bent. Examination of the A/D data record showed the PAR signal went flat at 1841 shortly before recovery. Testing of the cable for the PAR indicated that there was likely a break somewhere in that connection. The MarTechs spliced a new connector for the PAR sensor while we transited to the inshore side of line 1 (north of line A).

On arrival, we ran a vertical net tow (2140, May 29) before deployment. The HTI was launched (2150) followed by the SeaSoar (2210). However, the MicroSoar needed a complete reboot and there were problems with the ac-9 datastream. The SeaSoar was recovered (2234) and the ac-9 stream tested on deck (no problems). The CTD deck unit also seemed ok; we resynchronized it and acquired CTD data on deck with no problems. So we returned to the inshore end of line 1 and the SeaSoar was redeployed (2305). This time all data streams checked out. We then proceeded with tow 7 and the start of big box 2 (BB2) mapping (Figure 4f).

Before we finished with line 1, it was reported that the phosphate channel had been successfully repaired, given the colorimeter delivered by the R/V Elakha, and the nutrients analysis was continuing with the flow-through data. We continued with lines 1 and 2, and started outbound on line 3 when we caught another crab pot (1150, May 30). We disengaged this without incident and no apparent damage. The bridge then needed to loop around, avoiding a passing fishing boat.

We continued surveying lines 3, 4, and were starting outbound on line 5 when we observed another COAST airplane overflight surveying the area (0015, May 31). As we finished line 5 and headed southward to line 6, the SeaSoar was observed to be flying oddly. While it could have been currents, the flight pattern was so odd that we slowed to recover, to be certain that we had not snagged anything. The SeaSoar was recovered (0345, May 31) and inspected, with no apparent damage. It was redeployed again (0405), starting the second half of tow 7. We continued without incident, completing lines 6, 7, and 8 and the targeted mapping of BB2 (0341, June 1). Keeping the SeaSoar in the water, we then doubled back to the 200m isobath, and began following that contour towards the north and our next set of station work (line i200 in Figure 4f). It is noted that the MicroSoar had been losing data coming up from the SeaSoar for unknown reasons.

We reached our station work area at CP-9 (1154, June 1), and headed outbound to CP-12 in order to recover the SeaSoar. We arrived at CP-12 (1232) and brought the SeaSoar on deck (1250). The fantail layout was rearranged, shifting the SeaSoar forward and bringing the MOCNESS into place under the A-frame as rain proceeded. We were then ready for station work along the CP line, again in concert with the R/V Thomas G. Thompson. Station work continued for the next nineteen hours, as shown in Table 4. During the station work, the "SB" mooring was sighted near CP-8, but the marker buoys were not observed. Also, the "SM" mooring was sighted near CP-4, but again no sign of the guard buoys. When we completed our station work (0925, June 2) we transited to the offshore end of line 5 for the next SeaSoar survey.

We arrived at the western end of line 5 (1348, June 2) and hove to as we rearranged the deck for SeaSoar towing, moving the MOCNESS frame to the side and bringing the SeaSoar in under the A-frame. The HTI, which had been in the water all this time, needed to be recovered, its cables straightened out, and redeployed (1449). The SeaSoar (1520), HTI (1524) and iron sampler (1542) were deployed as we prepared for the upper portion of another big box mapping (BB3) and the start of tow 8 (Figure 4g).

Table 4. June 1 Station Work on the CP Line

station	Time	Task
CP-12	1407	CTD
CP-11	1521	CTD
	1607	MOCNESS
	1749	TAPS
CP-10	1911	CTD
CP-9	2007	CTD
CP-8	2051	CTD
	2122	MOCNESS
	2200	TAPS
CP-7	2307	CTD
CP-6	0002	CTD
CP-5	0118	CTD
	0150	MOCNESS
	0229	TAPS
CP-4	0355	MOCNESS
	0428	TAPS
	0509	CTD
CP-3	0629	CTD
CP-2	0739	CTD
	0800	MOCNESS
	0826	TAPS
CP-1	0912	CTD

As we started inbound on line 5, the MicroSoar had numerous communication errors with packets coming up the cable. The SeaSoar was also flying very unusually, only getting to depths of around 75 meters (typical was 115 m for this cruise) as well as rolling over once. Cable was brought in and the SeaSoar lifted out of the water, in case a twist had occurred to the wire. However, there was no subsequent improvement on the maximum sampling depth of the SeaSoar. The MicroSoar, however, was now working fine. At the end of line 5 we decided to recover the SeaSoar (2004) to

attach more weight to the underside of the SeaSoar/MicroSoar in an attempt to improve its flight characteristics.

The SeaSoar was deployed (2158, June 2) to start tow 9 and to continue with the BB3 mapping. The SeaSoar flight path was much better going out on line 4, and we continued northward, covering lines 3, 2, and 1. We reached the inshore end of line 1 (2016, June 3) and headed for repeat coverage of a N-S and E-W pair of sections, mapped in a butterfly pattern. The E-W section overlays the small box line B (and the big box line 2), and the N-S section parallels the 100-m isobath from line 1 to line 3 (Figure 4h). The basic pattern was to go N-S-W-E, and then to return to the N. However, to avoid crabpots at night, we headed straight back out the E-W line until we got to the N-S line, and then headed north.

The first butterfly pattern (BF1) started at 2047 (June 3), and mapped out the general pattern described above (Figure 4h). We returned to the northernmost point (0749, June 4) and continued on to map BF2 (Figure 4i). During this cycle we snagged a crab pot (1443) going from W-E, but it came off. We didn't realize it at the time, but the plumbing between the FPAKs and the ac-9 had been damaged, leaving the ac-9 unpumped after 1443. We again got to the northernmost point (1818) and started our third pass on this pattern (BF3) (Figure 4j). We started having difficulties getting the SeaSoar to fly a typical profile as we went through the N-S line. When we finished this section we recovered the SeaSoar (2143, June 4), the HTI (2150), and the iron sampler (2152). We then transited to Newport where Bill Peterson disembarked and Mitch Vance joined the cruise to continue zooplankton sampling.

Flow-through systems were shut down (2254), and we were dockside at Newport at 2340. We then departed Newport (0010, June 5), and the flow-through systems were brought back on line (0031). We transited back to the inshore end of line 2 (the eastern waypoint of the butterfly pattern) to complete BF3.

We arrived near the eastern corner of the butterfly pattern and deployed the HTI (0316, June5), the SeaSoar (0319), and the iron sampler (0322) to begin tow 10 and continue with the BF3 mapping. The MicroSoar communication was still not working properly on deck, so it was set to

record internally on its hard drive (rather than transmitting the data up to the deckunit). The first butterfly patterns were run N-S-W-E-center-N-repeat. Now, however, we were going to reverse the direction, going S-N-center-E-W-S-repeat. Tow 10 started by taking the E-W section, and then the W-S section. This was later defined as the end of BF3 (0751) and the start of BF4 (Figure 4k). We continued through this rotation, returning to the southern end (1857). This finished BF4 and started BF5 (Figure 4l). Meanwhile, winds were peaking at 30 kts in a downwelling event (northward winds), having spun up from 5 kts only three hours earlier. They would again die down over the next six hours. We again went through the butterfly pattern and completed BF5 (0536, June 6) returning to the southernmost point of the pattern. Towing continued until we made it to the westernmost point of BF6 (Figure 4m), where we recovered the SeaSoar (1145) in preparation for station work.

Before transiting to CH-7 we repositioned the MOCNESS and SeaSoar on the fantail. At 1558 we started our transit, arriving at CH-7 for the start of another twelve hours of stations (Table 5). Note that station work was interrupted in order to deploy two guard buoys near the northern shelfbreak mooring between CH-5 and CH-4. The first guard buoy was deployed at 45 00.205' N, 124 12.662' W, in 130.1 meters of water. The second mooring was deployed at 44 59.615' N, 124 12.641' W, and in 128.4 meters of water. At the end of station work the MOCNESS and SeaSoar were rearranged on the fantail in preparation for towing.

We deployed the SeaSoar (0518, June 7) and the iron sampler to start tow 11 and to get one more repetition of the butterfly pattern (BF7, Figure 4n) before proceeding with the fourth big box survey (BB4). Starting at the easternmost point, we would follow the same reverse pattern of E-W-S-N, and then break out to start at the inshore side of line 1. We arrived at the northernmost point of the butterfly pattern (1320) and headed eastward to get to the inshore side of line 1. Once there (1408) we turned around and headed westward, surveying the whole of line 1 and starting the BB4 mapping (Figure 4o). While we were on line 2 (2350) we observed the COAST airplane drop an AXBT approximately one half mile behind the ship. While we were on the inshore line connecting lines 2 and 3, we slowed to inspect the inner shelf mooring radar reflector and solar panels: all looked fine. We continued surveying the big box lines 3, 4, 5, and 6 as we mapped to the south and visually confirmed all the southern line moorings along line 6. As we were heading outbound on

line 7 (0305, June 9) we observed a large foam convergence on the surface of the water, indicating the presence of a soliton. We towed the SeaSoar approximately level at 25 m, and observed a soliton signature, as did the HTI. We returned to normal flying of the SeaSoar (0322) and continued surveying. Data from the "c" tube of the ac-9 had gone bad, and it was decided to recover the SeaSoar at the end of line 7 to clean the ac-9. The SeaSoar was recovered (0846, June 9) and the ac-9 cleaned. The SeaSoar was then redeployed (0904), starting tow 12, in order to finish BB4.

Table 5. June 6 Station Work on the CH Line

station	**time**	**Task**
CH-7	1652	CTD
	1725	MOCNESS
	1853	TAPS
CH-6	2018	CTD
CH-5	2123	CTD
	2152	MOCNESS
	2234	TAPS
	2318	install mooring 1
	2337	install mooring 2
CH-4	0005	CTD
CH-3	0049	CTD
	0109	MOCNESS
	0200	TAPS
CH-2	0244	CTD
	0312	MOCNESS
	0337	TAPS
CH-1	0416	CTD
	0425	vertical net tow

More solitons were observed as we towed inbound on line 8, and we again tried level flight with the SeaSoar. At 124 40' W along line 8 we saw a large chlorophyll subsurface signal presumably coming off Heceta Bank, together with strong HTI signals. We would return here for vertical net tows at the end of BB4.

We reached the inshore side of line 8, and recovered the SeaSoar (2055, June 9). We observed broken strands in the SeaSoar towing cable armor, which would require retermination. We transited back to the large chlorophyll signature, and recovered the iron sampler in preparation for the station work.

Our first vertical net tow (2135) to 130 meters was inside the high chlorophyll feature, as was the second (2144) to 100 meters. We continued to move offshore for the third vertical net tow (2223), which was now outside the original feature. We then recovered the HTI (2234) in preparation for a transit to a final set of stations on the CP line.

We arrived at CP-10 (0130, June 10) and started with a MOCNESS tow (0145). However, in the process the power to the deep-sea winch went out. Power was restored, but there was about a one hour delay. We then began sixteen hours of station work (Table 6).

Meanwhile work continued on reterminating the SeaSoar cable, and reconfiguring the SeaSoar for our final big box mapping (BB5). By 2330 the MarTechs were done installing the fiberoptic controller and CTD inside the SeaSoar on the newly terminated cable. The ac-9, FPAKS, and fluoroscein fluorometer were removed from the top of the SeaSoar and an In Situ Ultraviolet Spectrophotometer (ISUS) was put in their place for nitrate analysis. An unpumped WetStar fluorometer was installed under the tail fin of the SeaSoar. The MicroSoar would continue to record internally for this final mapping, and the MicroSoar and the ISUS both tested okay on the deck. The MarTechs had also increased the wing angle on the SeaSoar in an attempt to get about 10 meters more depth on the downcasts.

Table 6. June 10 Station Work on the CP Line

station	Time	task
CP-10	0408	CTD
	0447	TAPS
	0602	MOCNESS
CP-12	0753	CTD
CP-11	0908	CTD
	0944	vertical net tow
CP-9	1032	CTD
CP-8	1105	CTD
	1127	vertical net tow
CP-7	1216	CTD
CP-6	1316	CTD
CP-5	1424	vertical net tow
	1436	CTD
CP-4	1550	CTD
	1610	vertical net tow
CP-3	1722	CTD
CP-2	1826	CTD
	1840	vertical net tow
CP-1	1912	CTD
	1930	vertical net tow
CP-0	1954	CTD
	2005	vertical net tow

We transited to the inshore end of line 8, and prepared to tow. The SeaSoar was launched (0349, June 11) but there was a problem with the MicroSoar conductivity being out of range. The SeaSoar was recovered and this was worked on. The SeaSoar was redeployed (0422), starting tow 13 and the BB5 mapping (Figure 4p). The MicroSoar conductivity was noisy compared with

previous tows, and it is unknown if this is due to the ISUS. We headed outbound on line 8, starting the mapping survey.

On the inshore end of line 7 we snagged a crab pot, and recovered the SeaSoar (1905, June 11). The PAR cage was damaged, but the PAR itself appeared okay. Meanwhile, tests with the MicroSoar and ISUS continued. On deck there was no problem with the quality of data, whether or not the ISUS was on. While in the water with ISUS on, the MicroSoar's data was degraded. It was decided to continue the survey with the ISUS running, and the MicroSoar's signal having increased noise.

The SeaSoar was redeployed to start tow 14 (2104, June 11) on the inshore connecting line between line 7 and line 6. We headed outbound on line 6, went up to line 5, and then headed towards shore again. We snagged another crab pot (0944, June 12) but were able to free it without recovering the SeaSoar. As we followed the inshore connecting line between line 5 and line 4, the WetStar fluorometer data stream became extremely noisy. It stayed that way as we mapped line 4, and then headed up to line 3. It was decided to recover the SeaSoar (1710) and to see if there were any obvious problems. There were no apparent obstructions in the flow tube, and a deck test with deionized water produced stable results. The SeaSoar was redeployed (1754) but the WetStar signal again went noisy. The SeaSoar was brought back on deck (1813) and an alternate WetStar put in place. The SeaSoar was redeployed (1822) but again the WetStar signal was noisy. This indicated a problem with the cable between the WetStar and the CTD, but we did not have time to replace it and tow 15 proceeded.

Given the delays, lines 1 and 2 were shortened in order to finish all of the lines in BB5 before we needed to recover and head to port. We reached the easternmost point of line 1 without incident, and recovered the SeaSoar (0639, June 13) and the iron sampler (0643). We transited back to the Newport Hydro line (NH-5) for one final station at 1301.

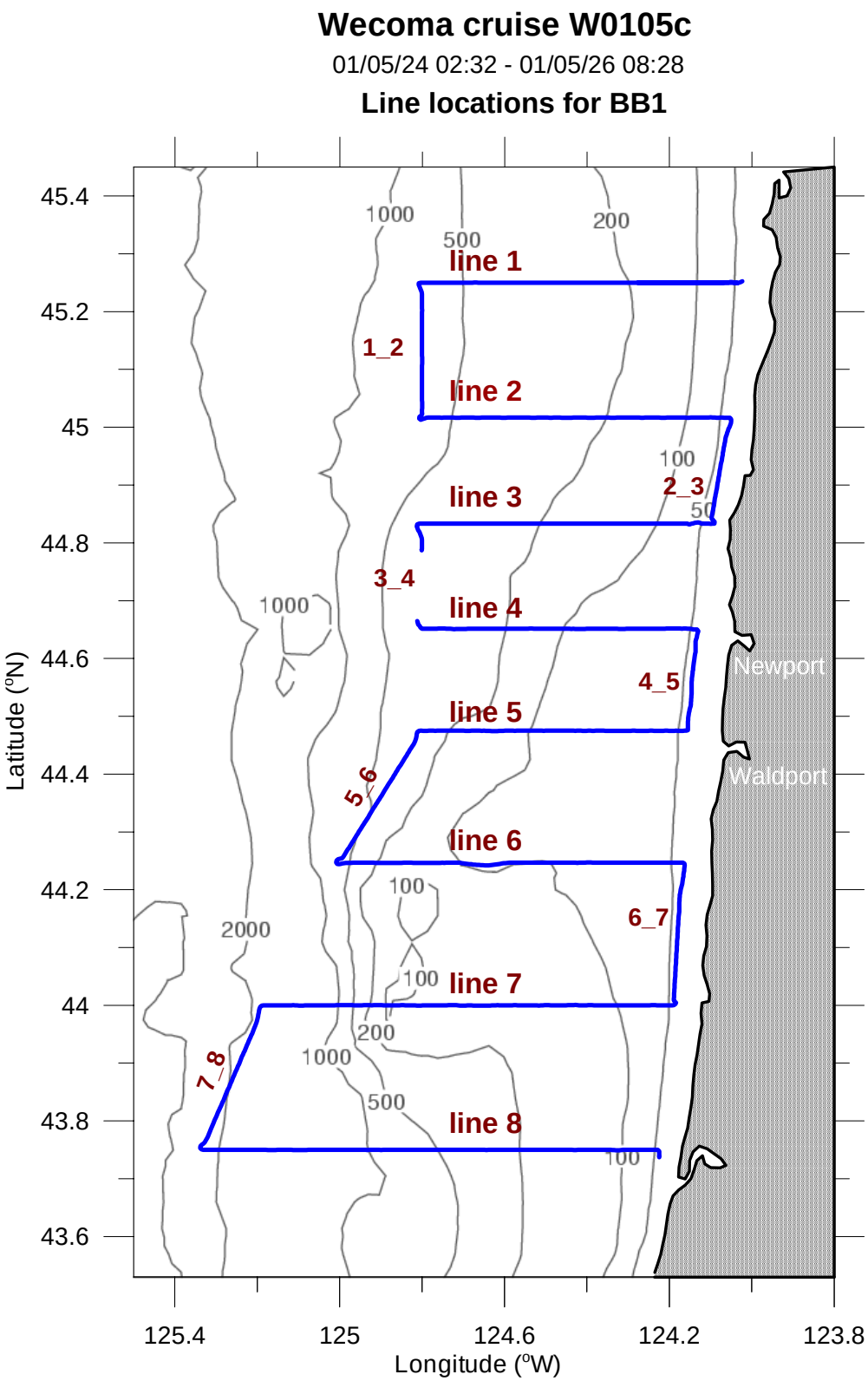

Figure 4a: Cruise tracks during the W0105a SeaSoar surveys. See table 12 for individual line start and stop times.

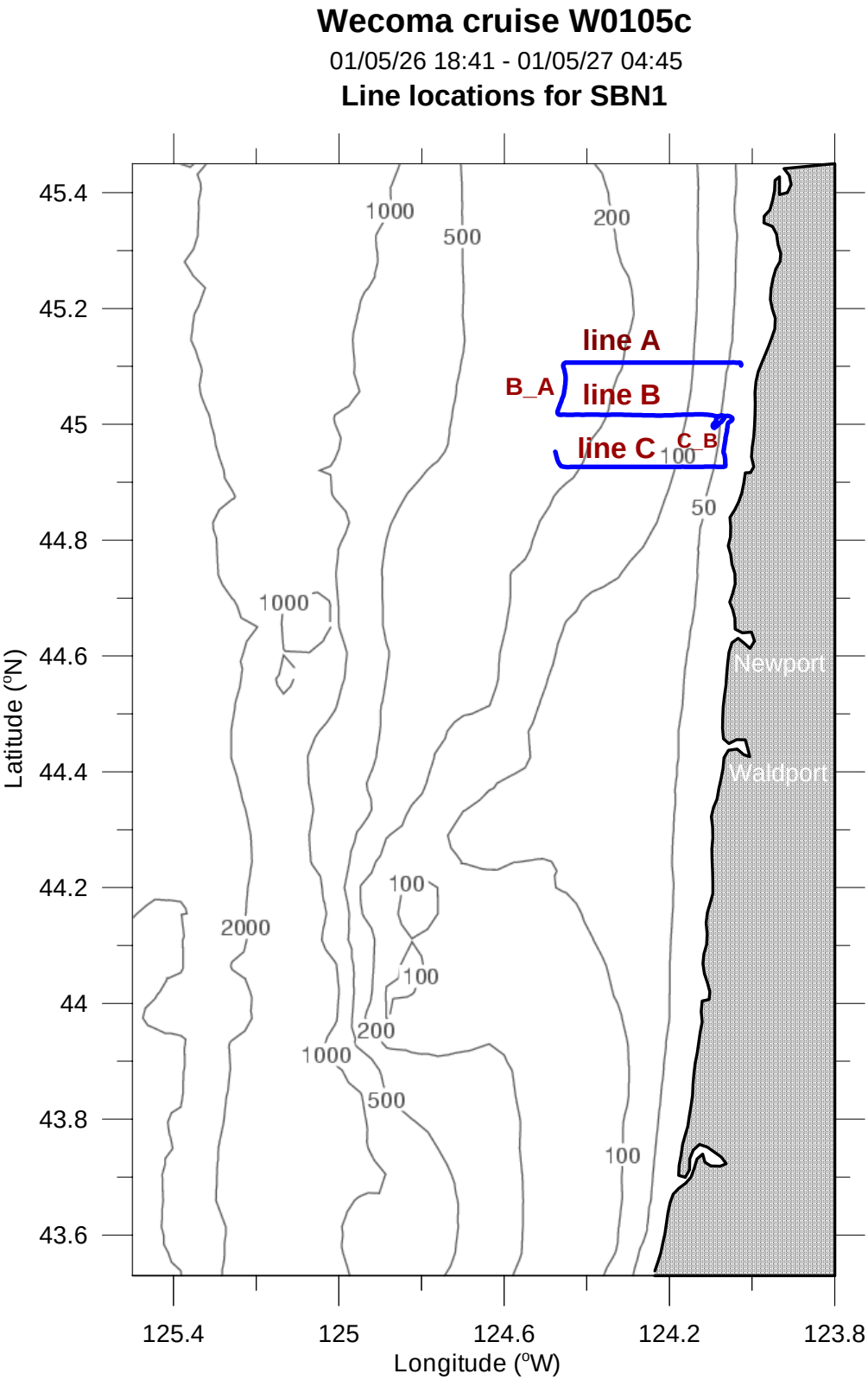

Figure 4b: Cruise tracks during the W0105c SeaSoar surveys. See table 12 for individual line start and stop times.

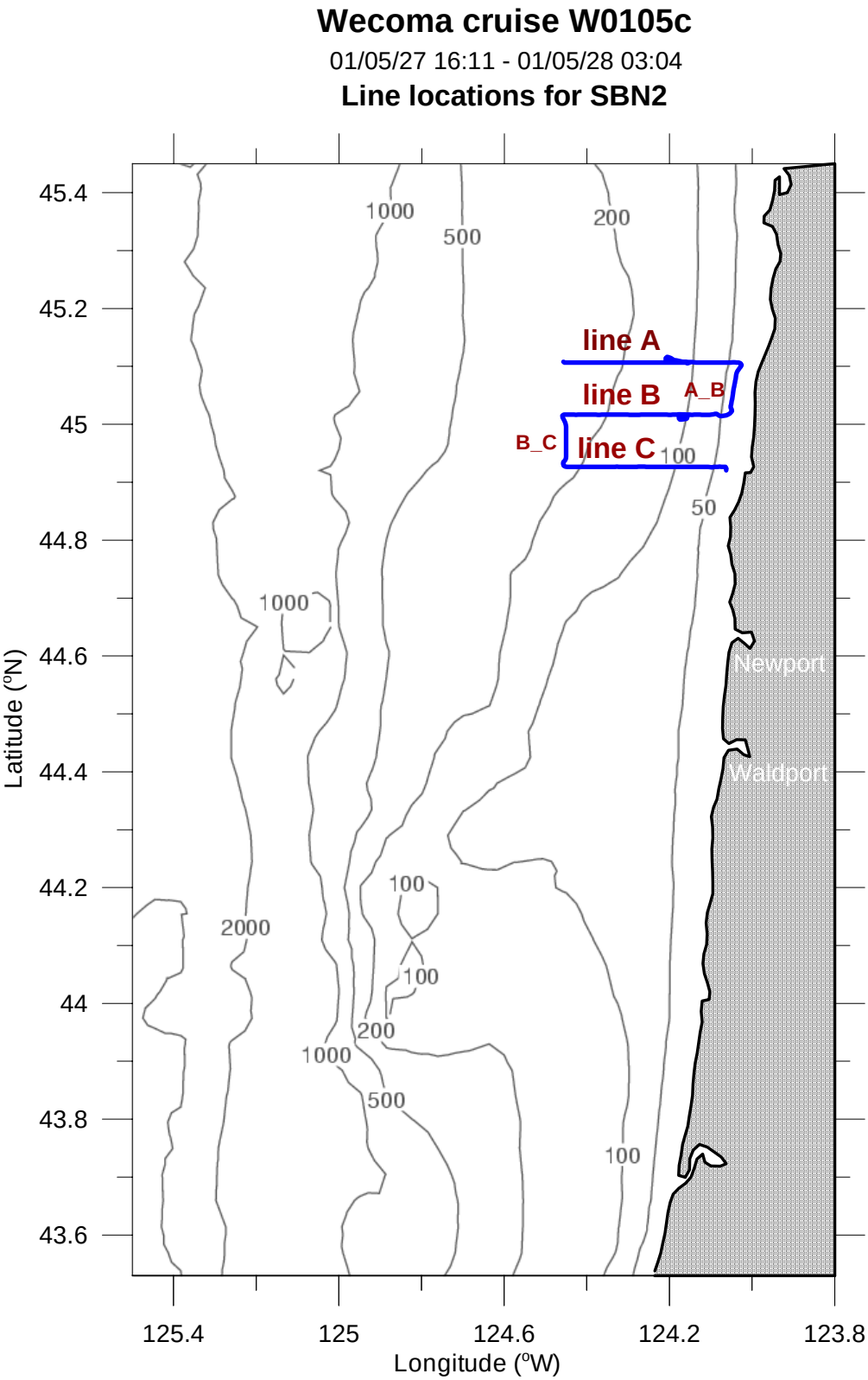

Figure 4c: Cruise tracks during the W0105c SeaSoar surveys. See table 12 for individual line start and stop times.

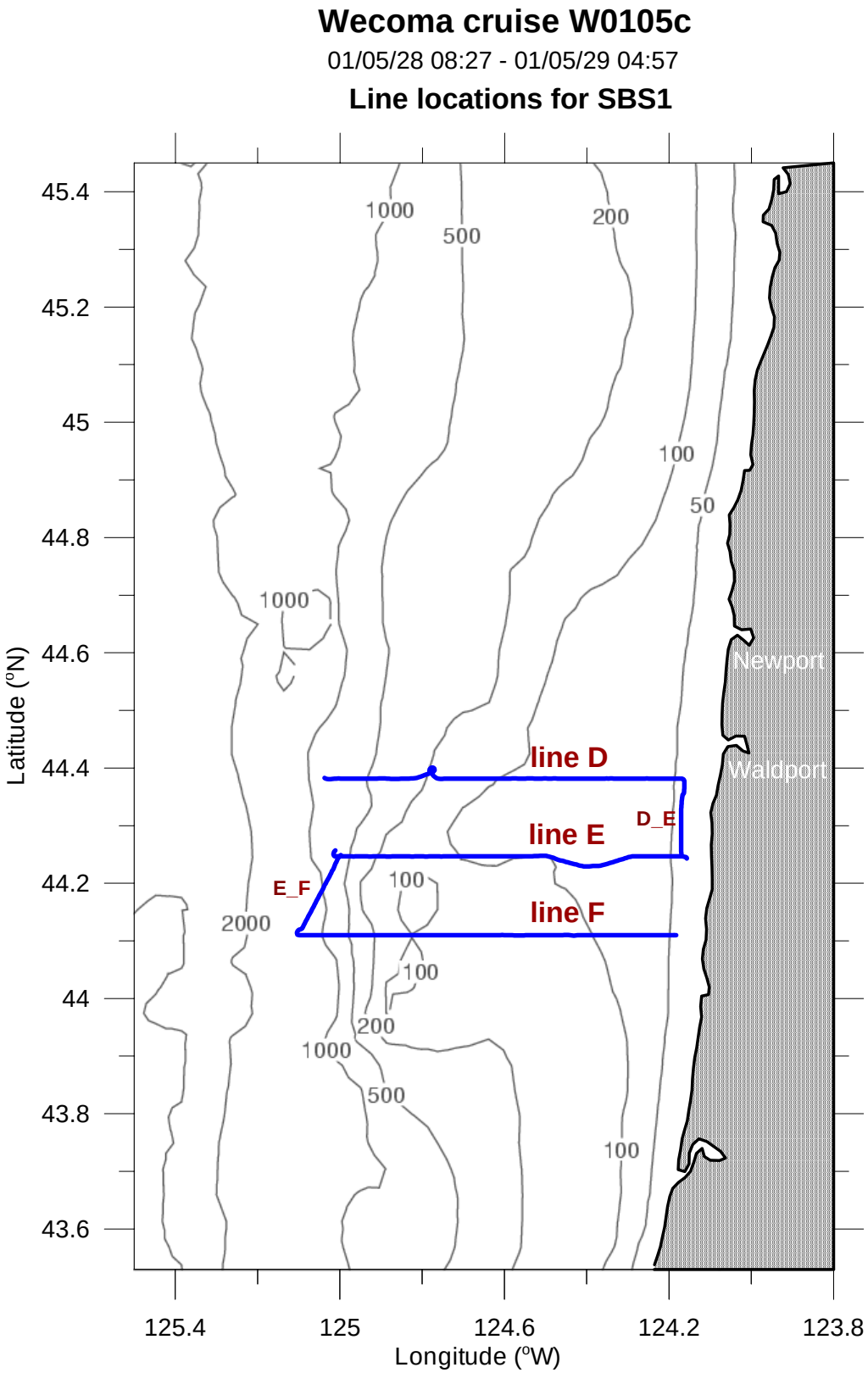

Figure 4d: Cruise tracks during the W0105c SeaSoar surveys. See table 12 for individual line start and stop times.

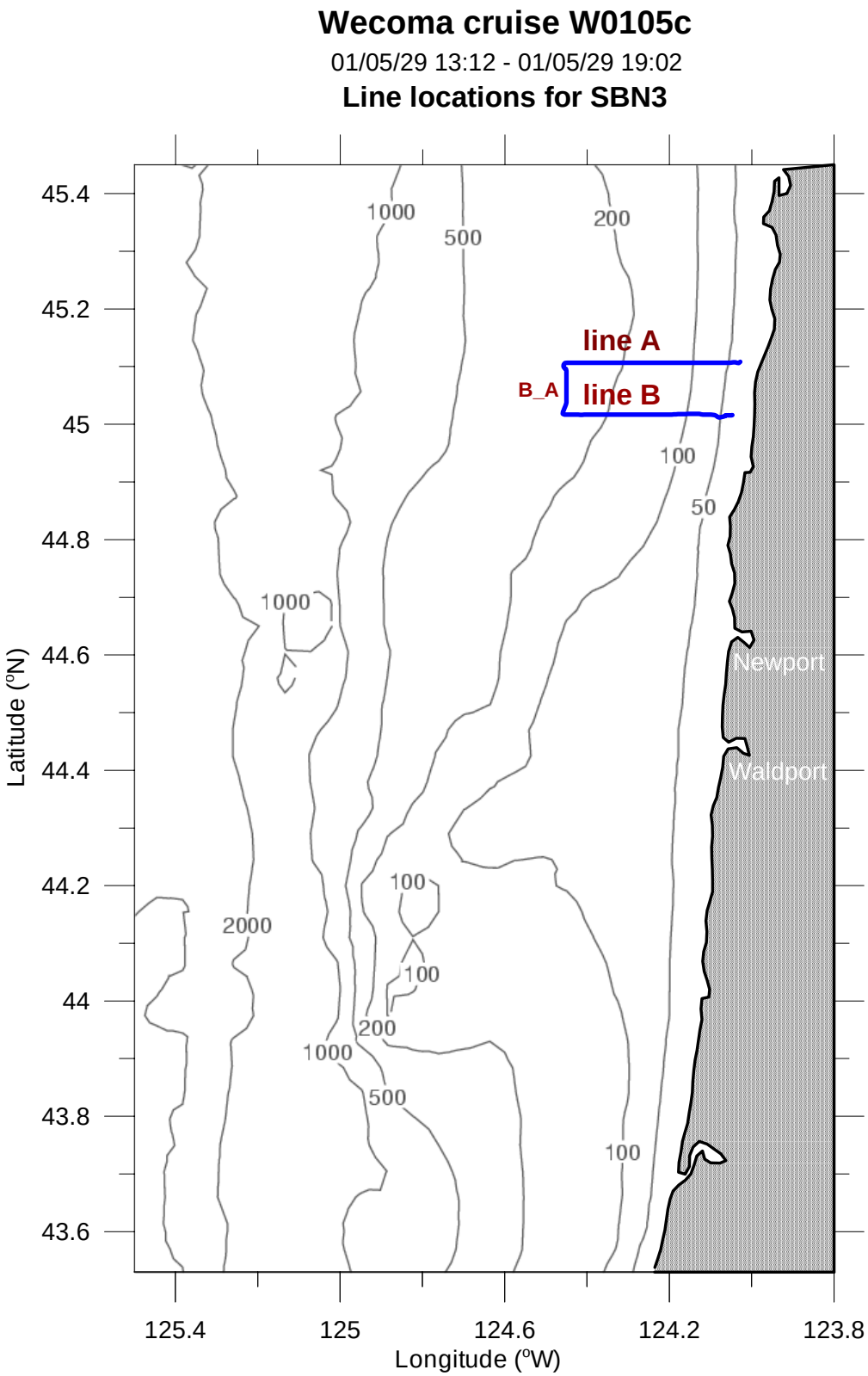

Figure 4e: Cruise tracks during the W0105c SeaSoar surveys. See table 12 for individual line start and stop times.

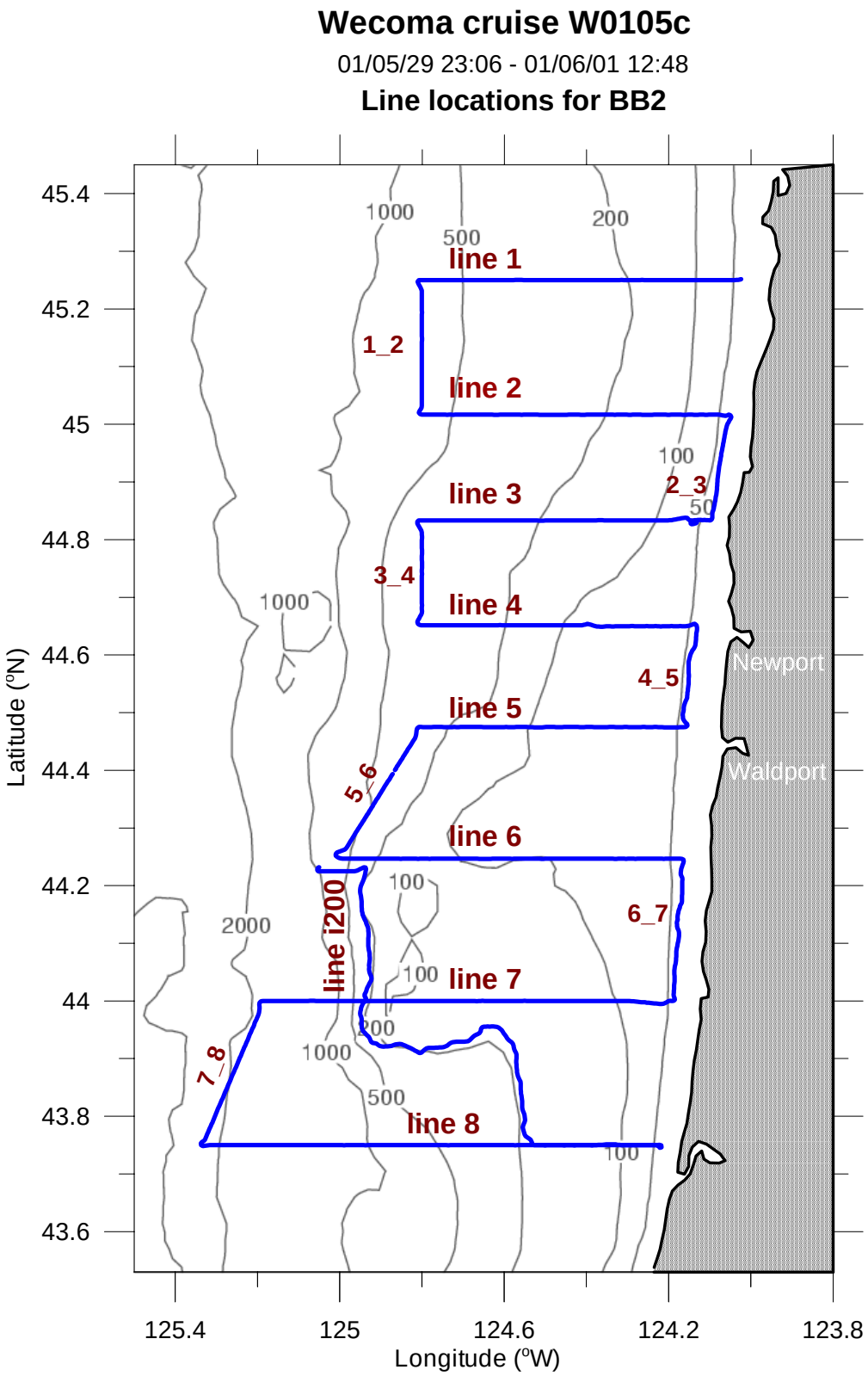

Figure 4f: Cruise tracks during the W0105a SeaSoar surveys. See table 12 for individual line start and stop times.

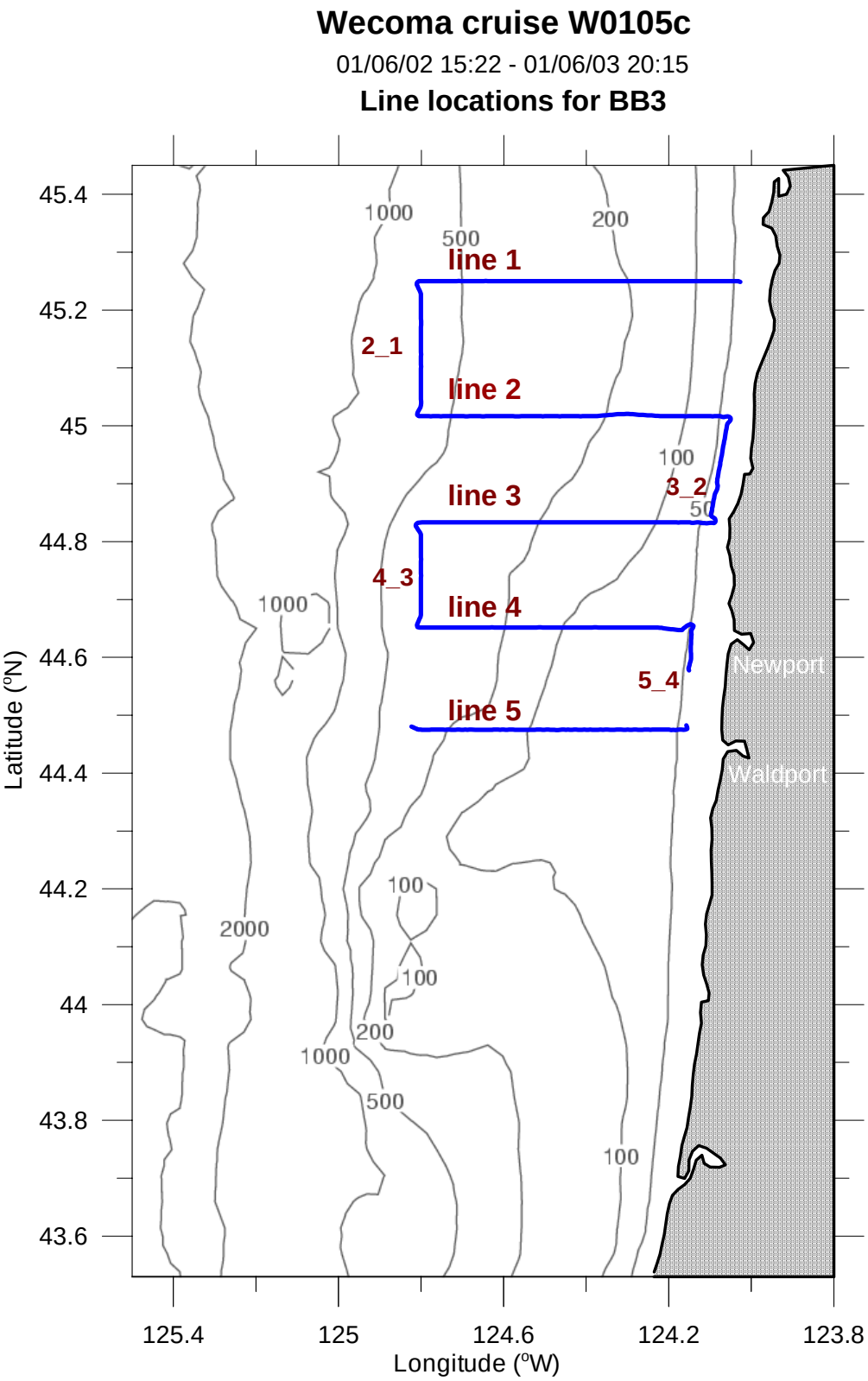

Figure 4g: Cruise tracks during the W0105a SeaSoar surveys. See table 12 for individual line start and stop times.

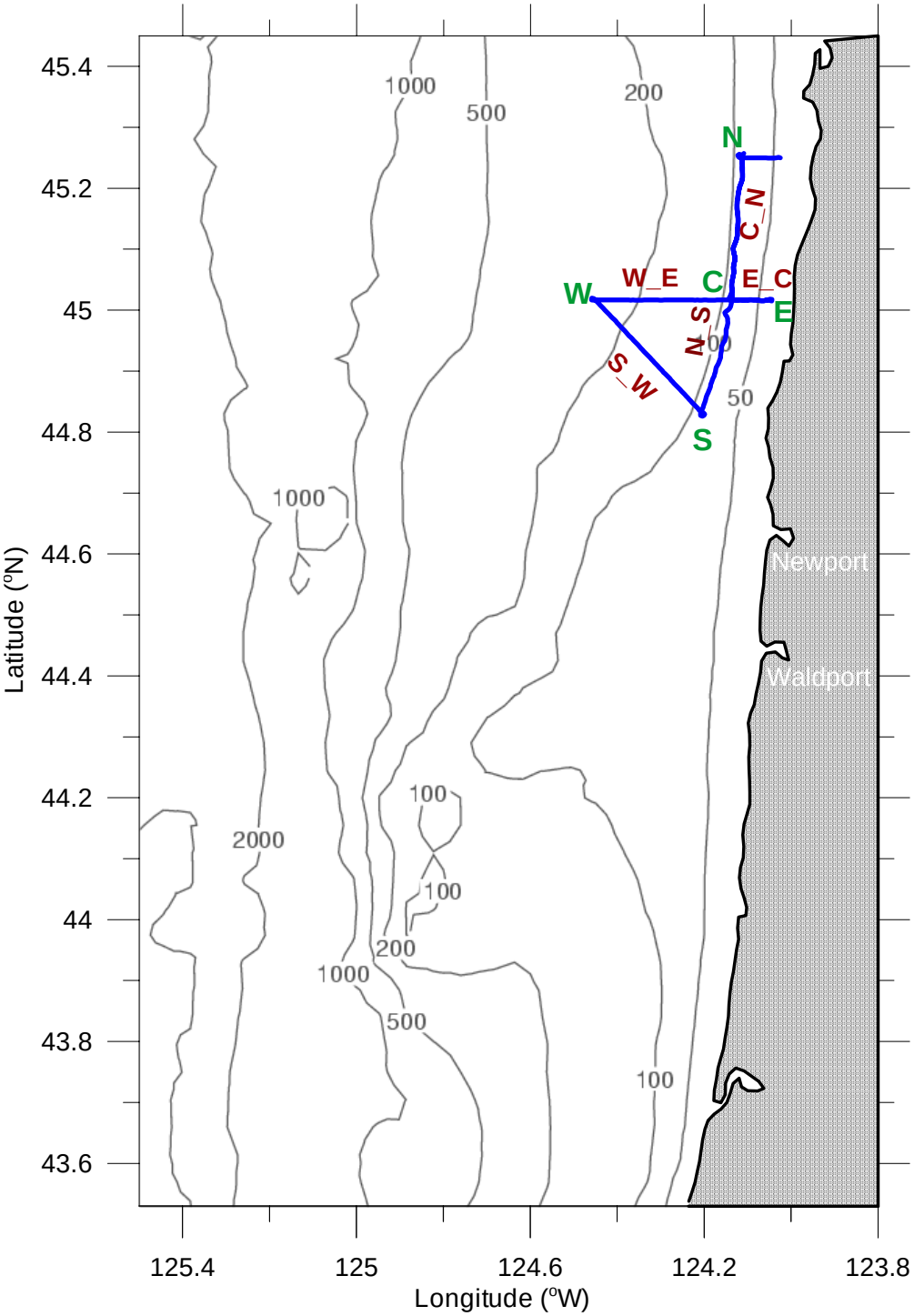

Figure 4h: Cruise tracks during the W0105c SeaSoar surveys. See table 12 for individual line start and stop times.

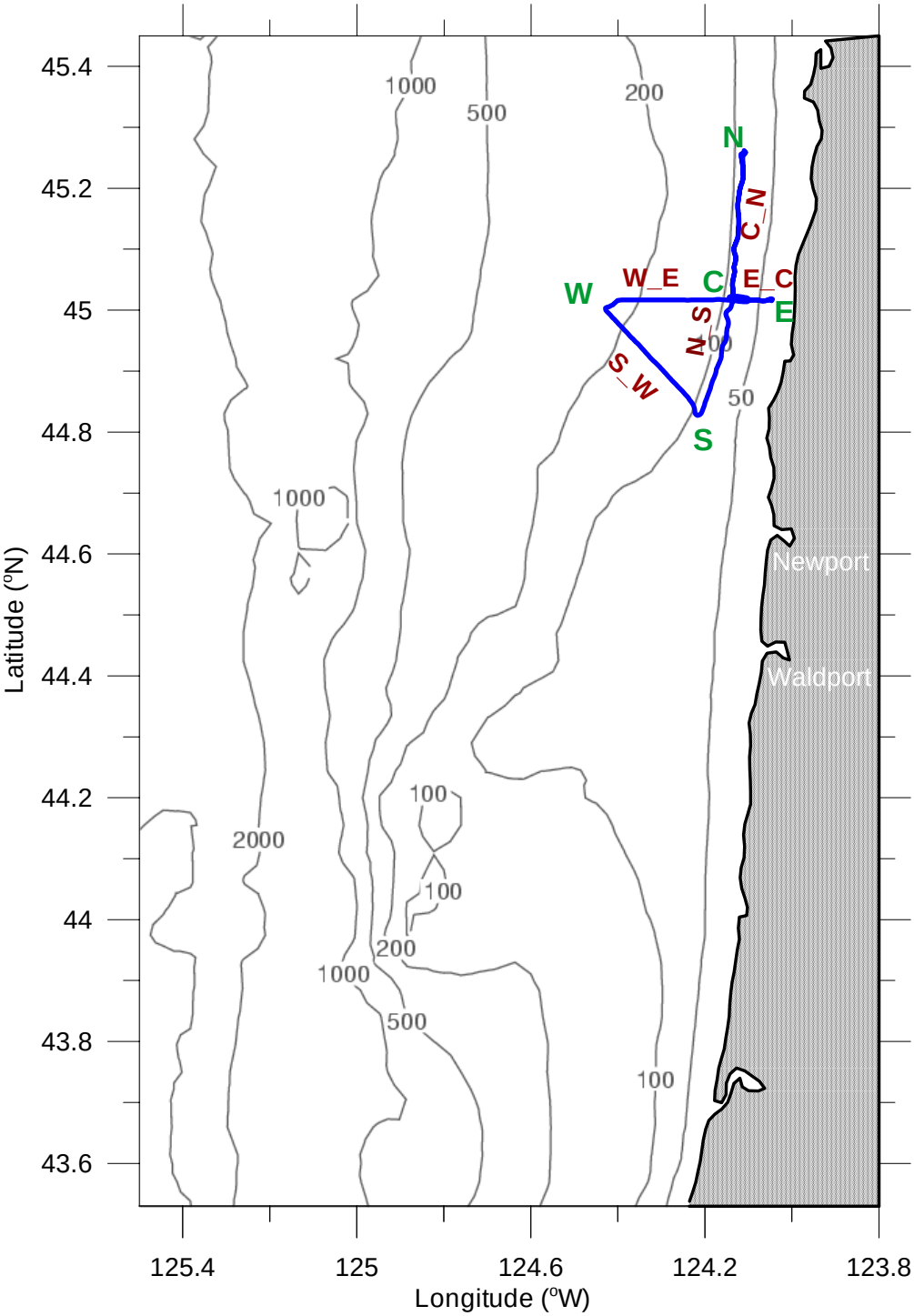

Figure 4i: Cruise tracks during the W0105c SeaSoar surveys. See table 12 for individual line start and stop times.

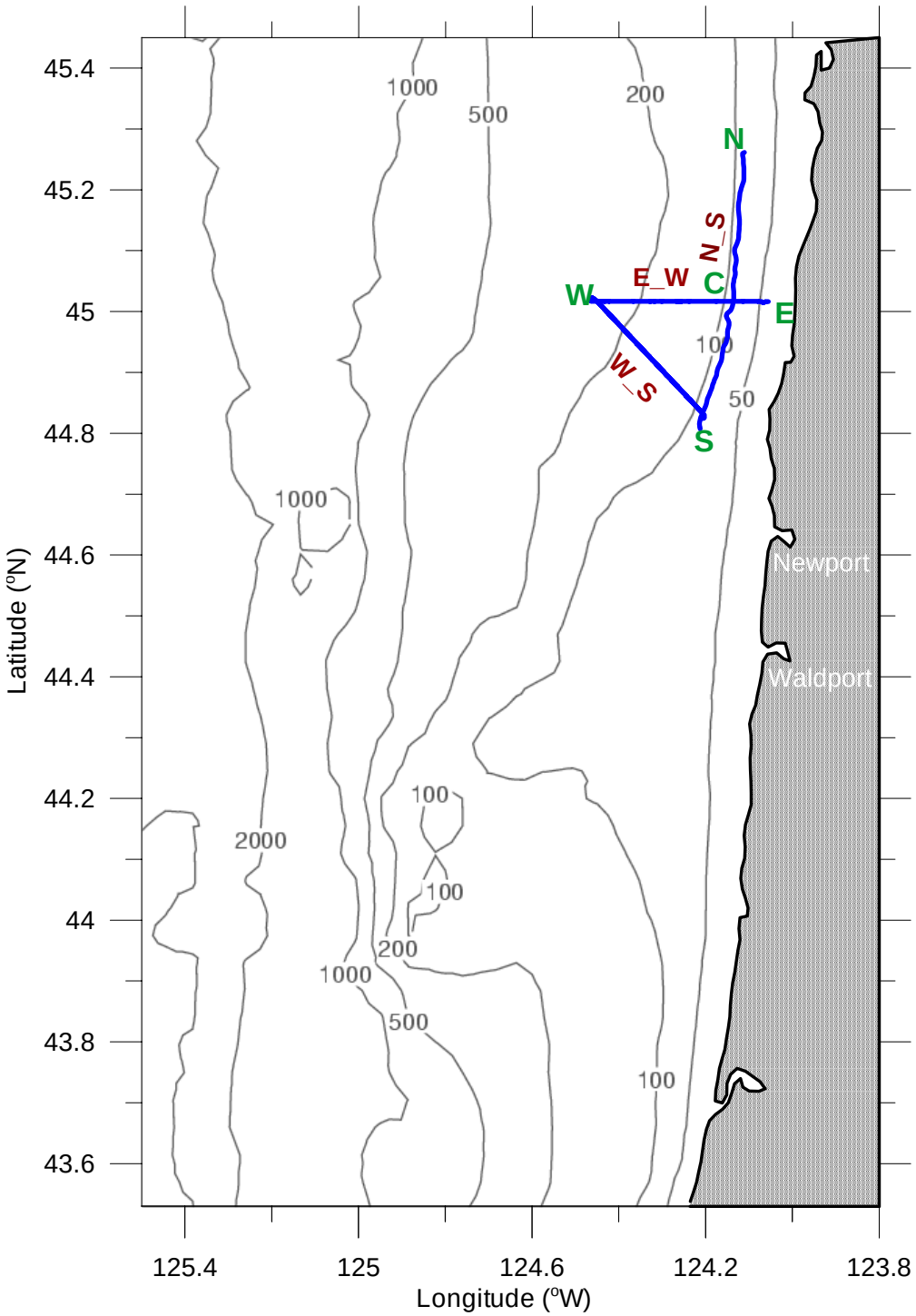

Figure 4j: Cruise tracks during the W0105c SeaSoar surveys. See table 12 for individual line start and stop times.

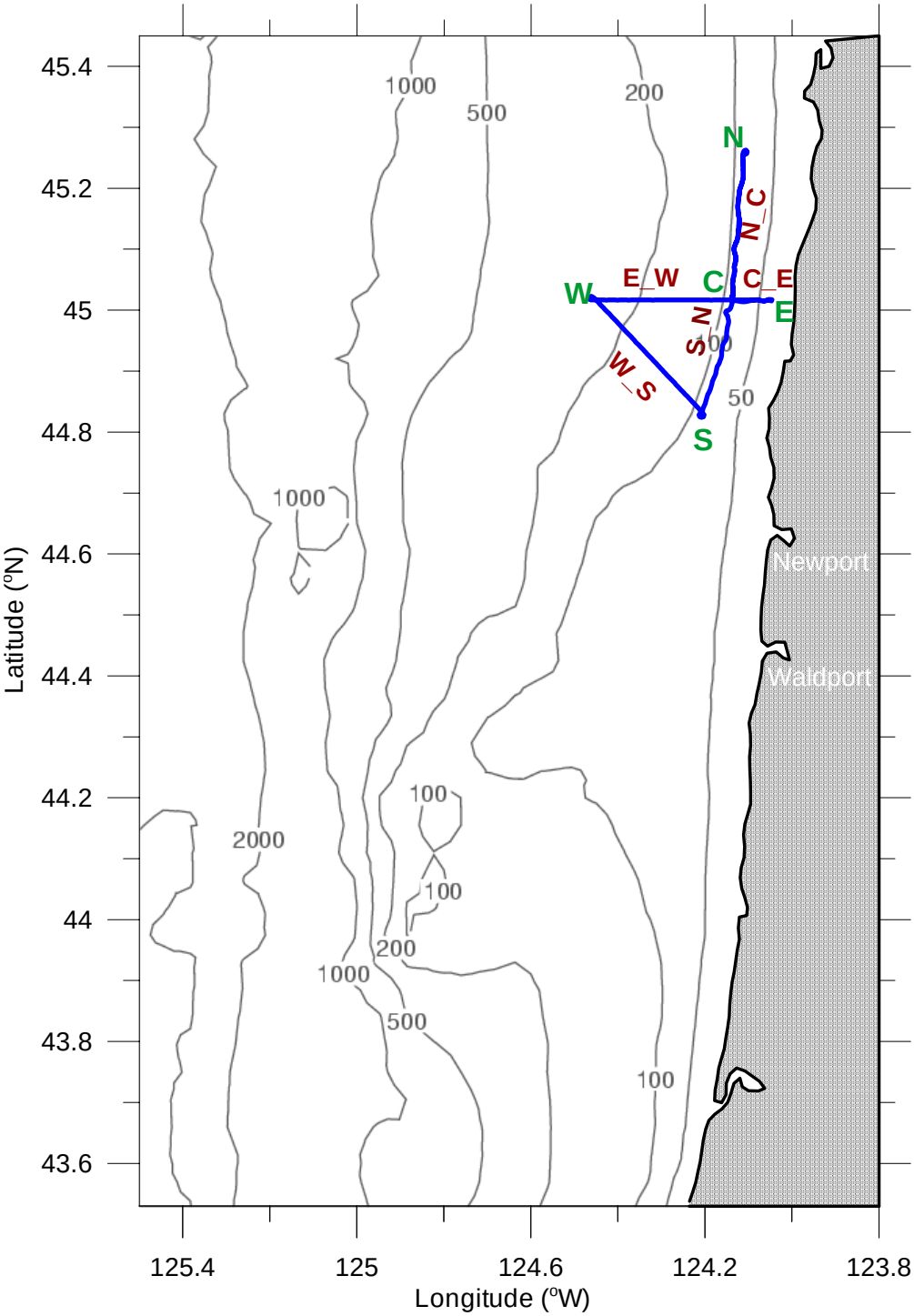

Figure 4k: Cruise tracks during the W0105c SeaSoar surveys. See table 12 for individual line start and stop times.

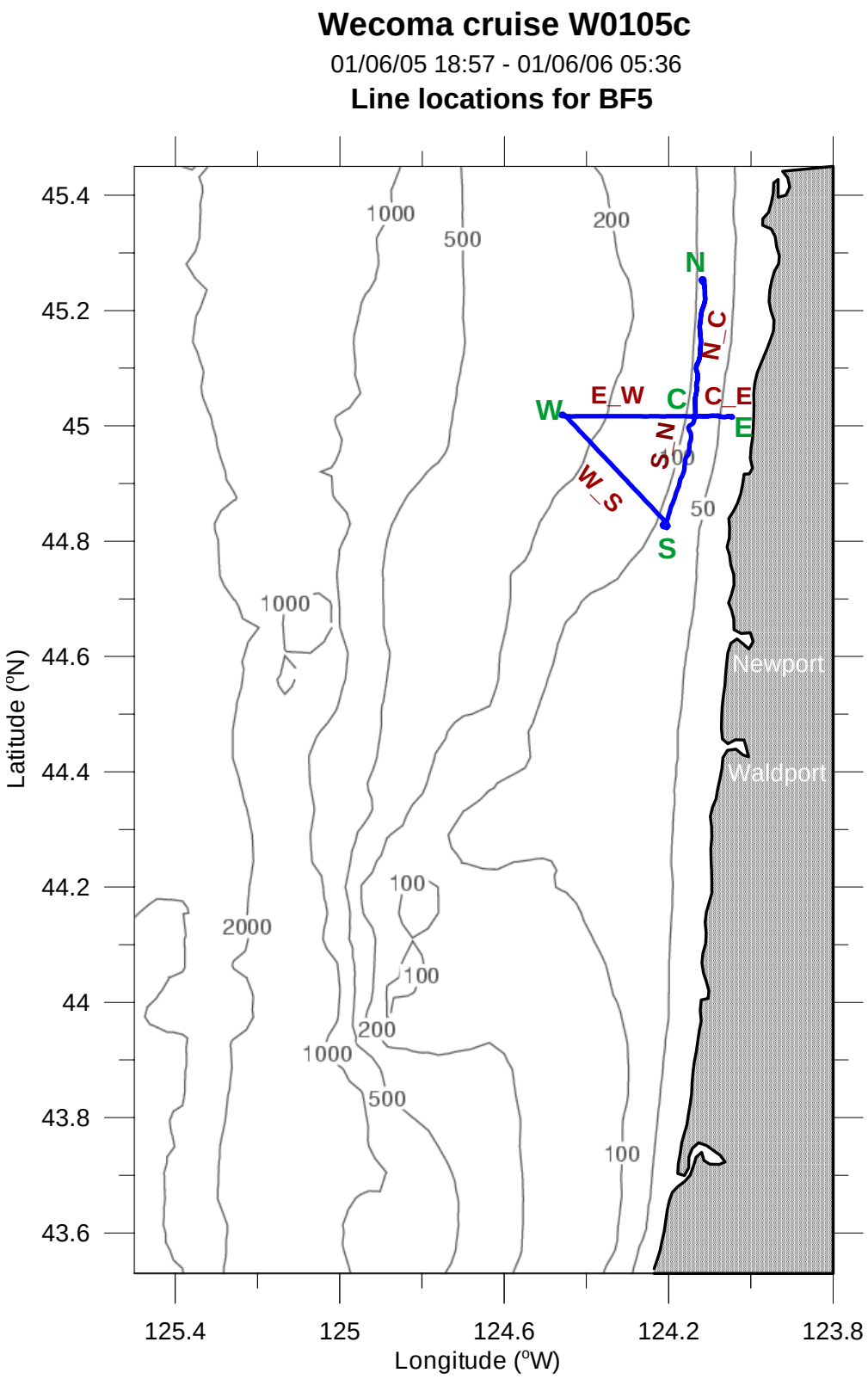

Figure 4l: Cruise tracks during the W0105c SeaSoar surveys. See table 12 for individual line start and stop times.

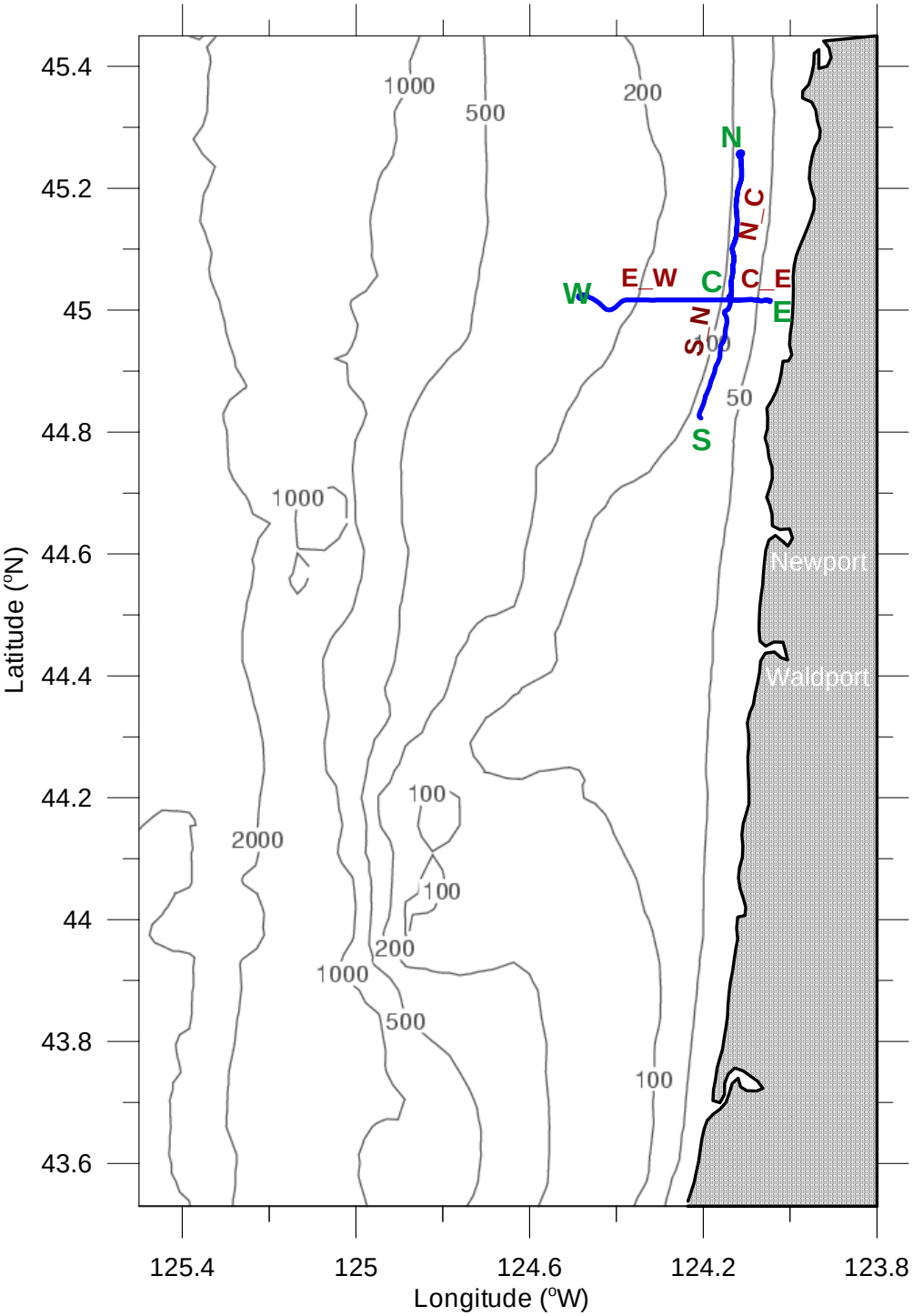

Figure 4m: Cruise tracks during the W0105c SeaSoar surveys. See table 12 for individual line start and stop times.

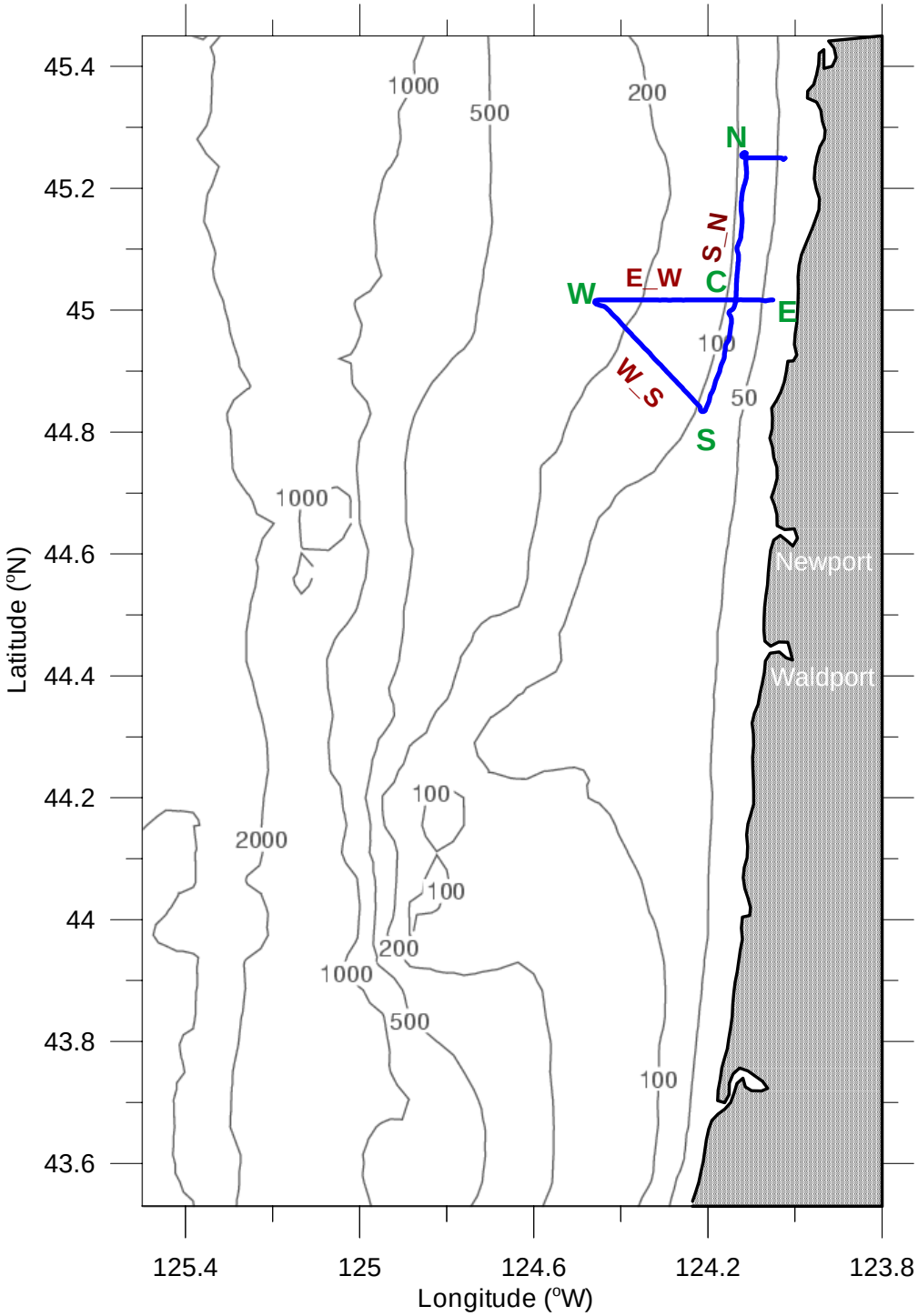

Figure 4n: Cruise tracks during the W0105c SeaSoar surveys. See table 12 for individual line start and stop times.

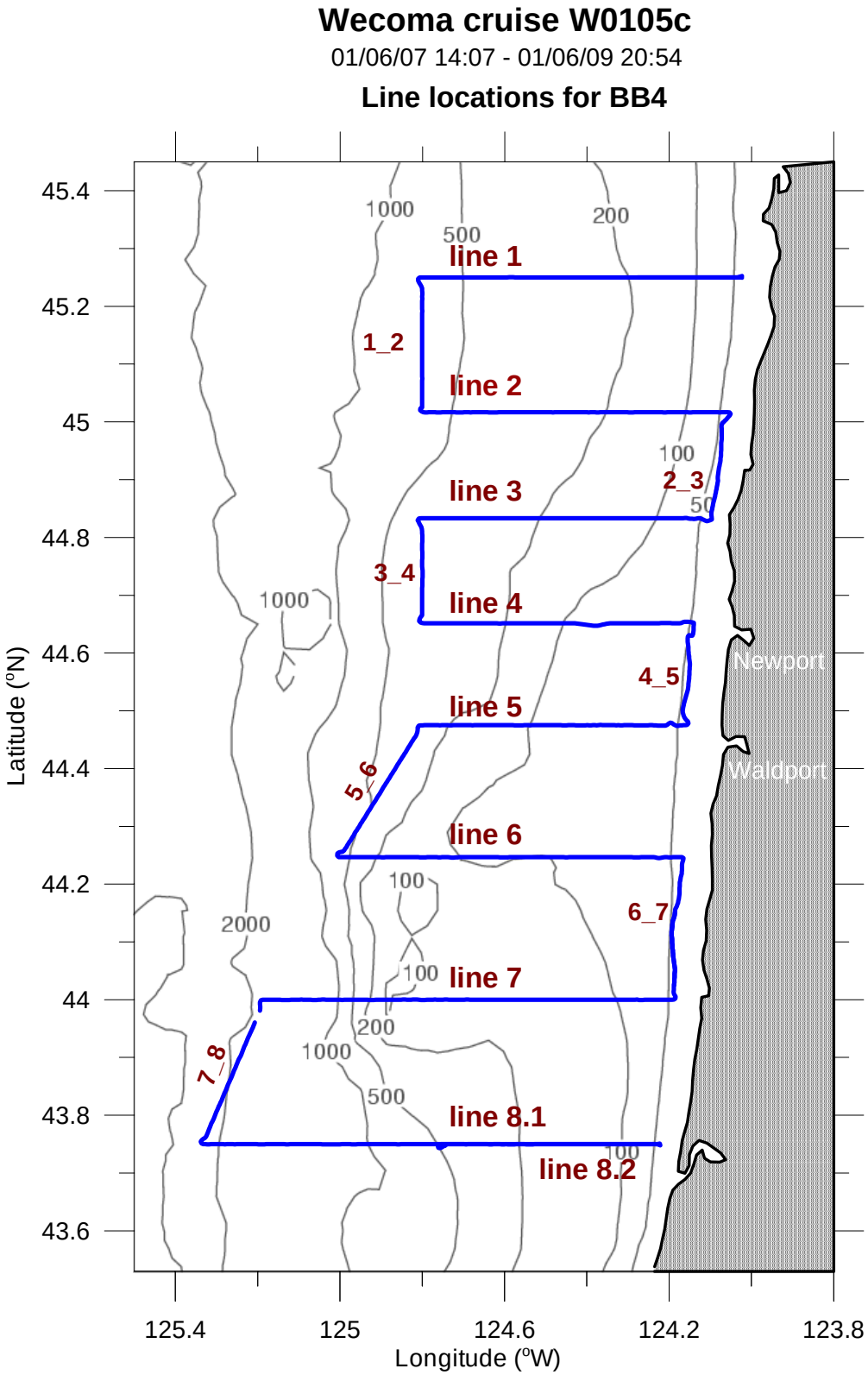

Figure 4o: Cruise tracks during the W0105a SeaSoar surveys. See table 12 for individual line start and stop times.

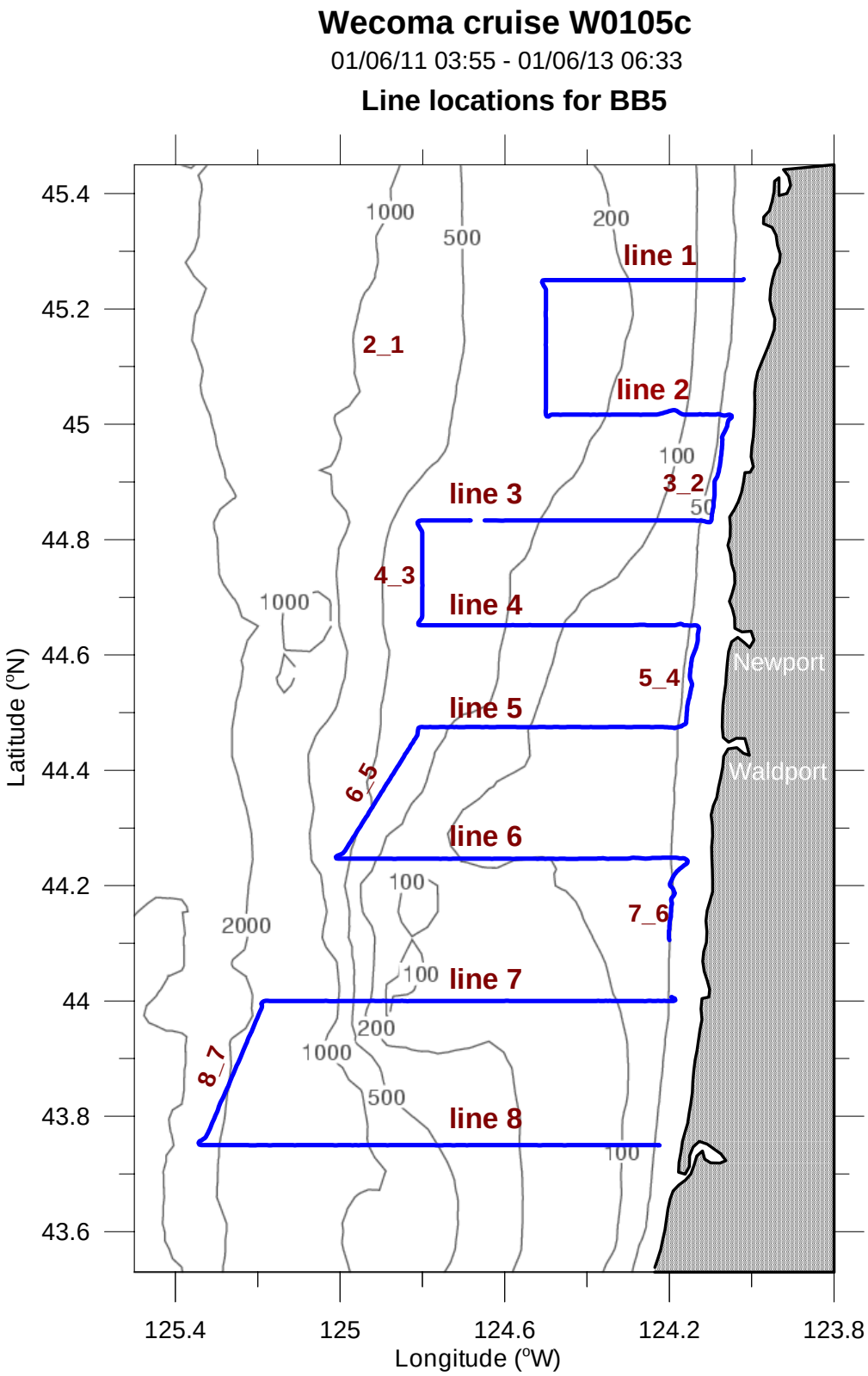

Figure 4p: Cruise tracks during the W0105a SeaSoar surveys. See table 12 for individual line start and stop times.

Table 7. June 13 Station Work on the NH Line

station	time	Task
NH-5	1301	CTD
	1310	vertical net tow

The HTI was recovered (1320) and we headed in to Newport. We were dockside at 1455, June 13. Estimates made at the end of cruise of the data collected include 12,078 SeaSoar profiles in 324 hours of towing, 40 CTD stations, 10 MOCNESS tows, 16 vertical net tows, 14 TAPS profiles, and 11.9 Gigabytes of MicroSoar data, along with the deployment of two guard buoys.

CTD Data Acquisition, Calibration and Data Processing

All 40 CTD/rosette casts were (Table 3) made with a SBE 9/11-plus CTD system equipped with dual ducted temperature and conductivity sensors (Table 8). A SeaTech fluorometer and SeaTech transmissometer were mounted adjacent to the CTD. A Sea-Bird Beckman-type dissolved oxygen sensor was mounted on the rosette adjacent to the CTD sensor. The calibration dates for the sensors are shown in Table 8 .

Table 8: Instruments and sensors used during W0105C for CTD/Rosette sampling, and date of most recent manufacturer's pre-cruise calibration.

System (Instrument)	Sensor	SN	Pre-Cruise Calibration
W0105C CTD/Rosette SBE 9/11 plus SN 256	P	50130	18 December 1997
	T0	1369	08 February 2001
	T1	1371	08 February 2001
	C0	1054	09 February 2001
	C1	1538	09 February 2001
	SeaTech Fluorometer	101S	01 November 1994
	Transmissometer	1024D	11 February 1998
	Oxygen	130504	20 February 2001

Air calibrations of the transmissometer were performed both in March and July of 2002 during GLOBEC LTOP cruises (J. Fleischbein, personal communication), with similar results. We used the average correction of light transmission voltage for this cruise:

$$V_C = (4.681/4.802) * 0.9987 (V_X – 0.000)$$

where

V_C = calibrated output voltage

V_X = raw output voltage.

The pressure sensor, a Digiquartz pressure transducer, and the Sea-Bird temperature and conductivity sensors were calibrated by Sea-Bird (Table 8). The deck unit provided a correction for the time lag between T0 and C0, and no correction for the lag between T1 and C1. At most CTD stations duplicate samples were collected from Niskin bottles fired at two or more depths for *in situ* calibration of the conductivity sensors. The pressure, temperature and conductivity data for each bottle firing depth were extracted from the recorded up cast data using the Sea-Bird Seasoft DATCNV and ROSSUM utilities.

One set of the duplicate salinity samples were later analyzed on a Guildline Autosal. IAPSO Standard Water was used to standardize and check the salinometer at the beginning and end of each batch of 24 samples. The Guildline Autosal determines water sample salinity with a precision of better than ±0.002 and an accuracy of better than ±0.003. Sample conductivity was calculated using the sample salinity value with the CTD temperature and pressure values; a value of 4.2914 S m-1 for the conductivity of standard sea water at 15°C (Culkin and Smith, 1980) was used to convert the measured sample conductivity ratios to conductivity. Occasionally the CTD-sample differences were large (> 3 standard deviations from the mean); these values were iteratively removed from the final calibration data sets. Such large values can occur from sampling in regions of sharp vertical gradients, or from sample contamination, etc. The results of the CTD - bottle comparison are shown in Table 9. Analysis showed corrections were needed for the primary sensor, but not the secondary sensor. Because of this, the secondary sensor pair was the preferred sensor pair for final processing of all casts. The secondary conductivity could have been corrected using the formula:

Corrected Conductivity = *correction* (slope) * *computed conductivity* + 0.0 (offset),

where

correction = 1.00002015.

However, the correction was so small it was within the reported precision of the data, and was not applied.

Table 9. Results of *in situ* conductivity calibration for both sensor pairs. Columns show the station numbers, number of samples (N), correction applied to CTD conductivity, and the average and standard deviation of the bottle - CTD conductivity differences.

		Correction		***Average***		***Standard Deviation***	
Sta	**N**	**C0**	**C1**	**C0**	**C1**	**C0**	**C1**
35	47	1.00009215	1.00002015	0.003	0.001	0.006	0.006

CTD data were processed using the Sea-Bird SEASOFT software, and included all of the normal steps, i.e., using SEASOFT modules DATCNV, ALIGNCTD, WILDEDIT, CELLTM, FILTER, LOOPEDIT, DERIVE (to calculate dissolved oxygen concentration), and BINAVG to obtain 1-dbar average values of pressure, primary and secondary temperature, primary and secondary conductivity, the voltages for the SeaTech fluorometer and transmisometer, the oxygen current and oxygen temperature, the PAR voltage, and the oxygen saturation. The ALIGNCTD module was run with the T-C offset for the primary sensor pair as 0.000 sec, and the T-C offset for the secondary sensor pair as 0.073 seconds; oxygen was advanced 3.0 seconds relative to pressure. Derived parameters, including salinity, potential temperature (theta), density anomaly (sigma-theta) and specific volume anomaly were computed from the processed and calibrated 1-dbar values of temperature and conductivity using standard algorithms (Fofonoff and Millard, 1983).

SeaSoar Data Acquisition and At-Sea Processing

The Chelsea Instruments SeaSoar vehicle was equipped with a SBE 9/11-plus CTD with dual temperature and conductivity sensors (Table 10). The inlets and outlets of both dual T/C ducts were plumbed pointing forward through a hole in the nose of the SeaSoar (Barth et al., 1996). Data from the WetLABS ac-9 was sent through the high-speed modem channel on the CTD, and was subsequently extracted as a serial stream from the CTD deckunit.

Raw 24-Hz CTD data from the SeaSoar vehicle were logged and distributed by a PC-based acquisition system. The acquisition software allowed for user placement of flags in the data stream to mark, for example, heading changes along sampling lines. The GPS data was logged by the CTD acquisition system as an incoming serial stream, and merged with the incoming CTD data.

Table 10: Instruments and sensors used during W0105 for SeaSoar sampling, and date of most recent manufacturer's pre-cruise calibration.

System (Instrument)	Sensor	SN	Pre-Cruise Calibration
W0105C SeaSoar CTD SBE 9/11 plus SN 428	P	64256	28 March 2001
	T1	2128	29 March 2001
	T2	2127	29 March 2001
	C1	1738	30 March 2001
	C2	1737	30 March 2001
	ac-9	152	
	FPAK	010	
	FPAK	016	
	PAR		
	Seapoint fluorometer		
	WetStar fluorometer		

The acquisition system logged the raw 24-Hz CTD data and any additional serial streams onto an internal hard disk. The logged file was also echoed to a SUN SPARCstation by serial stream, and the receiving program made a redundant copy of the original file to disk. The

SPARCstation was used to process the data in real-time, producing one-second averages of the CTD data and all possible A/D channels. Position information was supplied by the merged GPS data. For real-time examination of the data, fixed offsets between the T and C time series were applied, along with a fixed amplitude and time constant for the thermal mass corrections for each sensor pair.

Time-series and vertical profile plots of the one-second data were made at the end of each hour for science analysis and to monitor data quality. The lags between the T and C time series for each up- and down-trace of the SeaSoar were also calculated and plotted hourly as part of the quality control. The 1-Hz real-time data were used to calculate four-minute average temperature and salinity values in two-db vertical bins. These gridded values were used for at-sea analysis of the changing three-dimensional structure observed in the mapping box areas.

Post-processing of SeaSoar Data

Salinity data derived from SeaBird ducted temperature and conductivity sensors are subject to errors from three separate sources (Larson, 1992): (1) poor alignment of the 24-Hz temperature and conductivity data, (2) poor compensation for the transfer of heat between the mantle of the conductivity cell and the water flowing through it, and (3) mismatch of the effective time constants of the temperature and conductivity measurements. High-speed pumps, ducted-flow geometry, and sensor design to match response times are hardware measures which help to reduce these errors. Software is then used to align the temperature and conductivity data by some offset (typically 1.75 scans); a two-point recursive formula is applied to correct for the thermal mass of the conductivity cell (Lueck, 1991); and, in the case where one wishes to examine fine-scale features with high-frequency data, digital filtering can be applied to assure response function matching between the temperature and conductivity sensors (N. Larson, 1992, personal communication). For the results reported here, only the thermal mass correction and the offset between T and C need to be addressed in post-processing.

The primary complication for processing CTD data from the SeaSoar is that the sensors may experience a variable flow rate (Huyer *et al*, 1993). Although this variability is diminished with the use of the forward pointing sensors, it is still present in the data (Barth *et al*, 1996). Variable flow rate has been attributed to dynamic pressure differences, partly between the inside and outside of the vehicle and partly along the exterior of the vehicle nose where duct inlet and outlet ports may be on different streamlines. Possible sources of such pressure gradients include high dive/climb rates (sometimes greater than 3m s^{-1}, superimposed on a horizontal tow speed of 4m s^{-1}) and perturbations of the flow field around the vehicle, associated perhaps with a persistent roll angle or strong cross-currents. Rather than having a constant offset between the T and C signals, we must correct for a variable lag. The variable flow rate also impacts the thermal mass correction, where the amplitude and time constant of the correction are inversely proportional to flow rate (Lueck, 1991; Morrison *et al*, 1994). Note that, biology may further impact the calculated lags between T and C, independent of flow rate. The time response of the thermistor can be lengthened due to the presence of thin film on the temperature probe, resulting in a decrease in the observed lags between T and C (Kosro *et al*, 1995), which returns to normal if the film clears. However, in environments where growth is possible, the time response can gradually change over a period of days. Such fouling often precludes the use of data from those sensors.

Because of the repeated sampling of the water column by the SeaSoar, it is possible to examine the T-S plots of consecutive profiles to determine the effects of the thermal mass correction. This was done qualitatively in the early SeaSoar reports to determine the scaling of the amplitude of the thermal mass correction (α) to the observed lags, given a fixed time constant (τ) (Huyer *et al*, 1993; Kosro *et al*, 1995). It can be done quantitatively (Barth *et al* 1996; Barth *et al*., 2000b) and allows both α and τ to be variables, which is consistent with Morrison *et al* (1994). Using the hourly T-S diagrams we can find the optimal proportionality of α and τ to the lags (described below).

Before the data can be post-processed, three preliminary steps are required: (1) the sensors are processed using recent calibrations from the manufacturer (see Table 10), (2) the time-series of lags between 24-Hz temperature and conductivity data are computed and cleaned (see below), and (3) the optimal proportionality values between the observed lags and the thermal mass correction

variables are determined. Once these steps are completed, the SeaSoar data can be post-processed. The time-series of lags are used to dynamically offset the temperature and conductivity signals; and a thermal mass correction is applied to the data, where the thermal mass variables α and τ are scaled proportional to the observed lags. The final data are output as 1-Hz values, using a 24-point boxcar filter on the input (24 Hz) data.

Calculation of the time-series of lags between first-differenced temperature and conductivity has been described in previous reports (e.g. Huyer *et al*, 1993). We now use an iterative statistical method to initially clean the values. A single depth zone was applied to the SeaSoar data, extending from 1 meter down to 150 meters. Lags are calculated in this zone for each ascending and descending trajectory. The time series of ascending or descending lags is then examined with a (101-pt) moving window. Any lag value more than three standard deviations away from the window's mean is nulled and removed from the set. After we pass through all the lags once, removing the outliers, we then iterate through again. This continues until all remaining lags are within 3 sigma of the mean. Then the nulled values are replaced with the average from the neighboring +/- 50 points. These statistically cleaned lags are then plotted and examined; sometimes the statistical properties abruptly change during a tow, and averaging across those changes is inappropriate.

Ascending lags are applied until the SeaSoar reverses direction and dives, and descending lags are applied until the SeaSoar hits a maximum depth and starts to climb, etc. While at sea, the final lags are examined to initially determine the preferred sensor pair. It has been our experience that the sensor pair with the least noisy time-series of lags often yields the most reliable T-S diagrams. Final determination of the preferred sensor pair comes from examination of the hourly T-S diagrams. The area (in T-S space) for both sensor pairs is calculated for each hour of data; the preferred sensor will predominantly have the smallest area for all the hours of data. Temporary clogging may require the use of the alternate sensor pair. For this survey, the primary sensor was the preferred sensor for tow 1, 11, and tows 13 -15, the secondary sensor was used for tows 2-6, 8-10, and 12, and both sensors were used in tow 7. The final lags for the preferred sensor pair of each tow are shown in Appendix I of this report.

To apply a thermal mass correction we follow Lueck (1991), who presented a two-point recursive formula involving an amplitude (α) and a time constant (τ). We implement this with a recursive algorithm provided by SeaBird:

$$\Delta C_n = -bC_{n-1} + a(dC/dT)(T_n - T_{n-1}),$$

where

$$a = 2\,\alpha/\,(2 + \beta\,\Delta t)$$
$$b = 1 - 2a / \alpha$$
$$\beta = 1 / \tau$$
$$dC/dT = 0.1(1 + 0.006(T_n - 20)),$$

and ΔC_n is the conductivity correction at time n, C_{n-1} is the conductivity (in S m^{-1})at the preceding time, T_n and T_{n-1} are the temperatures (^oC) at times n and n-1, and Δt is the time between scans (1/24 sec). The amplitude of the correction is α and τ denotes the time constant.

Lueck suggested that α was inversely proportional to flow rate, and that τ was weakly proportional to the inverse of the flow rate. Morrison *et al* (1994) developed this further: α is inversely proportional as before, but now τ is inversely proportional to the square root of the flow rate. Since the observed T-C lag is also inversely proportional to flow rate, α is then directly proportional to the T-C lag, and τ is directly proportional to the square root of the lag.

Suppose we did not correct for the thermal mass of the conductivity cell. During a down trace the cell would be warmer than the water and would be leaking heat into the water within the conductivity cell; the measured conductivity would then be higher than the conductivity of the surrounding water. If no thermal mass correction is applied, then salinity is too high during descent, and too low during ascent. This has the appearance of a hysteresis loop when plotted on a T-S diagram. If a thermal mass correction is applied by systematically increasing the amplitude (α) and the time constant (τ), the hysteresis loop would diminish until the up-trace lies on top of the

down-trace, yielding the best estimates for α and τ. If the thermal mass correction is too strong (α and τ too large, for instance) the hysteresis loop would reappear on the other side, with the salinity now too low during descent.

If we calculate the area (in T-S space) between successive up- and down-traces, then the optimal thermal mass correction is the one which minimizes this area. We seek optimal settings for the slopes and offsets of α and τ, where

$$\alpha = \alpha_{\text{offset}} + (\alpha_{\text{slope}} * lag)$$

$$\tau = \tau_{\text{offset}} + (\tau_{\text{slope}} * \sqrt{lag})$$

If we consider the area in T-S space as our function and the slopes and offsets as variables, optimal settings are found by minimizing this function of four variables. There are well established routines for this. We chose to use one from the International Math and Science Library (IMSL), which uses a quasi-Newton method and a finite-difference gradient (routine UMINF).

Each tow was optimized for its thermal mass correction. Some tows can be very short, in which case the results from a nearby tow were applied to them. Test hours were chosen for each tow and optimizations run on both sensor pairs. This test data set was then processed with an initial slope and offset for α and τ, and the area in T-S space between every successive up- and down-traces was computed for each test hour, and then summed as a whole. The IMSL routine was used to modify the values for the slopes and offsets until a minimum of the summed area was found. The slope and offset for both α and τ, which minimized the area for the test data were then applied as the settings for the appropriate tows. The results are summarized in Table 11.

Using the variable lags (shown in Appendix I) and the optimal thermal mass slopes and offsets (Table 11), realigned and corrected 24-Hz temperature and conductivity data were obtained and used to calculate 24-Hz salinity, and these were averaged to yield 1-Hz values stored in hourly files. A repeated statistical cleaning was then applied, which checked the difference of the primary

and secondary sensor salinity estimates against the average and standard deviation for the entire tow. This was done until the automated cleaning began to impact more than the obvious clogs and surface breaches. Hand cleaning the T-S diagrams, whereby obvious outliers in T-S space were removed, then followed.

One other step of post-processing was done to the SeaSoar data, after the 1-Hz data were output and before cleaning began. There were two FlashPAK fluorometers from WETlabs installed on the SeaSoar whose data came in through the A/D channels of the SBE 9/11+ (see Table 10). These FlashPAKS were plumbed in series with the ac-9 unit on top of the SeaSoar, which results in a delay that offsets the FPAK data by a number of seconds from the rest of the SeaSoar data. We need to adjust for the lag between the FPAK voltages and the pressure sensor.

Table 11: Optimized thermal mass corrections.

Survey	tow	preferred sensor	α slope	α offset	τ slope	τ offset
W0105	1	T1, C1	3.45307E-04	1.07888E-02	1.36921	7.18442
	2	T2, C2	4.76845E-03	1.02688E-02	1.34148	7.15065
	3	T2, C2	0.00	1.66526E-02	1.33837	7.15077
	4	T2, C2	0.00	1.79153E-02	1.33989	7.15211
	5	T2, C2	3.19758E-03	1.23568E-02	1.33845	7.14946
	6	T2, C2	-2.32831E-10	1.76371E-02	1.34207	7.14345
	7	T2, C2	2.99898E-03	1.94505E-03	1.33392	7.13444
		T1, C1	3.45307E-04	1.69386E-02	1.34044	7.15008
	8 & 9	T2, C2	0.00	1. 77015E-02	1.33821	7.14694
	10	T2, C2	0.00	1. 66172E-02	1.33965	7.15161
	11	T1, C1	1.88306E-03	1. 50265E-02	1.34291	7.15329
	12	T2, C2	2.17973E-03	1. 34770E-02	1.34017	7.15104
	13	T1, C1	3.45307E-04	1. 38548E-02	1.34045	7.15000
	14	T1, C1	4.52078E-03	1. 11302E-02	1.34030	7.14989
	15	T1, C1	1.46264E-02	3.45307E-04	1.33924	7.14932

In order to determine the lag to apply to each FPAK, we start by calculating the area between three successive traces (up-down-up or down-up-down). Calculating the area using successively different delays (up to 20 seconds), the offset, which gives the smallest area, is found. Fitting a parabola to the minimized area and the area values on each side of it estimates the fractional offset lag for the middle trace. After doing this for the first set of three traces, shift over one trace and repeat, building a time series of lags for the entire tow.

The FPAK lags for each tow are then cleaned. The first step is to remove any lags that have offsets of either the min or the max lag possible (0 or 20 seconds). The second step is to do an iterative three sigma test on lag values similar to that used in cleaning the T-C lags; any value outside of three sigma is nulled, and when the remaining data are all within three sigma of the +/- 50 points near them, the nulled values are replaced with the average value computed from lags on either side. The third step is to smooth the time series with a centered, five point boxcar. Prior to fitting, the time series for each FPAK were examined to determine the median of the ratio between the two. The ratio is then used in the fourth step of cleaning, which is to make sure the lags between the two FPAKS are ordered correctly (given their plumbing). Any pair that is not in the correct order is adjusted so they give the average ratio in time between them (you must choose one time series as "dependable" and the lag for the other one gets adjusted).

The reason for the filtering in step three is that the time series to minimize the area is quite noisy, likely due to changes in structure in the water column and/or lack of signal. We do not believe that the pump rates would have such fluctuations present in the data.

The FlashPAK voltages were then calibrated to chlorophyll samples that were collected from the R/V Wecoma's 5-meter flow-through system during towing. For each SeaSoar trace, an average FlashPAK voltage was determined each time the SeaSoar was in the upper 5 meters of the water column. The chlorophyll samples were then calibrated with the average of the shallow values that were within +/- 5 minutes of taking the sample. This resulted in the following calibration equation for FlashPAK016:

$$\text{Chl } (\mu L^{-1}) = \text{FPK(volts)} * 7.9615 - 1.7665$$

$n = 233$

$r^2 = 0.0814$

where

n = number of samples

r^2 = correlation coefficient.

FPK016 was selected to generate the chlorophyll sections and maps presented in this report, in part due to its use in the August survey, when FPK010 failed (O'Malley et al., 2002).

Data Presentation

The final 1-Hz data files contain unfiltered GPS latitude and longitude; pressure; temperature, salinity and sigma-t from the preferred sensor pair; date and time (in both decimal day-of-year and integer year, month, day, hour, minute, second); an integer representing various flags (thousands digit of 1 indicates collection of a water sample from the 5-m intake, hundreds digit of 1 indicates the beginning of a new ascending or descending profile, tens digit of 1 indicates missing GPS data filled by linear interpolation, and ones digit indicates preferred sensors from the port side (0) or the starboard side (1) of the forward-pointing intakes).

In the body of this report, we summarize the results of the conventional CTD casts and the thermohaline and chlorophyll data from the SeaSoar tows. For the CTD stations, we provide plots of the vertical profiles of temperature, salinity, and σ_t, plots of fluorescence, oxygen, and light transmission, and listings of observed and calculated variables at standard pressures.

For the SeaSoar observations, we split the tow data into the big box, small box, and butterfly surveys (see Table 12 and Figure 4). Sections, which connect one box to another, were sometimes used in the maps for both boxes. Maps of temperature, salinity, and sigma-t are shown for every ten meters between 5 and 55 meters depth, and then every 20 meters between 55 and 95 meters depth. Data used in the maps were obtained by first binning the data into 2-db bins in the vertical, and 1.25 km bins in the horizontal. Then, the depth of interest was extracted from the

appropriate sections for the maps. Contour maps were then created by gridding these data using "zgrid" (Crain, 1968, unpublished). The big box grids used a spacing of 0.063^{o} longitude (5.0 km) in E-W spacing, and 0.090^{o} latitude (10.0 km) in N-S spacing. The small box and butterfly grids used the same E-W spacing of 0.063^{o} longitude (5.0 km), but used a finer N-S spacing of 0.045^{o} latitude (5.0 km). Any grid point more that two grid spaces away from a data point was set to be undefined.

Vertical sections of temperature, salinity and sigma-t are shown for each of the SeaSoar lines. We also include sections of chlorophyll following the T, S and σ_t sections. These sections are countoured using "zgrid" from the 1.25-km, 2-db averaged data.

Table 12: Section Times

	Section name	**Start time**	**Stop time**
Big Box 1	bb1.line1	01/05/24 02:32:34	01/05/24 06:56:02
	bb1.line1_2	01/05/24 06:56:03	01/05/24 08:51:07
tow 1 &	bb1.line2	01/05/24 08:51:08	01/05/24 13:10:35
tow 2	bb1.line2_3	01/05/24 13:10:36	01/05/24 14:44:54
	bb1.line3	01/05/24 14:44:55	01/05/24 18:55:00
	bb1.line3_4a	01/05/24 18:55:01	01/05/24 19:25:03
	bb1.line3_4b	01/05/24 22:27:25	01/05/24 22:43:52
	bb1.line4	01/05/24 22:43:53	01/05/25 02:43:25
	bb1.line4_5	01/05/25 02:43:26	01/05/25 04:18:44
	bb1.line5	01/05/25 04:18:45	01/05/25 08:13:23
	bb1.line5_6	01/05/25 08:13:24	01/05/25 10:17:14
	bb1.line6	01/05/25 10:17:15	01/05/25 15:24:05
	bb1.line6_7	01/05/25 15:24:06	01/05/25 17:33:38
	bb1.line7	01/05/25 17:33:39	01/05/25 23:32:59
	bb1.line7_8	01/05/25 23:33:00	01/05/26 01:41:47
	bb1.line8	01/05/26 01:41:48	01/05/26 08:18:47
	bb1.line8.tail	01/05/26 08:18:48	01/05/26 08:28:33
Small Box	sbn1.lineC.head	01/05/26 18:41:27	01/05/26 18:59:59
North 1	sbn1.lineC	01/05/26 19:00:00	01/05/26 21:16:18
	sbn1.lineC_B	01/05/26 21:16:19	01/05/26 22:08:29
tow 3	sbn1.lineBa	01/05/26 22:08:30	01/05/26 22:19:26
	sbn1.lineB.loop	01/05/26 22:19:27	01/05/26 23:08:24
	sbn1.lineBb	01/05/26 23:08:25	01/05/27 01:24:00
	sbn1.lineB_A	01/05/27 01:24:01	01/05/27 02:10:06

Table 12: (Continued)

	sbn1.lineA	01/05/27 02:10:07	01/05/27 04:41:44
	sbn1.lineA_tail	01/05/27 04:41:45	01/05/27 04:45:14
Small Box North 2 tow 4	sbn2.lineAa	01/05/27 16:11:15	01/05/27 17:46:23
	sbn2.lineA.loop	01/05/27 17:46:24	01/05/27 19:15:10
	sbn2.lineAb	01/05/27 19:15:11	01/05/27 20:12:17
	sbn2.lineA_B	01/05/27 20:12:18	01/05/27 20:59:28
	sbn2.lineBa	01/05/27 20:59:29	01/05/27 21:46:48
	sbn2.lineB.loop	01/05/27 21:46:49	01/05/27 22:16:08
	sbn2.lineBb	01/05/27 22:16:09	01/05/27 23:57:33
	sbn2.lineB_C	01/05/27 23:57:34	01/05/28 00:42:13
	sbn2.lineC	01/05/28 00:42:14	01/05/28 03:00:35
	sbn2.lineC.tail	01/05/28 03:00:36	01/05/28 03:04:50
Small Box South 1 tow 5, tow 5a & tow 5b	sbs1.lineDa	01/05/28 08:27:11	01/05/28 09:58:13
	sbs1.lineD.loop	01/05/28 09:58:14	01/05/28 10:12:28
	sbs1.lineDb	01/05/28 10:12:29	01/05/28 13:55:48
	sbs1.lineD_E	01/05/28 13:55:49	01/05/28 15:13:02
	sbs1.lineE	01/05/28 15:54:49	01/05/28 21:08:17
	sbs1.lineE.tail	01/05/28 21:08:18	01/05/28 21:18:48
	sbs1.lineE_F	01/05/28 22:09:41	01/05/28 23:34:23
	sbs1.lineF	01/05/28 23:34:24	01/05/29 04:57:58
Small Box North 3 tow 6	sbn3.lineB	01/05/29 13:12:56	01/05/29 15:48:45
	sbn3.lineB_A	01/05/29 15:48:46	01/05/29 16:34:48
	sbn3.lineA	01/05/29 16:34:49	01/05/29 19:02:53
Big Box 2 tow 7	bb2.line1	01/05/29 23:06:54	01/05/30 03:41:23
	bb2.line1_2	01/05/30 03:41:24	01/05/30 05:36:19
	bb2.line2	01/05/30 05:36:20	01/05/30 10:04:14
	bb2.line2_3	01/05/30 10:04:15	01/05/30 11:33:53
	bb2.line3a	01/05/30 11:33:54	01/05/30 12:01:59
	bb2.line3.loop	01/05/30 12:02:00	01/05/30 12:22:20
	bb2.line3b	01/05/30 12:22:21	01/05/30 16:11:30
	bb2.line3_4	01/05/30 16:11:31	01/05/30 17:40:54
	bb2.line4	01/05/30 17:40:55	01/05/30 21:50:51
	bb2.line4_5	01/05/30 21:50:52	01/05/30 23:26:03
	bb2.line5	01/05/30 23:26:04	01/05/31 03:13:17
	bb2.line5_6a	01/05/31 03:13:18	01/05/31 03:59:15
	bb2.line5_6b	01/05/31 04:09:08	01/05/31 05:38:31
	bb2.line6	01/05/31 05:38:32	01/05/31 10:39:07
	bb2.line6_7	01/05/31 10:39:08	01/05/31 12:59:11
	bb2.line7	01/05/31 12:59:12	01/05/31 18:51:34
	bb2.line7_8	01/05/31 18:51:35	01/05/31 21:02:09
	bb2.line8	01/05/31 21:02:10	01/06/01 03:36:32

Table 12: (Continued)

	bb2.line8_i200	01/06/01 03:36:33	01/06/01 05:25:49
	bb2.linei200	01/06/01 05:25:50	01/06/01 11:57:42
	bb2.linei200.tail	01/06/01 11:57:43	01/06/01 12:48:56
Big Box 3	bb3.line5	01/06/02 15:22:30	01/06/02 19:54:38
	bb3.line5_4	01/06/02 21:59:34	01/06/02 22:44:33
tow 8 &	bb3.line4	01/06/02 22:44:34	01/06/03 02:35:33
tow 9	bb3.line4_3	01/06/03 02:35:34	01/06/03 04:00:09
	bb3.line3	01/06/03 04:00:10	01/06/03 08:05:32
	bb3.line3_2	01/06/03 08:05:33	01/06/03 09:52:50
	bb3.line2	01/06/03 09:52:51	01/06/03 14:05:22
	bb3.line2_1	01/06/03 14:05:23	01/06/03 15:54:19
	bb3.line1	01/06/03 15:54:20	01/06/03 20:15:59
Butter Fly 1	bb3_bf1	01/06/03 20:16:00	01/06/03 20:53:09
	bf1.lineN_S	01/06/03 20:53:10	01/06/04 00:21:23
tow 9	bf1.lineS_W	01/06/04 00:21:24	01/06/04 02:29:02
	bf1.lineW_E	01/06/04 02:29:03	01/06/04 04:48:17
	bf1.lineE_C	01/06/04 04:48:18	01/06/04 05:20:19
	bf1.lineC_N	01/06/04 05:20:20	01/06/04 07:24:26
Butter Fly 2	bf2.lineN_S	01/06/04 07:24:27	01/06/04 10:49:01
	bf2.lineS_W	01/06/04 10:49:02	01/06/04 12:41:36
tow 9	bf2.lineW_Ea	01/06/04 12:41:37	01/06/04 14:36:07
	bf2.lineW_E.loop	01/06/04 14:36:08	01/06/04 15:16:41
	bf2.lineW_Eb	01/06/04 15:16:42	01/06/04 15:36:21
	bf2.lineE_C	01/06/04 15:36:22	01/06/04 16:08:59
	bf2.lineC_N	01/06/04 16:09:00	01/06/04 18:18:53
Butter Fly 3	bf3.lineN_S	01/06/04 18:18:54	01/06/04 21:40:52
tow 9 &	bf3.lineE_W	01/06/05 03:24:29	01/06/05 05:42:39
tow10	bf3.lineW_S	01/06/05 05:42:40	01/06/05 07:50:47
Butter Fly 4	bf4.lineS_N	01/06/05 07:50:48	01/06/05 11:51:05
	bf4.lineN_C	01/06/05 11:51:06	01/06/05 13:47:14
tow 10	bf4.lineC_E	01/06/05 13:47:15	01/06/05 14:19:09
	bf4.lineE_W	01/06/05 14:19:10	01/06/05 16:45:41
	bf4.lineW_S	01/06/05 16:45:42	01/06/05 18:57:18
Butter Fly 5	bf5.lineS_N	01/06/05 18:57:19	01/06/05 22:40:48
	bf5.lineN_C	01/06/05 22:40:49	01/06/06 00:33:11
tow 10	bf5.lineC.loop	01/06/06 00:33:12	01/06/06 00:37:04
	bf5.lineC_E	01/06/06 00:37:05	01/06/06 01:09:45
	bf5.lineE_W	01/06/06 01:09:46	01/06/06 03:28:52
	bf5.lineW_S	01/06/06 03:28:53	01/06/06 05:36:42

Table 12: (Continued)

Butter Fly 6	bf6.lineS_N	01/06/06 05:36:43	01/06/06 09:20:10
	bf6.lineN_C	01/06/06 09:20:11	01/06/06 11:12:01
tow 10	bf6.lineC_E	01/06/06 11:12:02	01/06/06 11:44:58
	bf6.lineE_W	01/06/06 11:44:59	01/06/06 14:22:21
	bf6.lineW.tail	01/06/06 14:22:22	01/06/06 14:35:47
Butter Fly 7	bf7.lineE_W	01/06/07 05:22:28	01/06/07 07:45:21
	bf7.lineW_S	01/06/07 07:45:22	01/06/07 09:43:10
tow 11	bf7.lineS_N	01/06/07 09:43:11	01/06/07 13:26:16
	bf7_bb4	01/06/07 13:26:17	01/06/07 14:07:57
Big Box 4	bb4.line1	01/06/07 14:07:58	01/06/07 18:26:59
	bb4.line1_2	01/06/07 18:27:00	01/06/07 20:14:34
tow 11 &	bb4.line2	01/06/07 20:14:35	01/06/08 00:35:34
tow 12	bb4.line2_3	01/06/08 00:35:35	01/06/08 02:18:41
	bb4.line3	01/06/08 02:18:42	01/06/08 06:22:58
	bb4.line3_4	01/06/08 06:22:59	01/06/08 07:44:28
	bb4.line4	01/06/08 07:44:29	01/06/08 11:43:26
	bb4.line4_5	01/06/08 11:43:27	01/06/08 13:21:53
	bb4.line5	01/06/08 13:21:54	01/06/08 17:18:36
	bb4.line5_6	01/06/08 17:18:37	01/06/08 19:27:24
	bb4.line6	01/06/08 19:27:25	01/06/09 00:26:12
	bb4.line6_7	01/06/09 00:26:13	01/06/09 02:35:21
	bb4.line7	01/06/09 02:35:22	01/06/09 08:29:12
	bb4.line7_8a	01/06/09 08:29:13	01/06/09 08:36:46
	bb4.line7_8b	01/06/09 09:12:28	01/06/09 11:04:02
	bb4.line8.1	01/06/09 11:04:03	01/06/09 17:35:38
	bb4.line8.2	01/06/09 17:35:39	01/06/09 20:40:27
	bb4.line8.2.tail	01/06/09 20:40:28	01/06/09 20:54:07
Big Box 5	bb5.line8	01/06/11 03:55:33	01/06/11 10:47:58
	bb5.line8_7	01/06/11 10:47:59	01/06/11 13:01:34
tow 13,	bb5.line7	01/06/11 13:01:35	01/06/11 19:03:05
tow 14 &	bb5.line7_6a	01/06/11 19:03:06	01/06/11 19:12:47
tow 15	bb5.line7_6b	01/06/11 21:09:15	01/06/11 22:33:13
	bb5.line6	01/06/11 22:33:14	01/06/12 03:33:22
	bb5.line6_5	01/06/12 03:33:23	01/06/12 05:47:12
	bb5.line5	01/06/12 05:47:13	01/06/12 09:46:49
	bb5.line5_4	01/06/12 09:46:50	01/06/12 11:10:15
	bb5.line4	01/06/12 11:10:16	01/06/12 15:07:01
	bb5.line4_3	01/06/12 15:07:02	01/06/12 16:34:07
	bb5.line3a	01/06/12 16:34:08	01/06/12 17:24:25
	bb5.line3b	01/06/12 17:59:56	01/06/12 21:28:41
	bb5.line3_2	01/06/12 21:28:42	01/06/12 23:14:37

Table 12: (Continued)

	bb5.line2	01/06/12 23:14:38	01/06/13 01:51:15
	bb5.line2_1	01/06/13 01:51:16	01/06/13 03:40:33
	bb5.line1	01/06/13 03:40:34	01/06/13 06:31:33
	bb5.line1.tail	01/06/13 06:31:34	01/06/13 06:33:02

Acknowledgements

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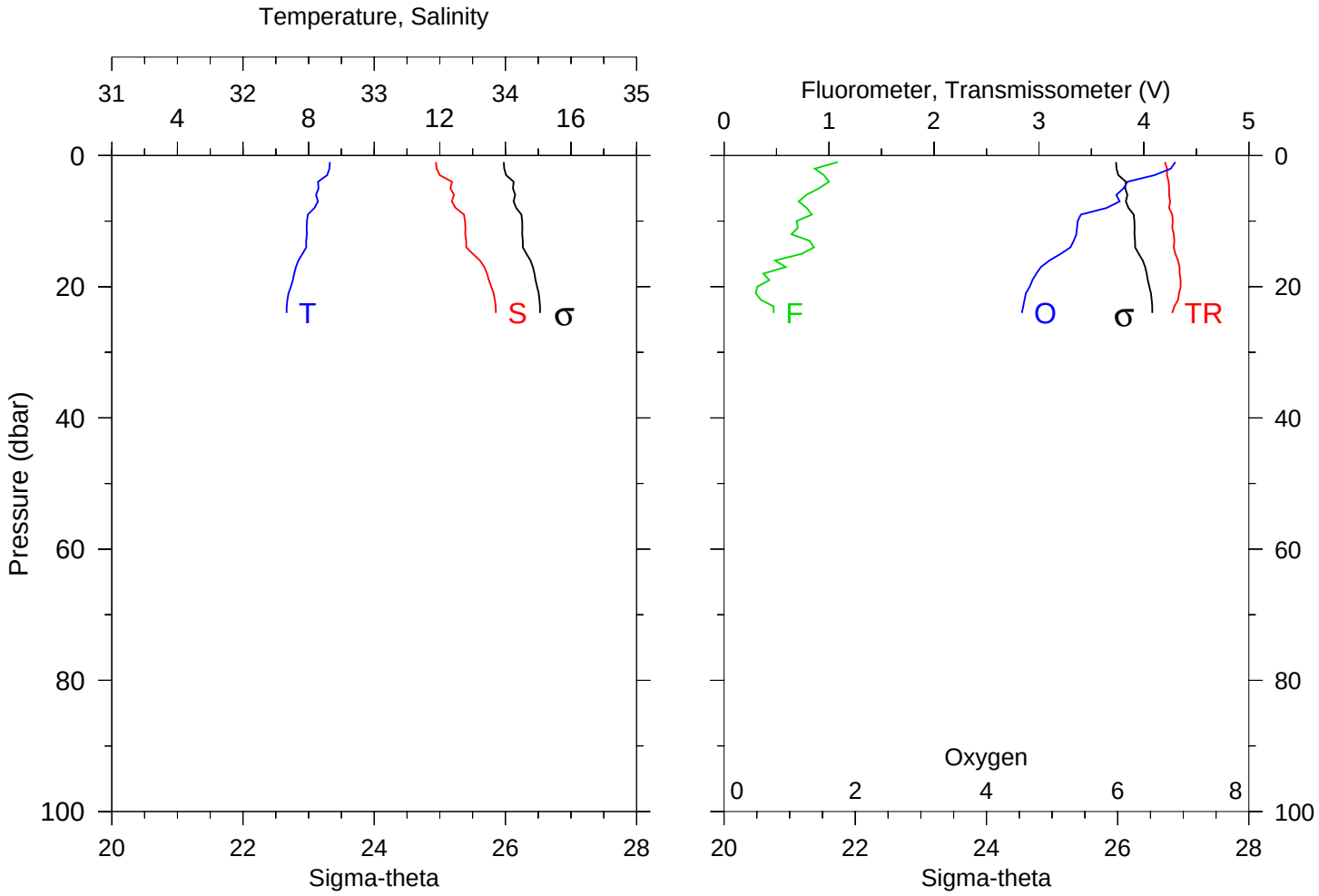
CTD Data

Profiles of Temperature, Salinity, and Density Anomaly

Profiles of Fluorescence, Light Transmission, Oxygen, and Density Anomaly

Tabulated Values at Standard Depths

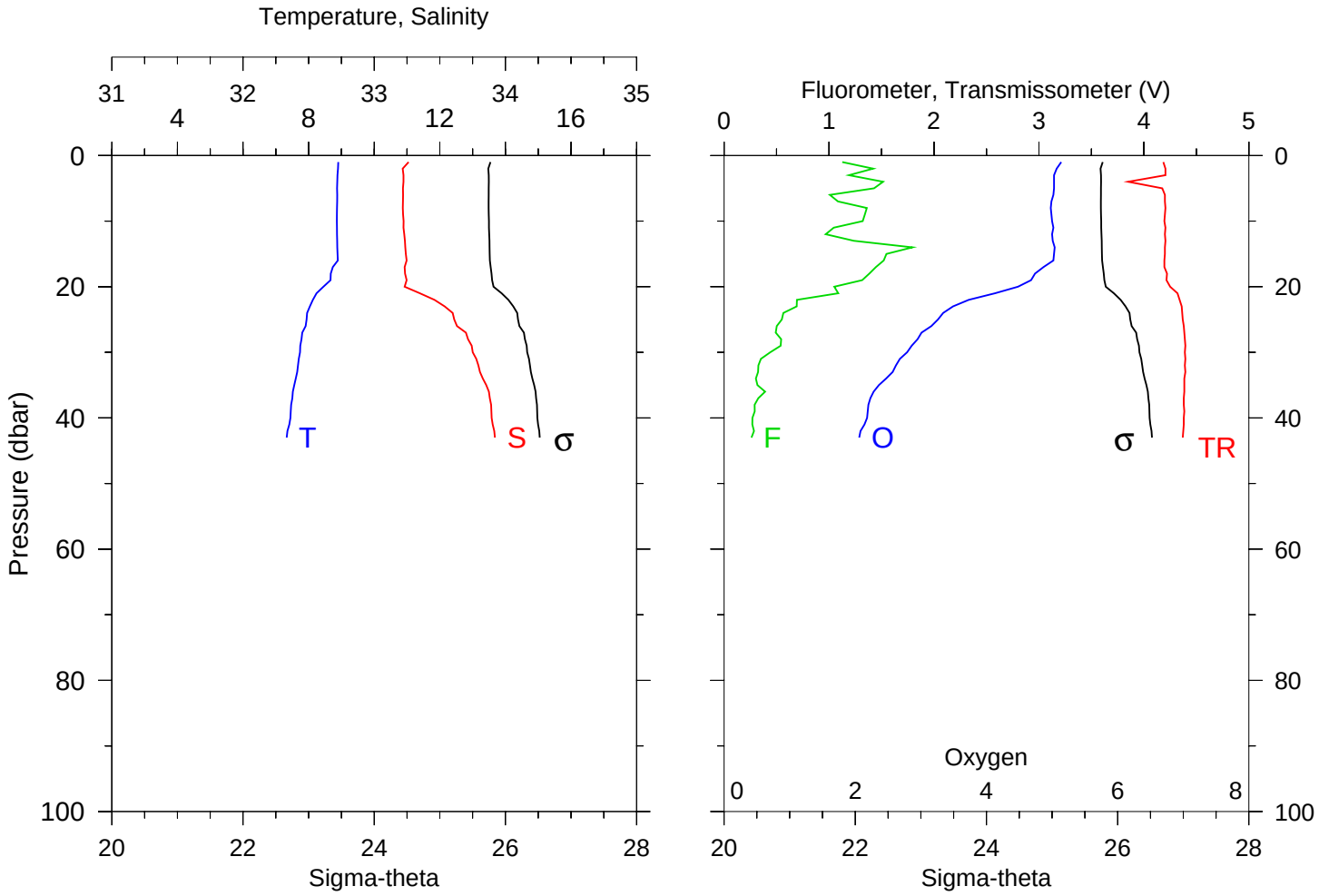
Station 1



STA NO 1 LAT: 45 0.1 N LONG: 124 24.8 W
27 MAY 2001 631 GMT DEPTH 30

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
1	8.648	33.470	8.647	25.975	0.020	1.08	84.0
10	7.949	33.692	7.948	26.255	0.190	0.69	85.5
20	7.458	33.892	7.456	26.483	0.357	0.32	87.0
24	7.329	33.927	7.327	26.528	0.418	0.47	85.4

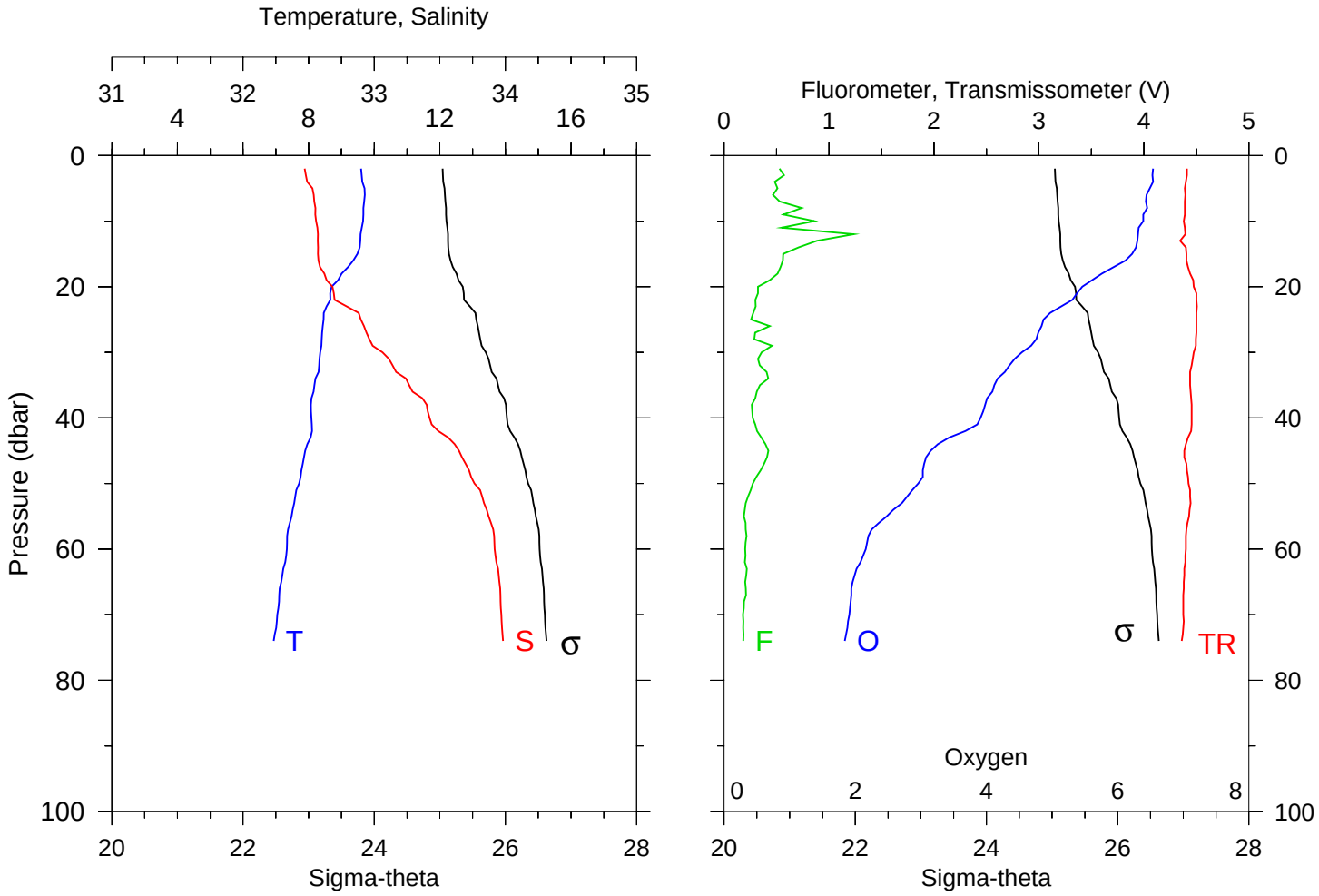
Station 2



STA NO 2 LAT: 45 0.1 N LONG: 124 42.3 W
27 MAY 2001 723 GMT DEPTH 50

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
1	8.904	33.262	8.904	25.772	0.022	1.13	83.7
10	8.861	33.224	8.860	25.749	0.224	1.32	83.9
20	8.451	33.232	8.449	25.819	0.446	1.05	85.0
30	7.738	33.751	7.735	26.332	0.630	0.44	87.8
40	7.445	33.895	7.441	26.487	0.790	0.27	87.6
43	7.331	33.920	7.327	26.523	0.835	0.26	87.4

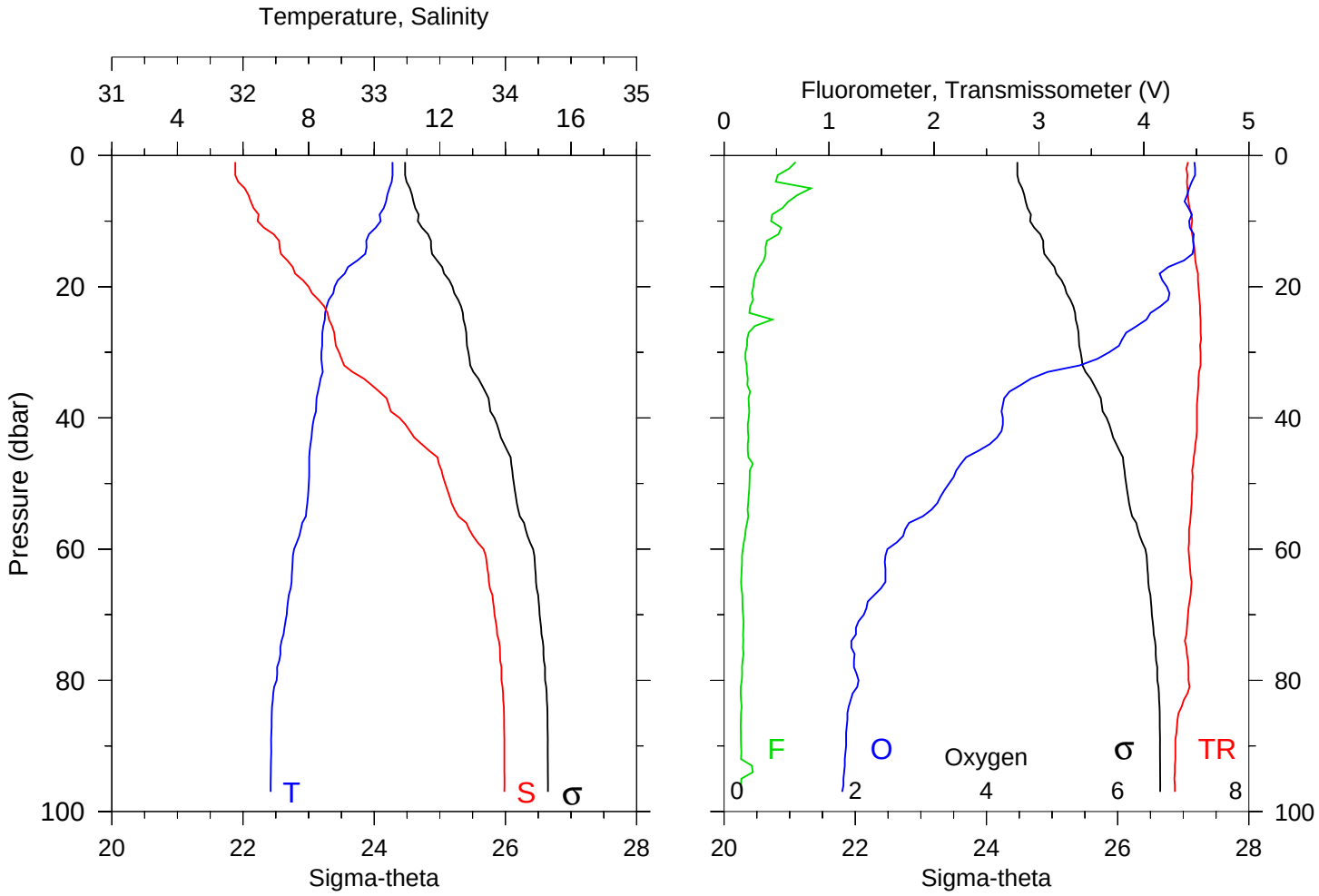
Station 3



STA NO 3 LAT: 45 599.8 N LONG: 124 72.9 W
27 MAY 2001 818 GMT DEPTH 84

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
2	9.599	32.470	9.599	25.043	0.058	0.53	88.2
10	9.660	32.557	9.659	25.101	0.288	0.86	87.6
20	8.702	32.682	8.700	25.350	0.567	0.32	89.5
30	8.354	33.063	8.351	25.701	0.812	0.36	89.5
40	8.085	33.422	8.081	26.023	1.023	0.27	89.1
50	7.711	33.764	7.707	26.346	1.205	0.27	88.5
60	7.337	33.918	7.331	26.521	1.362	0.20	88.0
70	7.045	33.969	7.038	26.602	1.509	0.18	87.5
74	6.935	33.982	6.928	26.627	1.566	0.18	87.2

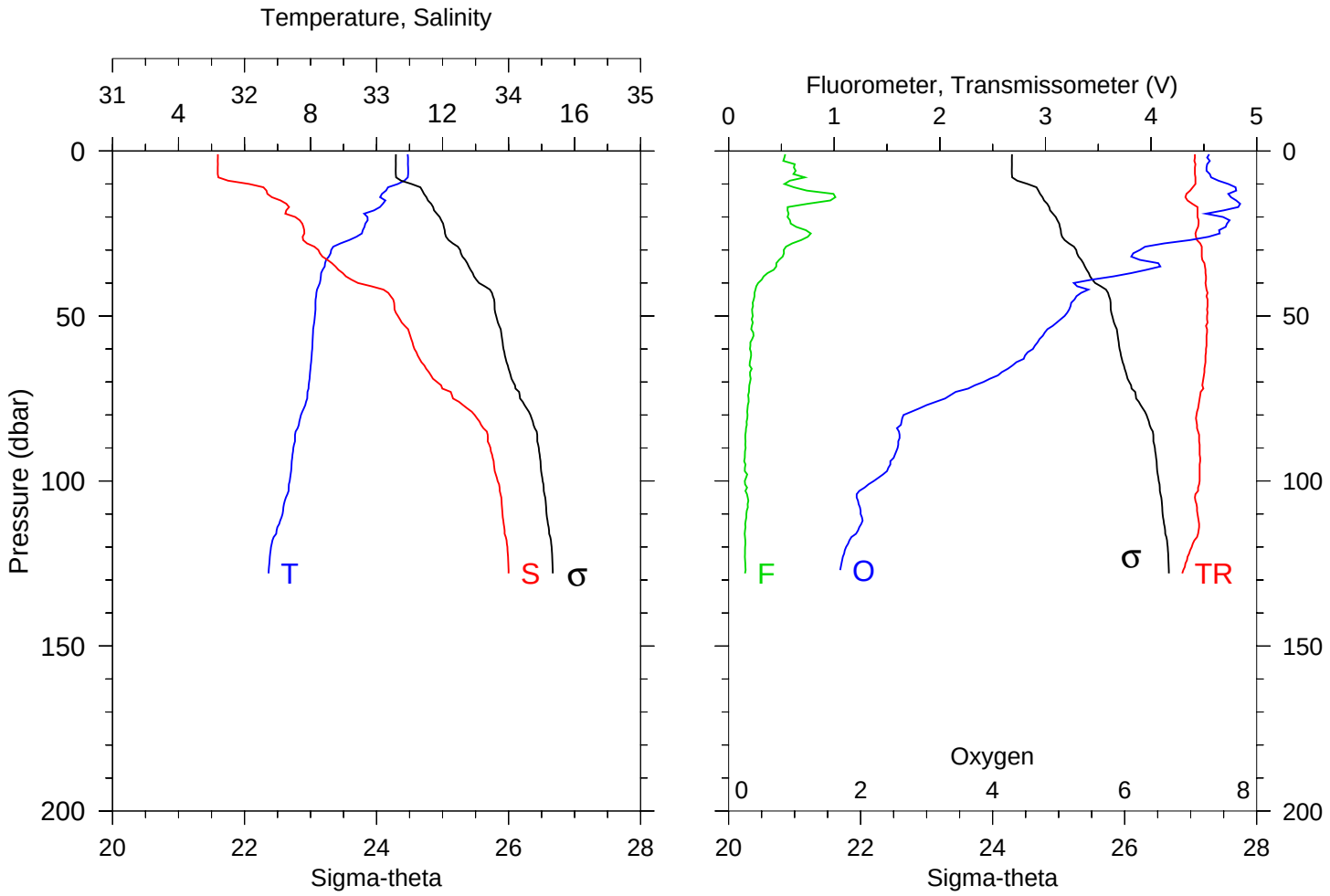
Station 4



STA NO 4 LAT: 45 599.5 N LONG: 124 100.2 W
27 MAY 2001 924 GMT DEPTH 107

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
1	10.557	31.941	10.557	24.471	0.035	0.68	88.4
10	10.197	32.111	10.196	24.665	0.338	0.45	89.2
20	8.792	32.500	8.790	25.193	0.640	0.28	90.4
30	8.389	32.732	8.386	25.436	0.902	0.20	90.8
40	8.165	33.193	8.161	25.832	1.138	0.23	90.1
50	8.005	33.541	8.000	26.129	1.337	0.24	89.2
60	7.557	33.833	7.551	26.422	1.515	0.18	88.5
70	7.332	33.917	7.325	26.521	1.670	0.18	88.4
80	7.025	33.970	7.018	26.605	1.817	0.17	88.5
90	6.859	33.992	6.851	26.645	1.958	0.16	86.0
97	6.842	33.992	6.834	26.648	2.055	0.17	85.9

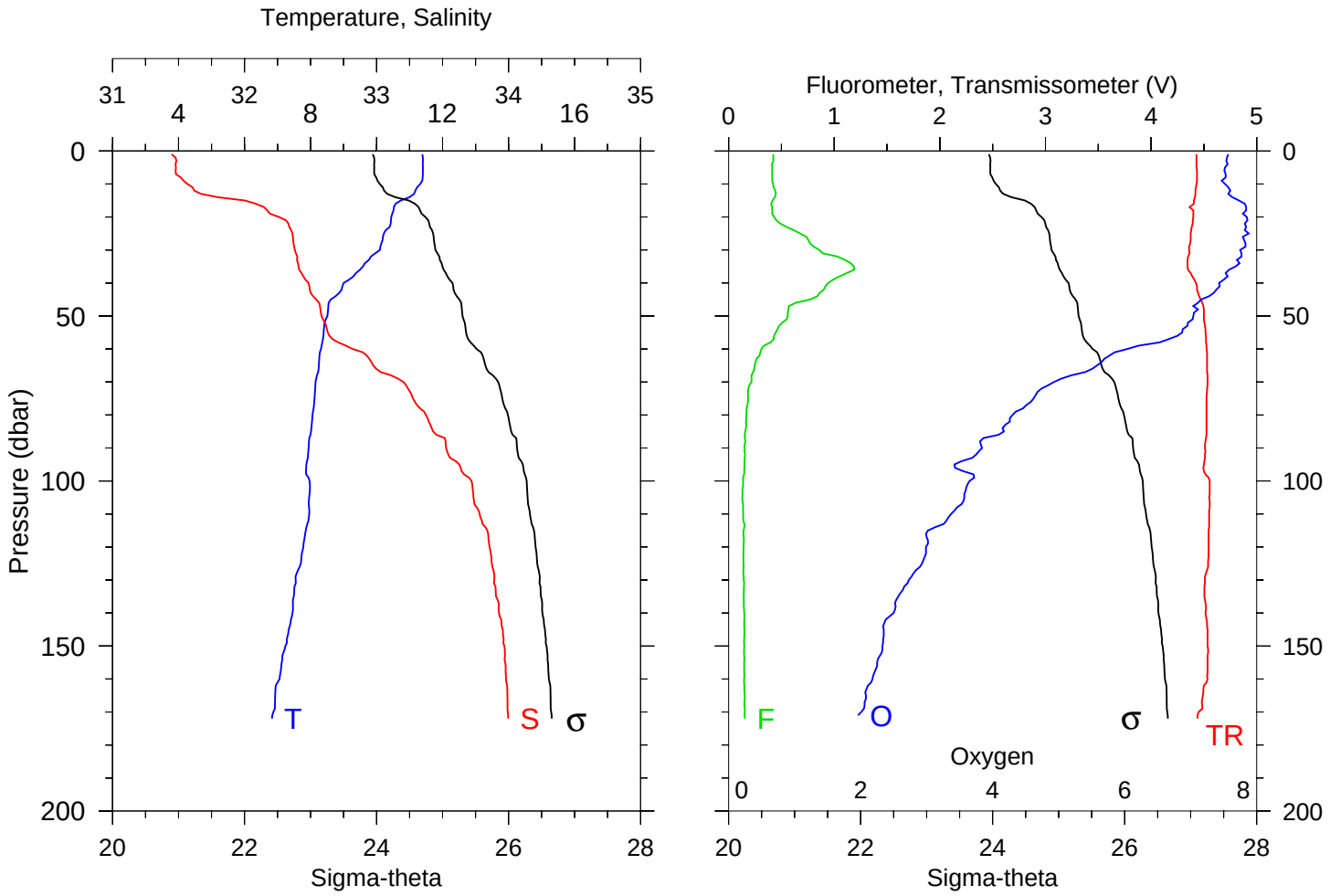
Station 5



STA NO 5 LAT: 45 599.8 N LONG: 124 134.8 W
27 MAY 2001 1021 GMT DEPTH 138

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
1	10.943	31.798	10.943	24.293	0.036	0.54	88.3
10	10.644	32.035	10.643	24.530	0.360	0.53	88.4
20	9.725	32.384	9.723	24.956	0.676	0.56	88.8
30	8.625	32.559	8.621	25.266	0.965	0.52	89.6
40	8.281	32.859	8.278	25.552	1.222	0.28	90.3
50	8.131	33.162	8.126	25.812	1.447	0.23	90.6
60	8.051	33.287	8.045	25.923	1.659	0.20	90.4
70	7.956	33.458	7.949	26.070	1.861	0.20	89.8
80	7.709	33.743	7.701	26.331	2.043	0.18	88.6
90	7.478	33.863	7.470	26.458	2.206	0.16	89.2
100	7.369	33.917	7.360	26.516	2.361	0.15	89.2
110	7.152	33.954	7.142	26.575	2.510	0.17	88.8
120	6.802	33.991	6.791	26.652	2.653	0.16	87.7
128	6.728	34.000	6.716	26.670	2.764	0.16	85.9

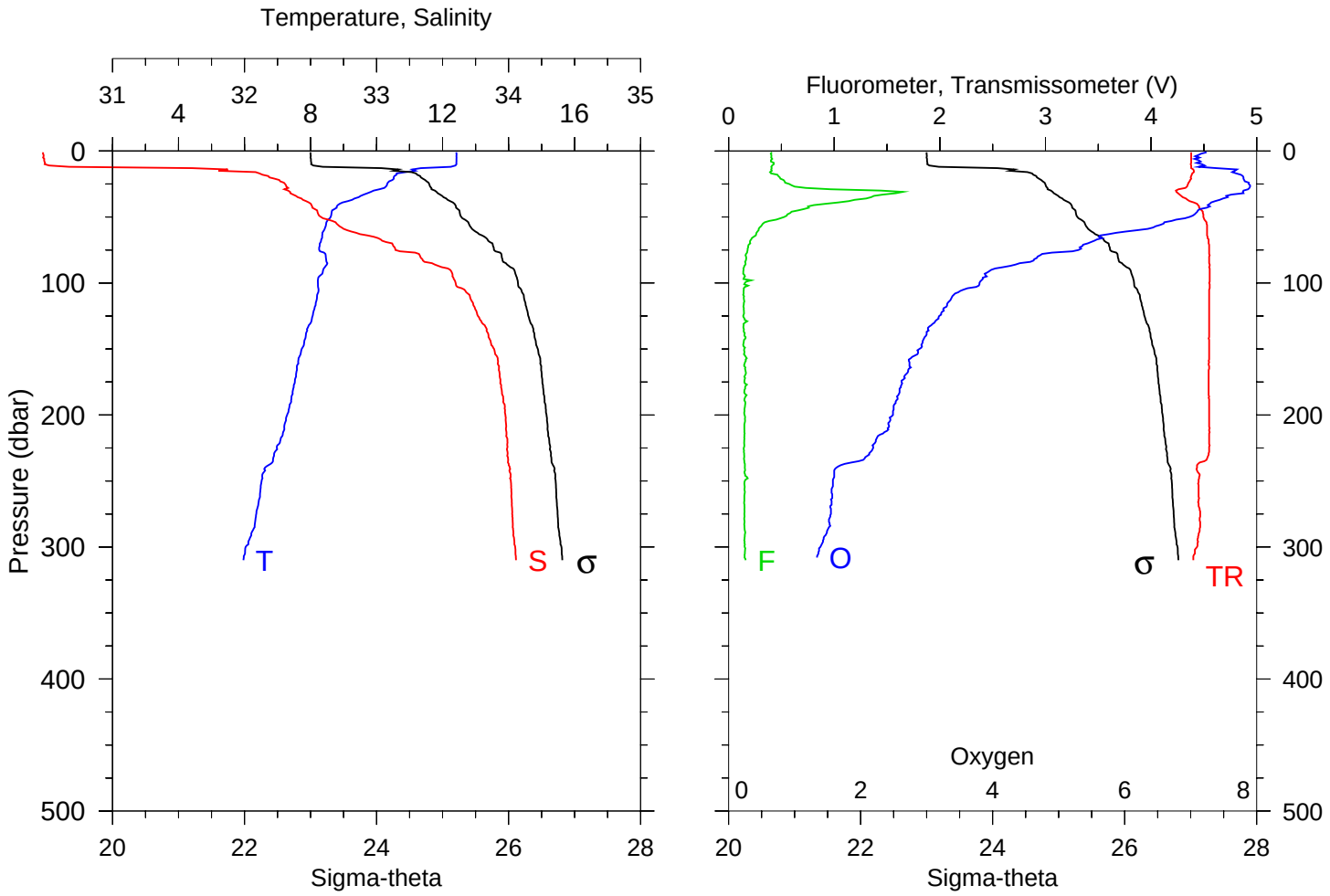
Station 6



STA NO 6 LAT: 45 0.1 N LONG: 124 200.1 W
27 MAY 2001 1152 GMT DEPTH 182

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
1	11.387	31.448	11.387	23.943	0.040	0.42	88.6
10	11.323	31.567	11.322	24.048	0.393	0.42	88.6
20	10.445	32.260	10.442	24.739	0.744	0.43	88.0
30	10.100	32.381	10.097	24.892	1.055	0.86	87.2
40	9.002	32.485	8.998	25.150	1.349	0.94	88.5
50	8.511	32.583	8.506	25.302	1.622	0.56	90.0
60	8.318	32.818	8.312	25.515	1.882	0.31	90.5
70	8.152	33.204	8.145	25.842	2.114	0.22	90.7
80	8.060	33.373	8.052	25.989	2.324	0.17	90.5
90	7.941	33.527	7.932	26.128	2.519	0.15	90.2
100	7.970	33.719	7.960	26.274	2.702	0.14	91.1
110	7.959	33.781	7.948	26.324	2.876	0.14	91.0
120	7.781	33.856	7.769	26.409	3.042	0.14	90.9
130	7.550	33.891	7.537	26.471	3.202	0.14	90.2
140	7.453	33.927	7.440	26.512	3.357	0.15	90.3
150	7.238	33.968	7.224	26.575	3.507	0.15	90.7
172	6.830	33.997	6.814	26.654	3.823	0.15	88.8

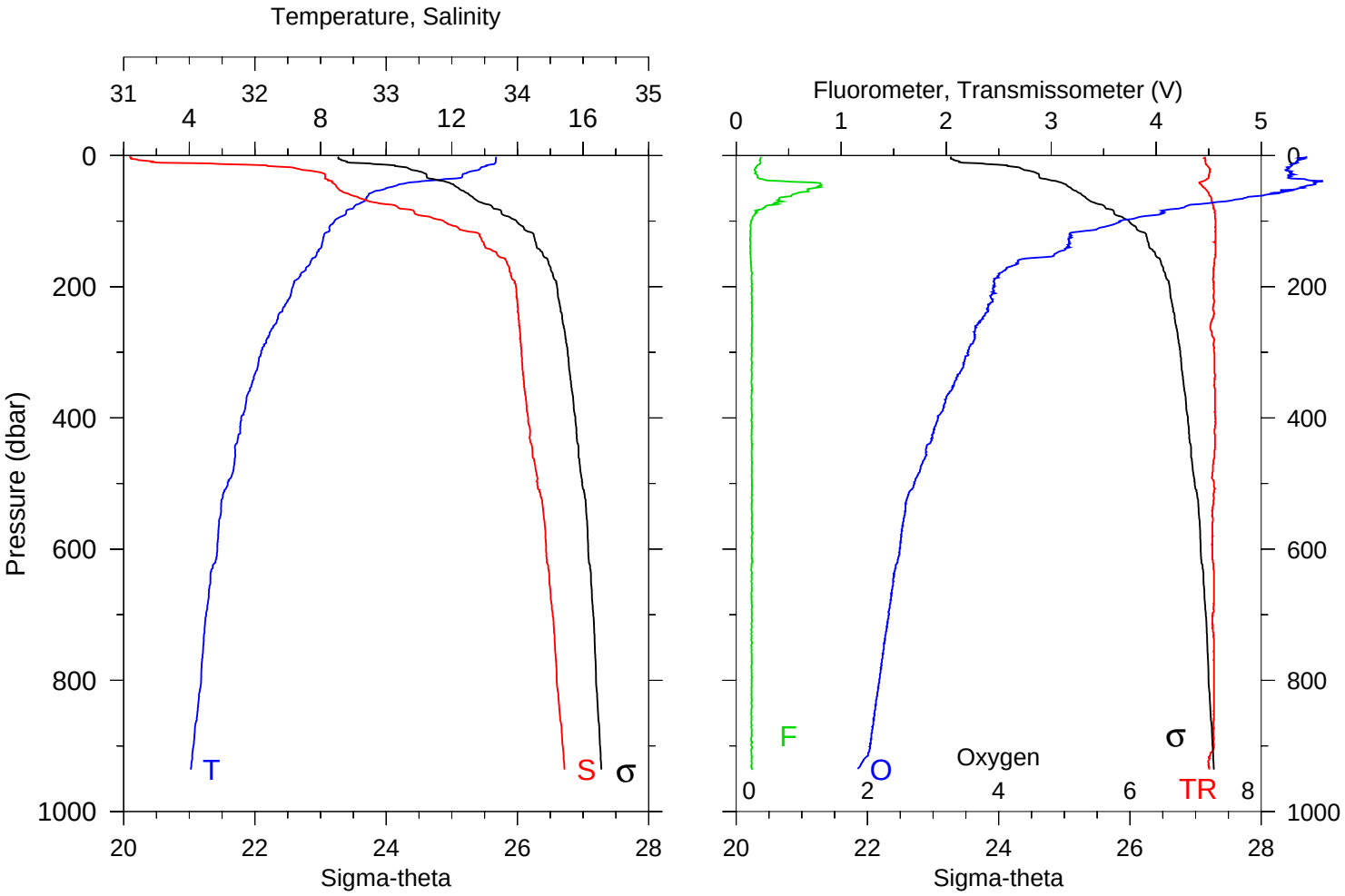
Station 7



STA NO 7 LAT: 44 599.8 N LONG: 124 270.0 W
27 MAY 2001 1317 GMT DEPTH 320

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
1	12.411	30.475	12.411	23.002	0.049	0.41	87.6
10	12.421	30.486	12.419	23.009	0.485	0.43	87.5
20	10.519	32.188	10.516	24.671	0.865	0.48	87.5
30	9.912	32.330	9.909	24.883	1.181	1.44	84.7
40	8.883	32.502	8.879	25.181	1.474	0.92	88.7
50	8.608	32.579	8.603	25.284	1.747	0.53	89.9
60	8.409	32.777	8.403	25.470	2.006	0.28	90.6
70	8.281	33.118	8.274	25.756	2.243	0.20	90.9
80	8.462	33.331	8.454	25.896	2.462	0.17	91.0
90	8.384	33.557	8.375	26.085	2.666	0.14	91.1
100	8.223	33.599	8.213	26.142	2.856	0.15	91.0
110	8.196	33.707	8.185	26.231	3.041	0.15	91.0
120	8.113	33.748	8.101	26.276	3.218	0.14	91.0
130	8.010	33.797	7.997	26.330	3.392	0.16	91.0
140	7.856	33.848	7.842	26.392	3.558	0.15	91.0
150	7.732	33.890	7.718	26.443	3.721	0.15	91.0
175	7.524	33.938	7.507	26.512	4.112	0.15	90.9
200	7.291	33.976	7.272	26.575	4.491	0.15	91.0
225	6.980	33.990	6.959	26.629	4.856	0.14	91.0
250	6.517	34.017	6.495	26.713	5.205	0.15	89.0
275	6.355	34.027	6.331	26.742	5.542	0.15	89.3
300	6.033	34.050	6.007	26.801	5.870	0.15	88.7
310	5.966	34.056	5.940	26.814	5.997	0.16	88.0

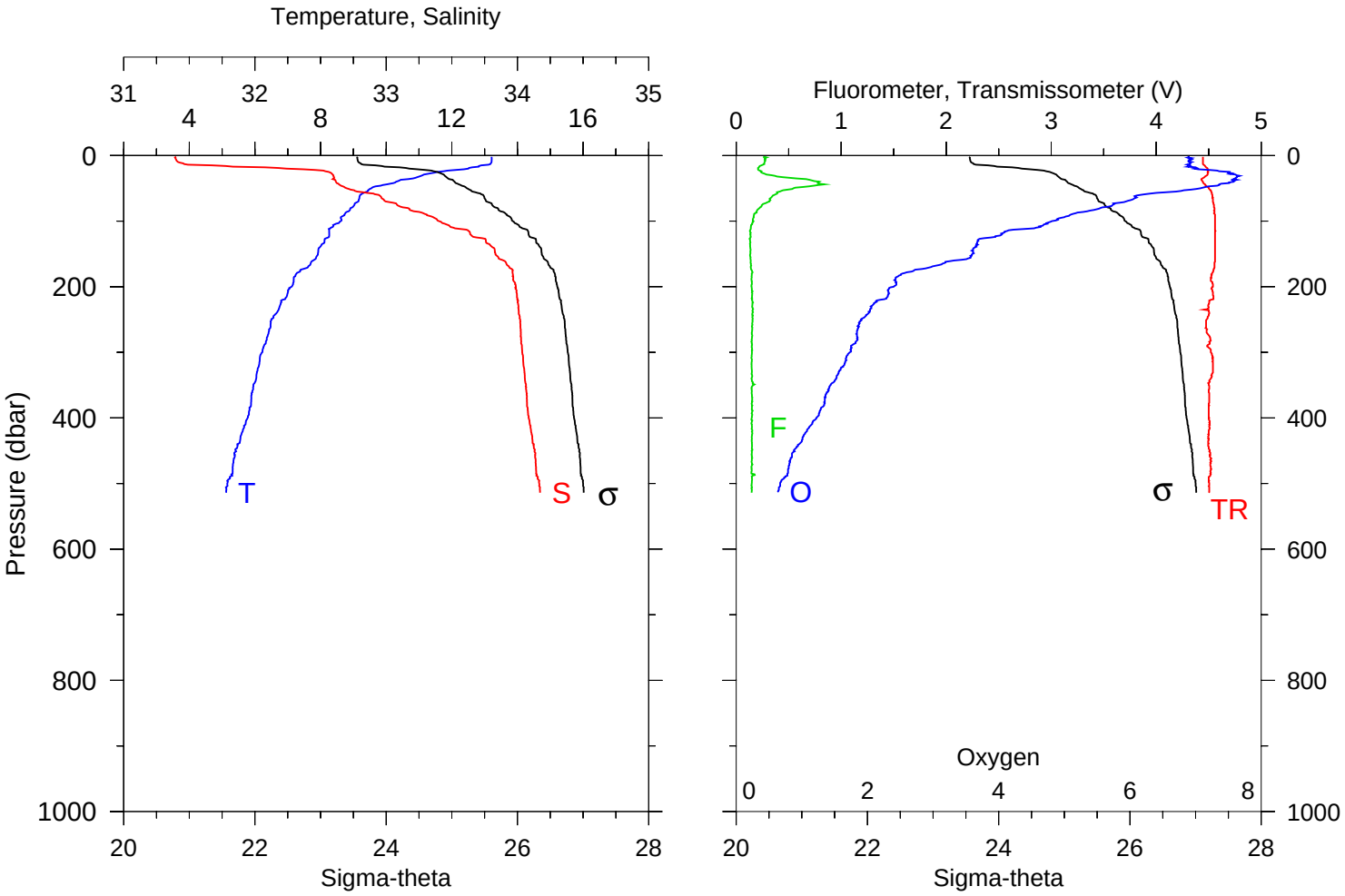
Station 8



STA NO 8 LAT: 44 134.9 N LONG: 125 20.9 W
01 JUL 2001 1407 GMT DEPTH 930

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
2	13.346	31.043	13.345	23.263	0.092	0.24	89.3
10	13.336	31.214	13.335	23.397	0.456	0.23	89.4
20	12.868	32.321	12.866	24.345	0.847	0.18	90.2
30	12.323	32.535	12.319	24.616	1.189	0.20	90.0
40	10.986	32.590	10.981	24.903	1.513	0.52	88.6
50	9.986	32.632	9.981	25.107	1.806	0.73	89.3
60	9.465	32.728	9.458	25.267	2.084	0.53	90.1
70	9.320	32.872	9.313	25.403	2.348	0.44	90.6
80	9.000	33.095	8.992	25.628	2.593	0.26	91.0
90	8.757	33.233	8.747	25.774	2.820	0.18	91.2
100	8.421	33.439	8.411	25.987	3.031	0.14	91.3
110	8.264	33.550	8.253	26.098	3.229	0.14	91.3
120	8.109	33.712	8.097	26.248	3.416	0.13	91.3
130	8.072	33.730	8.059	26.268	3.594	0.13	91.3
140	8.024	33.754	8.010	26.294	3.769	0.13	91.3
150	7.883	33.844	7.868	26.386	3.938	0.13	91.3
175	7.538	33.940	7.521	26.511	4.334	0.14	90.9
200	7.155	33.989	7.136	26.603	4.708	0.14	91.0
225	6.960	34.000	6.939	26.640	5.069	0.15	91.0
250	6.682	34.009	6.660	26.684	5.419	0.15	90.6
275	6.412	34.022	6.388	26.731	5.760	0.15	90.7
300	6.191	34.030	6.165	26.766	6.092	0.15	91.0
350	5.895	34.052	5.865	26.820	6.738	0.15	91.0
400	5.580	34.082	5.546	26.883	7.357	0.15	91.3
450	5.399	34.114	5.362	26.931	7.953	0.15	91.1
500	5.169	34.152	5.129	26.988	8.528	0.15	91.0
776	4.377	34.295	4.318	27.192	11.331	0.15	91.0
936	4.039	34.360	3.968	27.281	12.785	0.14	90.1

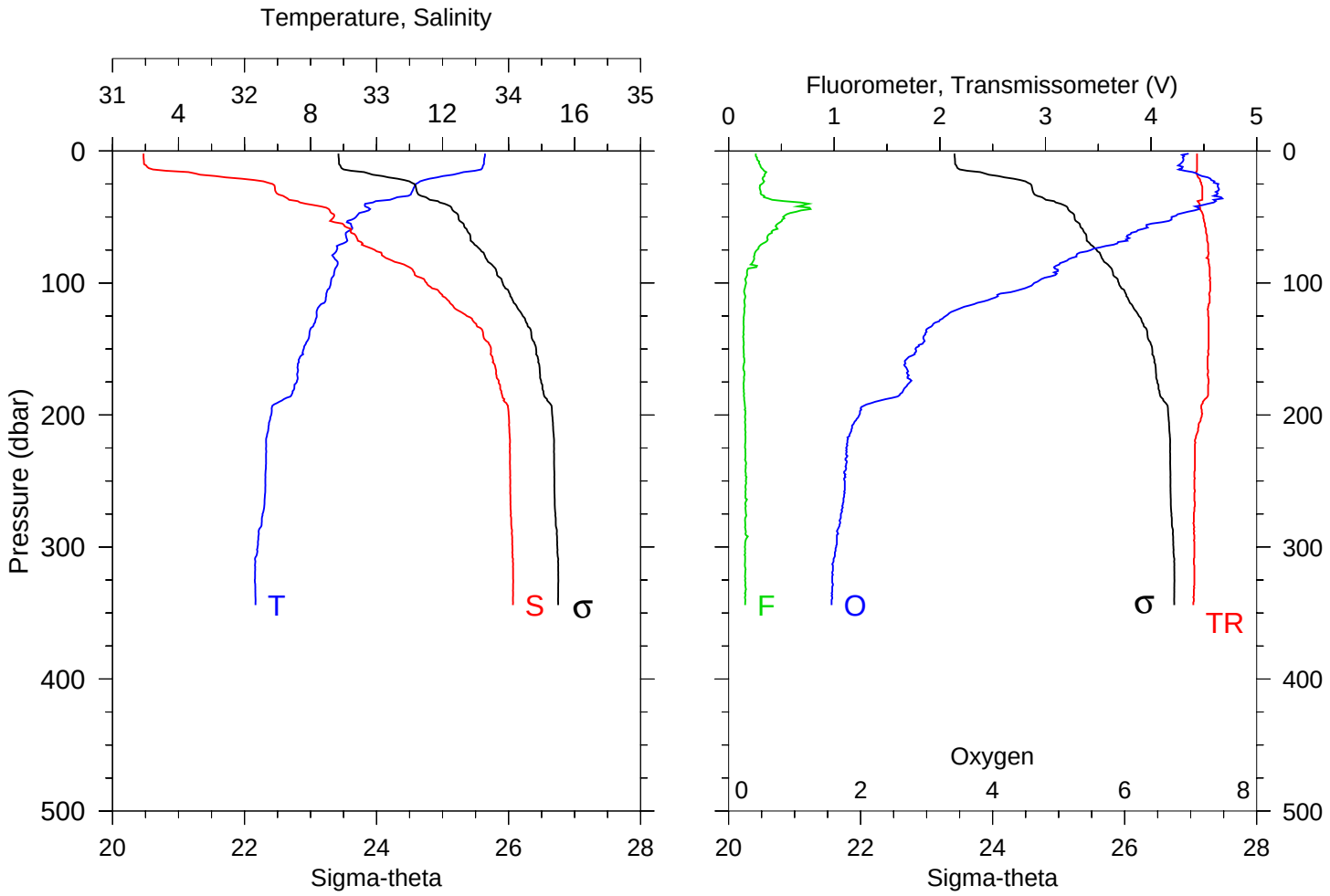
Station 9



STA NO 9 LAT: 44 134.7 N LONG: 125 0.2 W
01 JUL 2001 1520 GMT DEPTH 524

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
2	13.214	31.400	13.213	23.565	0.086	0.26	88.9
10	13.210	31.415	13.209	23.577	0.432	0.27	88.9
20	12.504	32.240	12.501	24.353	0.835	0.21	89.8
30	11.112	32.597	11.108	24.886	1.156	0.34	89.7
40	10.300	32.617	10.295	25.043	1.456	0.79	88.9
50	9.547	32.700	9.541	25.232	1.739	0.54	90.0
60	9.209	32.943	9.202	25.476	2.002	0.36	90.7
70	9.152	32.995	9.144	25.526	2.251	0.32	90.8
80	8.919	33.164	8.910	25.695	2.489	0.22	91.1
90	8.728	33.309	8.719	25.838	2.713	0.17	91.2
100	8.615	33.402	8.605	25.928	2.925	0.17	91.2
110	8.313	33.512	8.302	26.061	3.127	0.14	91.2
120	8.264	33.640	8.252	26.169	3.315	0.13	91.2
130	8.121	33.759	8.108	26.284	3.496	0.13	91.2
140	7.976	33.811	7.962	26.346	3.668	0.13	91.2
150	7.919	33.833	7.904	26.371	3.836	0.13	91.2
175	7.379	33.965	7.363	26.553	4.235	0.15	90.9
200	7.117	33.988	7.099	26.608	4.604	0.15	90.8
225	6.785	34.004	6.764	26.666	4.960	0.15	90.1
250	6.498	34.021	6.476	26.718	5.305	0.16	89.6
275	6.389	34.026	6.365	26.736	5.642	0.15	90.1
300	6.224	34.036	6.198	26.766	5.973	0.15	90.4
350	5.952	34.065	5.922	26.824	6.617	0.16	90.0
400	5.779	34.085	5.746	26.862	7.242	0.15	90.1
450	5.415	34.130	5.378	26.941	7.839	0.15	90.2
500	5.157	34.166	5.117	27.001	8.409	0.15	90.1
514	5.117	34.171	5.076	27.009	8.563	0.15	90.0

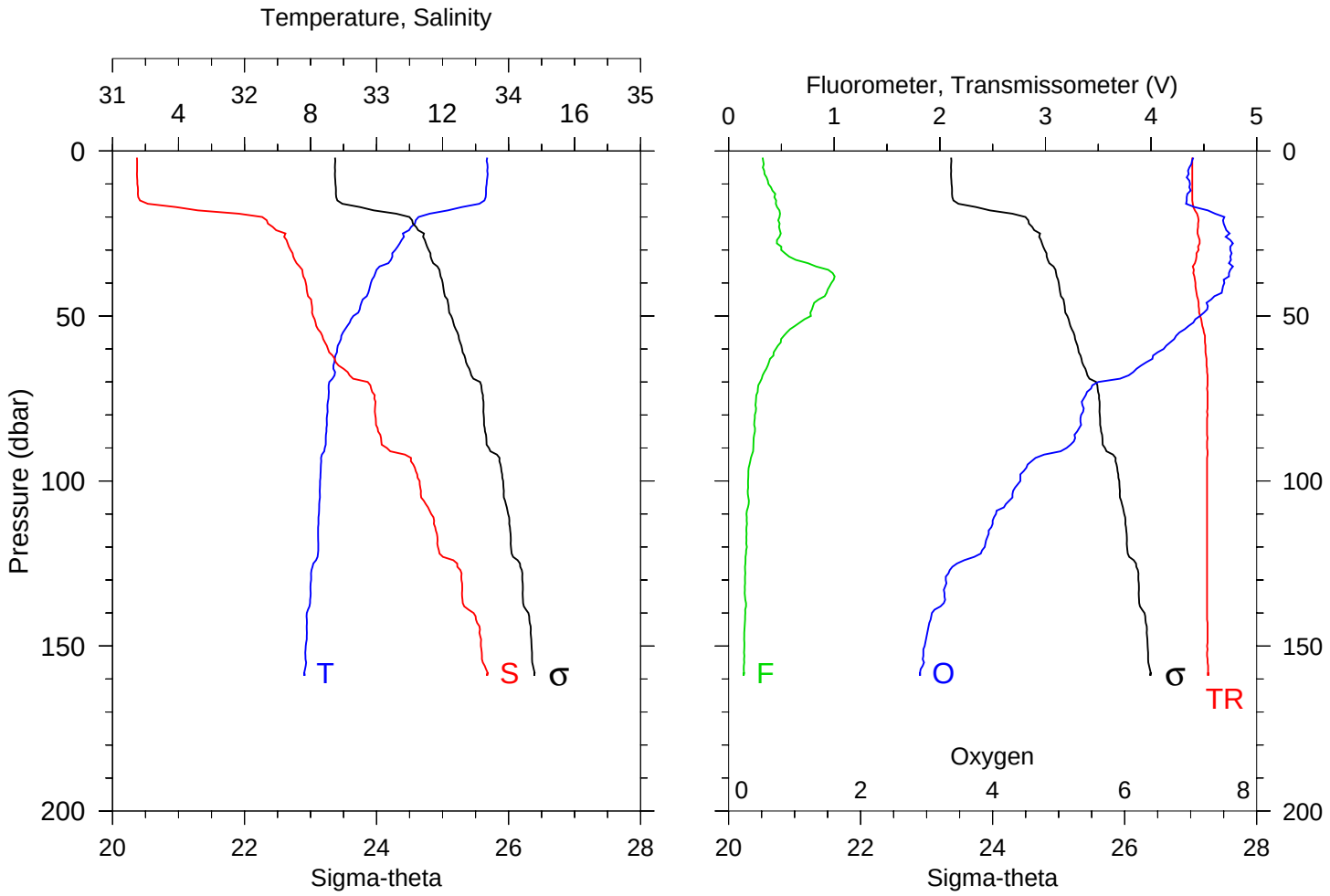
Station 10



STA NO 10 LAT: 44 135.2 N LONG: 124 575.5 W
01 JUL 2001 1909 GMT DEPTH 351

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
2	13.283	31.235	13.282	23.423	0.089	0.26	88.7
10	13.254	31.239	13.253	23.432	0.445	0.29	88.7
20	11.835	31.858	11.832	24.181	0.864	0.32	88.9
30	11.094	32.232	11.090	24.606	1.206	0.30	89.7
40	9.654	32.465	9.650	25.031	1.524	0.76	89.2
50	9.377	32.676	9.372	25.240	1.804	0.52	89.9
60	9.198	32.807	9.192	25.371	2.072	0.42	90.4
70	8.991	32.894	8.984	25.472	2.328	0.33	90.8
80	8.684	33.056	8.676	25.646	2.570	0.24	90.8
90	8.733	33.274	8.724	25.810	2.797	0.18	91.1
100	8.612	33.380	8.602	25.912	3.013	0.17	91.2
110	8.476	33.500	8.465	26.026	3.217	0.16	91.1
120	8.205	33.603	8.193	26.148	3.410	0.15	90.7
130	8.134	33.742	8.121	26.268	3.592	0.14	90.9
140	7.960	33.809	7.946	26.347	3.763	0.14	90.9
150	7.793	33.867	7.778	26.417	3.929	0.14	90.9
175	7.584	33.925	7.567	26.493	4.327	0.14	90.9
200	6.808	34.001	6.789	26.661	4.696	0.16	89.6
225	6.651	34.011	6.631	26.689	5.042	0.16	88.3
250	6.630	34.013	6.607	26.694	5.387	0.16	88.2
275	6.544	34.018	6.519	26.710	5.730	0.16	88.1
300	6.395	34.029	6.368	26.739	6.068	0.15	88.2
344	6.333	34.033	6.302	26.751	6.654	0.16	88.0

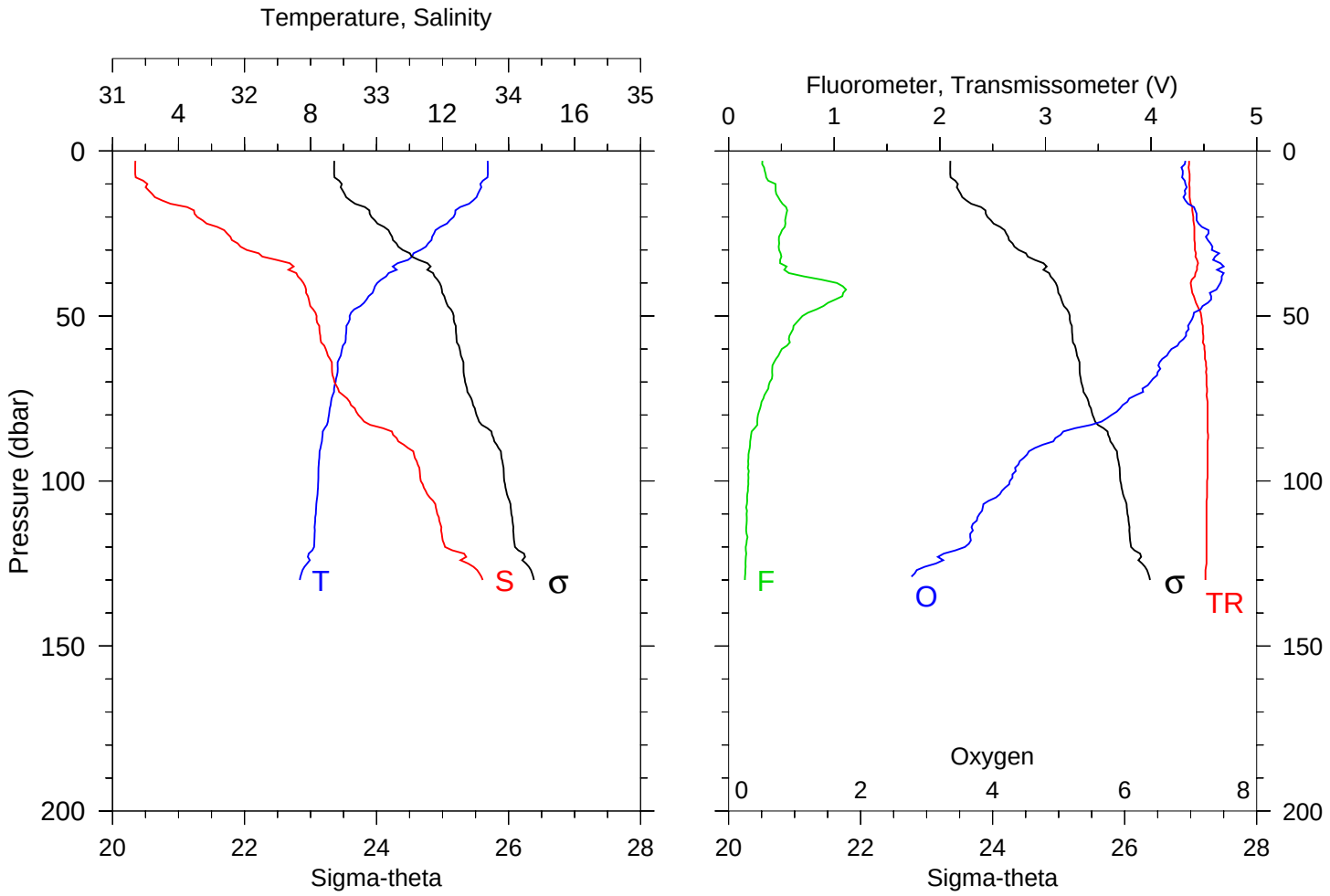
Station 11



STA NO 11 LAT: 44 134.7 N LONG: 124 562.5 W
01 JUL 2001 2005 GMT DEPTH 169

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
2	13.352	31.185	13.352	23.371	0.090	0.32	87.8
10	13.336	31.188	13.335	23.377	0.450	0.38	87.8
20	11.272	32.134	11.270	24.497	0.875	0.48	88.9
30	10.565	32.349	10.561	24.789	1.203	0.50	89.0
40	9.827	32.464	9.822	25.002	1.507	0.97	88.4
50	9.296	32.519	9.291	25.131	1.797	0.78	89.3
60	8.807	32.632	8.801	25.296	2.073	0.45	90.3
70	8.568	32.933	8.561	25.568	2.332	0.30	90.7
80	8.502	32.990	8.494	25.623	2.570	0.25	90.7
90	8.431	33.078	8.422	25.702	2.805	0.23	90.6
100	8.287	33.326	8.277	25.918	3.020	0.18	90.6
110	8.253	33.414	8.242	25.993	3.227	0.17	90.6
120	8.234	33.465	8.222	26.036	3.426	0.17	90.6
130	8.017	33.643	8.004	26.208	3.615	0.16	90.6
140	7.886	33.735	7.873	26.300	3.796	0.16	90.6
150	7.854	33.790	7.839	26.348	3.966	0.15	90.6
158	7.809	33.842	7.794	26.395	4.101	0.15	90.8

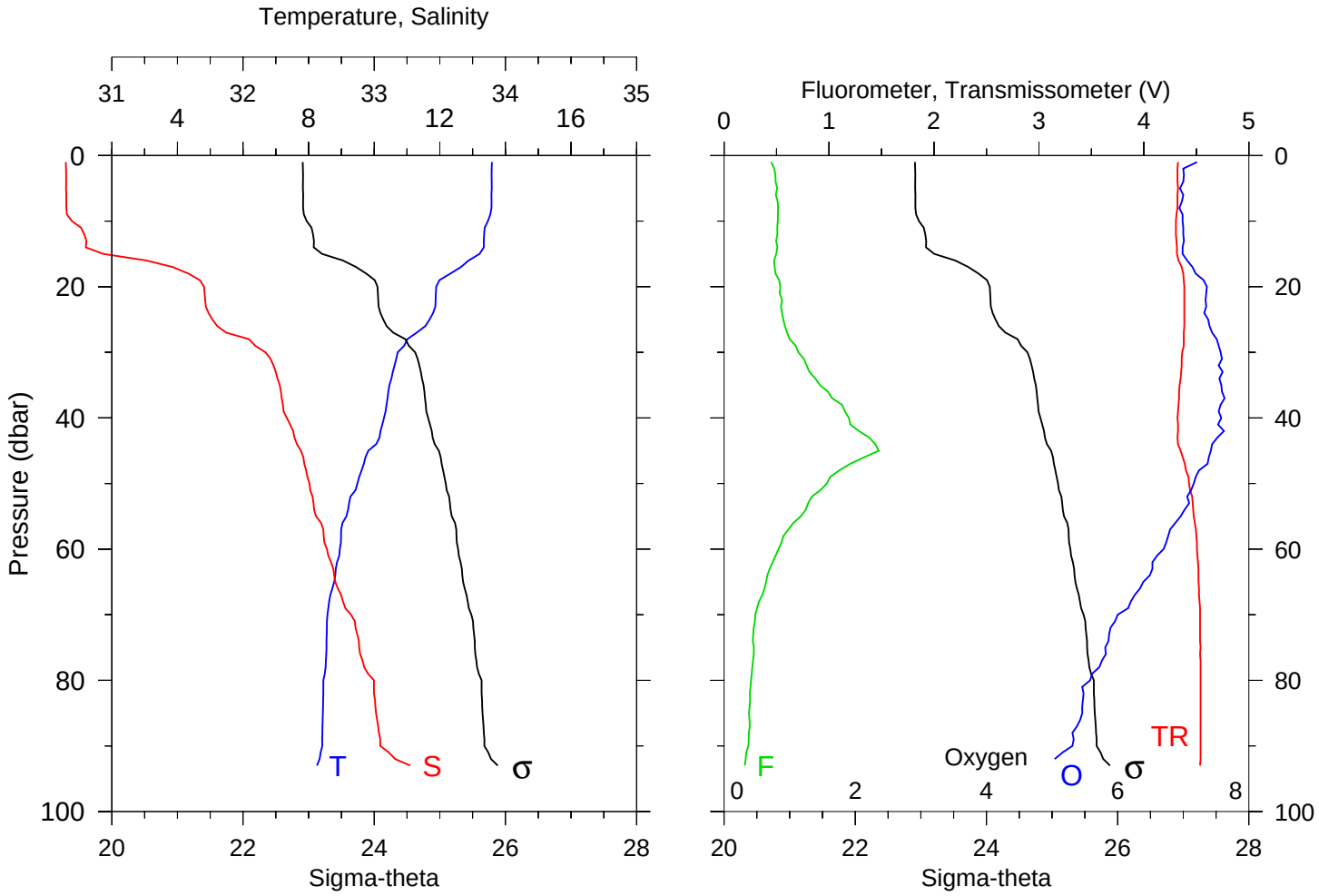
Station 12



STA NO 12 LAT: 44 138.9 N LONG: 124 548.8 W
01 JUL 2001 2050 GMT DEPTH 132

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
3	13.367	31.173	13.367	23.359	0.135	0.32	87.2
10	13.145	31.264	13.144	23.473	0.450	0.44	87.2
20	12.333	31.642	12.330	23.922	0.873	0.54	88.0
30	11.331	32.017	11.328	24.396	1.247	0.48	88.3
40	10.021	32.446	10.017	24.956	1.568	1.02	87.5
50	9.184	32.546	9.179	25.169	1.858	0.70	89.5
60	8.955	32.615	8.949	25.260	2.135	0.50	90.1
70	8.760	32.681	8.753	25.341	2.401	0.39	90.5
80	8.557	32.862	8.549	25.514	2.657	0.28	90.7
90	8.302	33.238	8.292	25.847	2.887	0.20	90.7
100	8.233	33.335	8.223	25.934	3.097	0.19	90.6
110	8.160	33.460	8.149	26.042	3.300	0.17	90.5
120	8.106	33.519	8.094	26.097	3.494	0.16	90.5
130	7.674	33.804	7.661	26.384	3.670	0.15	90.3

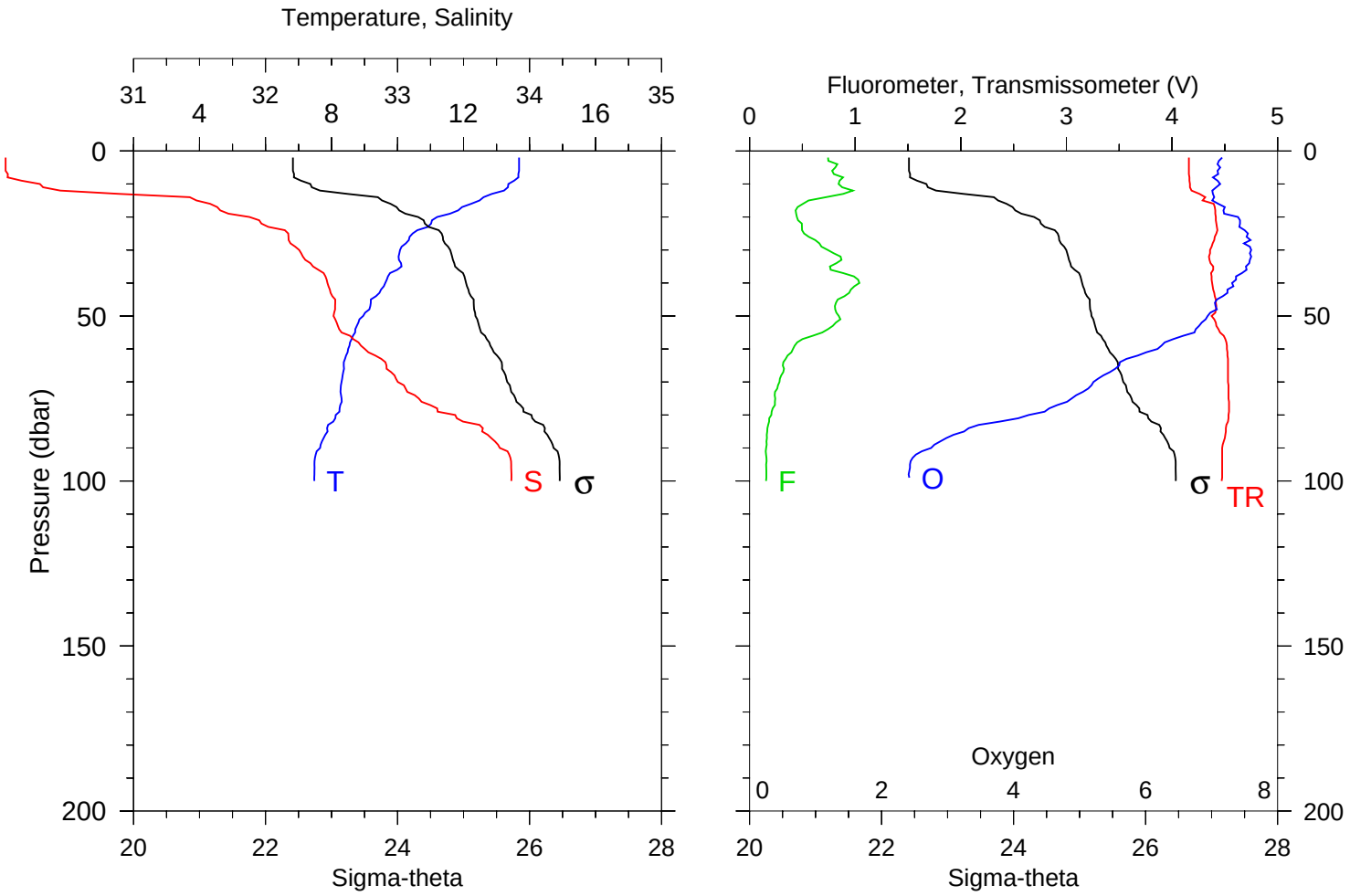
Station 13



STA NO 13 LAT: 44 134.9 N LONG: 124 500.2 W
01 JUL 2001 2307 GMT DEPTH 103

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
1	13.588	30.649	13.587	22.910	0.049	0.45	86.5
10	13.465	30.696	13.463	22.971	0.493	0.51	86.1
20	11.891	31.703	11.889	24.050	0.940	0.54	87.7
30	10.716	32.171	10.713	24.624	1.309	0.71	87.3
40	10.298	32.334	10.294	24.822	1.630	1.19	86.4
50	9.487	32.507	9.481	25.091	1.929	0.98	88.6
60	8.951	32.640	8.945	25.279	2.206	0.52	90.1
70	8.574	32.823	8.567	25.481	2.467	0.30	90.7
80	8.449	32.998	8.441	25.637	2.712	0.26	90.8
90	8.418	33.046	8.409	25.679	2.946	0.23	90.8
93	8.254	33.275	8.244	25.884	3.013	0.20	90.7

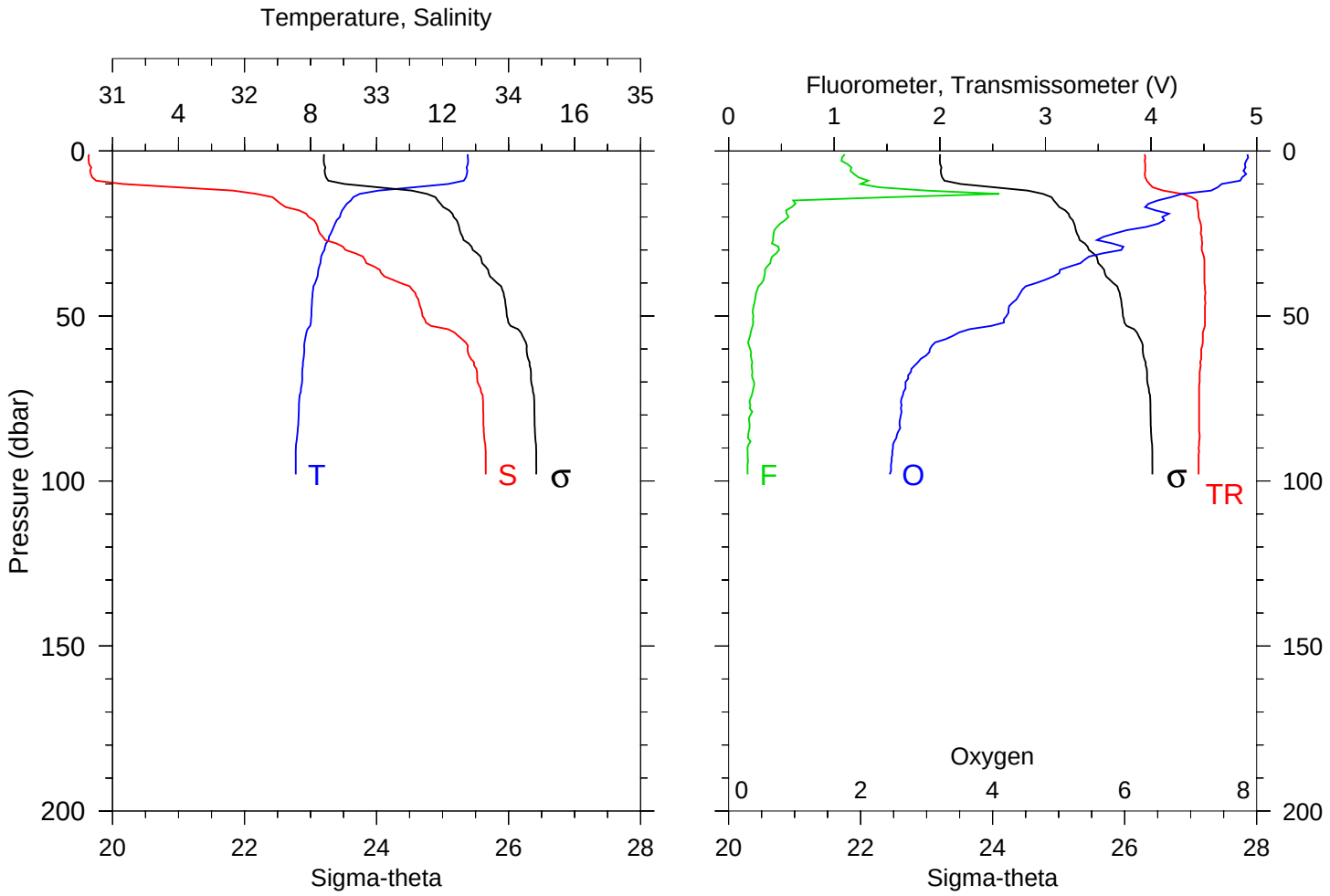
Station 14



STA NO 14 LAT: 44 135.6 N LONG: 124 446.3 W
02 JUL 2001 2 GMT DEPTH 109

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
2	13.682	30.031	13.681	22.415	0.108	0.74	83.2
10	13.358	30.291	13.356	22.679	0.539	0.84	83.4
20	11.200	31.878	11.198	24.311	0.970	0.45	88.3
30	10.075	32.255	10.072	24.798	1.303	0.74	87.2
40	9.628	32.469	9.624	25.038	1.607	1.04	87.6
50	8.958	32.515	8.953	25.180	1.891	0.85	87.5
60	8.503	32.752	8.497	25.435	2.159	0.41	90.4
70	8.303	33.002	8.296	25.662	2.401	0.28	90.6
80	8.127	33.437	8.119	26.029	2.621	0.21	90.7
90	7.653	33.775	7.644	26.364	2.800	0.16	89.5
100	7.478	33.862	7.468	26.457	2.959	0.16	89.4

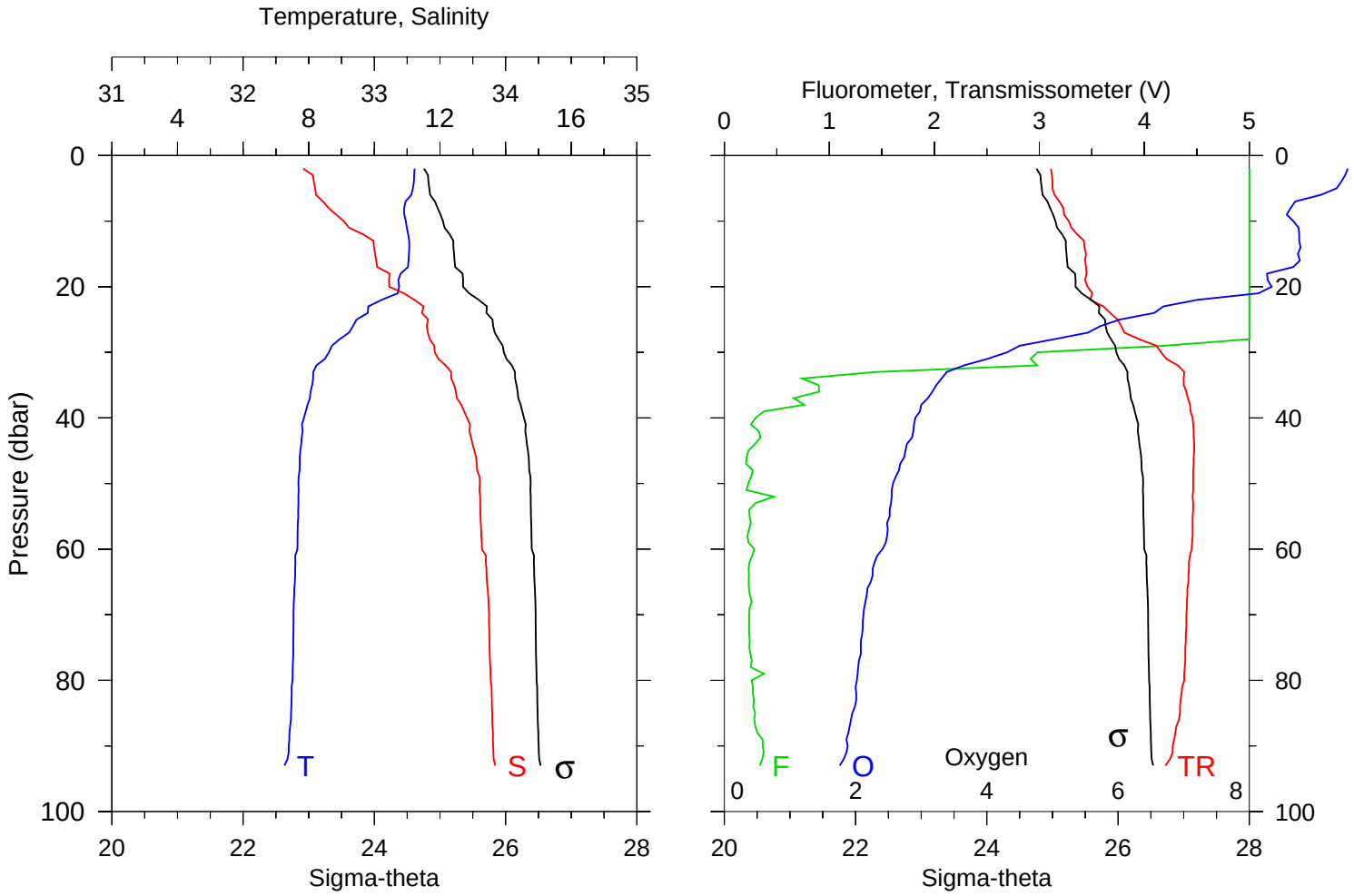
Station 15



STA NO 15 LAT: 44 134.9 N LONG: 124 363.9 W
02 JUL 2001 117 GMT DEPTH 107

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
1	12.759	30.821	12.759	23.204	0.047	1.10	78.8
10	12.171	31.078	12.169	23.514	0.463	1.25	79.7
20	8.888	32.486	8.886	25.168	0.780	0.57	89.0
30	8.420	32.765	8.417	25.458	1.047	0.48	89.6
40	8.140	33.181	8.136	25.826	1.281	0.31	90.1
50	8.025	33.348	8.020	25.974	1.488	0.23	90.2
60	7.812	33.689	7.806	26.273	1.674	0.20	89.5
70	7.744	33.765	7.737	26.343	1.845	0.24	89.2
80	7.640	33.809	7.633	26.392	2.010	0.21	89.1
90	7.556	33.825	7.547	26.417	2.173	0.18	89.0
98	7.552	33.827	7.543	26.419	2.303	0.18	89.0

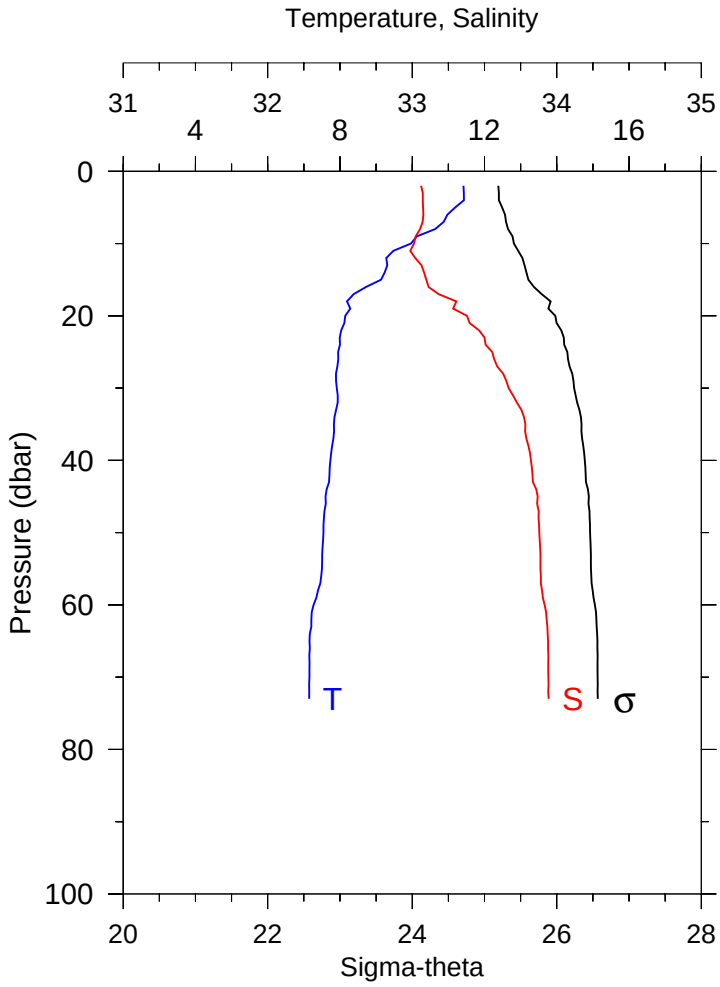
Station 16

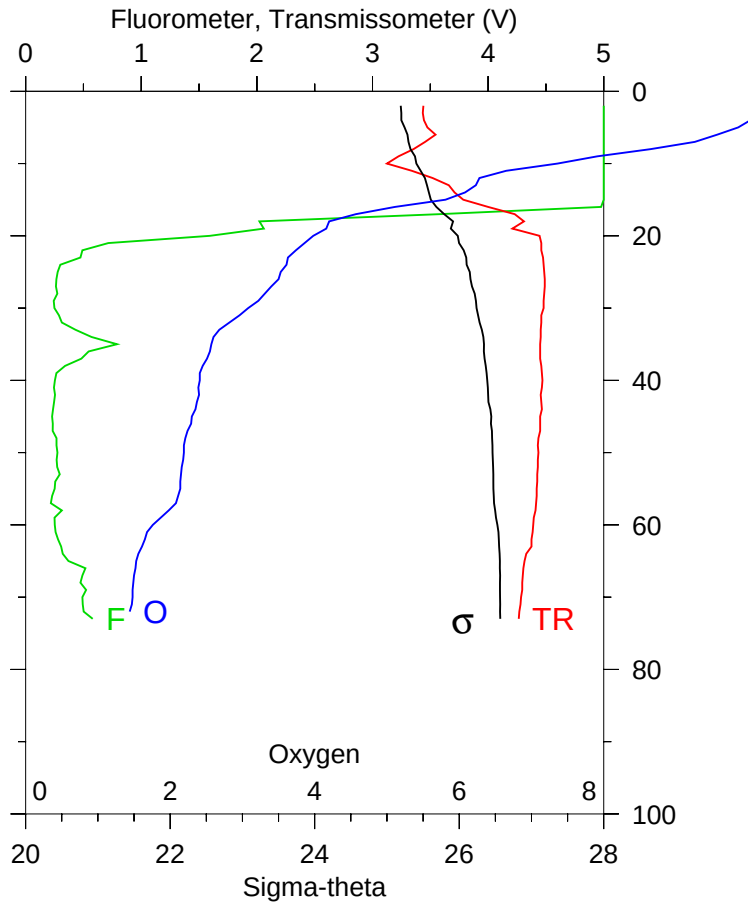


STA NO 16 LAT: 44 134.9 N LONG: 124 280.8 W
02 JUL 2001 507 GMT DEPTH 102

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
2	11.226	32.458	11.226	24.757	0.064	5.00	62.2
10	10.959	32.767	10.958	25.045	0.308	5.00	65.6
20	10.756	33.114	10.754	25.351	0.582	5.00	69.2
30	8.614	33.460	8.611	25.973	0.807	2.98	83.2
40	7.853	33.706	7.850	26.280	0.993	0.30	89.2
50	7.684	33.804	7.679	26.382	1.161	0.23	89.3
60	7.656	33.819	7.650	26.398	1.325	0.28	89.0
70	7.535	33.874	7.528	26.458	1.484	0.24	88.0
80	7.506	33.886	7.499	26.472	1.641	0.26	87.6
90	7.391	33.905	7.383	26.504	1.795	0.37	85.4
93	7.261	33.921	7.253	26.534	1.841	0.34	84.0

Station 17

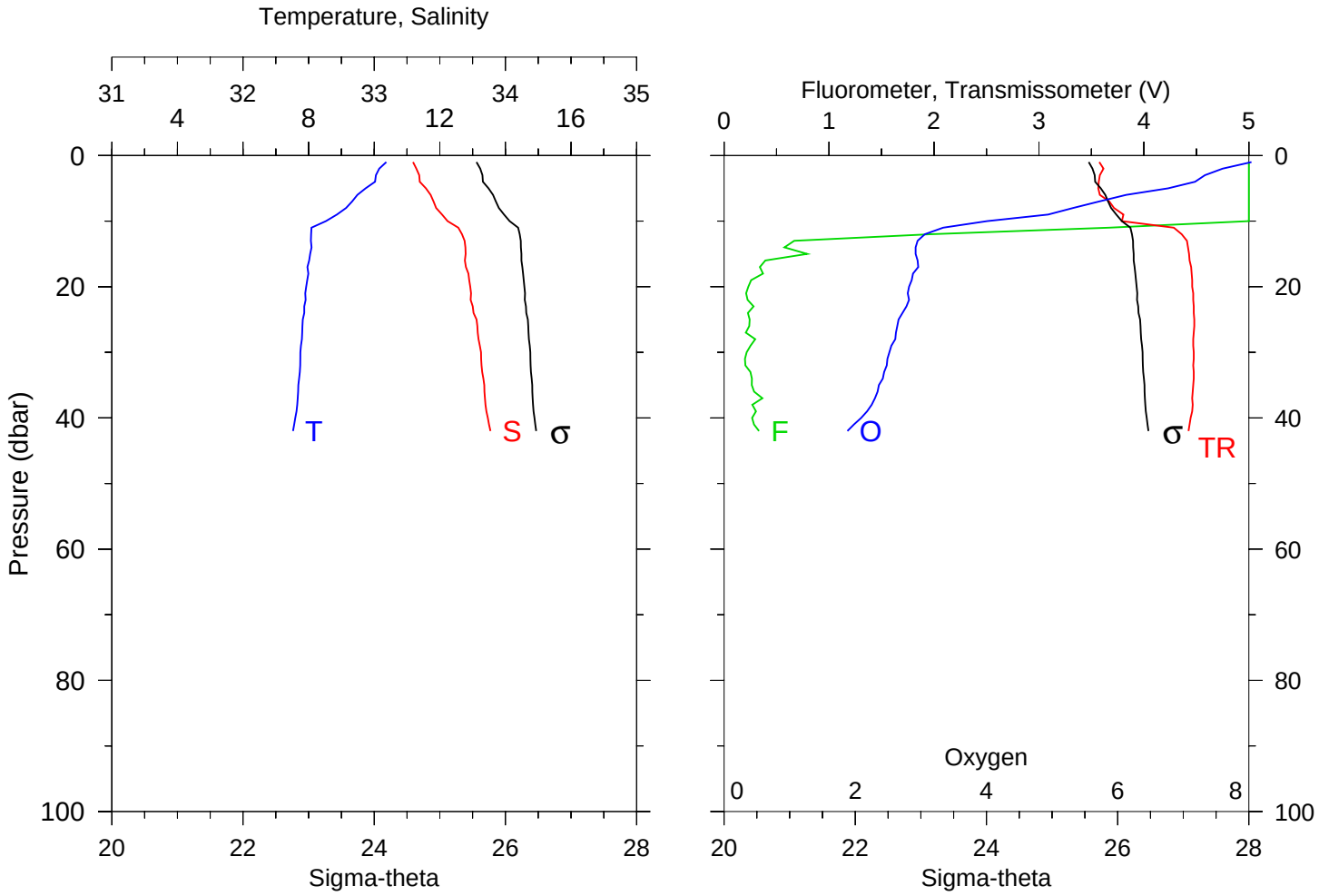




STA NO 17 LAT: 44 135.4 N LONG: 124 185.4 W
02 JUL 2001 628 GMT DEPTH 82

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
2	11.418	33.061	11.418	25.191	0.055	5.00	68.8
10	9.963	33.012	9.961	25.407	0.270	5.00	62.5
20	8.146	33.379	8.144	25.980	0.501	1.59	88.9
30	7.912	33.667	7.909	26.240	0.689	0.25	89.6
40	7.735	33.821	7.731	26.388	0.858	0.25	89.4
50	7.543	33.879	7.538	26.461	1.018	0.28	88.7
60	7.269	33.916	7.264	26.528	1.173	0.25	87.8
70	7.155	33.942	7.148	26.565	1.321	0.49	85.7
73	7.148	33.944	7.141	26.568	1.365	0.58	85.3

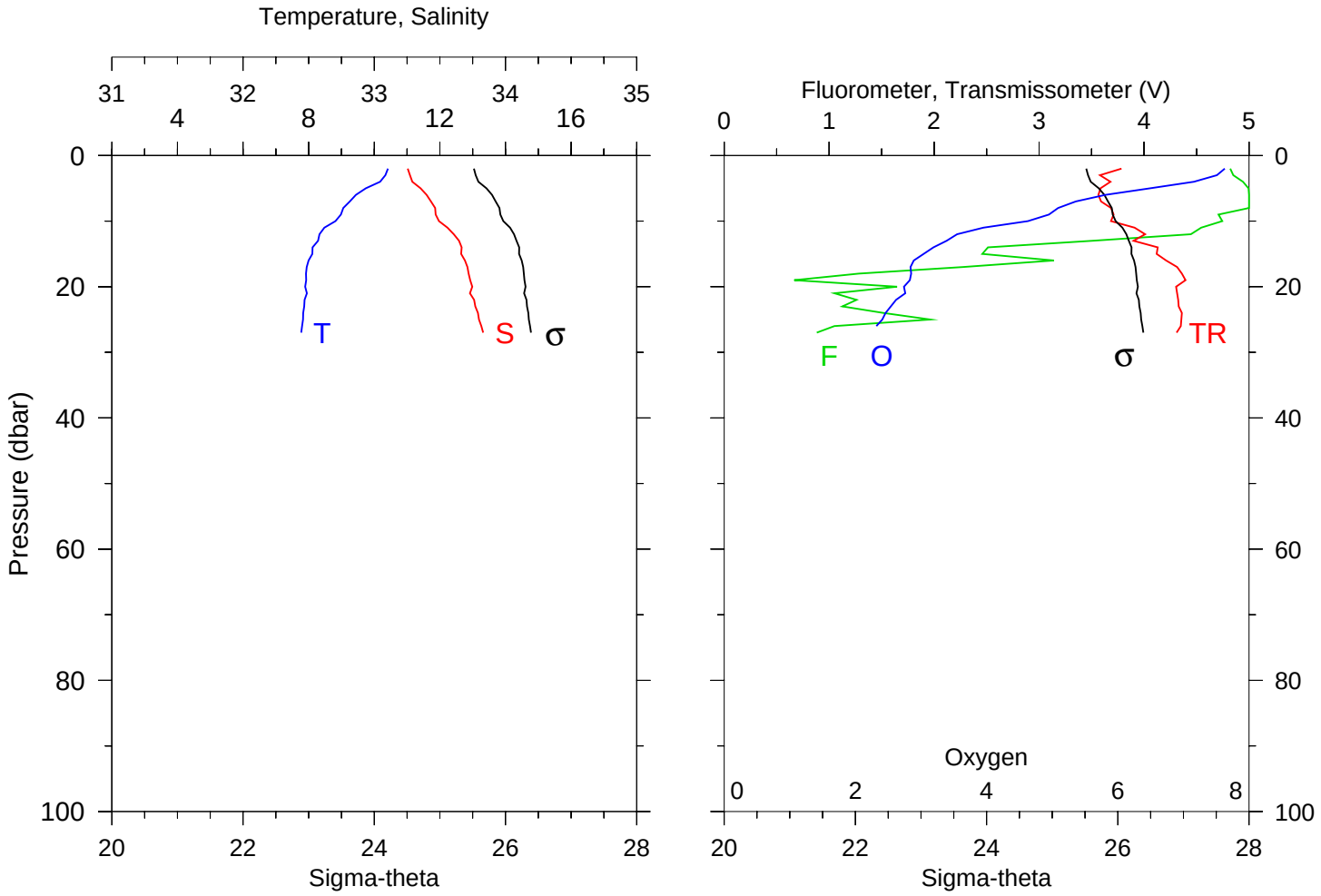
Station 18



STA NO 18 LAT: 44 136.1 N LONG: 124 106.8 W
02 JUL 2001 737 GMT DEPTH 51

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
1	10.369	33.296	10.368	25.559	0.024	5.00	71.5
10	8.528	33.559	8.527	26.064	0.223	5.00	75.8
20	7.926	33.732	7.925	26.289	0.400	0.23	89.2
30	7.748	33.814	7.745	26.380	0.569	0.22	89.5
40	7.593	33.866	7.589	26.443	0.731	0.27	88.9
42	7.524	33.886	7.520	26.469	0.762	0.33	88.5

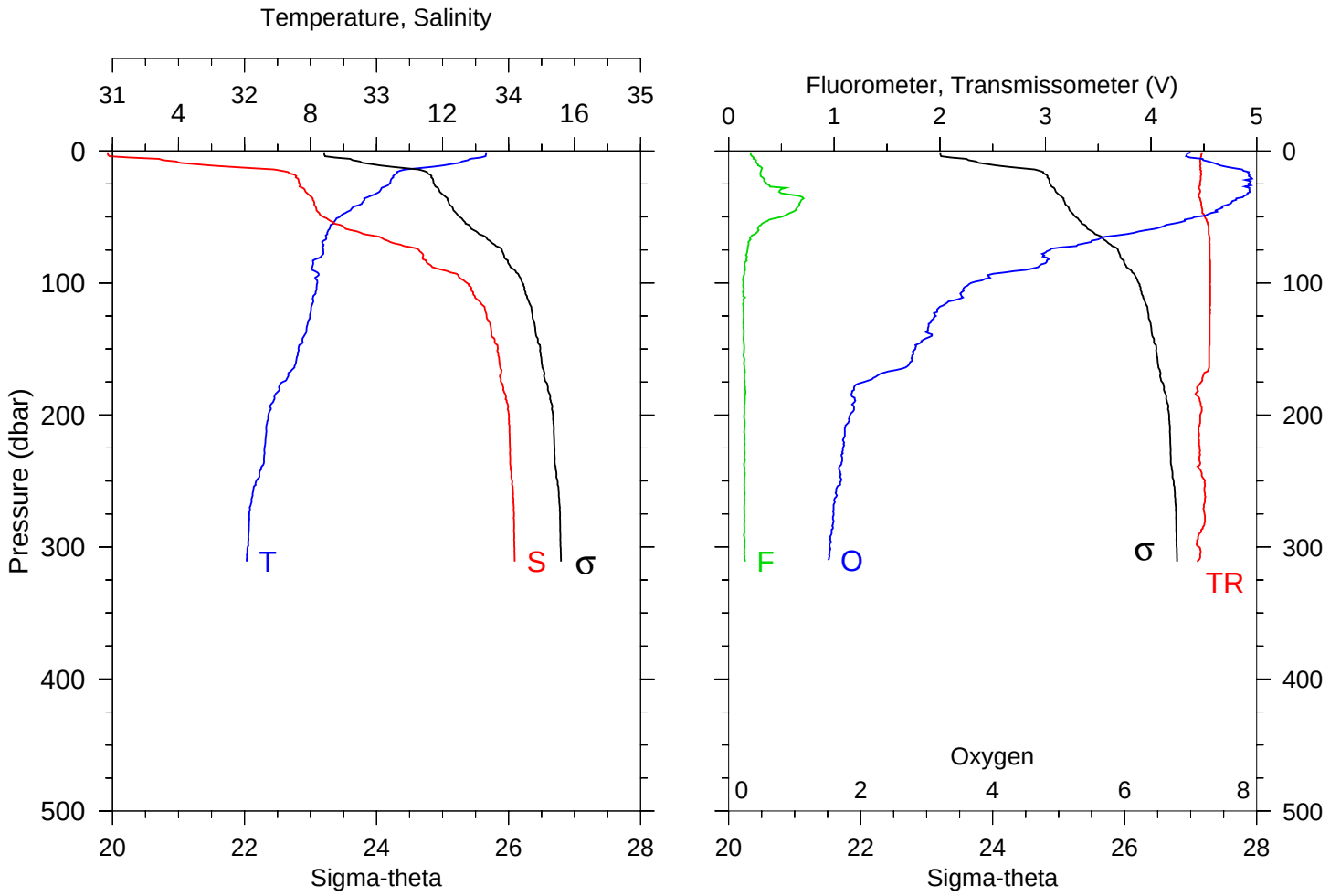
Station 19



STA NO 19 LAT: 44 134.9 N LONG: 124 89.2 W
02 JUL 2001 910 GMT DEPTH 36

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
2	10.417	33.255	10.416	25.519	0.049	4.82	75.7
10	8.817	33.493	8.816	25.967	0.227	4.74	73.7
20	7.894	33.747	7.892	26.306	0.408	1.65	86.1
27	7.773	33.830	7.770	26.389	0.526	0.88	86.2

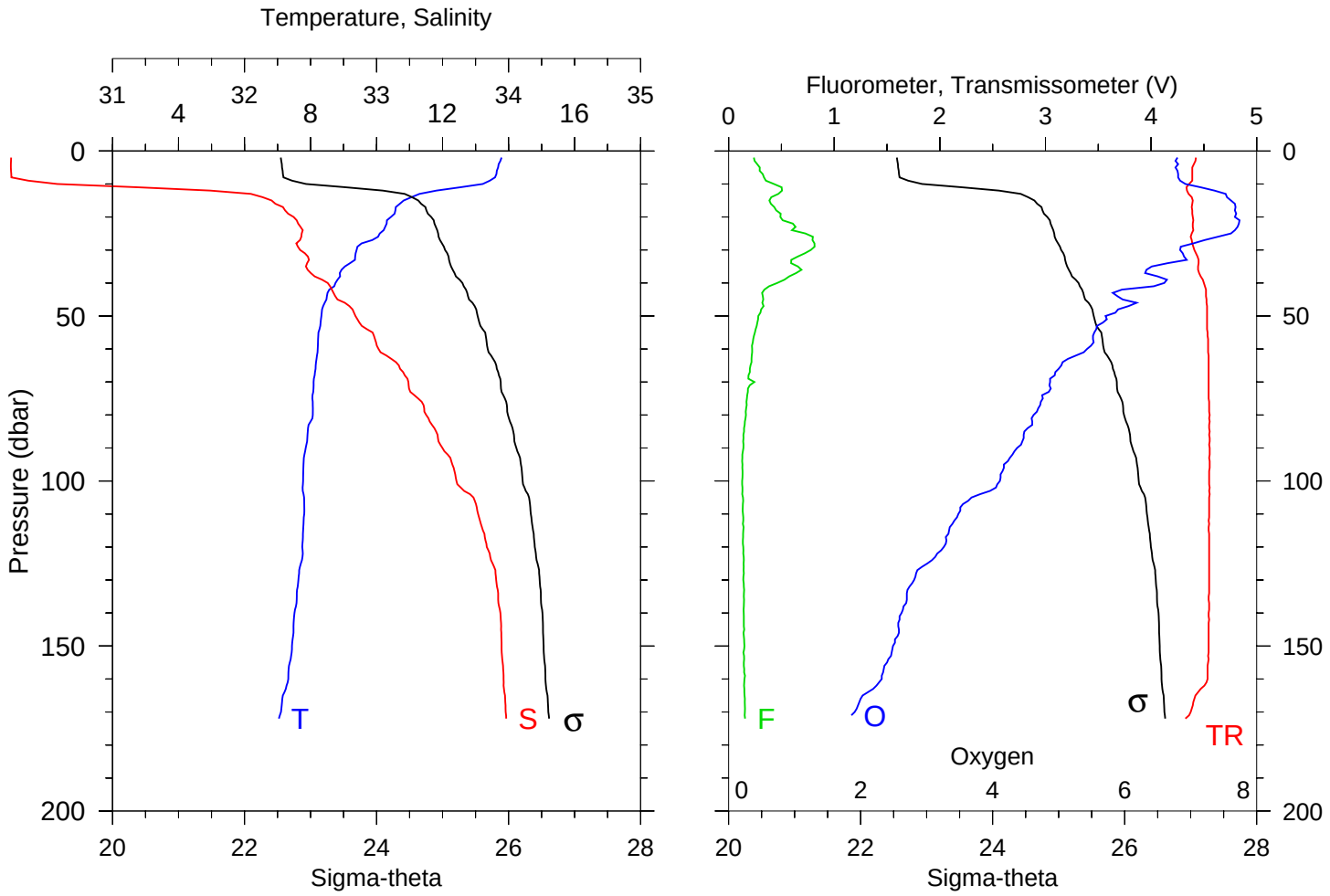
Station 20



STA NO 20 LAT: 44 600.0 N LONG: 124 271.0 W
06 JUL 2001 1650 GMT DEPTH 322

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
1	13.319	30.962	13.319	23.205	0.047	0.20	89.6
10	12.245	31.630	12.244	23.928	0.442	0.28	89.4
20	10.508	32.388	10.506	24.829	0.779	0.32	89.4
30	10.111	32.458	10.108	24.950	1.085	0.48	89.3
40	9.551	32.529	9.547	25.098	1.377	0.67	89.5
50	8.883	32.599	8.877	25.258	1.656	0.50	90.2
60	8.539	32.808	8.533	25.474	1.917	0.28	90.9
70	8.357	33.134	8.350	25.757	2.153	0.19	91.1
80	8.322	33.352	8.314	25.934	2.366	0.17	91.1
90	8.045	33.496	8.036	26.088	2.567	0.16	91.2
100	8.207	33.685	8.197	26.212	2.754	0.14	91.2
110	8.080	33.745	8.069	26.279	2.932	0.14	91.2
120	8.016	33.821	8.005	26.348	3.104	0.14	91.2
130	7.917	33.858	7.904	26.391	3.271	0.14	91.1
140	7.808	33.871	7.794	26.417	3.435	0.14	91.1
150	7.633	33.919	7.619	26.481	3.594	0.15	91.0
175	7.158	33.942	7.141	26.566	3.978	0.15	89.5
200	6.721	34.002	6.703	26.673	4.335	0.15	89.3
225	6.604	34.011	6.584	26.696	4.680	0.15	89.2
250	6.352	34.028	6.330	26.742	5.020	0.15	90.2
275	6.144	34.041	6.120	26.780	5.347	0.15	90.1
300	6.096	34.044	6.070	26.788	5.670	0.15	89.1
311	6.065	34.046	6.039	26.794	5.812	0.15	88.7

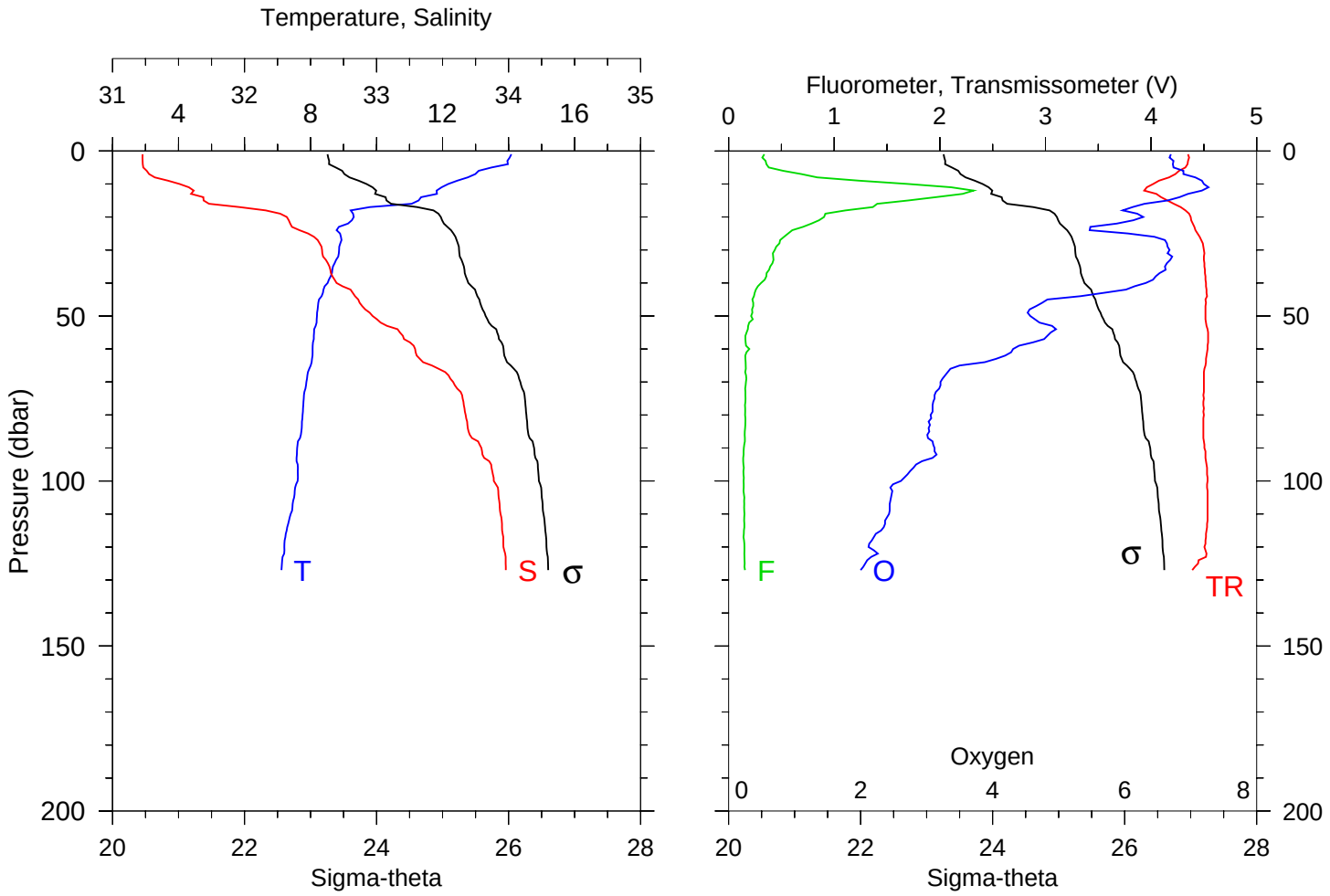
Station 21



STA NO 21 LAT: 44 0.2 N LONG: 124 200.1 W
06 JUL 2001 2017 GMT DEPTH 183

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
2	13.787	30.232	13.787	22.549	0.106	0.24	88.5
10	13.217	30.581	13.216	22.931	0.524	0.43	87.2
20	10.435	32.372	10.433	24.828	0.876	0.49	87.9
30	9.395	32.421	9.391	25.038	1.177	0.78	88.2
40	8.755	32.630	8.751	25.301	1.459	0.46	90.0
50	8.328	32.840	8.324	25.531	1.714	0.28	90.6
60	8.217	33.015	8.211	25.684	1.951	0.22	90.8
70	8.092	33.241	8.086	25.881	2.171	0.24	90.9
80	8.068	33.376	8.060	25.990	2.378	0.16	91.1
90	7.853	33.499	7.844	26.118	2.573	0.14	91.1
100	7.774	33.605	7.764	26.213	2.758	0.13	91.0
110	7.809	33.769	7.798	26.337	2.932	0.14	91.0
120	7.749	33.835	7.738	26.397	3.098	0.14	91.0
130	7.632	33.906	7.620	26.471	3.258	0.14	91.0
140	7.513	33.938	7.500	26.513	3.414	0.14	90.9
150	7.437	33.947	7.423	26.531	3.566	0.15	90.9
172	7.040	33.982	7.024	26.614	3.893	0.16	86.5

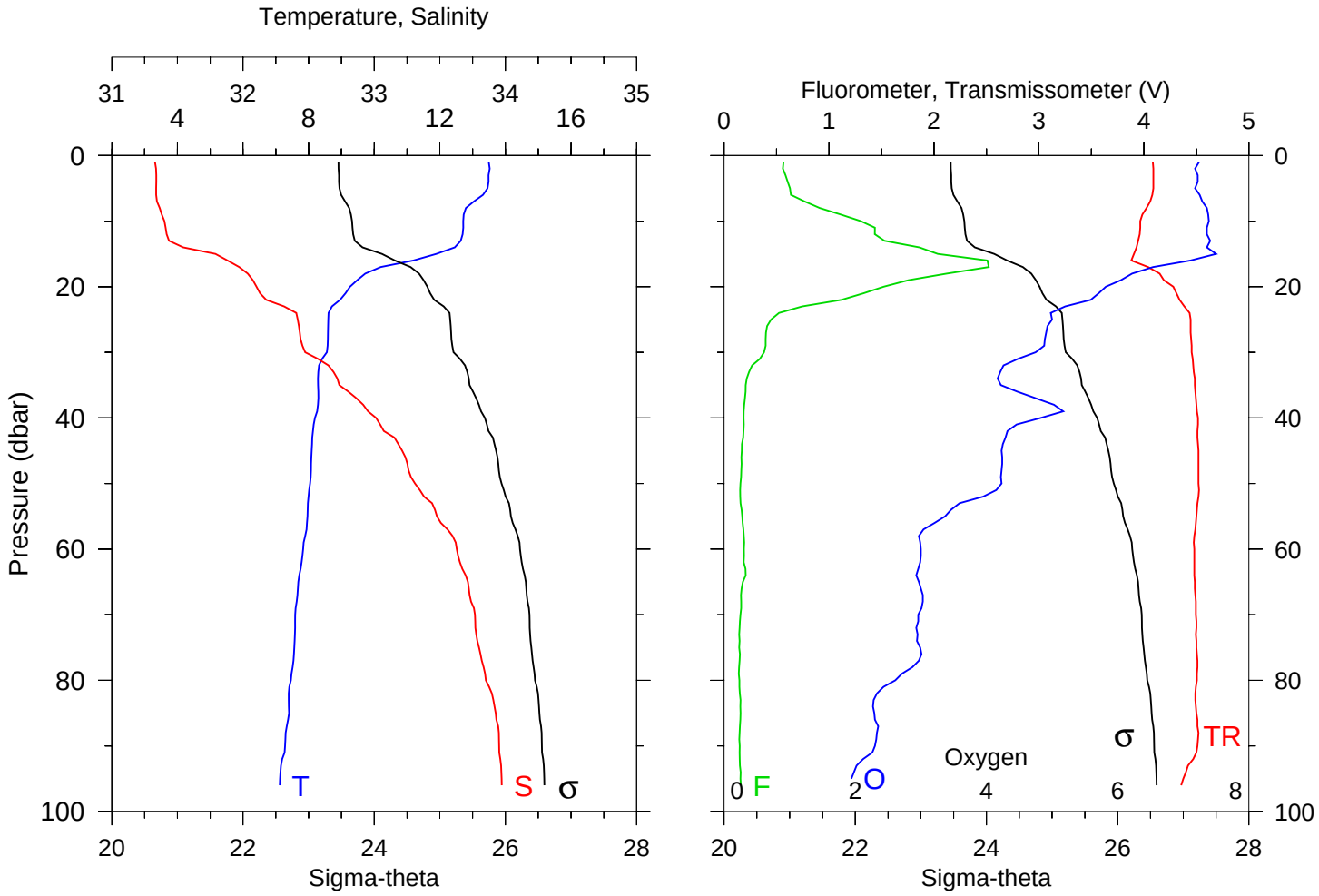
Station 22



STA NO 22 LAT: 44 599.5 N LONG: 124 134.1 W
06 JUL 2001 2121 GMT DEPTH 137

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
1	14.084	31.228	14.084	23.257	0.046	0.34	87.0
10	12.171	31.508	12.169	23.848	0.444	1.70	80.4
20	9.309	32.320	9.307	24.973	0.804	0.90	87.5
30	8.865	32.587	8.862	25.250	1.086	0.44	90.0
40	8.518	32.697	8.514	25.390	1.351	0.31	90.4
50	8.194	32.970	8.189	25.652	1.595	0.21	90.3
60	8.062	33.292	8.056	25.924	1.814	0.20	90.7
70	7.874	33.580	7.867	26.178	2.011	0.16	90.0
80	7.758	33.675	7.750	26.270	2.190	0.16	90.0
90	7.594	33.794	7.585	26.387	2.361	0.14	90.1
100	7.609	33.888	7.599	26.459	2.522	0.14	90.7
110	7.398	33.939	7.388	26.529	2.676	0.15	90.7
120	7.205	33.961	7.194	26.574	2.824	0.15	90.1
127	7.119	33.979	7.107	26.600	2.926	0.16	87.8

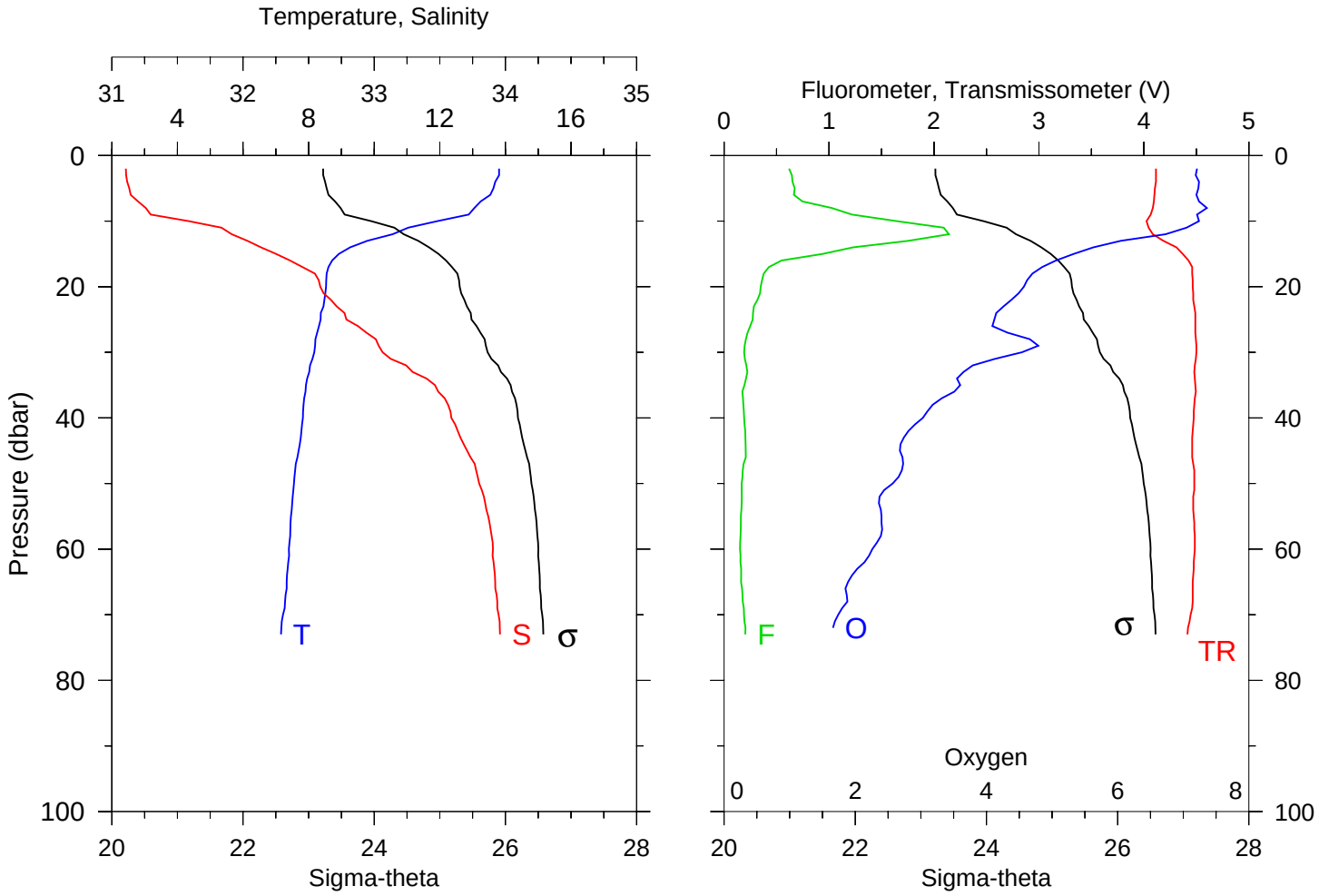
Station 23



STA NO 23 LAT: 44 599.8 N LONG: 124 100.1 W
07 JUL 2001 6 GMT DEPTH 105

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
1	13.493	31.329	13.493	23.455	0.044	0.57	81.7
10	12.714	31.401	12.713	23.662	0.436	1.30	79.3
20	9.262	32.103	9.259	24.810	0.812	1.52	85.6
30	8.556	32.474	8.553	25.209	1.099	0.38	89.1
40	8.193	33.014	8.189	25.687	1.349	0.19	90.3
50	8.045	33.311	8.040	25.941	1.565	0.16	90.4
60	7.833	33.629	7.827	26.222	1.757	0.19	89.6
70	7.590	33.768	7.584	26.367	1.930	0.16	89.9
80	7.460	33.851	7.453	26.451	2.093	0.15	90.1
90	7.282	33.952	7.273	26.556	2.244	0.15	90.2
96	7.121	33.972	7.113	26.594	2.332	0.16	87.1

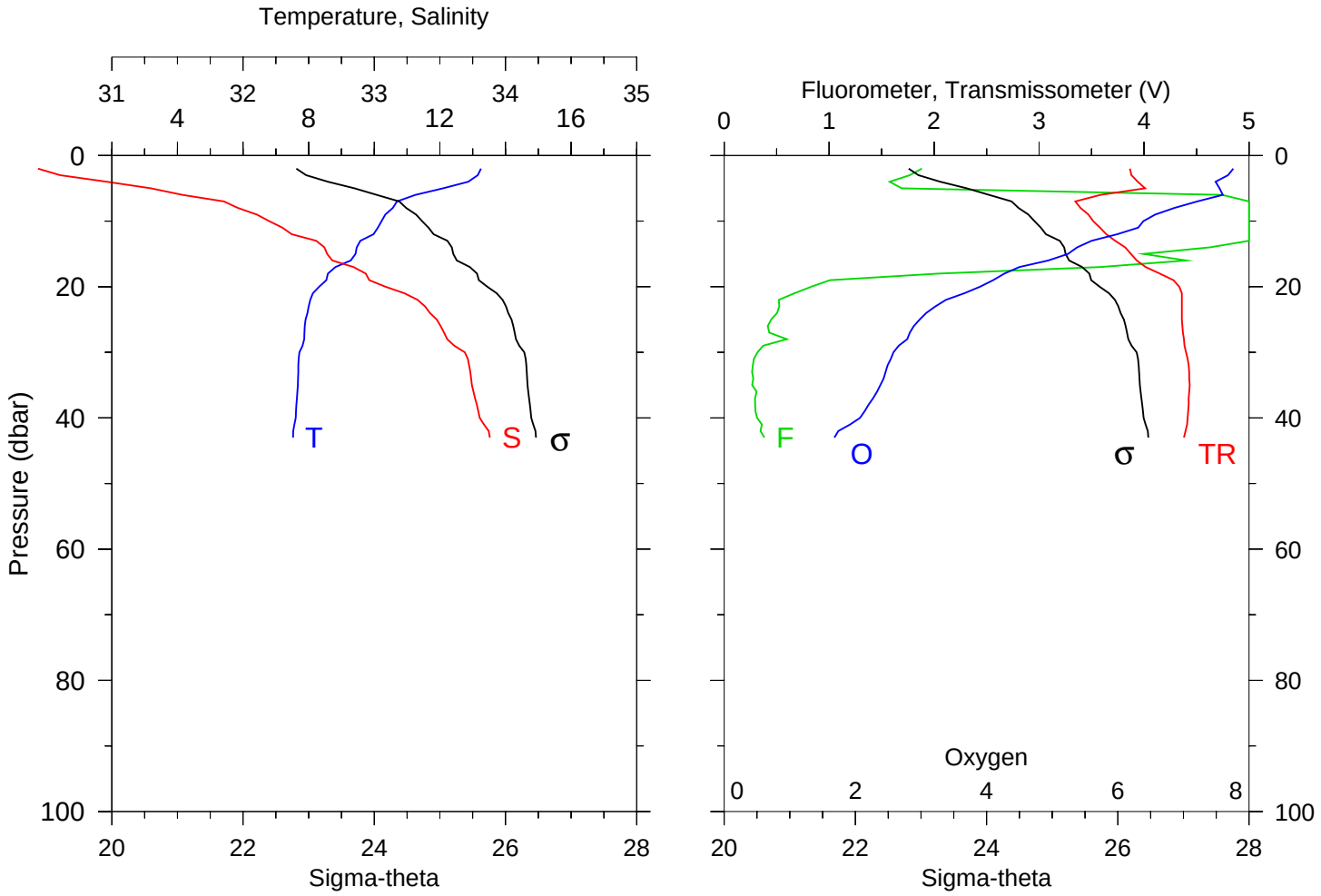
Station 24



STA NO 24 LAT: 44 0.1 N LONG: 124 73.4 W
07 JUL 2001 50 GMT DEPTH 83

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
2	13.806	31.107	13.806	23.221	0.093	0.62	82.3
10	11.927	31.586	11.926	23.953	0.452	1.64	80.5
20	8.531	32.589	8.529	25.303	0.759	0.35	89.3
30	8.173	33.064	8.170	25.729	1.006	0.19	90.0
40	7.826	33.588	7.822	26.191	1.203	0.19	89.5
50	7.553	33.800	7.549	26.397	1.375	0.17	89.6
60	7.398	33.905	7.392	26.502	1.532	0.15	89.7
70	7.218	33.948	7.211	26.561	1.683	0.19	88.9
73	7.158	33.959	7.151	26.578	1.727	0.20	88.3

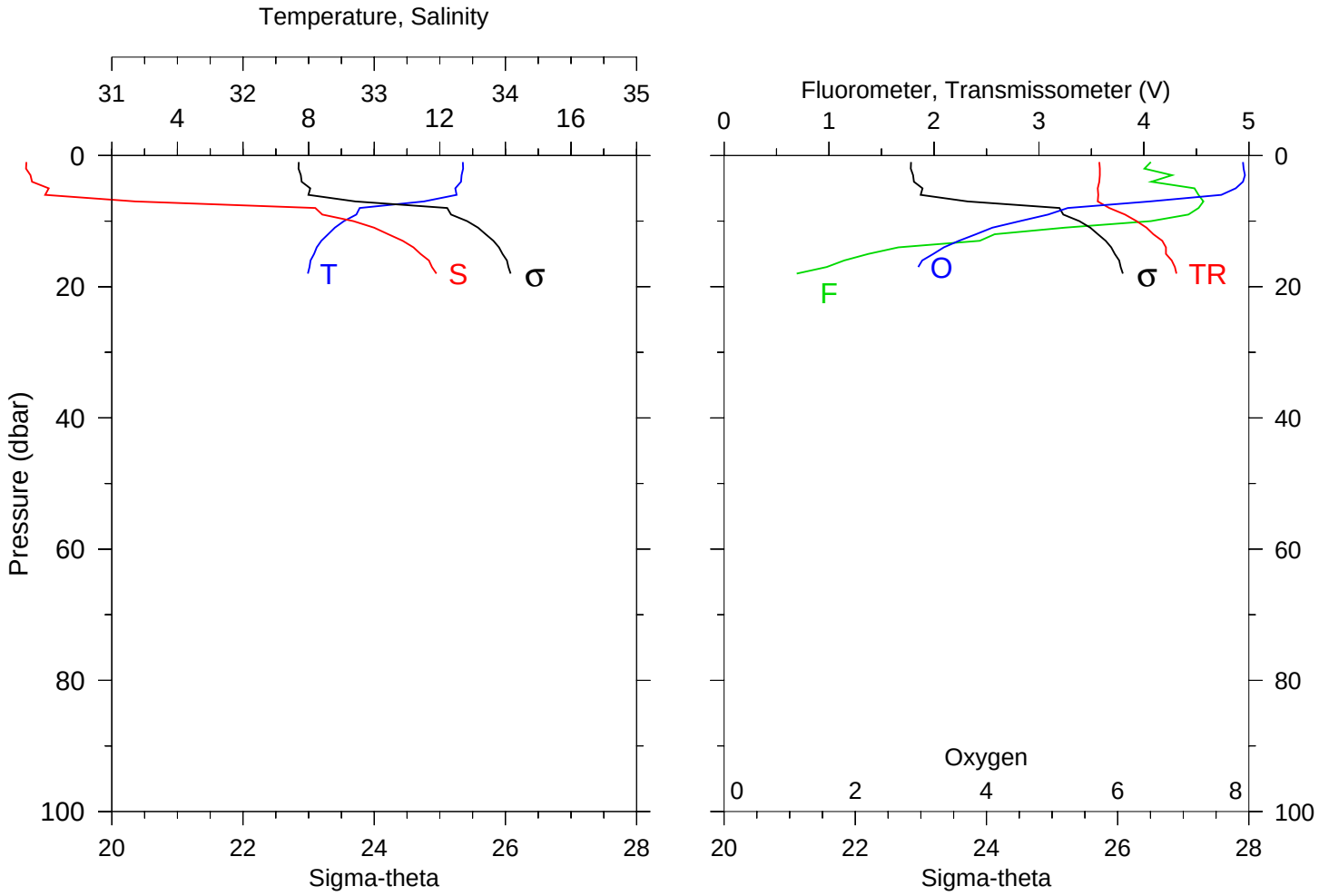
Station 25



STA NO 25 LAT: 44 599.8 N LONG: 124 43.5 W
07 JUL 2001 245 GMT DEPTH 52

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
2	13.253	30.437	13.252	22.812	0.101	1.88	77.3
10	10.223	32.199	10.222	24.729	0.420	5.00	70.3
20	8.320	33.085	8.318	25.723	0.693	0.83	86.7
30	7.718	33.690	7.715	26.287	0.887	0.32	88.0
40	7.606	33.804	7.602	26.393	1.055	0.31	88.3
43	7.525	33.881	7.521	26.465	1.103	0.38	87.6

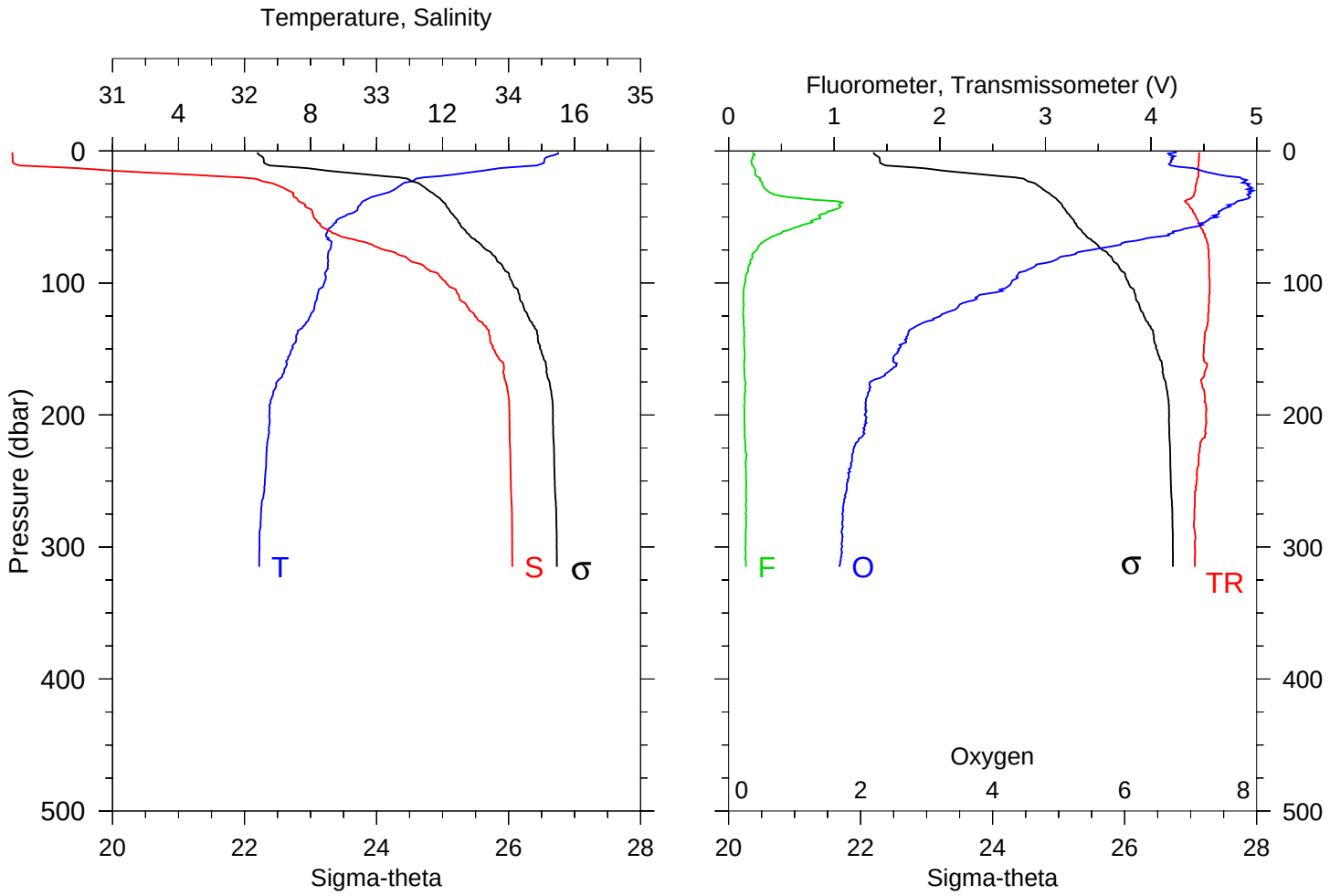
Station 26



STA NO 26 LAT: 44 599.0 N LONG: 124 24.0 W
07 JUL 2001 414 GMT DEPTH 27

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
1	12.702	30.349	12.702	22.850	0.050	4.07	71.5
10	9.076	32.841	9.075	25.416	0.432	4.07	78.6
18	7.978	33.474	7.976	26.079	0.604	0.69	86.2

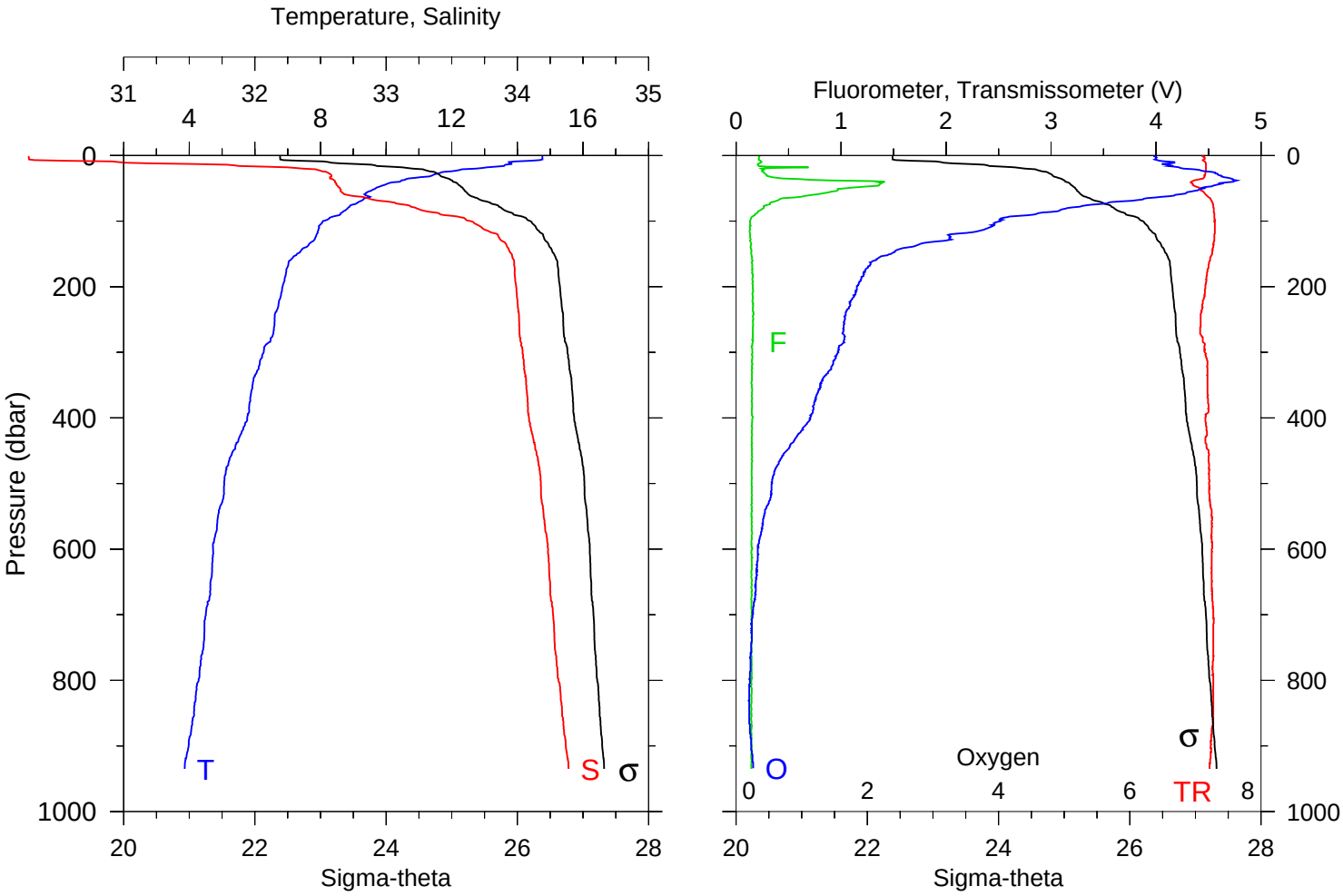
Station 27



STA NO 27 LAT: 44 135.1 N LONG: 124 574.0 W
10 JUL 2001 408 GMT DEPTH 329

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
1	15.501	30.241	15.501	22.200	0.056	0.24	89.1
10	14.970	30.265	14.969	22.332	0.556	0.22	89.0
20	11.435	31.969	11.433	24.340	1.015	0.29	88.9
30	10.477	32.334	10.473	24.791	1.346	0.37	88.4
40	9.523	32.452	9.519	25.042	1.649	1.06	86.9
50	8.971	32.523	8.966	25.184	1.934	0.87	88.5
60	8.516	32.635	8.510	25.342	2.205	0.57	89.8
70	8.631	32.938	8.624	25.562	2.459	0.30	90.7
80	8.525	33.218	8.517	25.797	2.691	0.22	90.9
90	8.492	33.396	8.483	25.943	2.905	0.19	91.0
100	8.417	33.526	8.407	26.056	3.106	0.15	91.1
110	8.202	33.625	8.191	26.166	3.296	0.14	91.0
120	8.107	33.698	8.095	26.238	3.478	0.14	90.9
130	7.860	33.804	7.848	26.357	3.652	0.14	90.7
140	7.561	33.859	7.548	26.444	3.816	0.15	90.2
150	7.445	33.885	7.430	26.481	3.975	0.15	90.0
175	6.974	33.979	6.958	26.620	4.348	0.16	89.5
200	6.752	34.007	6.734	26.673	4.700	0.15	90.4
225	6.670	34.013	6.649	26.689	5.046	0.16	89.2
250	6.615	34.017	6.593	26.699	5.390	0.17	88.6
275	6.496	34.026	6.471	26.723	5.731	0.16	88.2
300	6.454	34.027	6.427	26.729	6.068	0.16	88.3
315	6.444	34.028	6.417	26.731	6.270	0.16	88.2

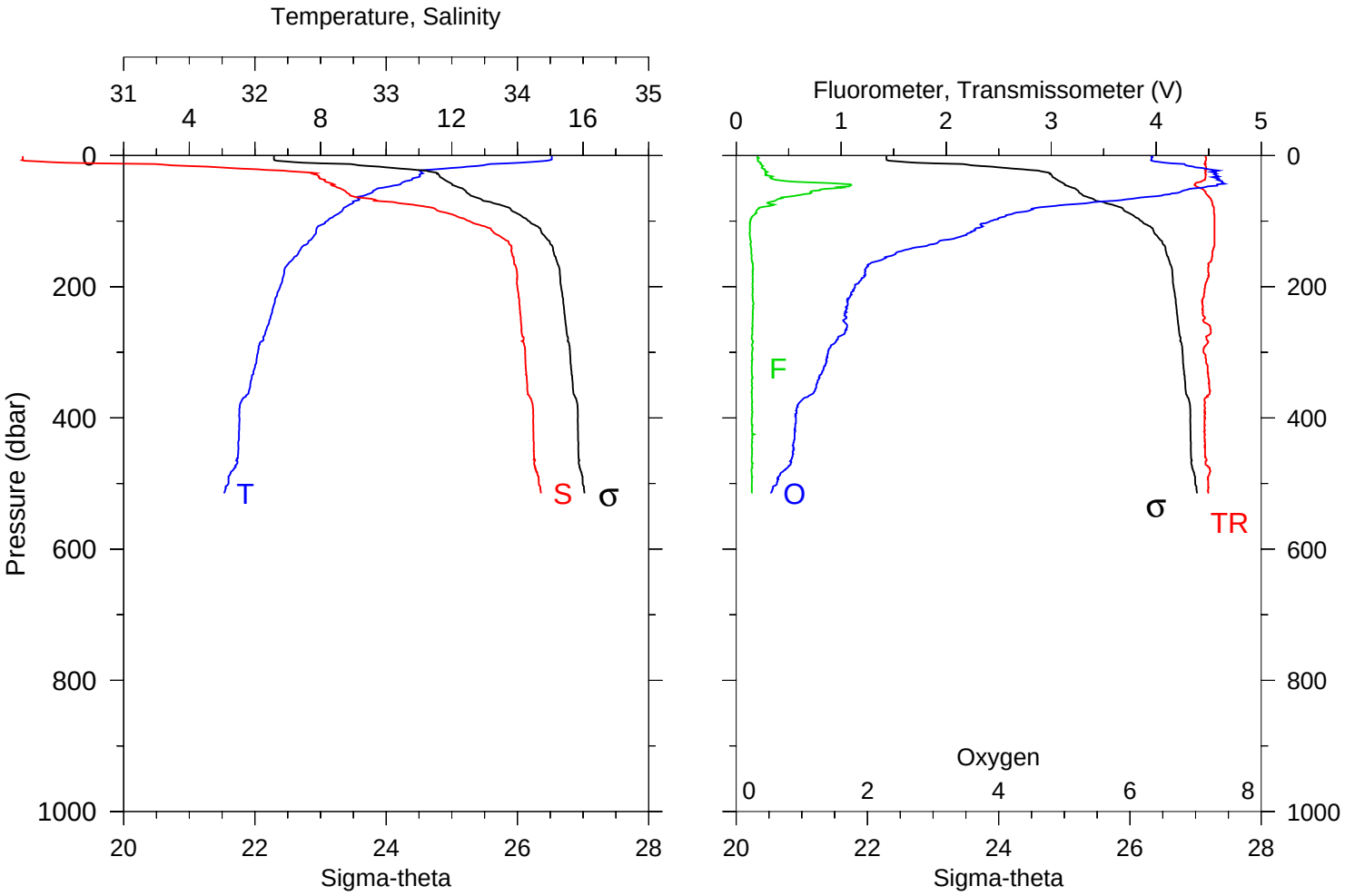
Station 28



STA NO 28 LAT: 44 134.1 N LONG: 125 20.4 W
10 JUL 2001 750 GMT DEPTH 950

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
1	14.759	30.274	14.759	22.383	0.054	0.22	88.7
10	13.738	30.959	13.736	23.120	0.531	0.24	89.4
20	12.735	32.366	12.732	24.405	0.942	0.24	89.5
30	11.427	32.582	11.423	24.818	1.267	0.29	89.2
40	10.413	32.612	10.408	25.020	1.569	1.42	86.7
50	9.684	32.648	9.678	25.169	1.855	1.04	88.5
60	9.355	32.703	9.349	25.265	2.130	0.73	89.5
70	9.193	33.004	9.185	25.526	2.390	0.37	90.6
80	8.834	33.228	8.825	25.758	2.624	0.26	91.0
90	8.603	33.416	8.594	25.942	2.840	0.18	91.1
100	8.072	33.643	8.062	26.199	3.032	0.13	91.2
110	7.961	33.731	7.951	26.285	3.210	0.13	91.2
120	7.884	33.847	7.872	26.388	3.380	0.13	91.1
130	7.787	33.881	7.774	26.429	3.544	0.13	91.1
140	7.545	33.924	7.532	26.497	3.701	0.14	90.9
150	7.285	33.956	7.271	26.559	3.853	0.14	90.7
175	6.958	33.980	6.942	26.623	4.216	0.15	89.8
200	6.842	33.991	6.824	26.648	4.573	0.16	89.4
225	6.727	34.001	6.707	26.672	4.924	0.16	88.9
250	6.599	34.013	6.577	26.699	5.269	0.16	88.5
275	6.539	34.018	6.515	26.710	5.611	0.16	88.7
300	6.267	34.040	6.241	26.763	5.945	0.16	89.3
350	5.925	34.068	5.895	26.830	6.587	0.15	89.8
400	5.766	34.089	5.732	26.866	7.209	0.16	89.4
450	5.342	34.142	5.305	26.959	7.803	0.15	90.0
500	5.064	34.178	5.025	27.021	8.356	0.15	90.1
776	4.346	34.299	4.287	27.198	11.141	0.15	90.8
935	3.860	34.390	3.791	27.322	12.540	0.14	90.2

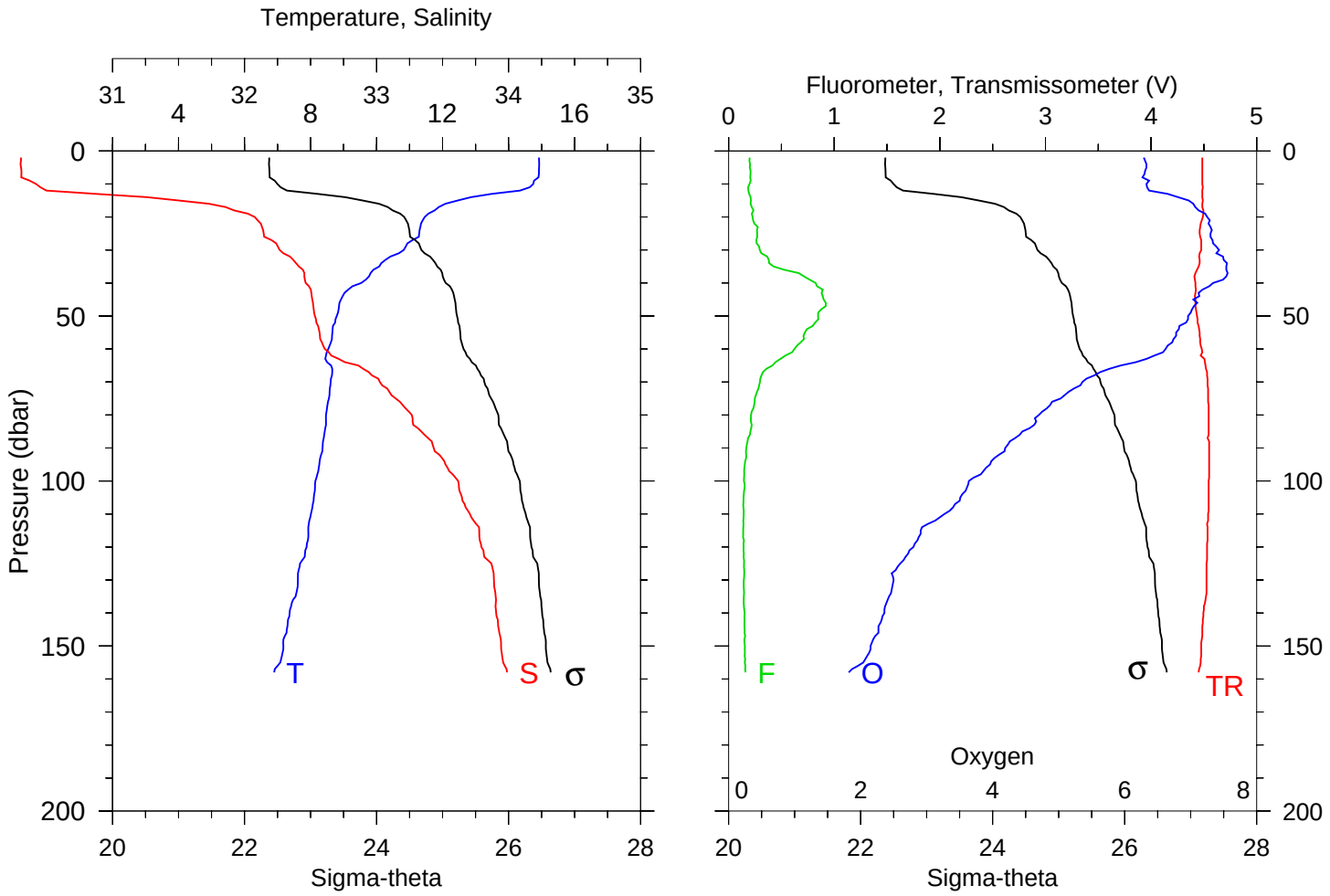
Station 29



STA NO 29 LAT: 44 134.1 N LONG: 125 599.6 W
10 JUL 2001 906 GMT DEPTH 523

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
1	15.050	30.231	15.050	22.289	0.055	0.20	89.4
10	14.379	30.433	14.378	22.585	0.550	0.22	89.3
20	11.768	31.894	11.766	24.221	0.984	0.26	89.5
30	11.026	32.476	11.022	24.807	1.313	0.28	89.4
40	10.538	32.538	10.533	24.940	1.622	0.56	88.6
50	9.749	32.650	9.744	25.160	1.914	0.93	88.5
60	9.390	32.724	9.384	25.276	2.190	0.62	89.7
70	8.988	32.983	8.981	25.542	2.448	0.35	90.6
80	8.704	33.360	8.696	25.882	2.675	0.22	91.0
90	8.492	33.506	8.483	26.029	2.882	0.17	91.1
100	8.192	33.636	8.182	26.176	3.074	0.14	91.1
110	7.899	33.773	7.888	26.327	3.252	0.13	91.1
120	7.843	33.837	7.831	26.385	3.419	0.13	91.1
130	7.644	33.924	7.631	26.483	3.580	0.14	91.1
140	7.422	33.955	7.409	26.539	3.734	0.14	91.0
150	7.317	33.959	7.303	26.557	3.884	0.14	90.7
175	6.894	33.995	6.878	26.644	4.246	0.16	89.9
200	6.771	34.000	6.753	26.665	4.598	0.16	89.3
225	6.599	34.014	6.579	26.699	4.943	0.17	88.8
250	6.454	34.025	6.432	26.727	5.281	0.16	89.0
275	6.285	34.037	6.261	26.758	5.614	0.15	89.7
300	6.092	34.059	6.067	26.801	5.937	0.15	89.0
350	5.857	34.075	5.828	26.843	6.569	0.15	90.1
400	5.528	34.121	5.495	26.920	7.169	0.15	89.2
450	5.488	34.123	5.450	26.928	7.756	0.15	89.3
500	5.196	34.163	5.155	26.994	8.330	0.15	89.9
515	5.068	34.180	5.027	27.022	8.494	0.15	90.0

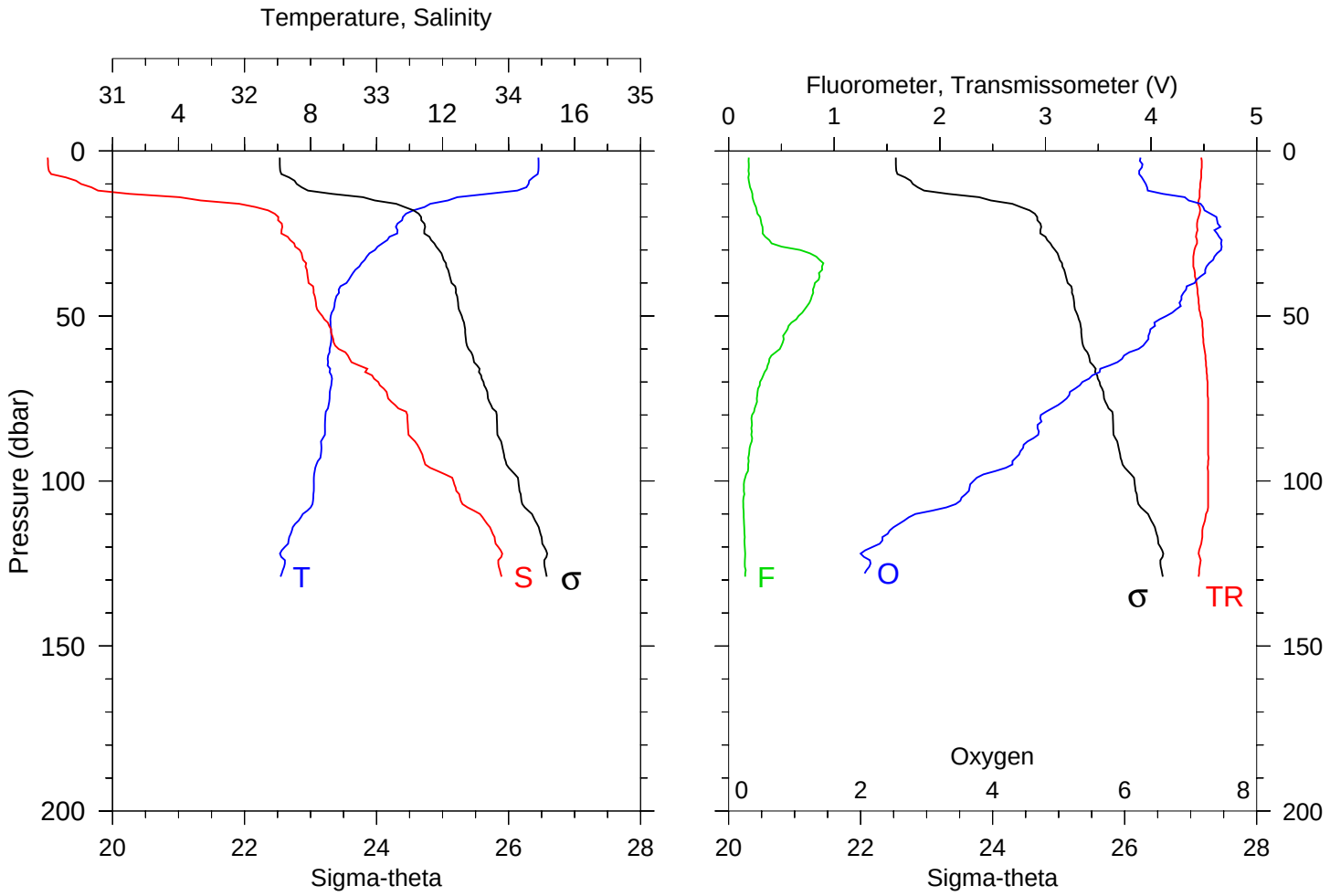
Station 30



STA NO 30 LAT: 44 134.1 N LONG: 125 561.8 W
10 JUL 2001 1031 GMT DEPTH 169

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
2	14.920	30.307	14.919	22.374	0.109	0.20	89.7
10	14.748	30.421	14.747	22.498	0.544	0.20	89.7
20	11.460	32.077	11.457	24.419	0.974	0.23	89.8
30	10.823	32.266	10.820	24.679	1.313	0.29	89.5
40	9.535	32.463	9.530	25.048	1.618	0.82	88.4
50	8.794	32.533	8.789	25.219	1.897	0.85	88.7
60	8.537	32.608	8.531	25.318	2.168	0.62	89.6
70	8.610	33.025	8.603	25.633	2.417	0.30	90.7
80	8.467	33.267	8.459	25.845	2.643	0.21	90.9
90	8.363	33.433	8.354	25.991	2.853	0.17	91.0
100	8.146	33.618	8.136	26.169	3.047	0.14	90.9
110	8.012	33.707	8.001	26.259	3.230	0.14	90.8
120	7.881	33.794	7.869	26.346	3.401	0.14	90.6
130	7.616	33.889	7.603	26.459	3.564	0.14	90.5
140	7.365	33.906	7.352	26.508	3.720	0.15	89.9
150	7.176	33.943	7.162	26.564	3.871	0.15	89.5
158	6.897	33.988	6.883	26.638	3.988	0.16	89.0

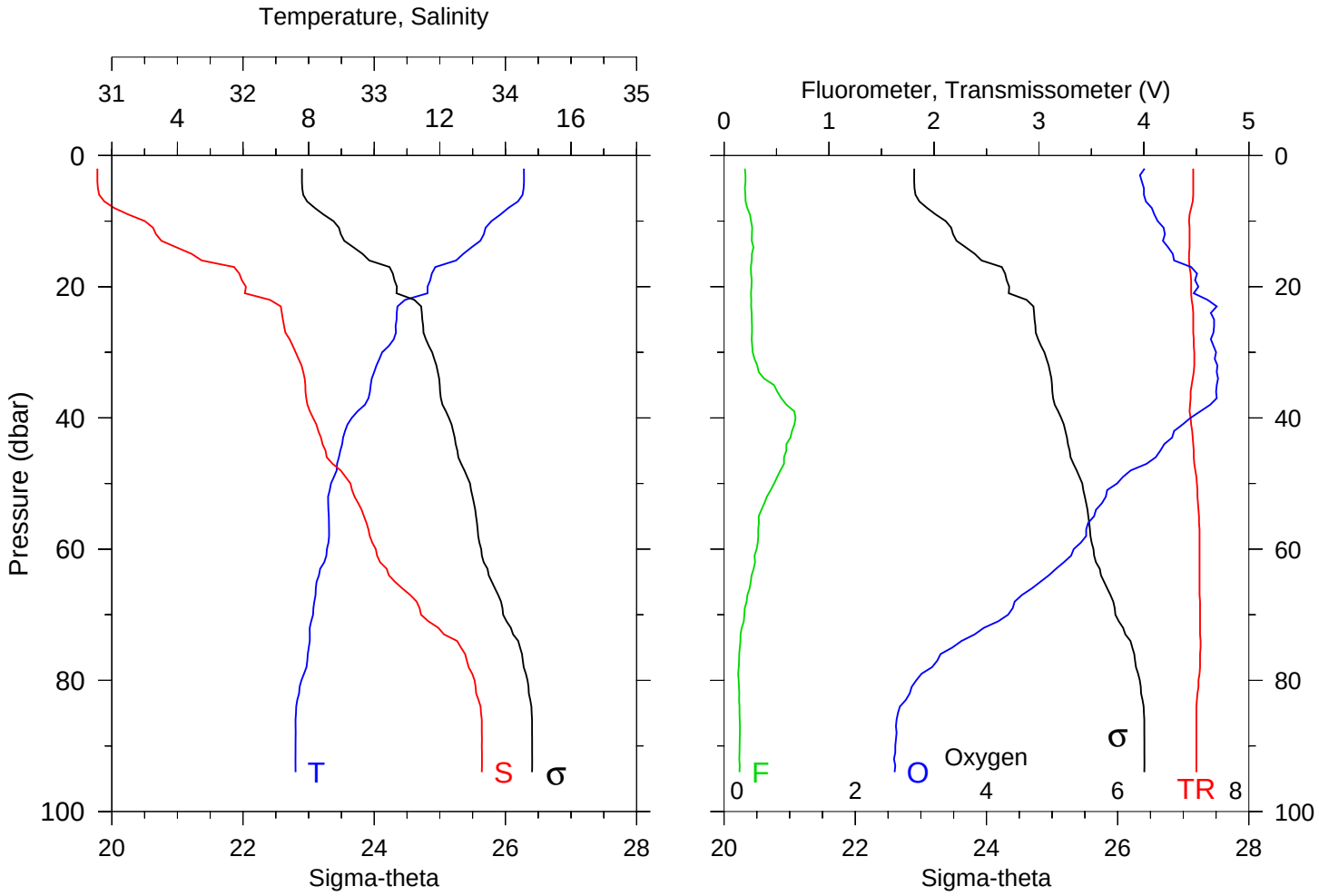
Station 31



STA NO 31 LAT: 44 135.1 N LONG: 124 547.8 W
10 JUL 2001 1104 GMT DEPTH 138

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
2	14.903	30.509	14.903	22.533	0.106	0.19	89.5
10	14.605	30.762	14.604	22.791	0.525	0.20	89.3
20	10.799	32.256	10.797	24.675	0.929	0.30	89.0
30	9.951	32.418	9.948	24.945	1.245	0.68	88.2
40	9.089	32.485	9.085	25.137	1.535	0.82	88.6
50	8.612	32.589	8.607	25.291	1.810	0.66	89.4
60	8.578	32.713	8.572	25.393	2.073	0.49	90.1
70	8.637	33.013	8.630	25.620	2.320	0.30	90.7
80	8.451	33.233	8.443	25.821	2.549	0.22	90.8
90	8.330	33.323	8.321	25.909	2.764	0.20	90.8
100	8.099	33.582	8.089	26.148	2.965	0.15	90.8
110	7.766	33.783	7.756	26.354	3.148	0.14	90.4
120	7.220	33.922	7.209	26.541	3.306	0.15	89.3
129	7.091	33.947	7.079	26.578	3.439	0.16	89.0

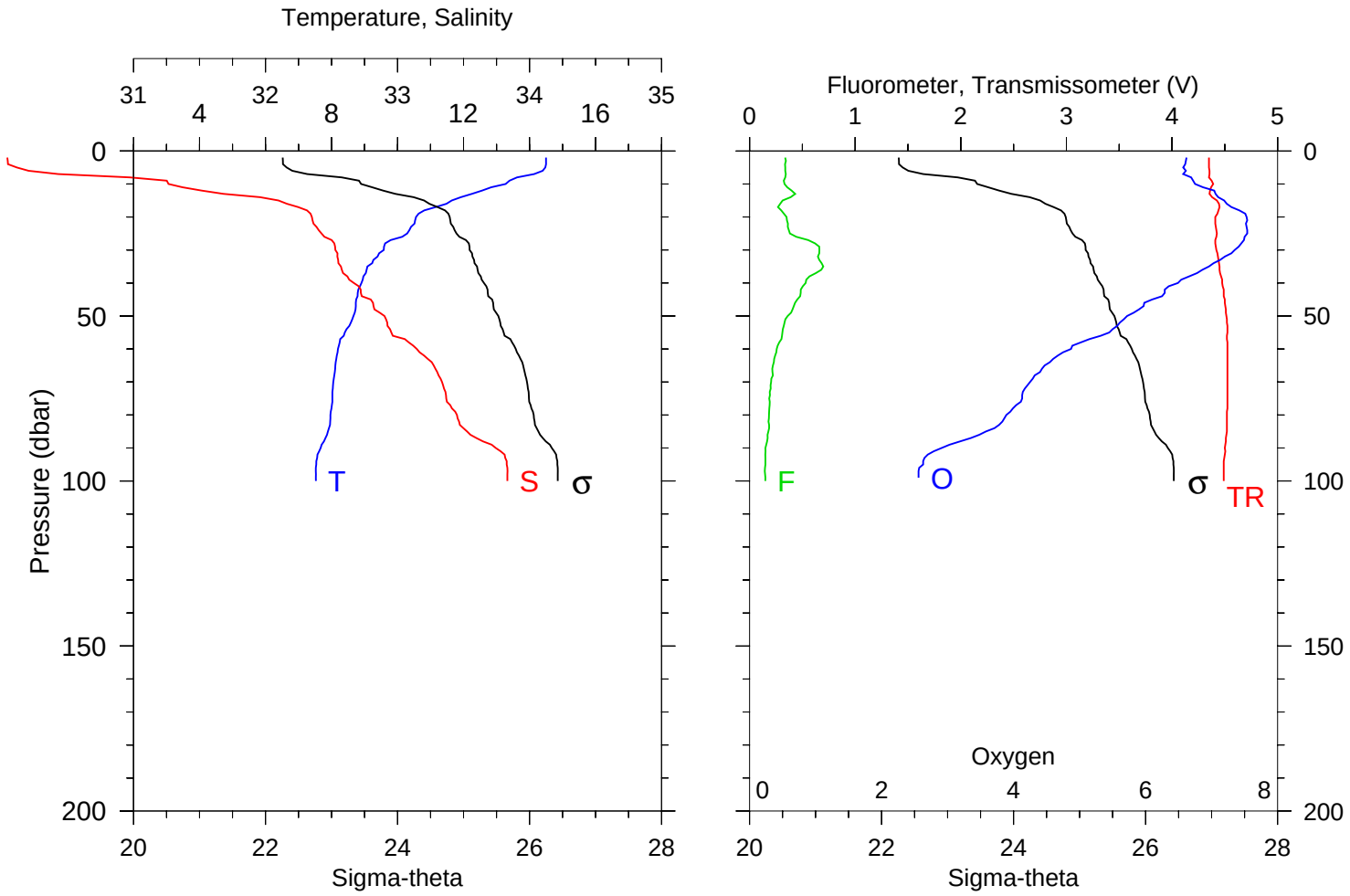
Station 32



STA NO 32 LAT: 44 135.1 N LONG: 124 499.5 W
10 JUL 2001 1214 GMT DEPTH 107

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
2	14.563	30.890	14.563	22.899	0.099	0.20	89.4
10	13.575	31.252	13.573	23.379	0.487	0.26	88.6
20	11.626	32.022	11.623	24.346	0.891	0.26	89.0
30	10.242	32.401	10.239	24.883	1.216	0.27	89.6
40	9.316	32.534	9.312	25.139	1.511	0.68	88.9
50	8.682	32.819	8.677	25.461	1.780	0.48	90.1
60	8.557	33.012	8.551	25.631	2.024	0.31	90.6
70	8.136	33.357	8.129	25.965	2.244	0.19	90.7
80	7.781	33.765	7.773	26.337	2.427	0.14	90.4
90	7.601	33.820	7.593	26.407	2.591	0.15	90.0
94	7.602	33.820	7.593	26.406	2.656	0.15	90.0

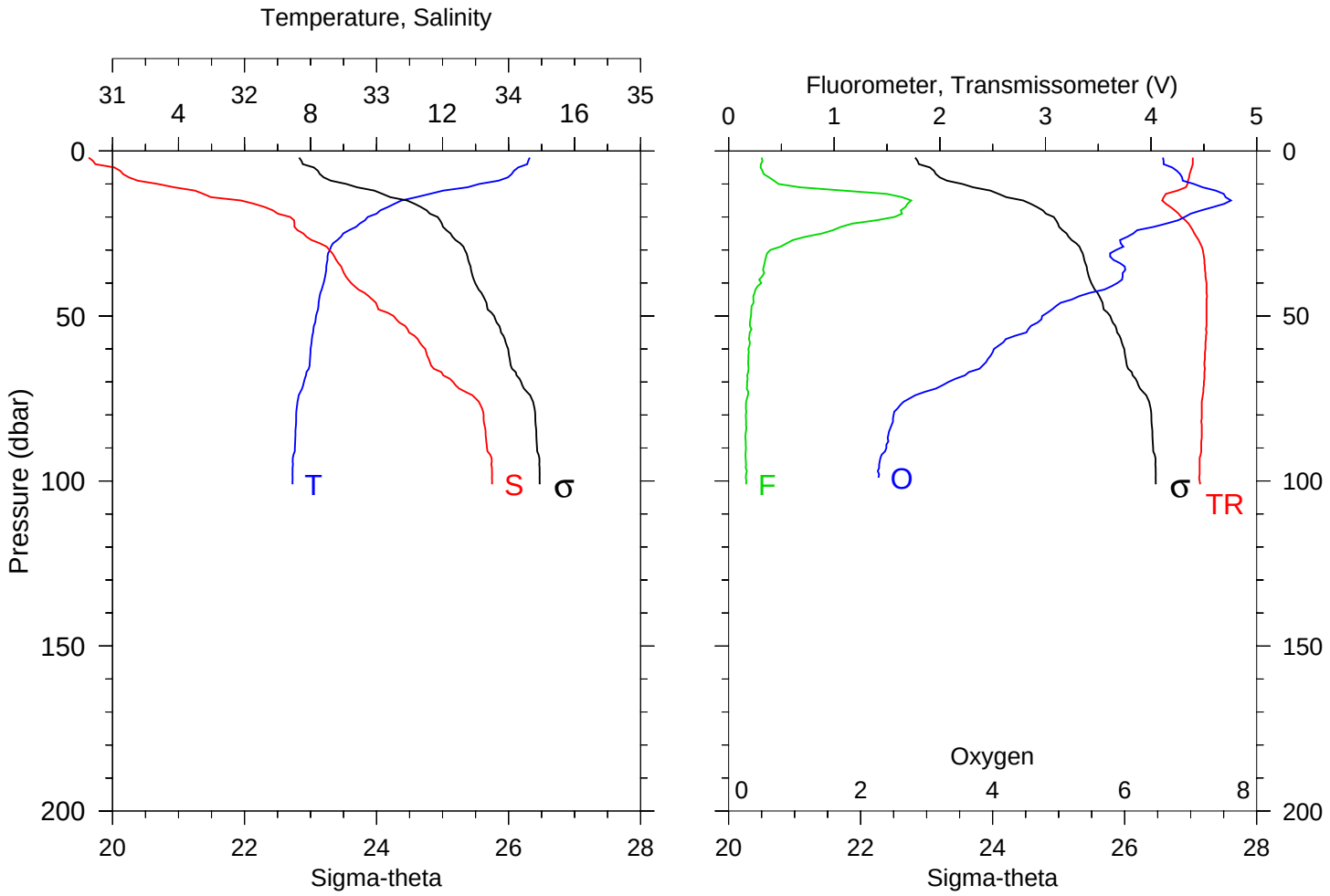
Station 33



STA NO 33 LAT: 44 135.1 N LONG: 124 446.3 W
10 JUL 2001 1314 GMT DEPTH 110

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
2	14.499	30.044	14.498	22.260	0.111	0.34	87.0
10	13.276	31.265	13.274	23.448	0.526	0.33	87.8
20	10.560	32.351	10.558	24.790	0.890	0.35	88.2
30	9.582	32.529	9.579	25.092	1.192	0.66	88.4
40	8.906	32.669	8.902	25.309	1.469	0.53	89.5
50	8.664	32.901	8.659	25.527	1.725	0.36	90.3
60	8.194	33.146	8.188	25.791	1.960	0.26	90.5
70	8.053	33.337	8.046	25.961	2.171	0.20	90.5
80	7.966	33.450	7.958	26.063	2.372	0.18	90.4
90	7.670	33.744	7.662	26.337	2.558	0.15	90.0
100	7.526	33.832	7.517	26.427	2.721	0.15	89.8

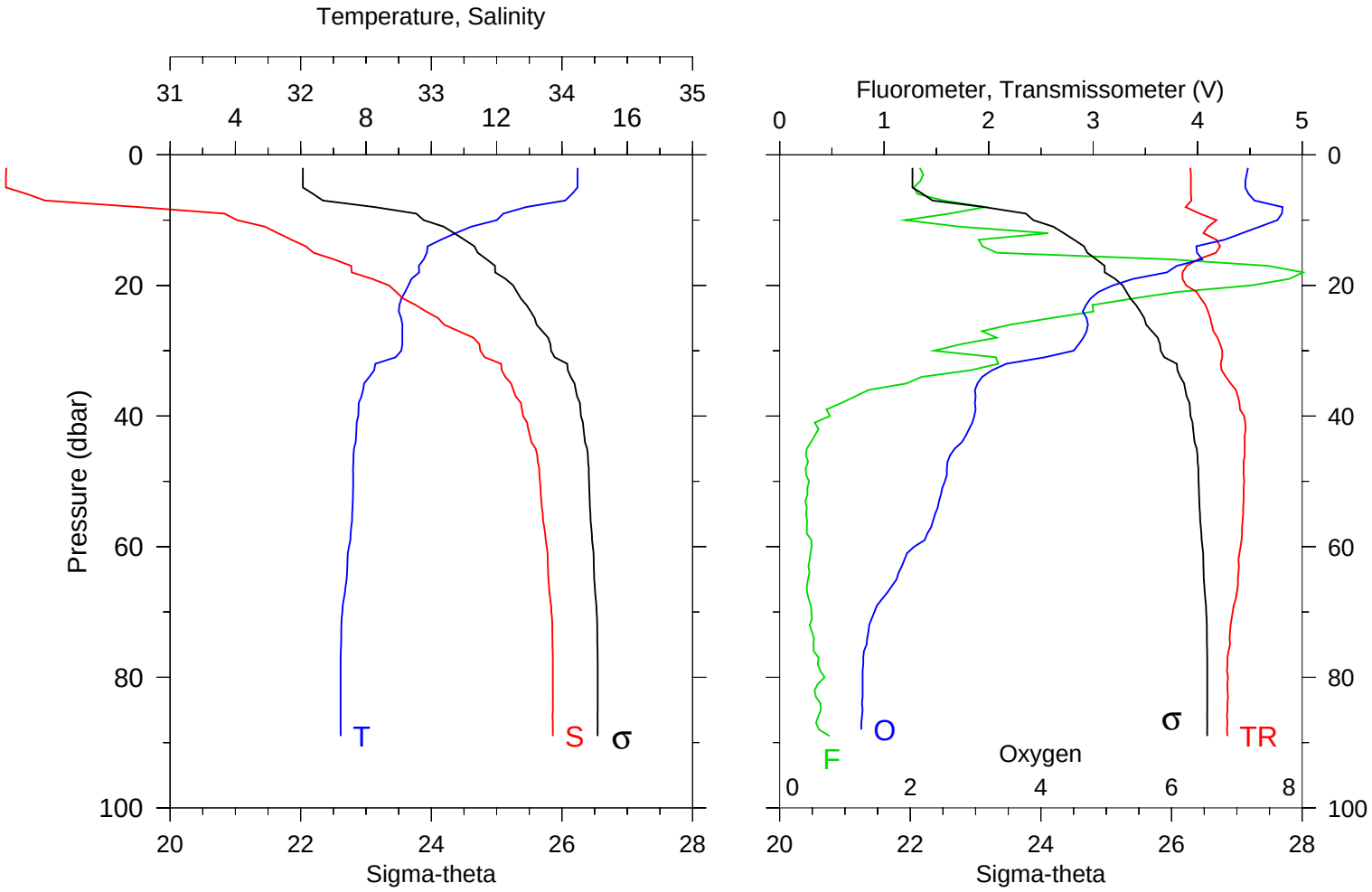
Station 34



STA NO 34 LAT: 44 134.9 N LONG: 124 364.1 W
10 JUL 2001 1434 GMT DEPTH 107

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
2	14.641	30.819	14.641	22.827	0.100	0.31	87.9
10	13.108	31.344	13.107	23.542	0.482	0.47	86.9
20	9.733	32.346	9.731	24.925	0.839	1.57	85.7
30	8.587	32.643	8.583	25.337	1.123	0.40	89.8
40	8.397	32.807	8.393	25.494	1.379	0.31	90.5
50	8.165	33.129	8.160	25.781	1.614	0.21	90.5
60	7.999	33.369	7.993	25.994	1.825	0.19	90.3
70	7.799	33.580	7.792	26.190	2.020	0.17	90.0
80	7.564	33.811	7.556	26.404	2.190	0.16	89.6
90	7.525	33.837	7.516	26.431	2.352	0.16	89.5
100	7.454	33.875	7.445	26.471	2.509	0.17	89.2
101	7.454	33.875	7.444	26.471	2.525	0.17	89.3

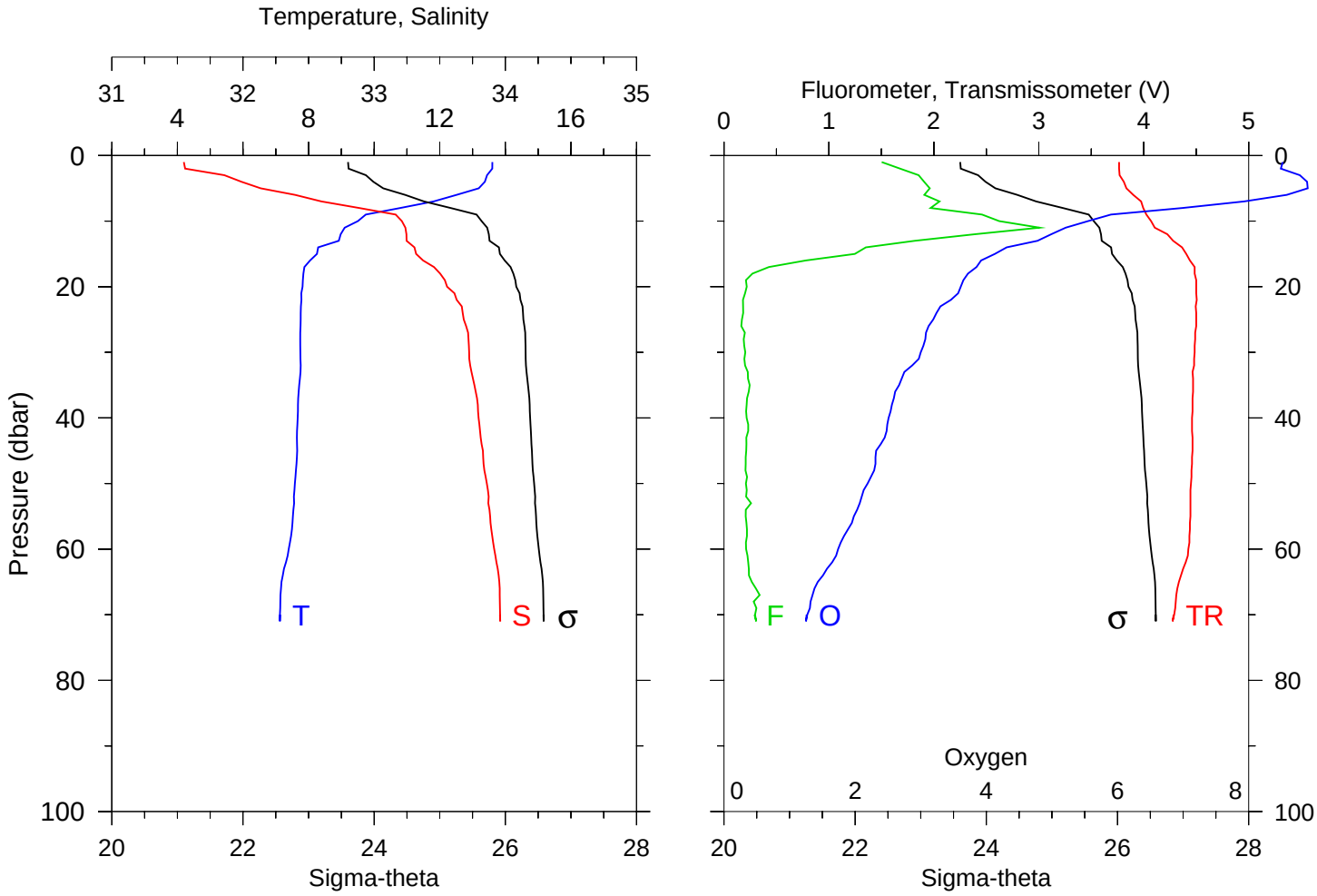
Station 35



STA NO 35 LAT: 44 135.1 N LONG: 124 281.0 W
10 JUL 2001 1548 GMT DEPTH 99

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
2	14.483	29.746	14.483	22.033	0.116	1.34	78.6
10	12.006	31.514	12.005	23.883	0.538	1.20	83.6
20	9.297	32.676	9.295	25.252	0.862	4.51	77.8
30	9.080	33.375	9.077	25.834	1.103	1.48	84.7
40	7.762	33.703	7.758	26.291	1.290	0.48	88.9
50	7.607	33.832	7.602	26.414	1.455	0.28	88.9
60	7.479	33.883	7.473	26.473	1.614	0.31	88.2
70	7.276	33.919	7.269	26.530	1.767	0.30	86.7
80	7.221	33.930	7.214	26.547	1.917	0.43	85.8
89	7.224	33.930	7.216	26.546	2.051	0.48	85.7

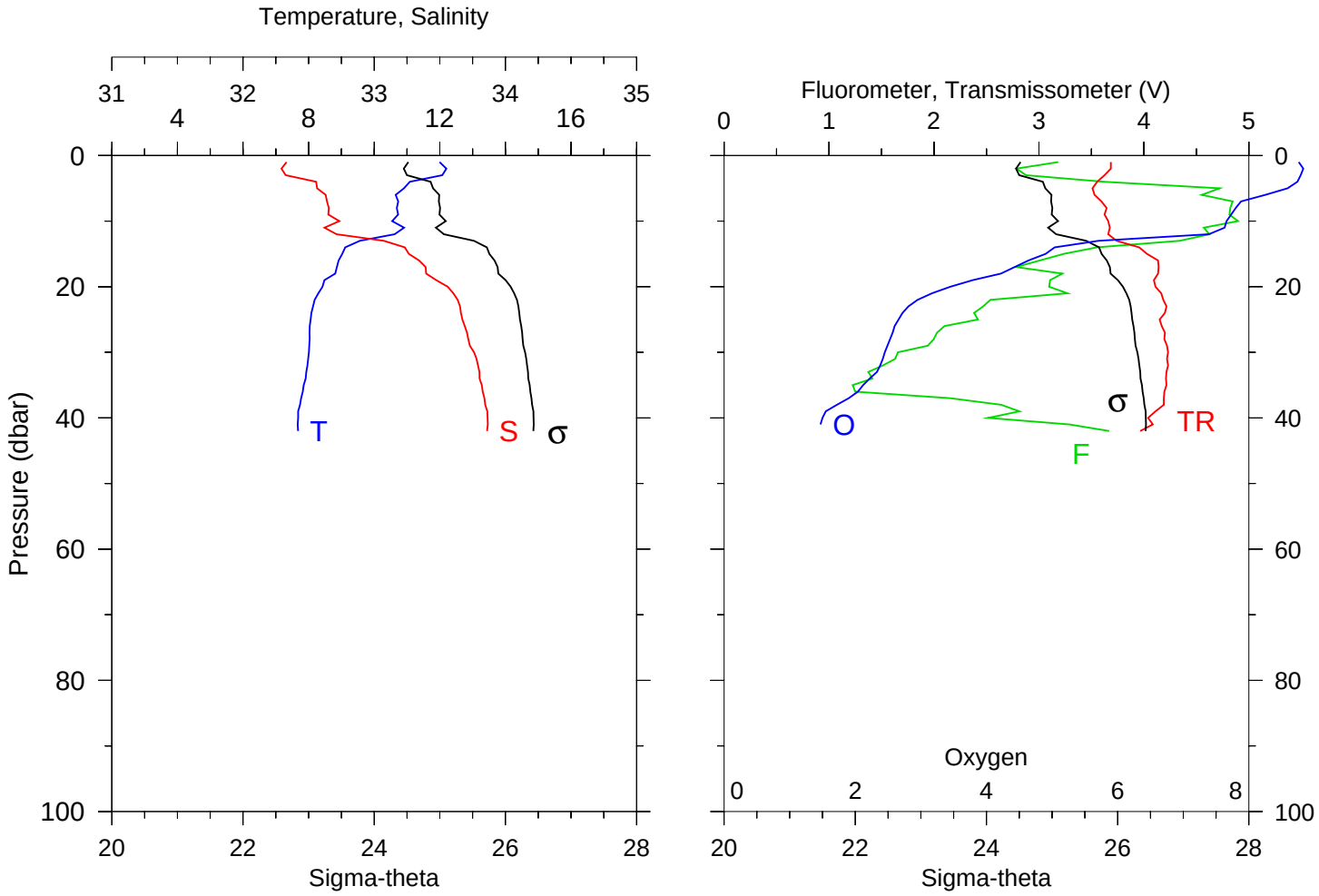
Station 36



STA NO 36 LAT: 44 135.2 N LONG: 124 184.1 W
10 JUL 2001 1721 GMT DEPTH 79

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
1	13.604	31.549	13.603	23.602	0.043	1.50	75.3
10	9.504	33.211	9.503	25.638	0.354	2.62	81.4
20	7.816	33.556	7.814	26.167	0.561	0.22	90.0
30	7.749	33.724	7.747	26.309	0.735	0.20	89.7
40	7.668	33.796	7.665	26.378	0.903	0.22	89.2
50	7.582	33.859	7.577	26.439	1.065	0.21	89.0
60	7.395	33.915	7.389	26.510	1.221	0.21	88.5
70	7.126	33.960	7.120	26.583	1.368	0.30	85.8

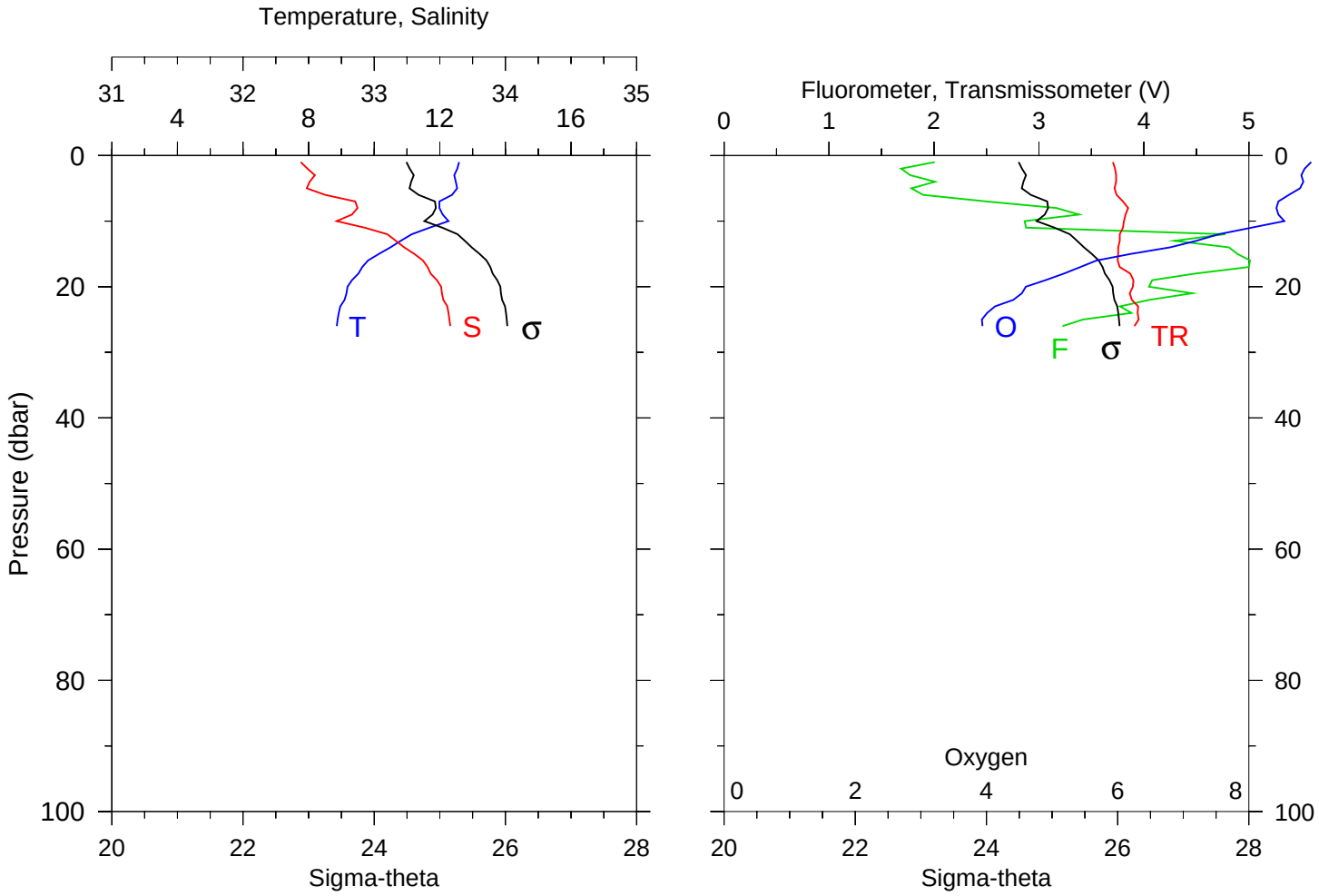
Station 37



STA NO 37 LAT: 44 135.4 N LONG: 124 107.1 W
10 JUL 2001 1823 GMT DEPTH 50

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
1	11.992	32.332	11.992	24.520	0.034	3.18	73.7
10	10.547	32.734	10.546	25.091	0.314	4.90	73.2
20	8.423	33.560	8.421	26.080	0.550	3.10	82.2
30	8.009	33.761	8.006	26.300	0.730	1.66	84.6
40	7.680	33.864	7.676	26.429	0.895	2.52	80.8
42	7.678	33.860	7.674	26.426	0.927	3.67	79.3

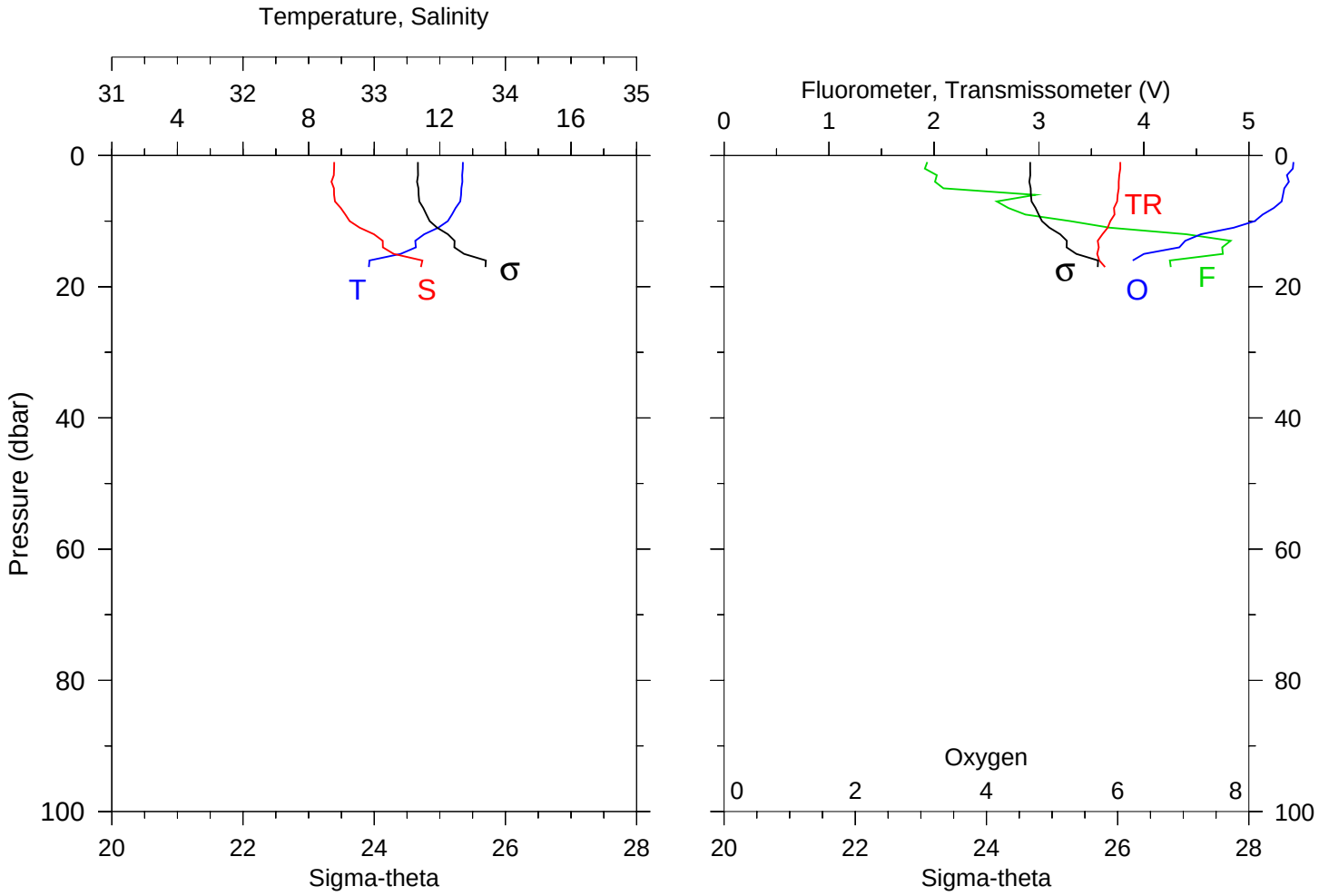
Station 38



STA NO 38 LAT: 44 136.1 N LONG: 124 87.1 W
10 JUL 2001 1910 GMT DEPTH 35

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
1	12.587	32.440	12.587	24.491	0.034	2.01	74.1
10	12.264	32.714	12.263	24.765	0.325	2.86	76.2
20	9.186	33.510	9.184	25.923	0.570	4.05	77.9
26	8.859	33.580	8.856	26.029	0.691	3.22	78.2

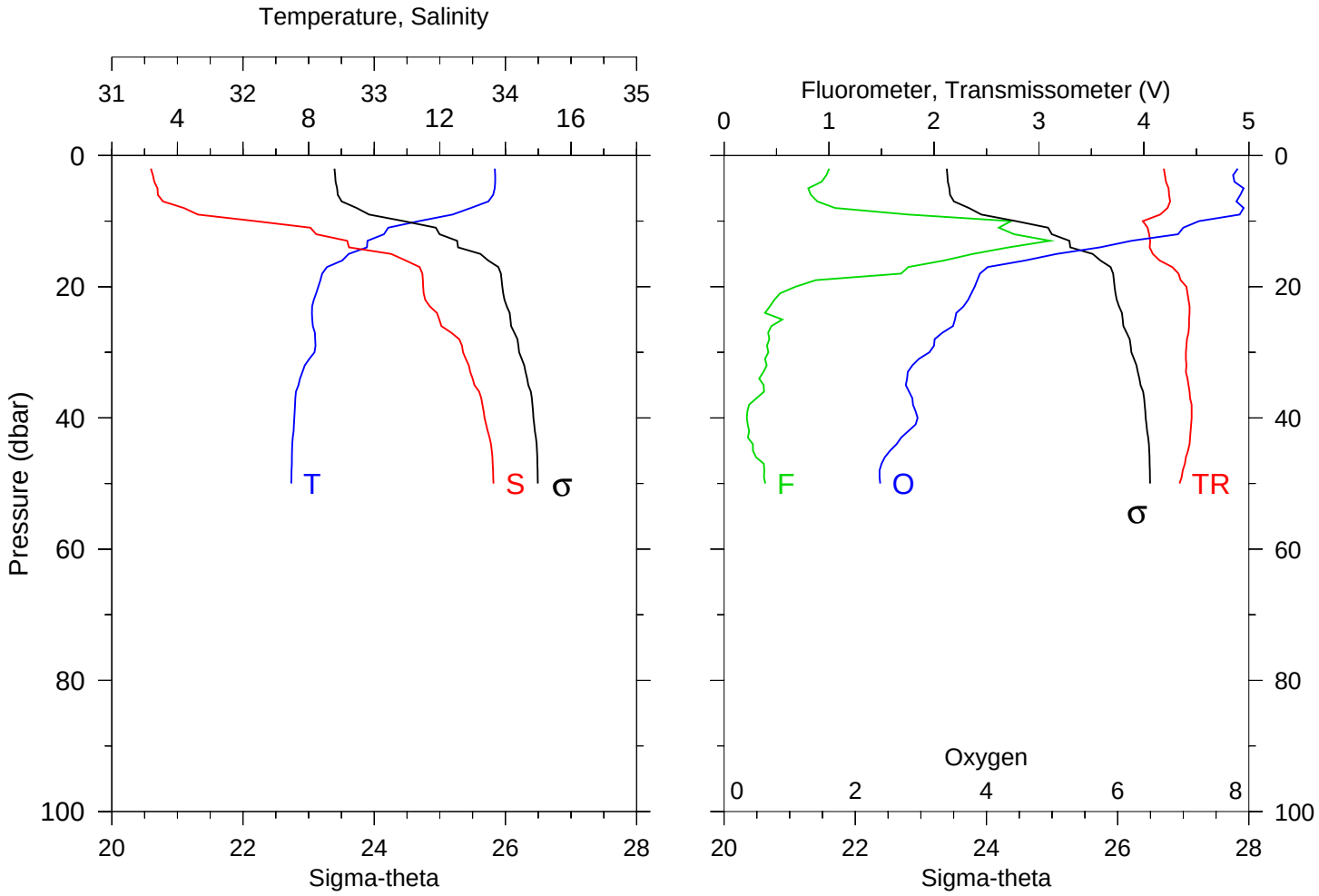
Station 39



STA NO 39 LAT: 44 136.1 N LONG: 124 80.1 W
10 JUL 2001 1951 GMT DEPTH 23

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
1	12.704	32.695	12.704	24.666	0.033	1.94	75.5
10	12.243	32.813	12.242	24.846	0.324	3.30	73.6
17	9.838	33.356	9.836	25.696	0.512	4.26	72.6

Station 40



STA NO 40 LAT: 44 391.4 N LONG: 124 105.1 W
13 JUL 2001 1300 GMT DEPTH 59

P (DB)	T (C)	S	POT T (C)	SIGMA THETA	GEO AN (J/KG)	FL (V)	TRN (%)
2	13.676	31.298	13.676	23.394	0.090	1.00	83.8
10	11.366	32.094	11.365	24.449	0.433	2.73	79.8
20	8.295	33.373	8.293	25.953	0.682	0.68	88.1
30	8.179	33.677	8.176	26.209	0.874	0.42	88.0
40	7.564	33.841	7.560	26.427	1.042	0.22	89.1
50	7.470	33.909	7.466	26.494	1.197	0.39	86.8

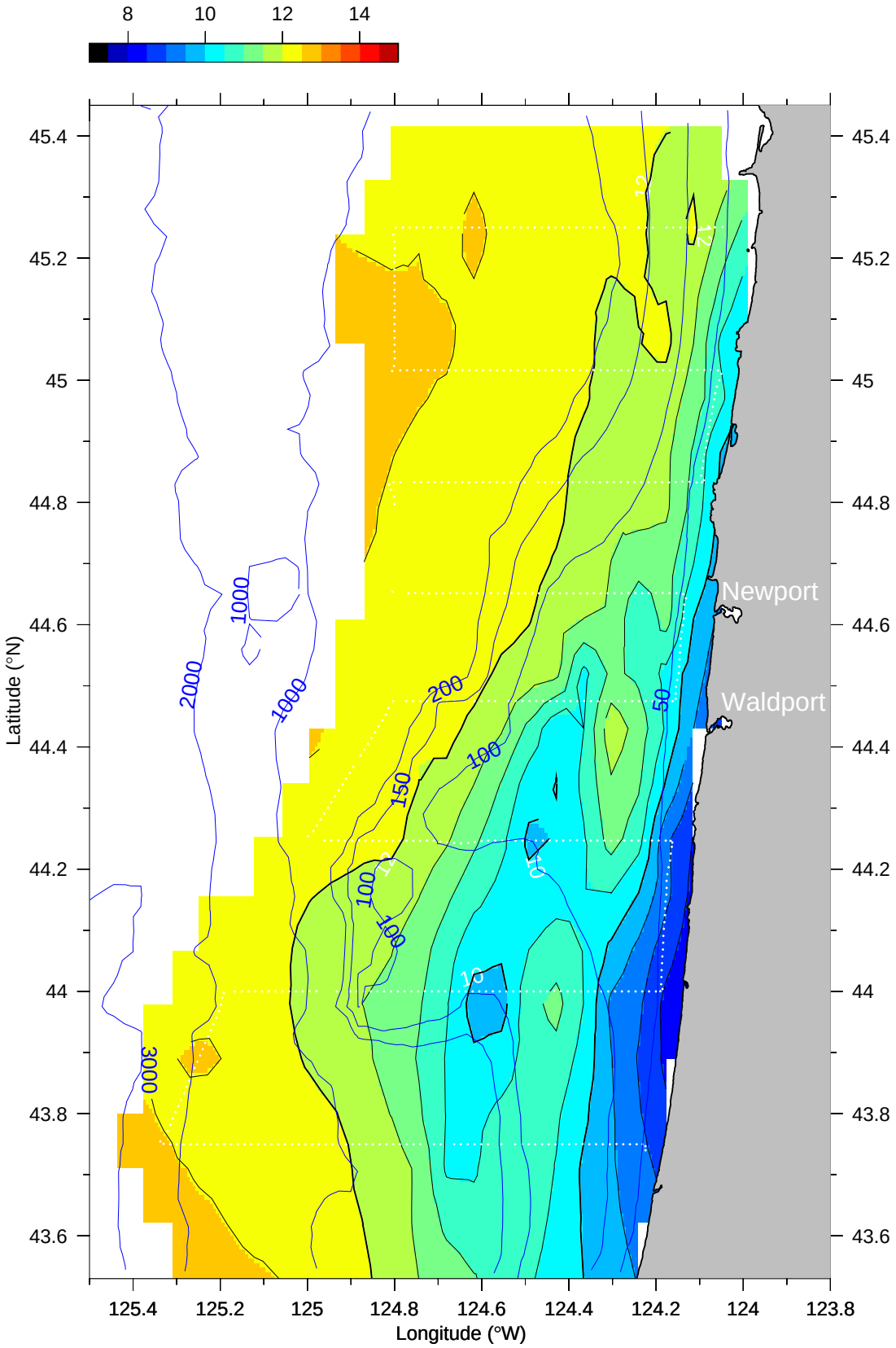
Big Box 1 Maps

Maps of Temperature, Salinity, σ_t, and Chlorophyll at Specified Depths

W0105 Big Box 1

24-May-2001 02:35 - 26-May-2001 08:25

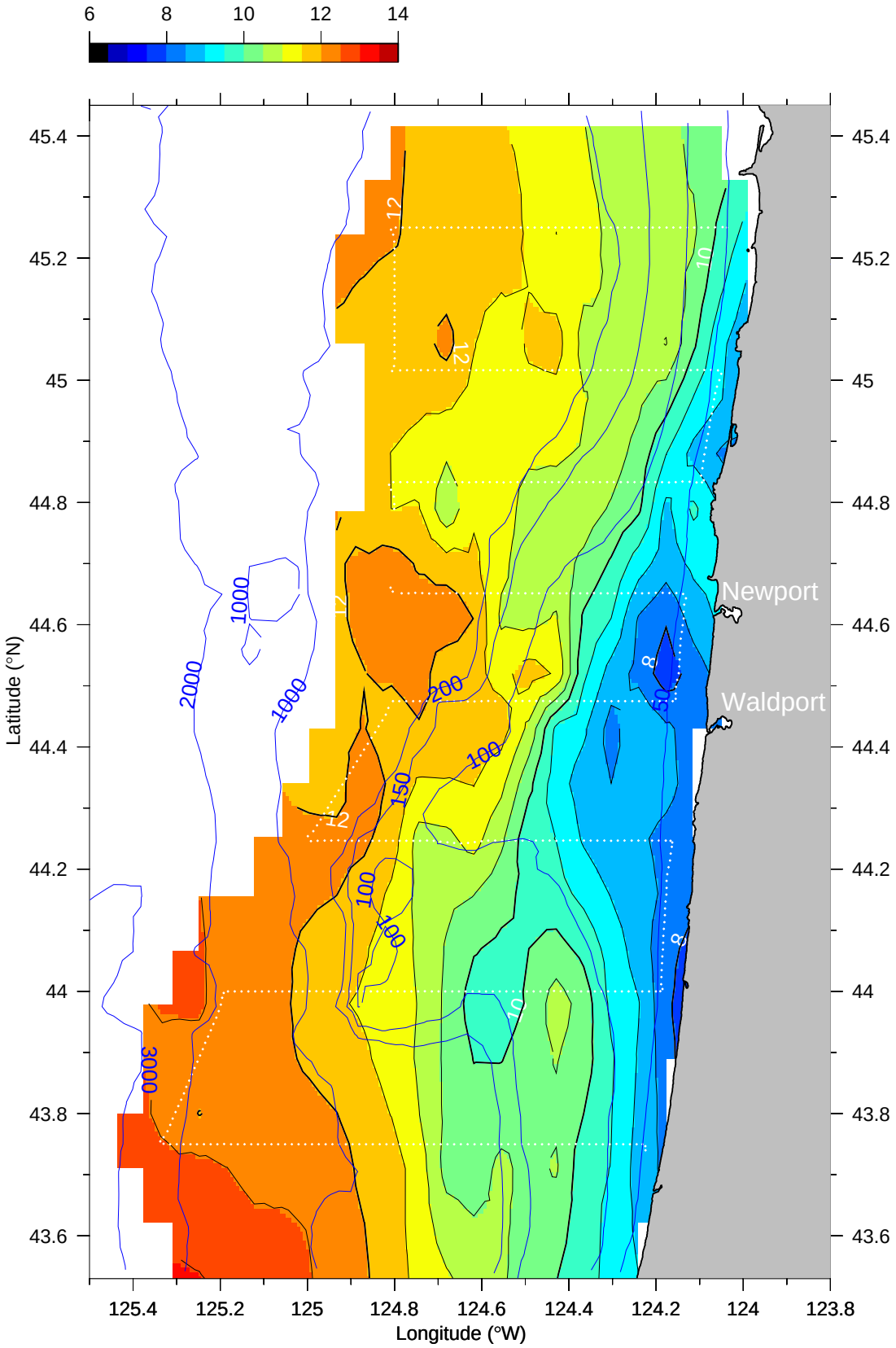
Temperature (°C) at 5 dbar



W0105 Big Box 1

24-May-2001 02:35 - 26-May-2001 08:25

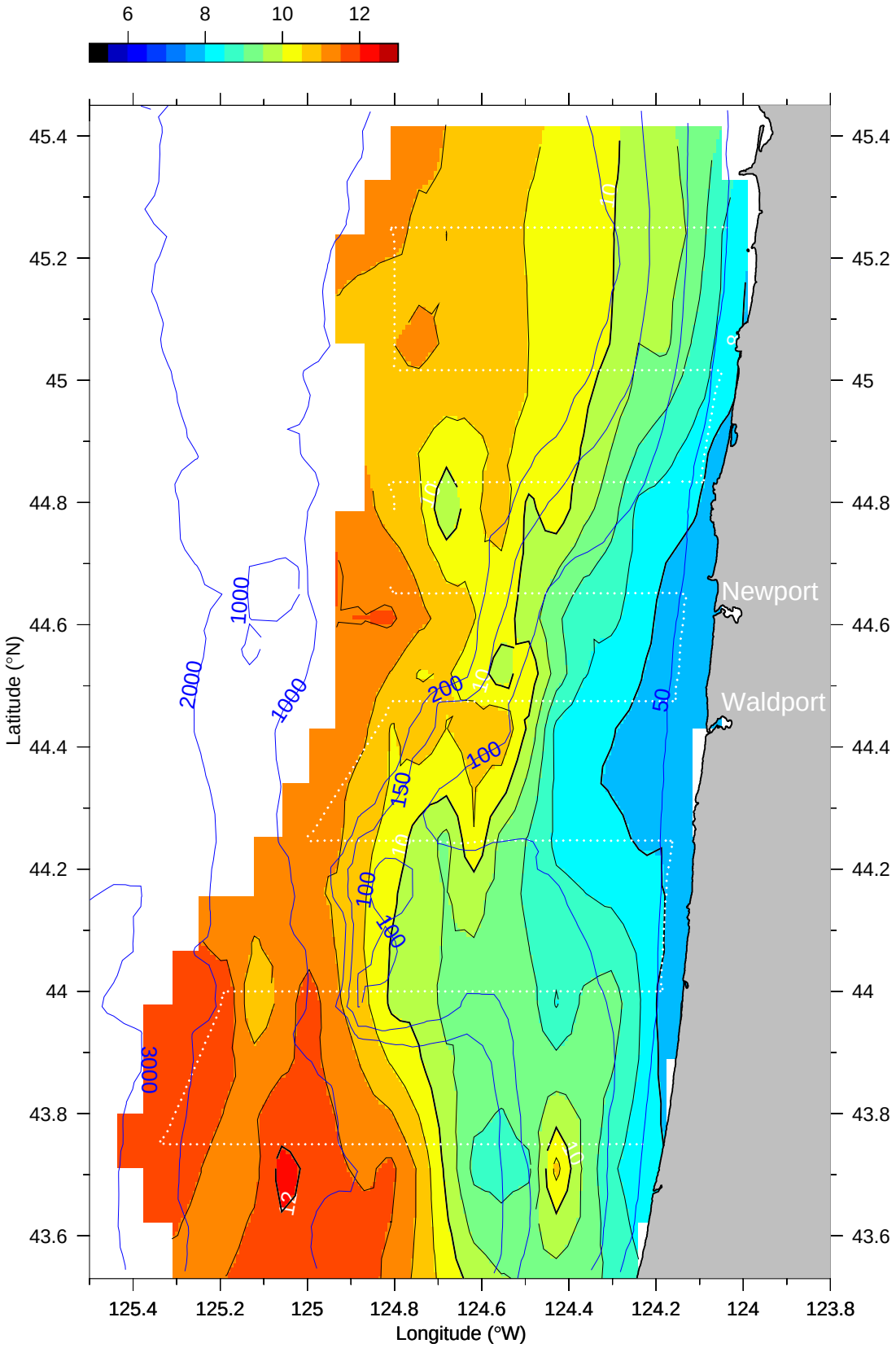
Temperature (°C) at 15 dbar



W0105 Big Box 1

24-May-2001 02:35 - 26-May-2001 08:25

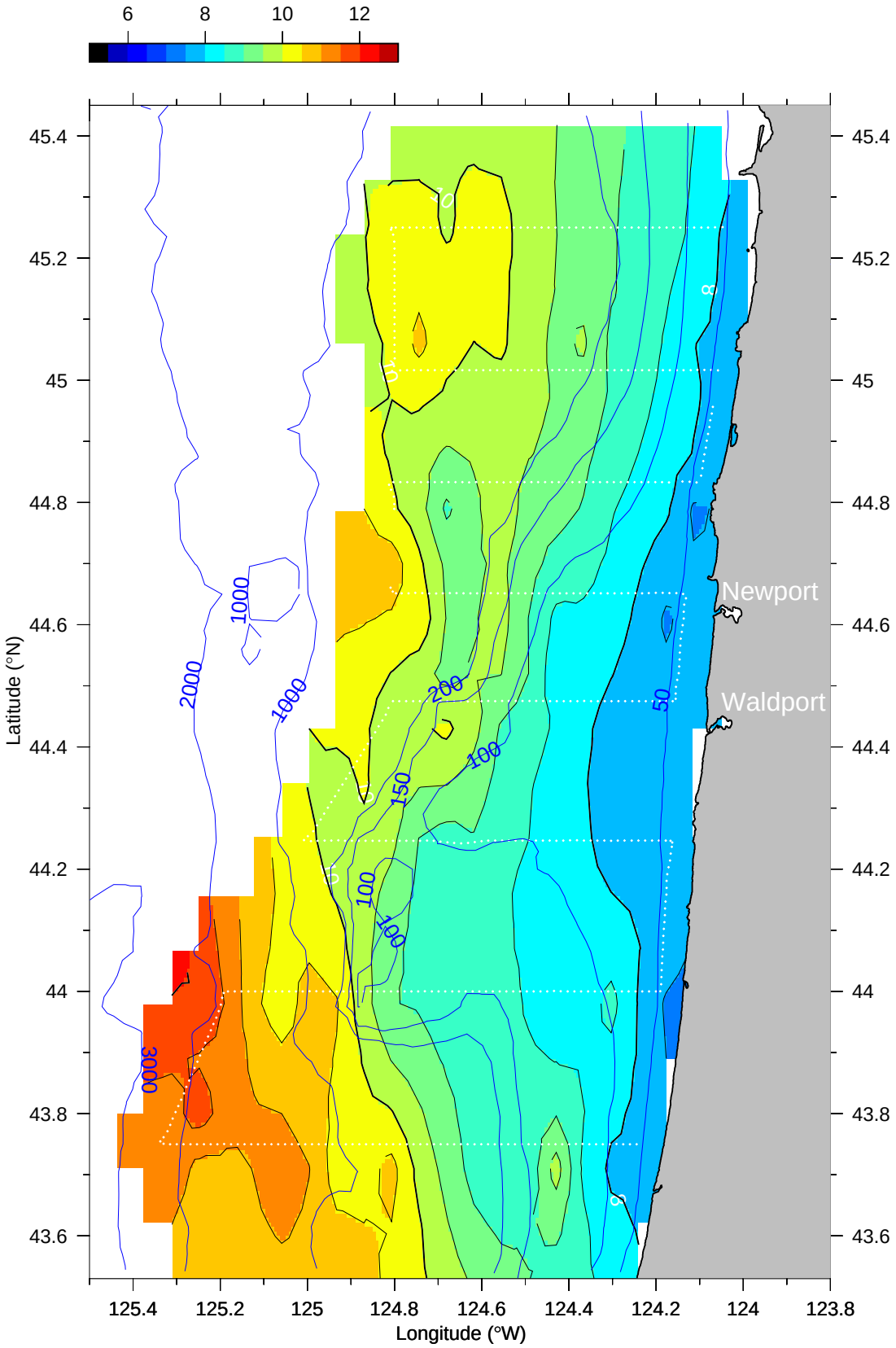
Temperature (°C) at 25 dbar

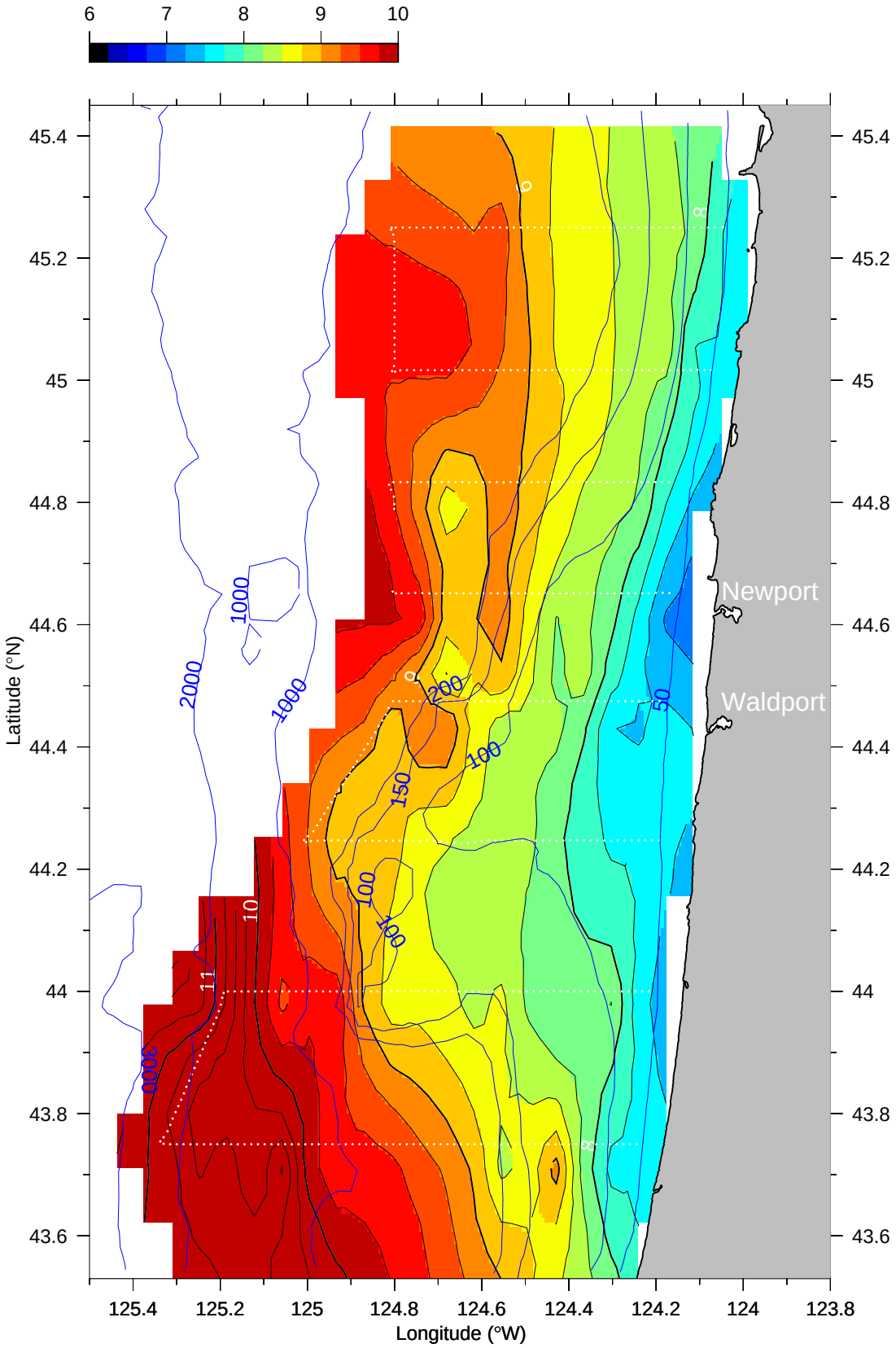


W0105 Big Box 1

24-May-2001 02:35 - 26-May-2001 08:25

Temperature (°C) at 35 dbar

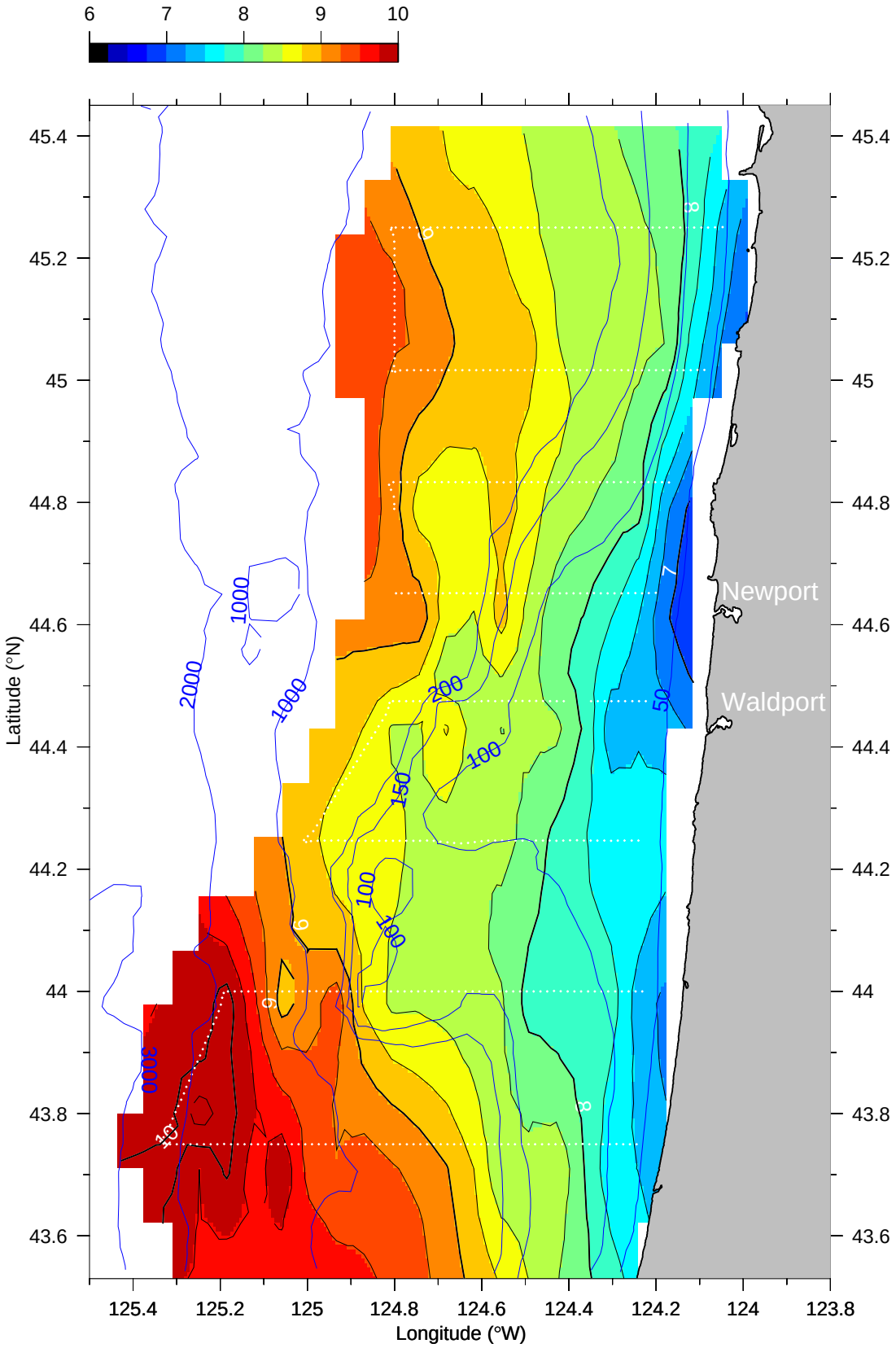



W0105 Big Box 1
24-May-2001 02:35 - 26-May-2001 08:25
Temperature (°C) at 45 dbar
6
7
8
9
10
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8

W0105 Big Box 1

24-May-2001 02:35 - 26-May-2001 08:25

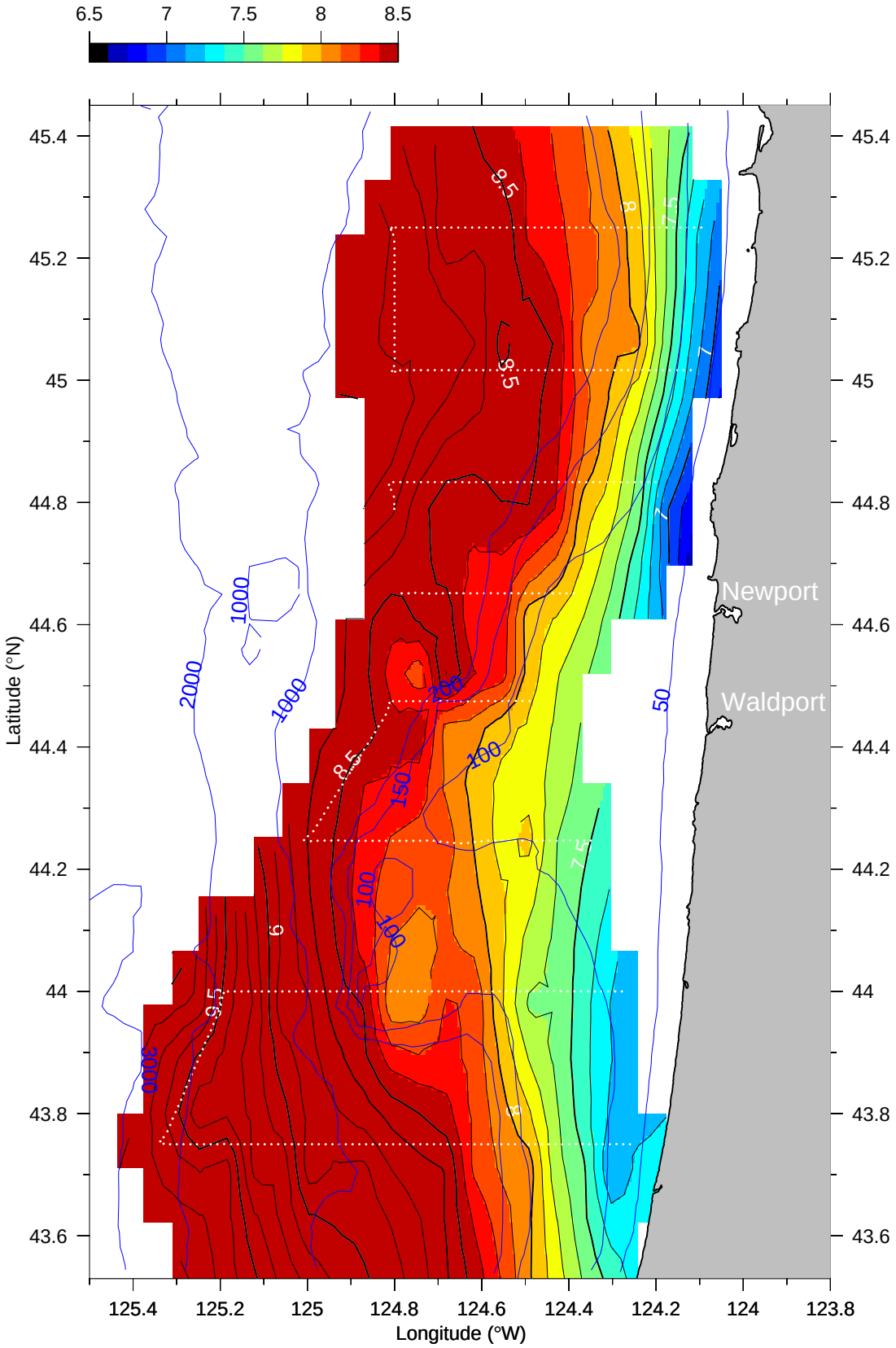
Temperature (°C) at 55 dbar



W0105 Big Box 1

24-May-2001 02:35 - 26-May-2001 08:25

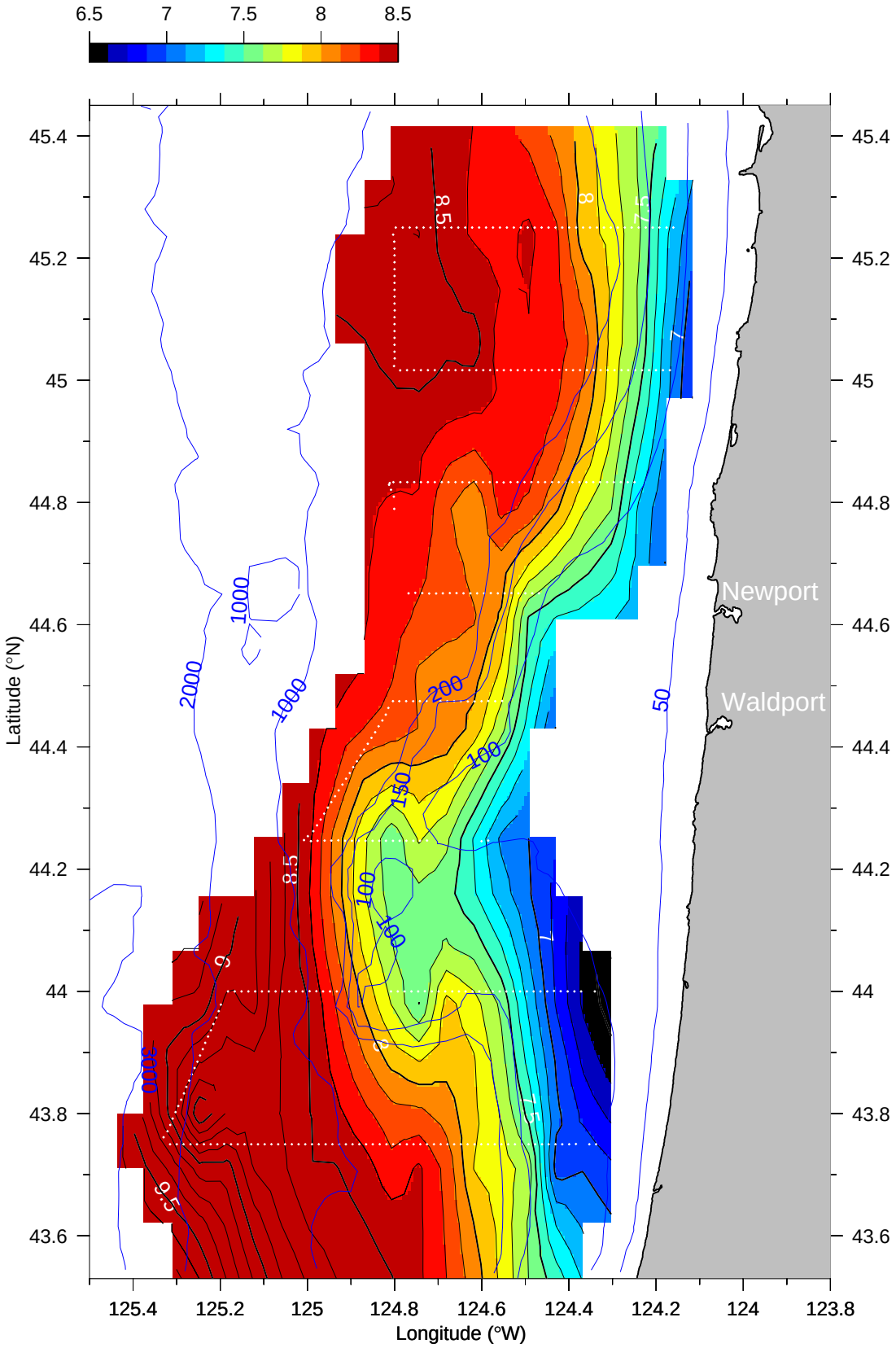
Temperature (°C) at 75 dbar



W0105 Big Box 1

24-May-2001 02:35 - 26-May-2001 08:25

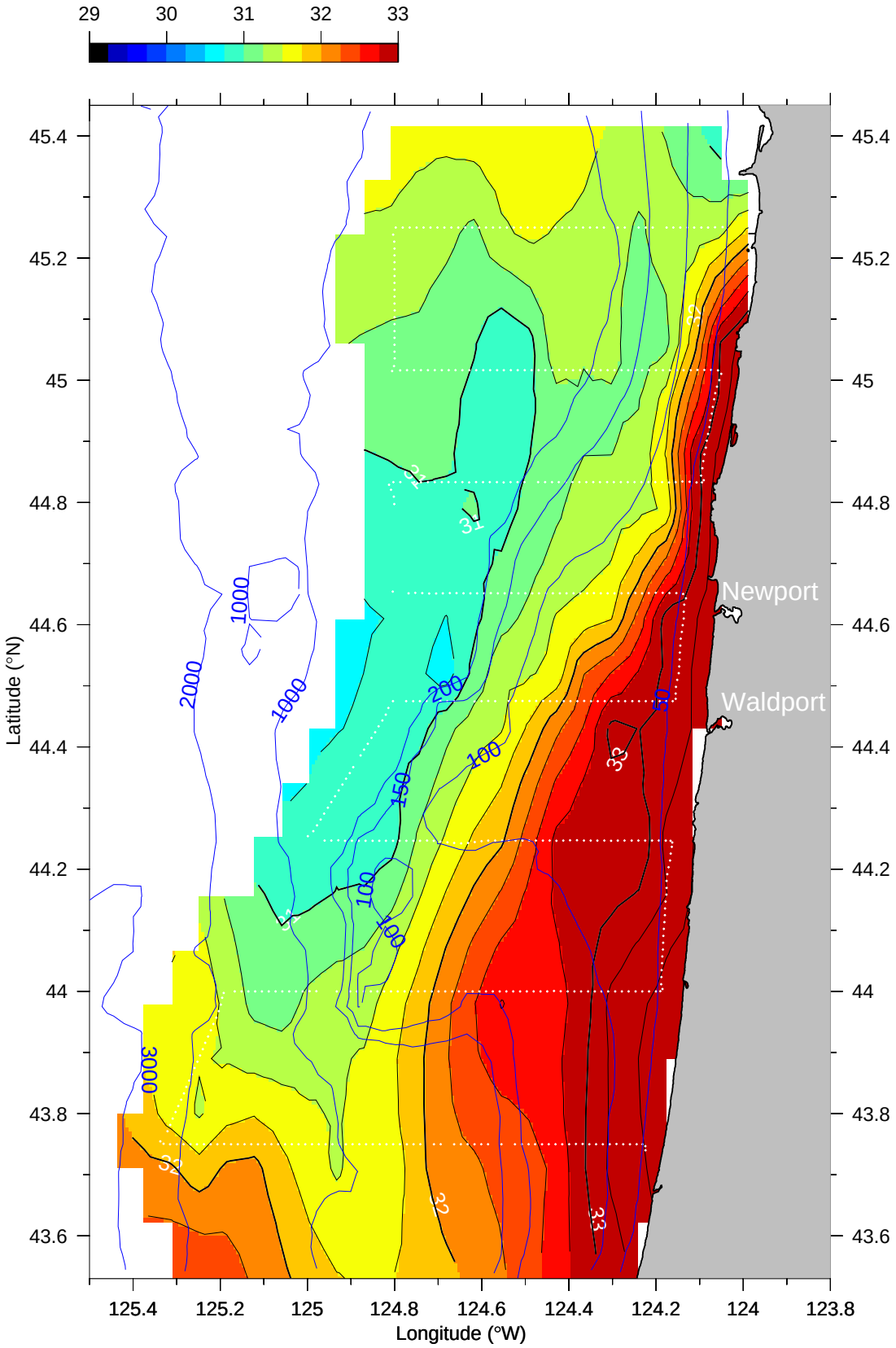
Temperature (°C) at 95 dbar



W0105 Big Box 1

24-May-2001 02:35 - 26-May-2001 08:25

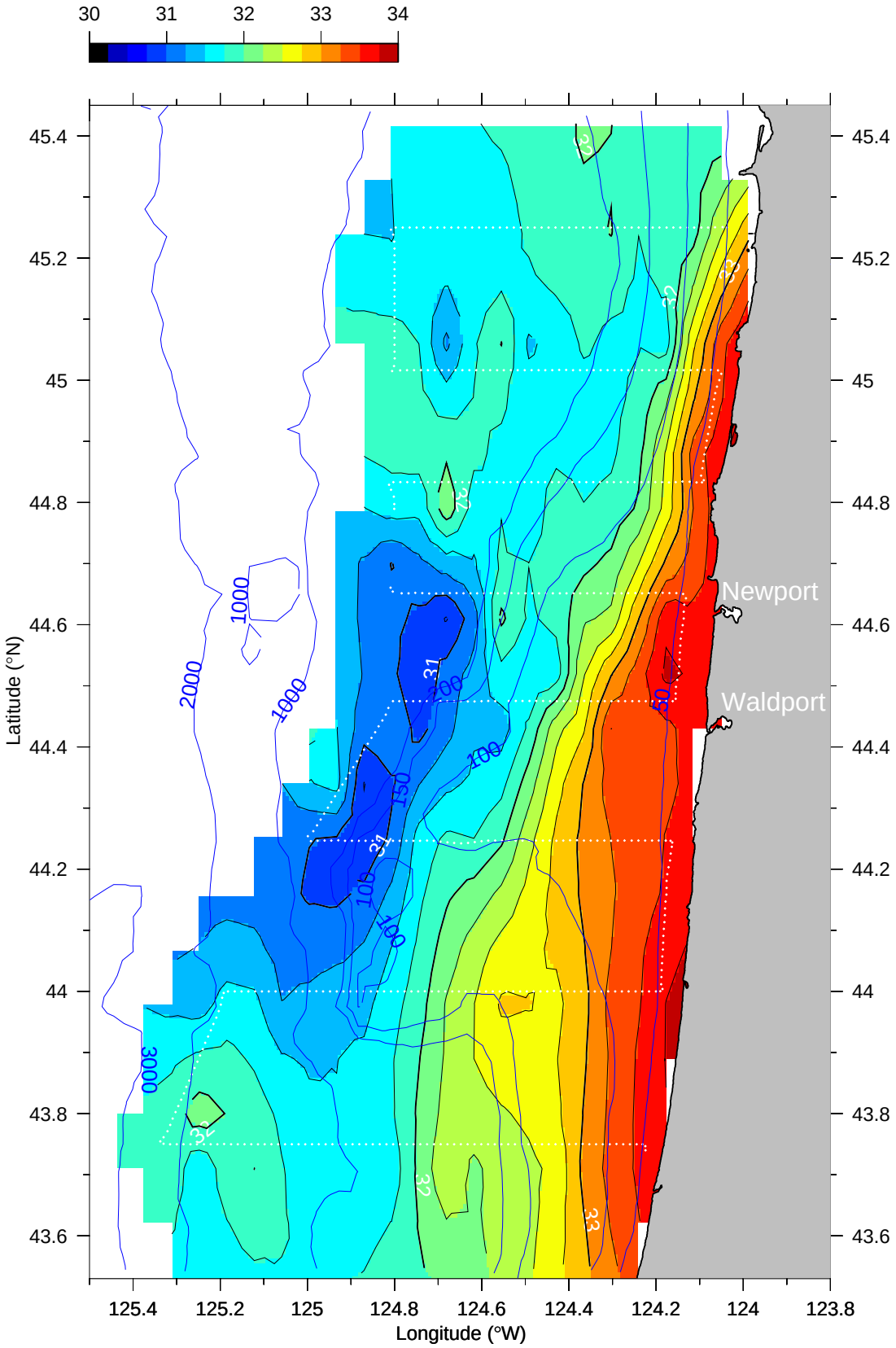
Salinity (PSS) at 5 dbar



W0105 Big Box 1

24-May-2001 02:35 - 26-May-2001 08:25

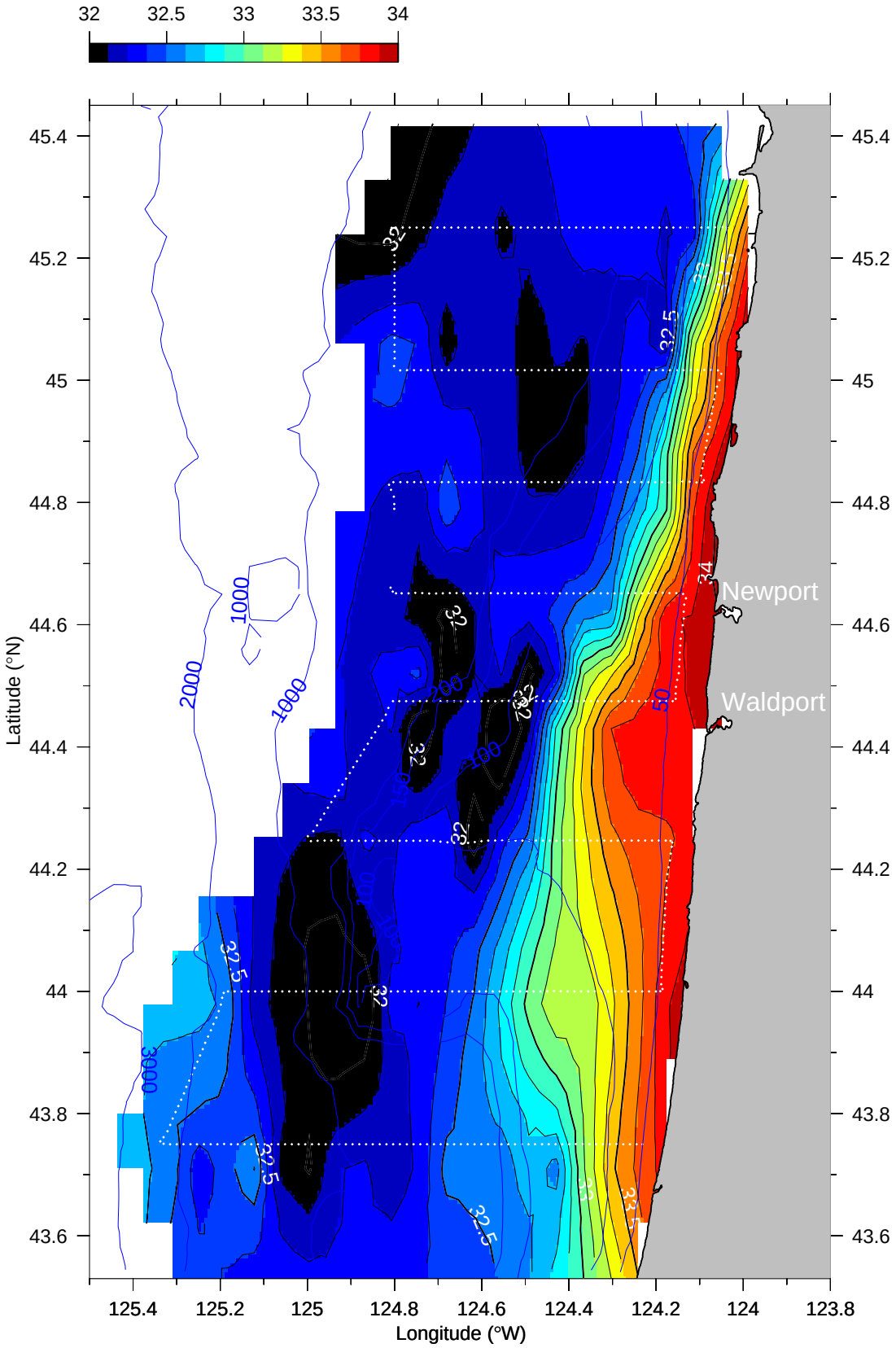
Salinity (PSS) at 15 dbar

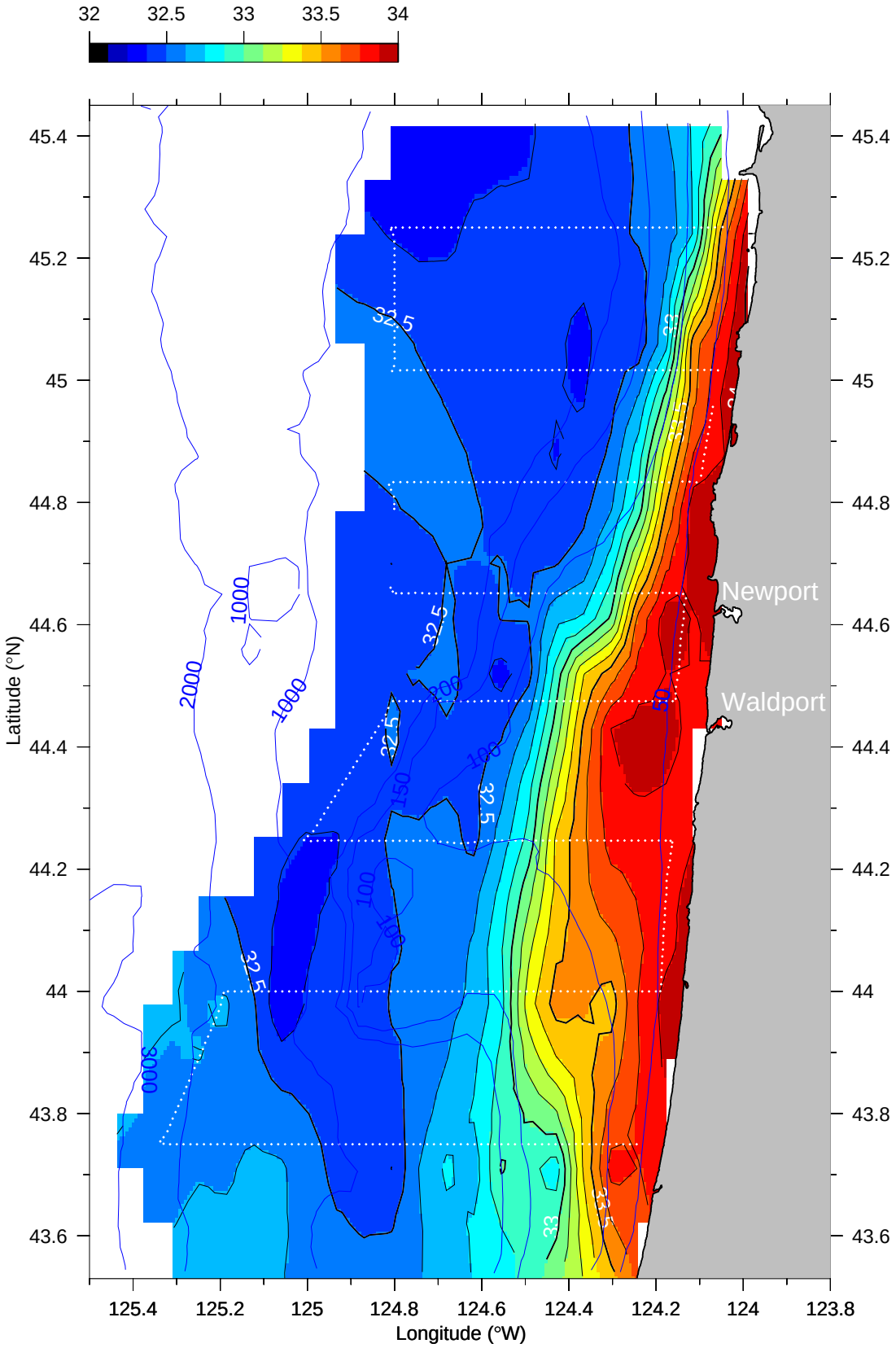


W0105 Big Box 1

24-May-2001 02:35 - 26-May-2001 08:25

Salinity (PSS) at 25 dbar

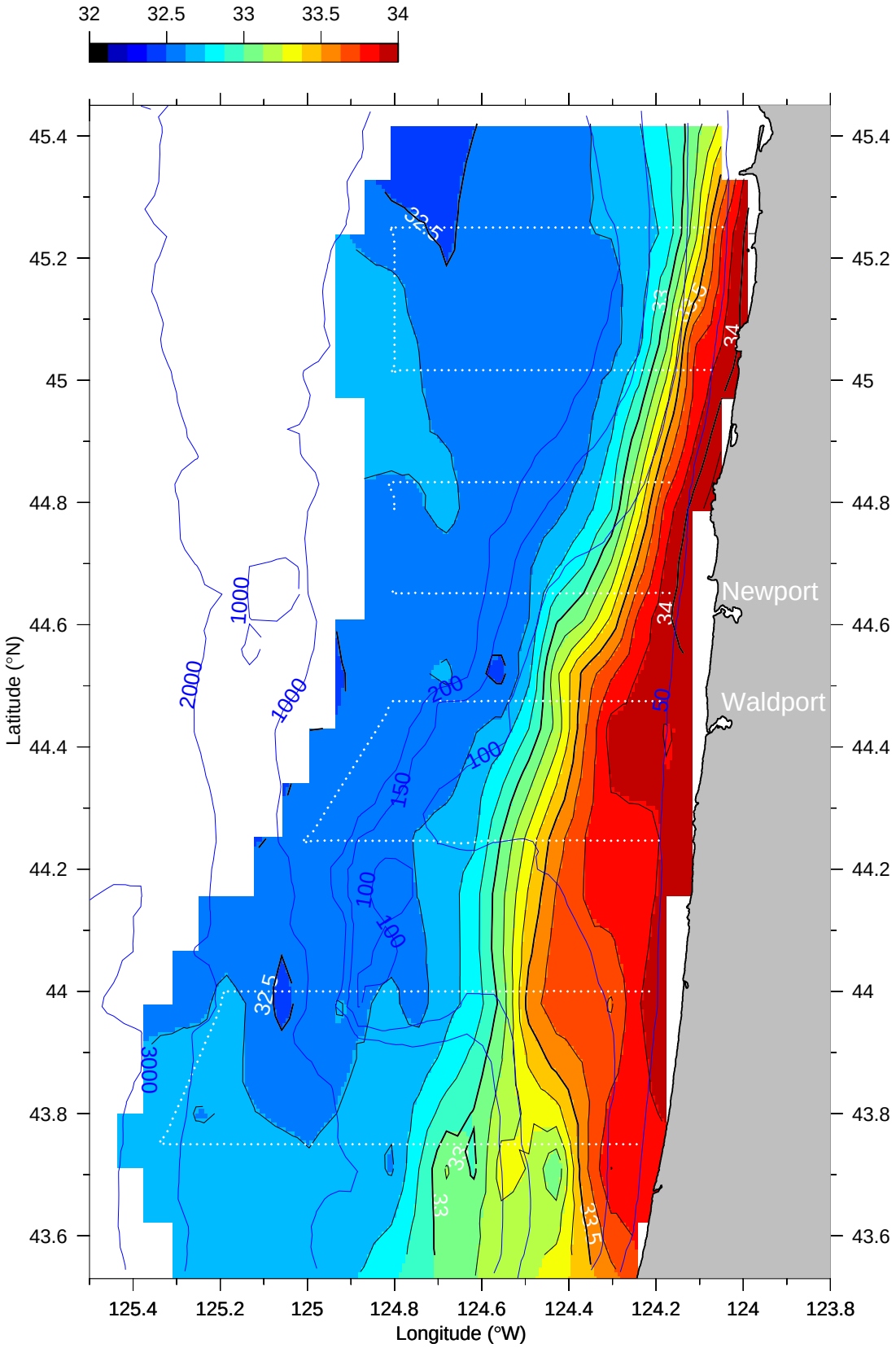



W0105 Big Box 1
24-May-2001 02:35 - 26-May-2001 08:25
Salinity (PSS) at 35 dbar
32
32.5
33
33.5
34
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8

W0105 Big Box 1

24-May-2001 02:35 - 26-May-2001 08:25

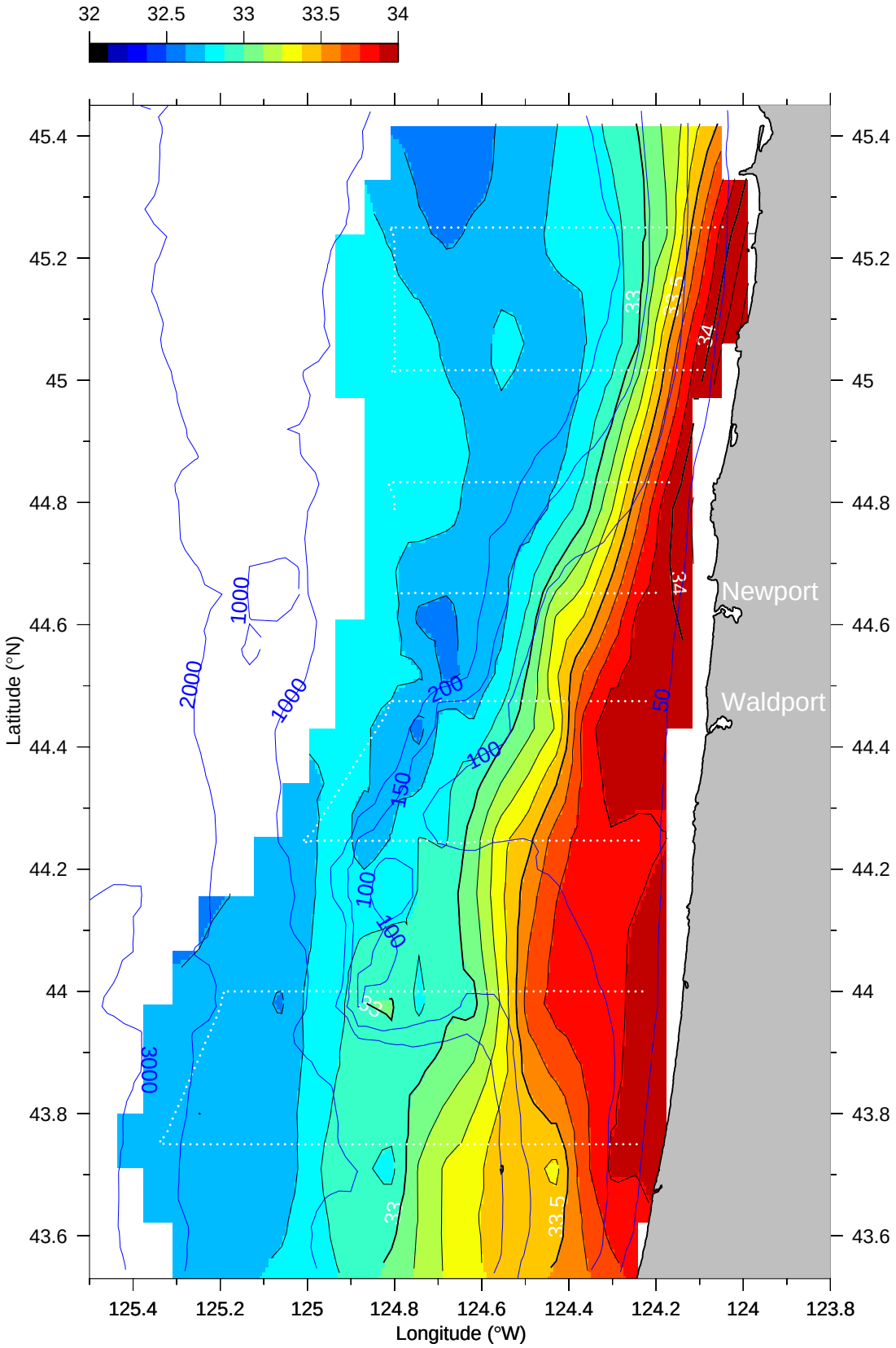
Salinity (PSS) at 45 dbar



W0105 Big Box 1

24-May-2001 02:35 - 26-May-2001 08:25

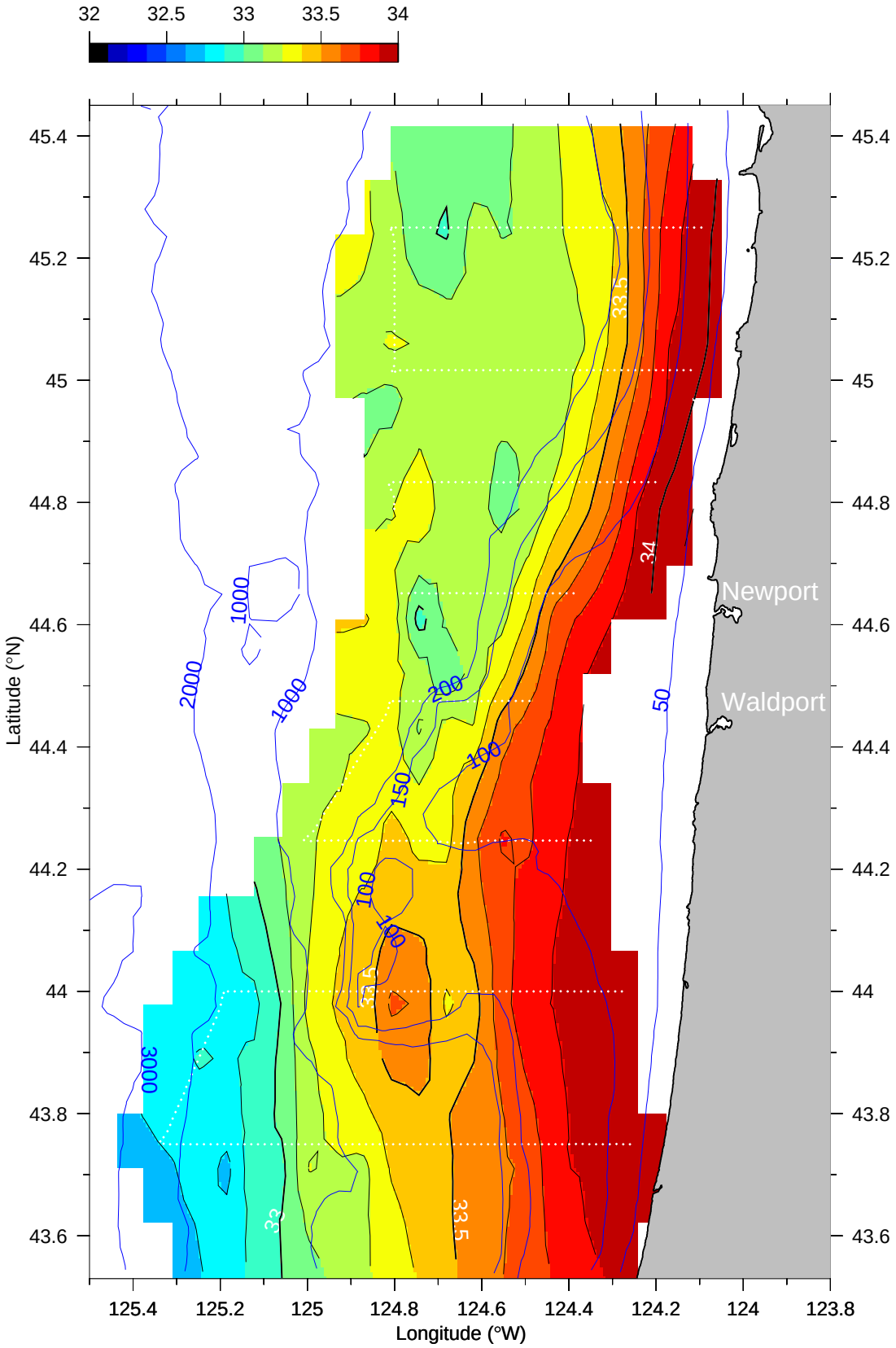
Salinity (PSS) at 55 dbar



W0105 Big Box 1

24-May-2001 02:35 - 26-May-2001 08:25

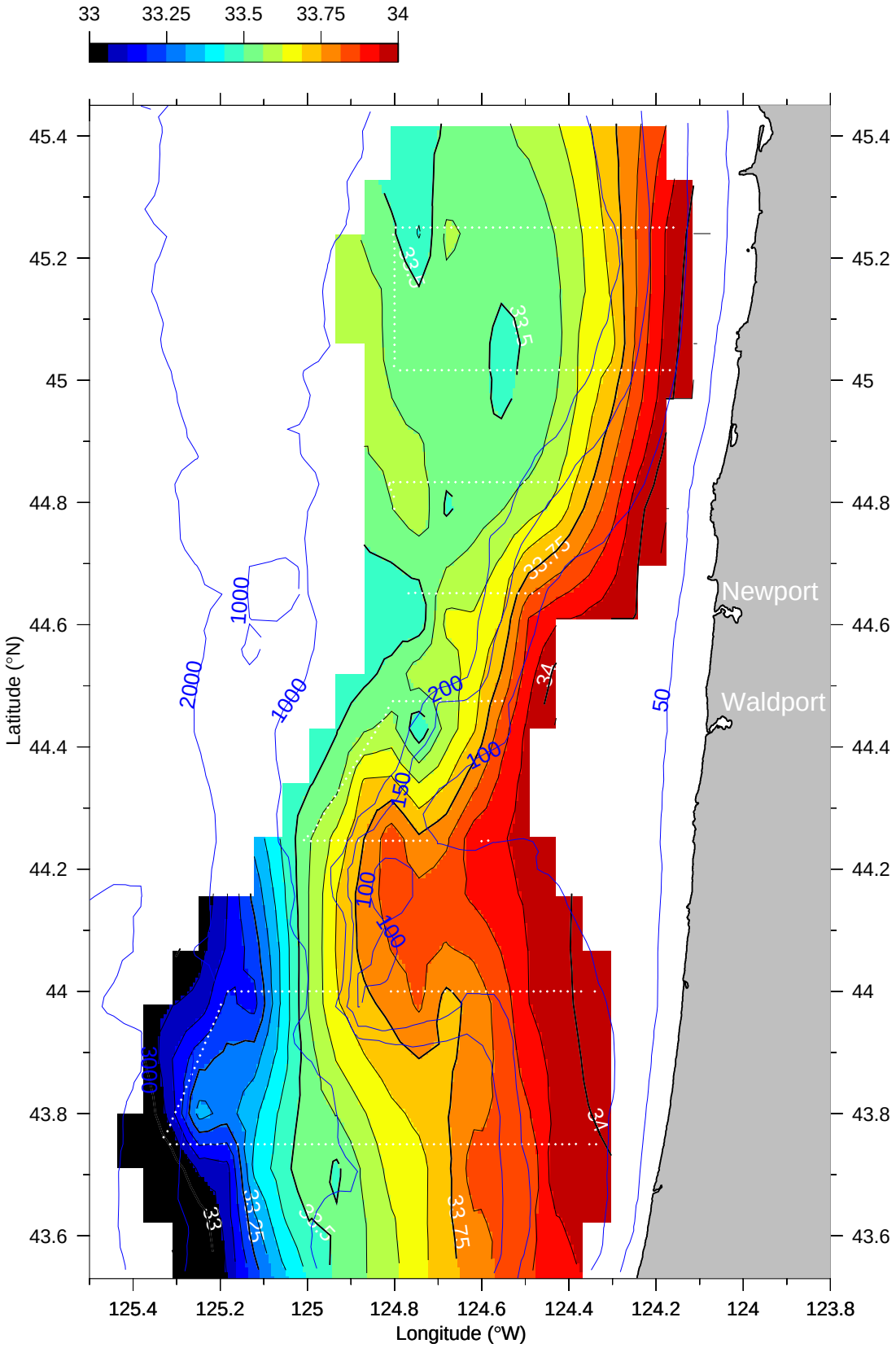
Salinity (PSS) at 75 dbar

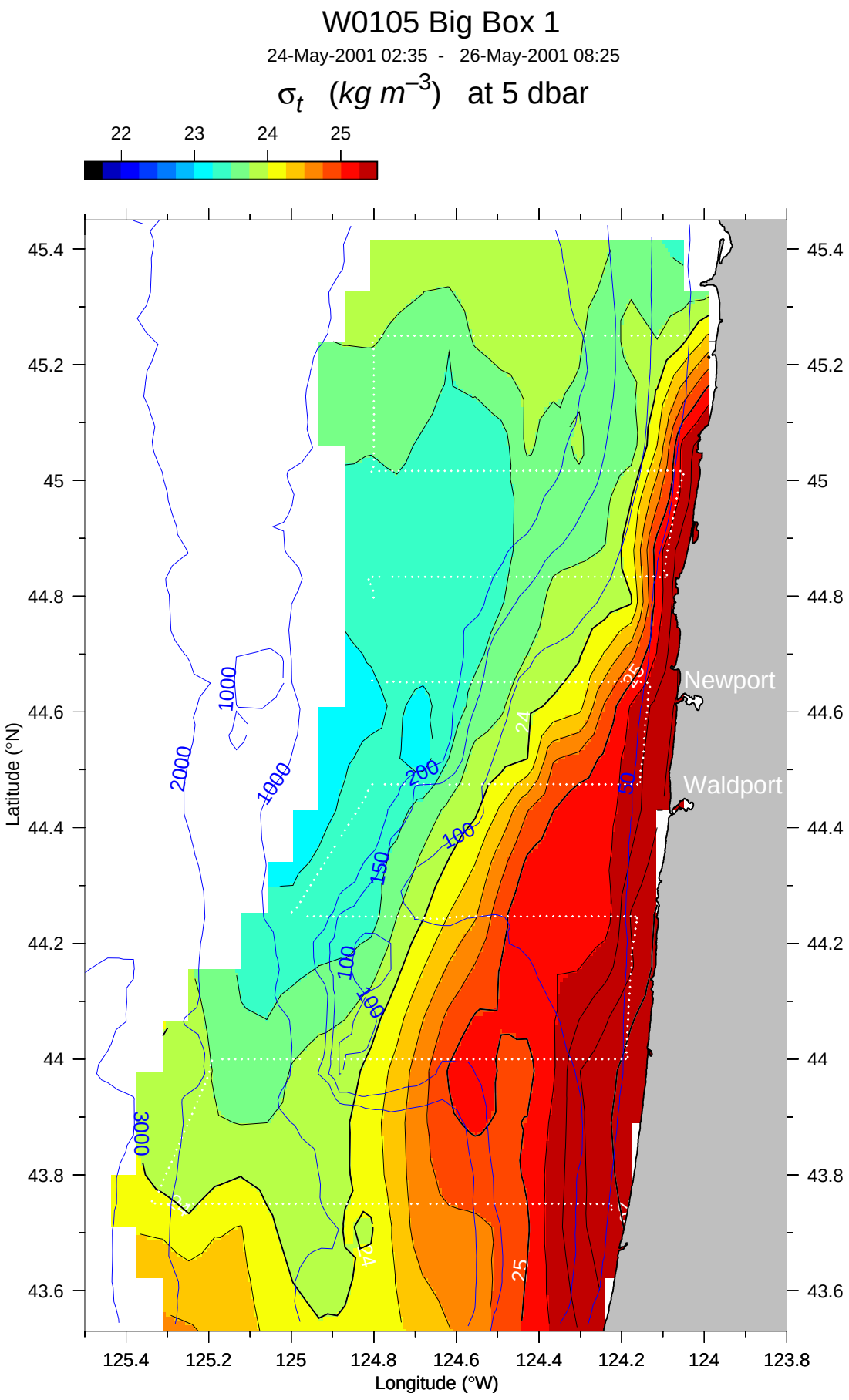


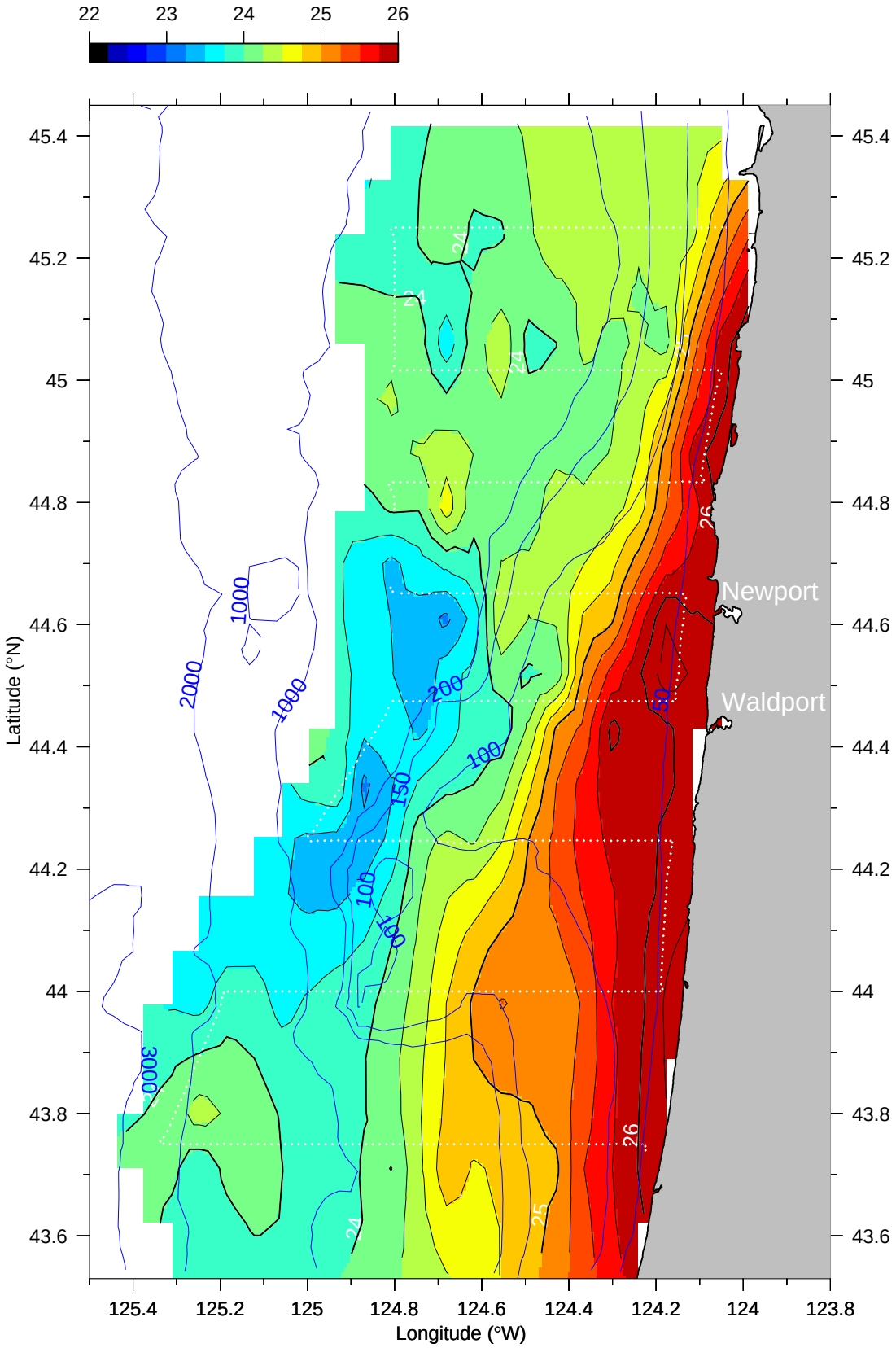
W0105 Big Box 1

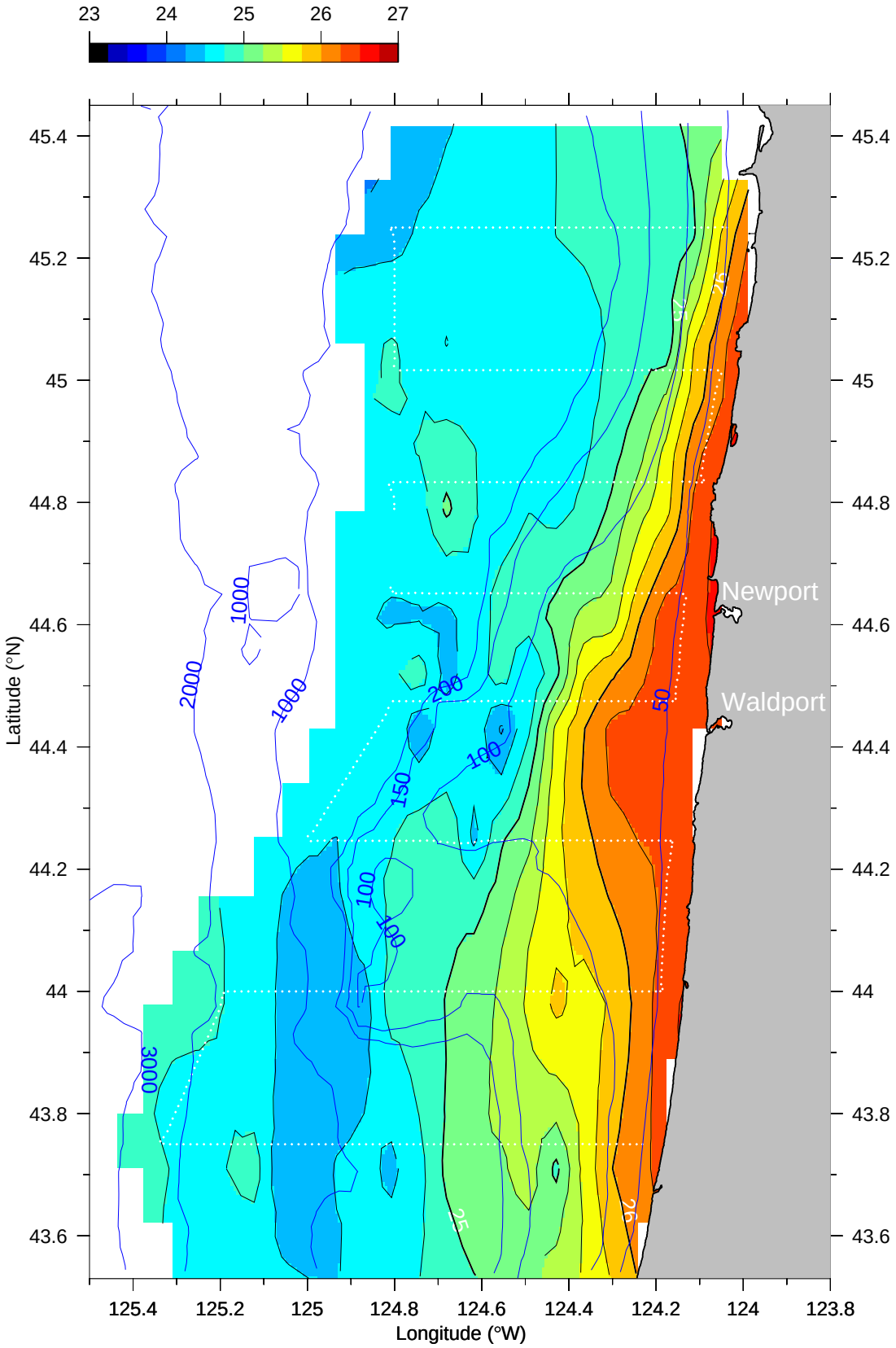
24-May-2001 02:35 - 26-May-2001 08:25

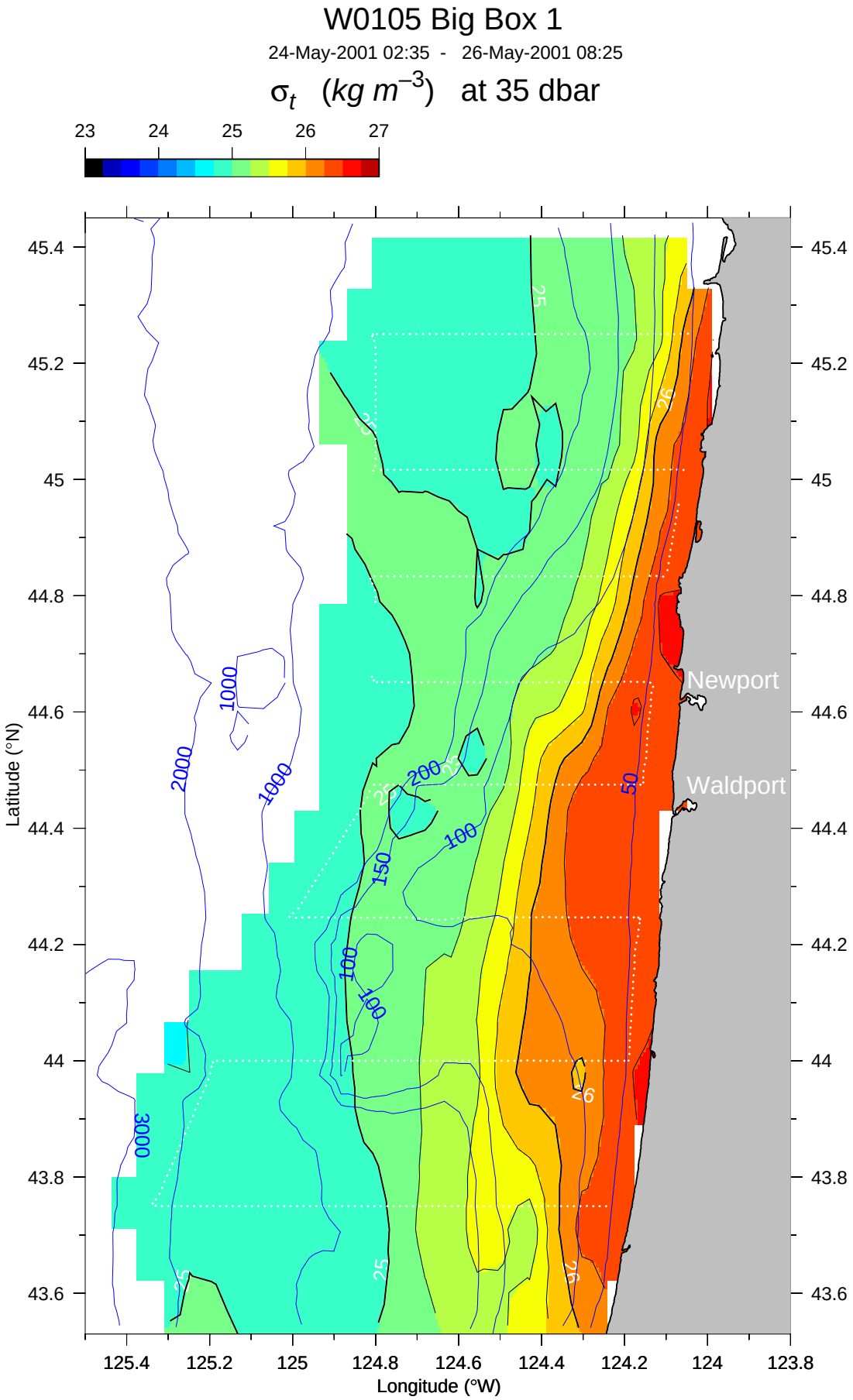
Salinity (PSS) at 95 dbar

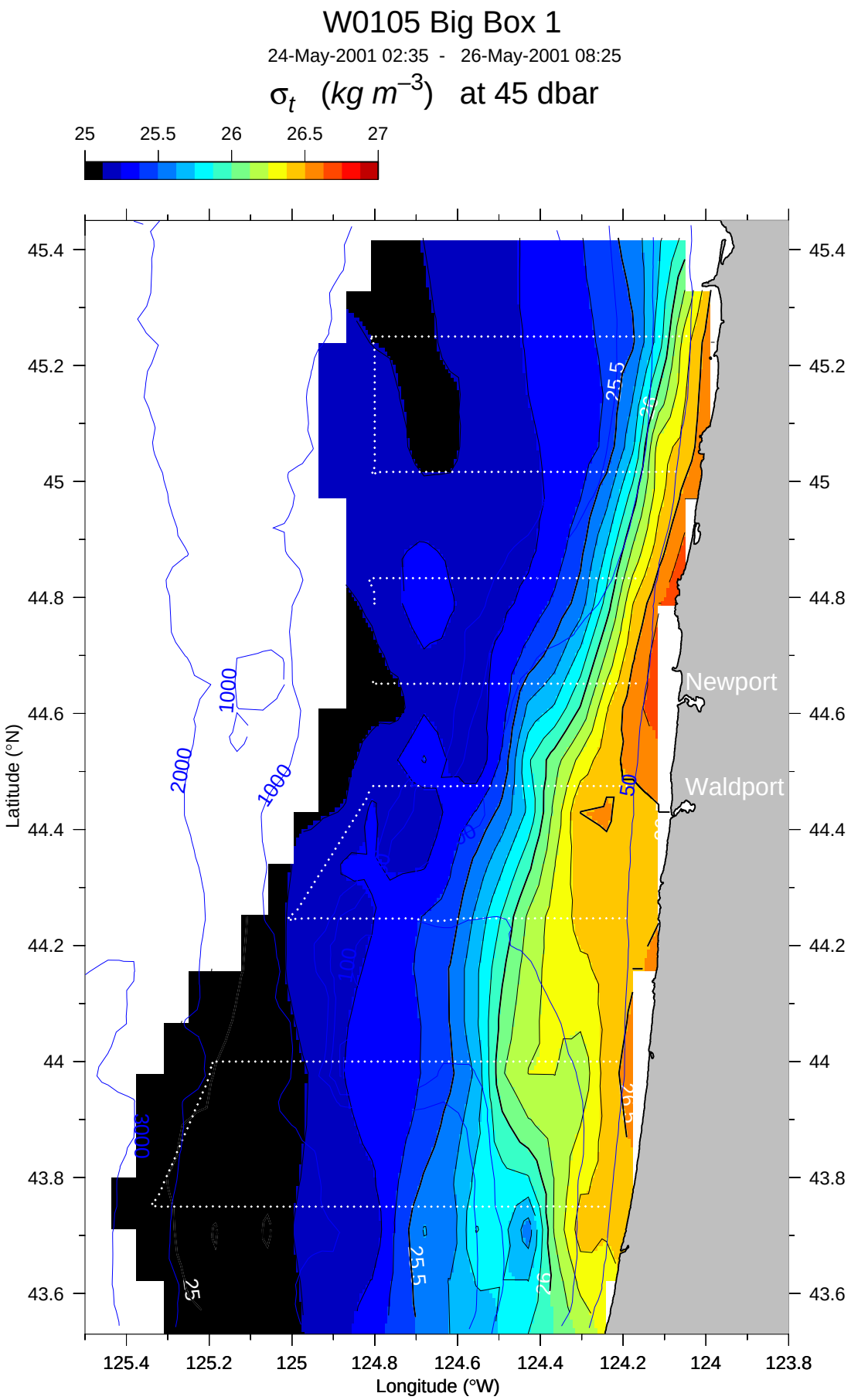


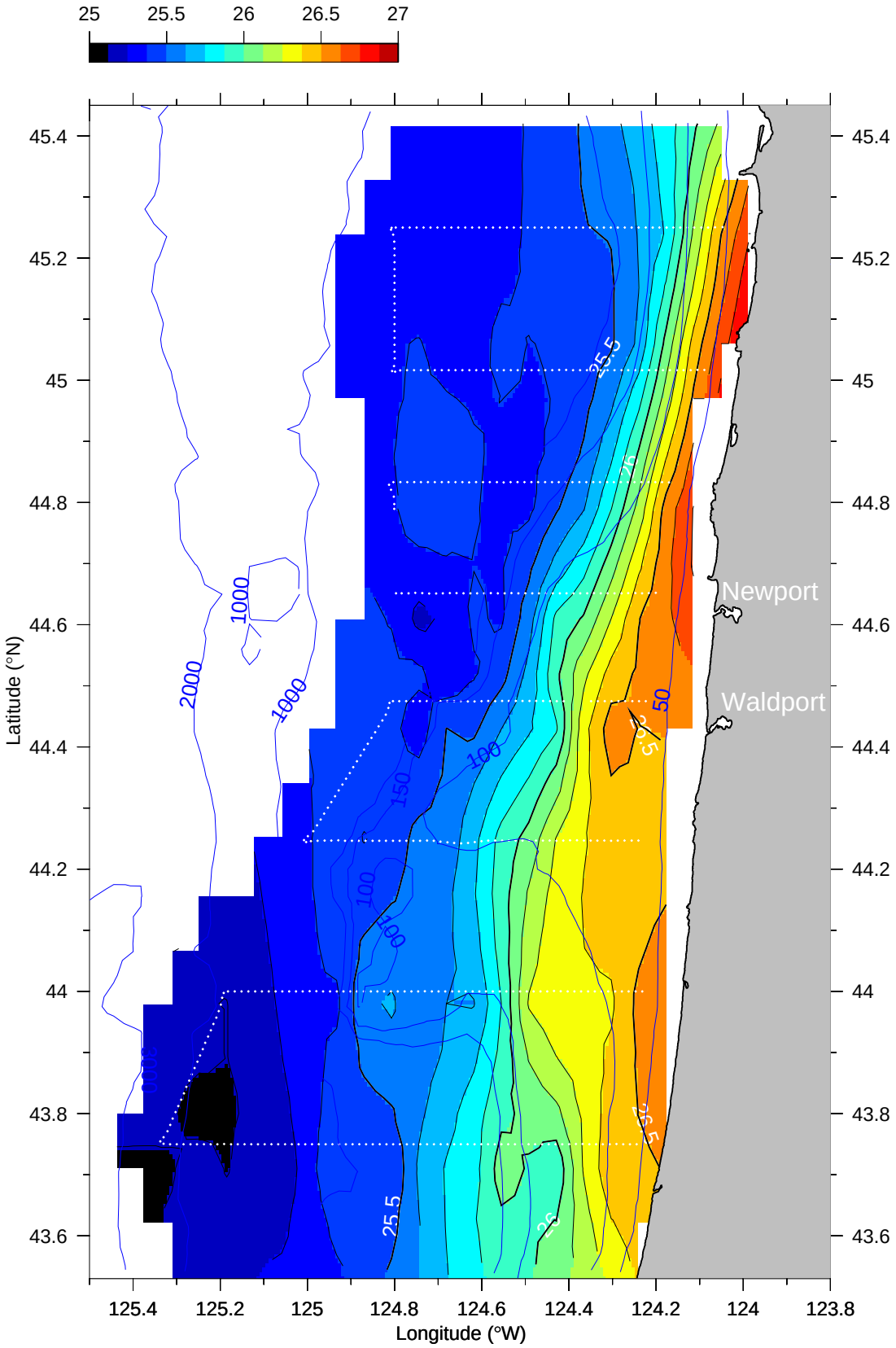

W0105 Big Box 1
24-May-2001 02:35 - 26-May-2001 08:25
σt (kg m−3) at 5 dbar
22
23
24
25
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
200
100
150
50
3000

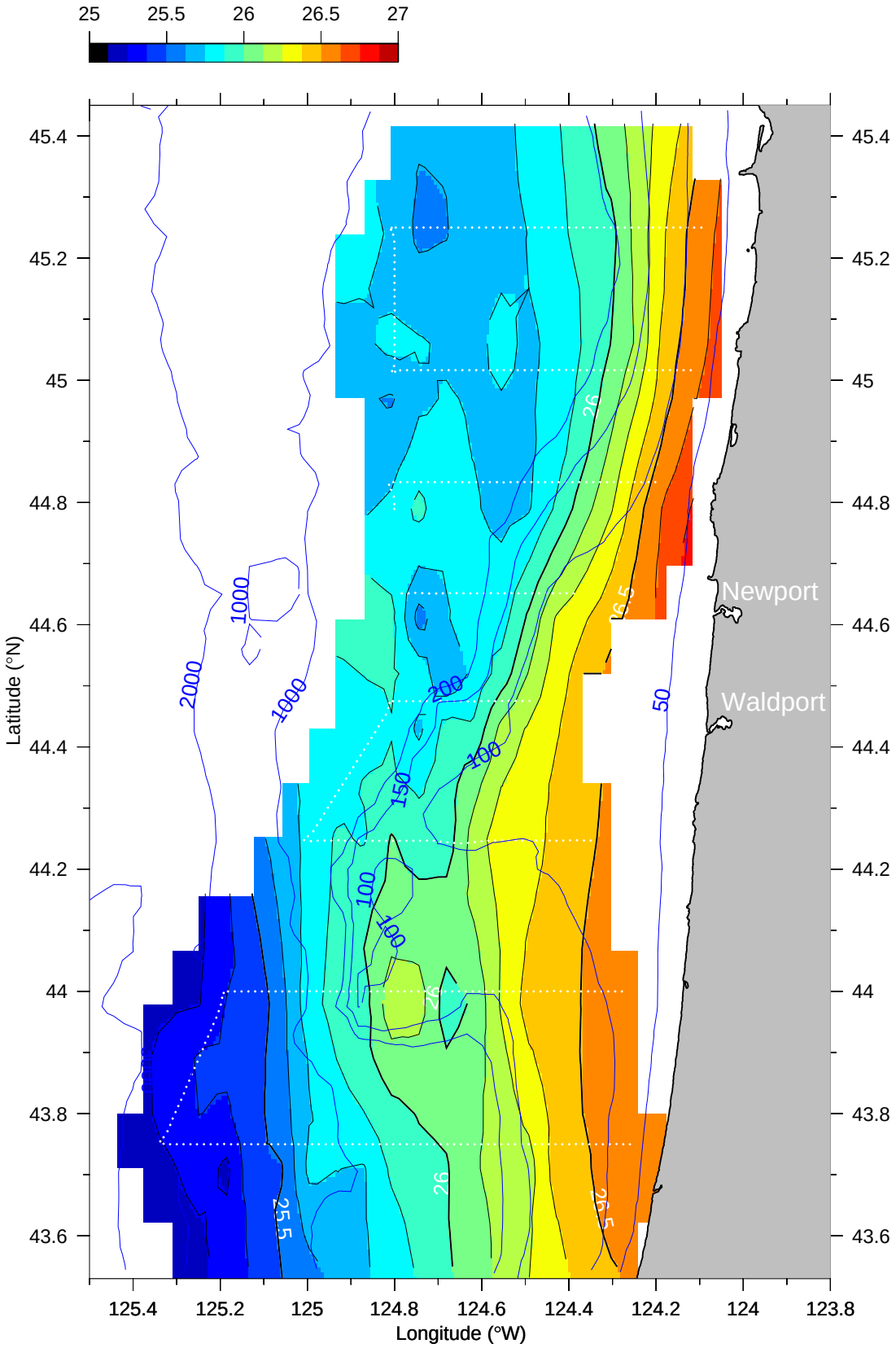

W0105 Big Box 1
24-May-2001 02:35 - 26-May-2001 08:25
σt (kg m−3) at 15 dbar
22
23
24
25
26
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8

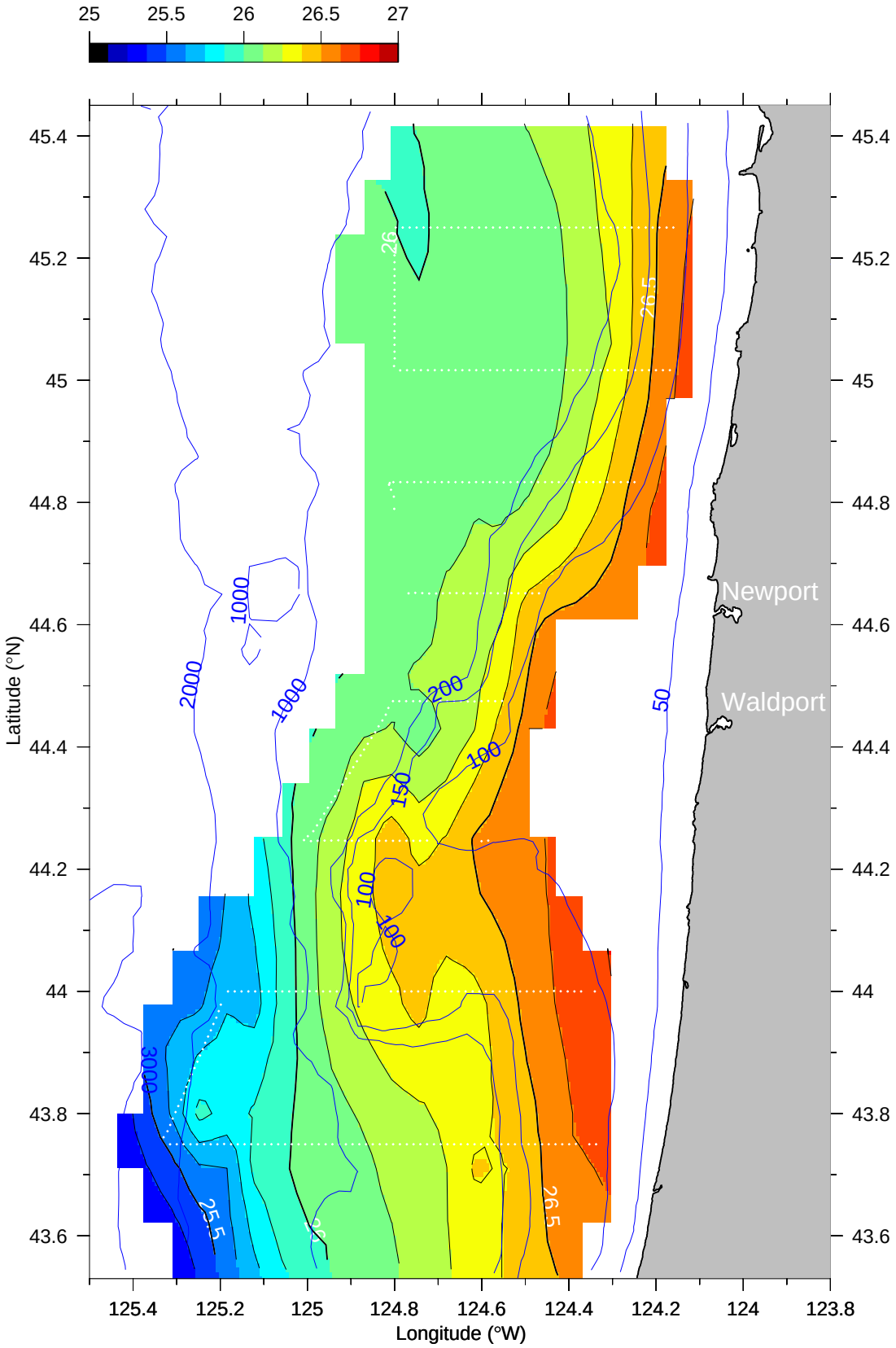

W0105 Big Box 1
24-May-2001 02:35 - 26-May-2001 08:25
σt (kg m−3) at 25 dbar
23
24
25
26
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
1000
2000
1000
200
100
150
100
50
3000
25
25

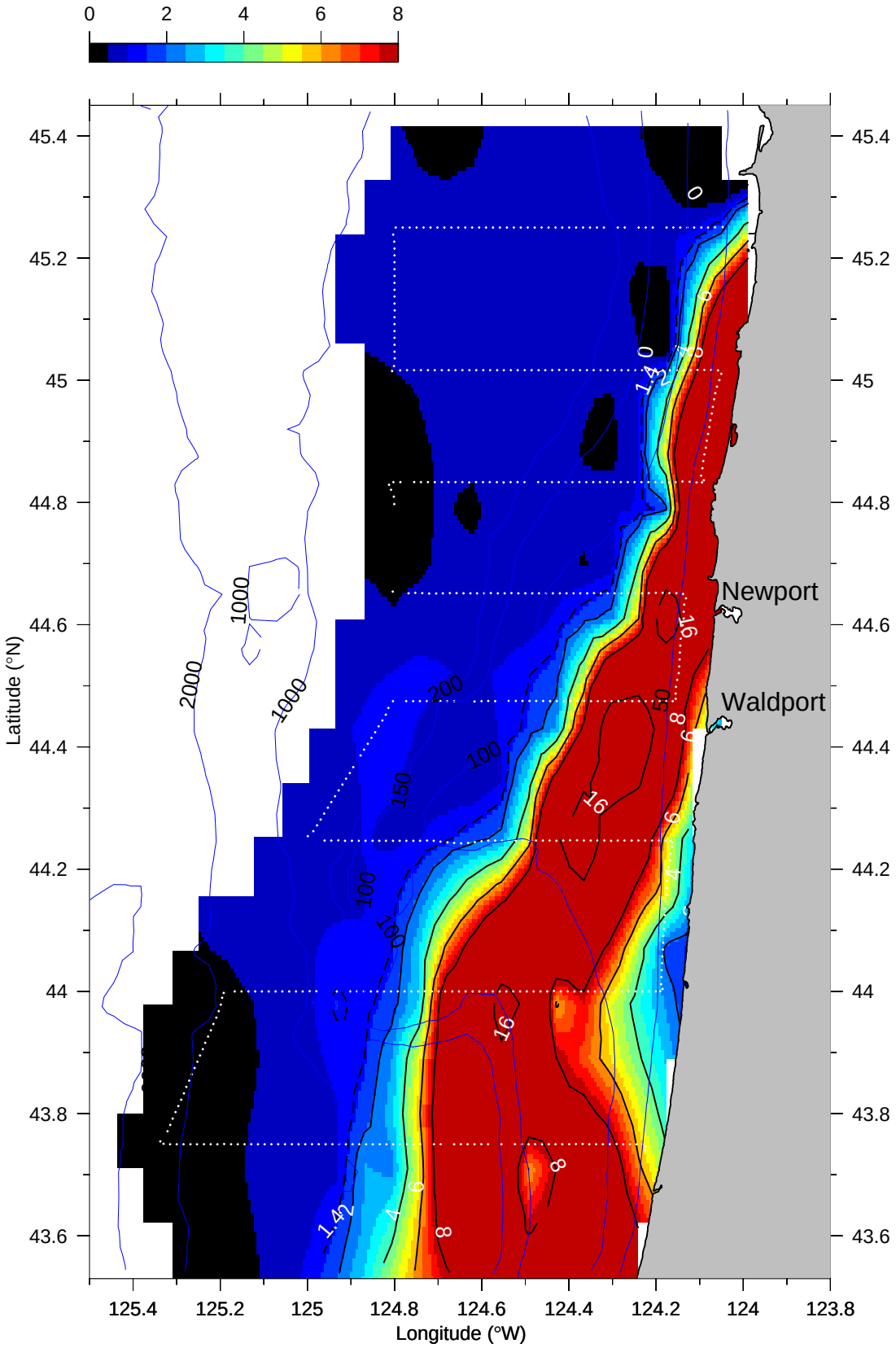

W0105 Big Box 1
24-May-2001 02:35 - 26-May-2001 08:25
σt (kg m−3) at 35 dbar
23
24
25
26
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
200
100
150
50
3000


W0105 Big Box 1
24-May-2001 02:35 - 26-May-2001 08:25
σt (kg m−3) at 45 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
3000
100
50
25.5
26


W0105 Big Box 1
24-May-2001 02:35 - 26-May-2001 08:25
σt (kg m−3) at 55 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8


W0105 Big Box 1
24-May-2001 02:35 - 26-May-2001 08:25
σt (kg m−3) at 75 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
2000
1000
200
100
150
50
25.5
26
26.5


W0105 Big Box 1
24-May-2001 02:35 - 26-May-2001 08:25
σt (kg m−3) at 95 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
3000
200
150
100
50
25.5
26
26.5


W0105 Big Box 1
24-May-2001 02:35 - 26-May-2001 08:25
Chlorophyll (µg L−1) at 5 dbar
0
2
4
6
8
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8

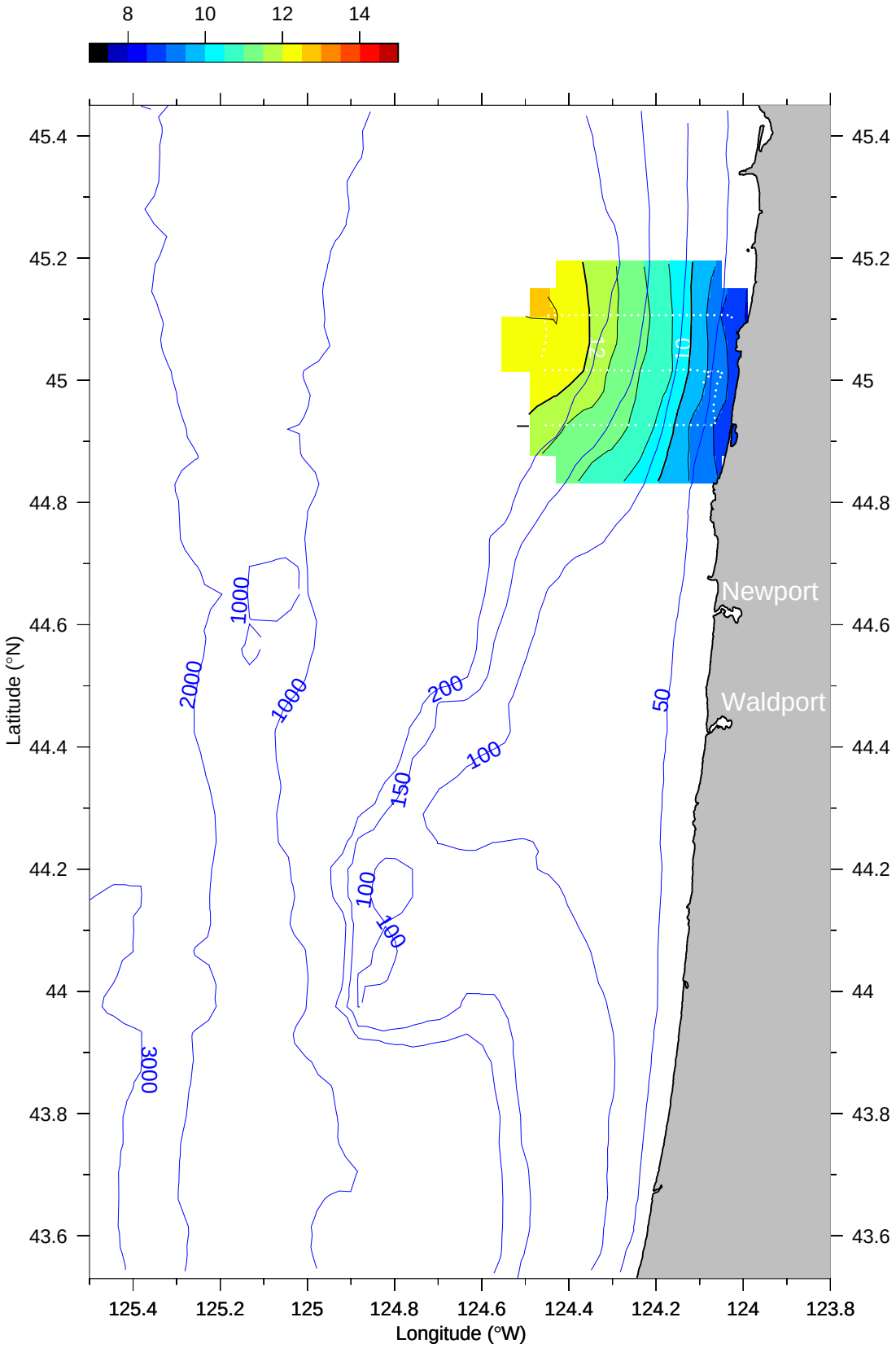
Small Box North 1 Maps

Maps of Temperature, Salinity, σ_t, and Chlorophyll at Specified Depths

W0105 Small Box North 1

26-May-2001 18:46 - 27-May-2001 04:44

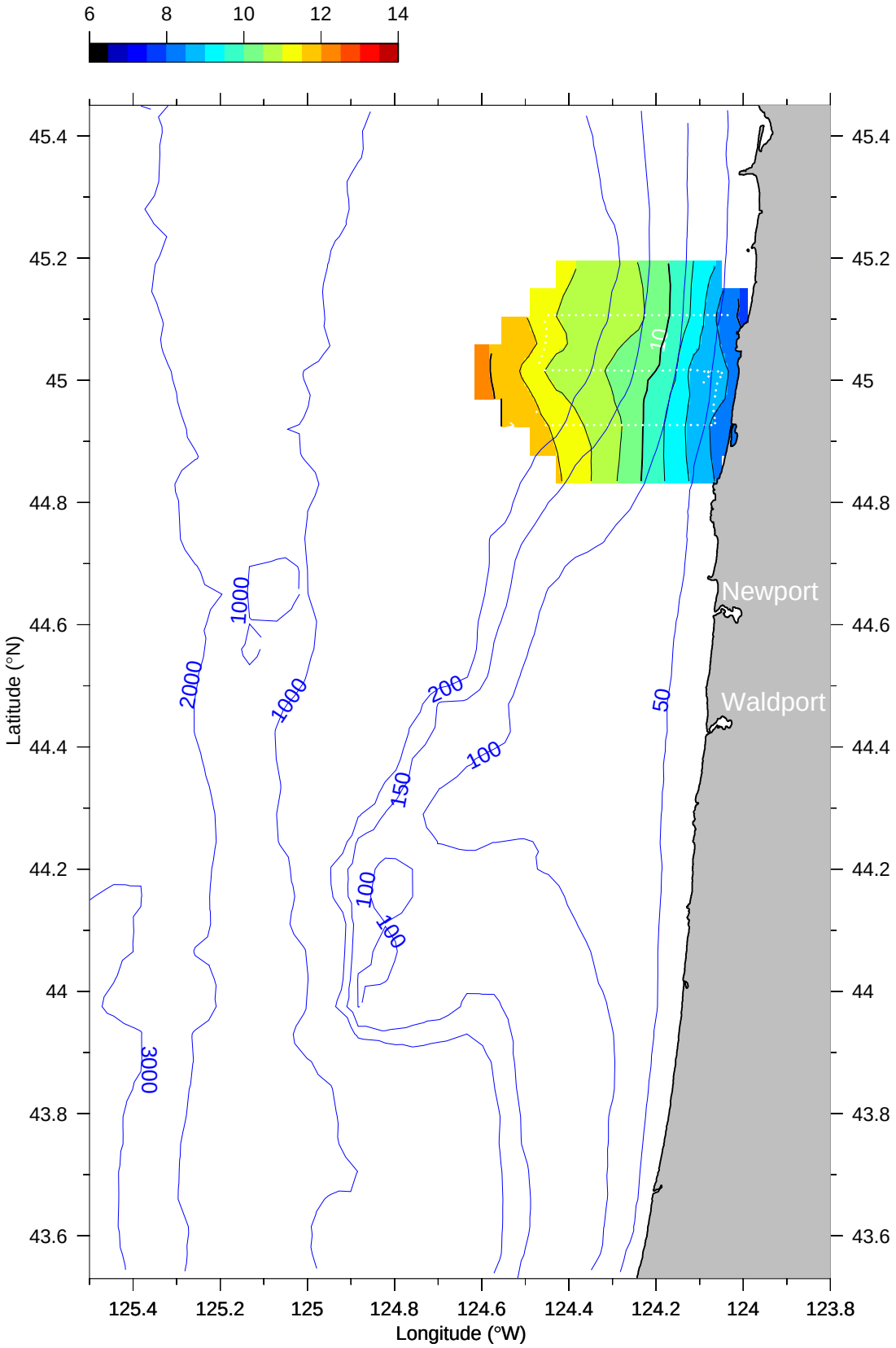
Temperature (°C) at 5 dbar



W0105 Small Box North 1

26-May-2001 18:46 - 27-May-2001 04:44

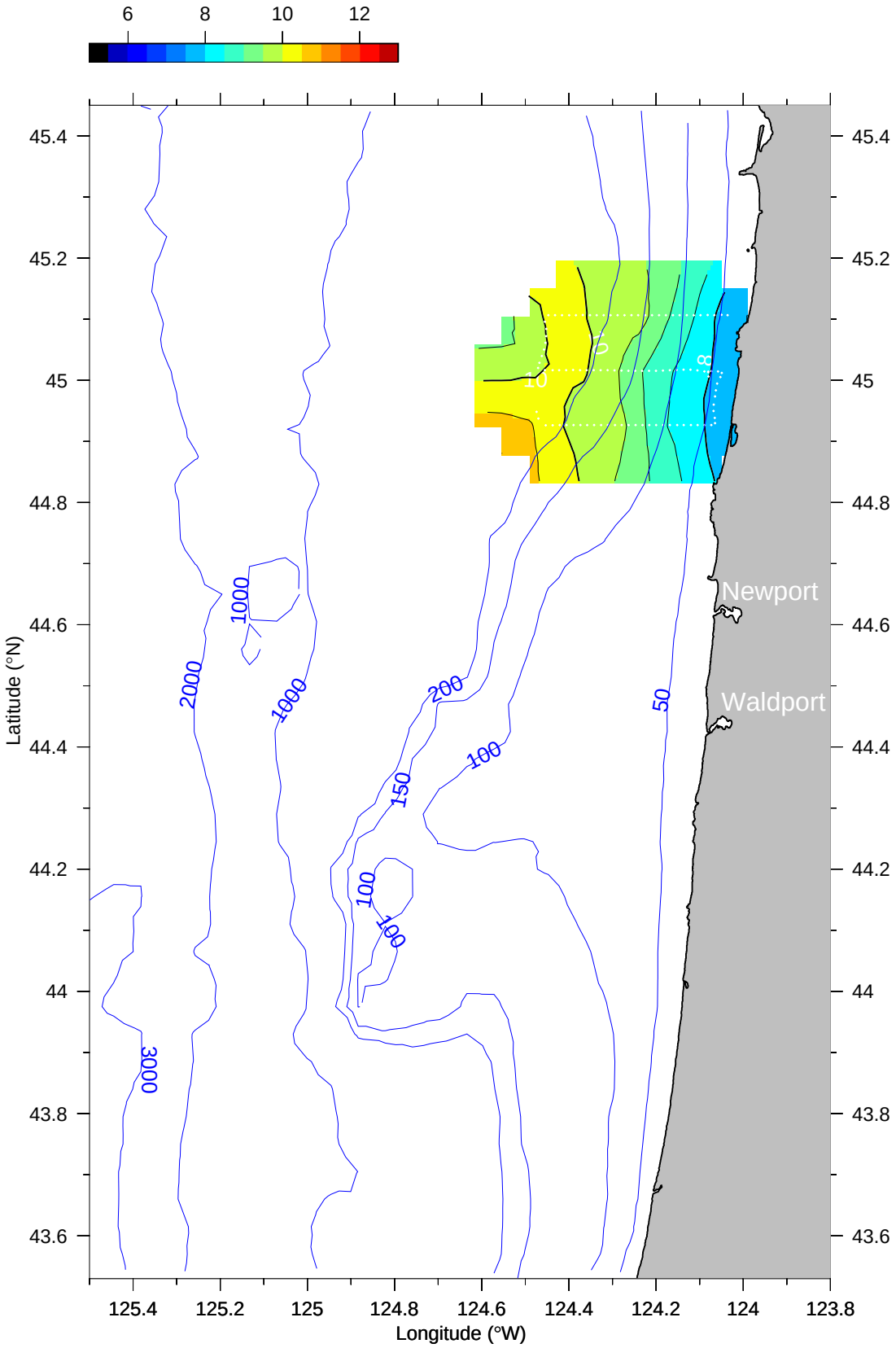
Temperature (°C) at 15 dbar



W0105 Small Box North 1

26-May-2001 18:46 - 27-May-2001 04:44

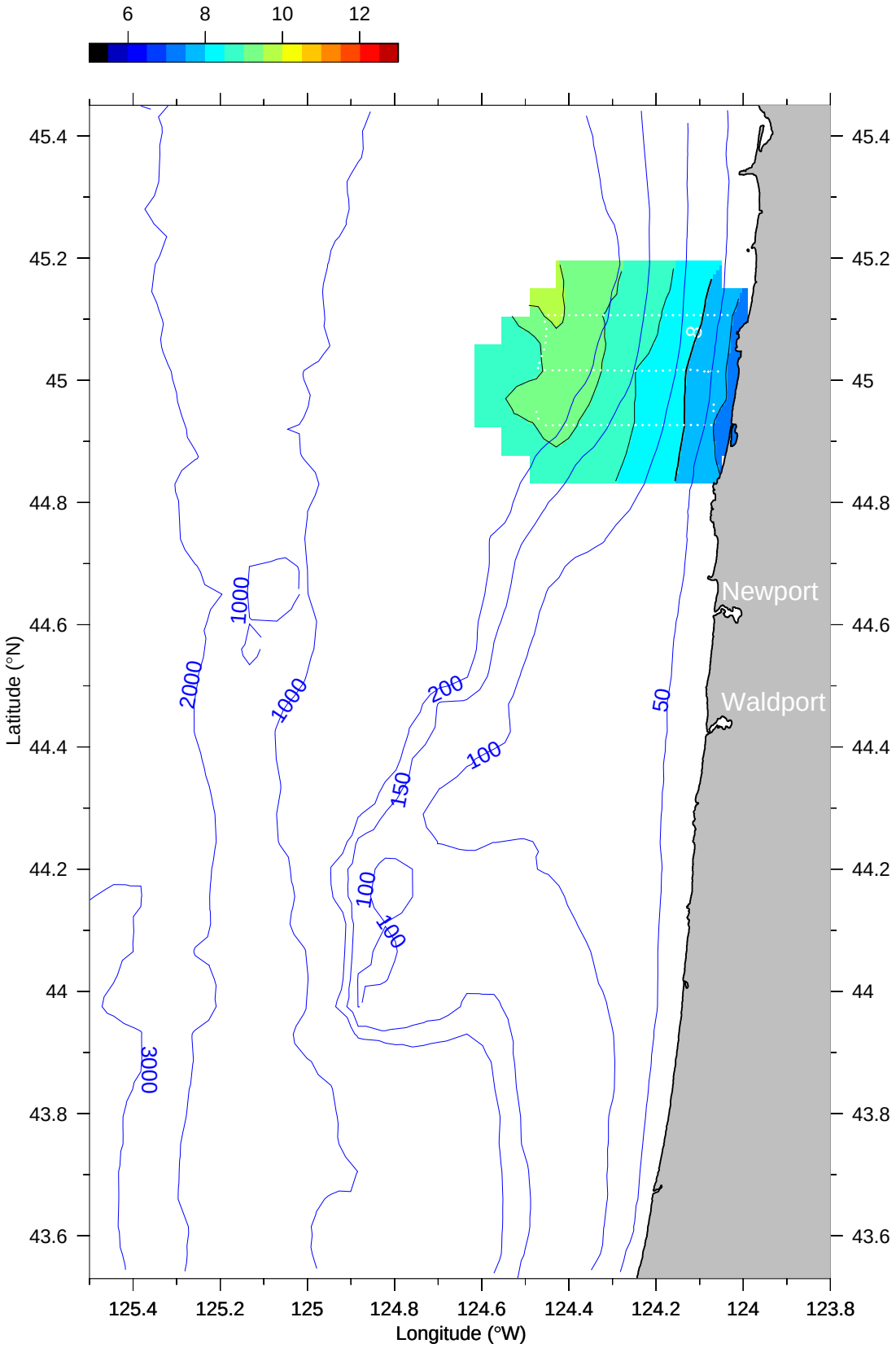
Temperature (°C) at 25 dbar



W0105 Small Box North 1

26-May-2001 18:46 - 27-May-2001 04:44

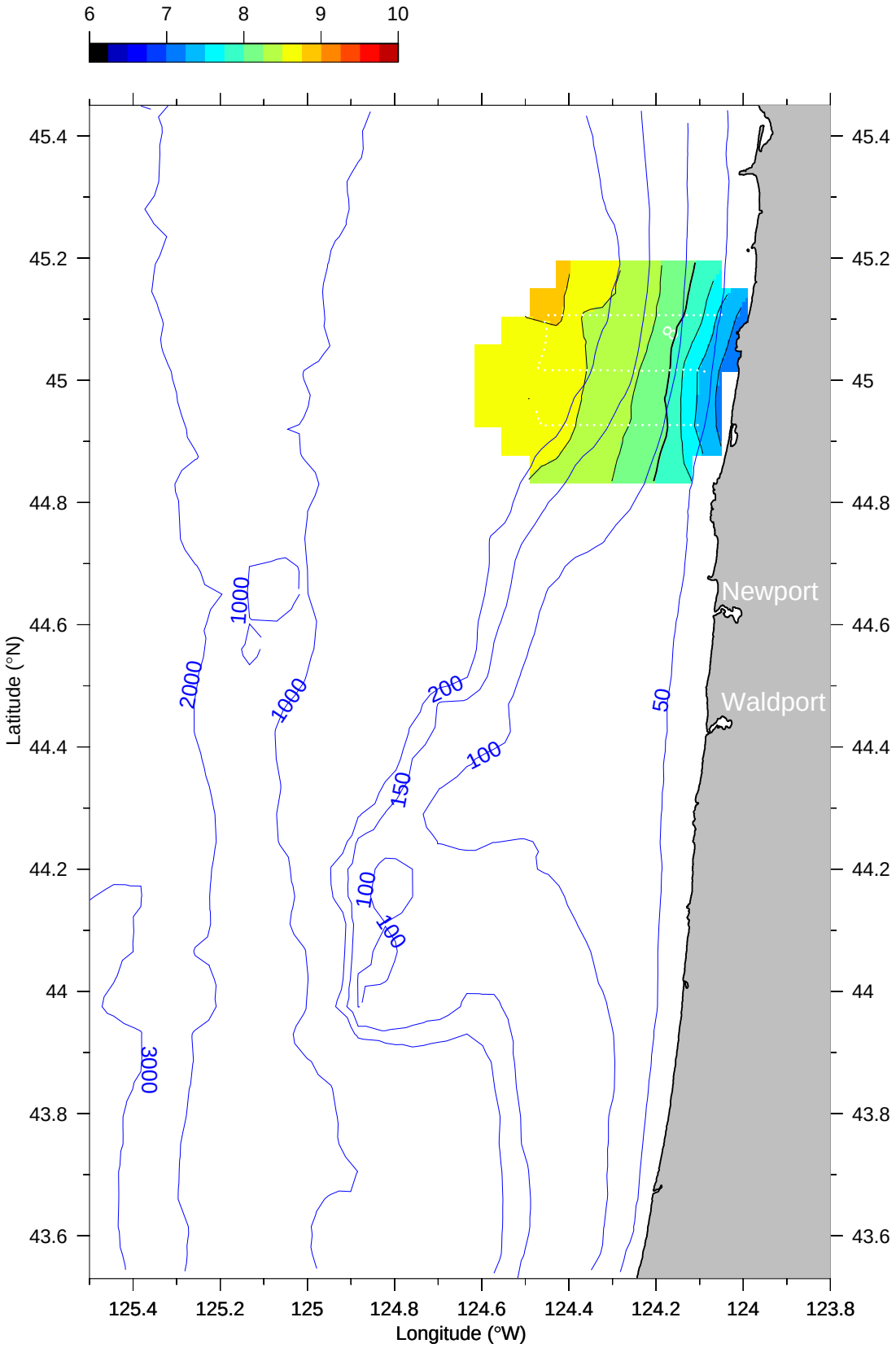
Temperature (°C) at 35 dbar



W0105 Small Box North 1

26-May-2001 18:46 - 27-May-2001 04:44

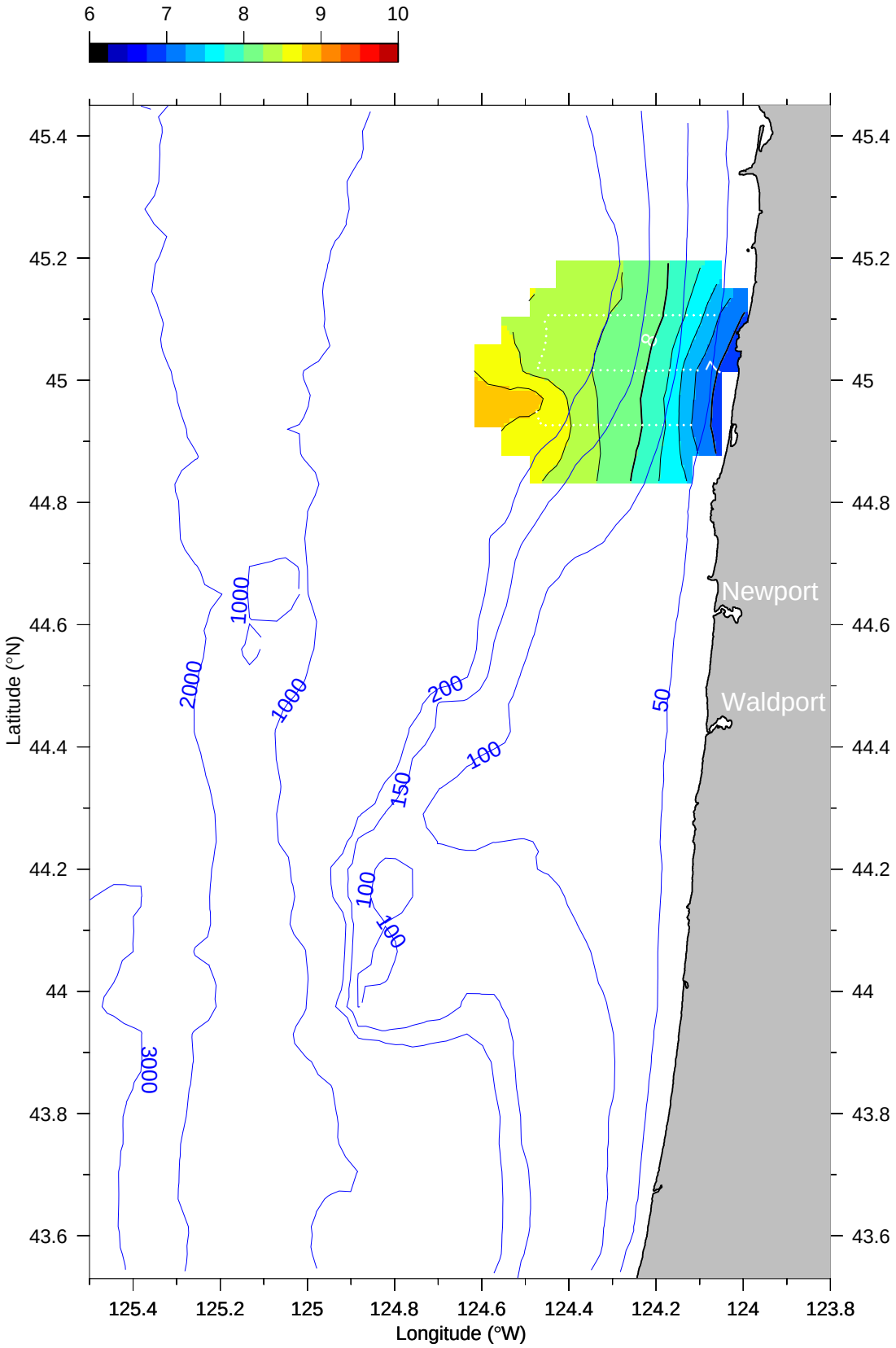
Temperature (°C) at 45 dbar



W0105 Small Box North 1

26-May-2001 18:46 - 27-May-2001 04:44

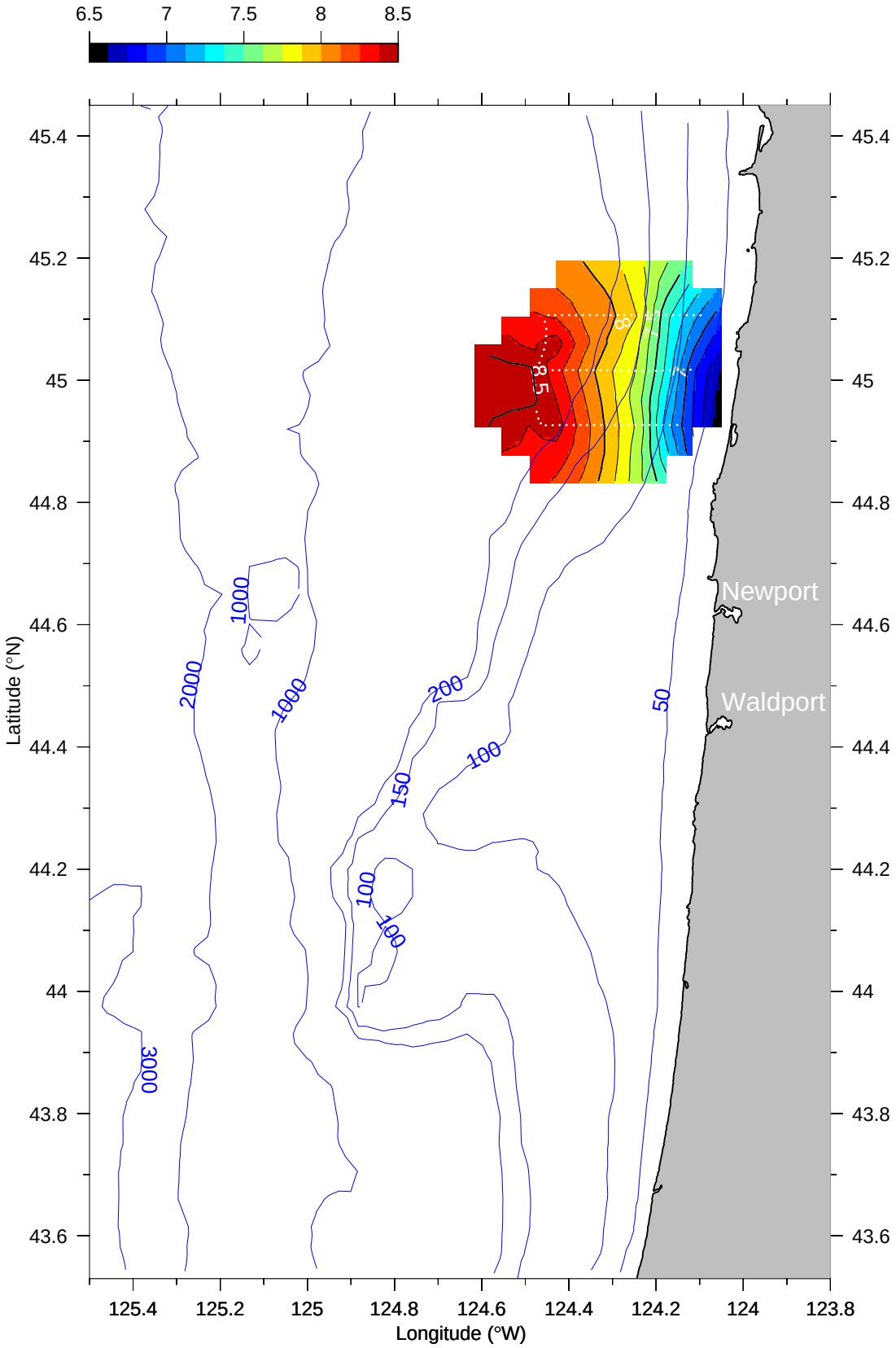
Temperature (°C) at 55 dbar



W0105 Small Box North 1

26-May-2001 18:46 - 27-May-2001 04:44

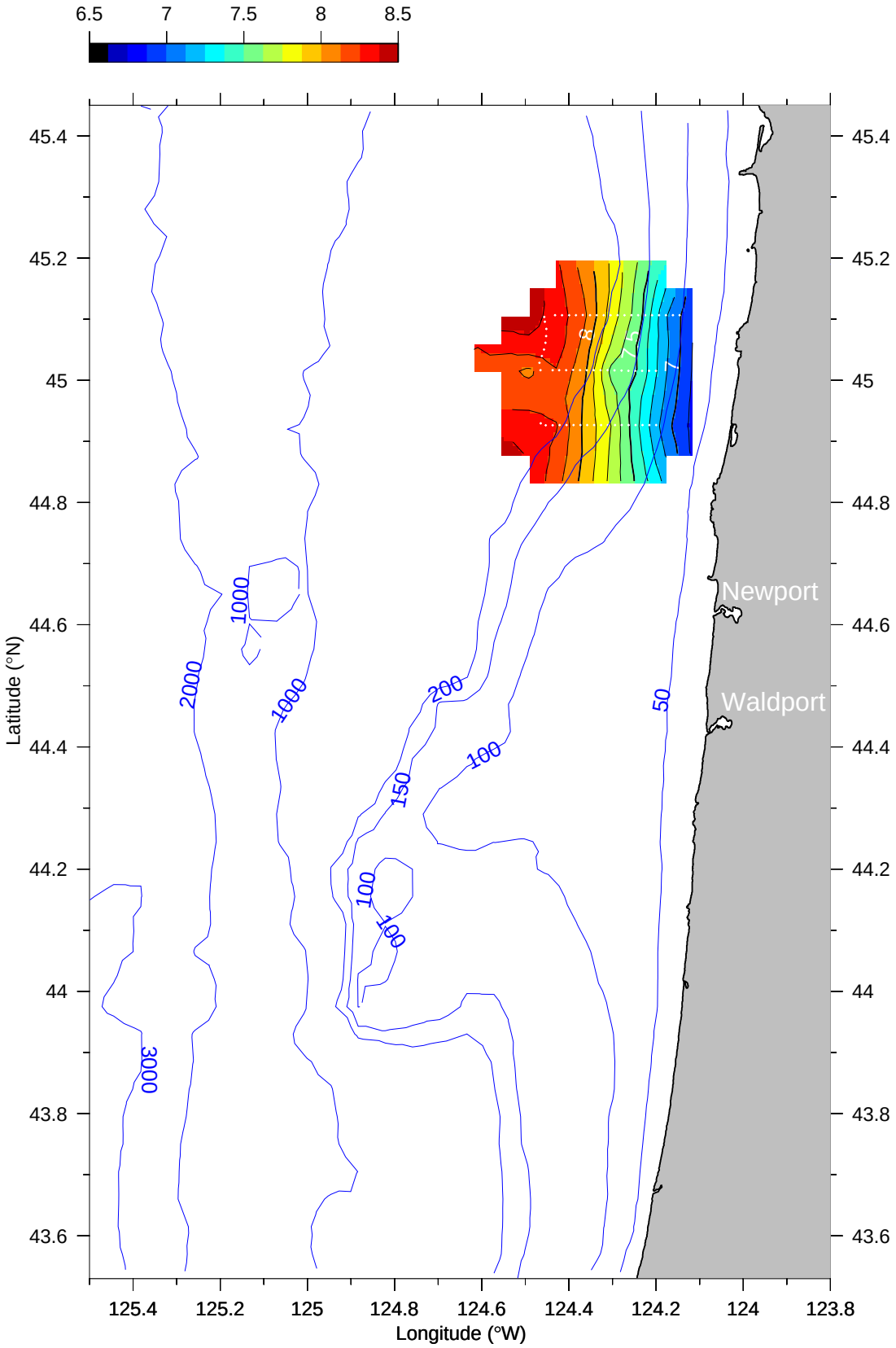
Temperature (°C) at 75 dbar



W0105 Small Box North 1

26-May-2001 18:46 - 27-May-2001 04:44

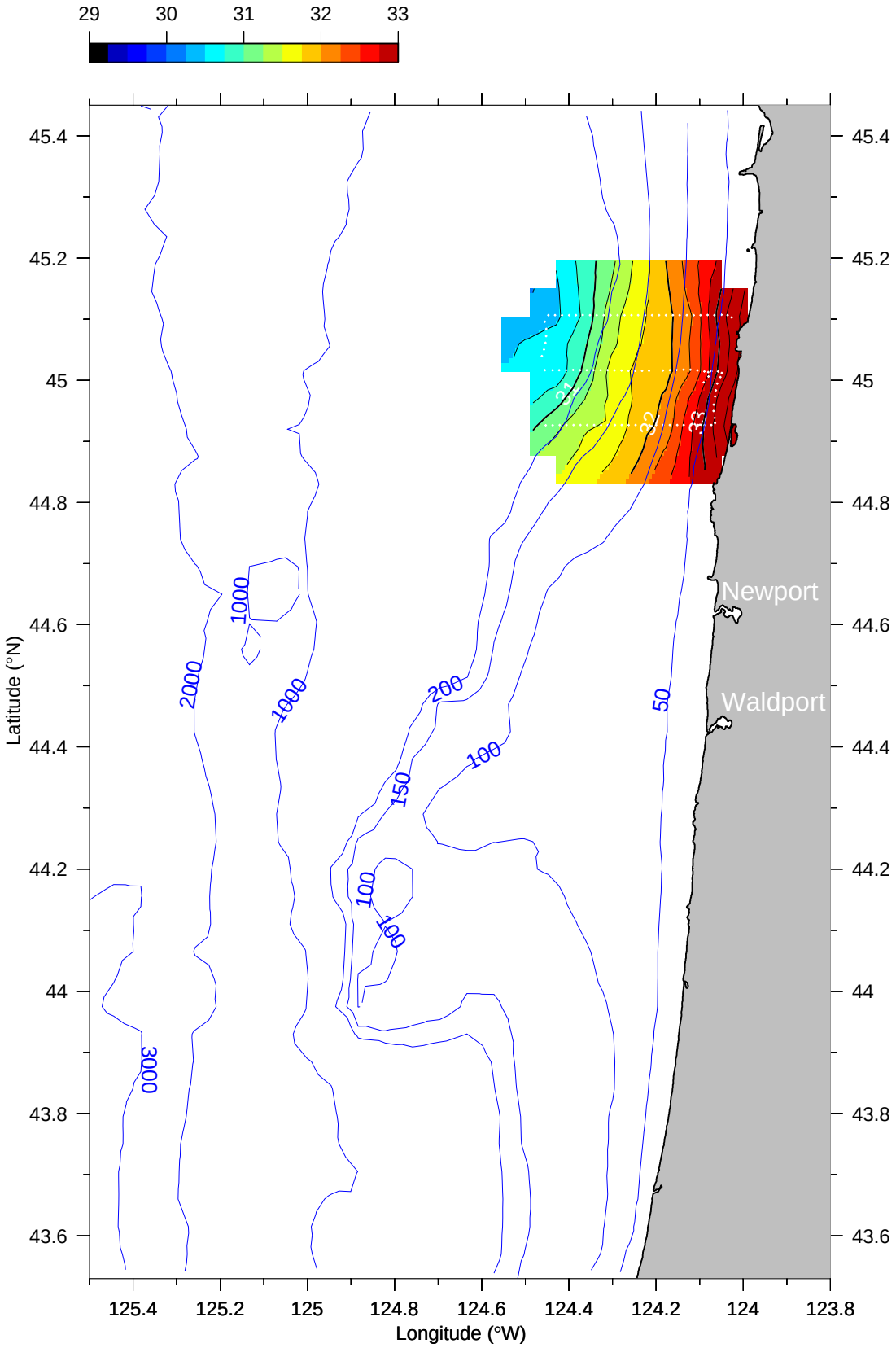
Temperature (°C) at 95 dbar



W0105 Small Box North 1

26-May-2001 18:46 - 27-May-2001 04:44

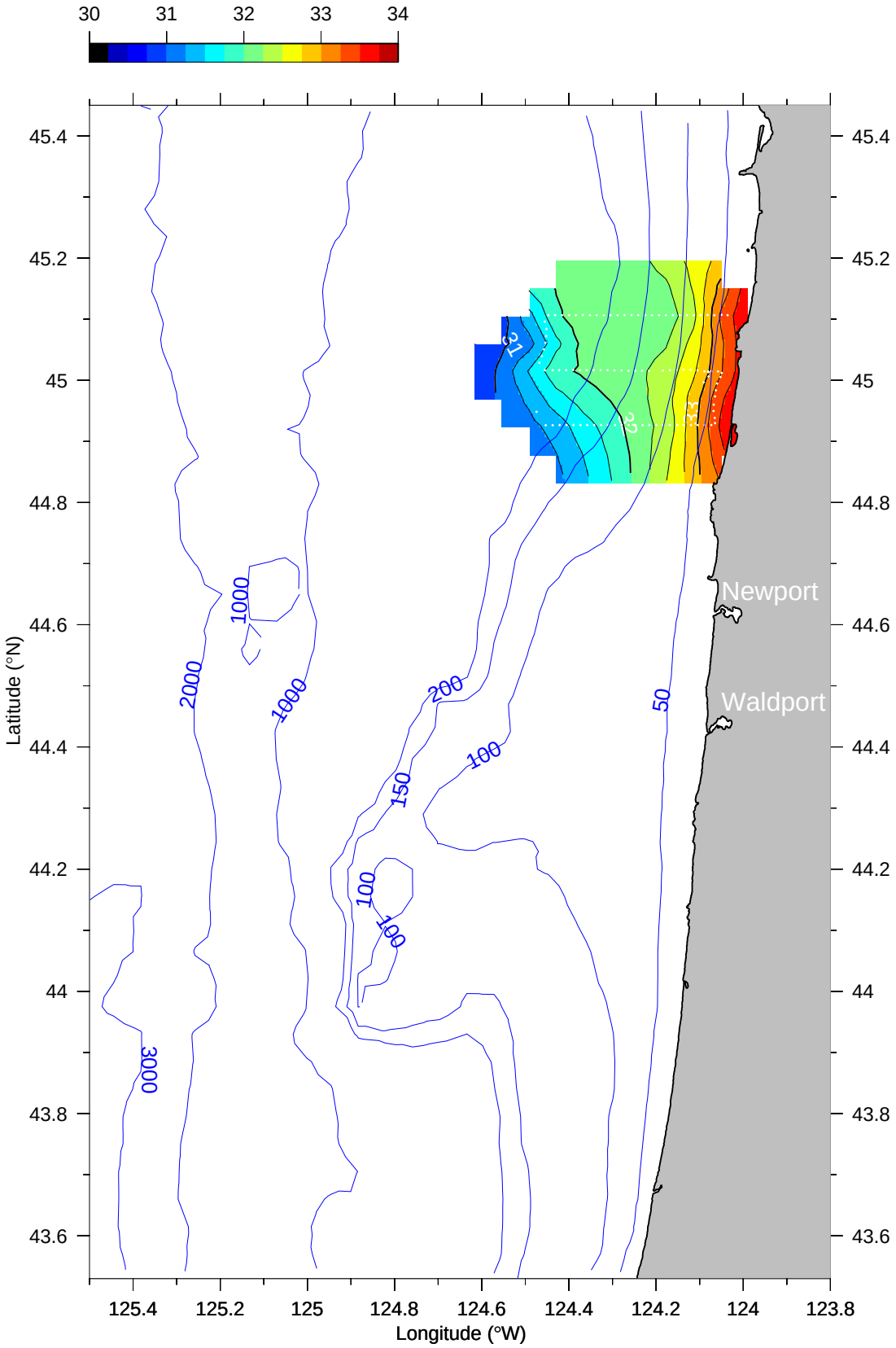
Salinity (PSS) at 5 dbar



W0105 Small Box North 1

26-May-2001 18:46 - 27-May-2001 04:44

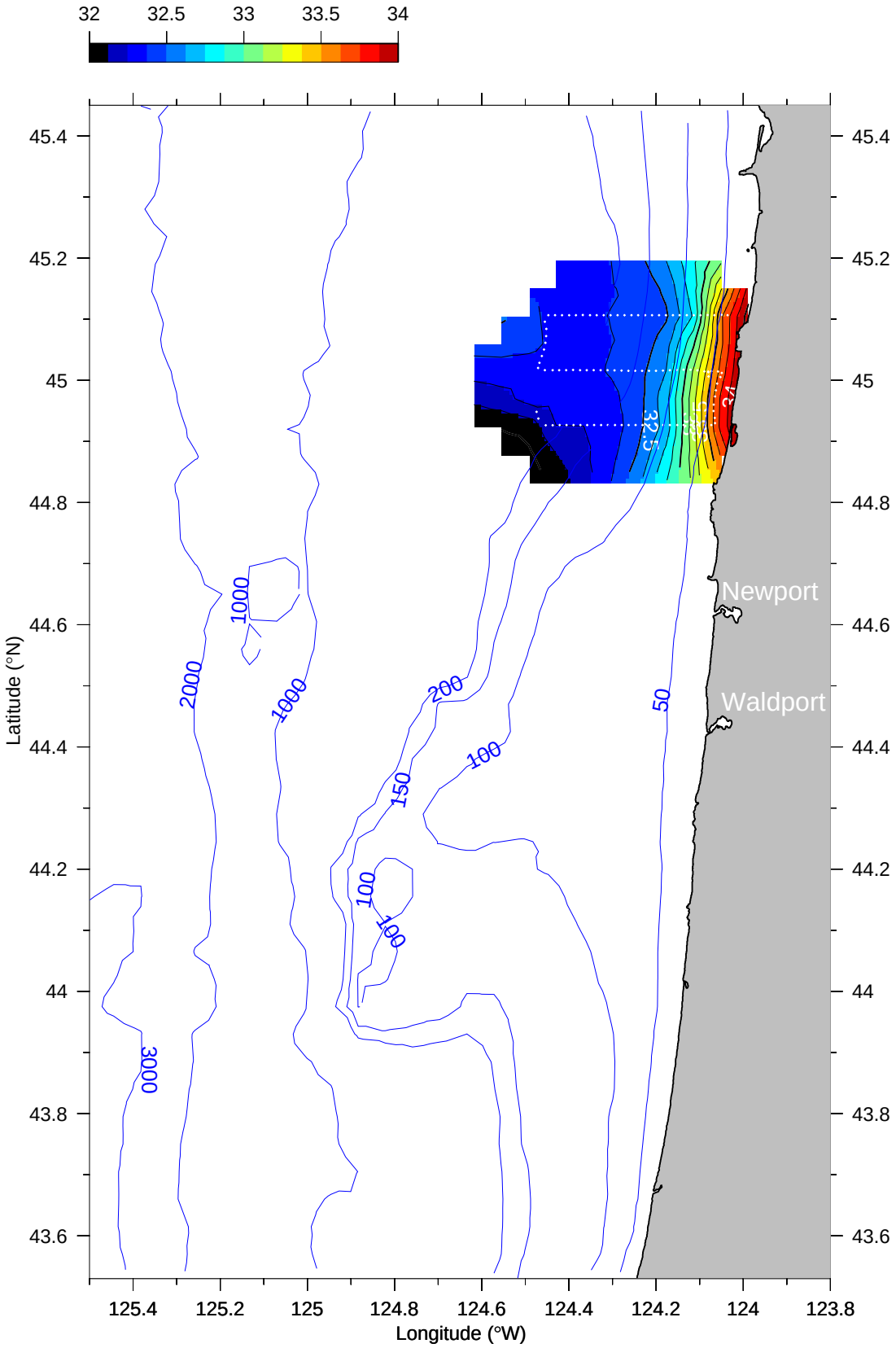
Salinity (PSS) at 15 dbar



W0105 Small Box North 1

26-May-2001 18:46 - 27-May-2001 04:44

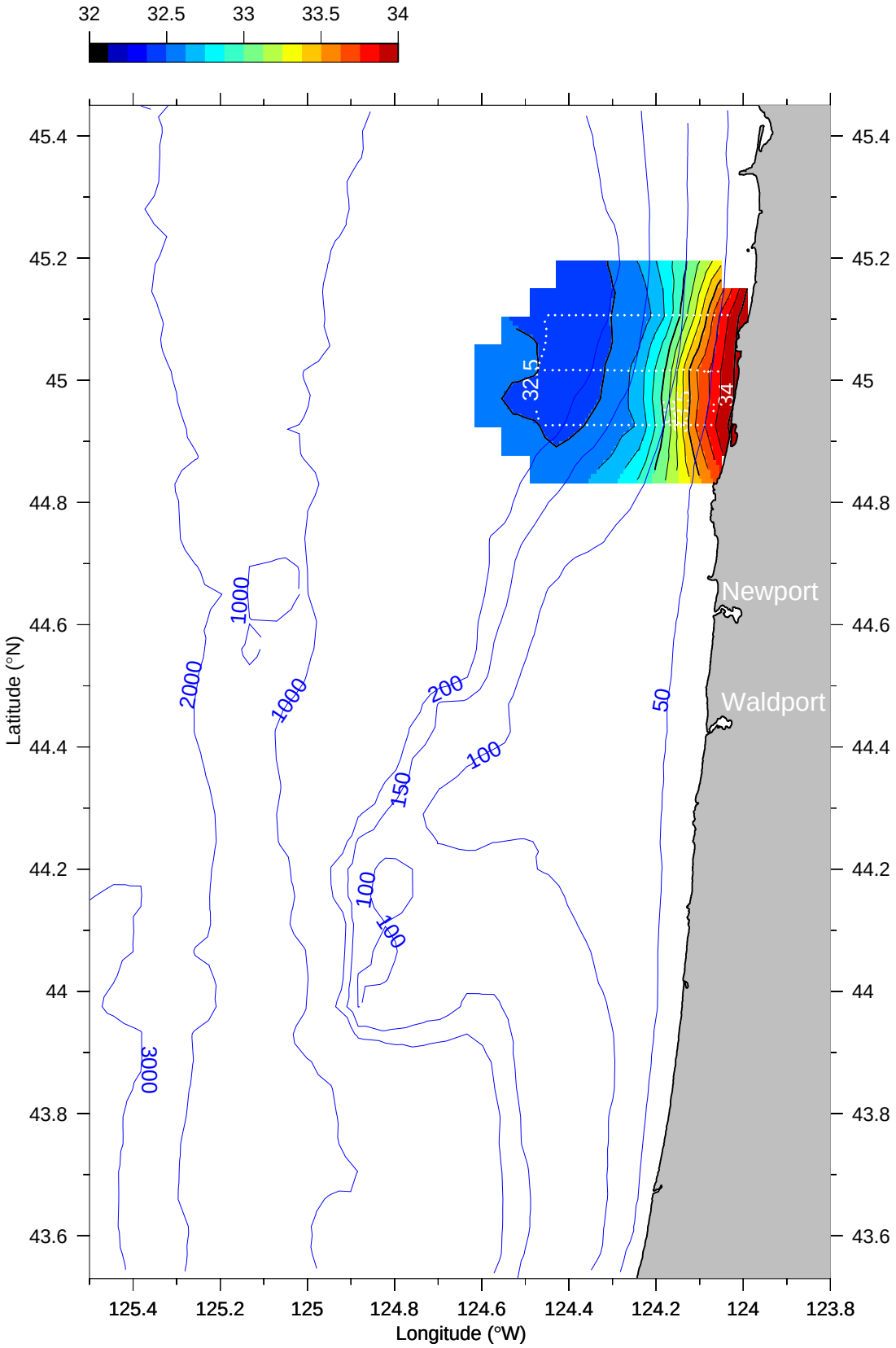
Salinity (PSS) at 25 dbar

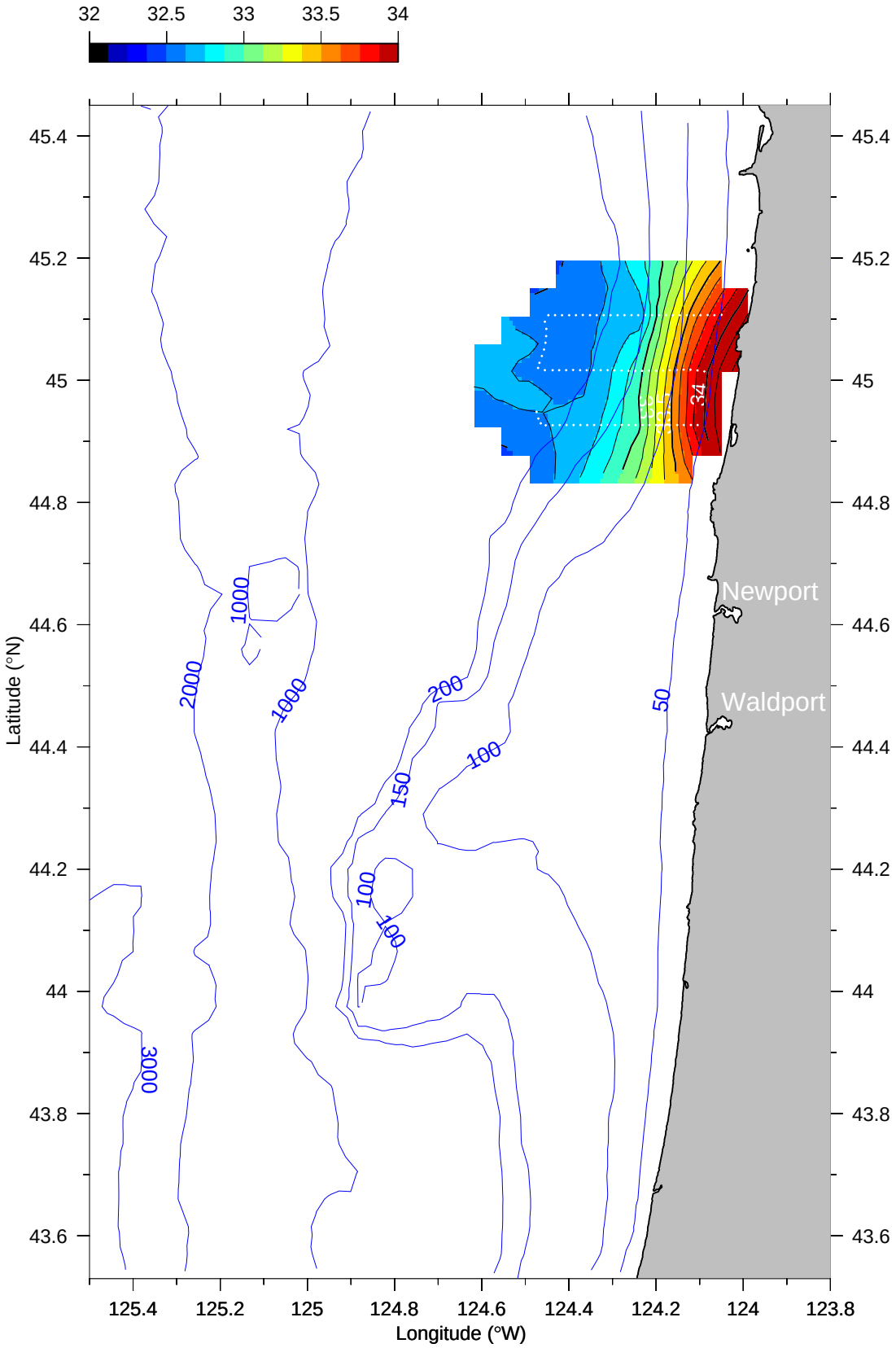


W0105 Small Box North 1

26-May-2001 18:46 - 27-May-2001 04:44

Salinity (PSS) at 35 dbar

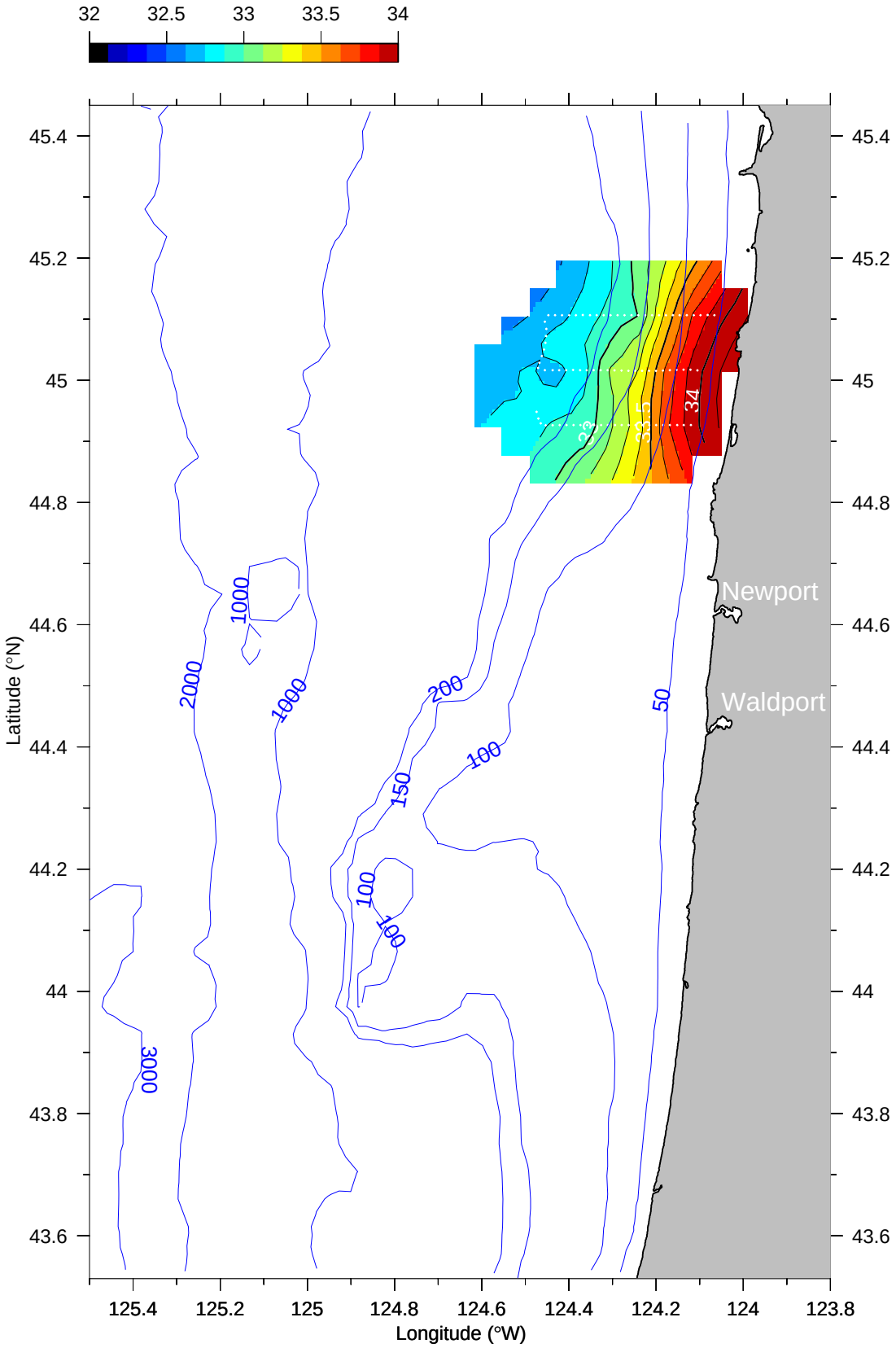



W0105 Small Box North 1
26-May-2001 18:46 - 27-May-2001 04:44
Salinity (PSS) at 45 dbar
32
32.5
33
33.5
34
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
3000
200
100
150
50

W0105 Small Box North 1

26-May-2001 18:46 - 27-May-2001 04:44

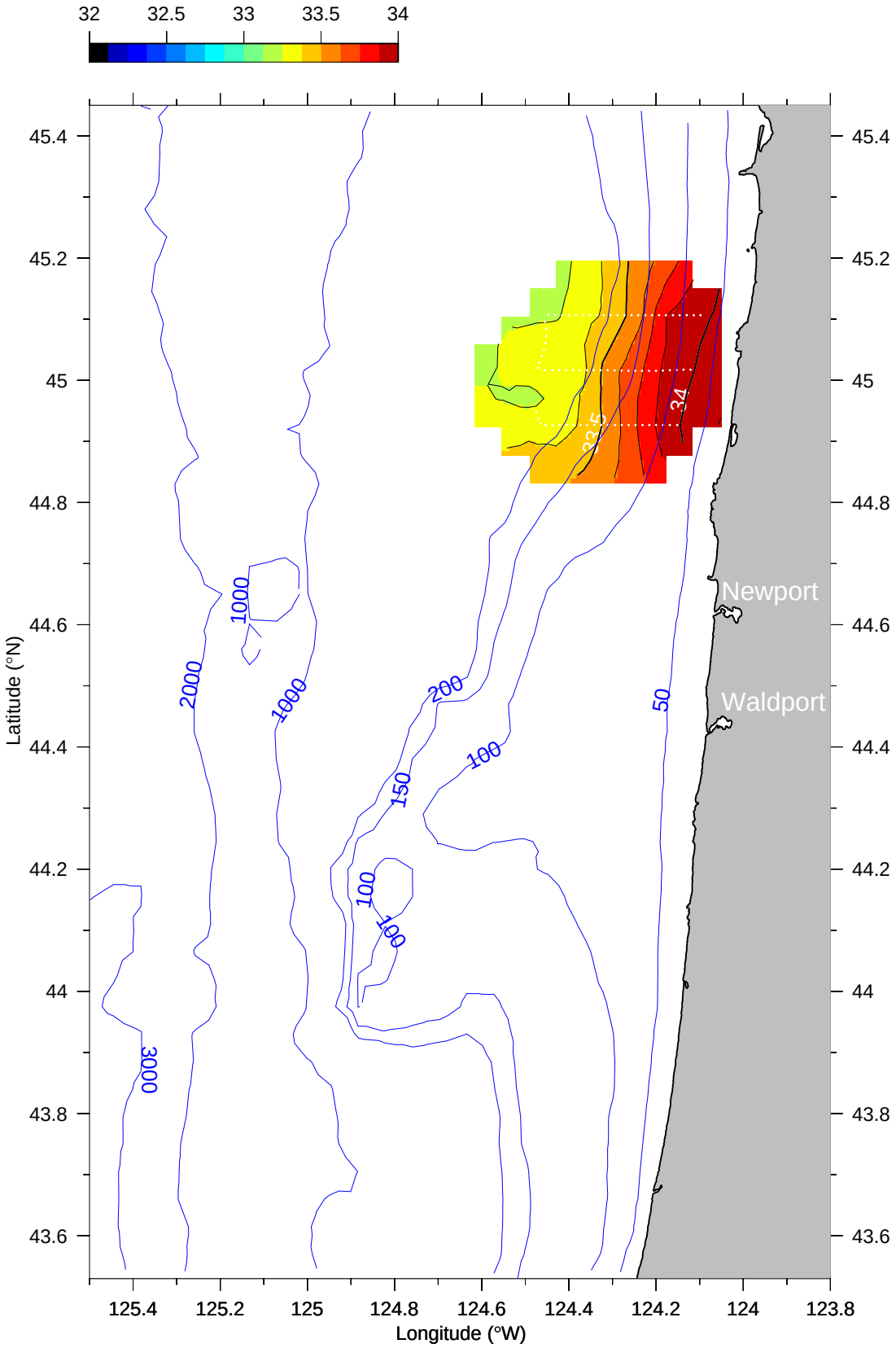
Salinity (PSS) at 55 dbar



W0105 Small Box North 1

26-May-2001 18:46 - 27-May-2001 04:44

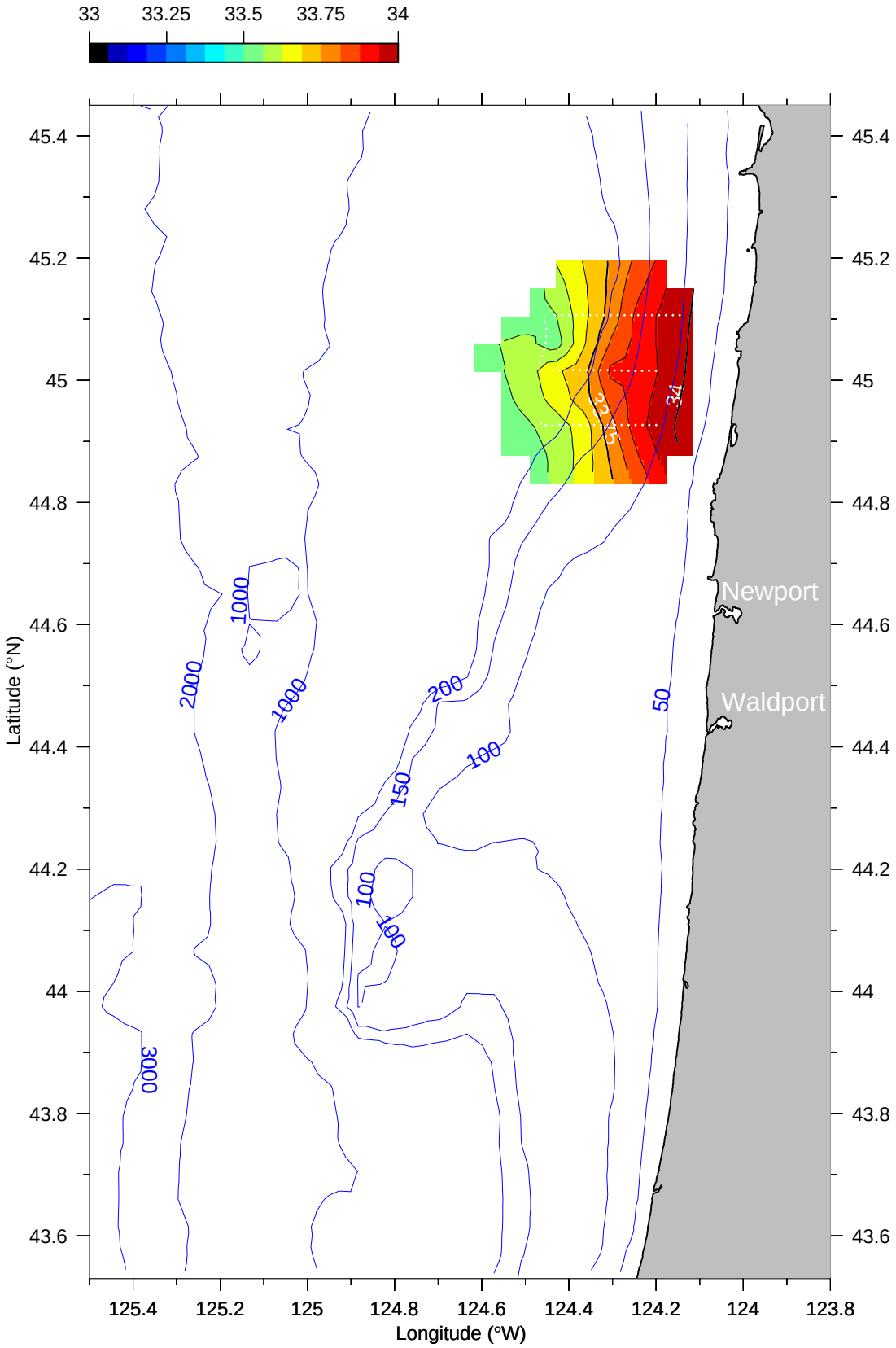
Salinity (PSS) at 75 dbar

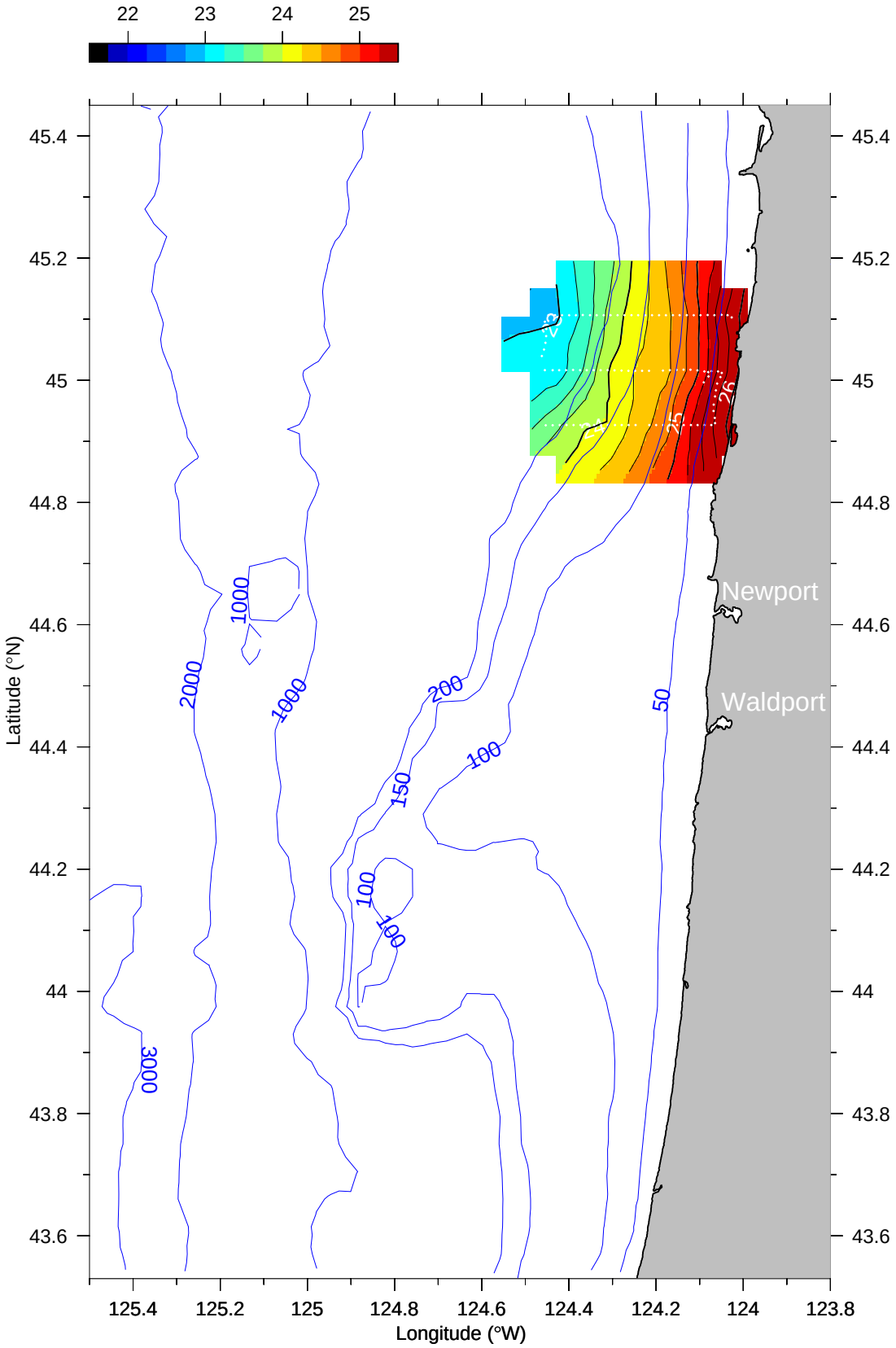


W0105 Small Box North 1

26-May-2001 18:46 - 27-May-2001 04:44

Salinity (PSS) at 95 dbar

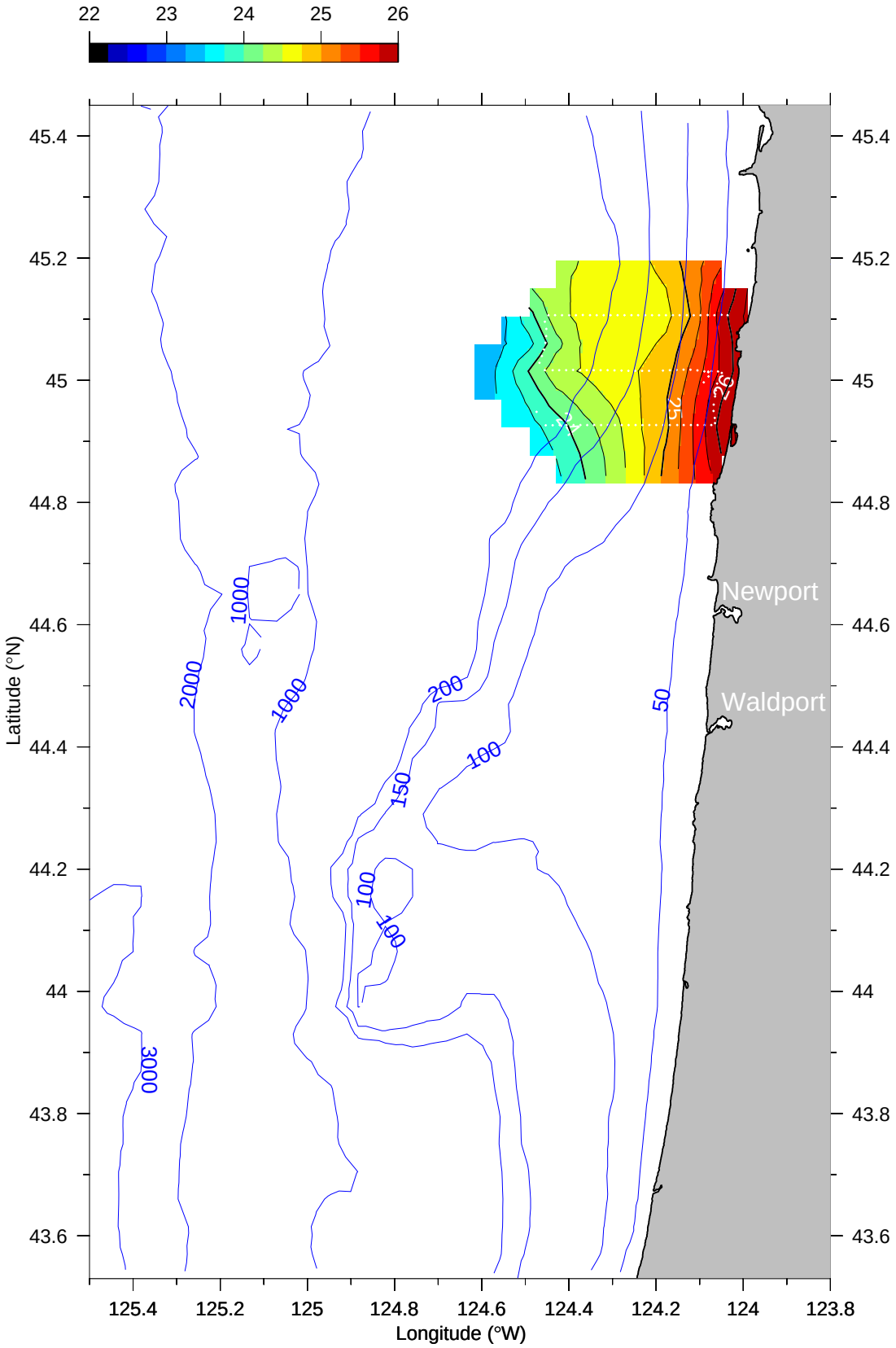



W0105 Small Box North 1
26-May-2001 18:46 - 27-May-2001 04:44
σt (kg m−3) at 5 dbar
22
23
24
25
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
100
150
100
100
50

W0105 Small Box North 1

26-May-2001 18:46 - 27-May-2001 04:44

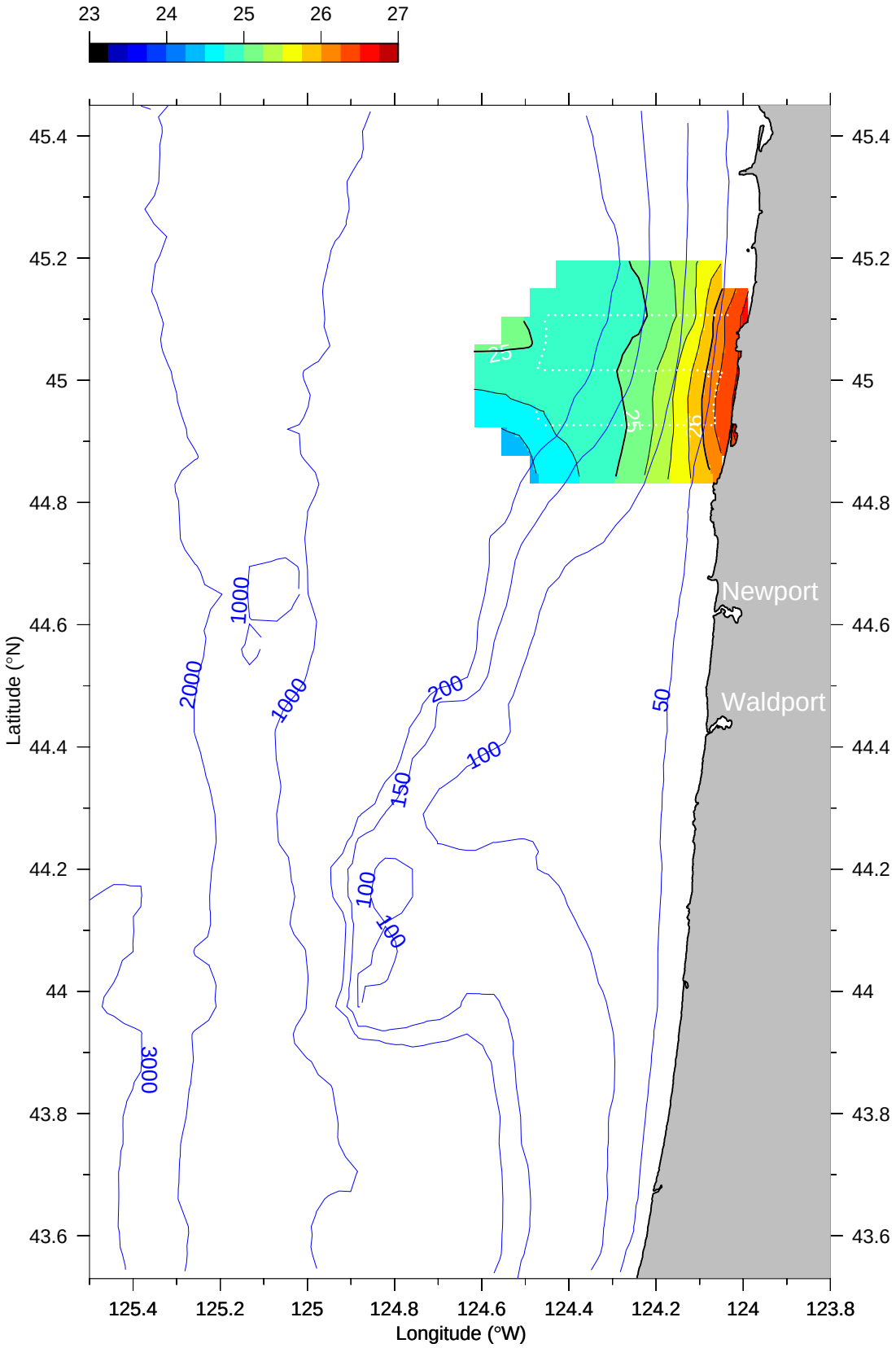
σ_t ($kg\ m^{-3}$) at 15 dbar

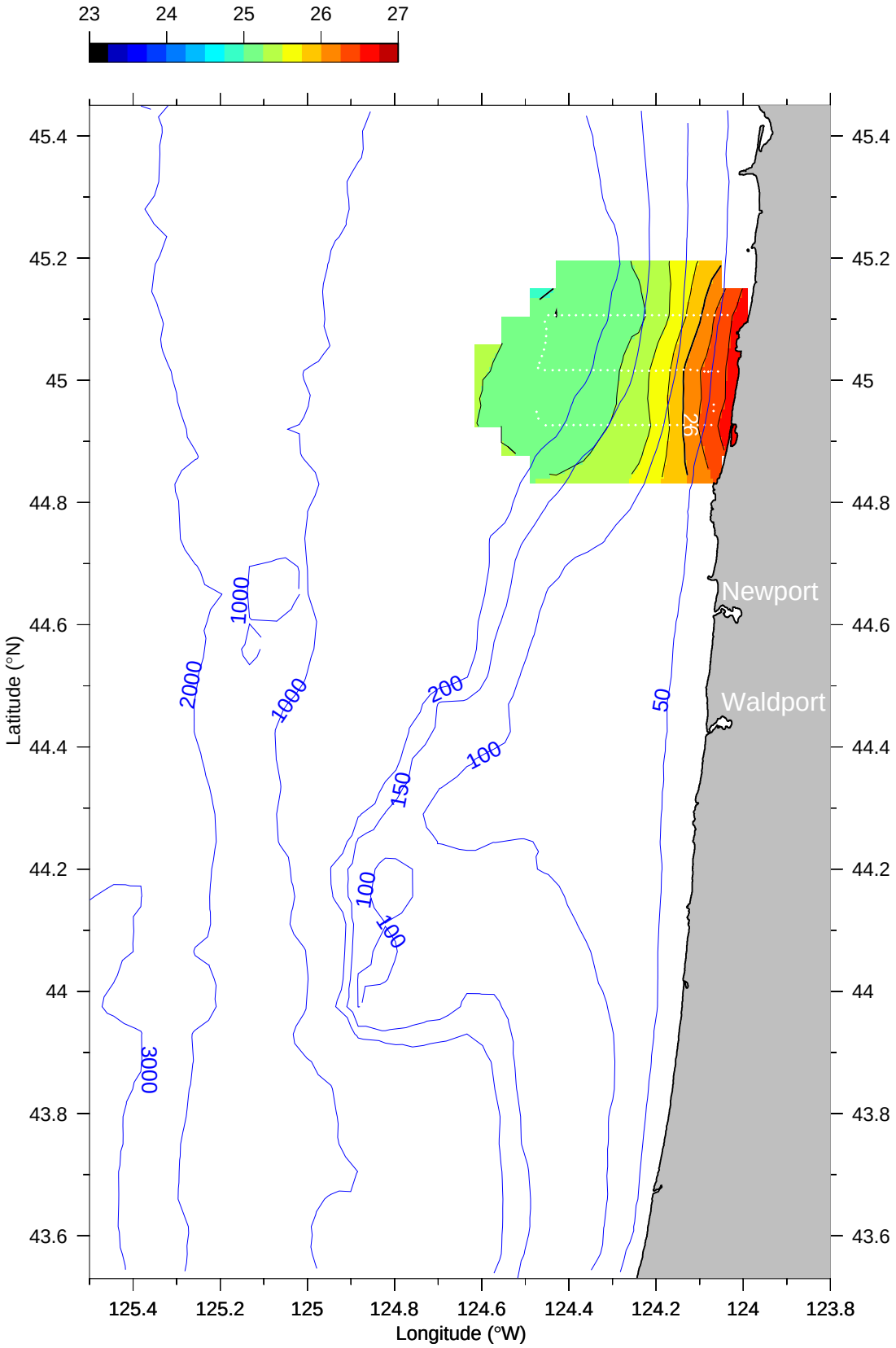


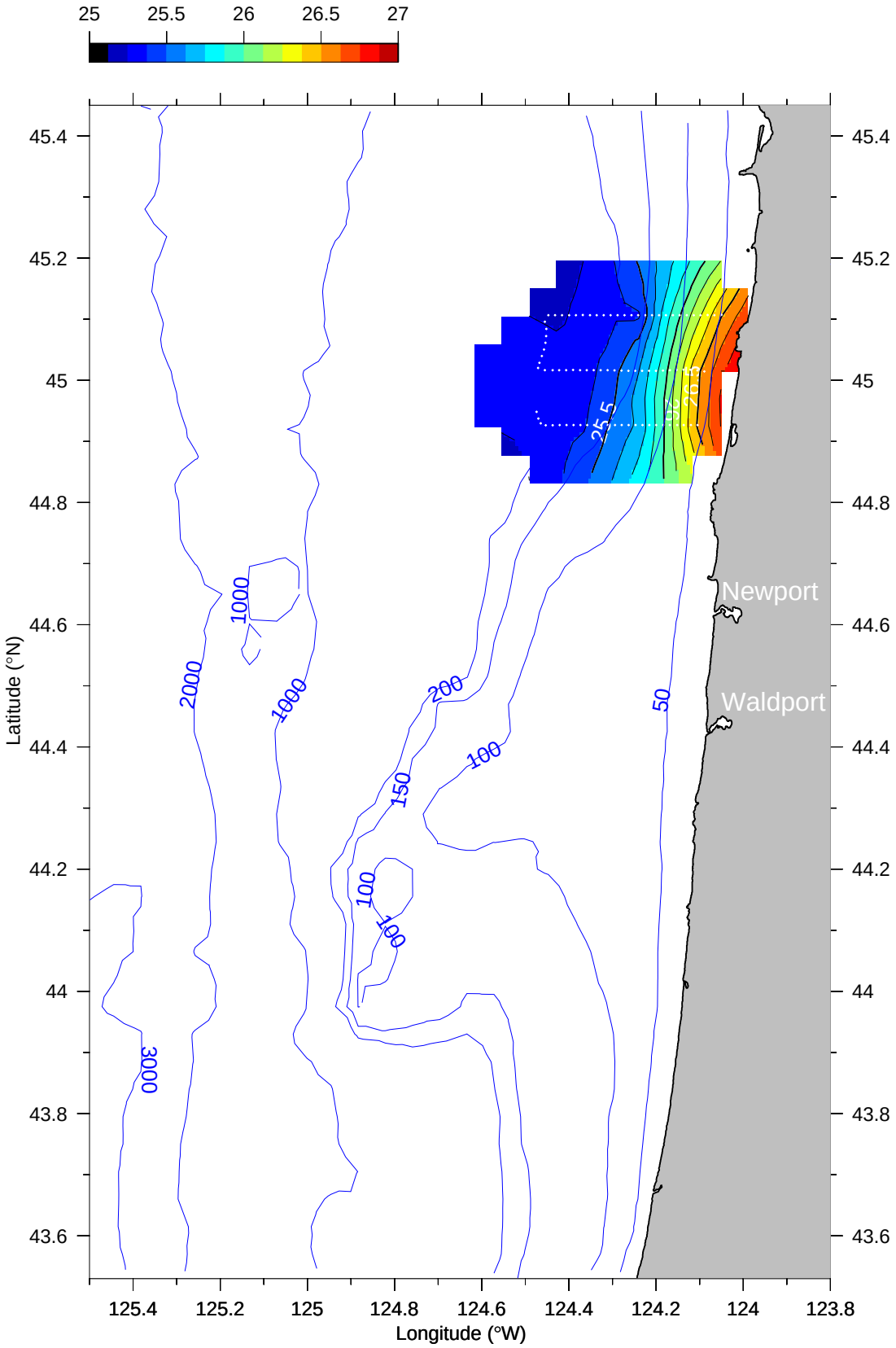
W0105 Small Box North 1

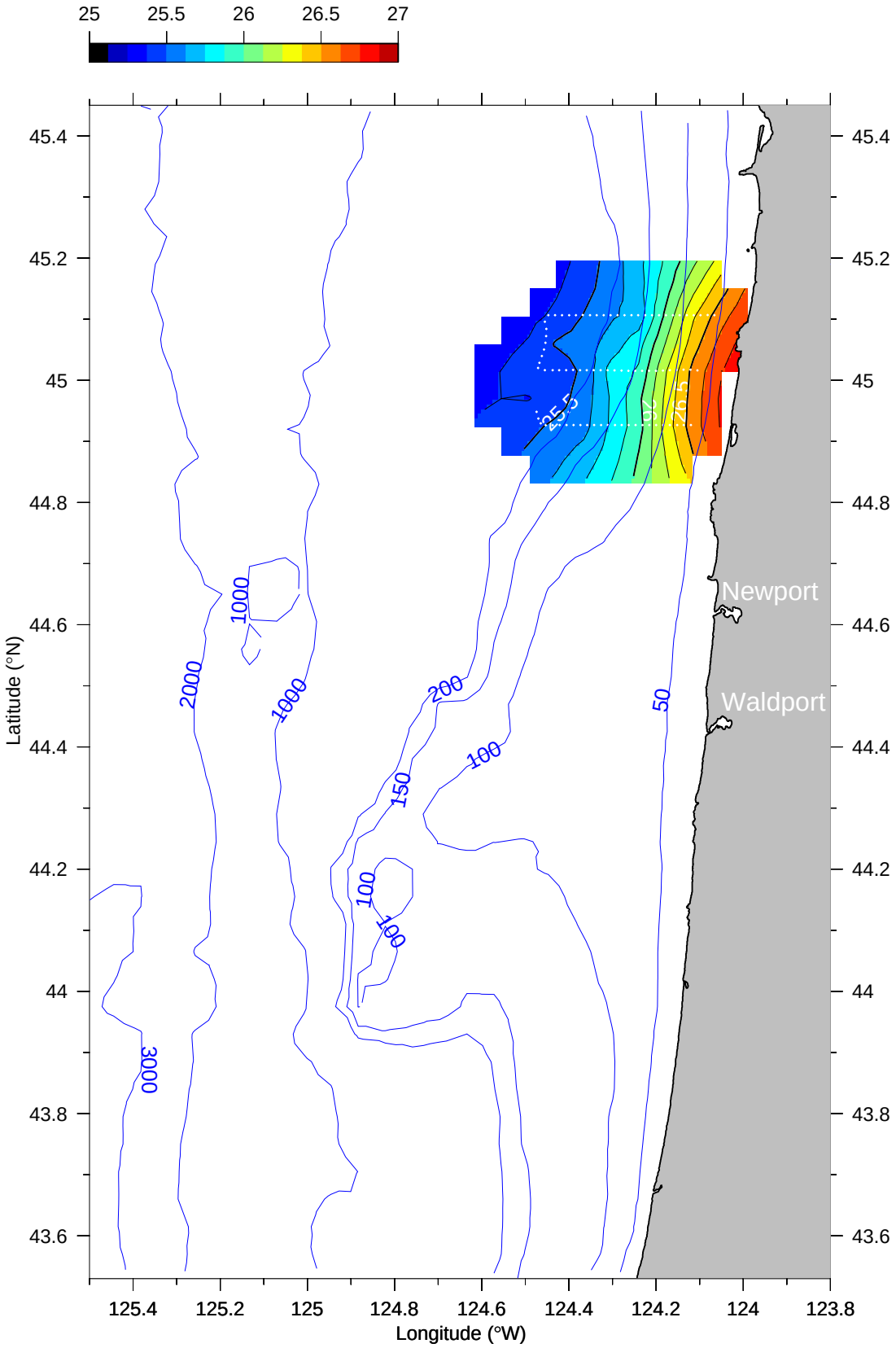
26-May-2001 18:46 - 27-May-2001 04:44

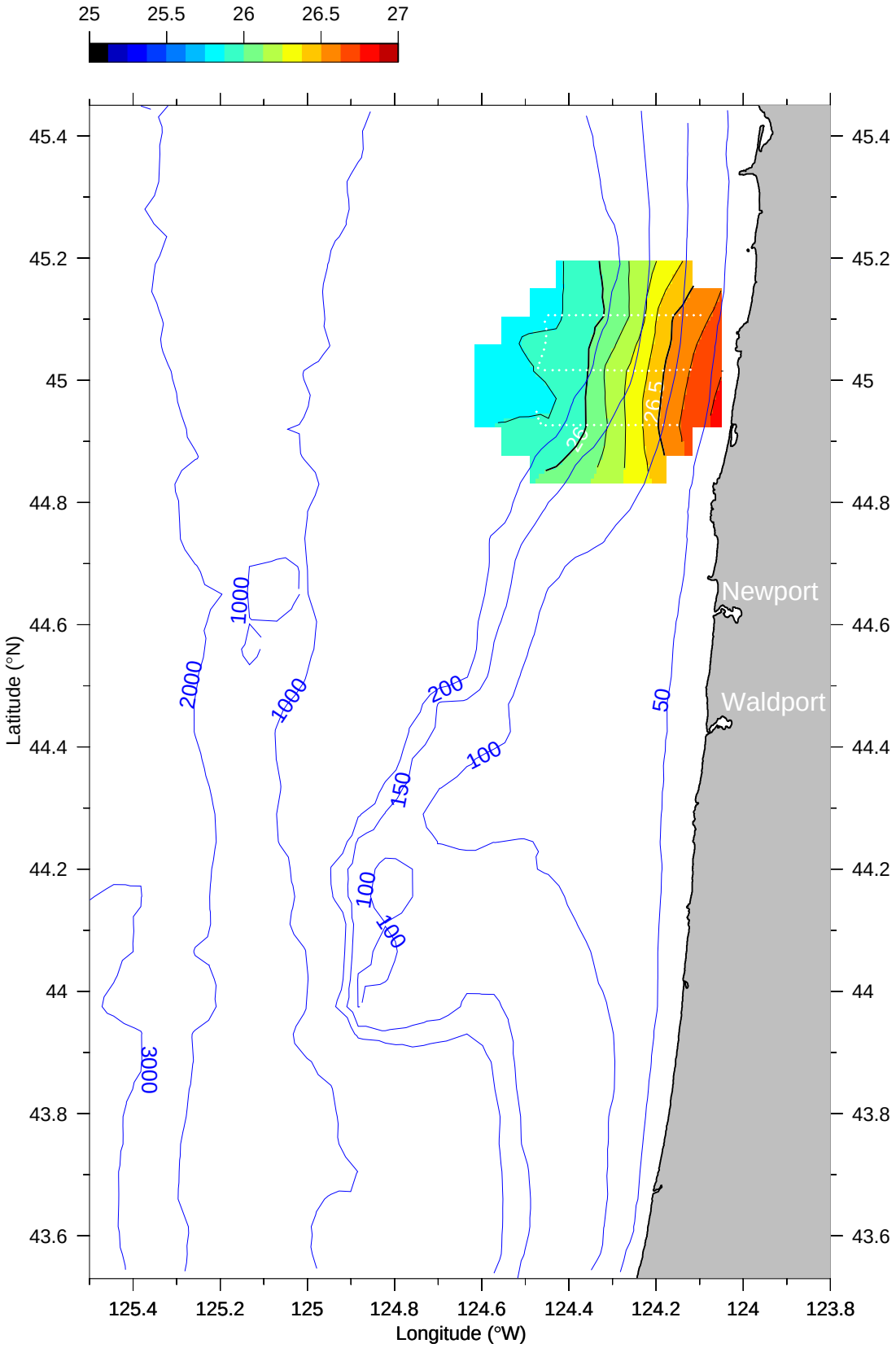
σ_t ($kg\ m^{-3}$) at 25 dbar

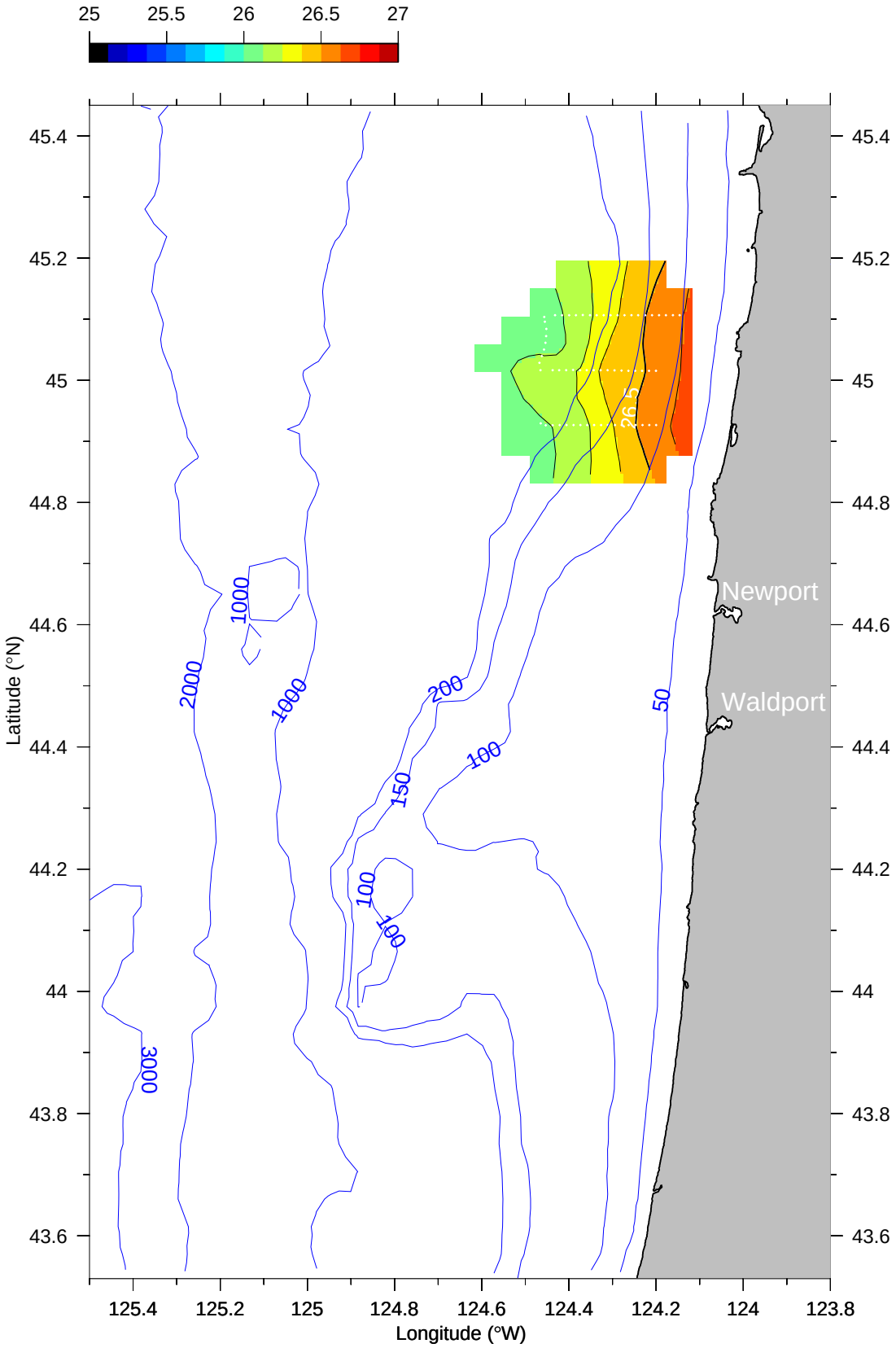



W0105 Small Box North 1
26-May-2001 18:46 - 27-May-2001 04:44
σt (kg m−3) at 35 dbar
23
24
25
26
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50
26


W0105 Small Box North 1
26-May-2001 18:46 - 27-May-2001 04:44
σt (kg m−3) at 45 dbar
25
25.5
26
26.5
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
25.5
26
26.5
1000
2000
1000
200
100
150
100
100
50
3000


W0105 Small Box North 1
26-May-2001 18:46 - 27-May-2001 04:44
σt (kg m−3) at 55 dbar
25
25.5
26
26.5
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
100
150
100
100
50

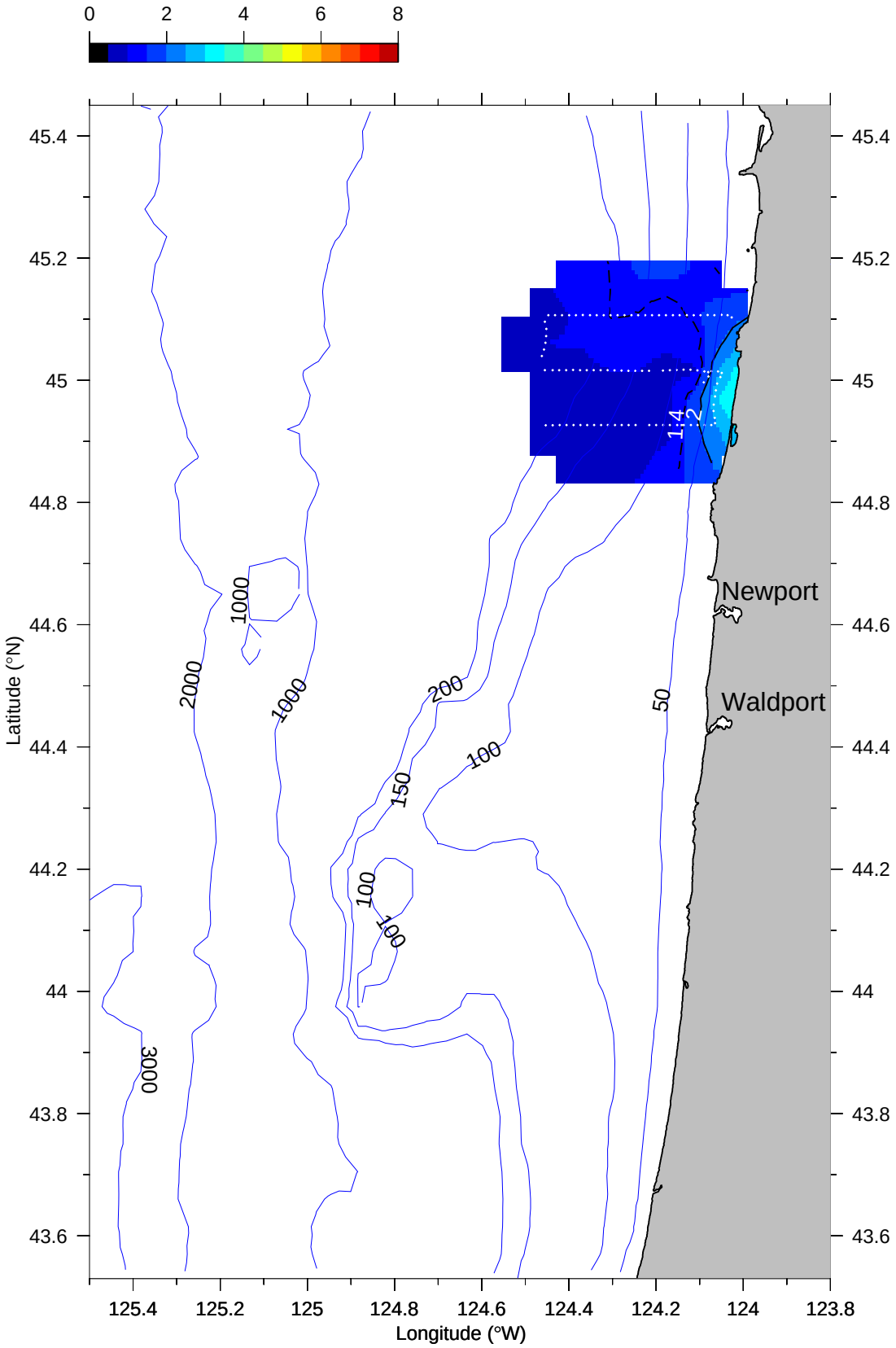

W0105 Small Box North 1
26-May-2001 18:46 - 27-May-2001 04:44
σt (kg m−3) at 75 dbar
25
25.5
26
26.5
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Small Box North 1
26-May-2001 18:46 - 27-May-2001 04:44
σt (kg m−3) at 95 dbar
25
25.5
26
26.5
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50

W0105 Small Box North 1

26-May-2001 18:46 - 27-May-2001 04:44

Chlorophyll (µg L^{-1}) at 5 dbar



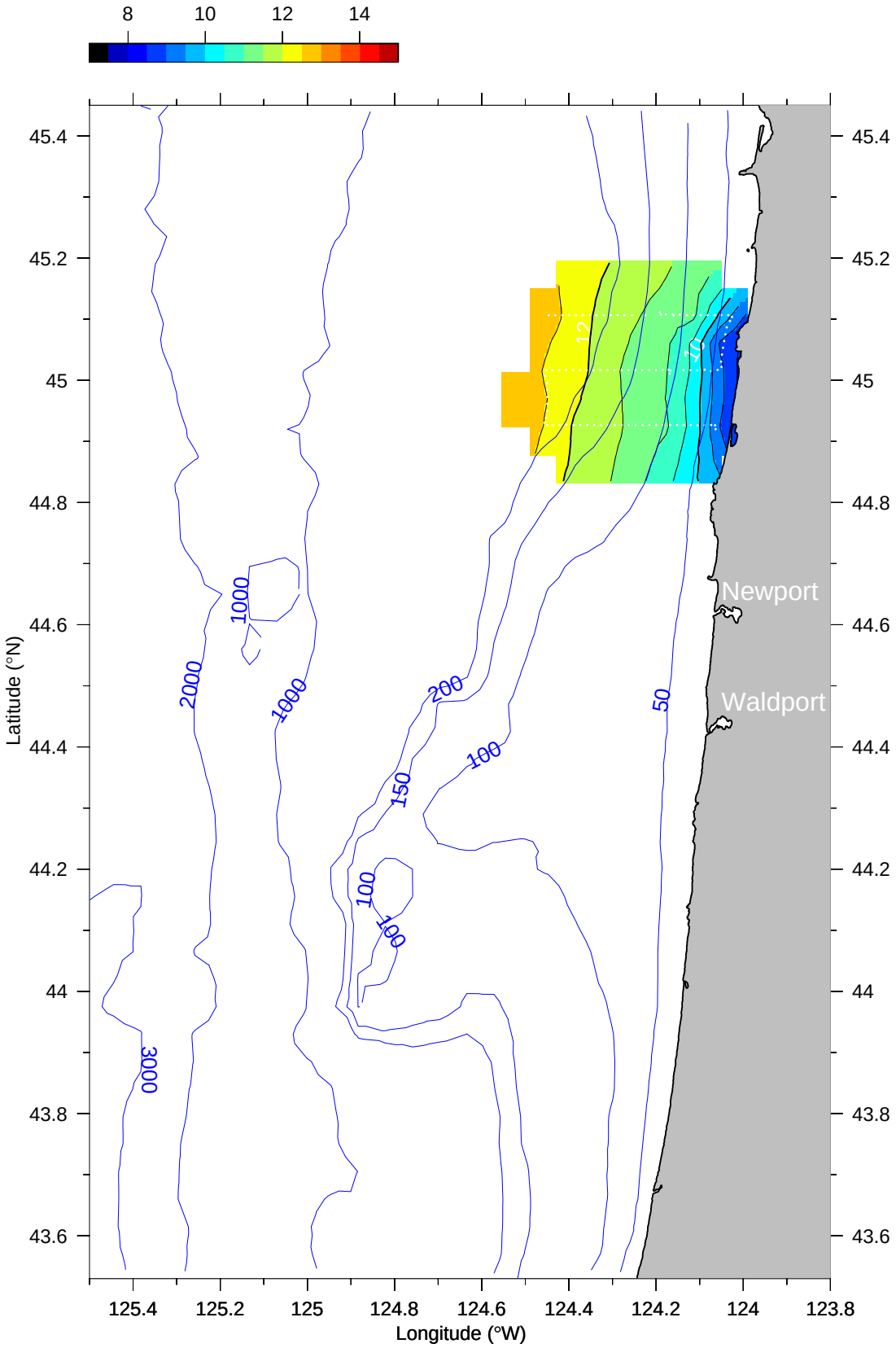
Small Box North 2 Maps

Maps of Temperature, Salinity, σ_t, and Chlorophyll at Specified Depths

W0105 Small Box North 2

27-May-2001 16:12 - 28-May-2001 03:04

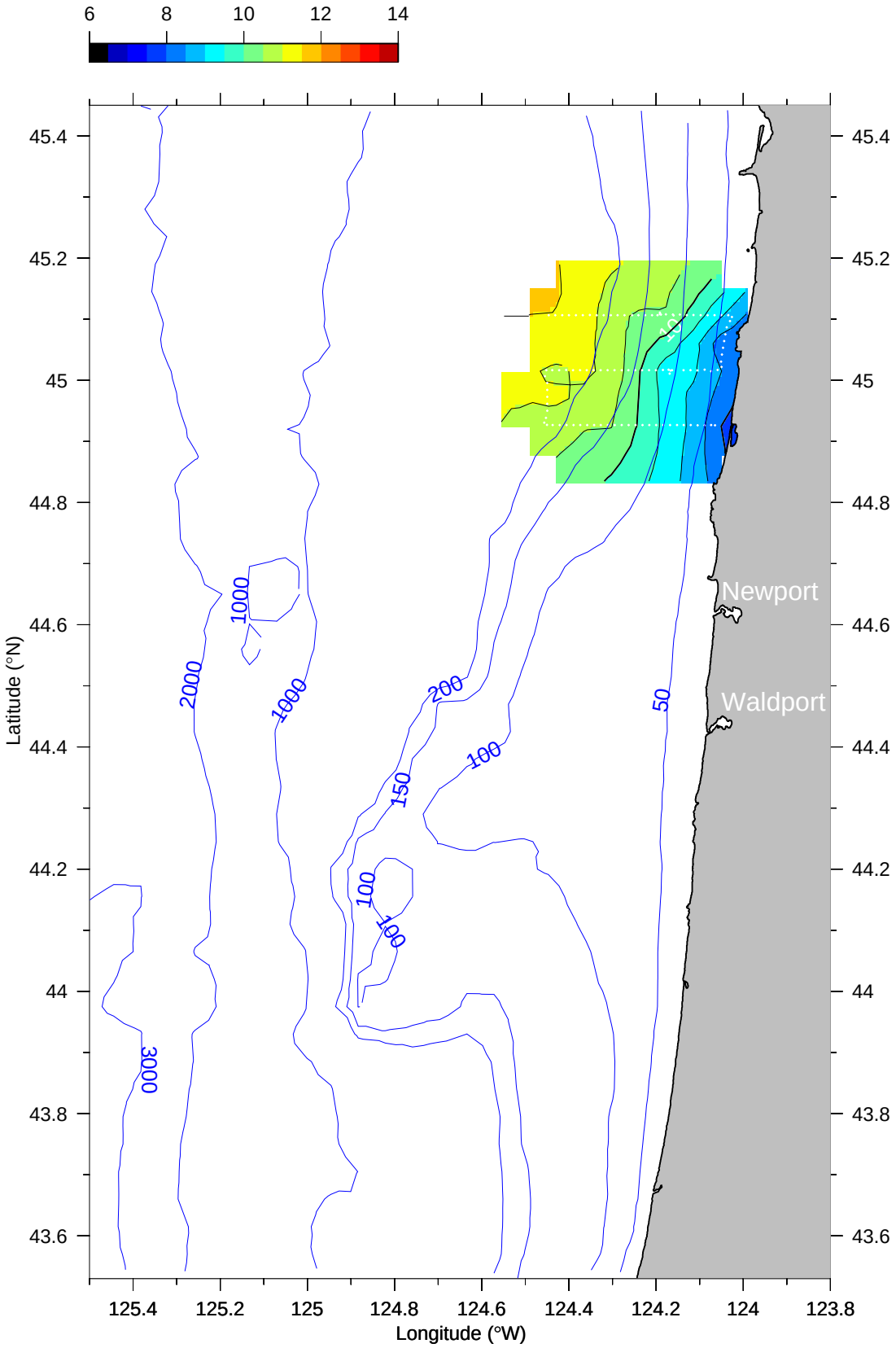
Temperature (°C) at 5 dbar



W0105 Small Box North 2

27-May-2001 16:12 - 28-May-2001 03:04

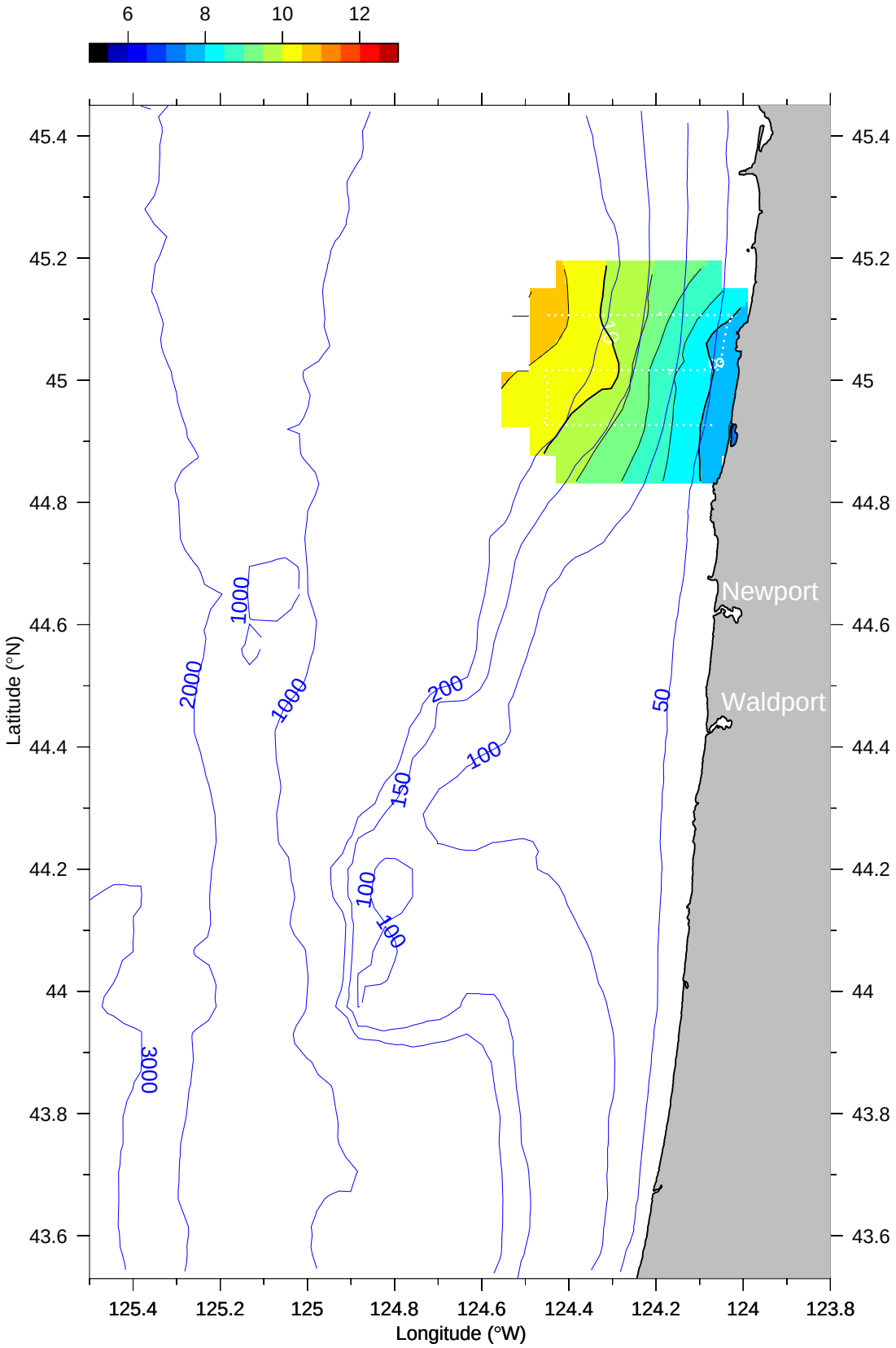
Temperature (°C) at 15 dbar



W0105 Small Box North 2

27-May-2001 16:12 - 28-May-2001 03:04

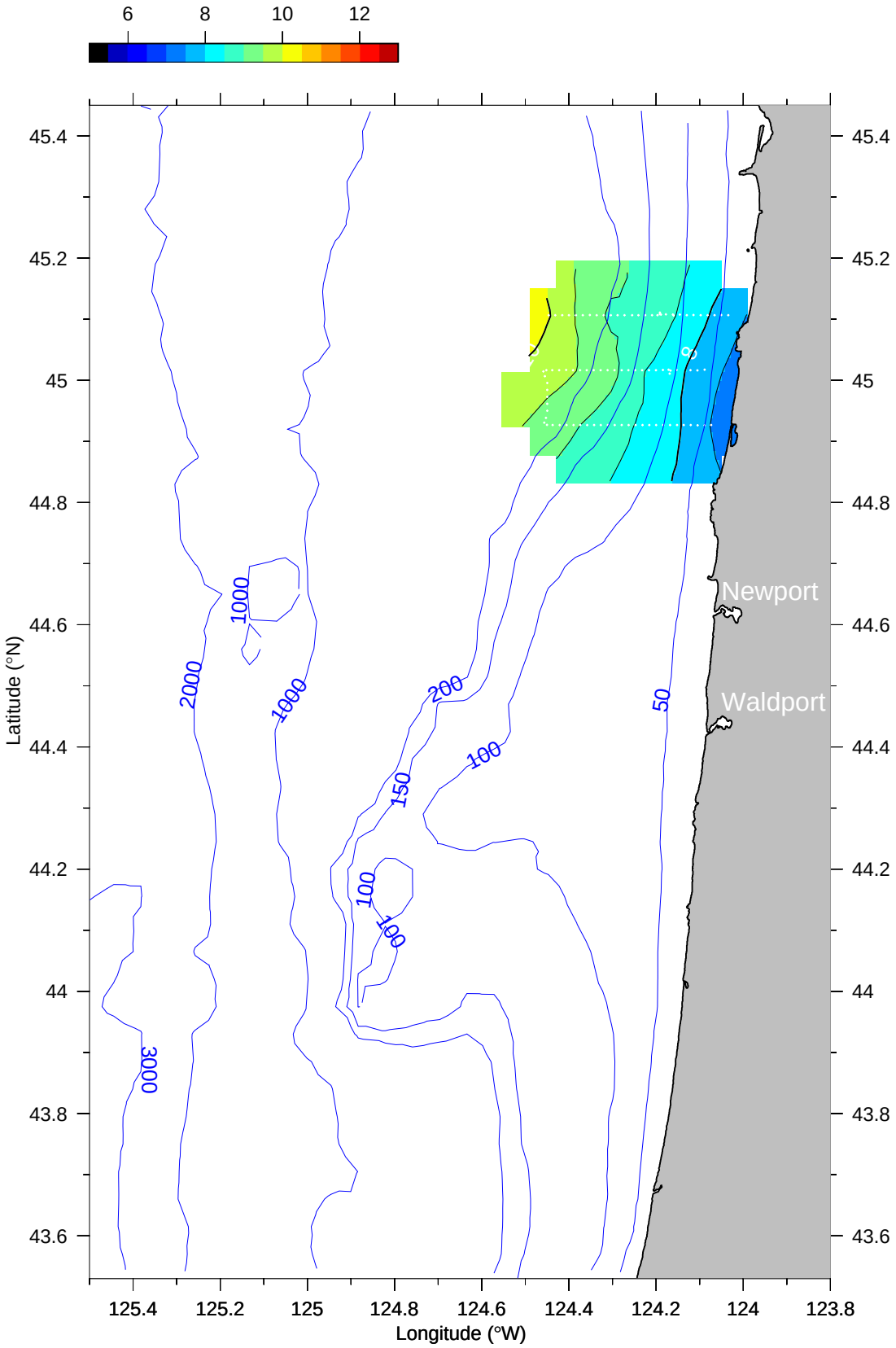
Temperature (°C) at 25 dbar



W0105 Small Box North 2

27-May-2001 16:12 - 28-May-2001 03:04

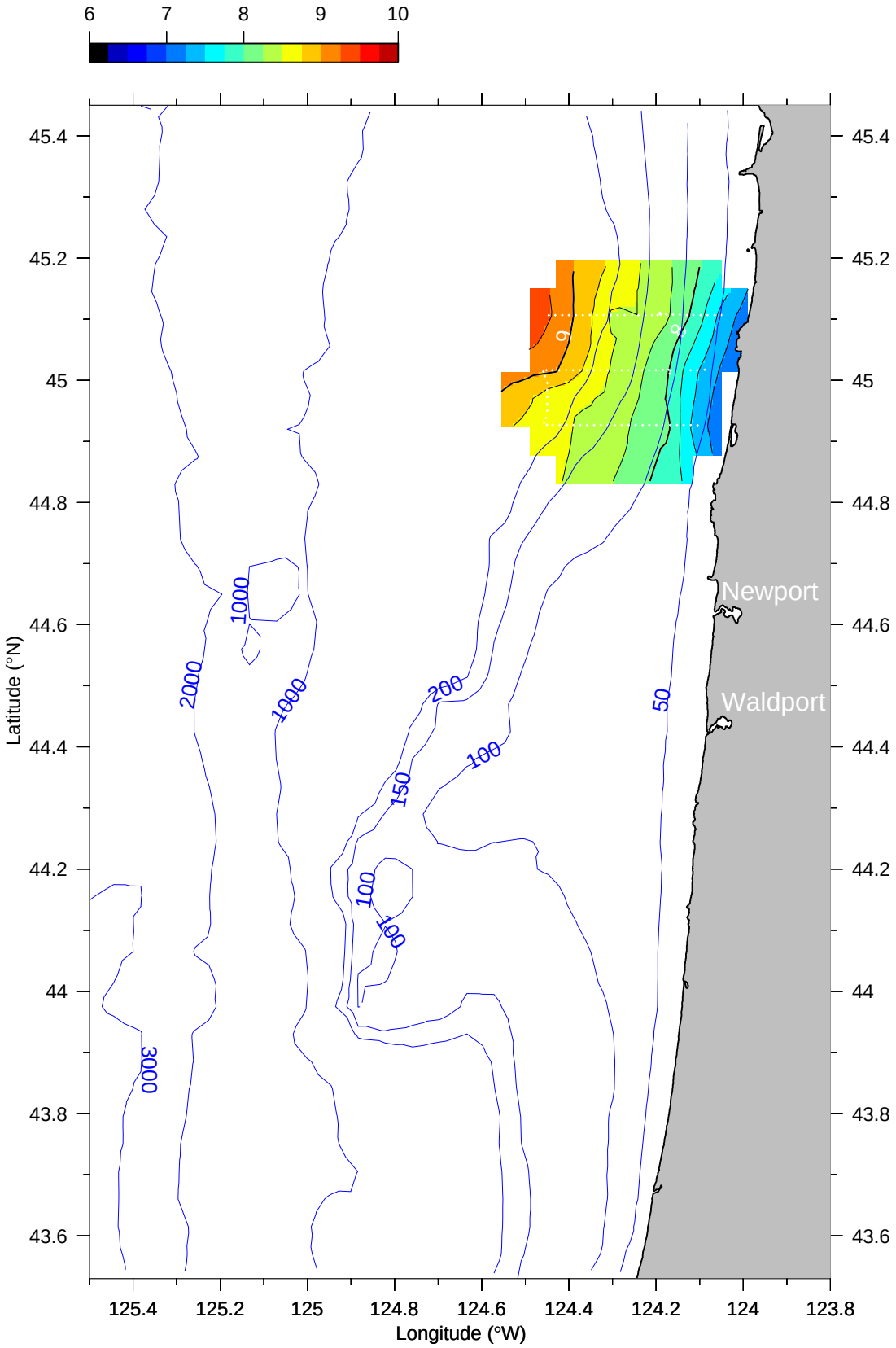
Temperature (°C) at 35 dbar



W0105 Small Box North 2

27-May-2001 16:12 - 28-May-2001 03:04

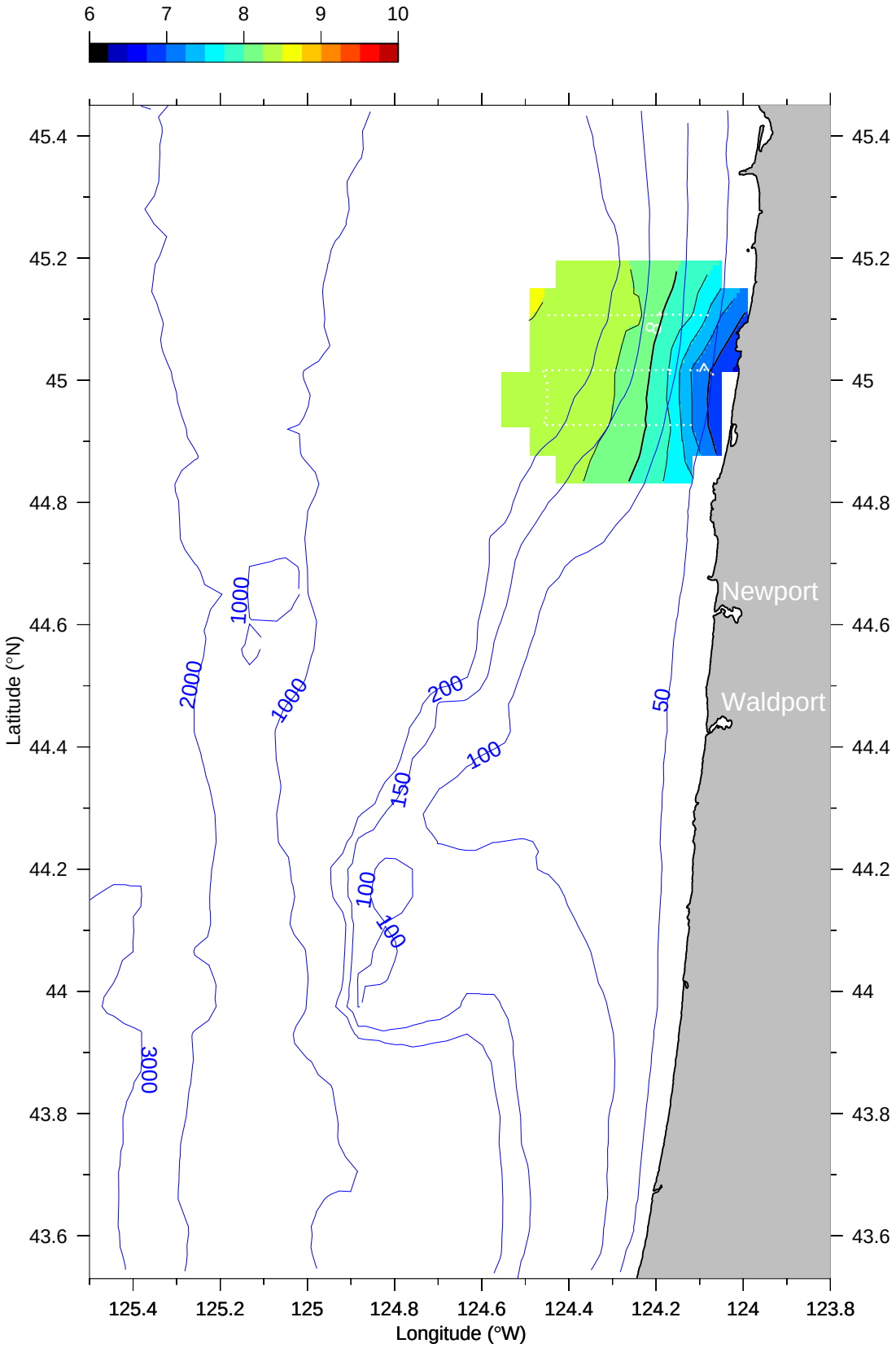
Temperature (°C) at 45 dbar



W0105 Small Box North 2

27-May-2001 16:12 - 28-May-2001 03:04

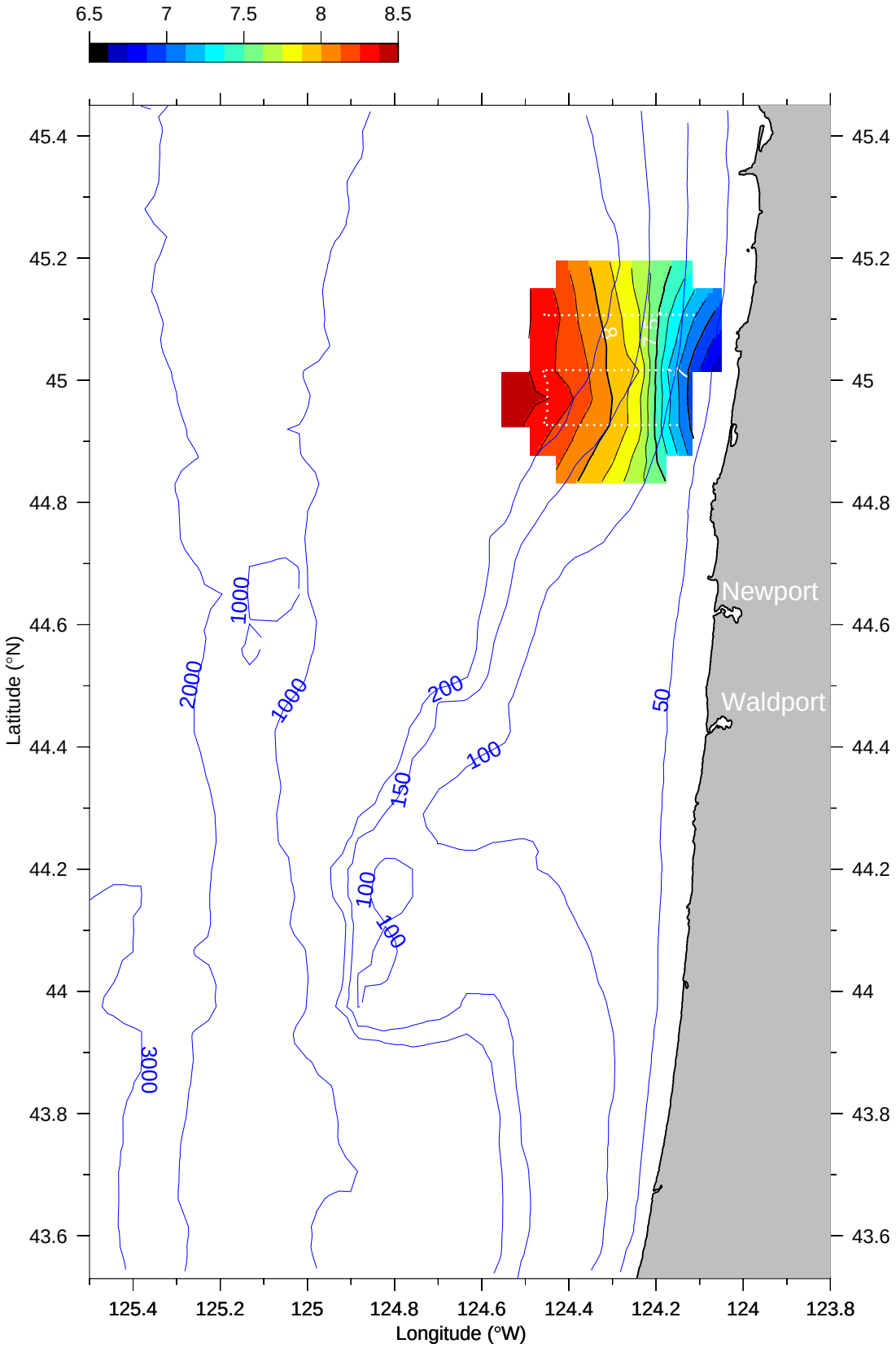
Temperature (°C) at 55 dbar



W0105 Small Box North 2

27-May-2001 16:12 - 28-May-2001 03:04

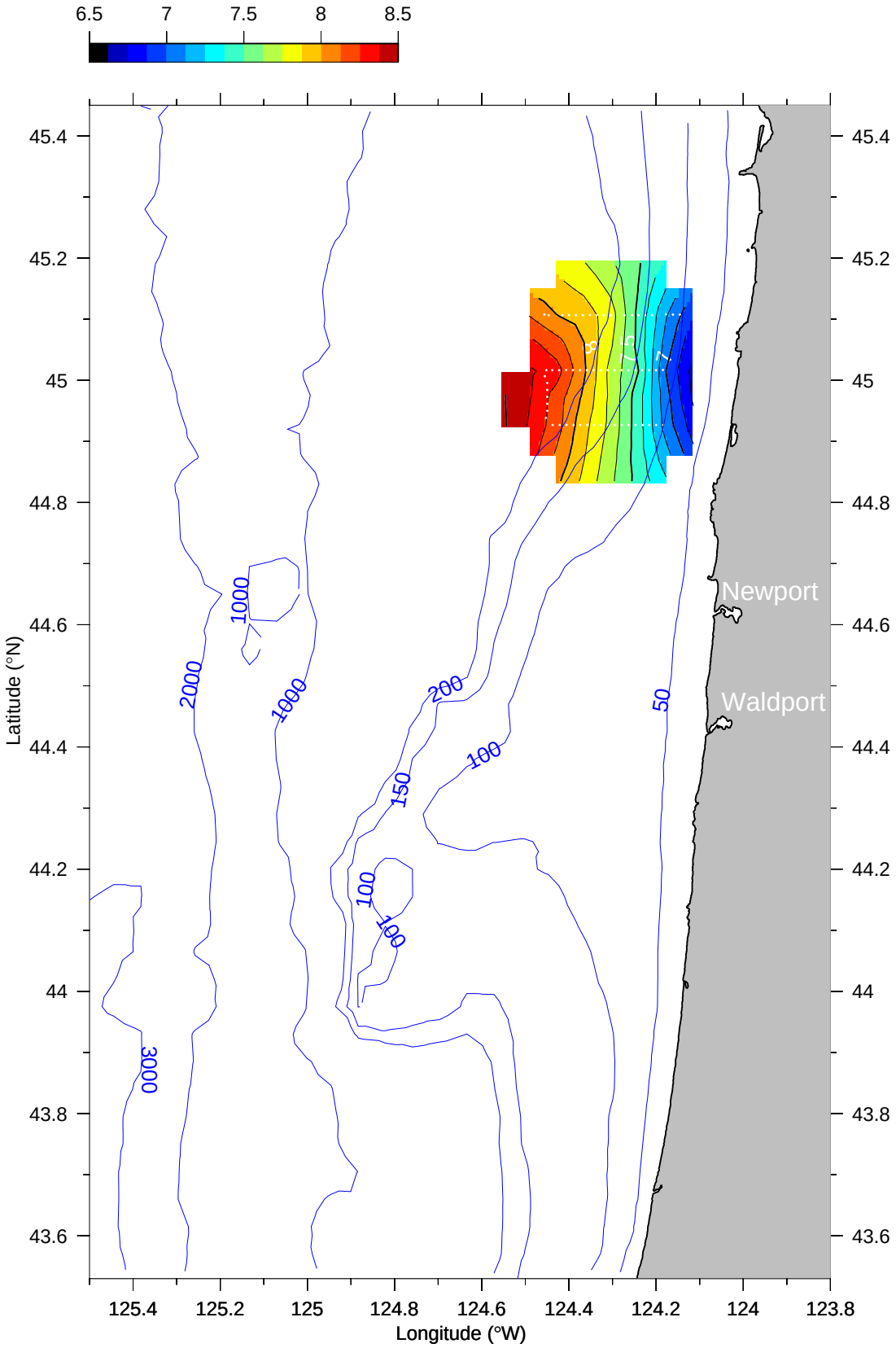
Temperature (°C) at 75 dbar



W0105 Small Box North 2

27-May-2001 16:12 - 28-May-2001 03:04

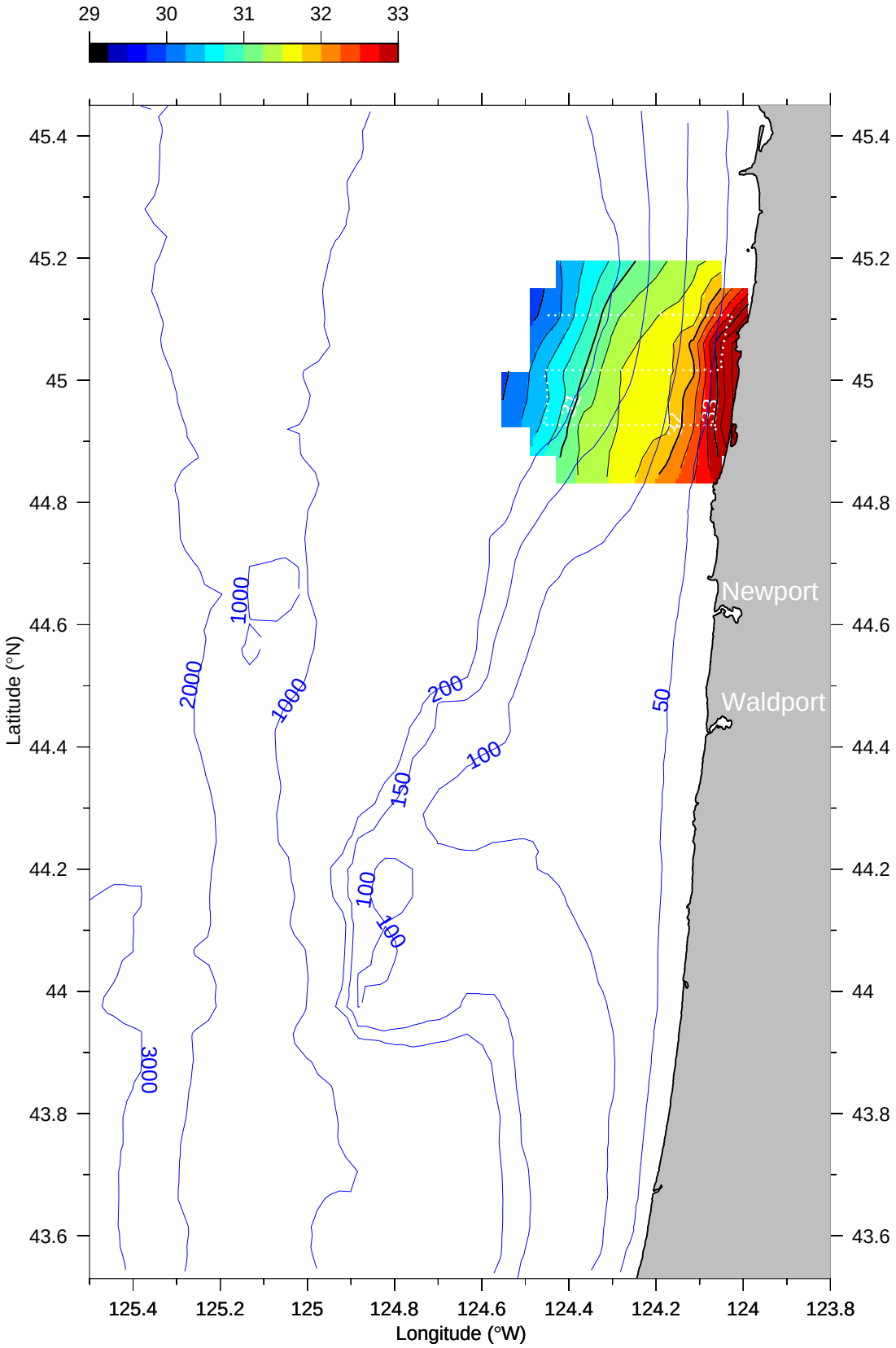
Temperature (°C) at 95 dbar



W0105 Small Box North 2

27-May-2001 16:12 - 28-May-2001 03:04

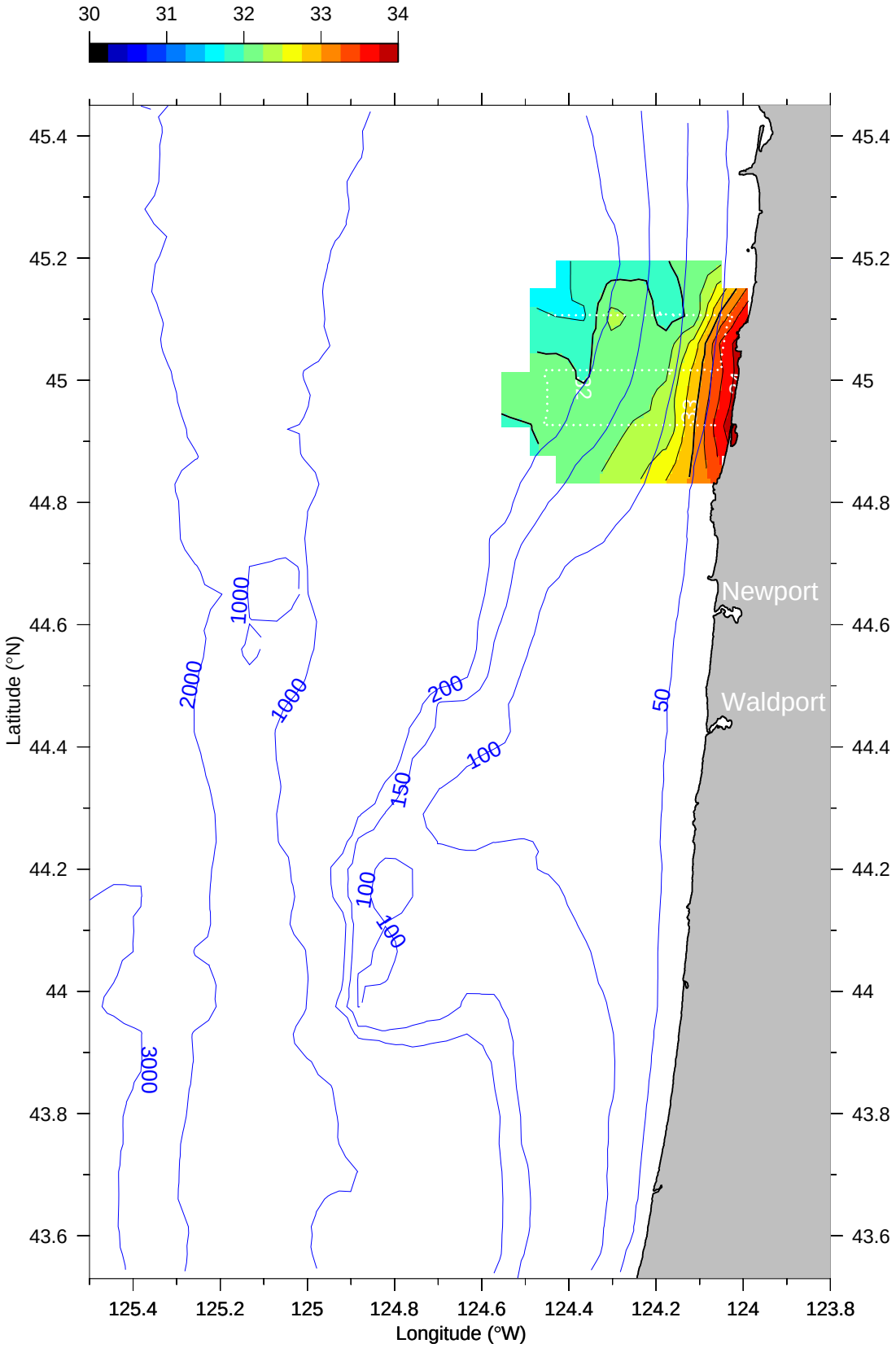
Salinity (PSS) at 5 dbar



W0105 Small Box North 2

27-May-2001 16:12 - 28-May-2001 03:04

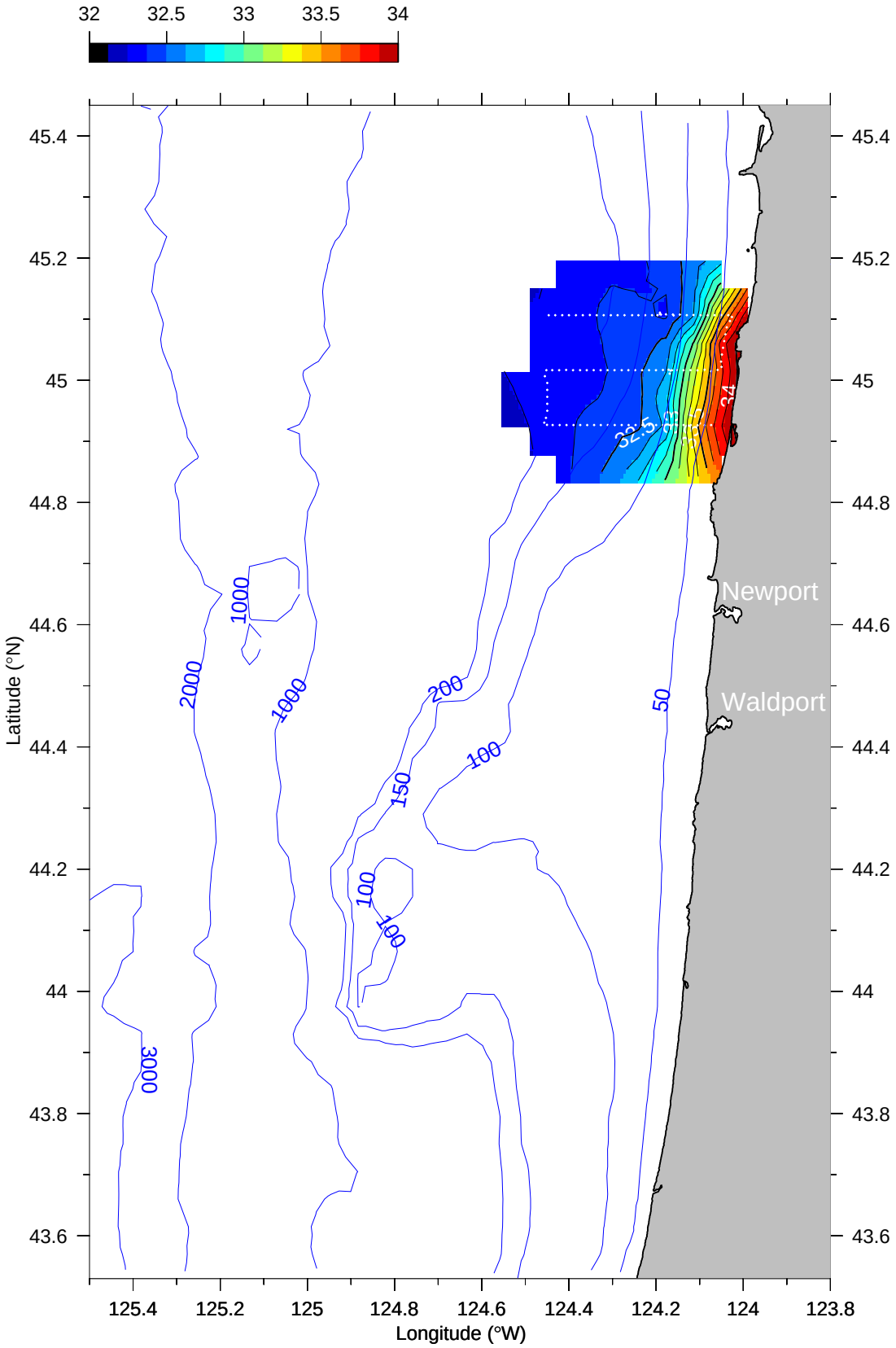
Salinity (PSS) at 15 dbar



W0105 Small Box North 2

27-May-2001 16:12 - 28-May-2001 03:04

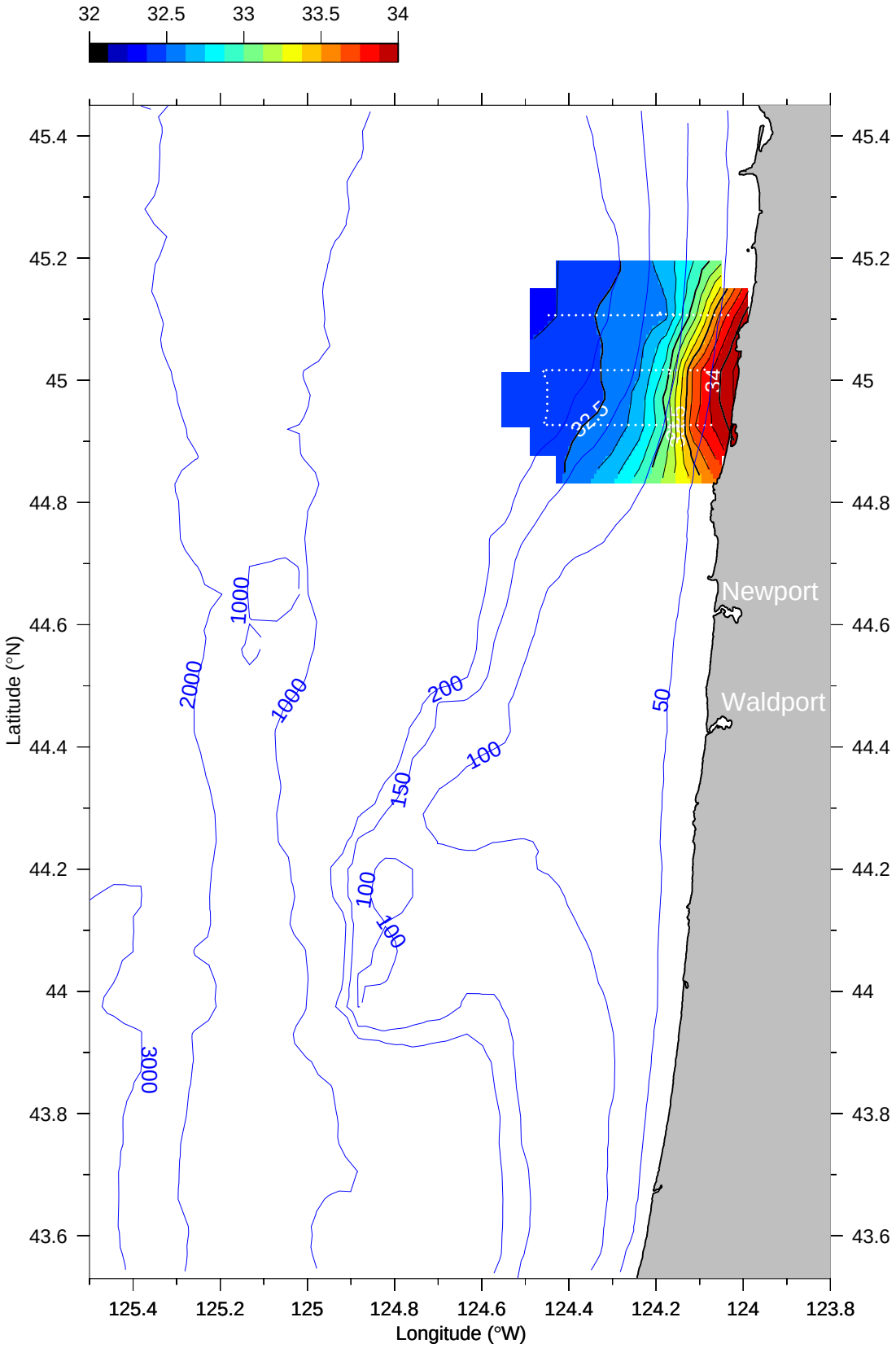
Salinity (PSS) at 25 dbar



W0105 Small Box North 2

27-May-2001 16:12 - 28-May-2001 03:04

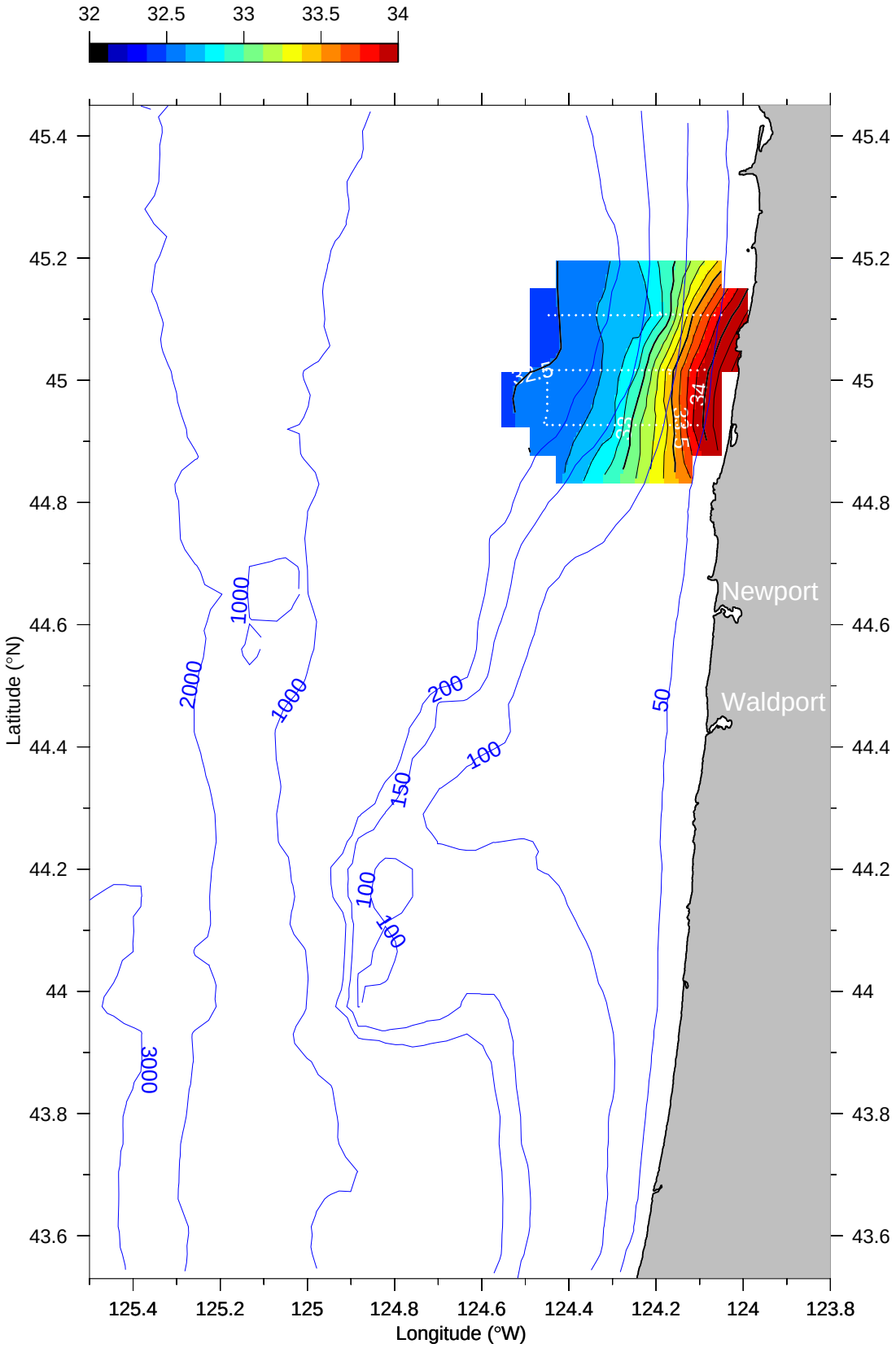
Salinity (PSS) at 35 dbar



W0105 Small Box North 2

27-May-2001 16:12 - 28-May-2001 03:04

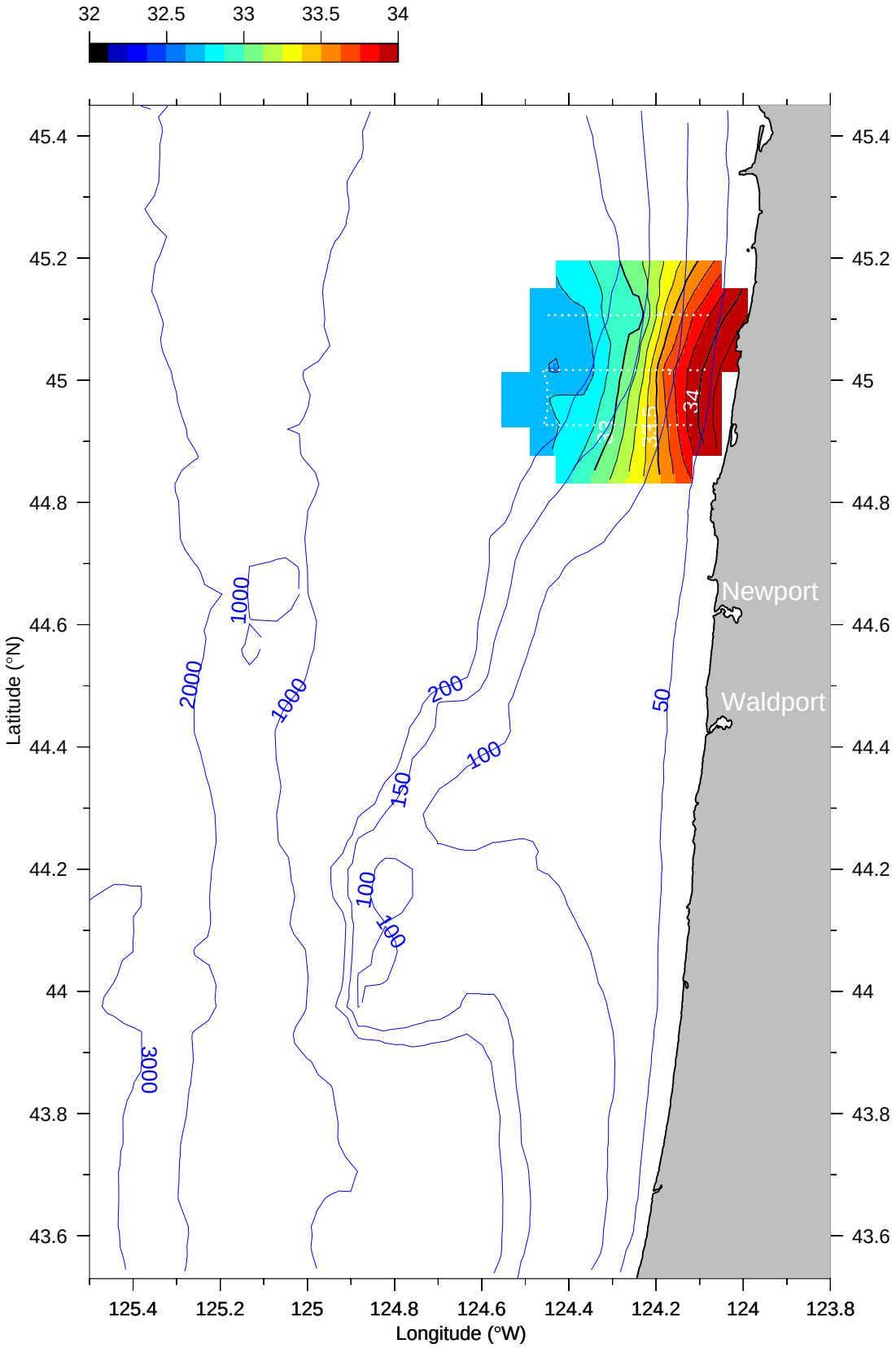
Salinity (PSS) at 45 dbar



W0105 Small Box North 2

27-May-2001 16:12 - 28-May-2001 03:04

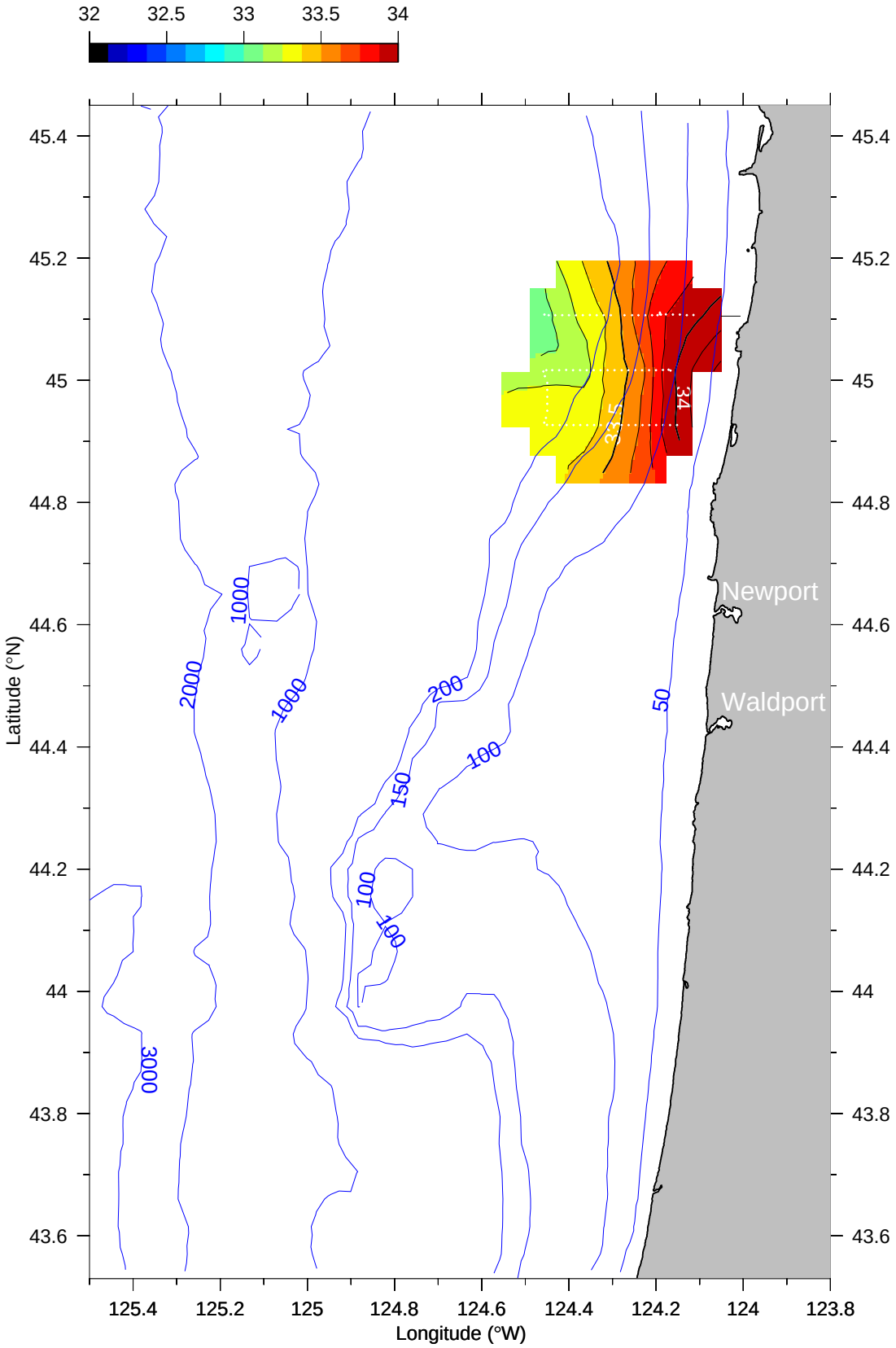
Salinity (PSS) at 55 dbar



W0105 Small Box North 2

27-May-2001 16:12 - 28-May-2001 03:04

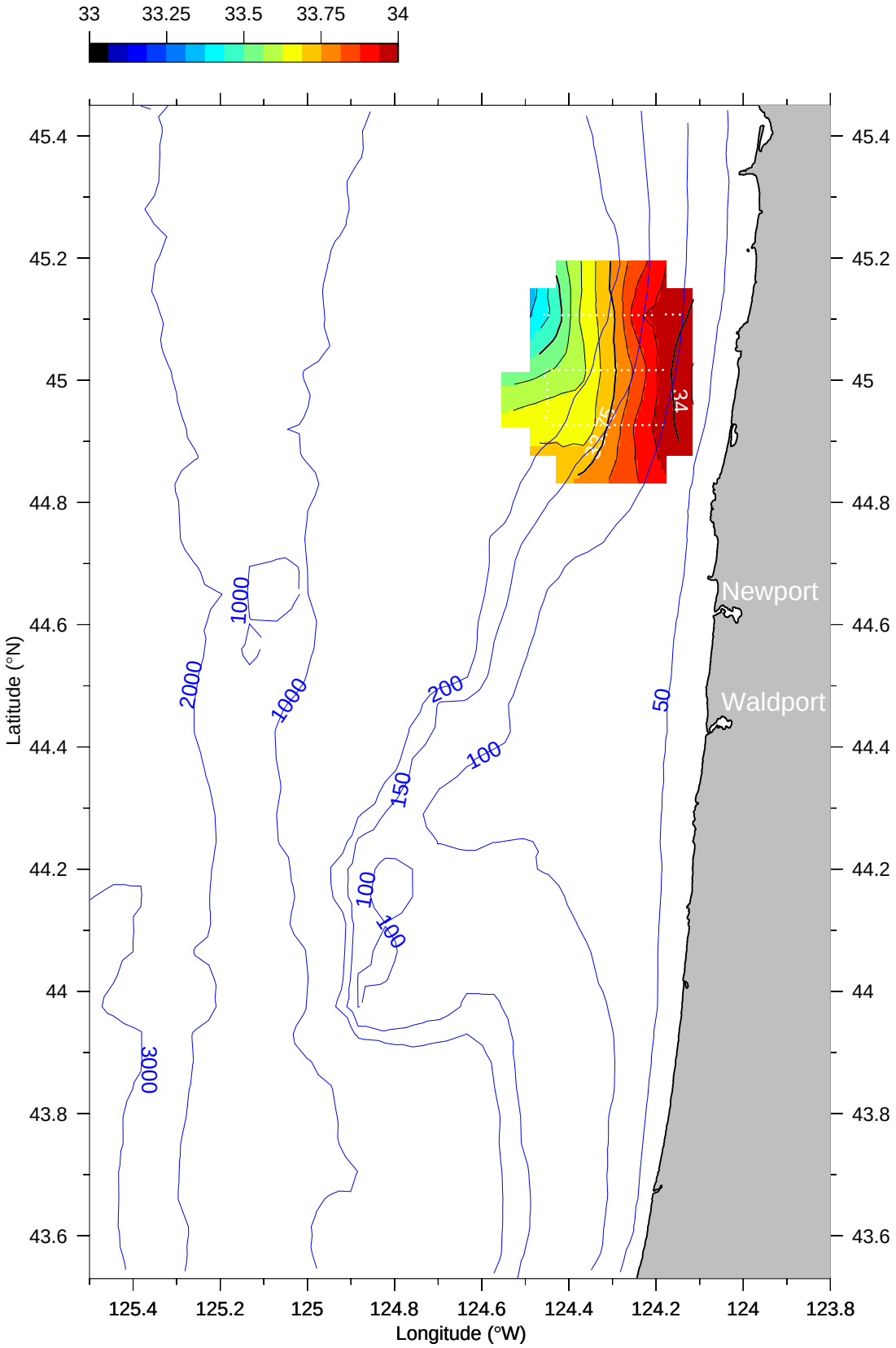
Salinity (PSS) at 75 dbar

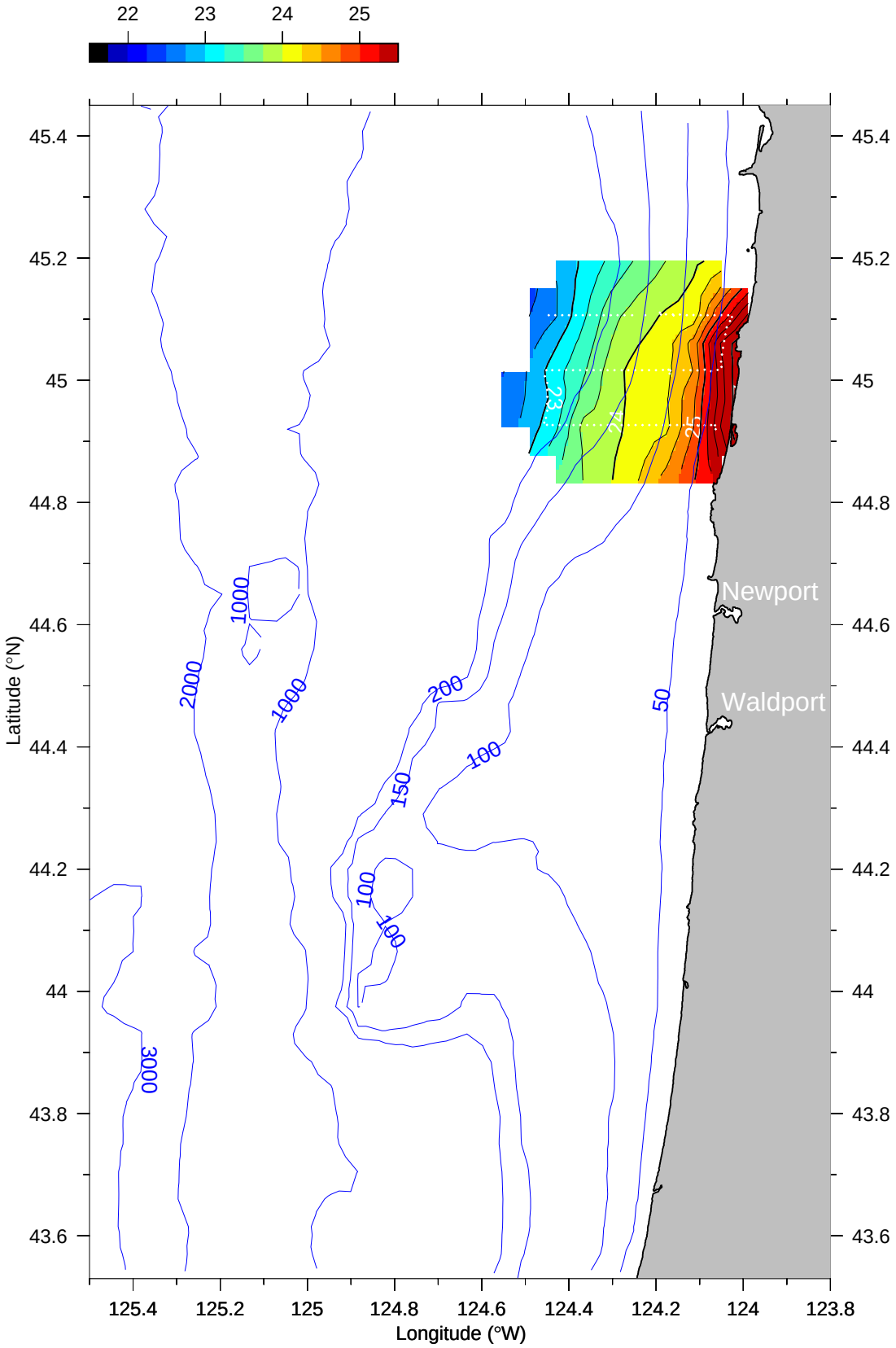


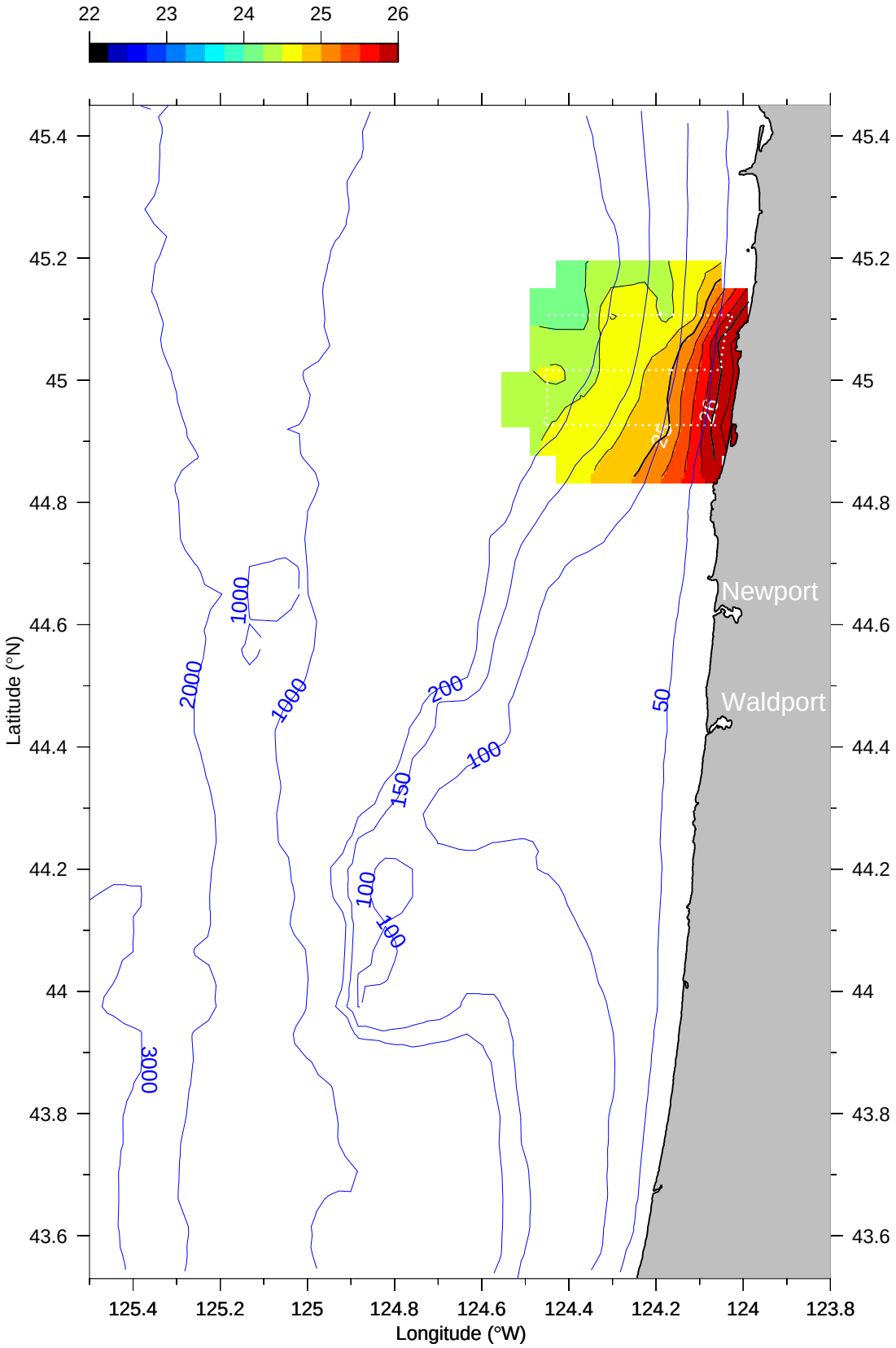
W0105 Small Box North 2

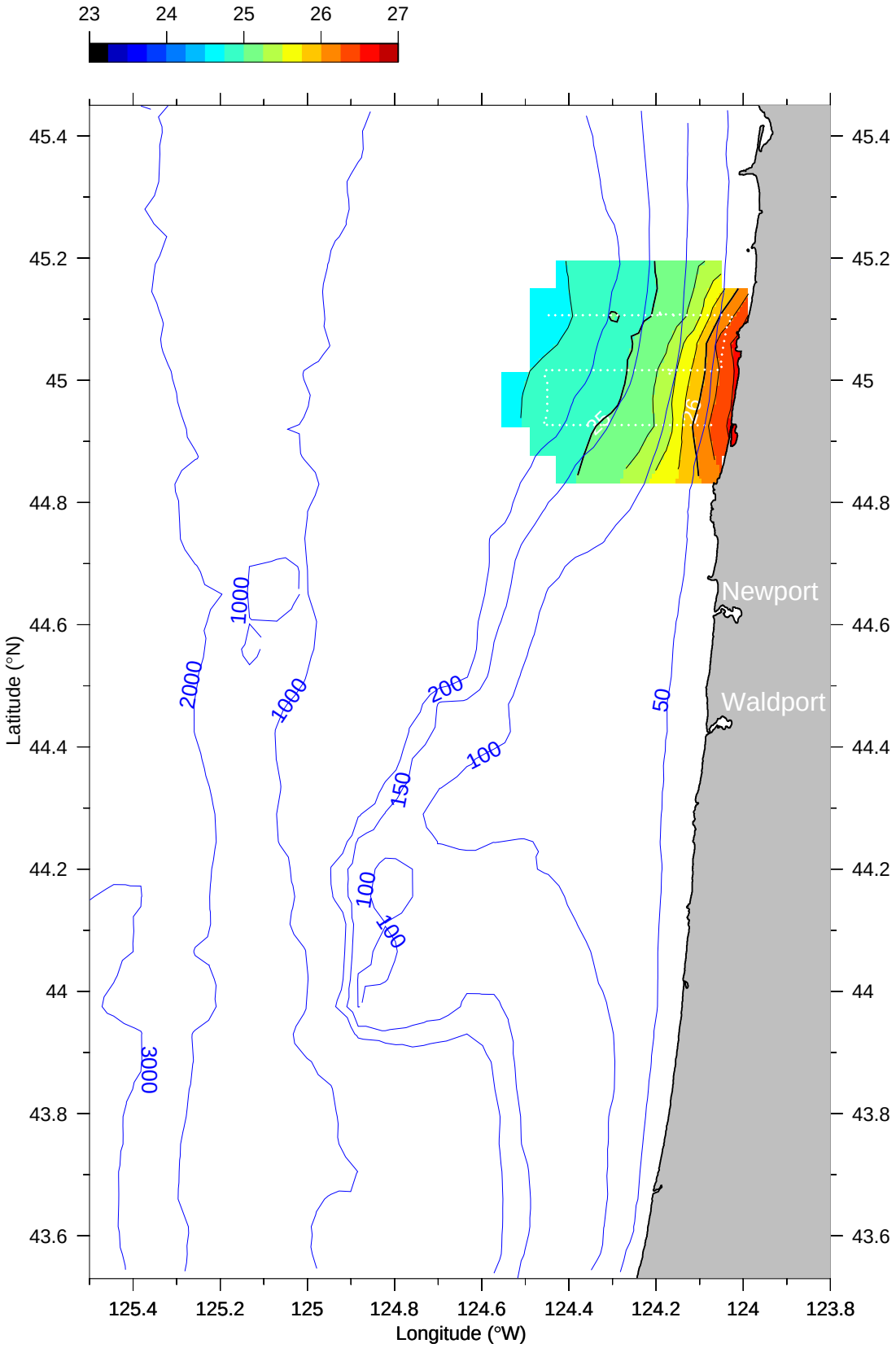
27-May-2001 16:12 - 28-May-2001 03:04

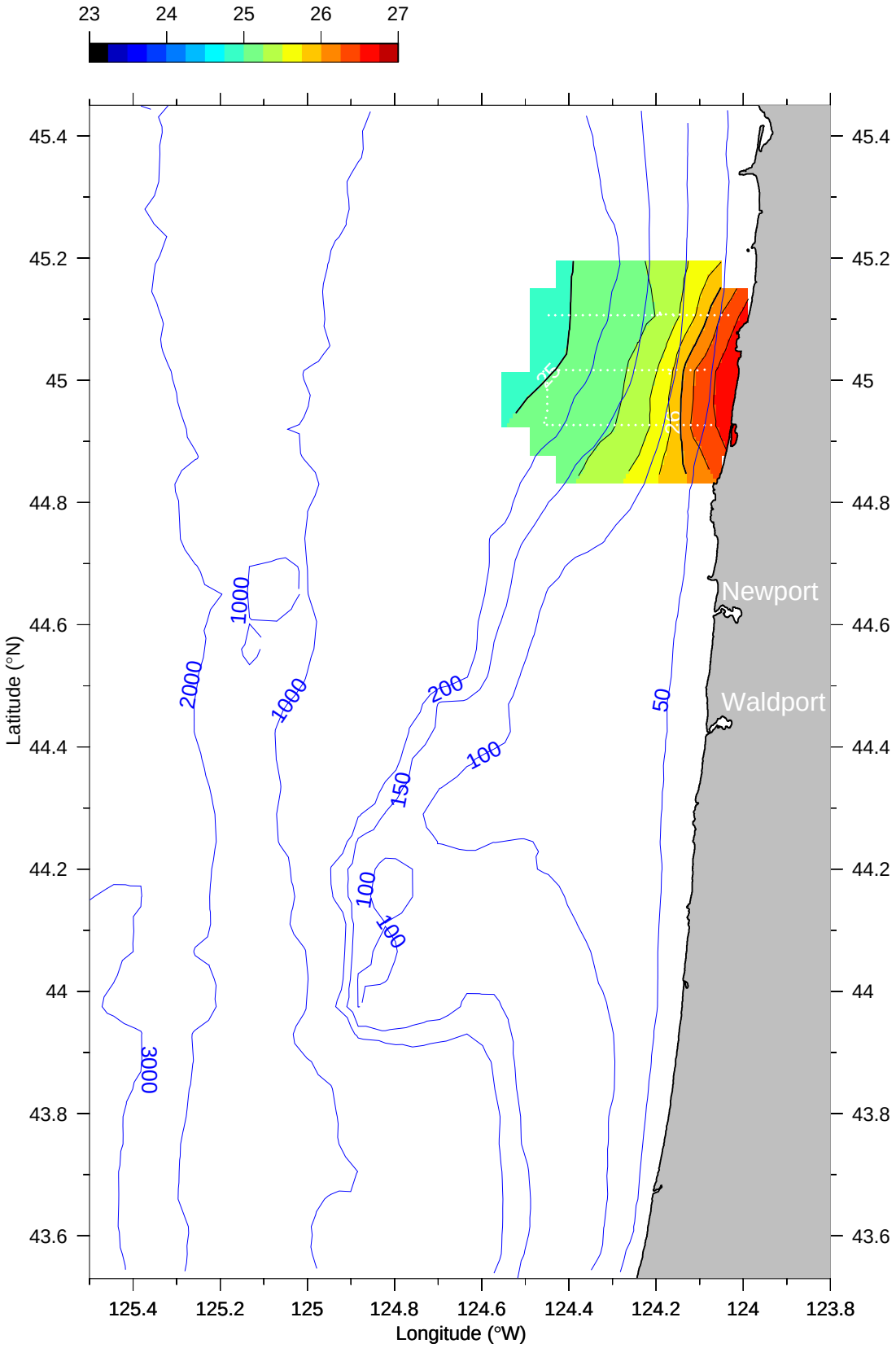
Salinity (PSS) at 95 dbar

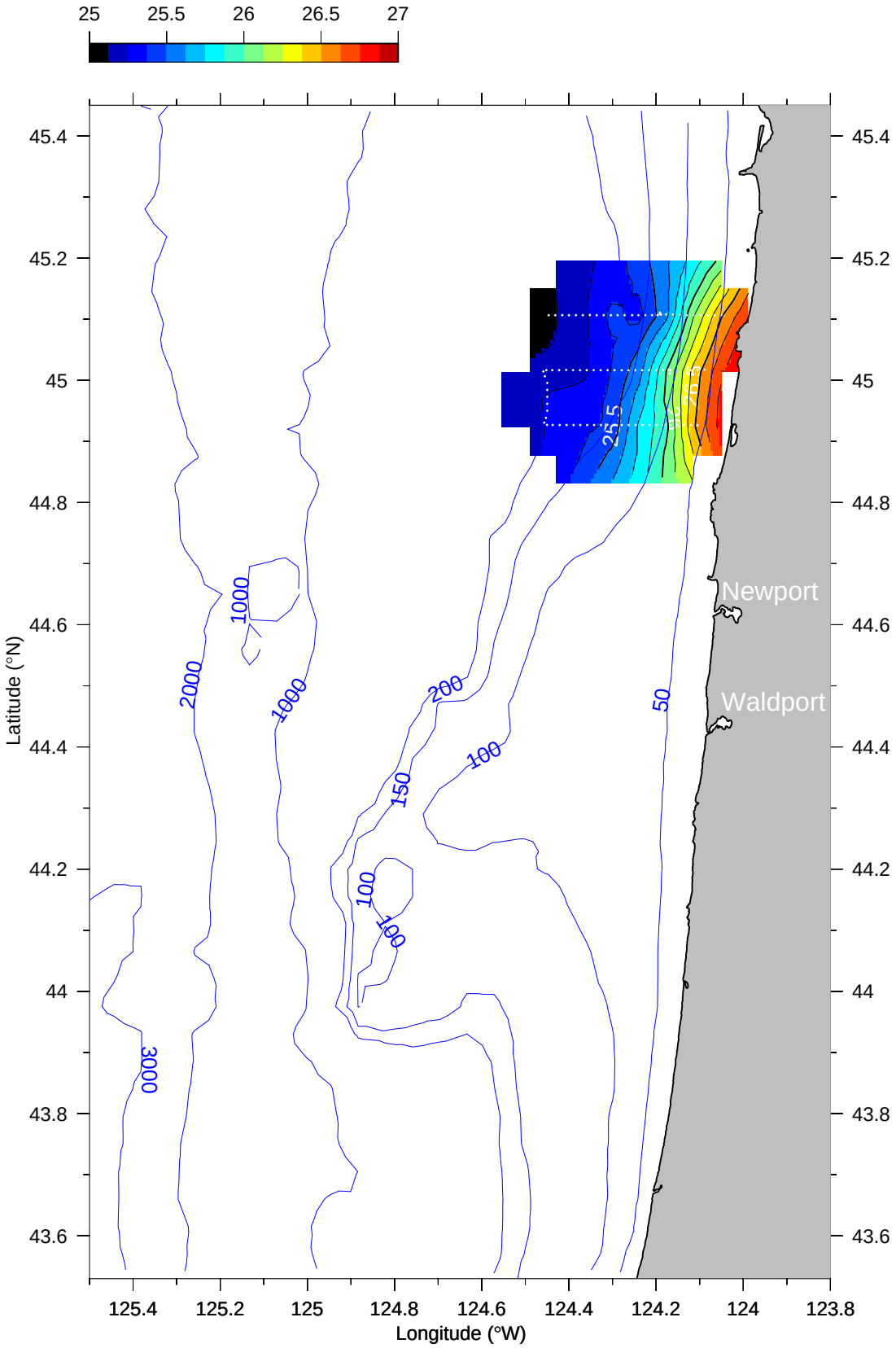


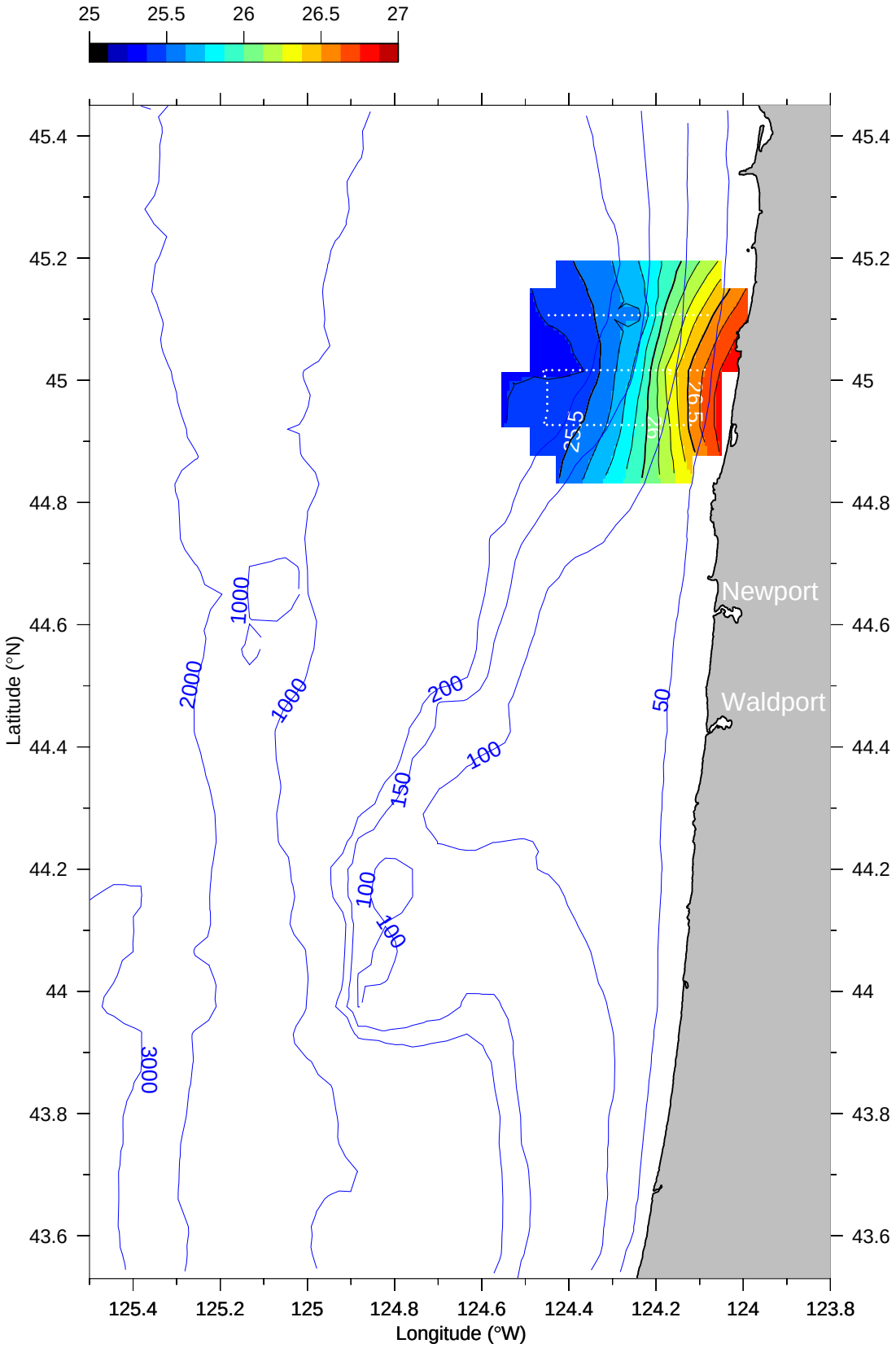

W0105 Small Box North 2
27-May-2001 16:12 - 28-May-2001 03:04
σt (kg m−3) at 5 dbar
22
23
24
25
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
3000
2000
1000
1000
200
150
100
100
100
50

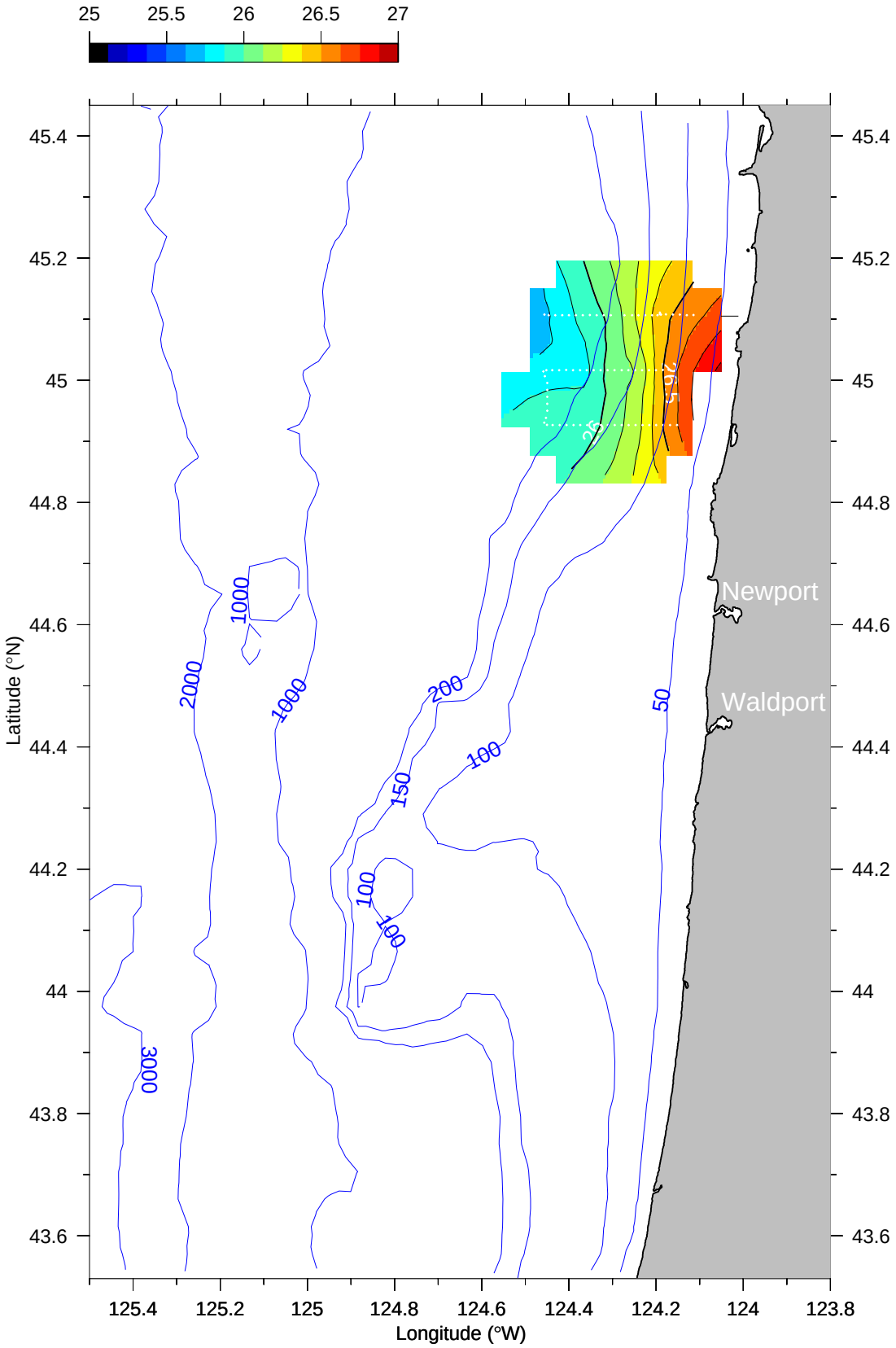

W0105 Small Box North 2
27-May-2001 16:12 - 28-May-2001 03:04
σt (kg m−3) at 15 dbar
22
23
24
25
26
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Small Box North 2
27-May-2001 16:12 - 28-May-2001 03:04
σt (kg m−3) at 25 dbar
23
24
25
26
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Small Box North 2
27-May-2001 16:12 - 28-May-2001 03:04
σt (kg m−3) at 35 dbar
23
24
25
26
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Small Box North 2
27-May-2001 16:12 - 28-May-2001 03:04
σt (kg m−3) at 45 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
3000
2000
1000
1000
200
150
100
100
100
50

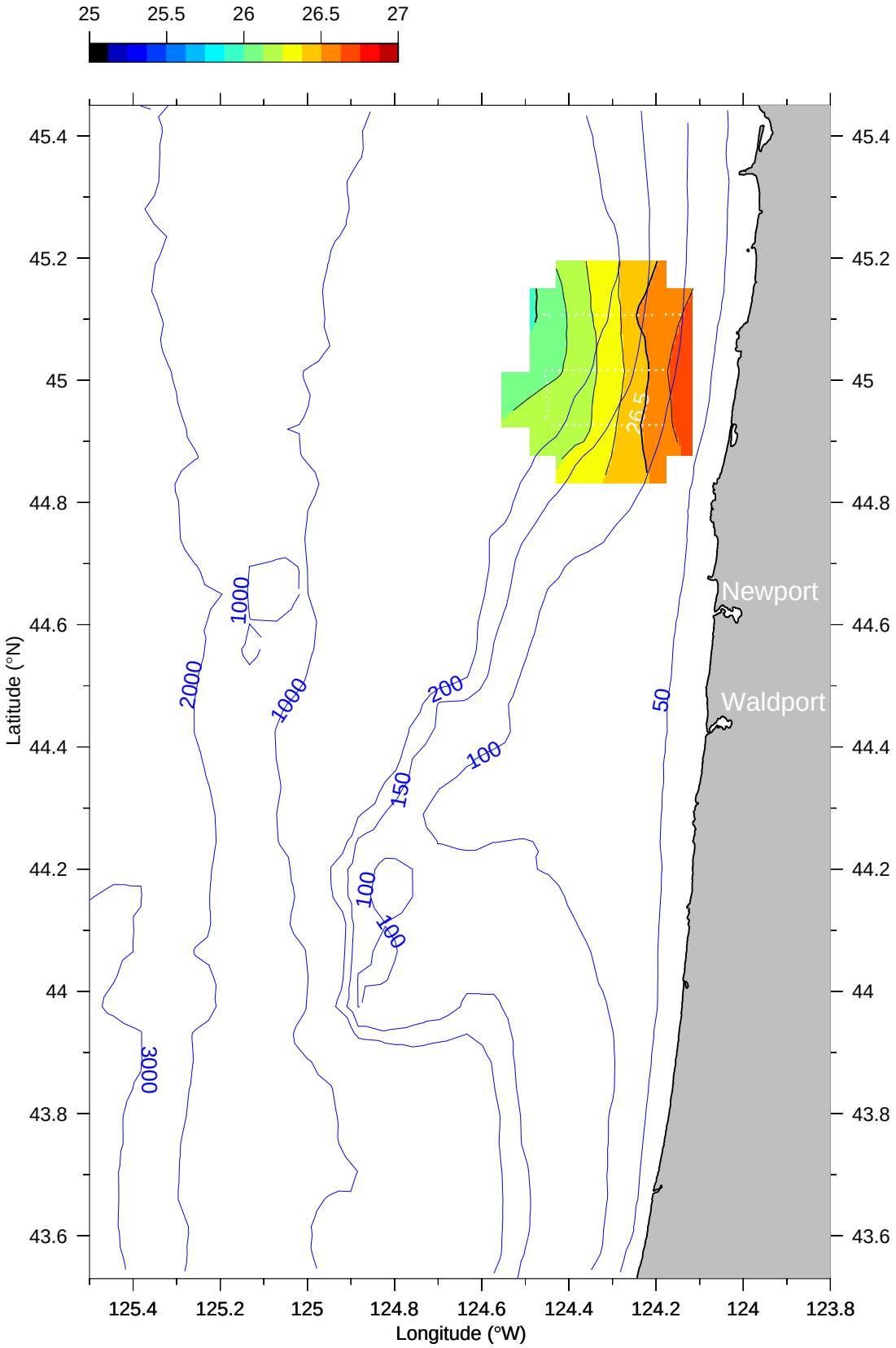

W0105 Small Box North 2
27-May-2001 16:12 - 28-May-2001 03:04
σt (kg m−3) at 55 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
3000
2000
1000
1000
200
150
100
100
100
50

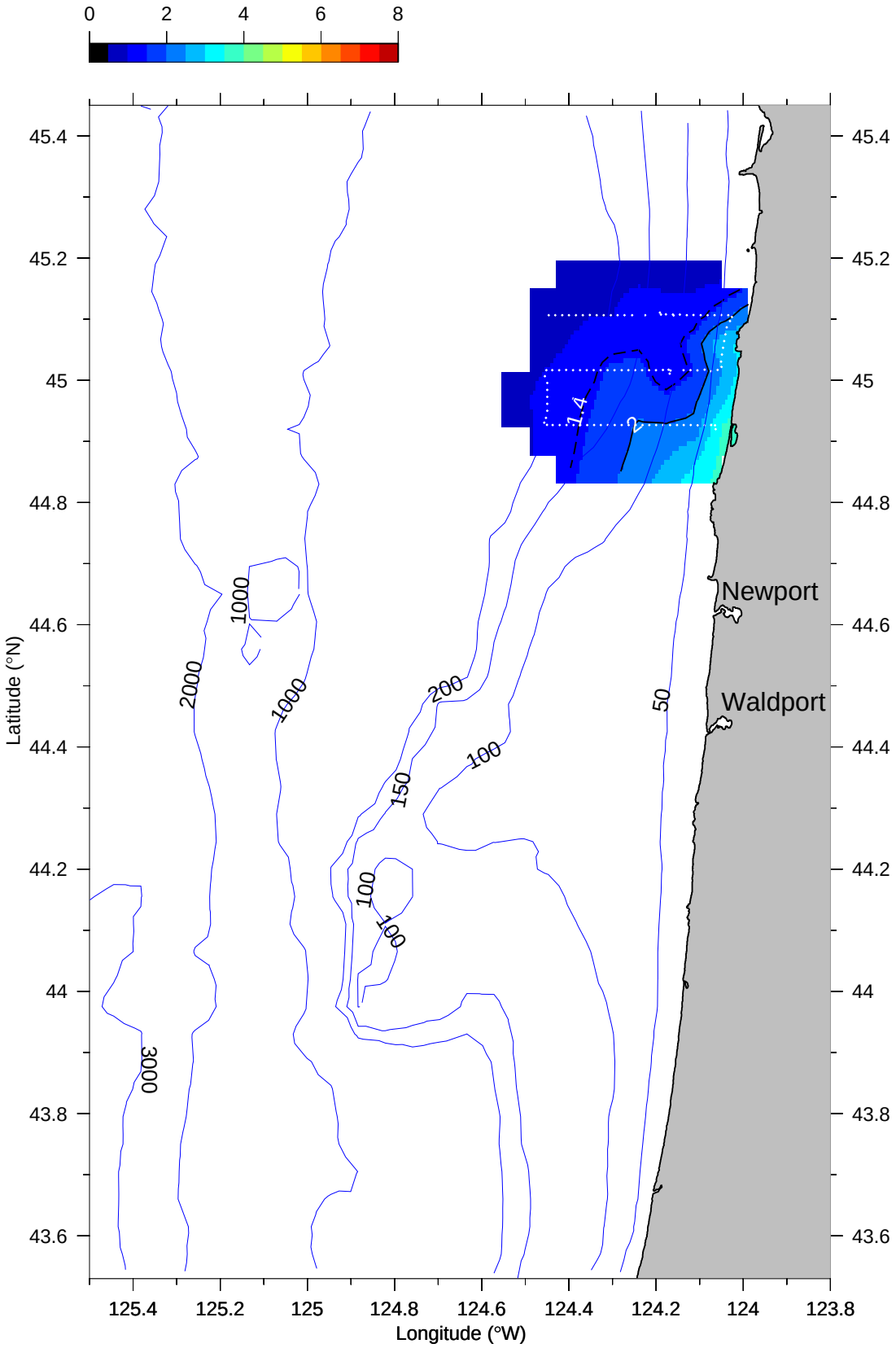

W0105 Small Box North 2
27-May-2001 16:12 - 28-May-2001 03:04
σt (kg m−3) at 75 dbar
25
25.5
26
26.5
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
100
150
100
100
50

W0105 Small Box North 2

27-May-2001 16:12 - 28-May-2001 03:04

σ_t $(kg\ m^{-3})$ at 95 dbar




W0105 Small Box North 2
27-May-2001 16:12 - 28-May-2001 03:04
Chlorophyll (µg L−1) at 5 dbar
0
2
4
6
8
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
1000
2000
1000
200
100
150
100
100
50
3000
1.4
2

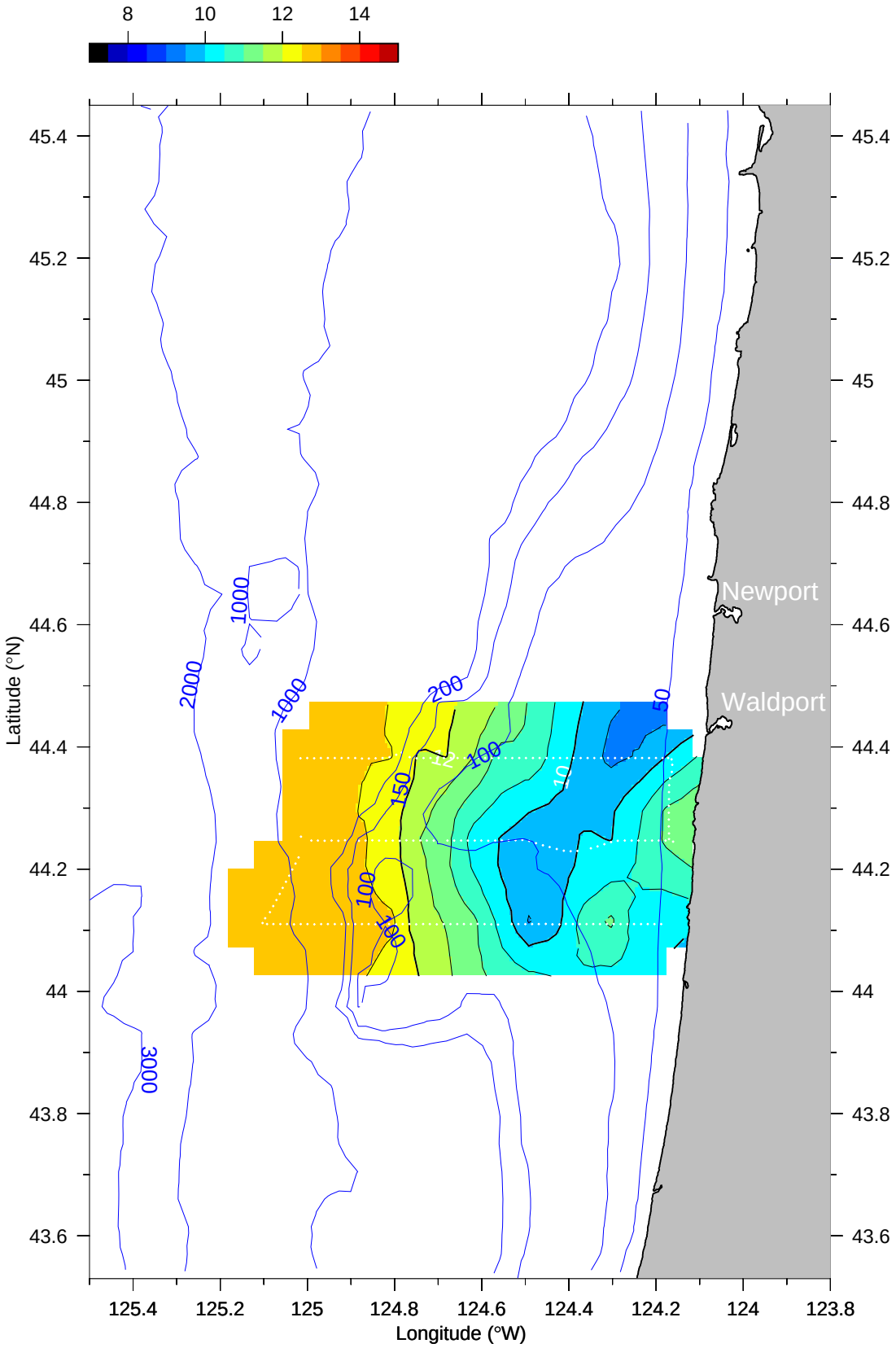
Smal Box South 1 Maps

Maps of Temperature, Salinity, σ_t, and Chlorophyll at Specified Depths

W0105 Small Box South 1

28-May-2001 08:30 - 29-May-2001 04:55

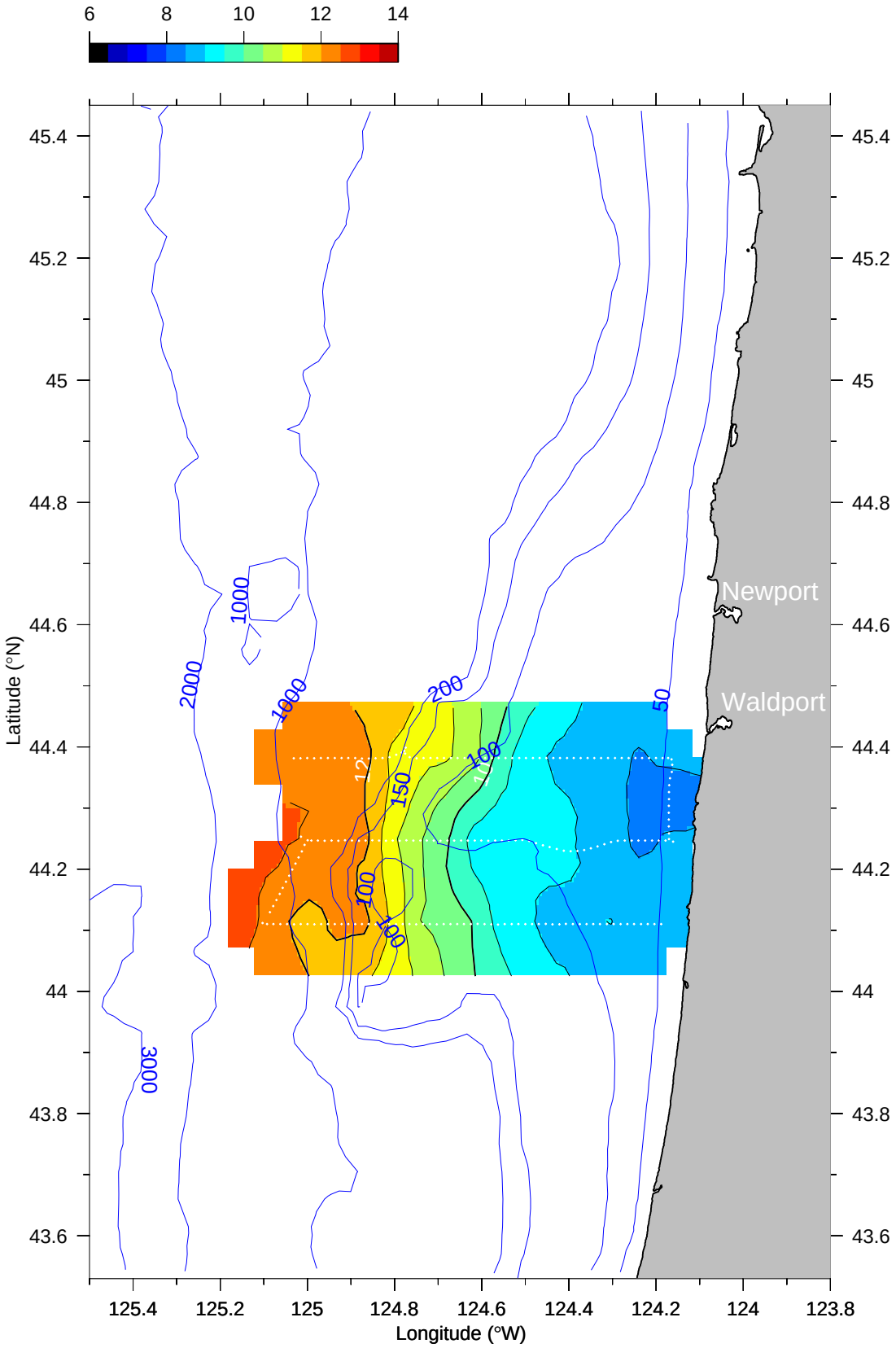
Temperature (°C) at 5 dbar



W0105 Small Box South 1

28-May-2001 08:30 - 29-May-2001 04:55

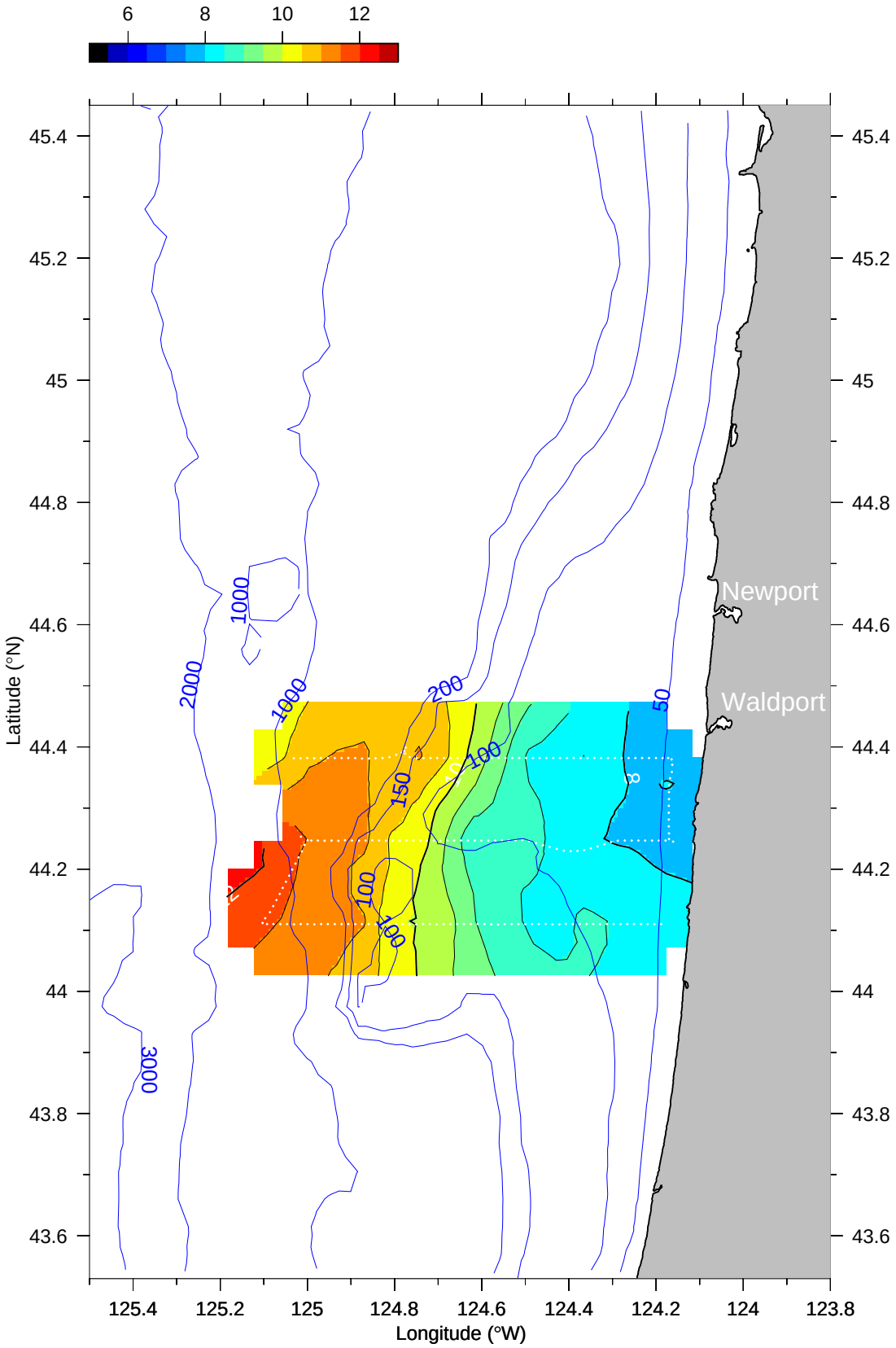
Temperature (°C) at 15 dbar



W0105 Small Box South 1

28-May-2001 08:30 - 29-May-2001 04:55

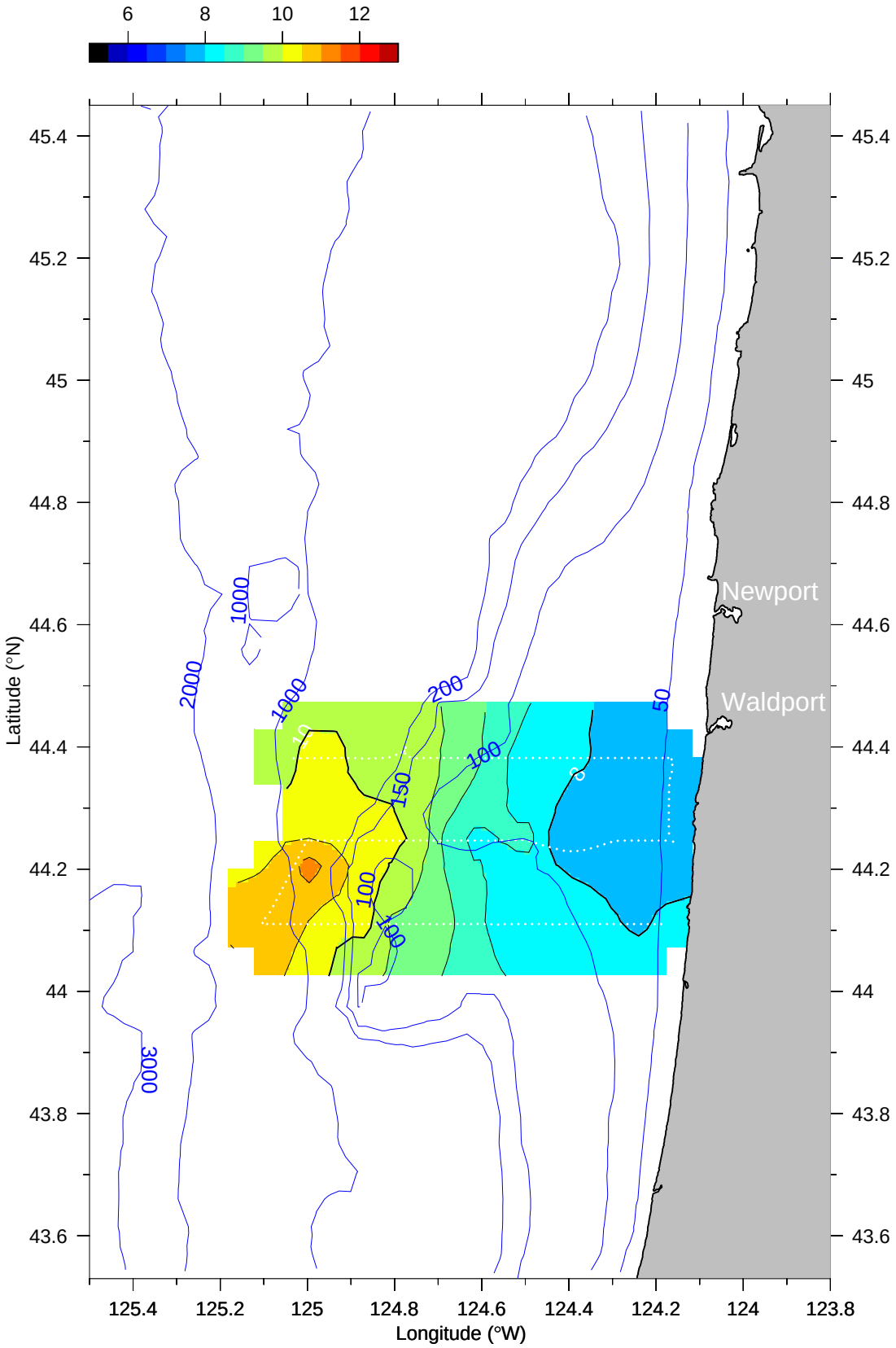
Temperature (°C) at 25 dbar



W0105 Small Box South 1

28-May-2001 08:30 - 29-May-2001 04:55

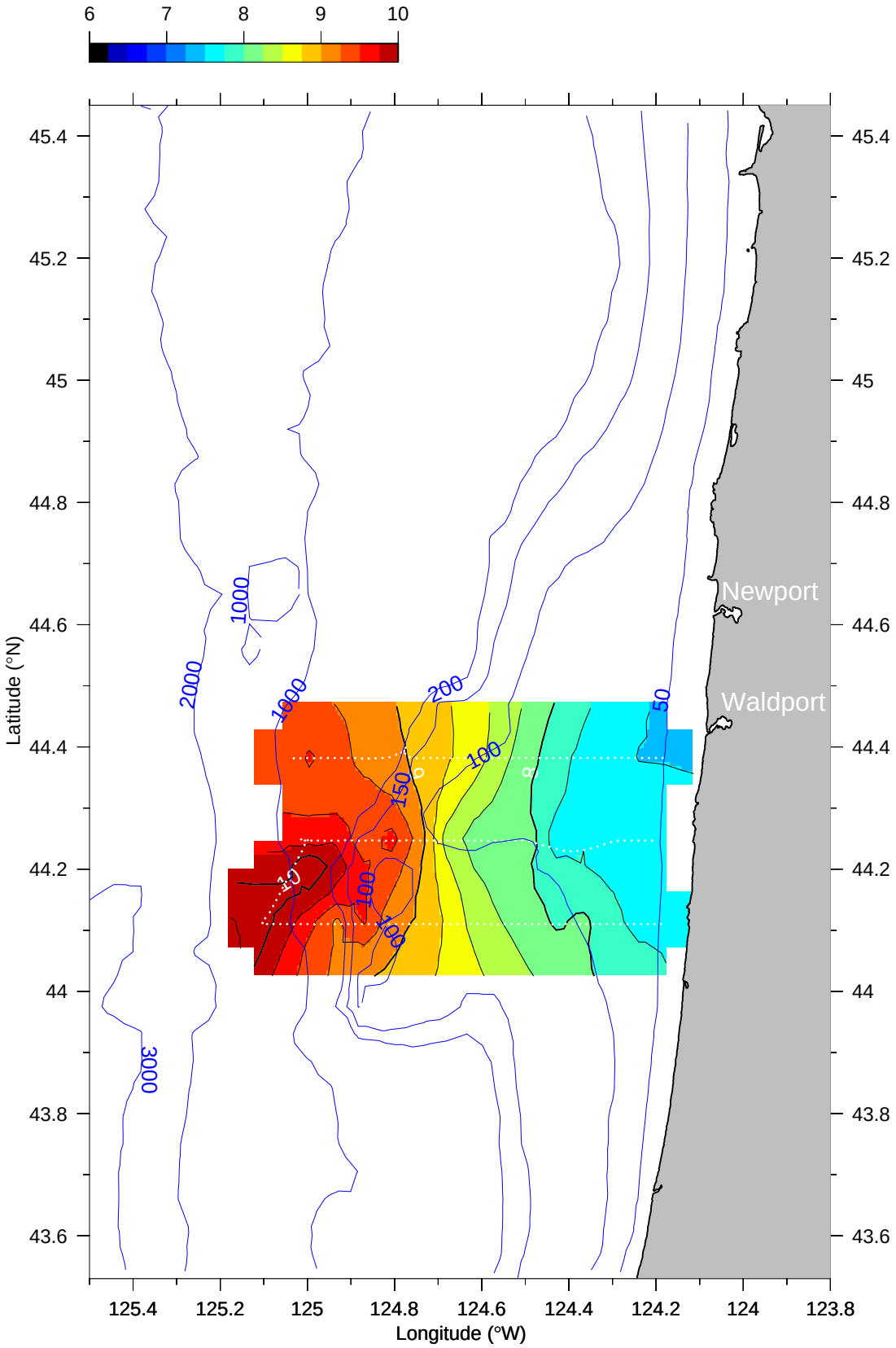
Temperature (°C) at 35 dbar



W0105 Small Box South 1

28-May-2001 08:30 - 29-May-2001 04:55

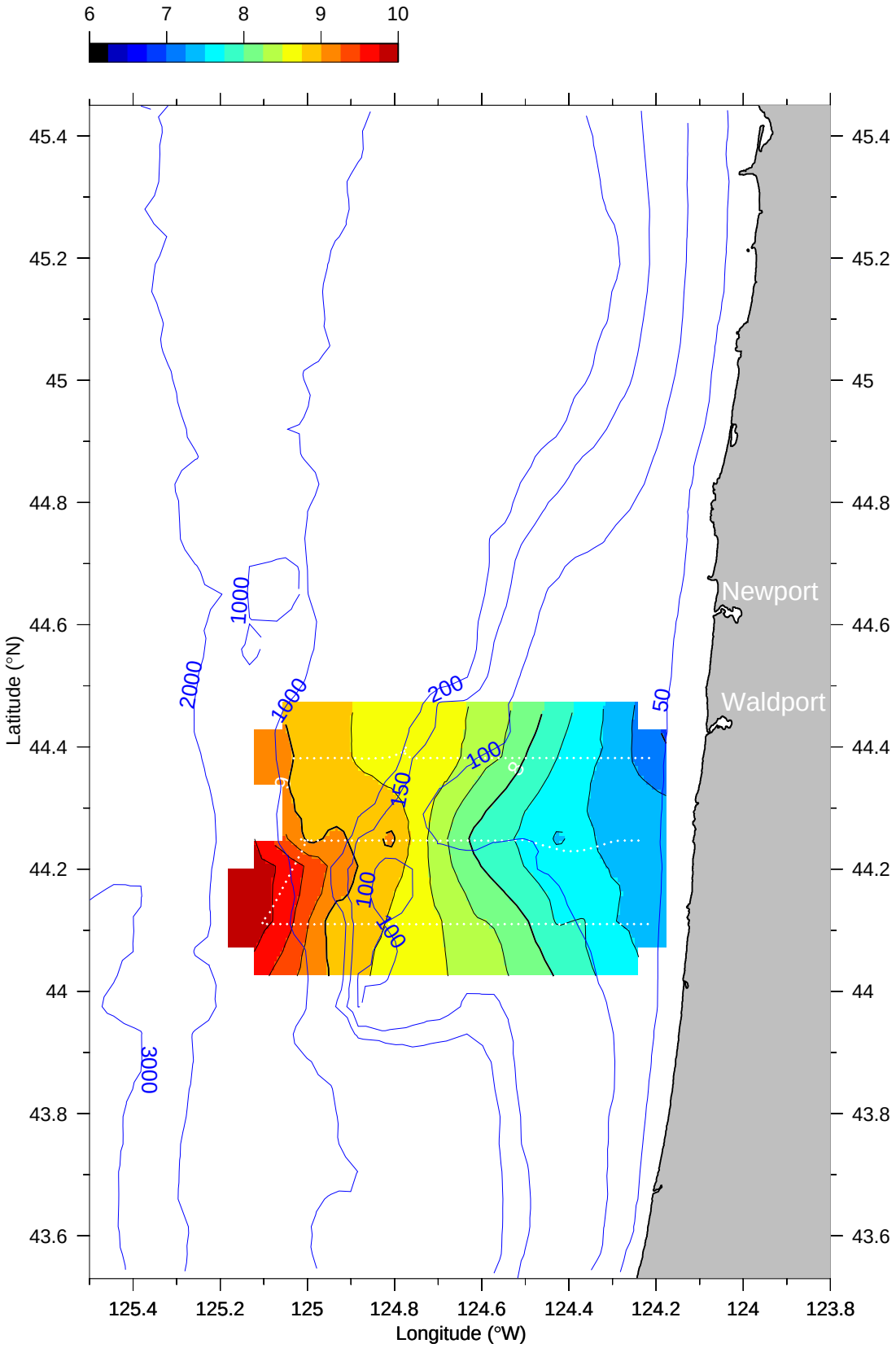
Temperature (°C) at 45 dbar



W0105 Small Box South 1

28-May-2001 08:30 - 29-May-2001 04:55

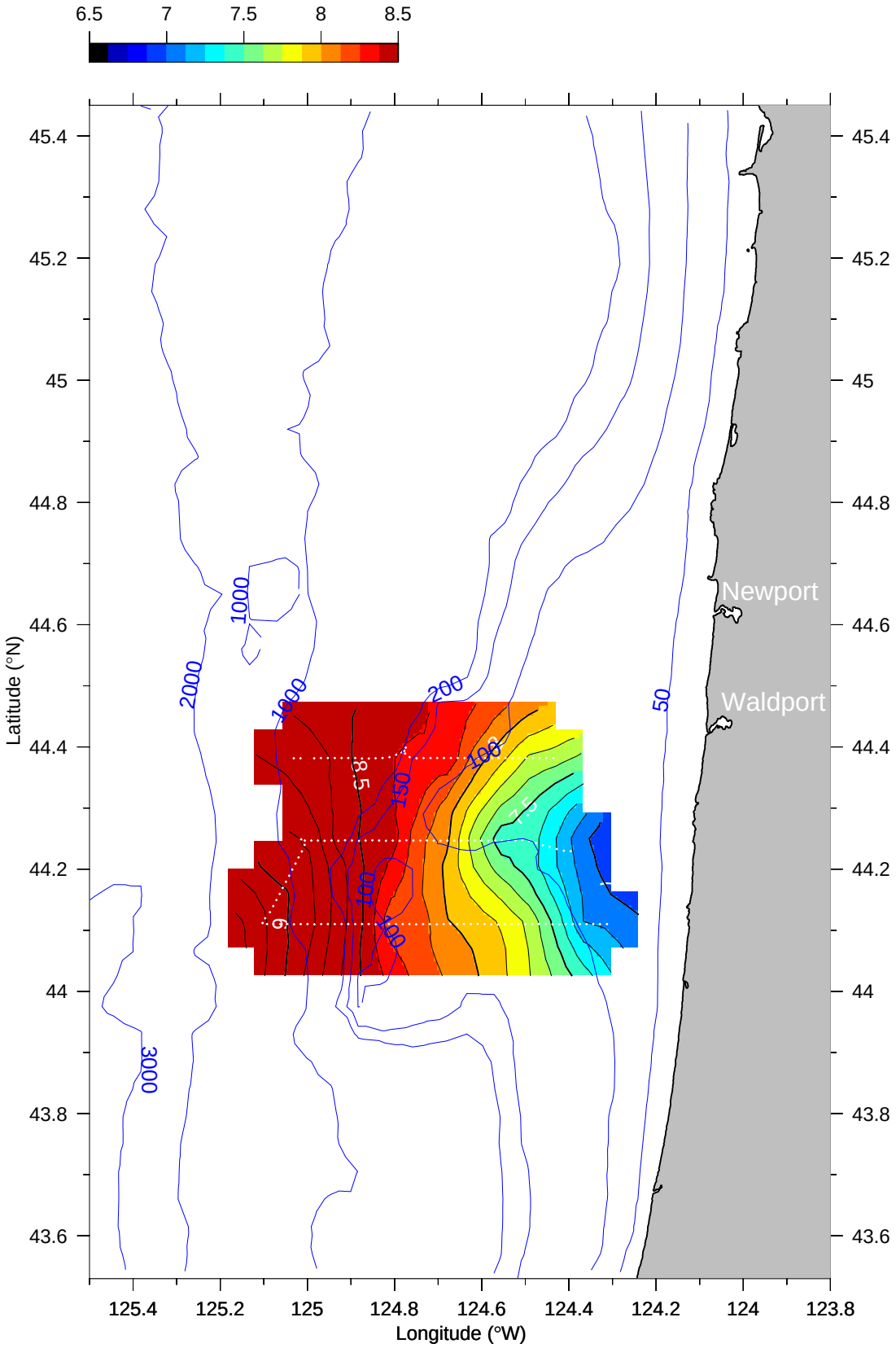
Temperature (°C) at 55 dbar



W0105 Small Box South 1

28-May-2001 08:30 - 29-May-2001 04:55

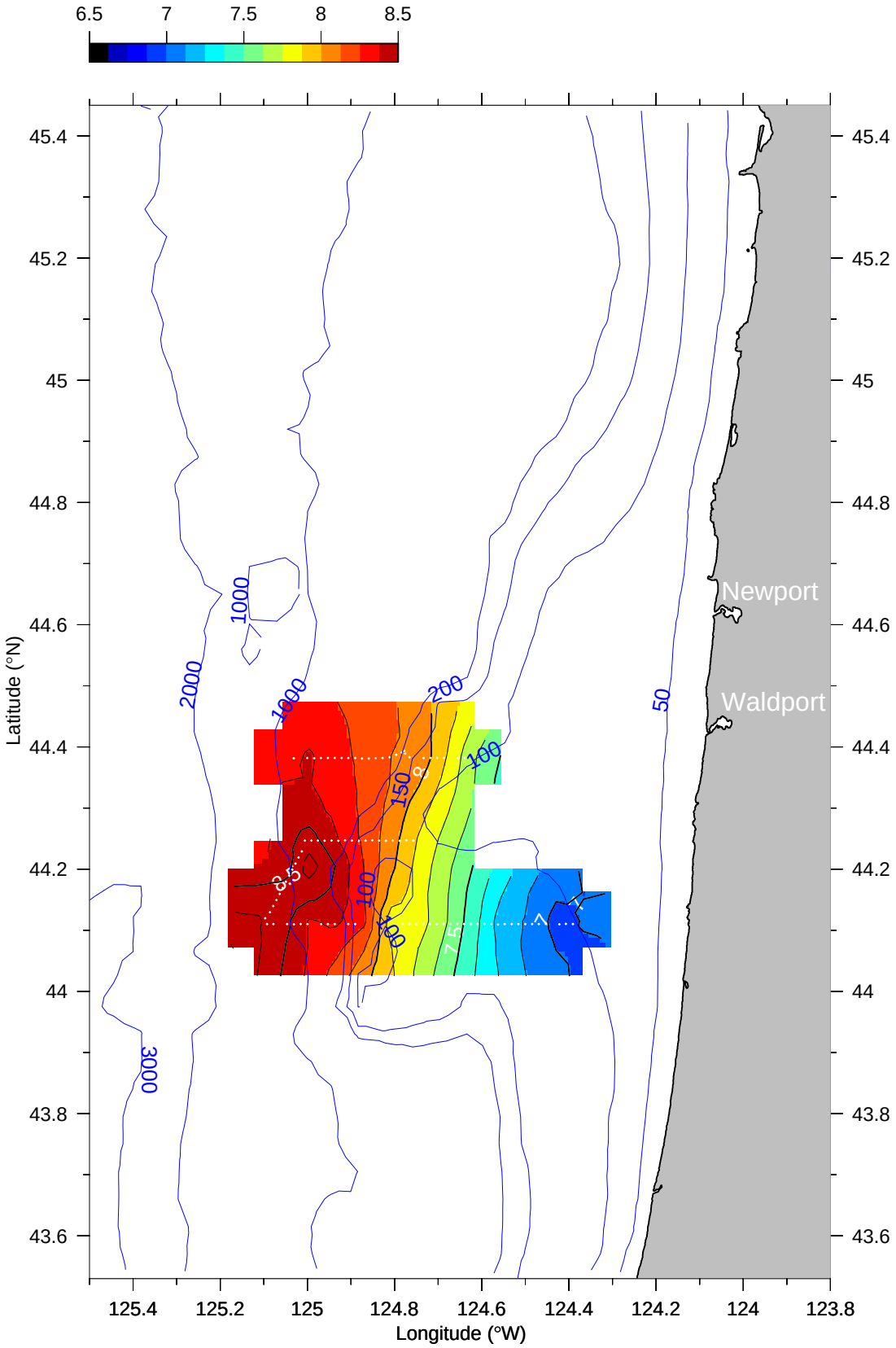
Temperature (°C) at 75 dbar



W0105 Small Box South 1

28-May-2001 08:30 - 29-May-2001 04:55

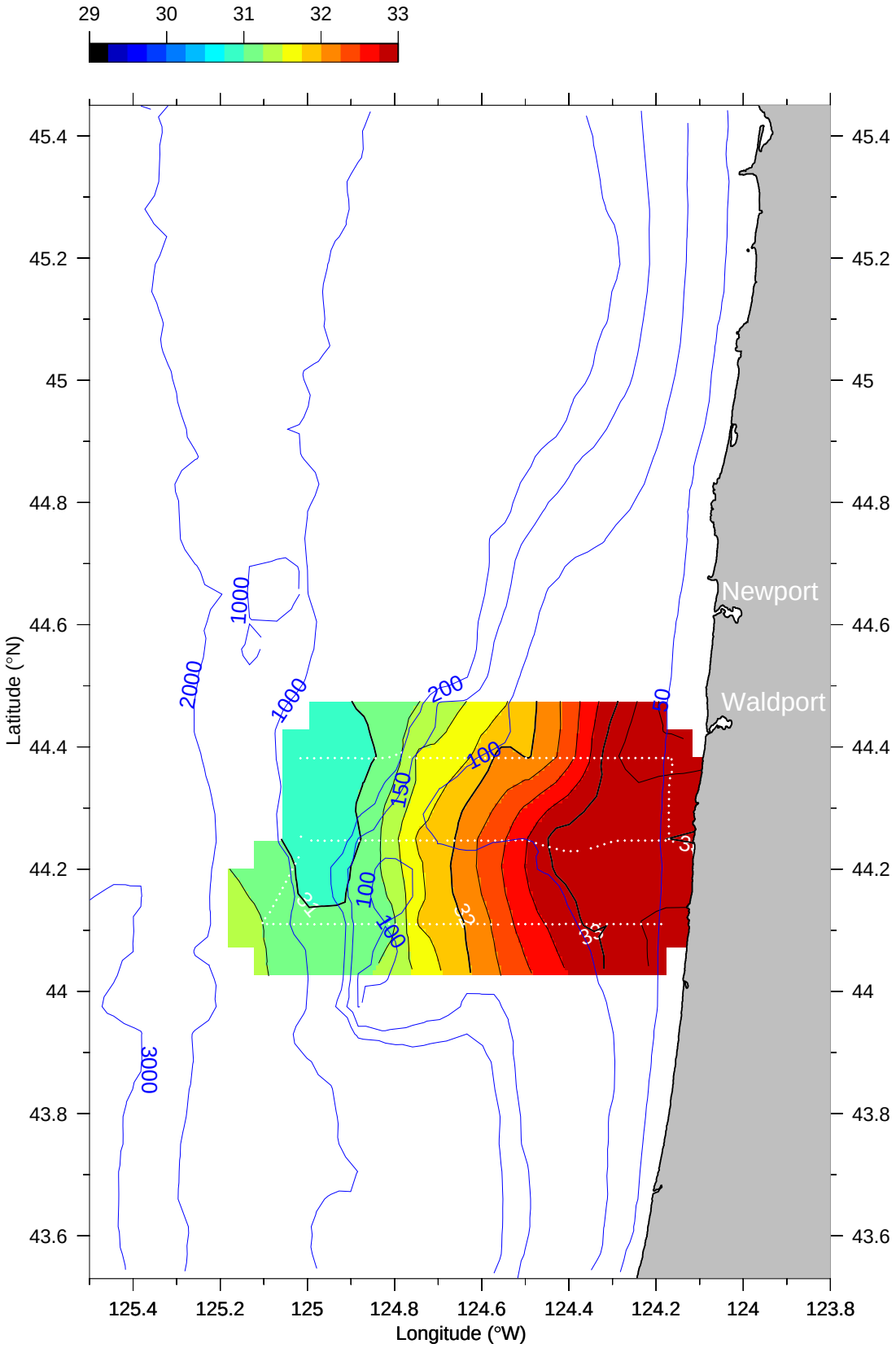
Temperature (°C) at 95 dbar



W0105 Small Box South 1

28-May-2001 08:30 - 29-May-2001 04:55

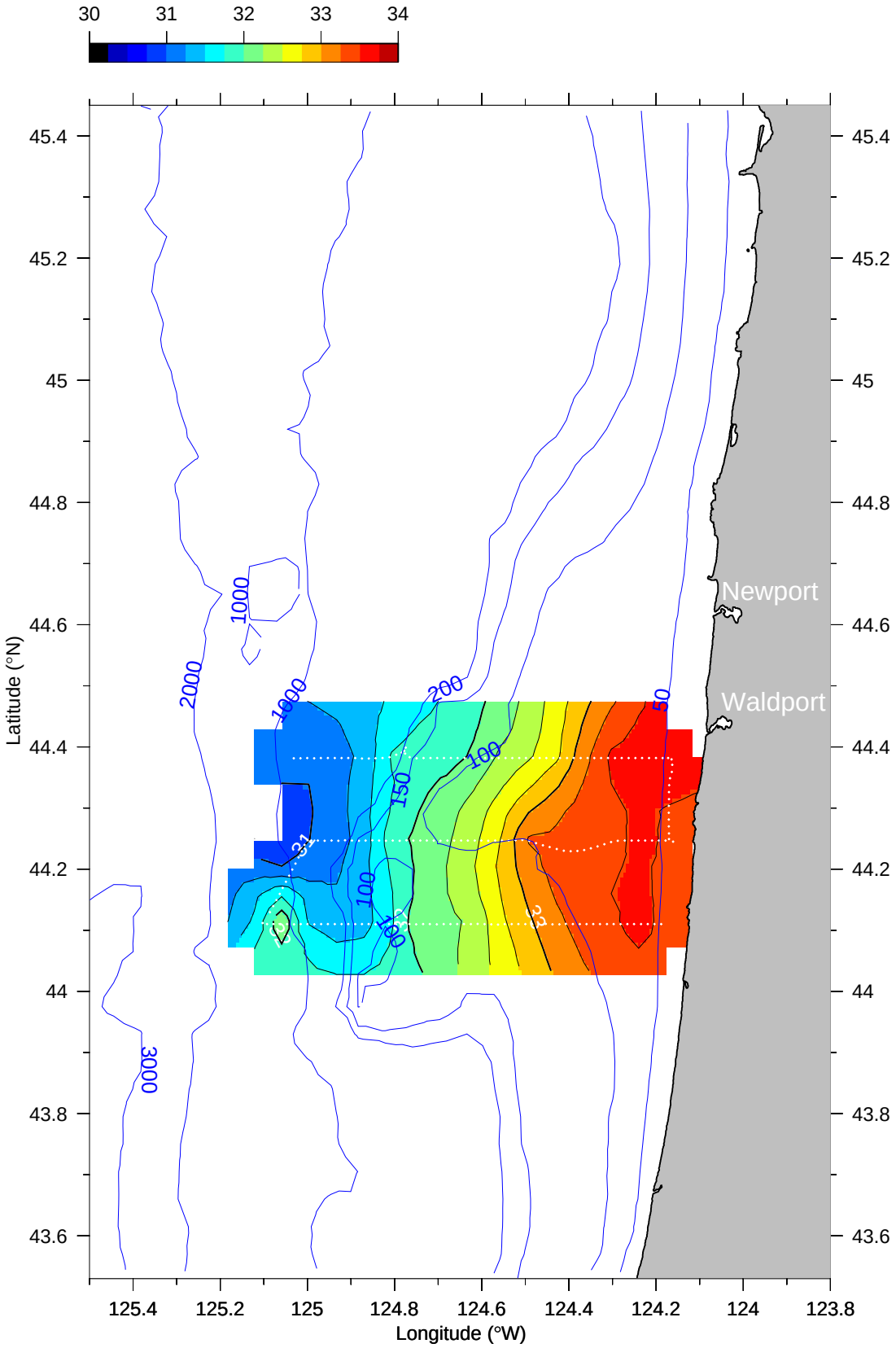
Salinity (PSS) at 5 dbar



W0105 Small Box South 1

28-May-2001 08:30 - 29-May-2001 04:55

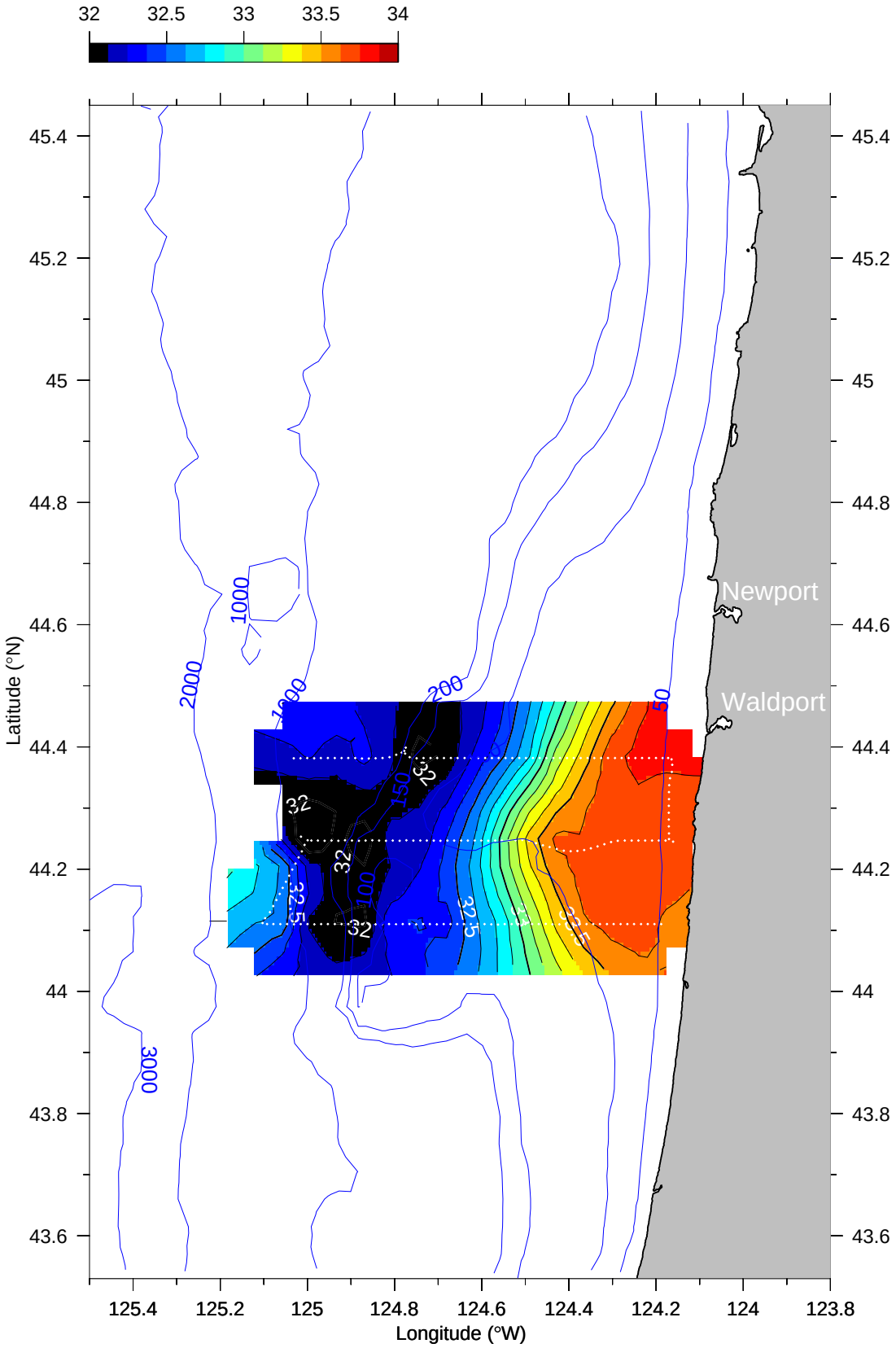
Salinity (PSS) at 15 dbar



W0105 Small Box South 1

28-May-2001 08:30 - 29-May-2001 04:55

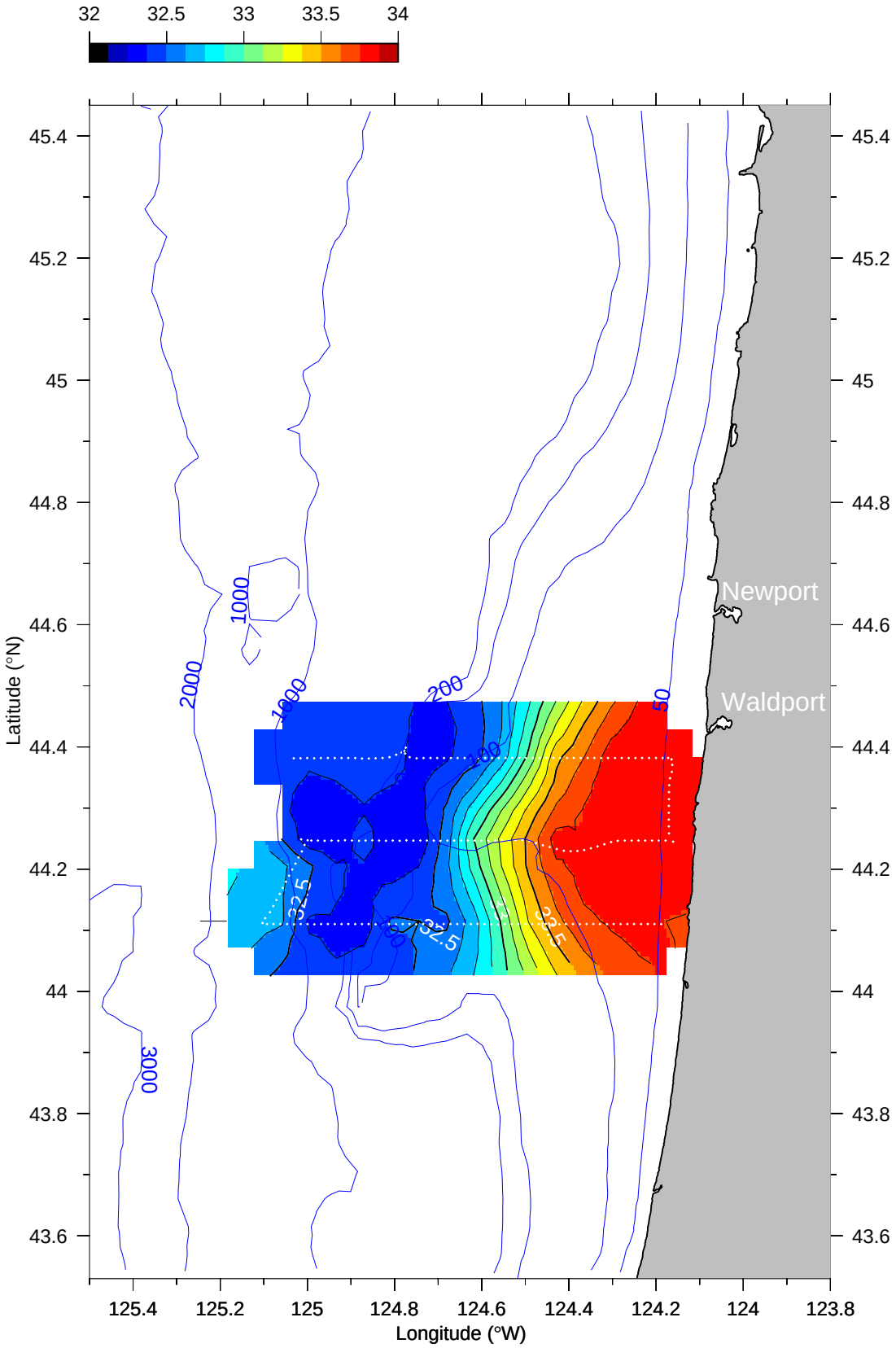
Salinity (PSS) at 25 dbar



W0105 Small Box South 1

28-May-2001 08:30 - 29-May-2001 04:55

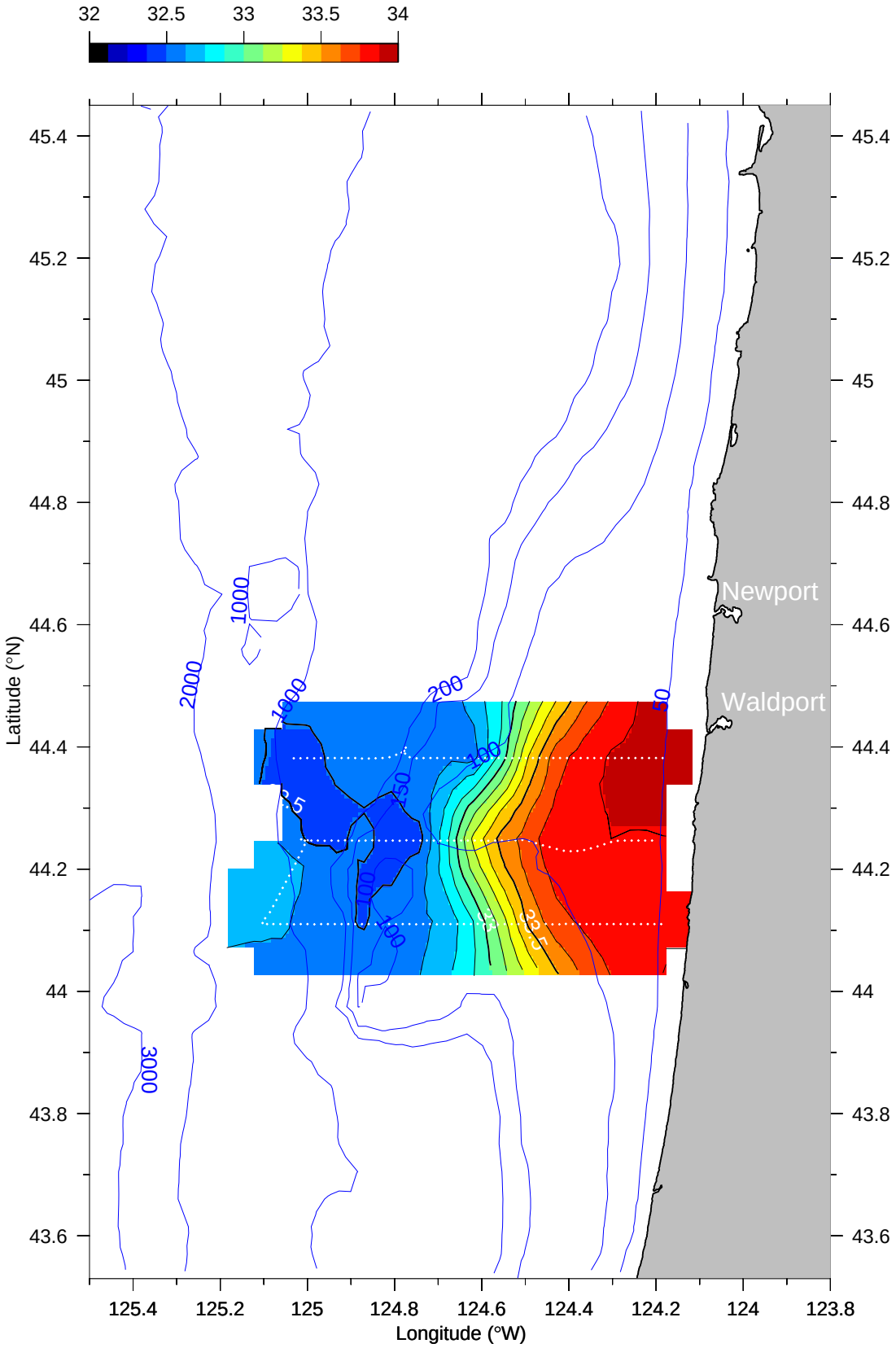
Salinity (PSS) at 35 dbar



W0105 Small Box South 1

28-May-2001 08:30 - 29-May-2001 04:55

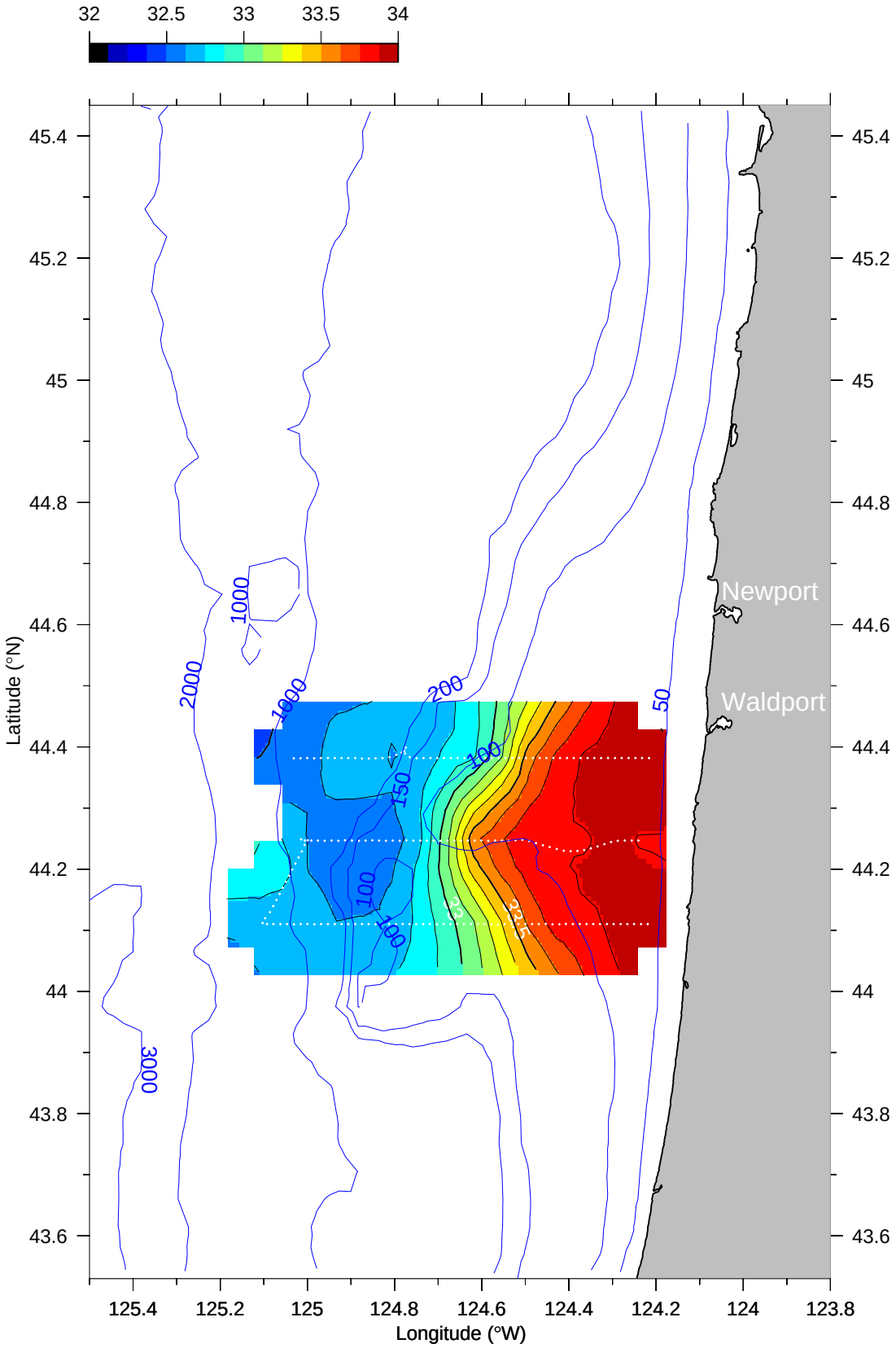
Salinity (PSS) at 45 dbar



W0105 Small Box South 1

28-May-2001 08:30 - 29-May-2001 04:55

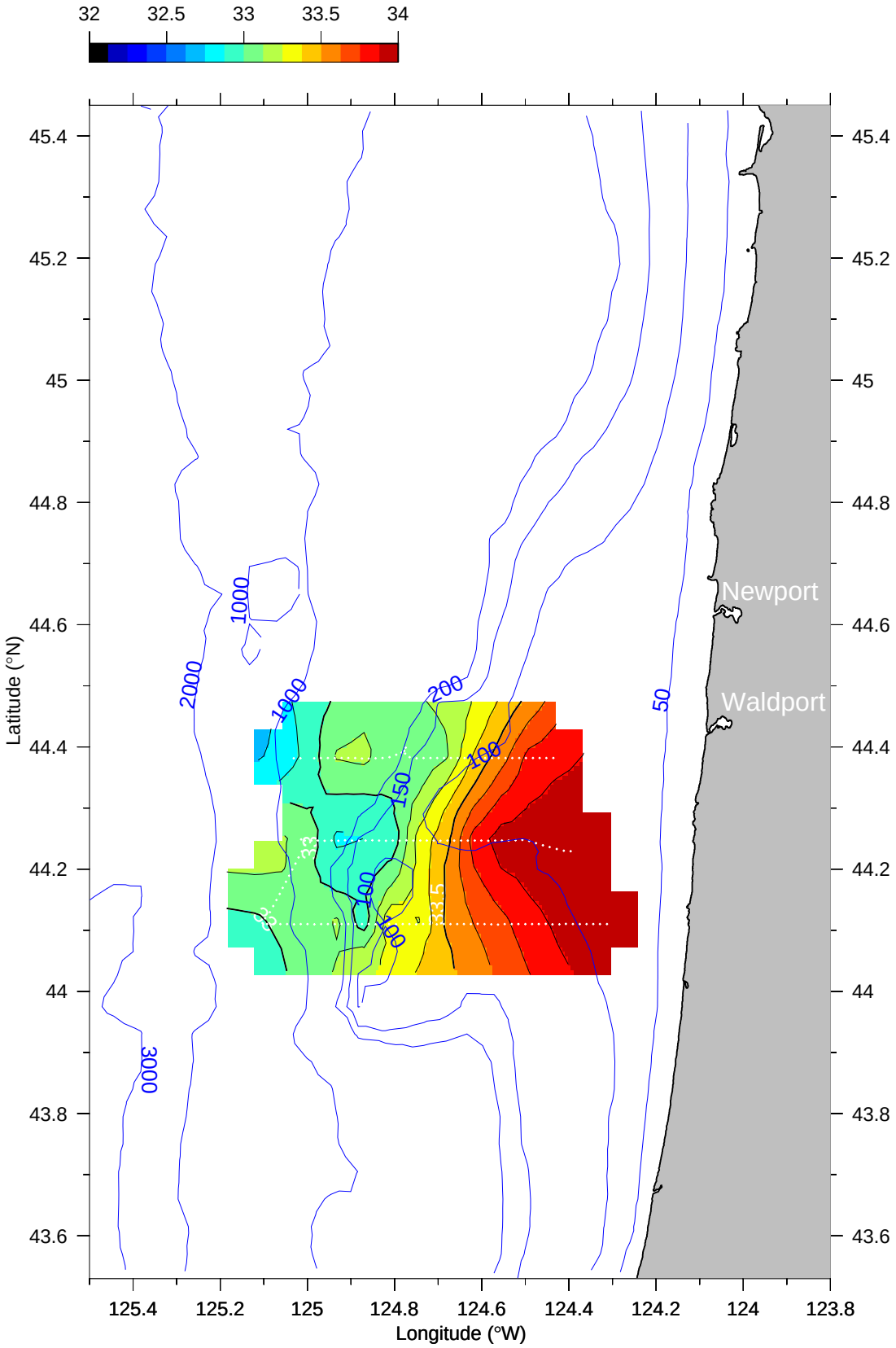
Salinity (PSS) at 55 dbar



W0105 Small Box South 1

28-May-2001 08:30 - 29-May-2001 04:55

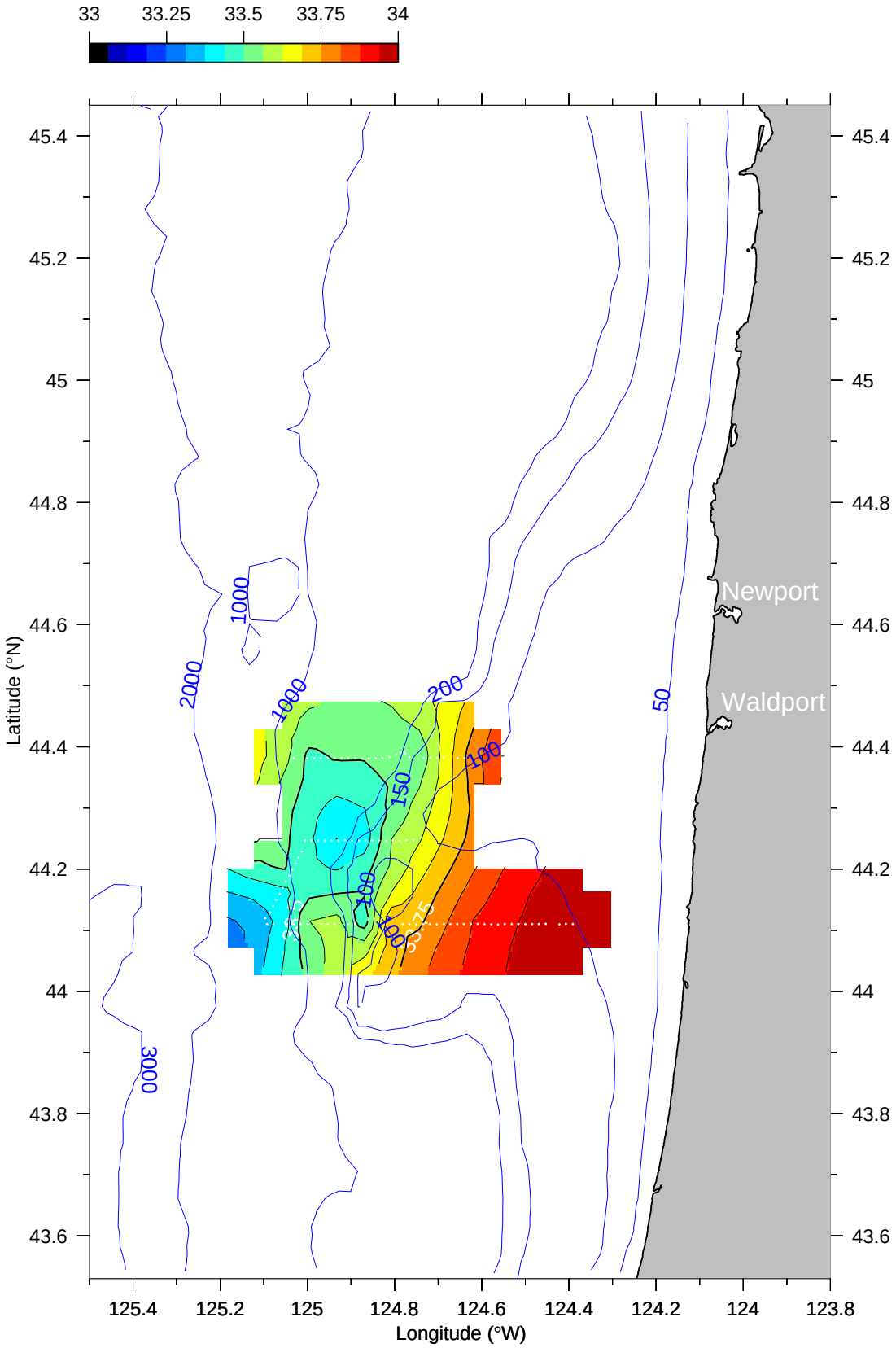
Salinity (PSS) at 75 dbar

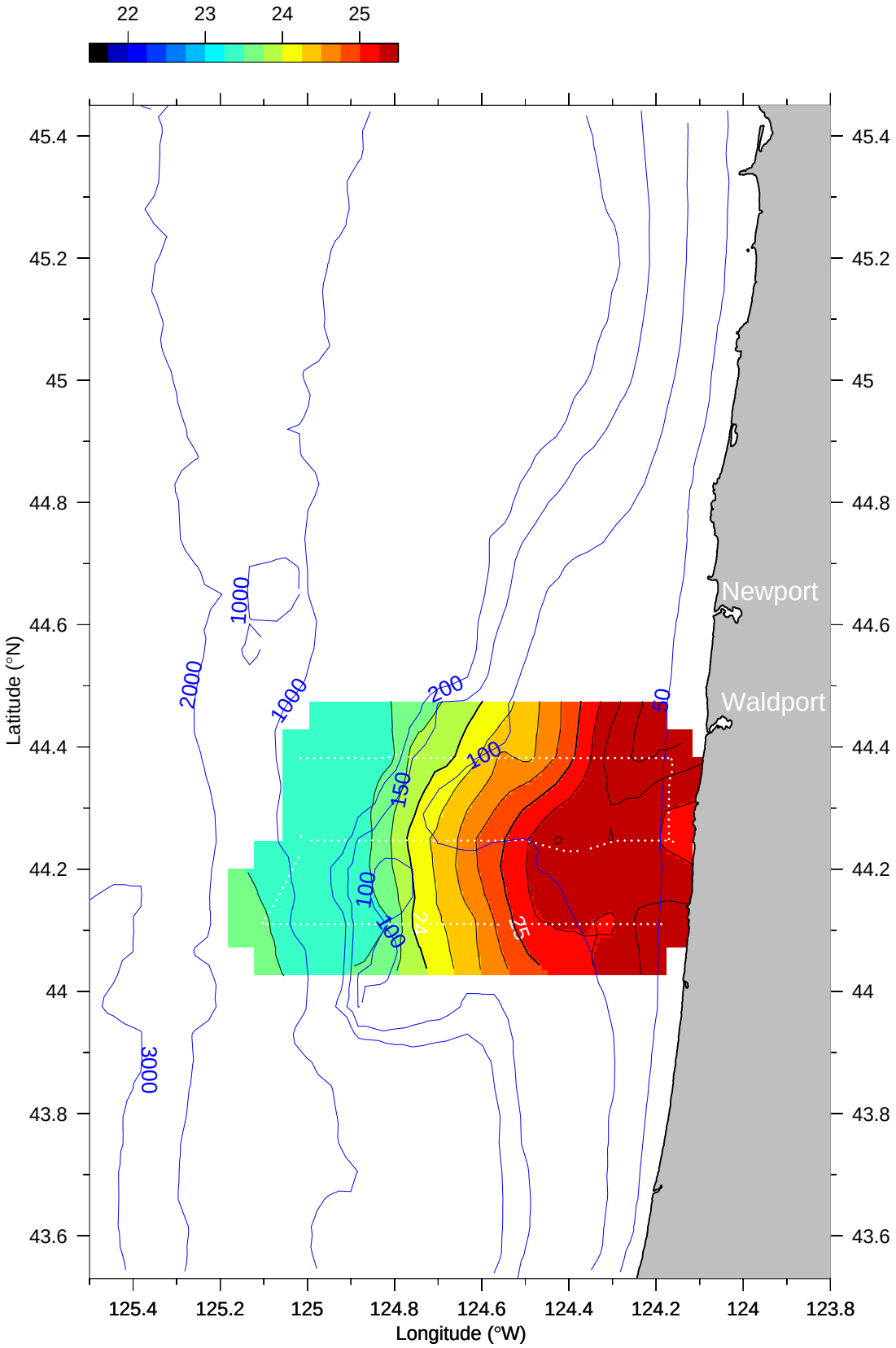


W0105 Small Box South 1

28-May-2001 08:30 - 29-May-2001 04:55

Salinity (PSS) at 95 dbar

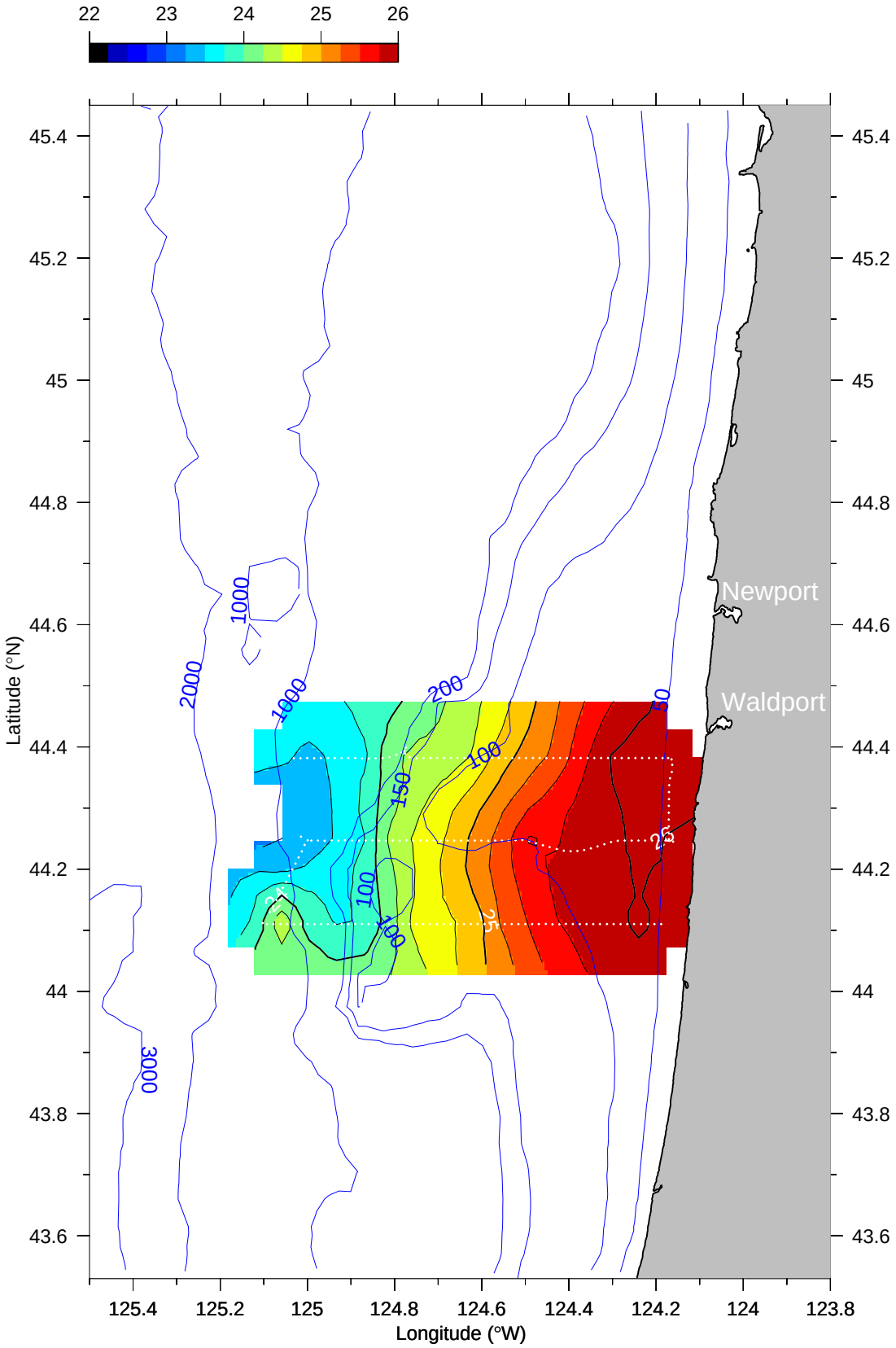



W0105 Small Box South 1
28-May-2001 08:30 - 29-May-2001 04:55
σt (kg m−3) at 5 dbar
22
23
24
25
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
1000
2000
1000
200
50
100
150
100
100
3000

W0105 Small Box South 1

28-May-2001 08:30 - 29-May-2001 04:55

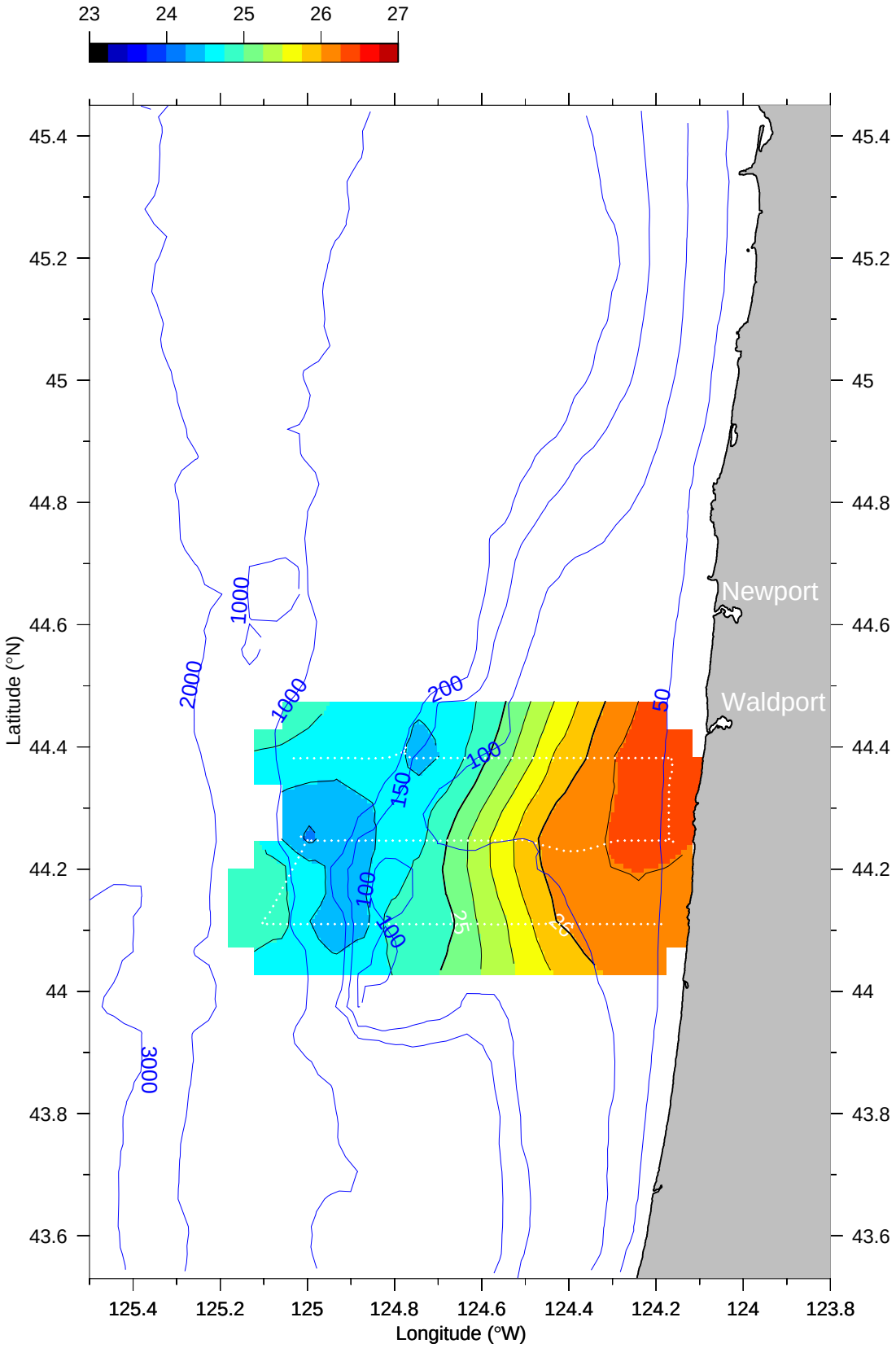
σ_t ($kg\ m^{-3}$) at 15 dbar



W0105 Small Box South 1

28-May-2001 08:30 - 29-May-2001 04:55

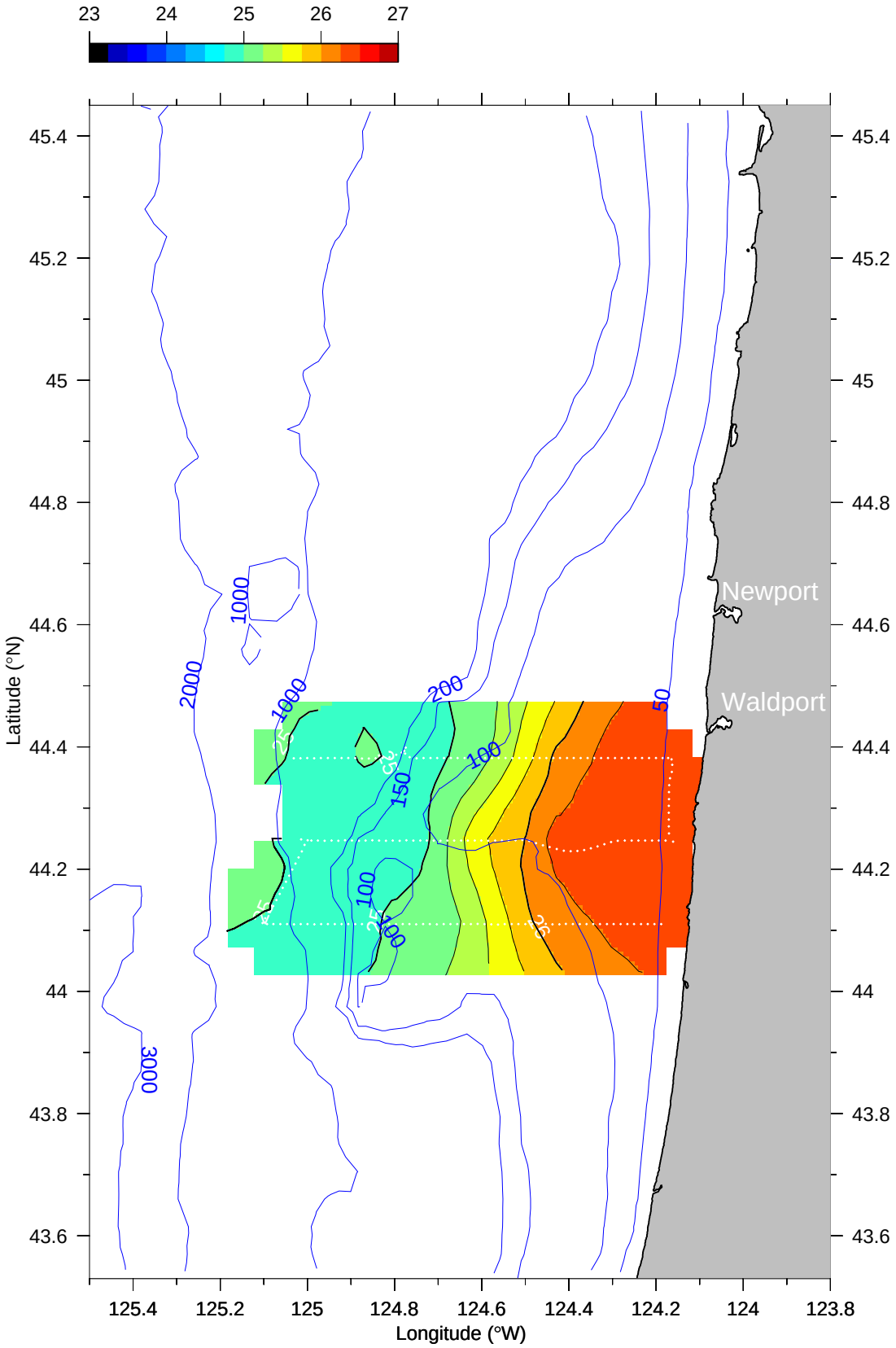
σ_t ($kg\ m^{-3}$) at 25 dbar

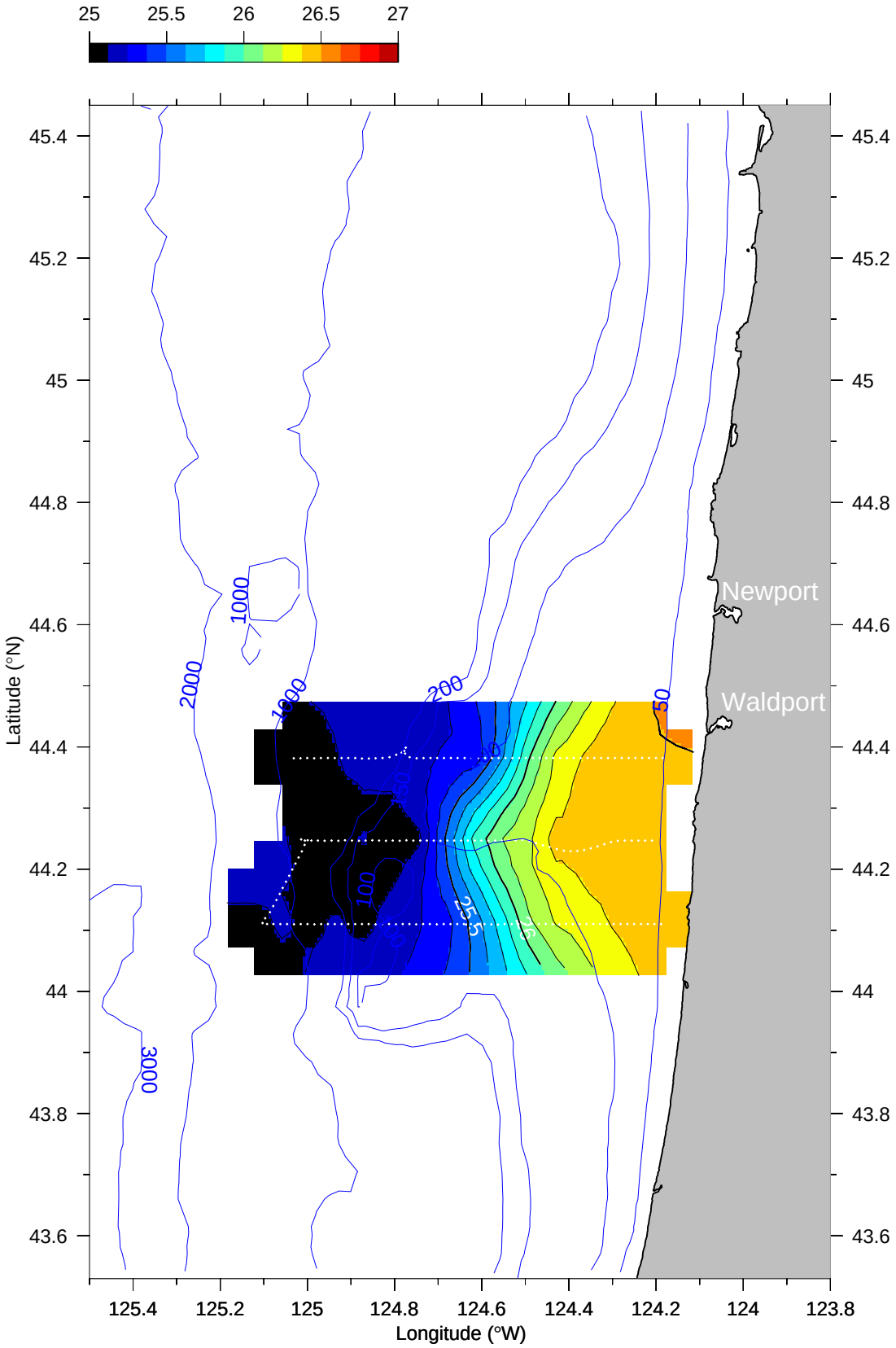


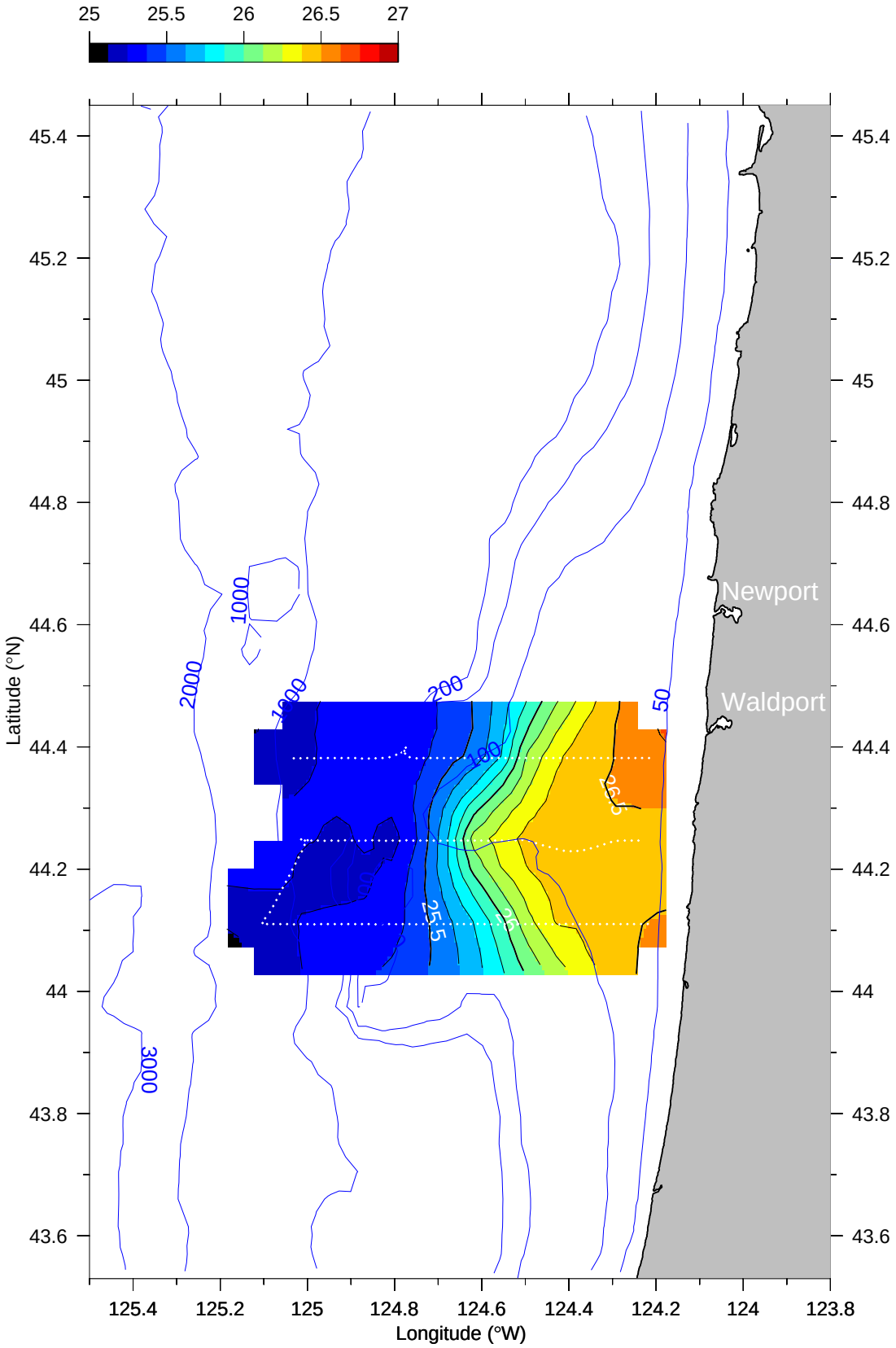
W0105 Small Box South 1

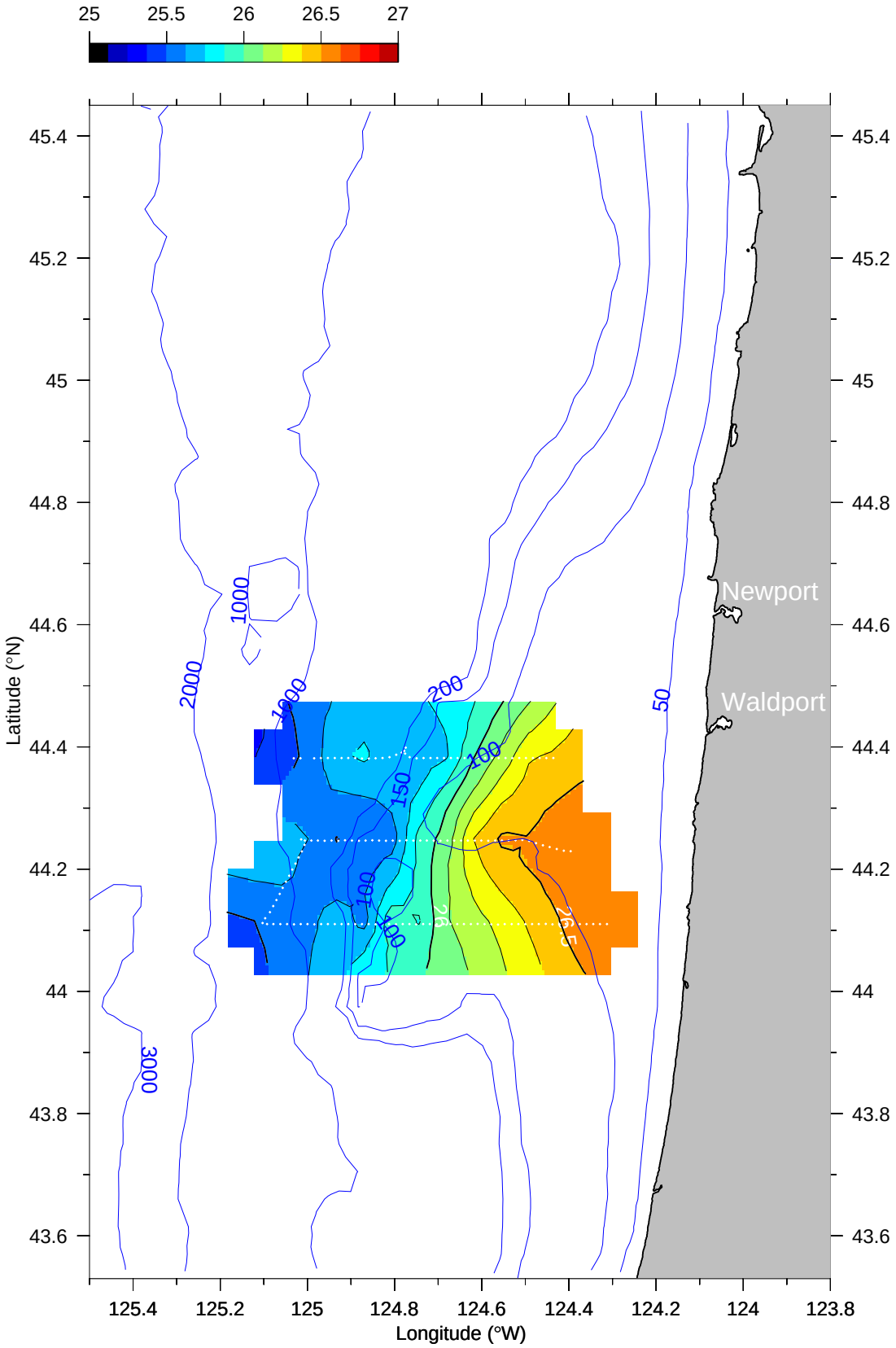
28-May-2001 08:30 - 29-May-2001 04:55

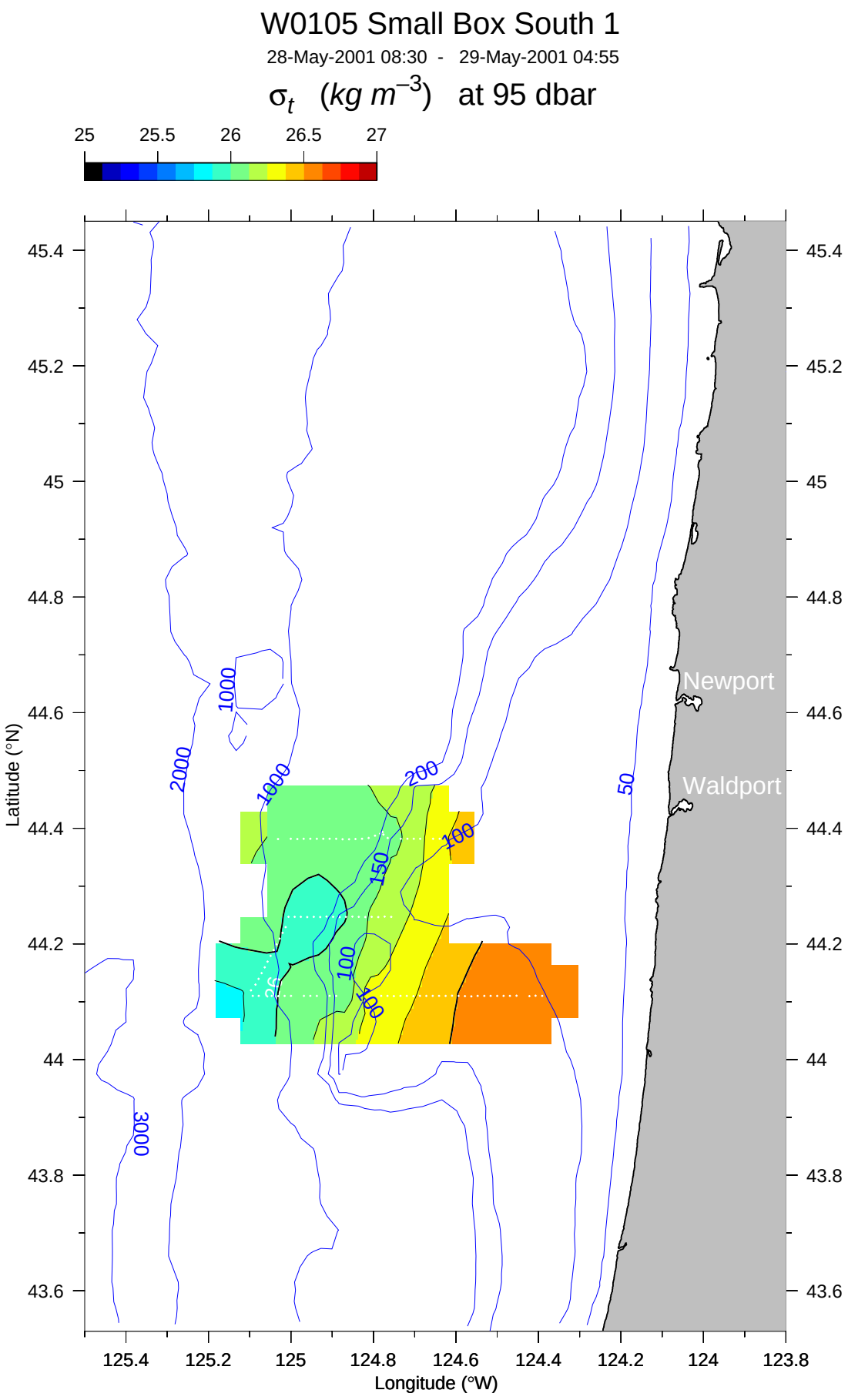
σ_t ($kg\ m^{-3}$) at 35 dbar

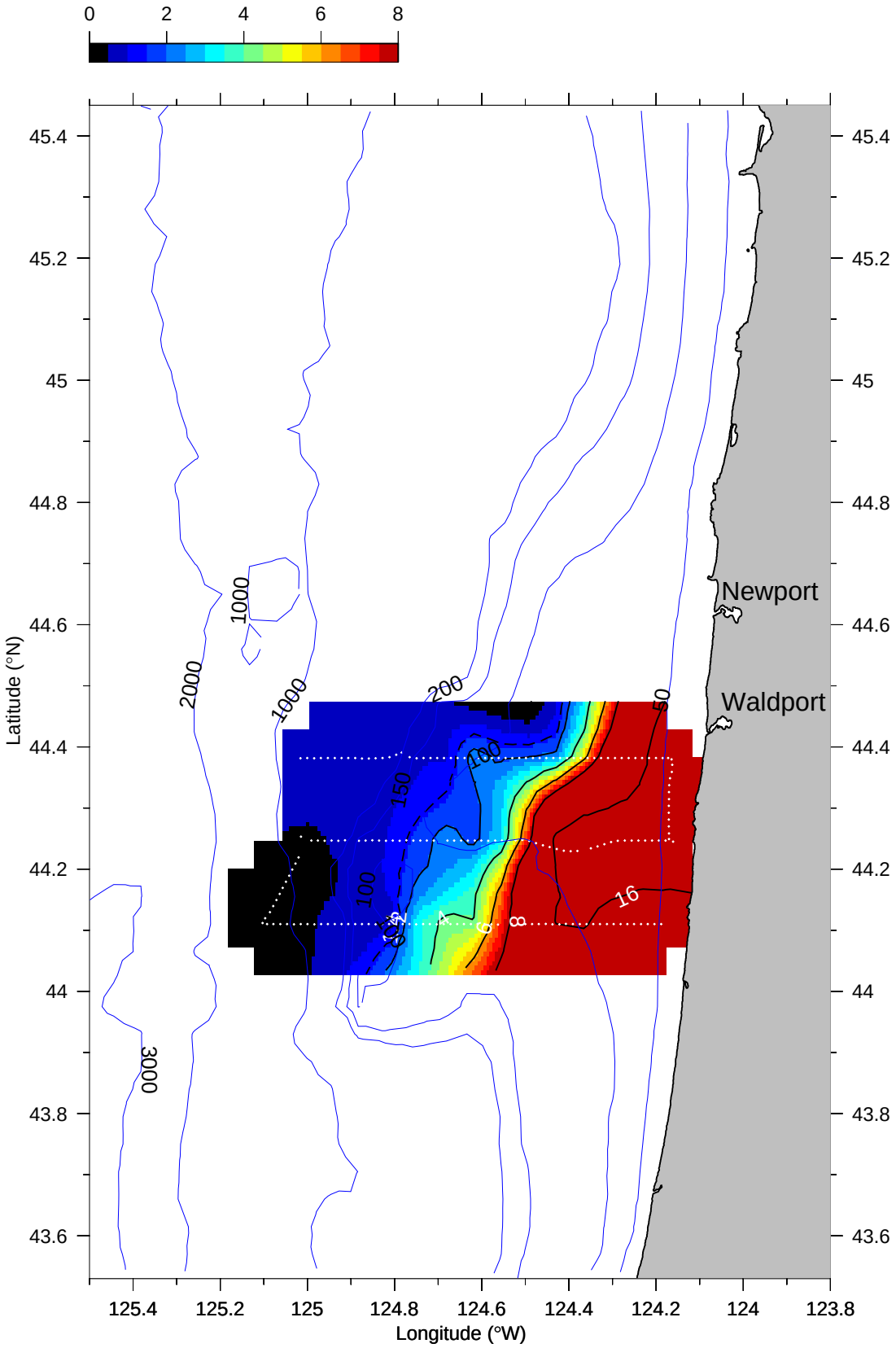



W0105 Small Box South 1
28-May-2001 08:30 - 29-May-2001 04:55
σt (kg m−3) at 45 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
3000
200
100
50


W0105 Small Box South 1
28-May-2001 08:30 - 29-May-2001 04:55
σt (kg m−3) at 55 dbar
25
25.5
26
26.5
27
Newport
Waldport
1000
2000
3000
200
100
50
25.5
26
26.5
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8


W0105 Small Box South 1
28-May-2001 08:30 - 29-May-2001 04:55
σt (kg m−3) at 75 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
3000
200
150
100
50


W0105 Small Box South 1
28-May-2001 08:30 - 29-May-2001 04:55
σt (kg m−3) at 95 dbar
25
25.5
26
26.5
27
Newport
Waldport
1000
2000
1000
200
100
150
100
50
50
3000
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8


W0105 Small Box South 1
28-May-2001 08:30 - 29-May-2001 04:55
Chlorophyll (µg L−1) at 5 dbar
0
2
4
6
8
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
200
50
100
150
16
3000

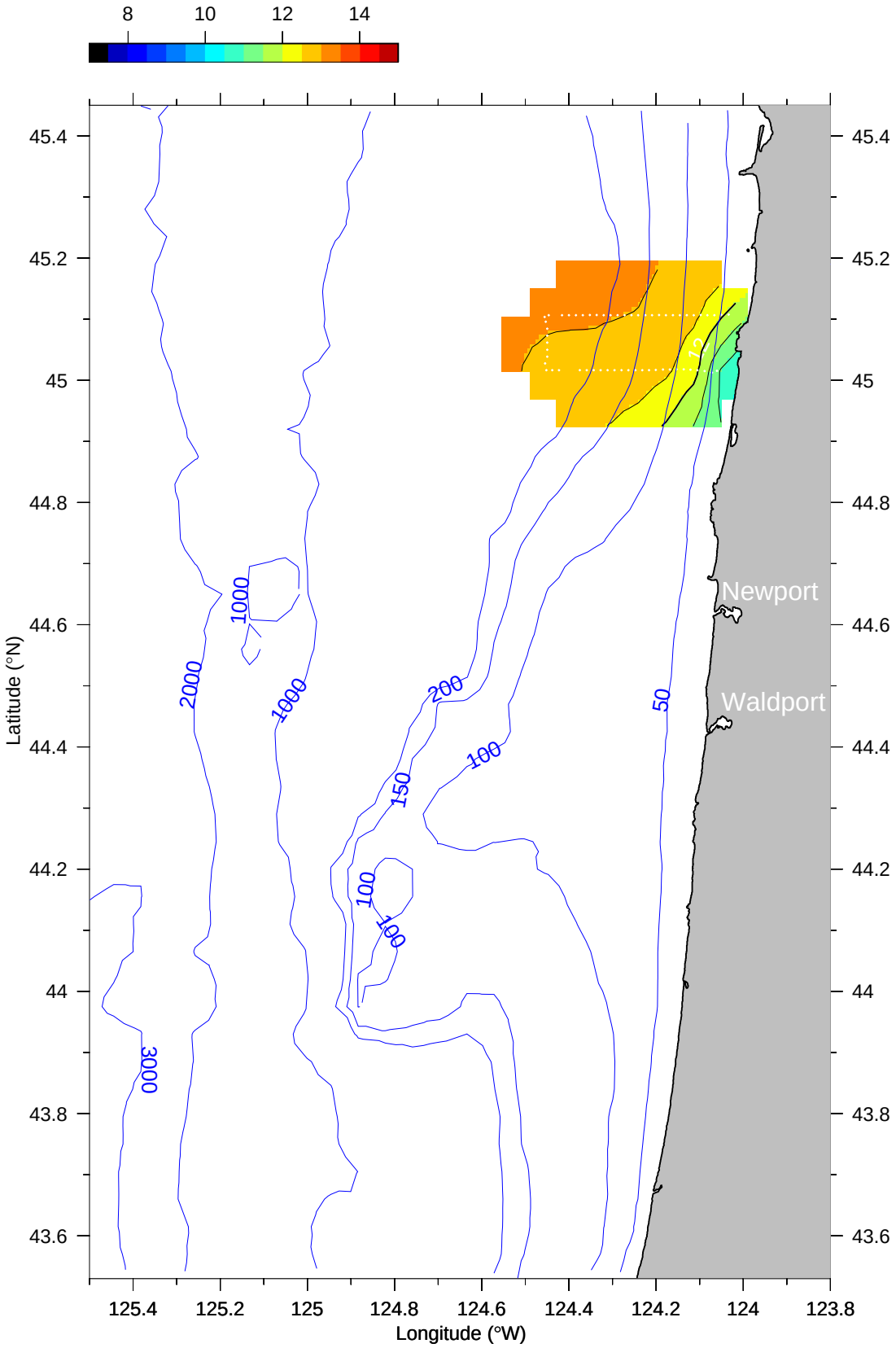
Small Box North 3 Maps

Maps of Temperature, Salinity, σ_t, and Chlorophyll at Specified Depths

W0105 Small Box North 3

29-May-2001 13:13 - 29-May-2001 18:59

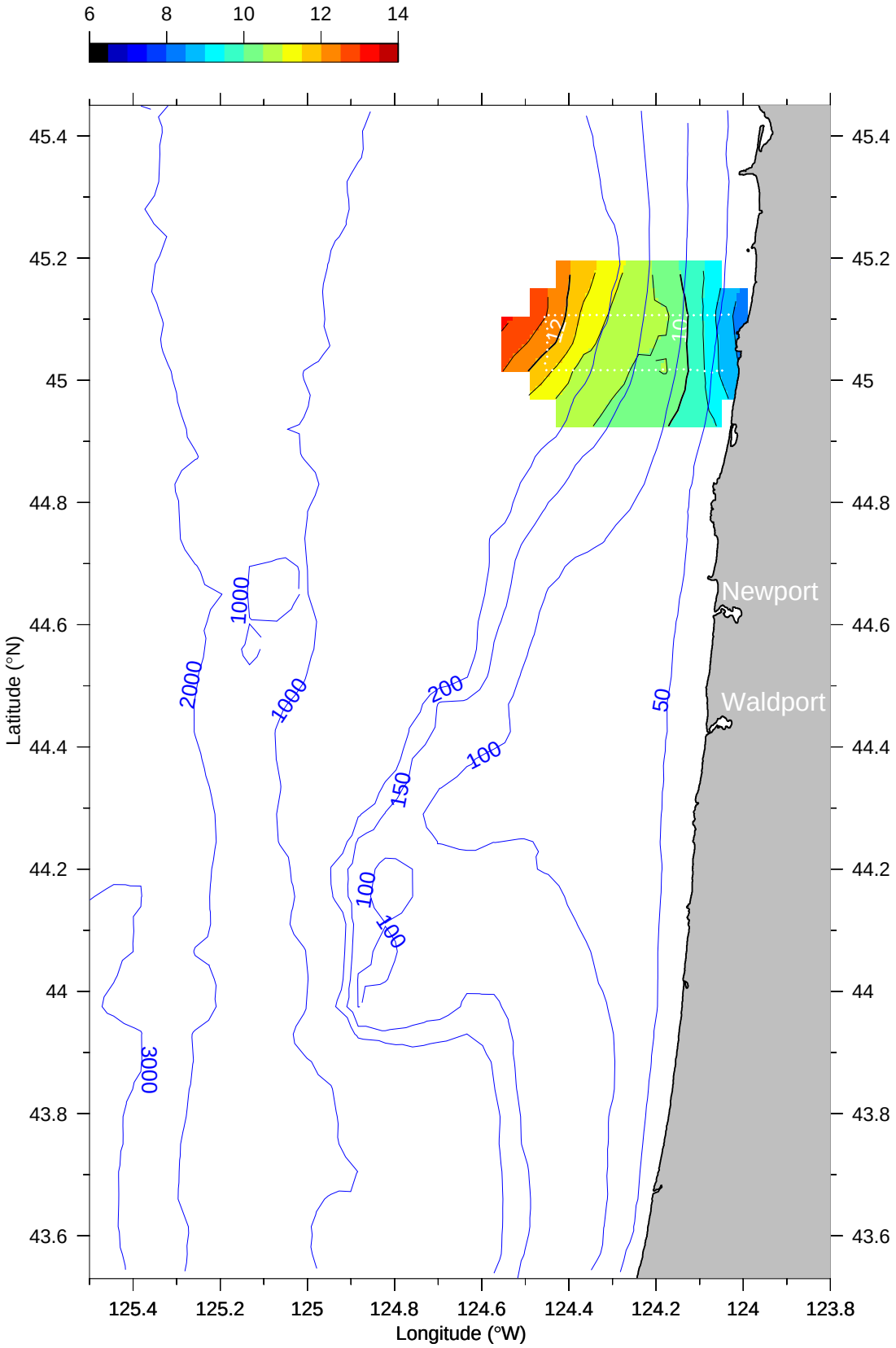
Temperature (°C) at 5 dbar



W0105 Small Box North 3

29-May-2001 13:13 - 29-May-2001 18:59

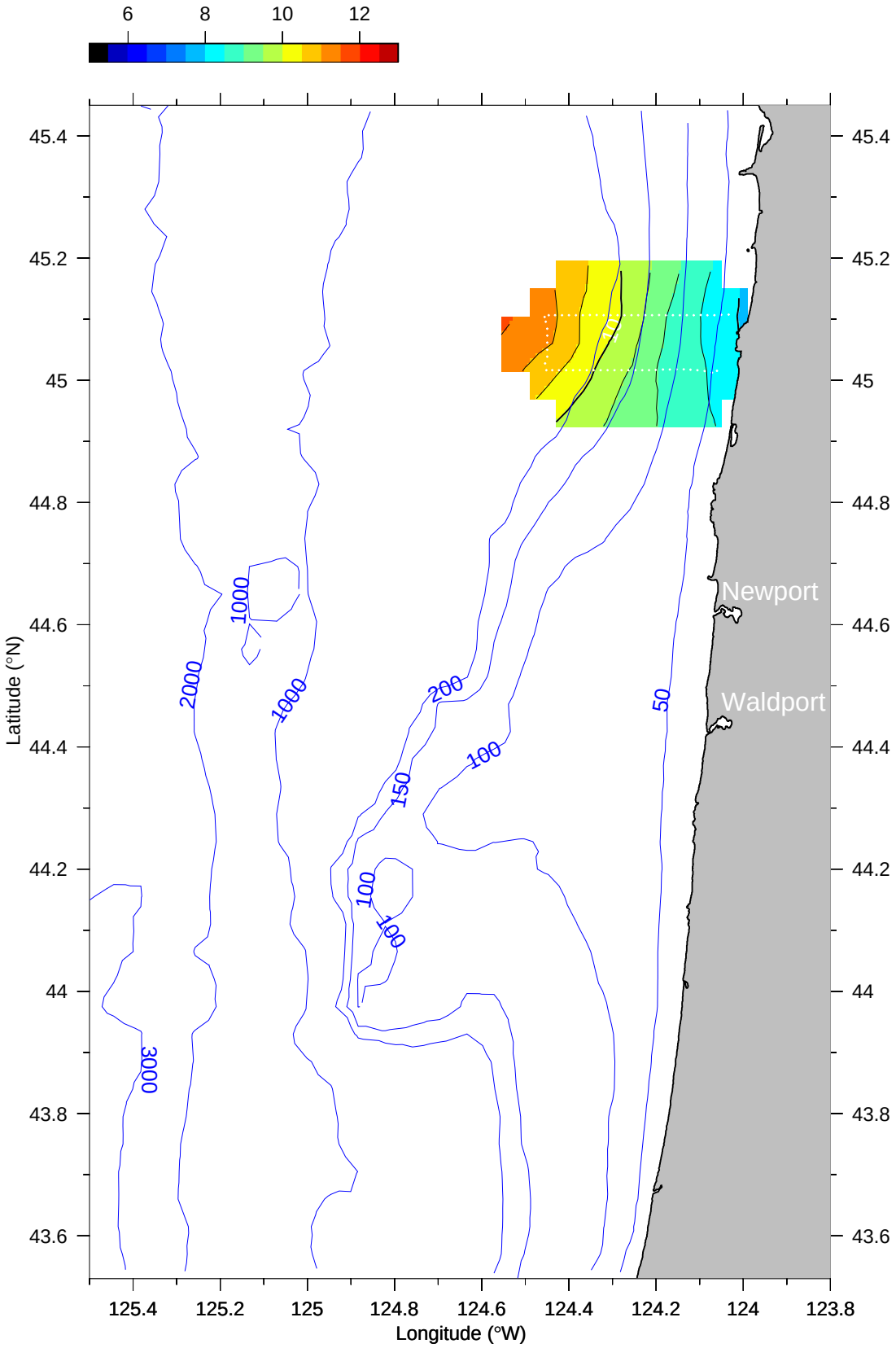
Temperature (°C) at 15 dbar



W0105 Small Box North 3

29-May-2001 13:13 - 29-May-2001 18:59

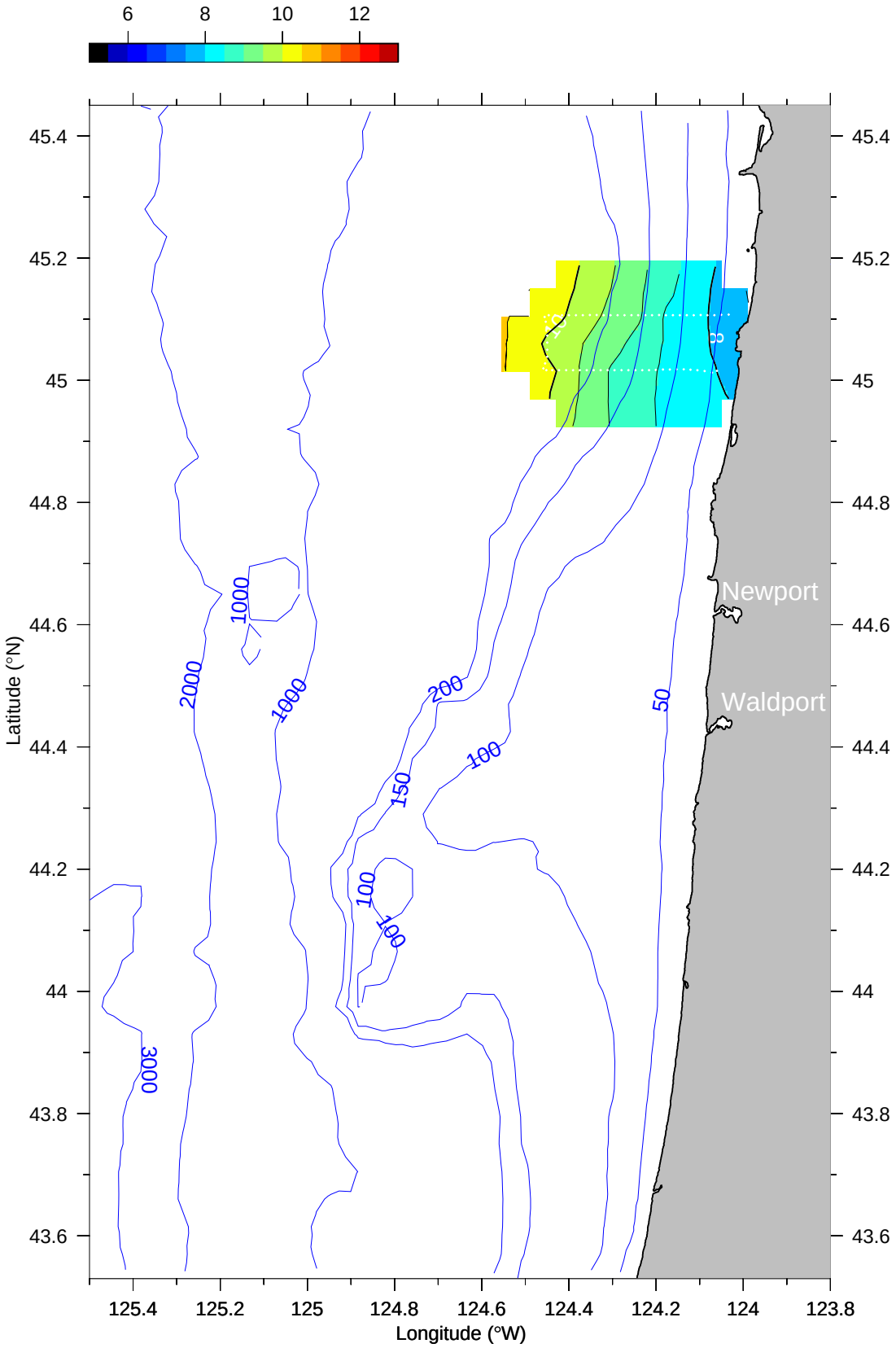
Temperature (°C) at 25 dbar



W0105 Small Box North 3

29-May-2001 13:13 - 29-May-2001 18:59

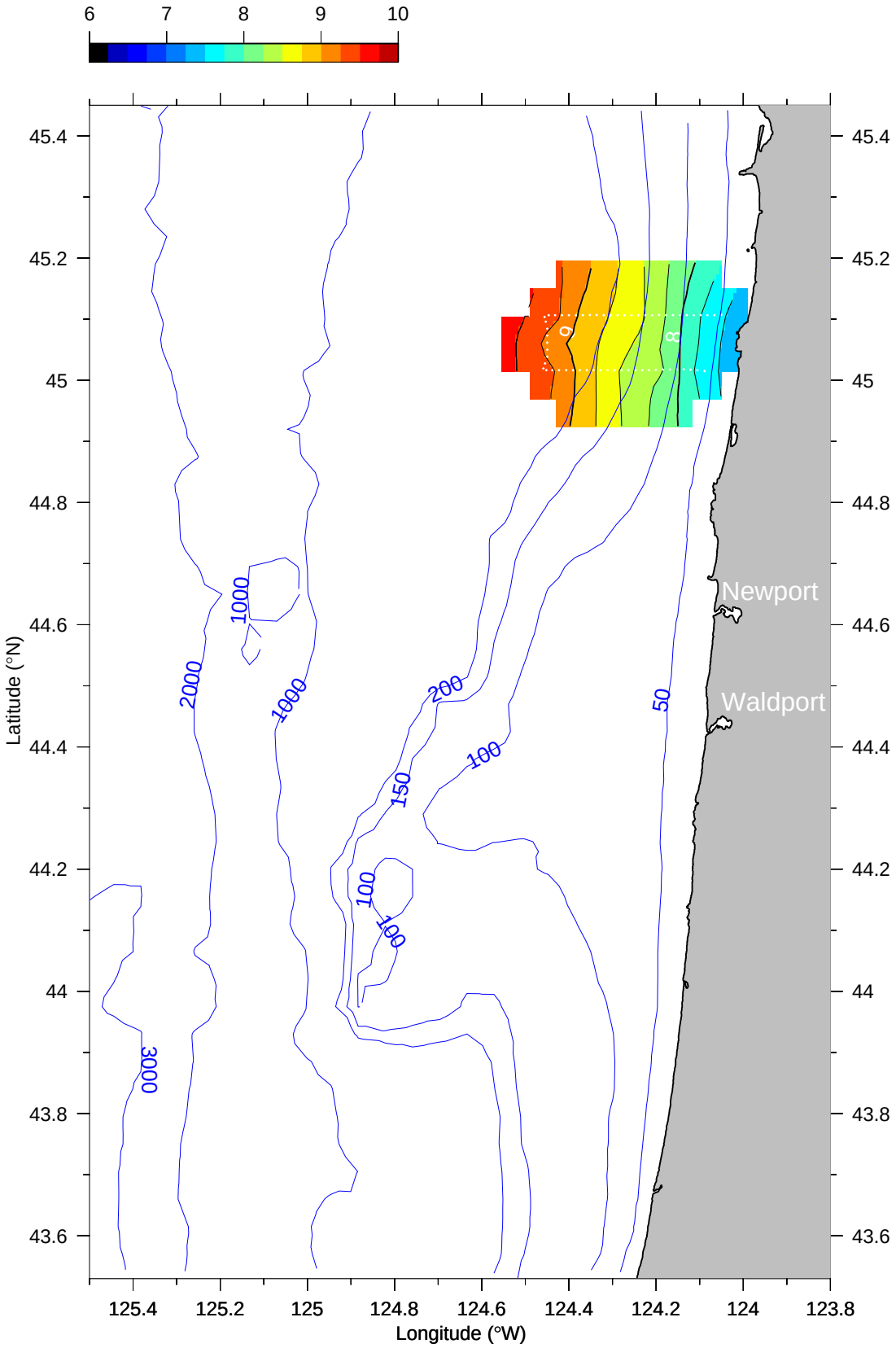
Temperature (°C) at 35 dbar



W0105 Small Box North 3

29-May-2001 13:13 - 29-May-2001 18:59

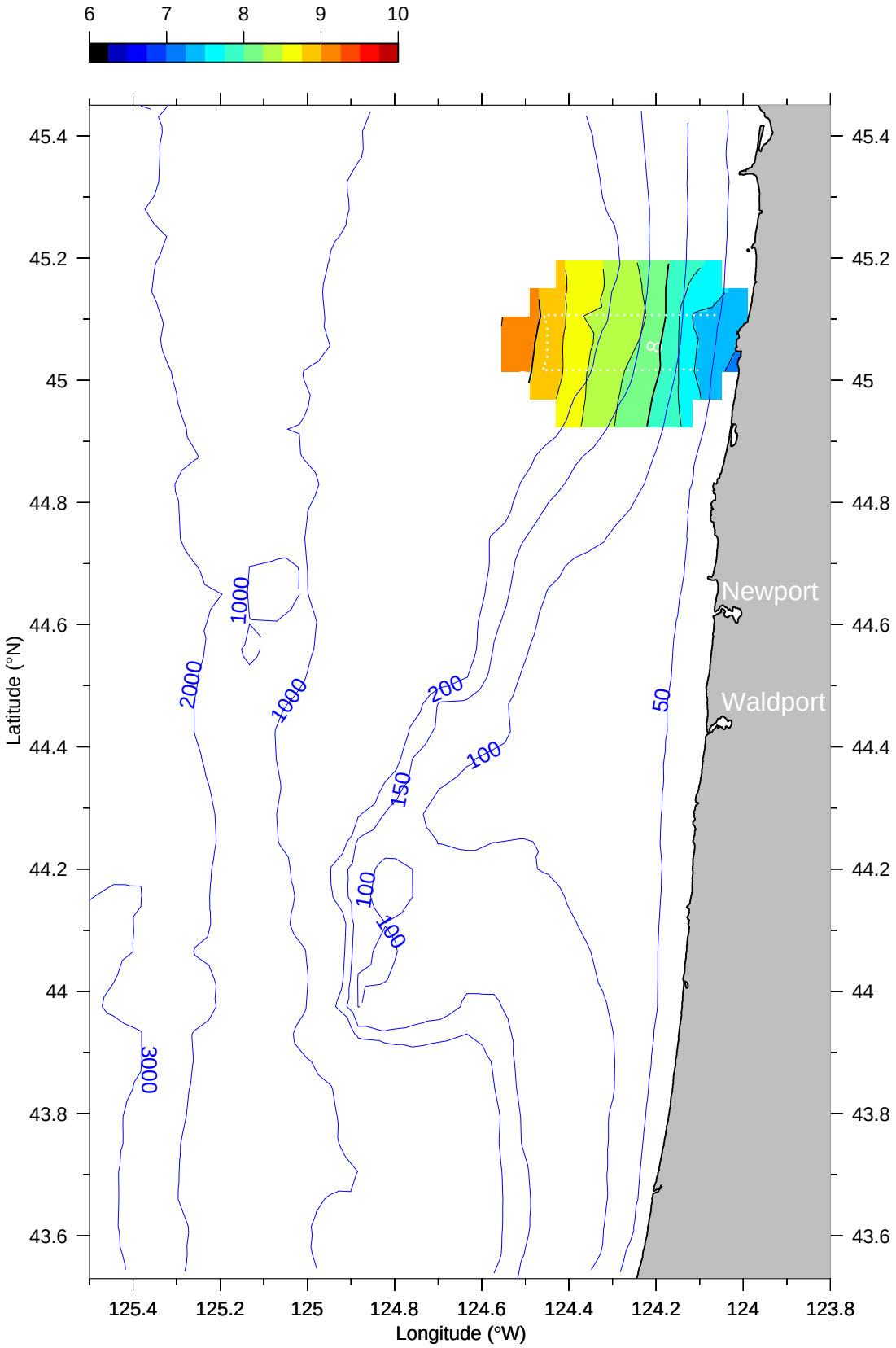
Temperature (°C) at 45 dbar



W0105 Small Box North 3

29-May-2001 13:13 - 29-May-2001 18:59

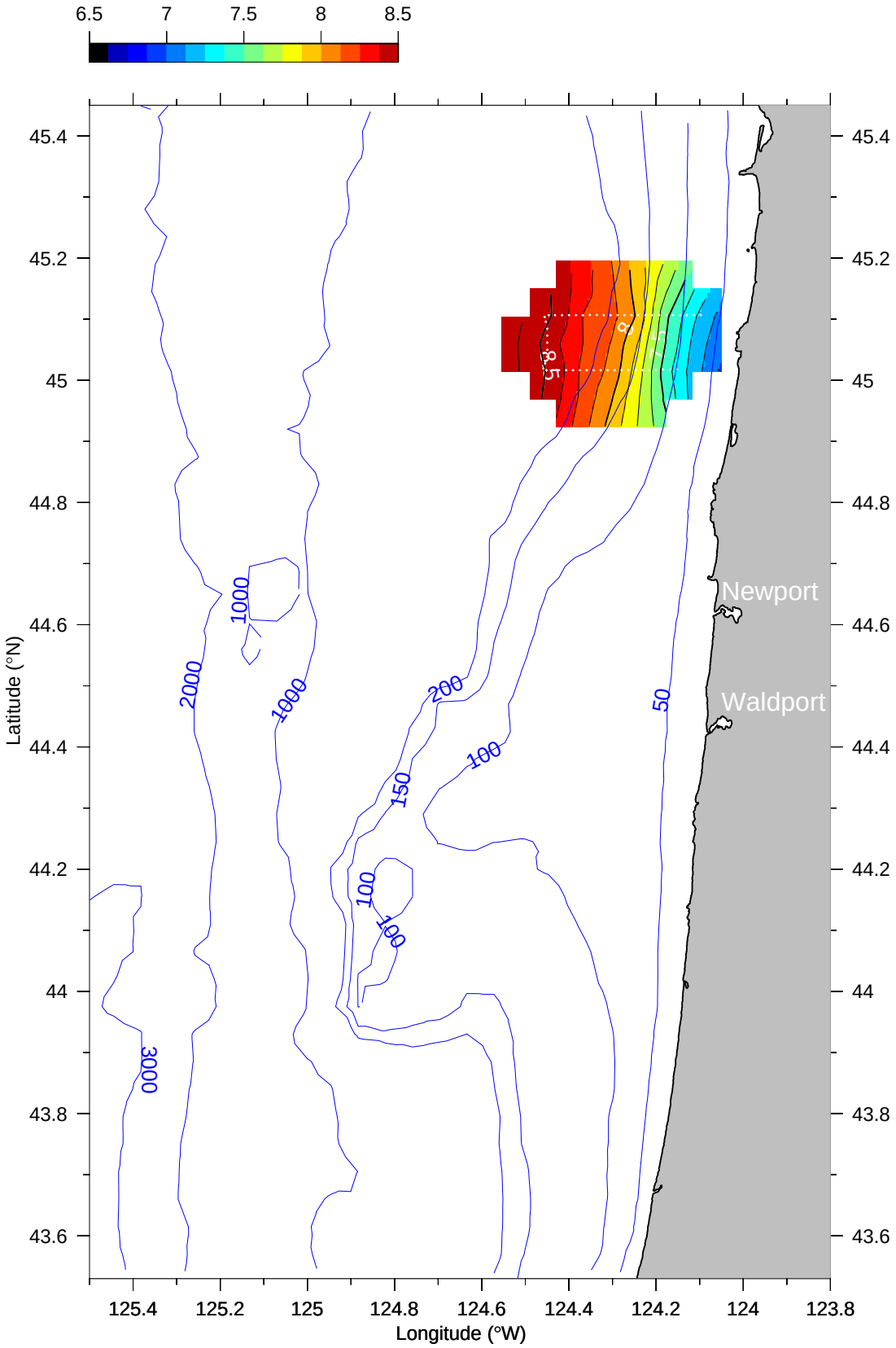
Temperature (°C) at 55 dbar



W0105 Small Box North 3

29-May-2001 13:13 - 29-May-2001 18:59

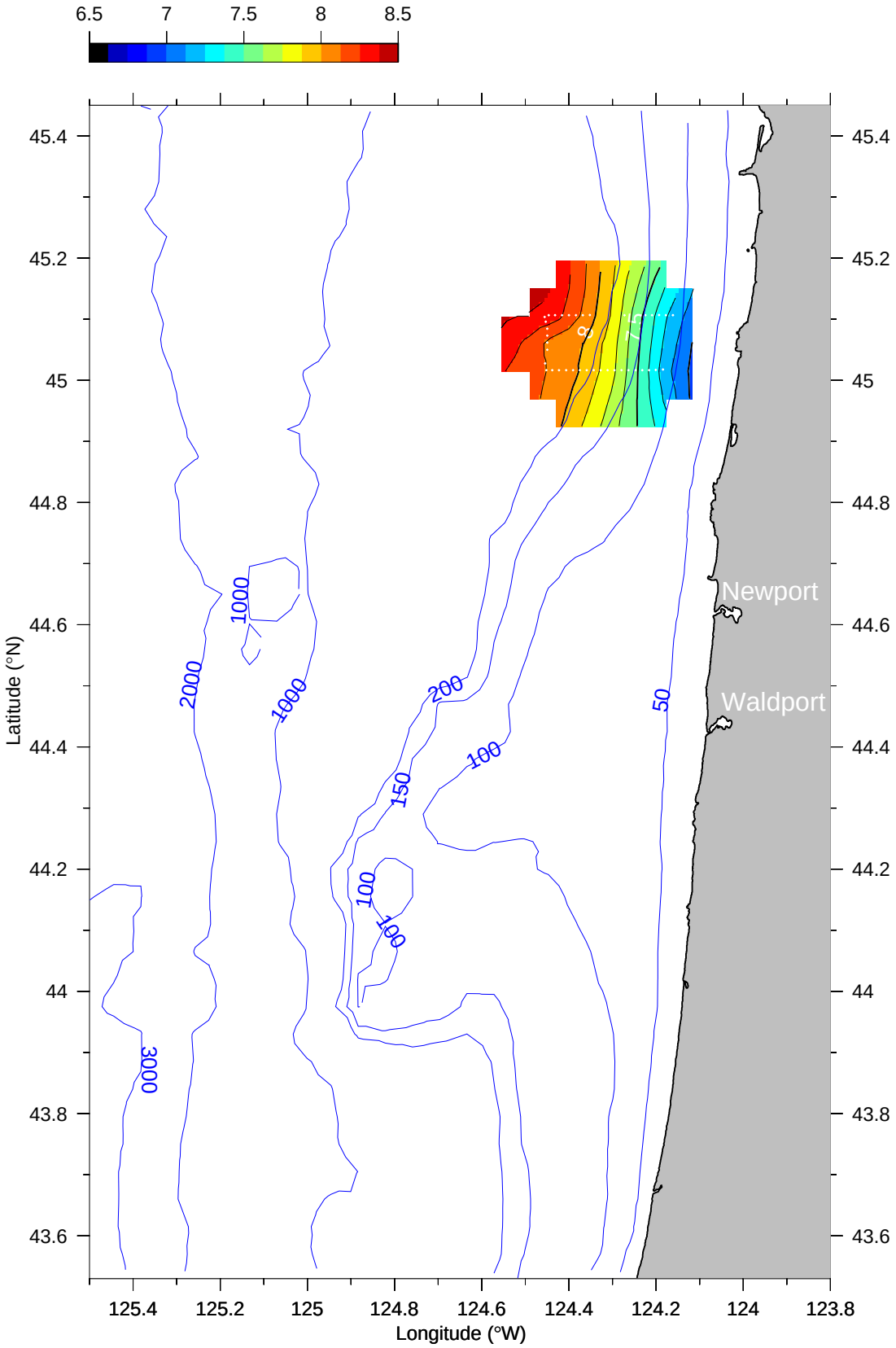
Temperature (°C) at 75 dbar

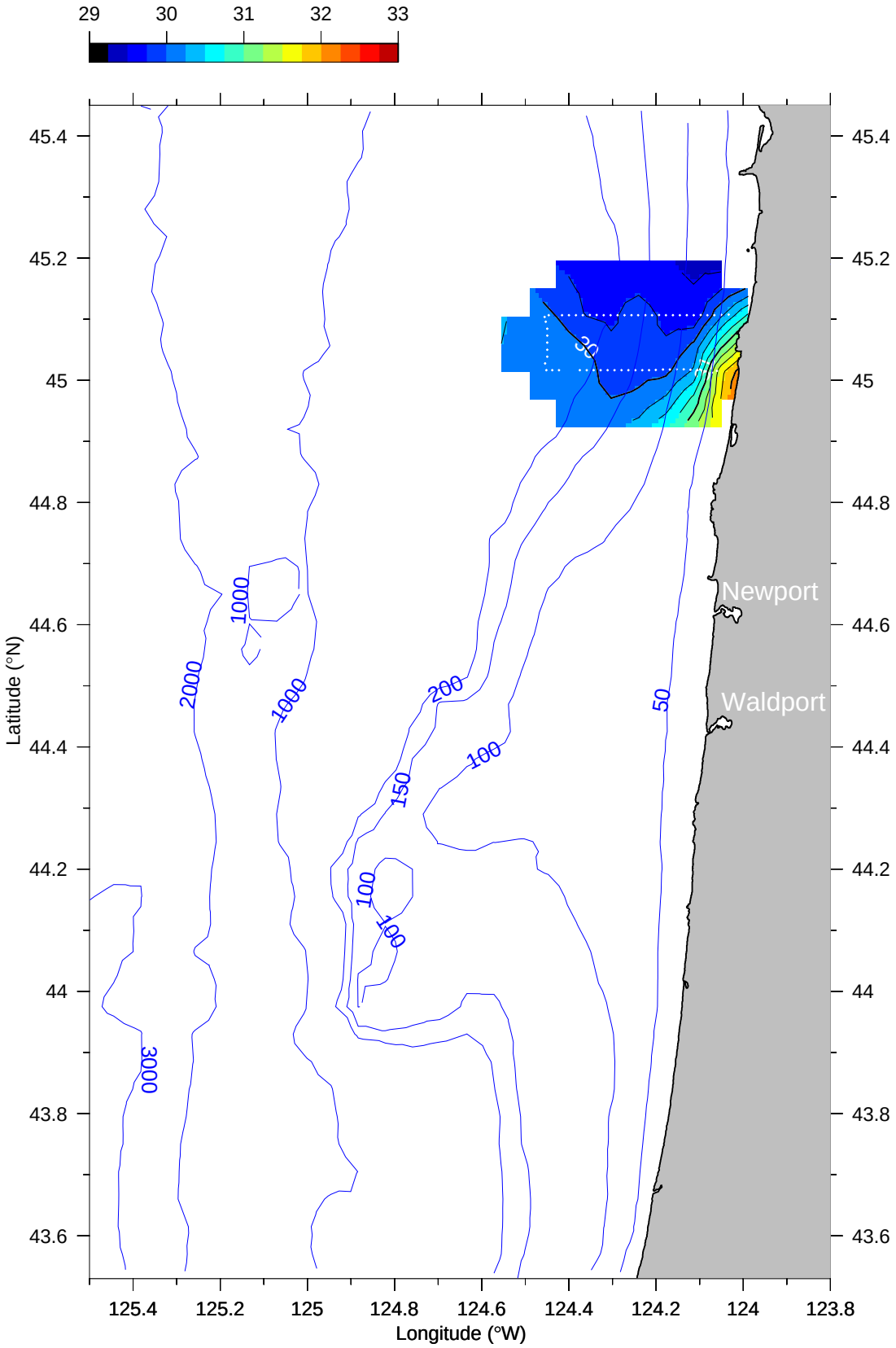


W0105 Small Box North 3

29-May-2001 13:13 - 29-May-2001 18:59

Temperature (°C) at 95 dbar

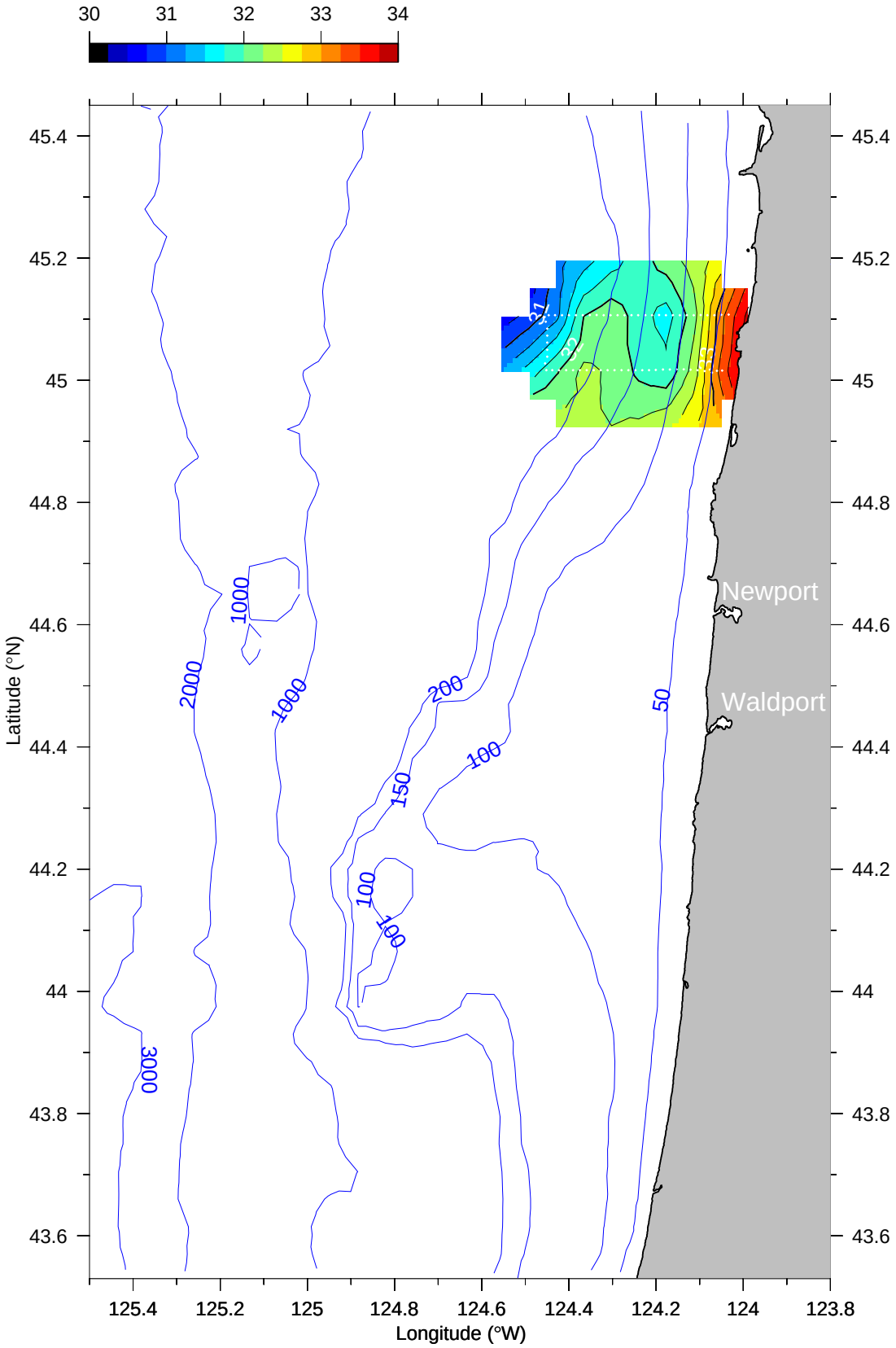



W0105 Small Box North 3
29-May-2001 13:13 - 29-May-2001 18:59
Salinity (PSS) at 5 dbar
29
30
31
32
33
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50

W0105 Small Box North 3

29-May-2001 13:13 - 29-May-2001 18:59

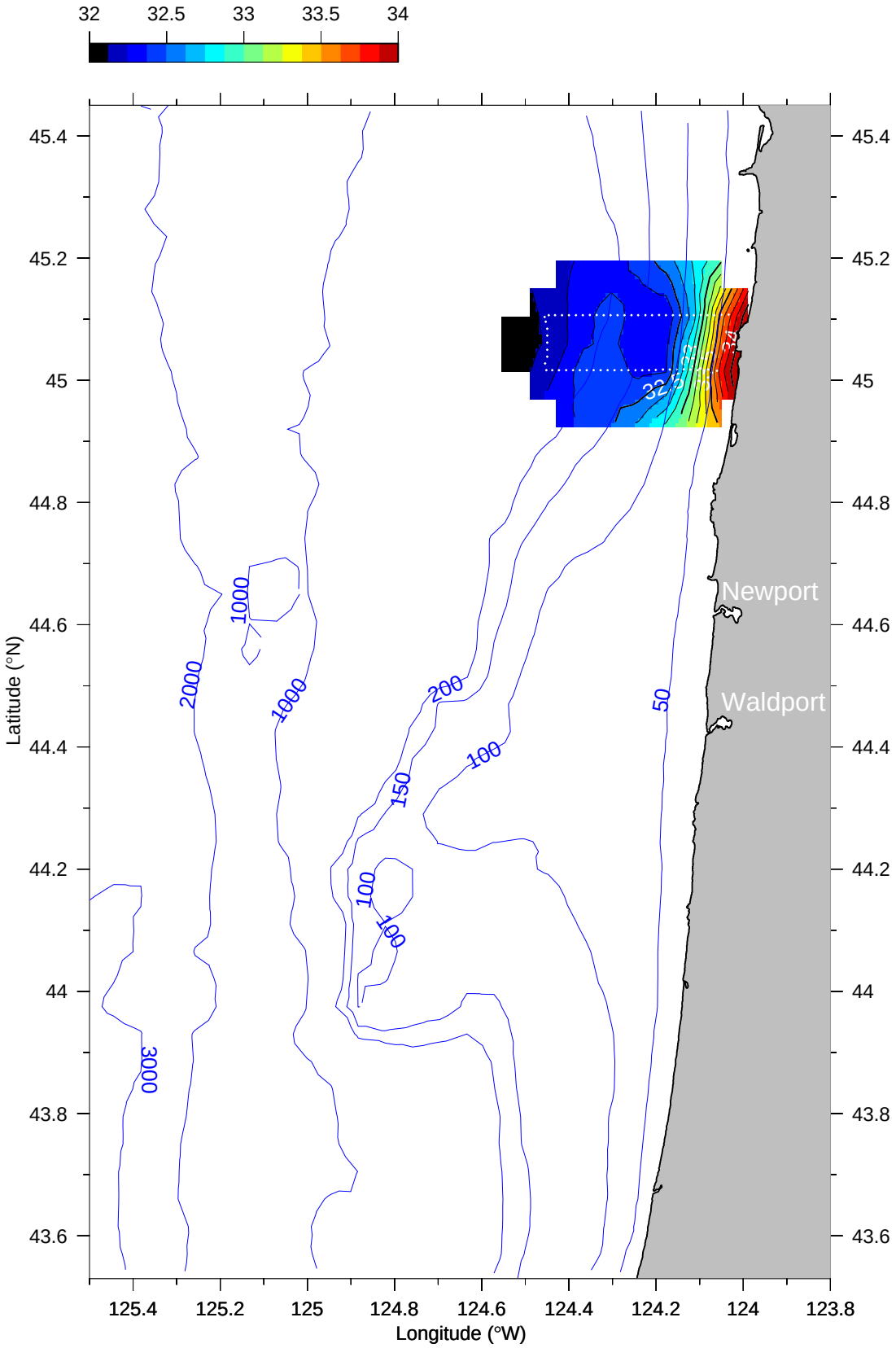
Salinity (PSS) at 15 dbar



W0105 Small Box North 3

29-May-2001 13:13 - 29-May-2001 18:59

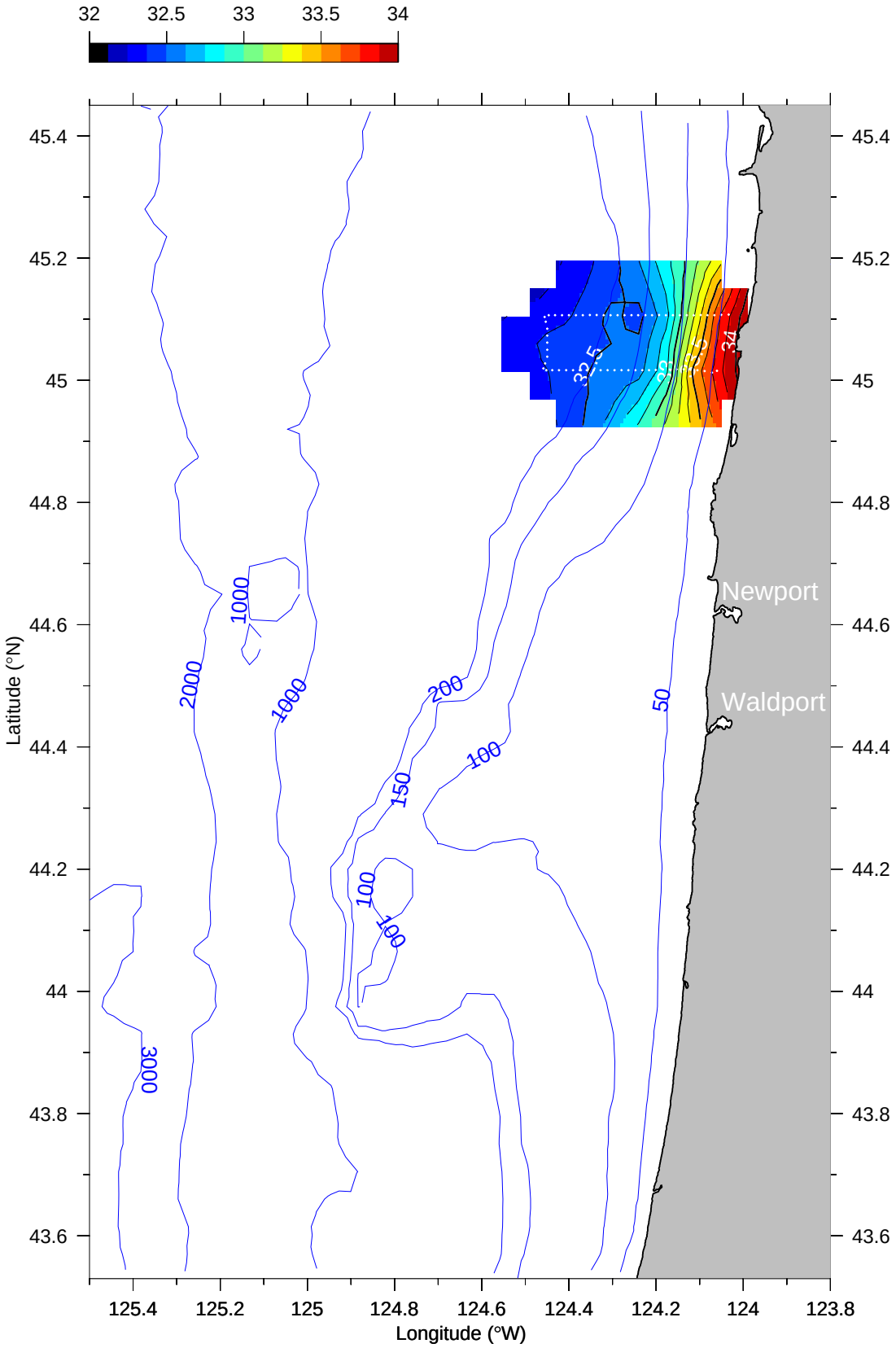
Salinity (PSS) at 25 dbar



W0105 Small Box North 3

29-May-2001 13:13 - 29-May-2001 18:59

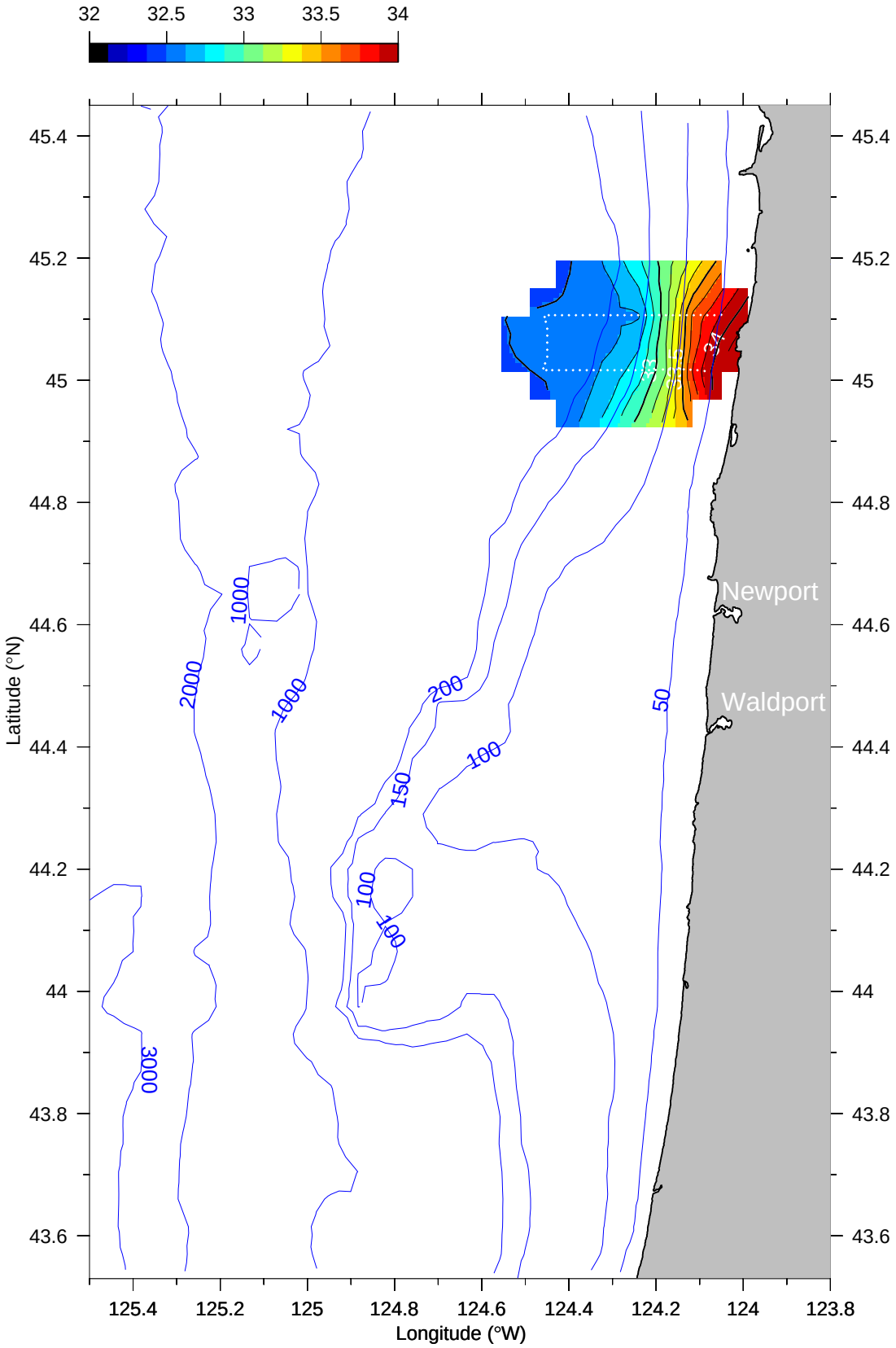
Salinity (PSS) at 35 dbar



W0105 Small Box North 3

29-May-2001 13:13 - 29-May-2001 18:59

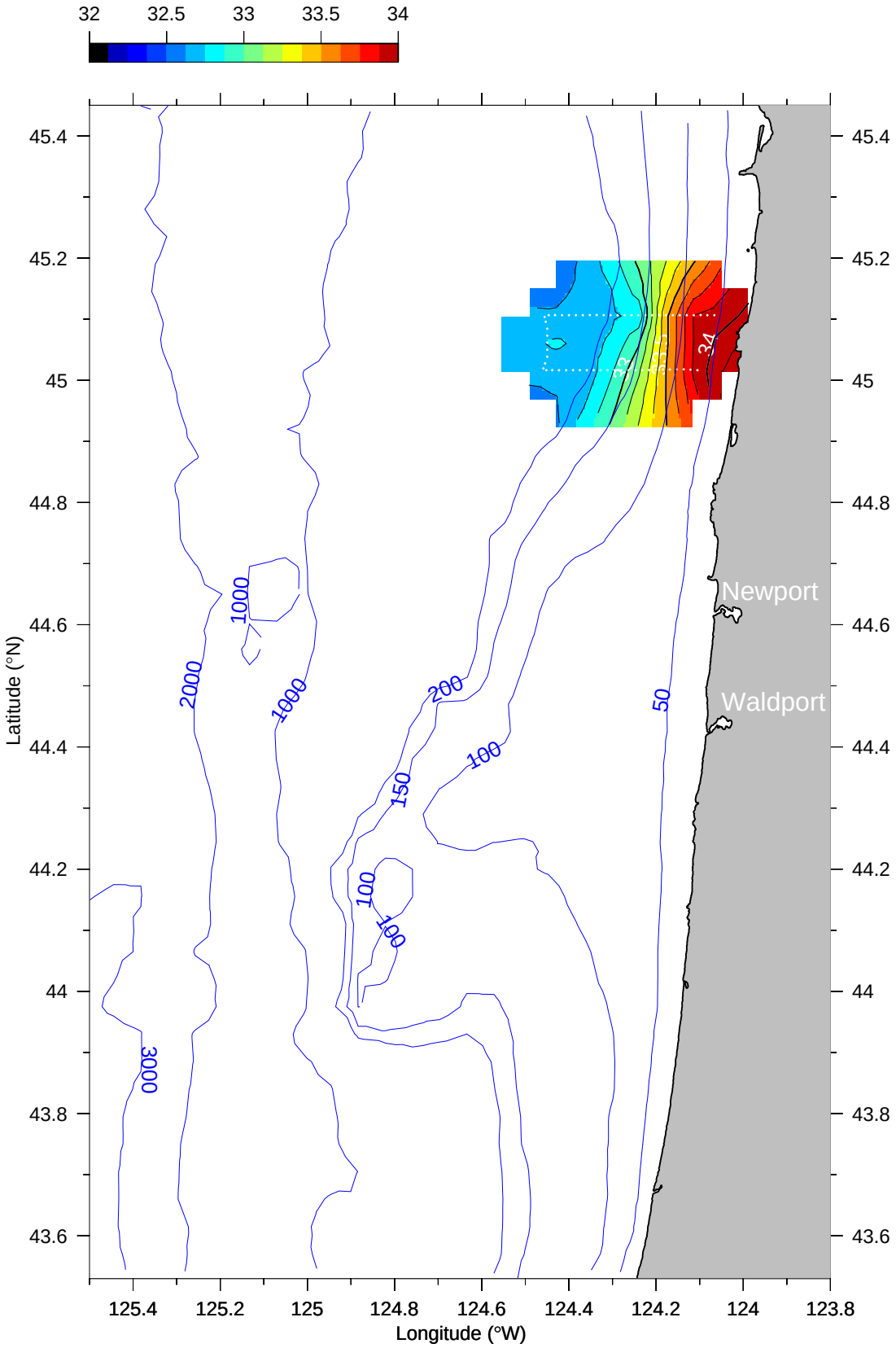
Salinity (PSS) at 45 dbar



W0105 Small Box North 3

29-May-2001 13:13 - 29-May-2001 18:59

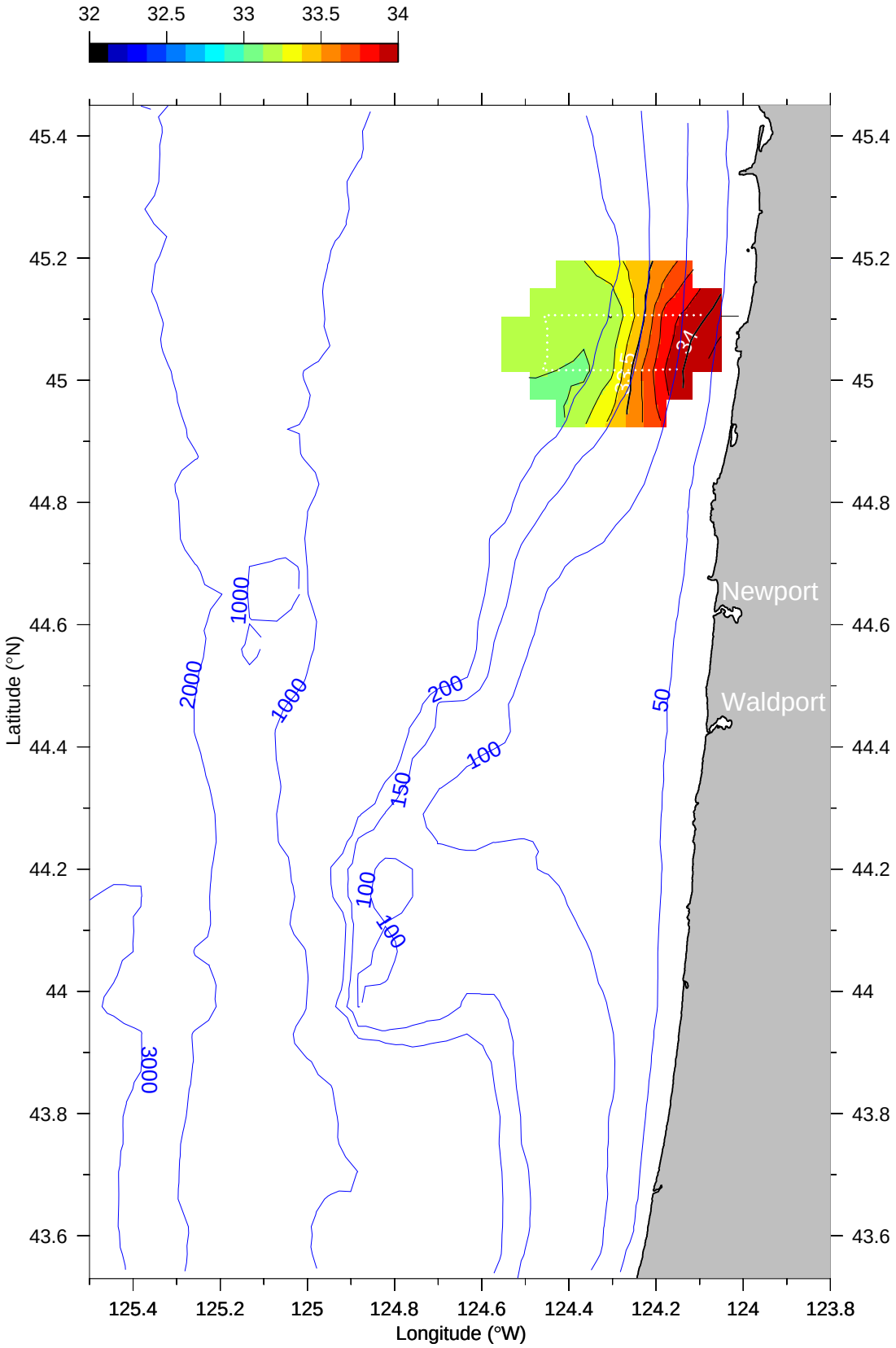
Salinity (PSS) at 55 dbar



W0105 Small Box North 3

29-May-2001 13:13 - 29-May-2001 18:59

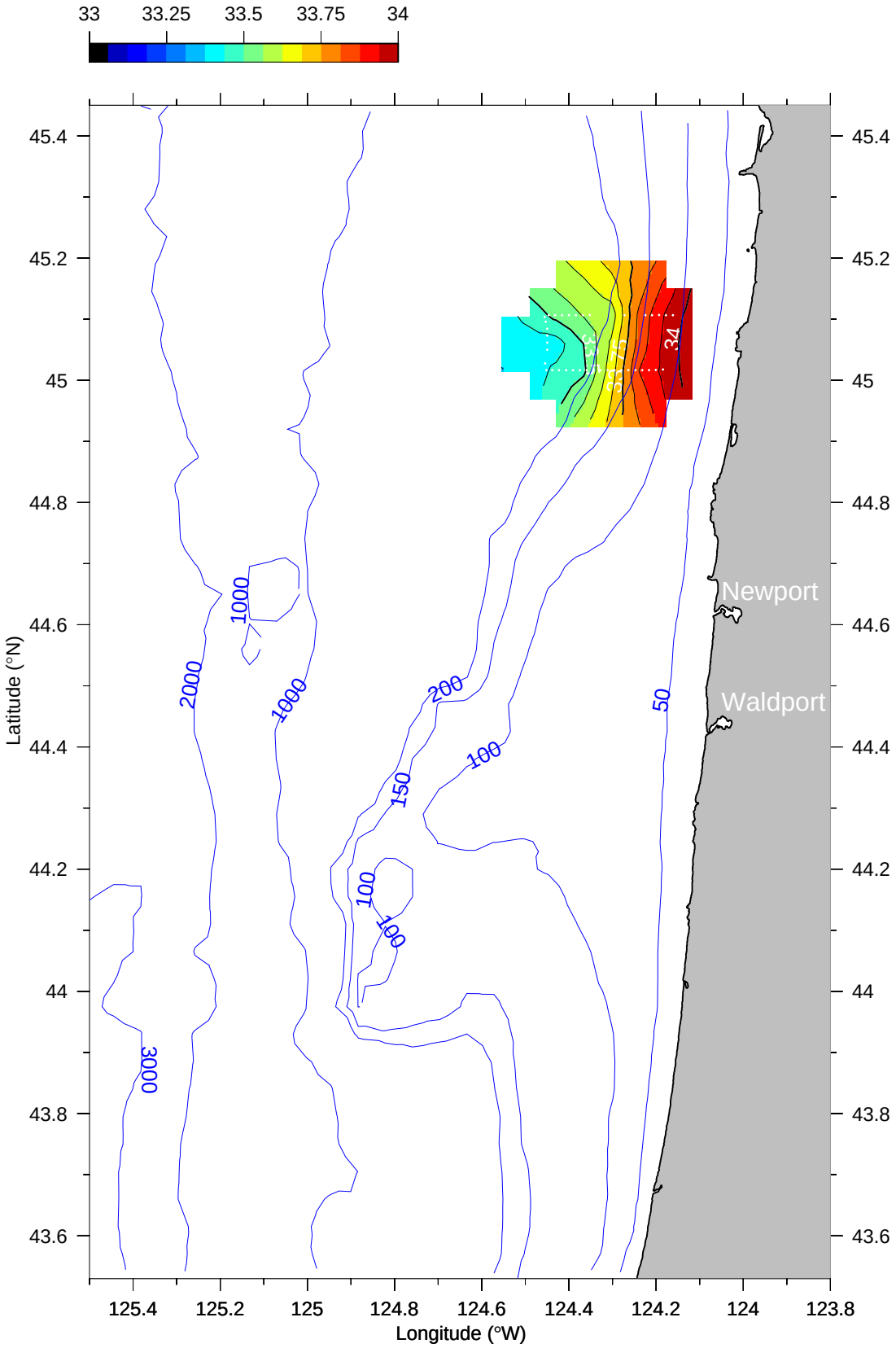
Salinity (PSS) at 75 dbar

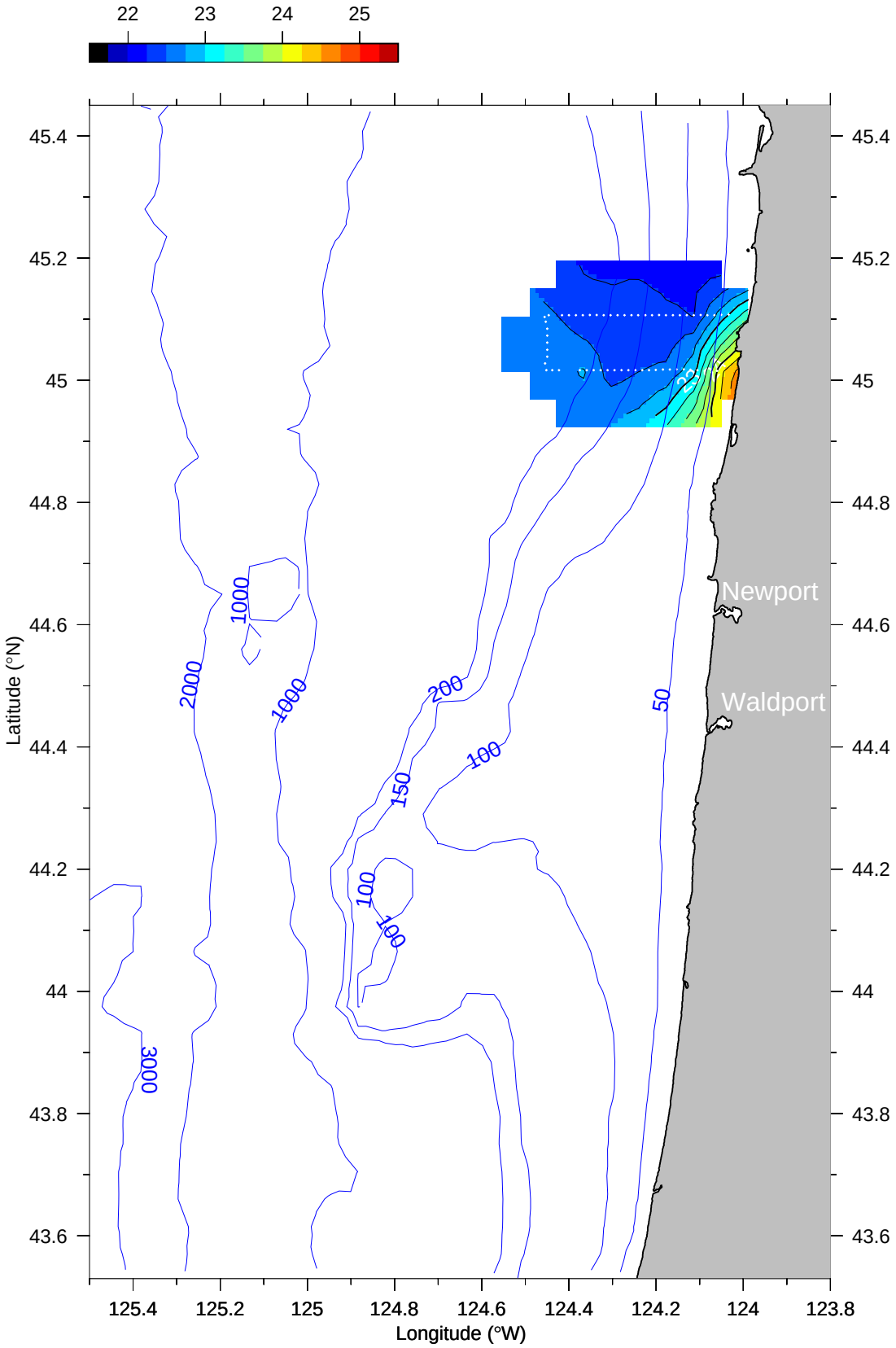


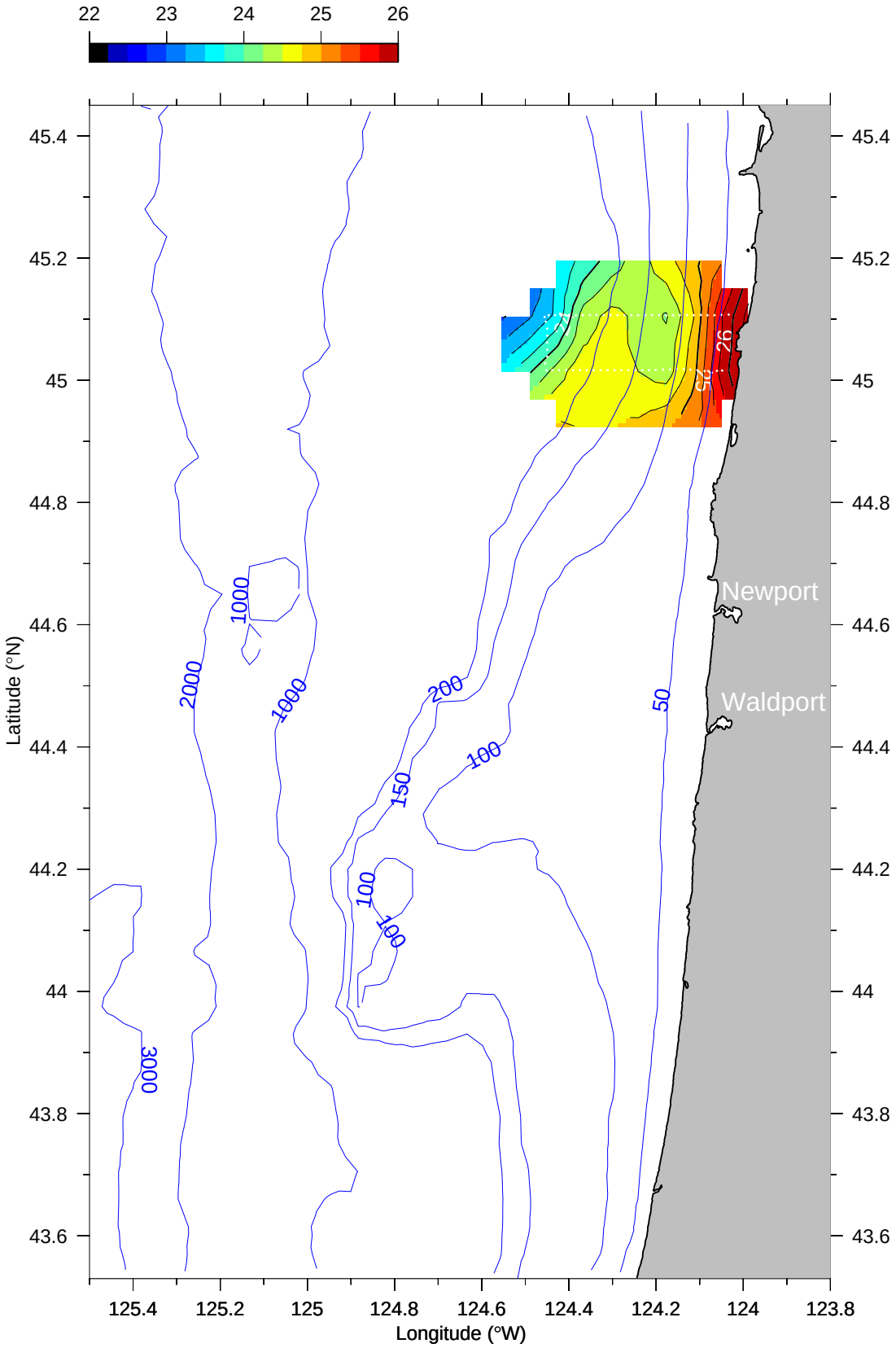
W0105 Small Box North 3

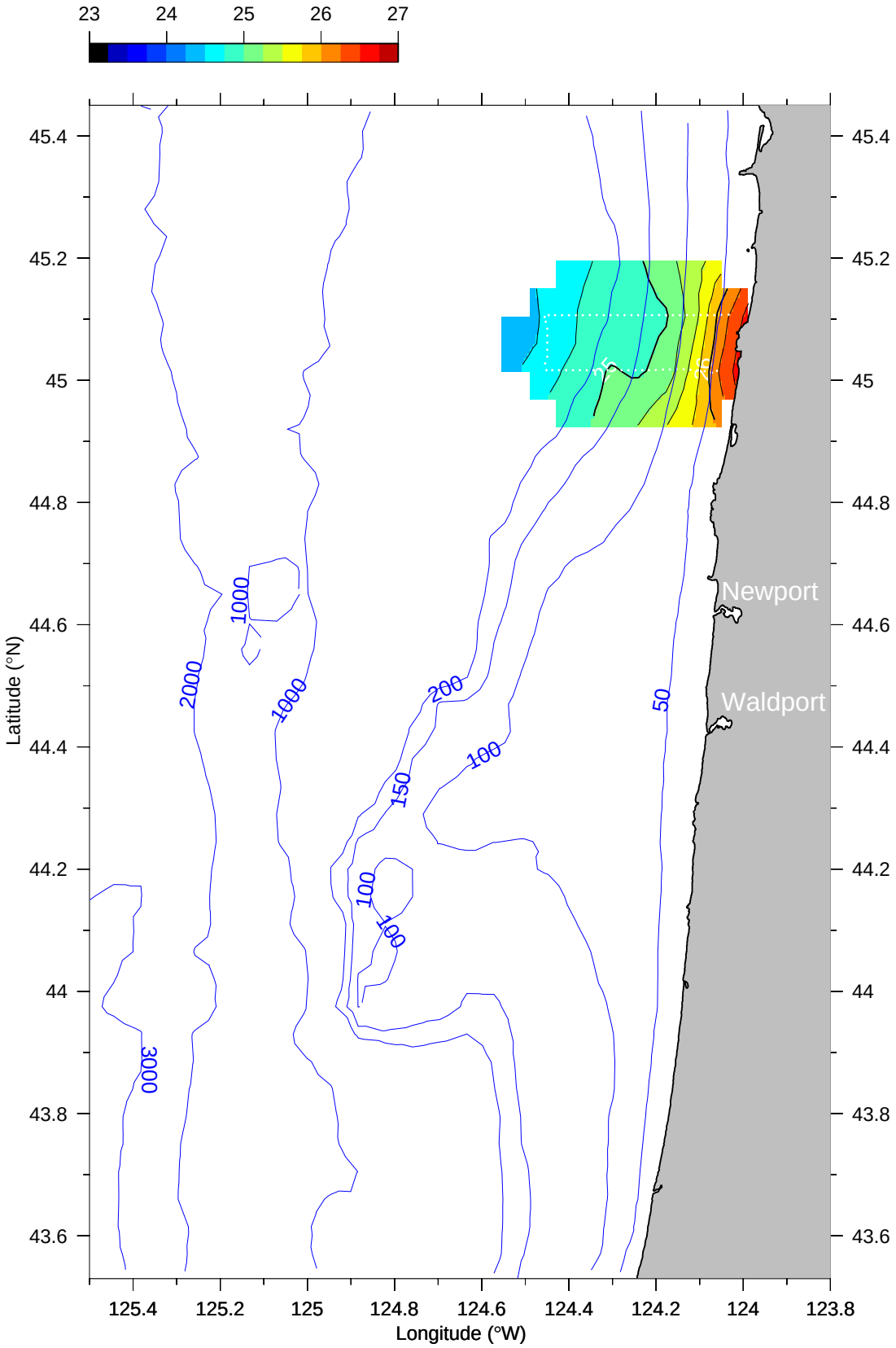
29-May-2001 13:13 - 29-May-2001 18:59

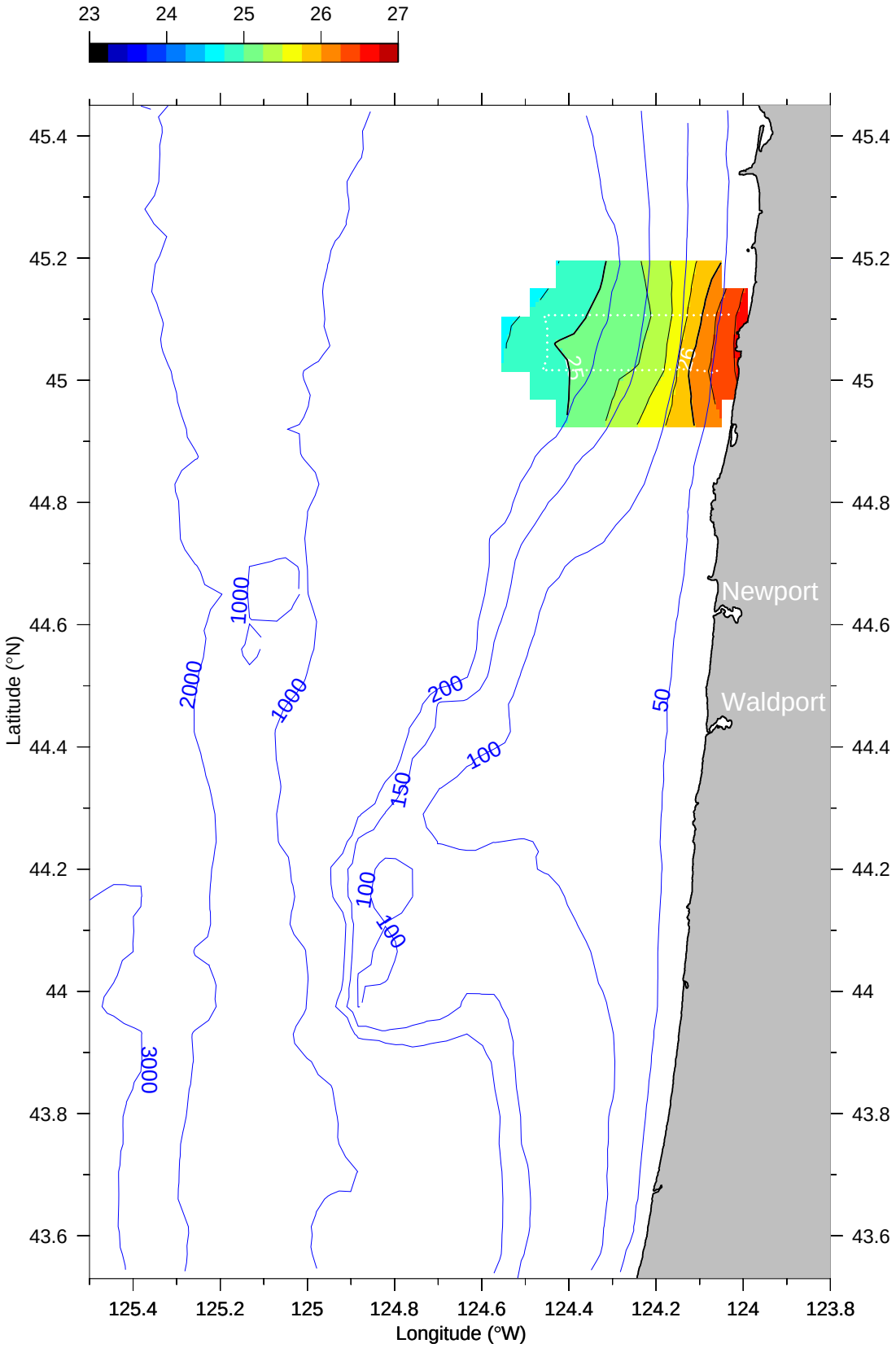
Salinity (PSS) at 95 dbar

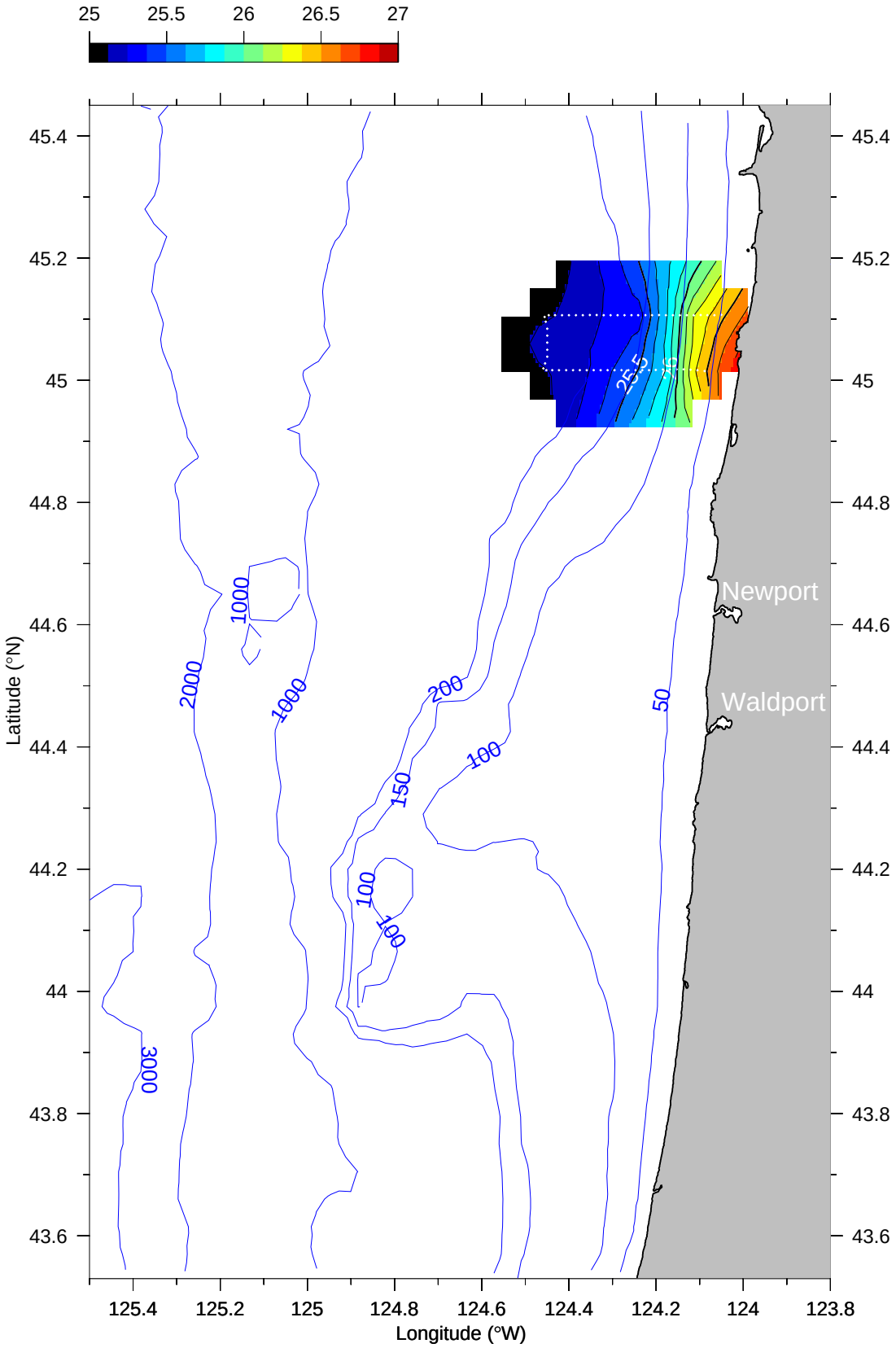


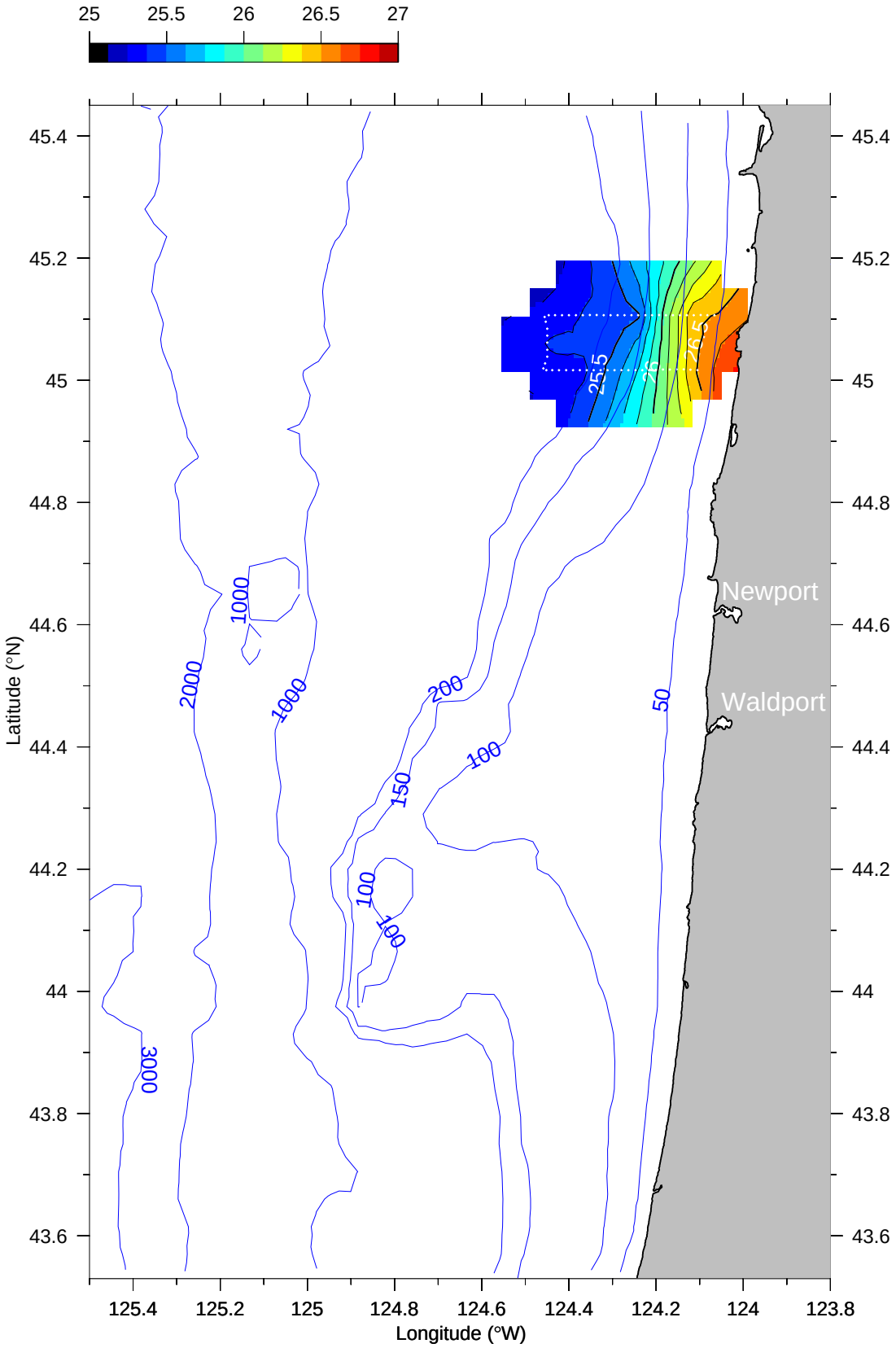

W0105 Small Box North 3
29-May-2001 13:13 - 29-May-2001 18:59
σt (kg m−3) at 5 dbar
22
23
24
25
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50

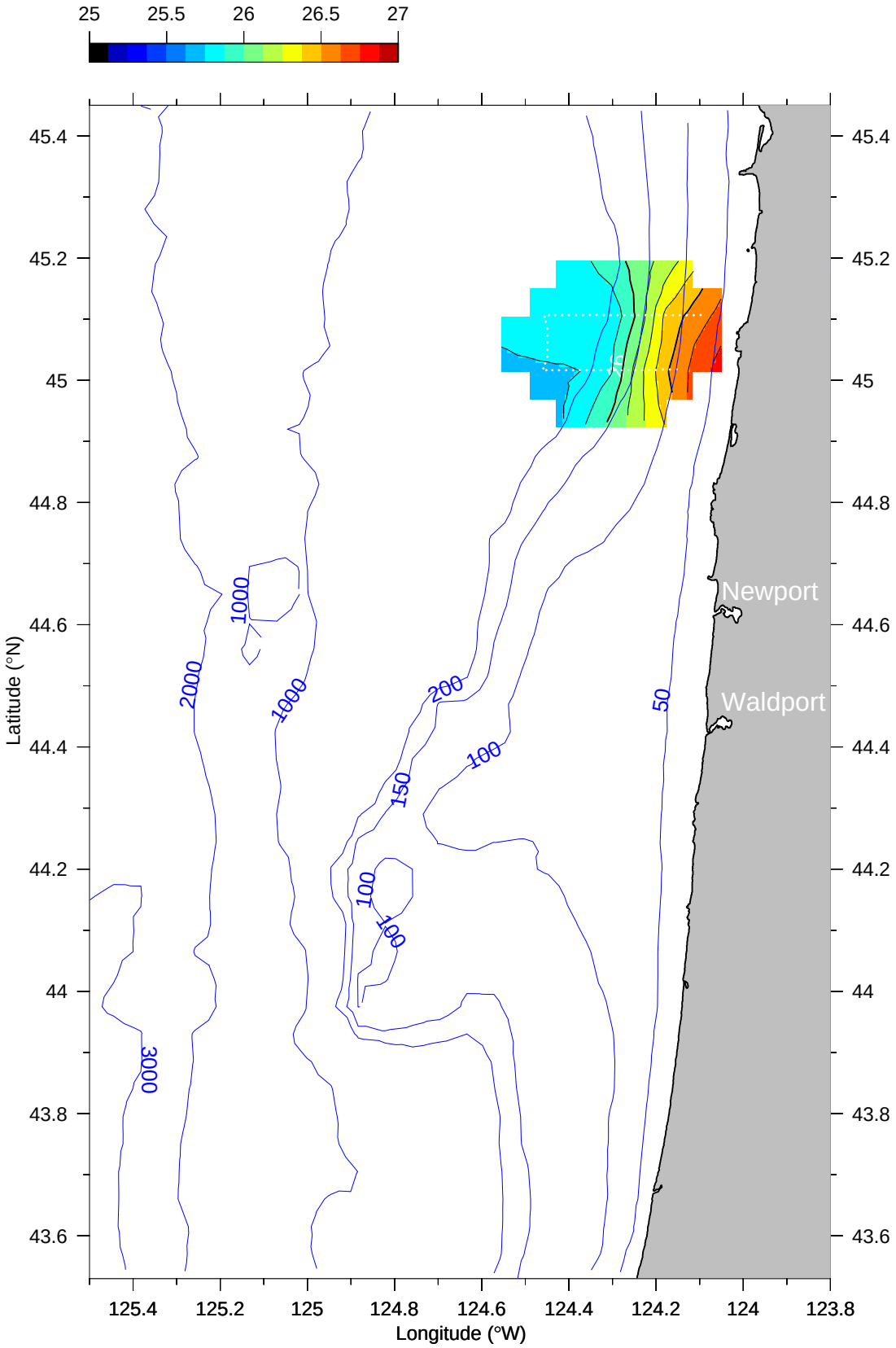

W0105 Small Box North 3
29-May-2001 13:13 - 29-May-2001 18:59
σt (kg m−3) at 15 dbar
22
23
24
25
26
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
1000
200
100
150
100
100
50
3000

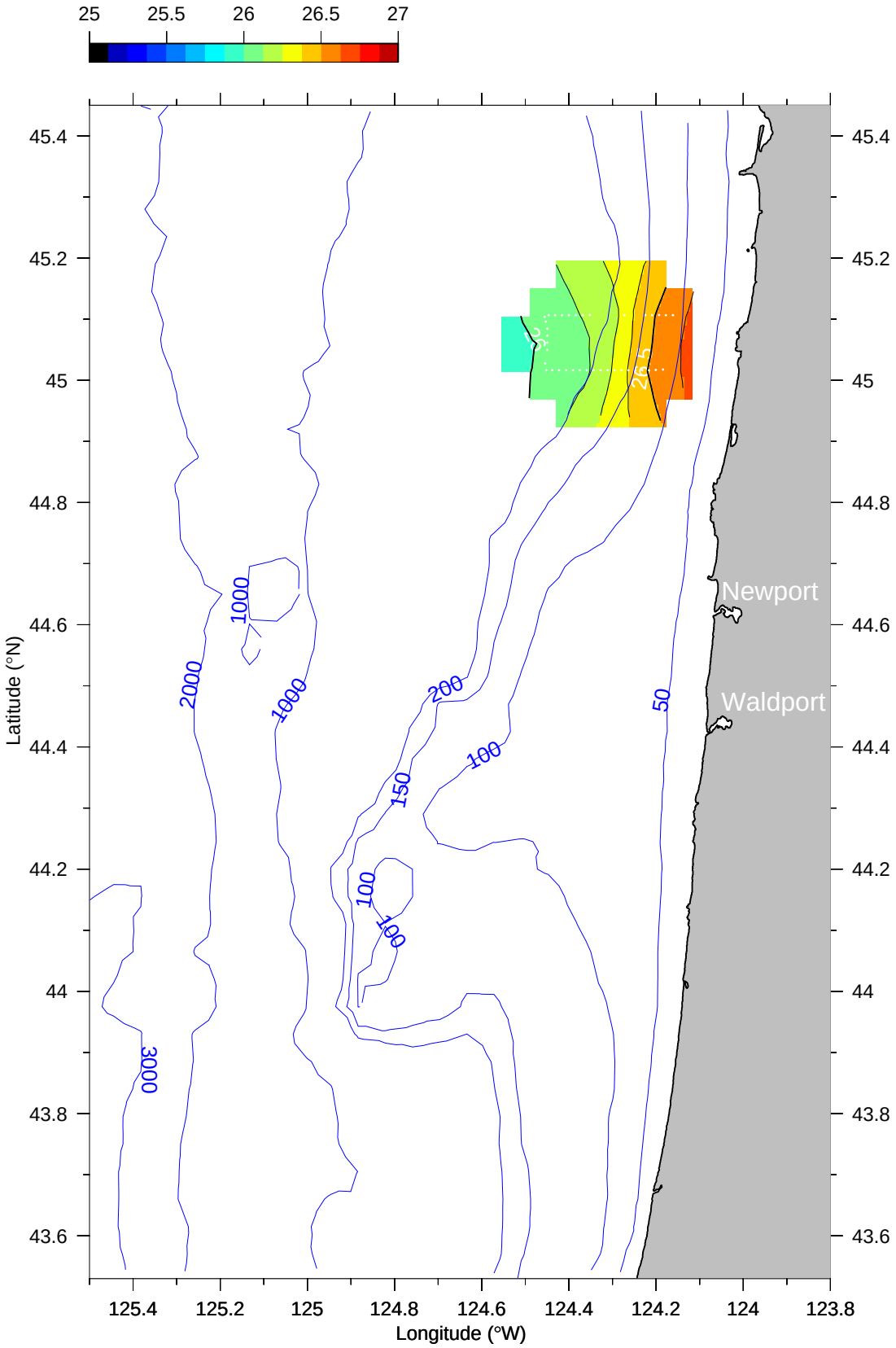

W0105 Small Box North 3
29-May-2001 13:13 - 29-May-2001 18:59
σt (kg m−3) at 25 dbar
23
24
25
26
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50

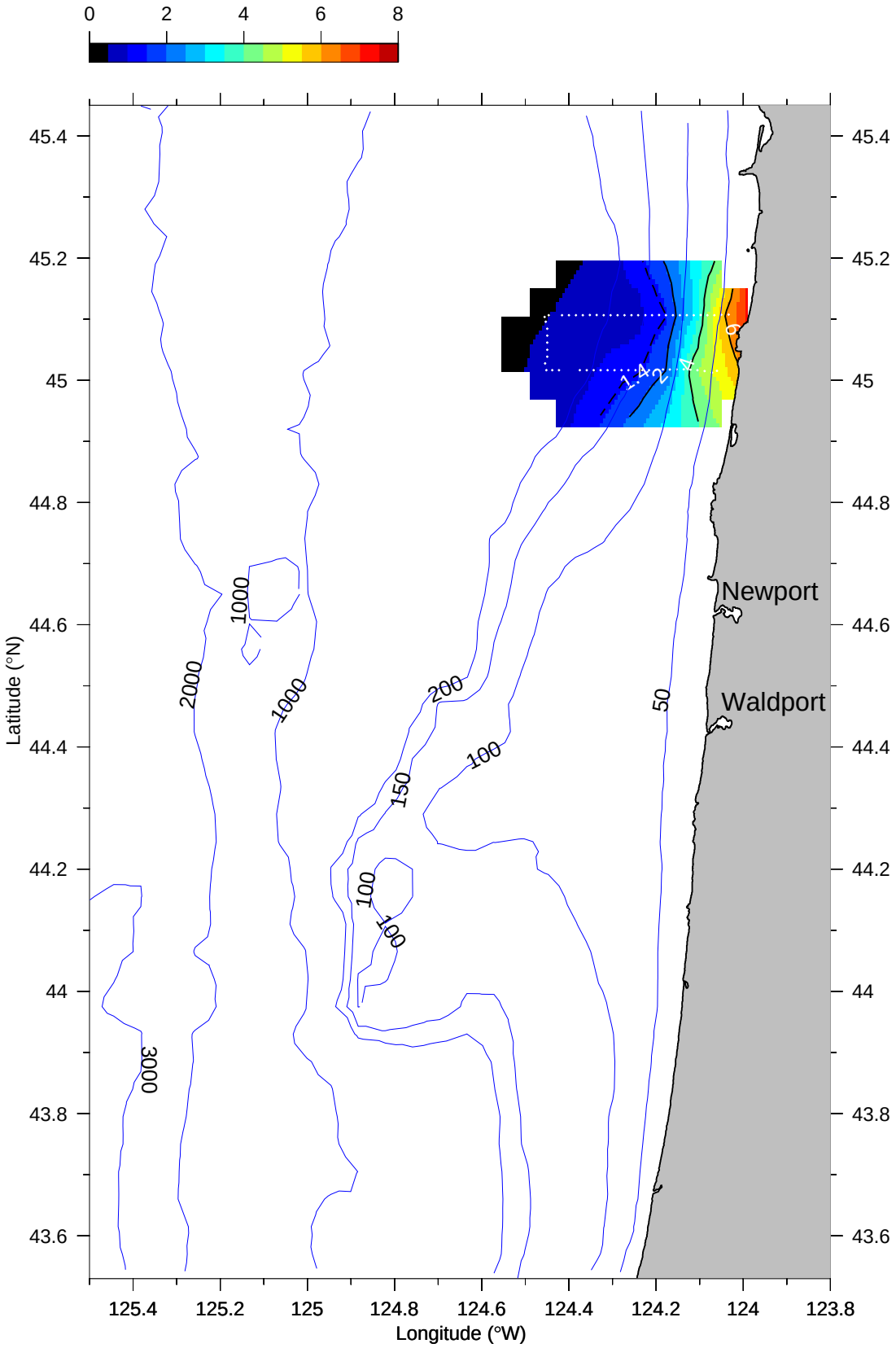

W0105 Small Box North 3
29-May-2001 13:13 - 29-May-2001 18:59
σt (kg m−3) at 35 dbar
23
24
25
26
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Small Box North 3
29-May-2001 13:13 - 29-May-2001 18:59
σt (kg m−3) at 45 dbar
25
25.5
26
26.5
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
25.5
26
1000
2000
1000
200
100
150
100
100
50
3000


W0105 Small Box North 3
29-May-2001 13:13 - 29-May-2001 18:59
σt (kg m−3) at 55 dbar
25
25.5
26
26.5
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Small Box North 3
29-May-2001 13:13 - 29-May-2001 18:59
σt (kg m−3) at 75 dbar
25
25.5
26
26.5
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Small Box North 3
29-May-2001 13:13 - 29-May-2001 18:59
σt (kg m−3) at 95 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
1000
200
100
150
100
100
50
3000


W0105 Small Box North 3
29-May-2001 13:13 - 29-May-2001 18:59
Chlorophyll (µg L−1) at 5 dbar
0
2
4
6
8
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
1000
2000
1000
200
100
150
100
100
50
3000
1.4
2.4

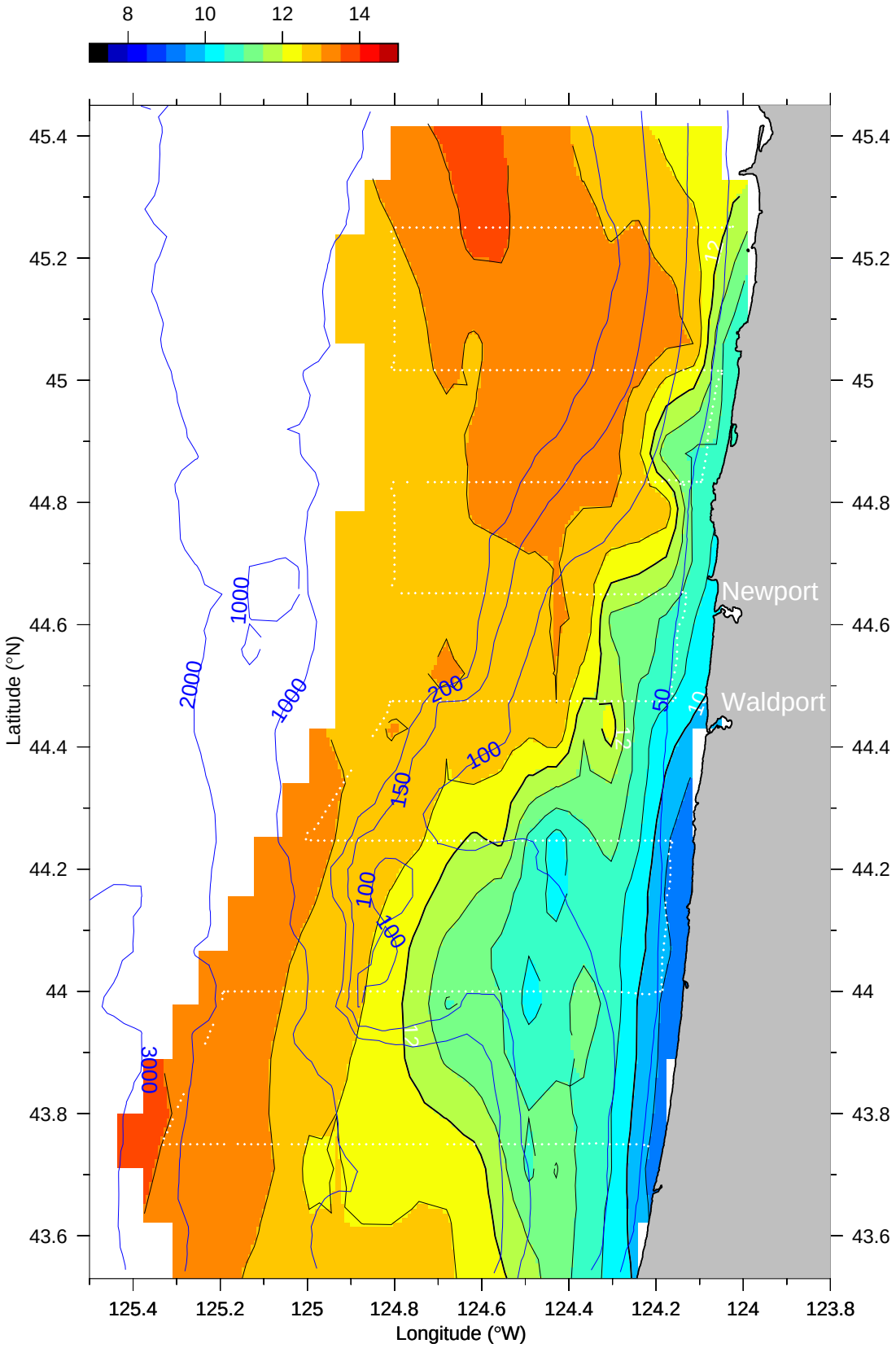
Big Box 2 Maps

Maps of Temperature, Salinity, σ_t, and Chlorophyll at Specified Depths

W0105 Big Box 2

29-May-2001 23:07 - 01-Jun-2001 03:35

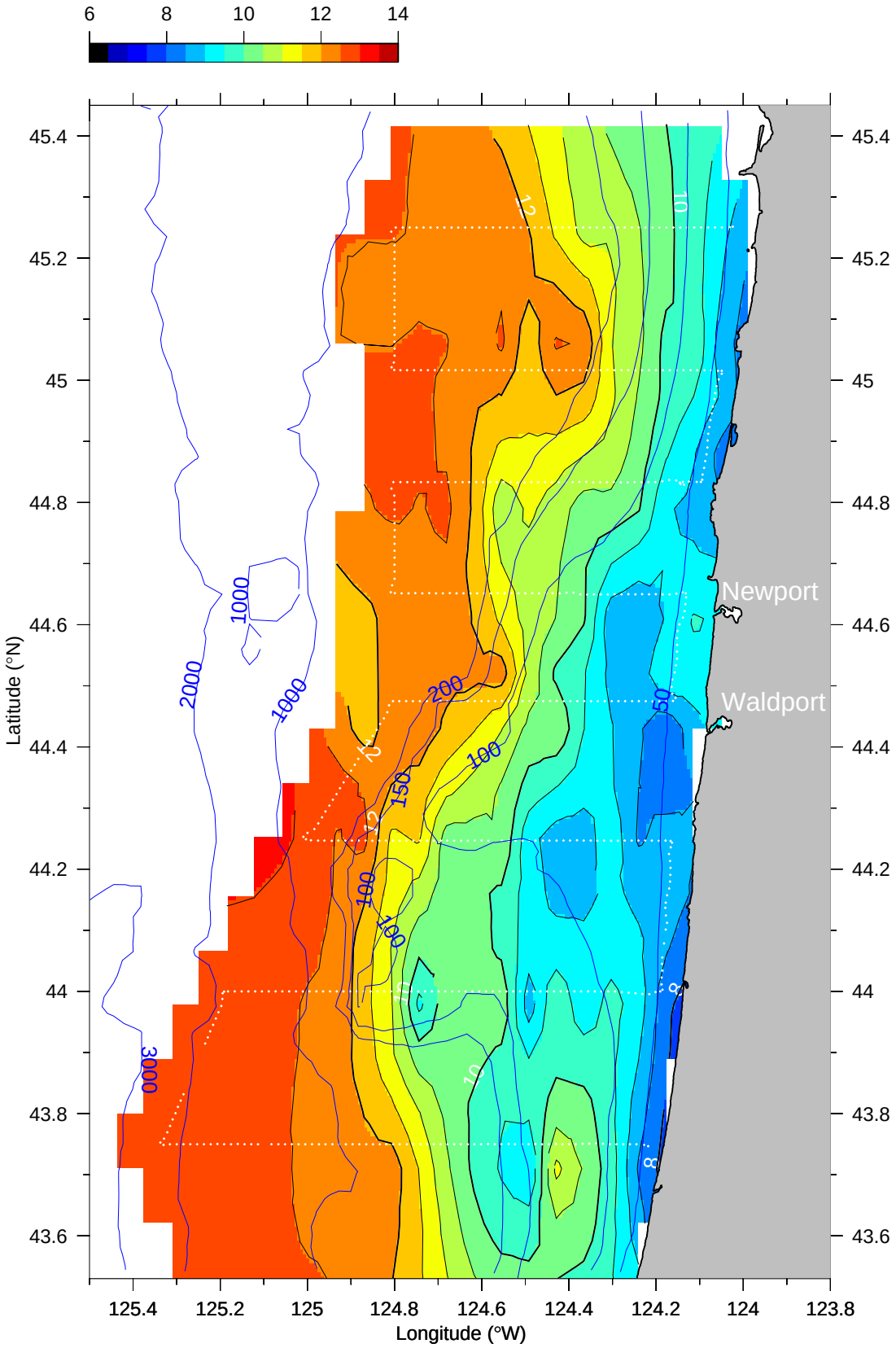
Temperature (°C) at 5 dbar



W0105 Big Box 2

29-May-2001 23:07 - 01-Jun-2001 03:35

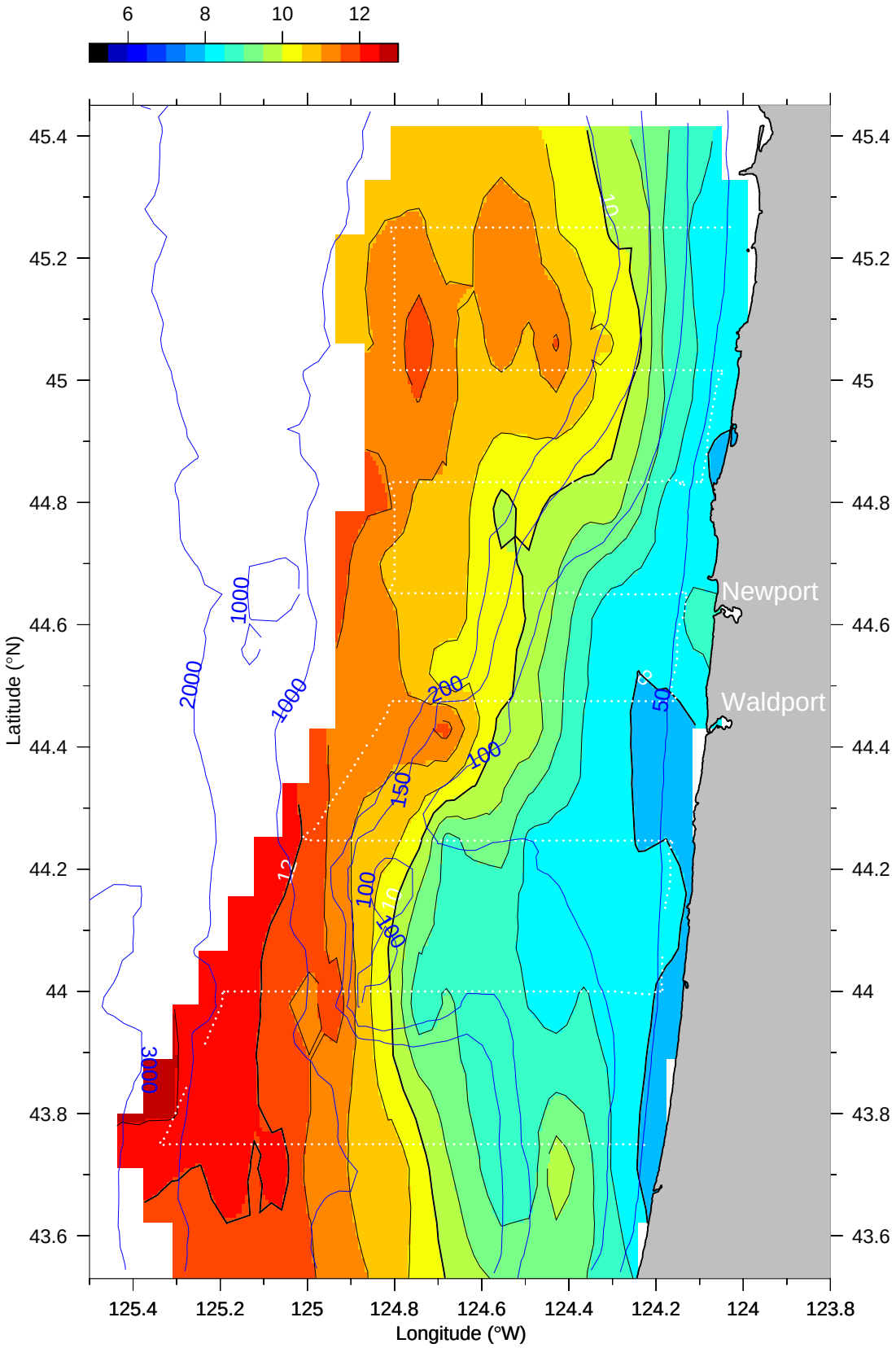
Temperature (°C) at 15 dbar



W0105 Big Box 2

29-May-2001 23:07 - 01-Jun-2001 03:35

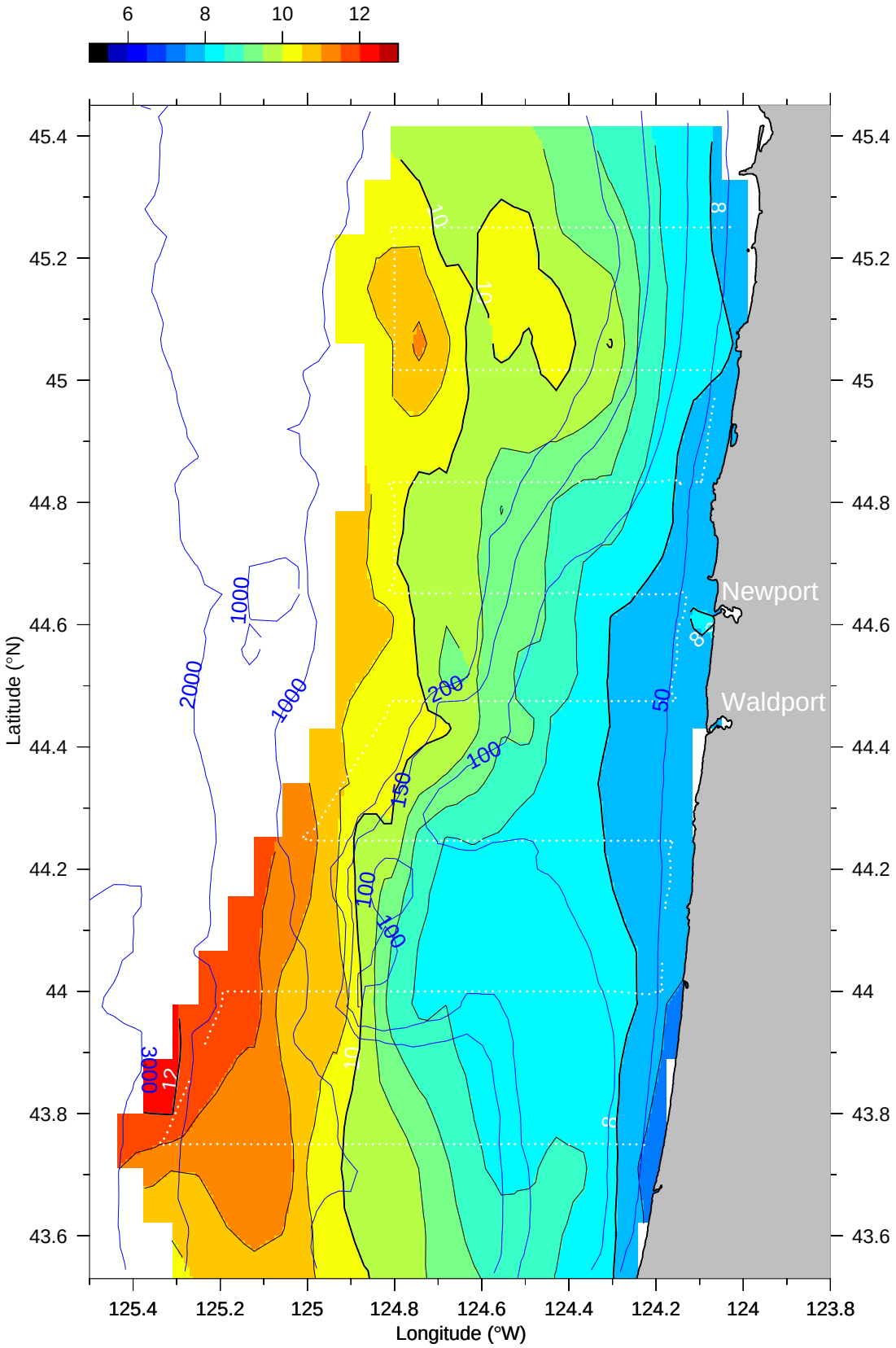
Temperature (°C) at 25 dbar



W0105 Big Box 2

29-May-2001 23:07 - 01-Jun-2001 03:35

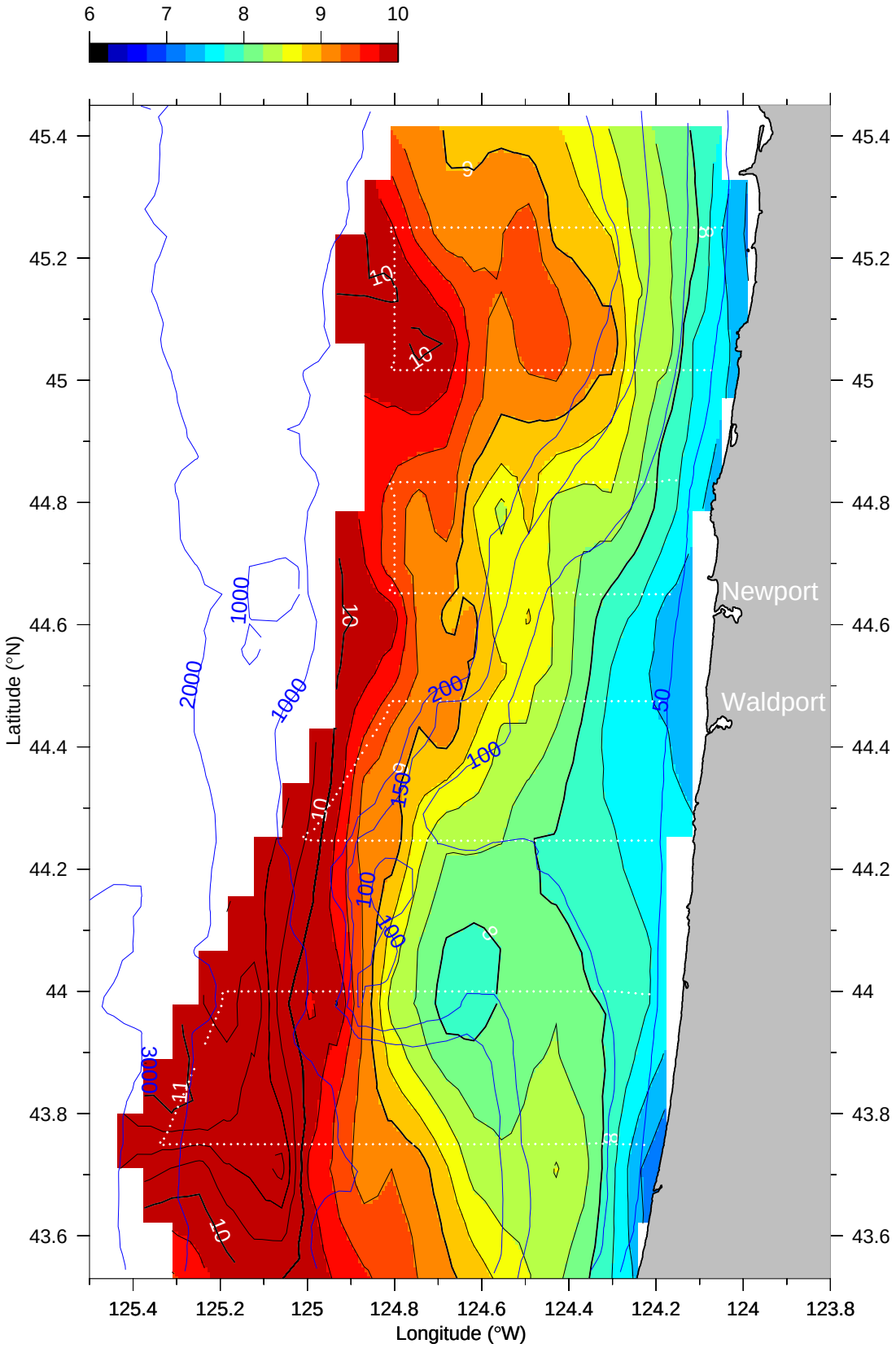
Temperature (°C) at 35 dbar



W0105 Big Box 2

29-May-2001 23:07 - 01-Jun-2001 03:35

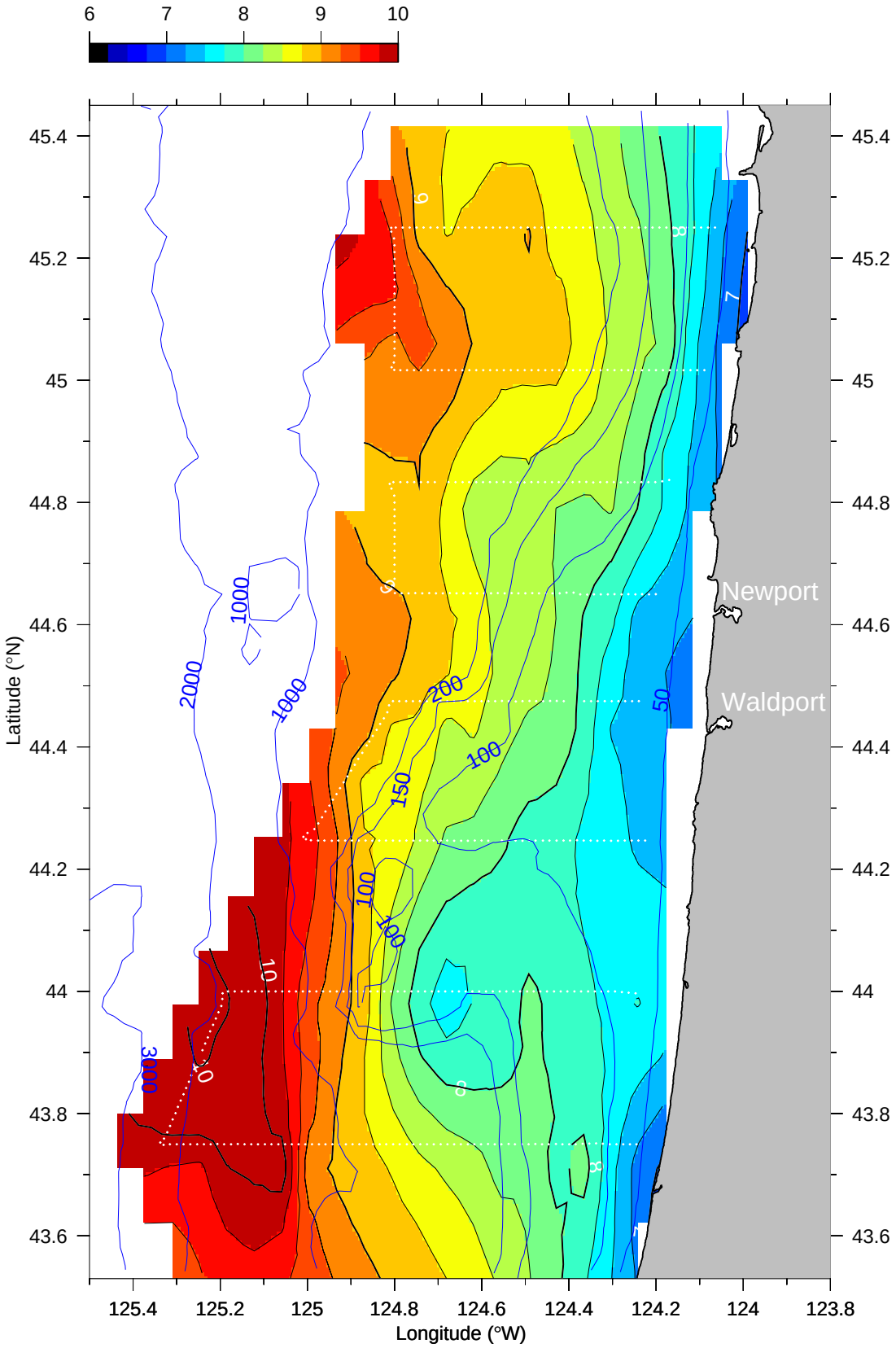
Temperature (°C) at 45 dbar



W0105 Big Box 2

29-May-2001 23:07 - 01-Jun-2001 03:35

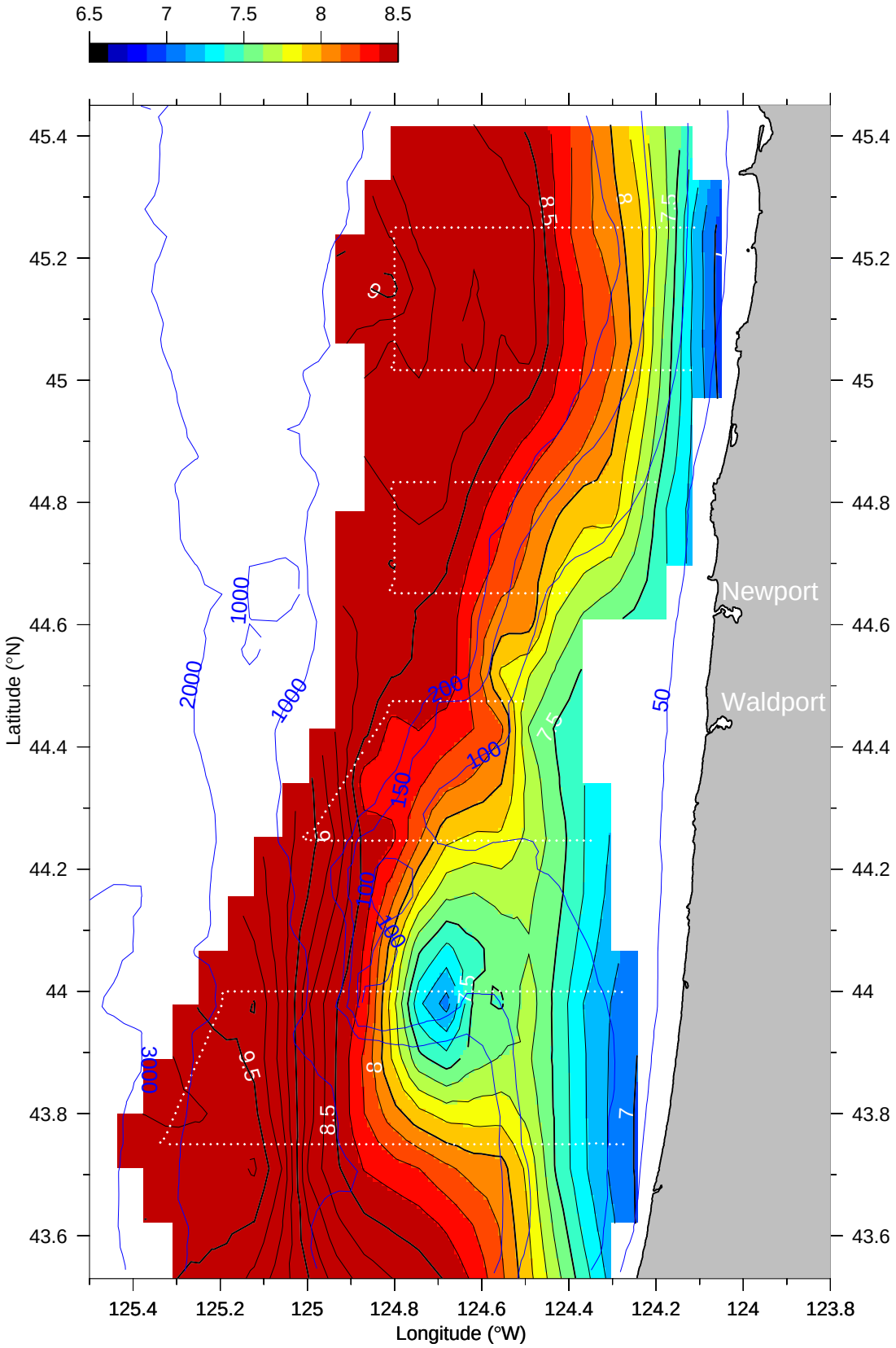
Temperature (°C) at 55 dbar



W0105 Big Box 2

29-May-2001 23:07 - 01-Jun-2001 03:35

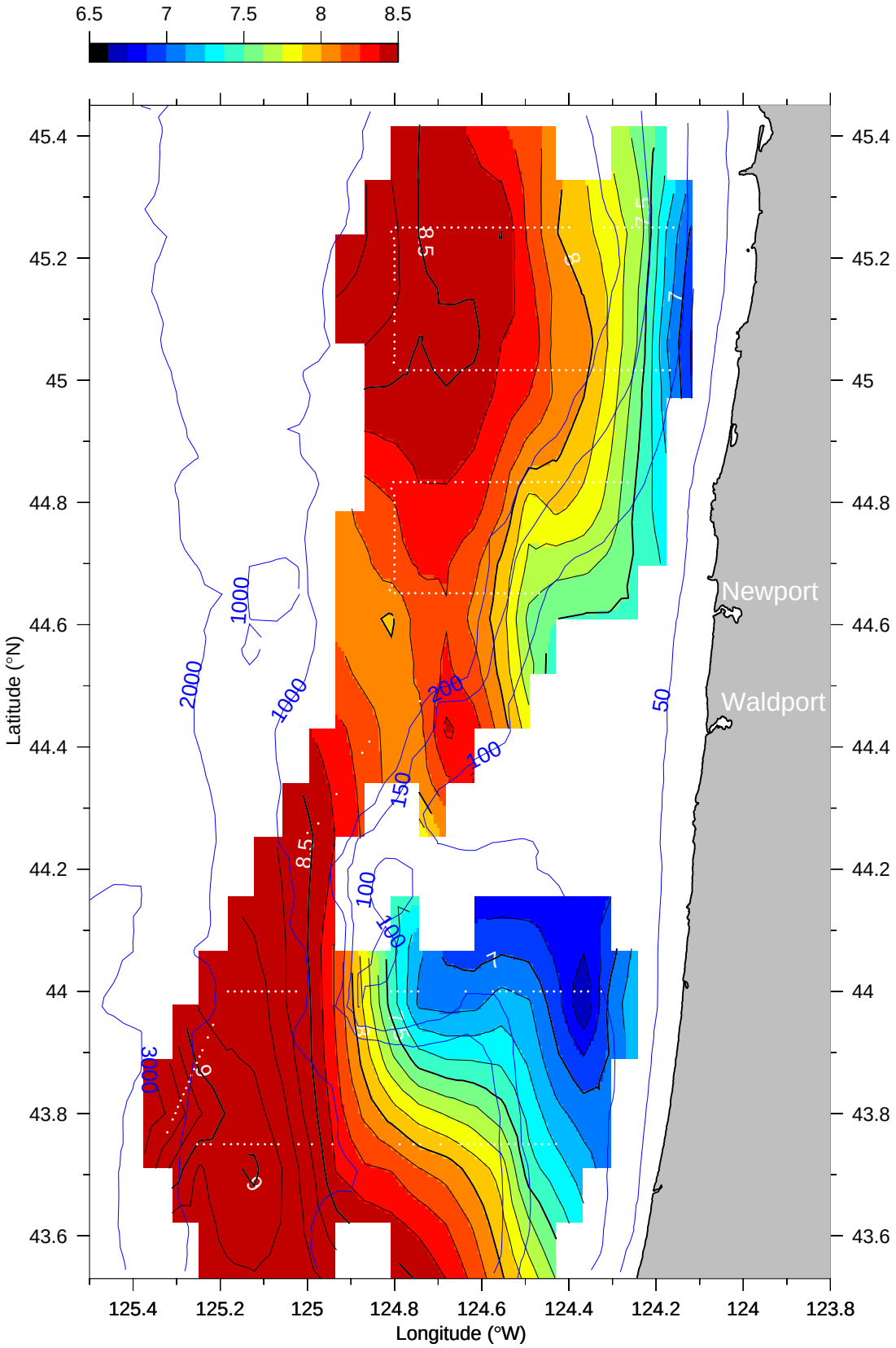
Temperature (°C) at 75 dbar



W0105 Big Box 2

29-May-2001 23:07 - 01-Jun-2001 03:35

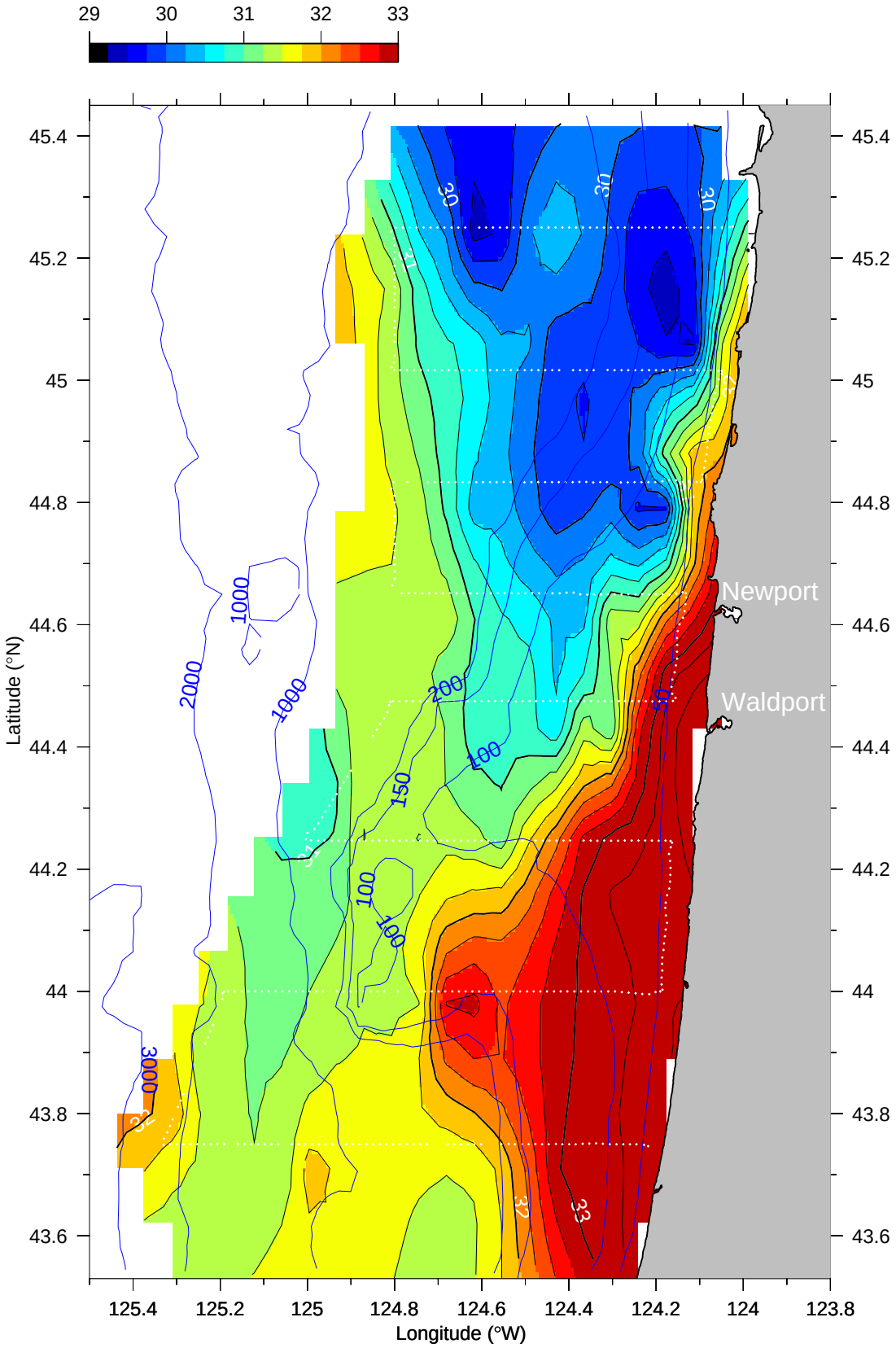
Temperature (°C) at 95 dbar



W0105 Big Box 2

29-May-2001 23:07 - 01-Jun-2001 03:35

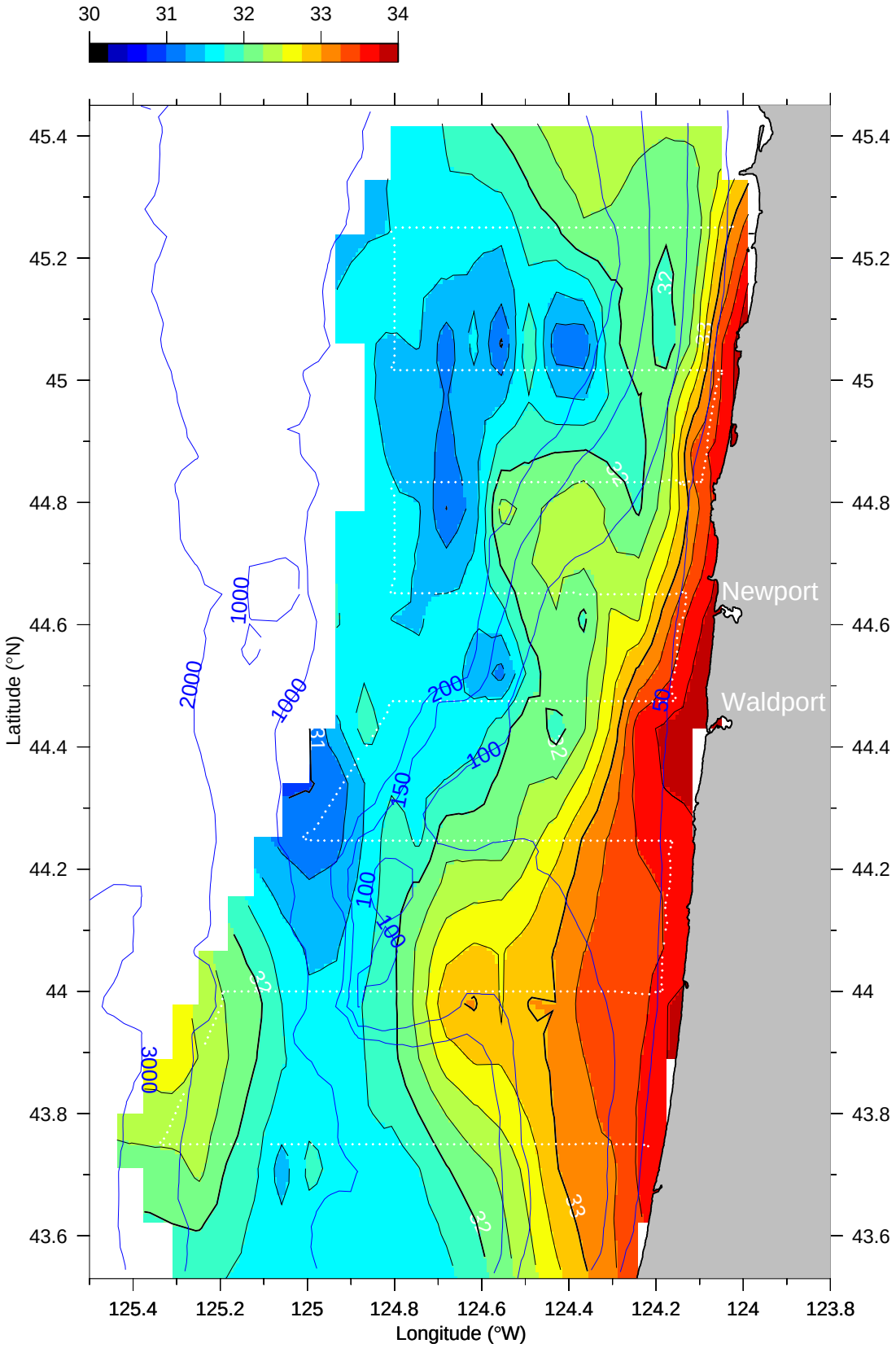
Salinity (PSS) at 5 dbar



W0105 Big Box 2

29-May-2001 23:07 - 01-Jun-2001 03:35

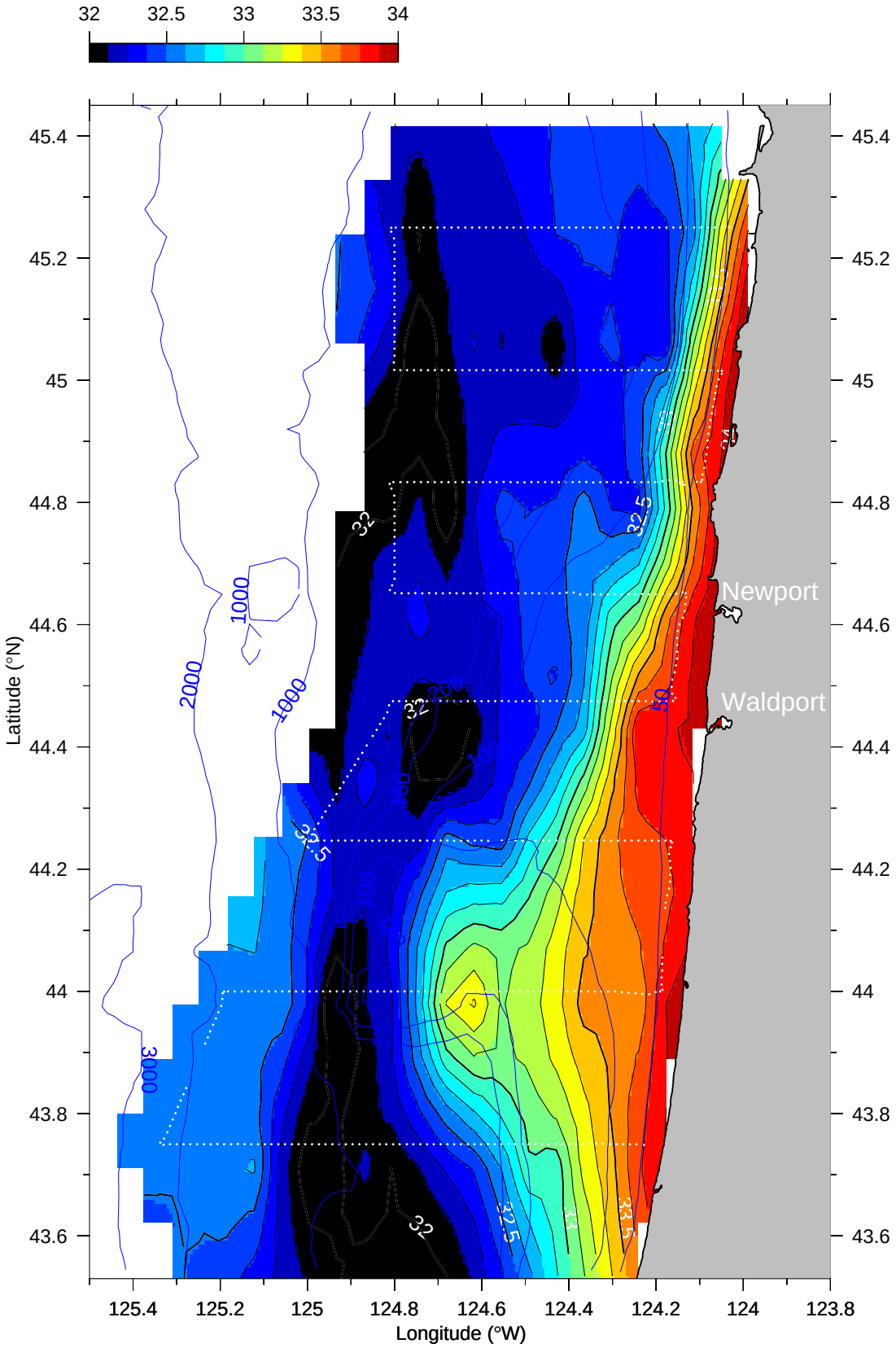
Salinity (PSS) at 15 dbar



W0105 Big Box 2

29-May-2001 23:07 - 01-Jun-2001 03:35

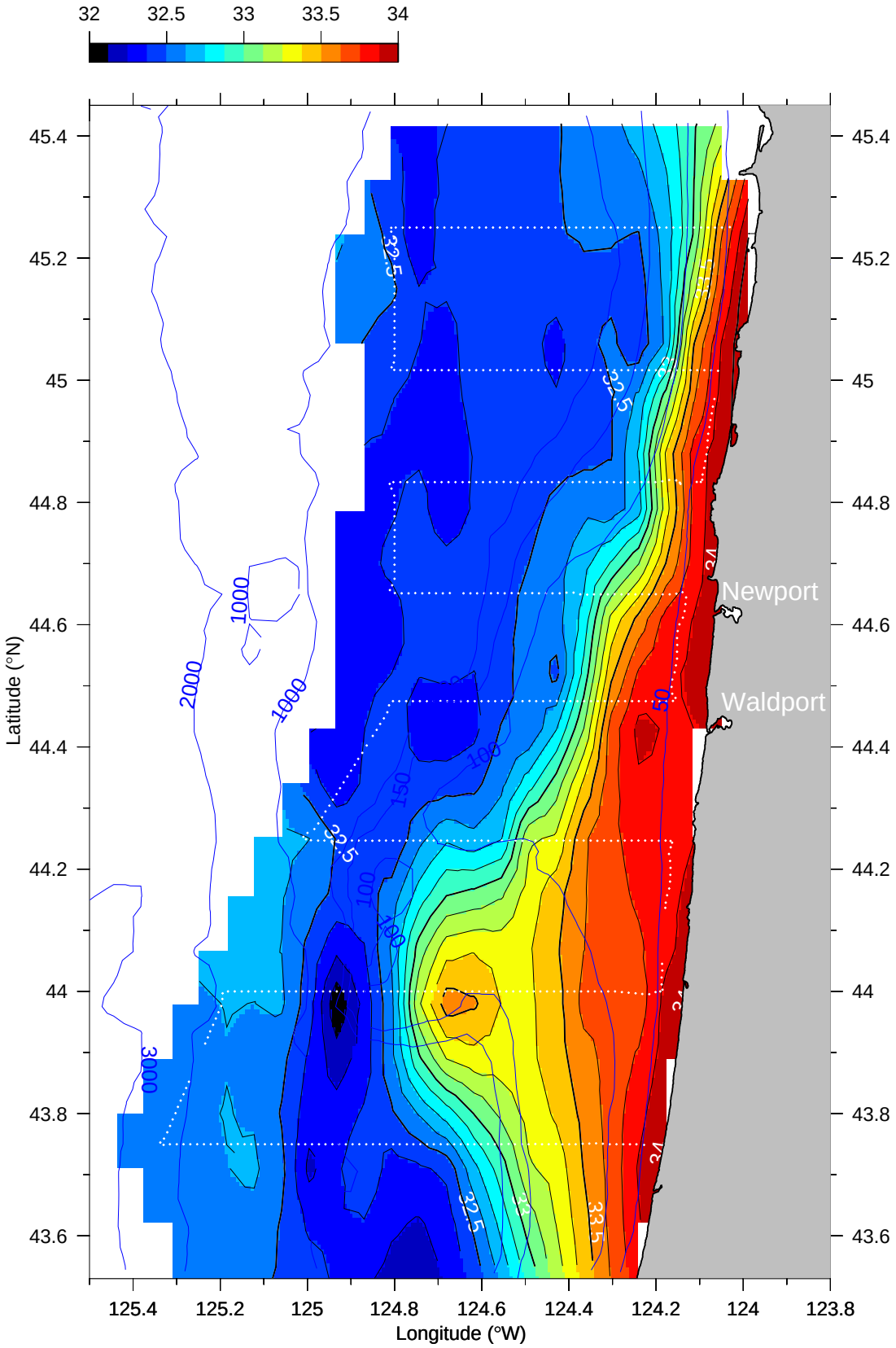
Salinity (PSS) at 25 dbar



W0105 Big Box 2

29-May-2001 23:07 - 01-Jun-2001 03:35

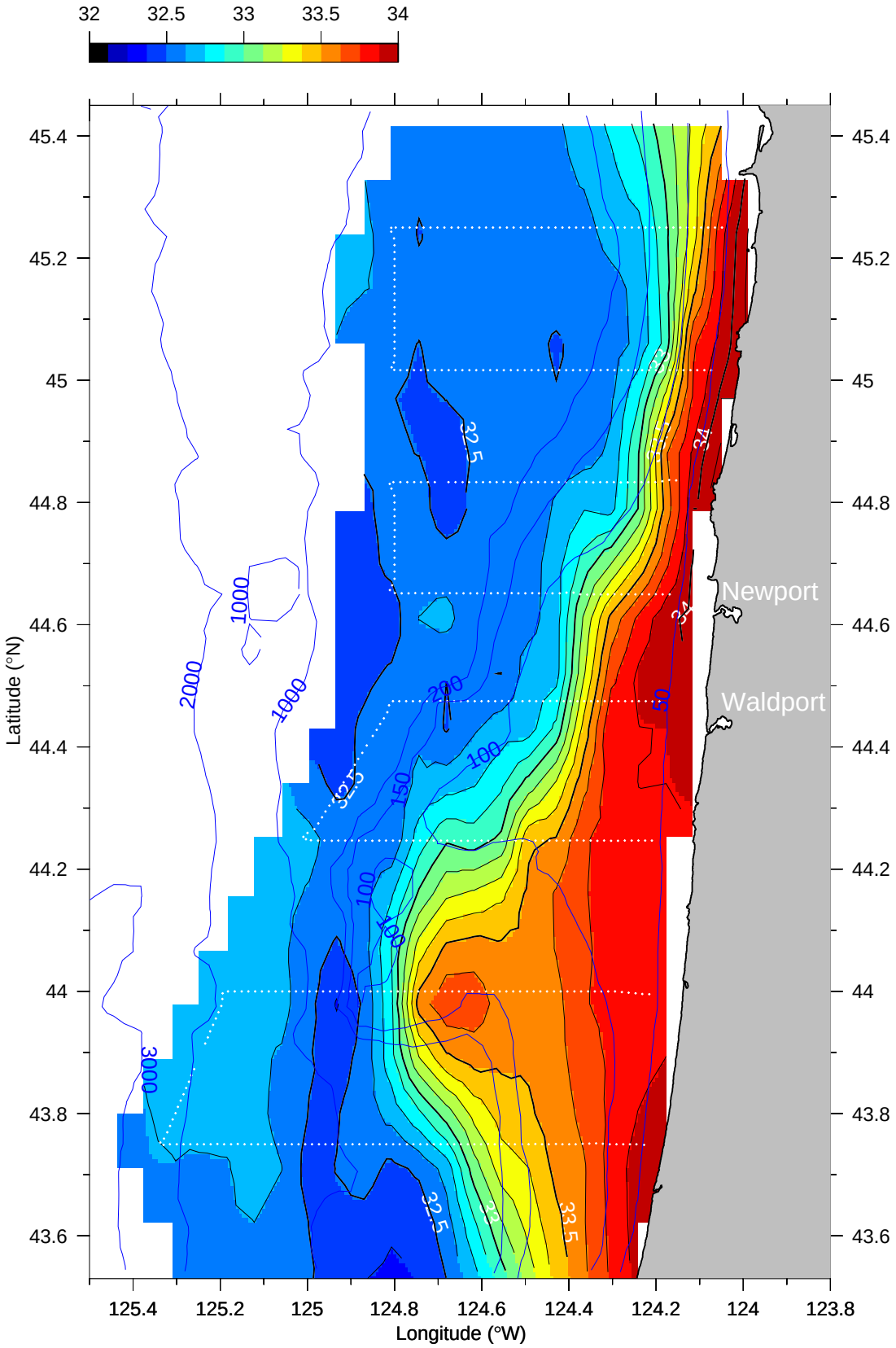
Salinity (PSS) at 35 dbar



W0105 Big Box 2

29-May-2001 23:07 - 01-Jun-2001 03:35

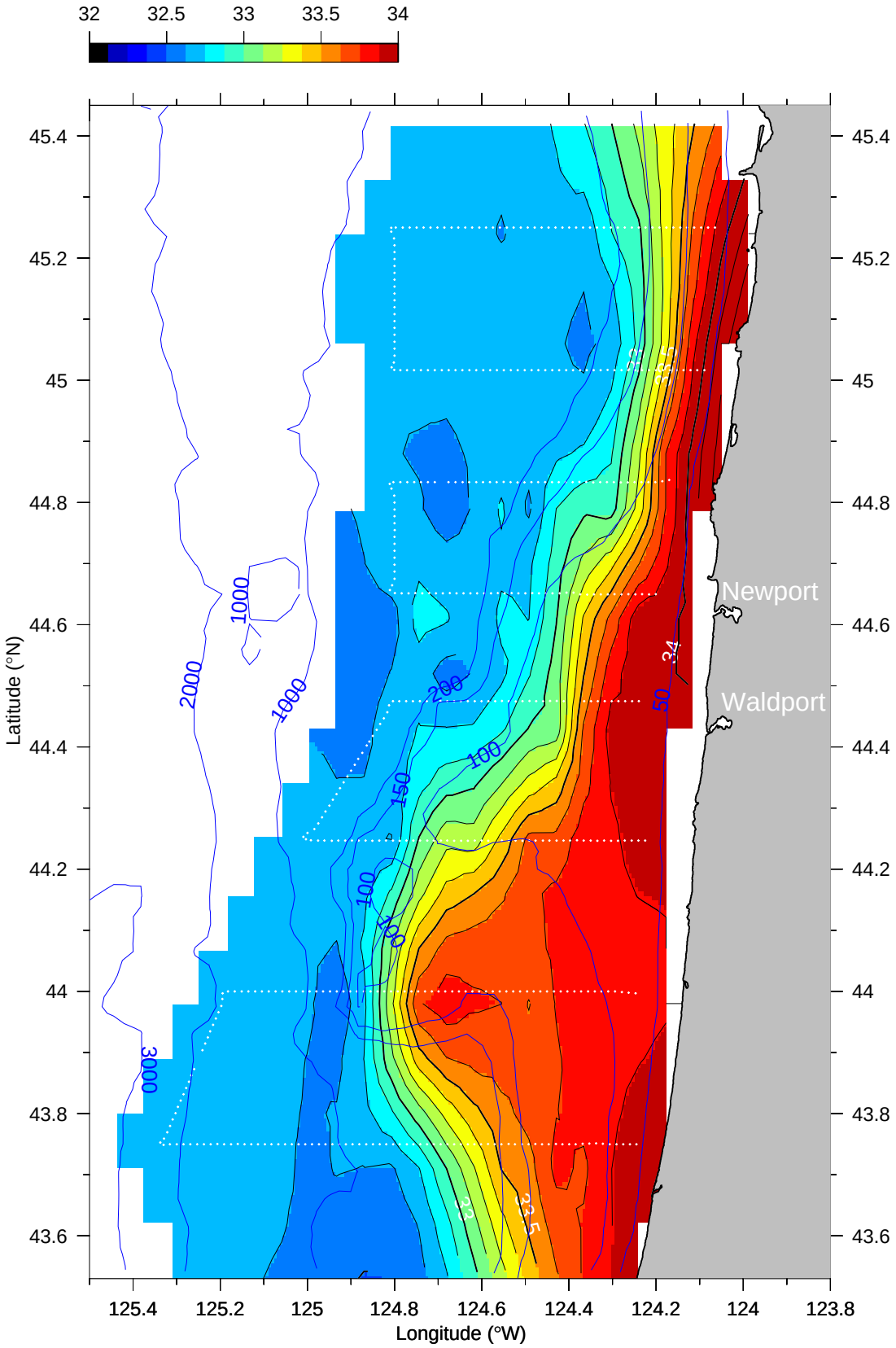
Salinity (PSS) at 45 dbar



W0105 Big Box 2

29-May-2001 23:07 - 01-Jun-2001 03:35

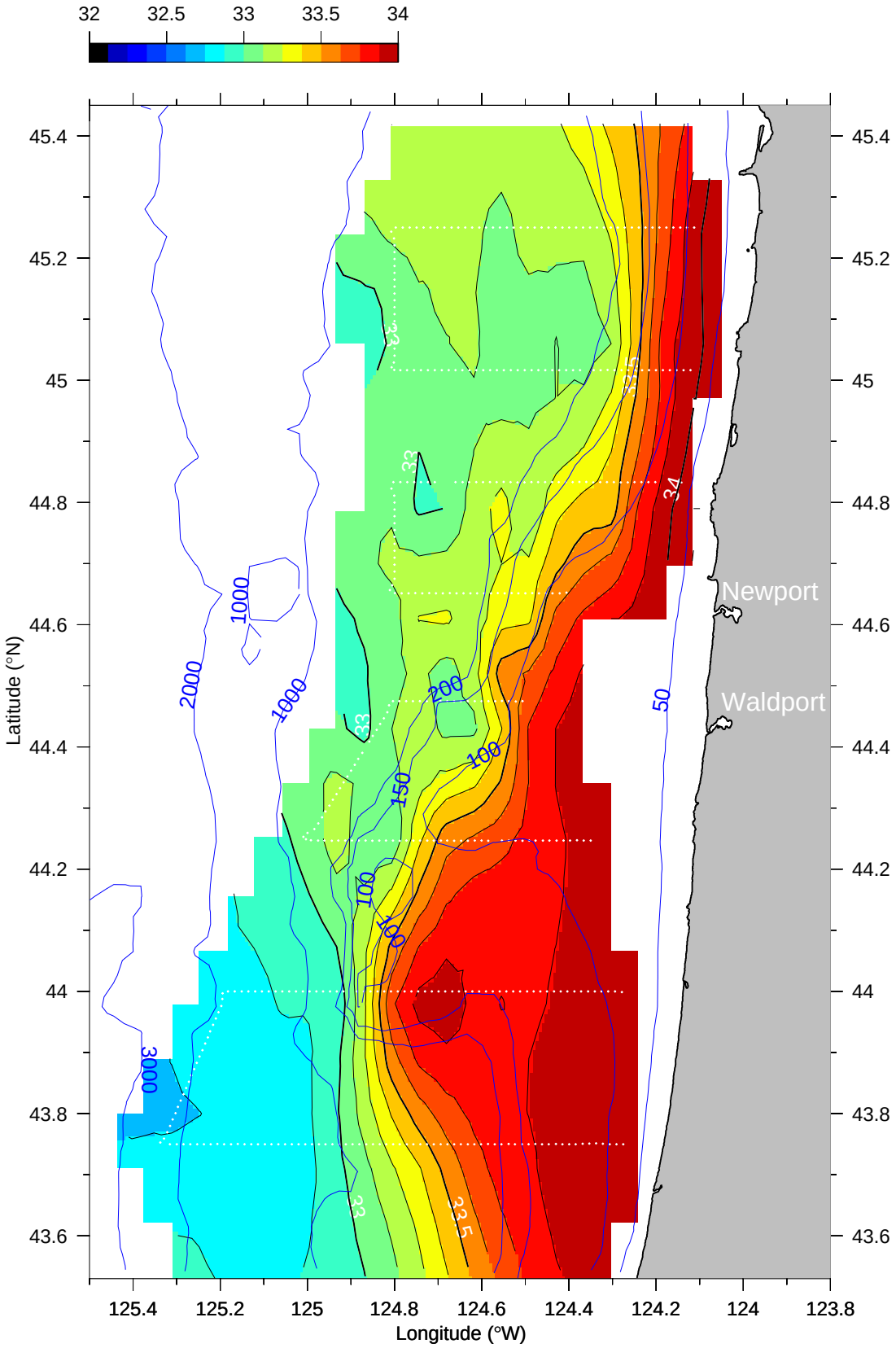
Salinity (PSS) at 55 dbar



W0105 Big Box 2

29-May-2001 23:07 - 01-Jun-2001 03:35

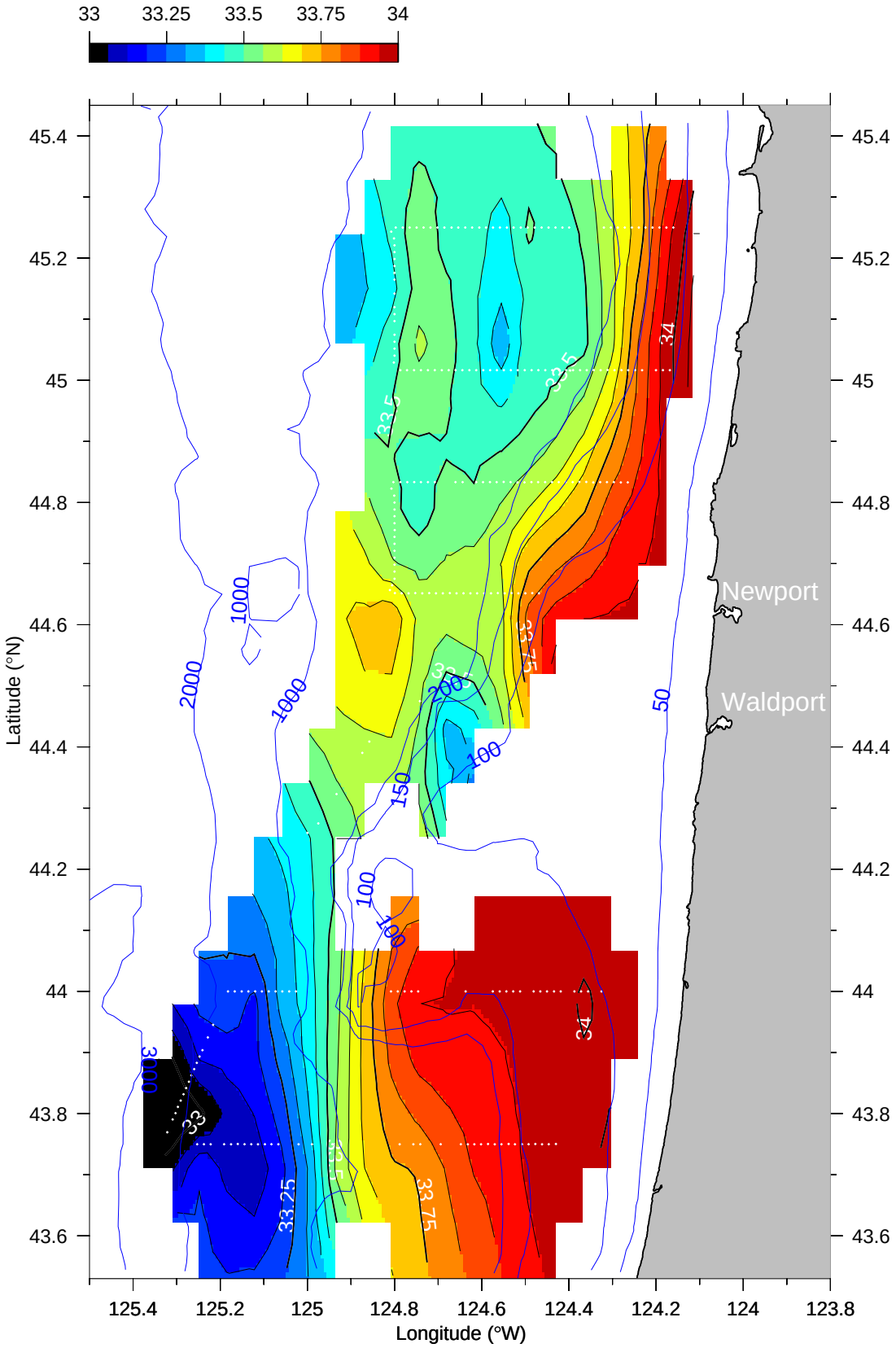
Salinity (PSS) at 75 dbar

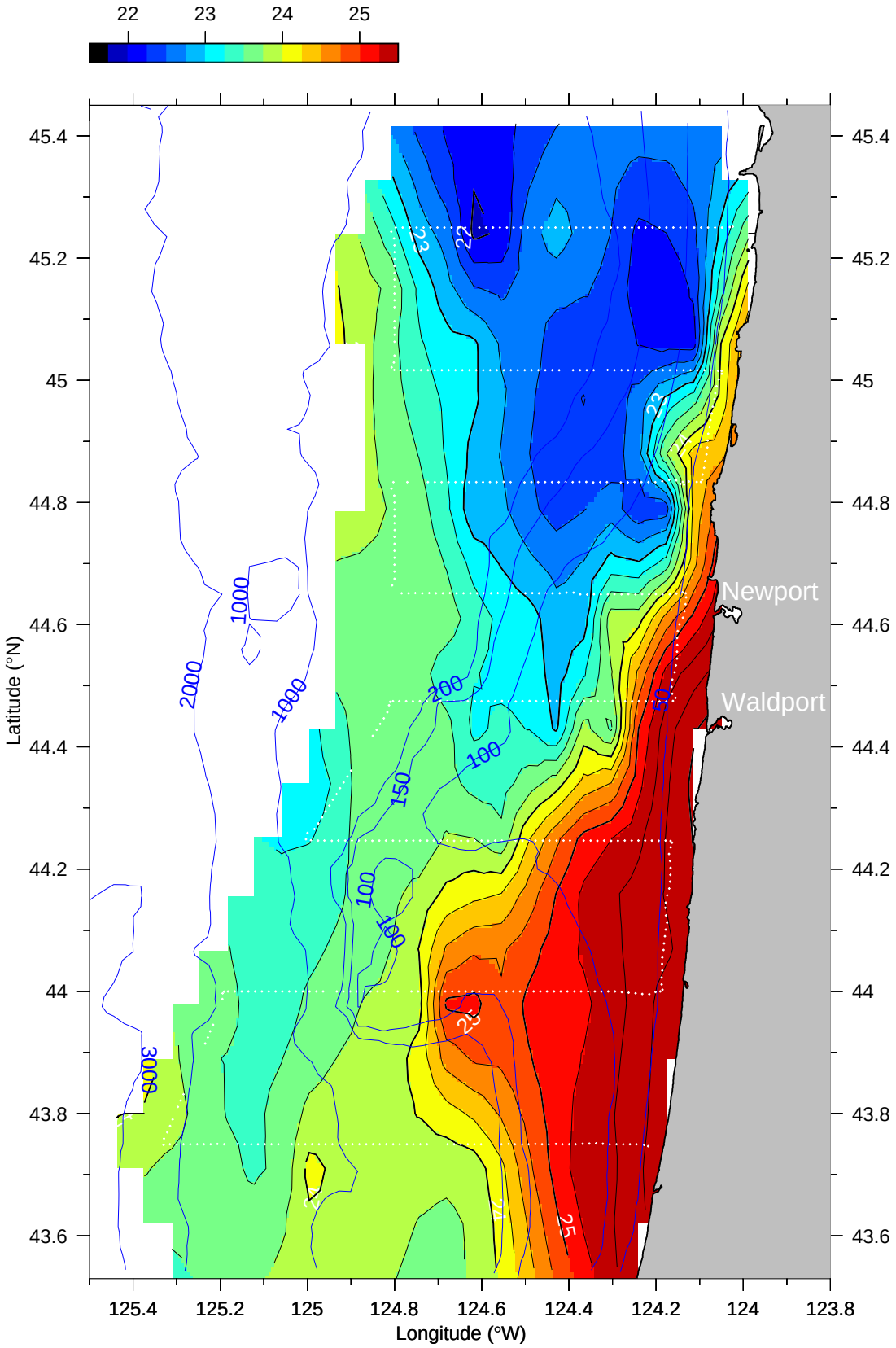


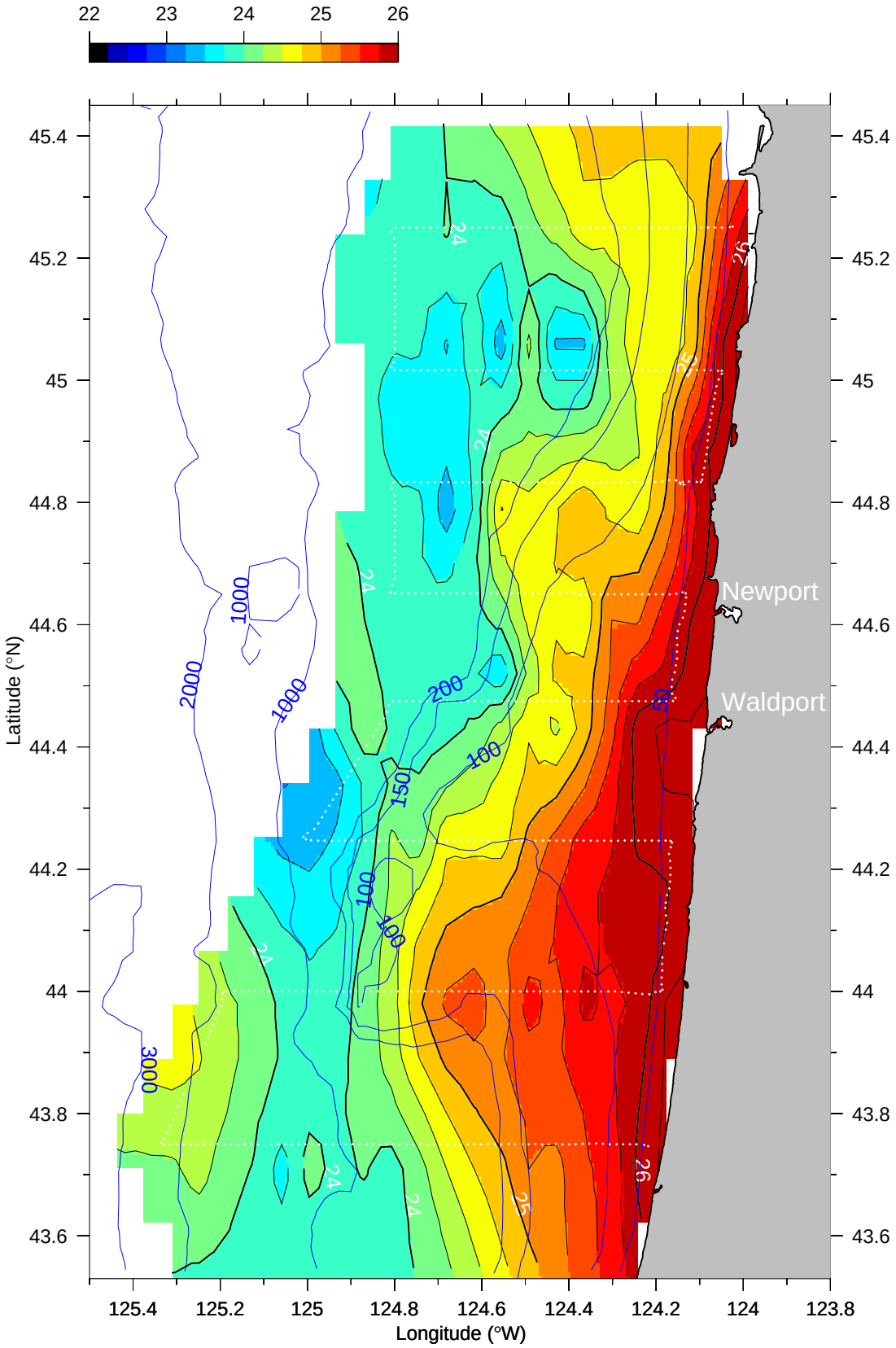
W0105 Big Box 2

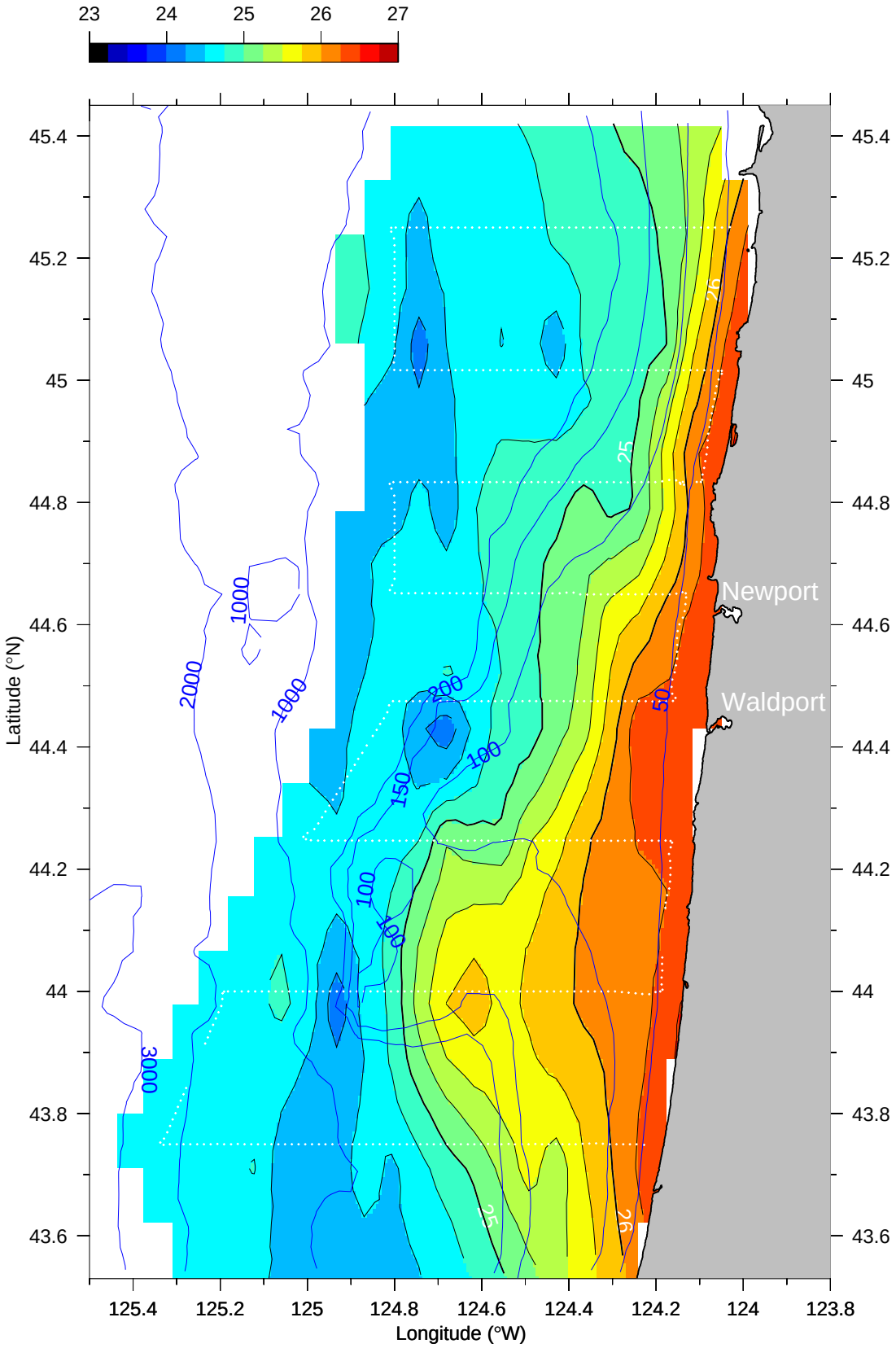
29-May-2001 23:07 - 01-Jun-2001 03:35

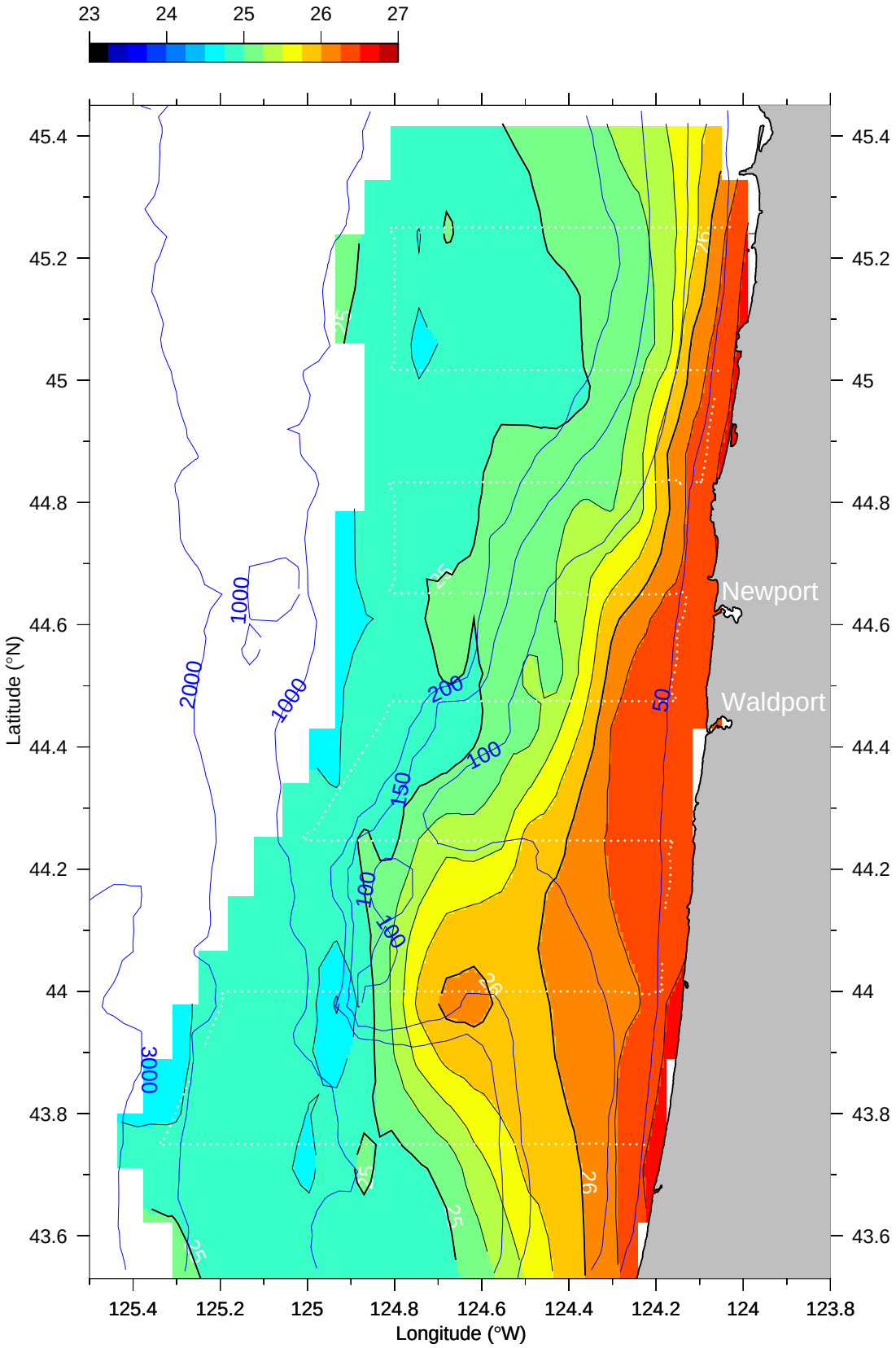
Salinity (PSS) at 95 dbar

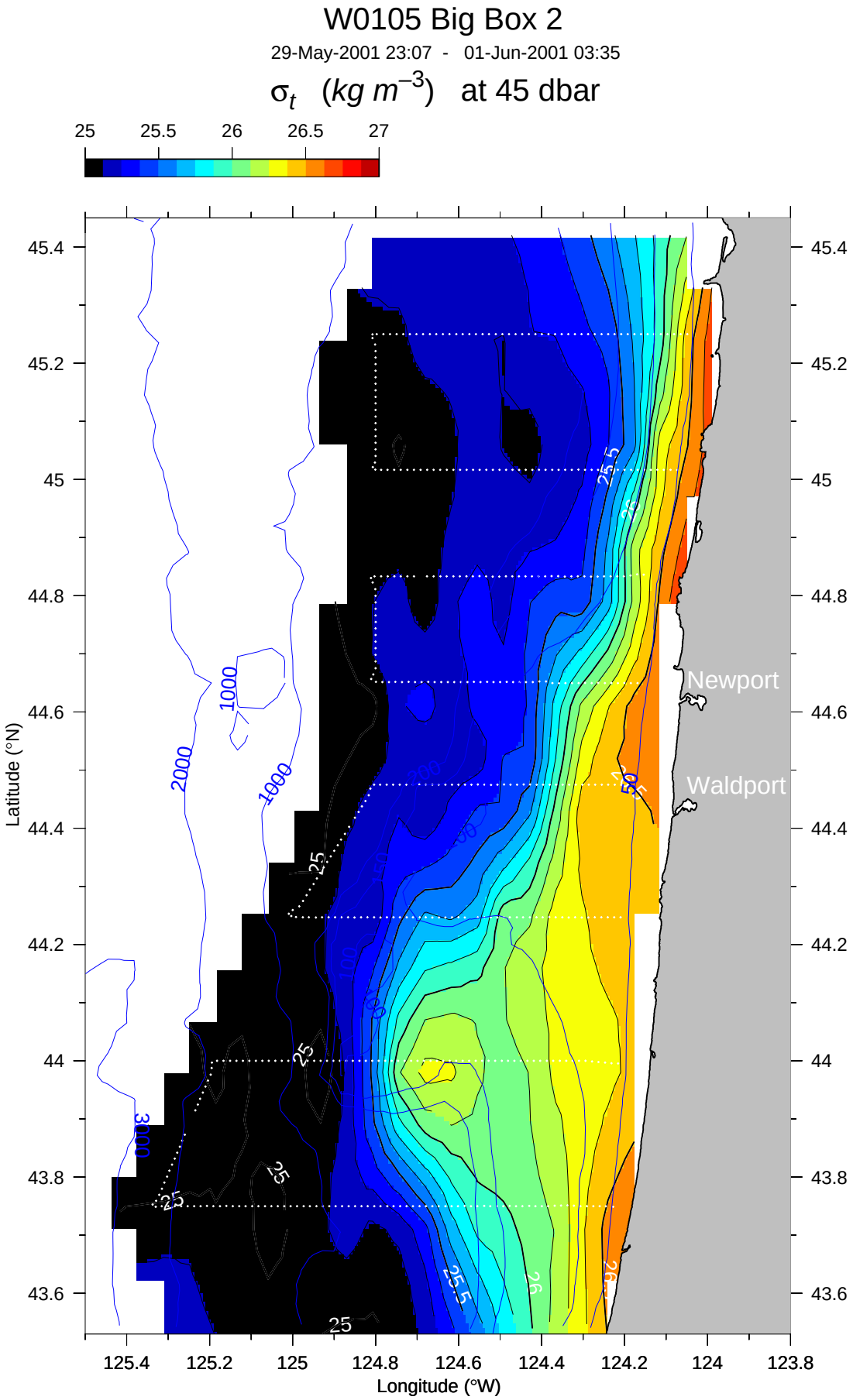


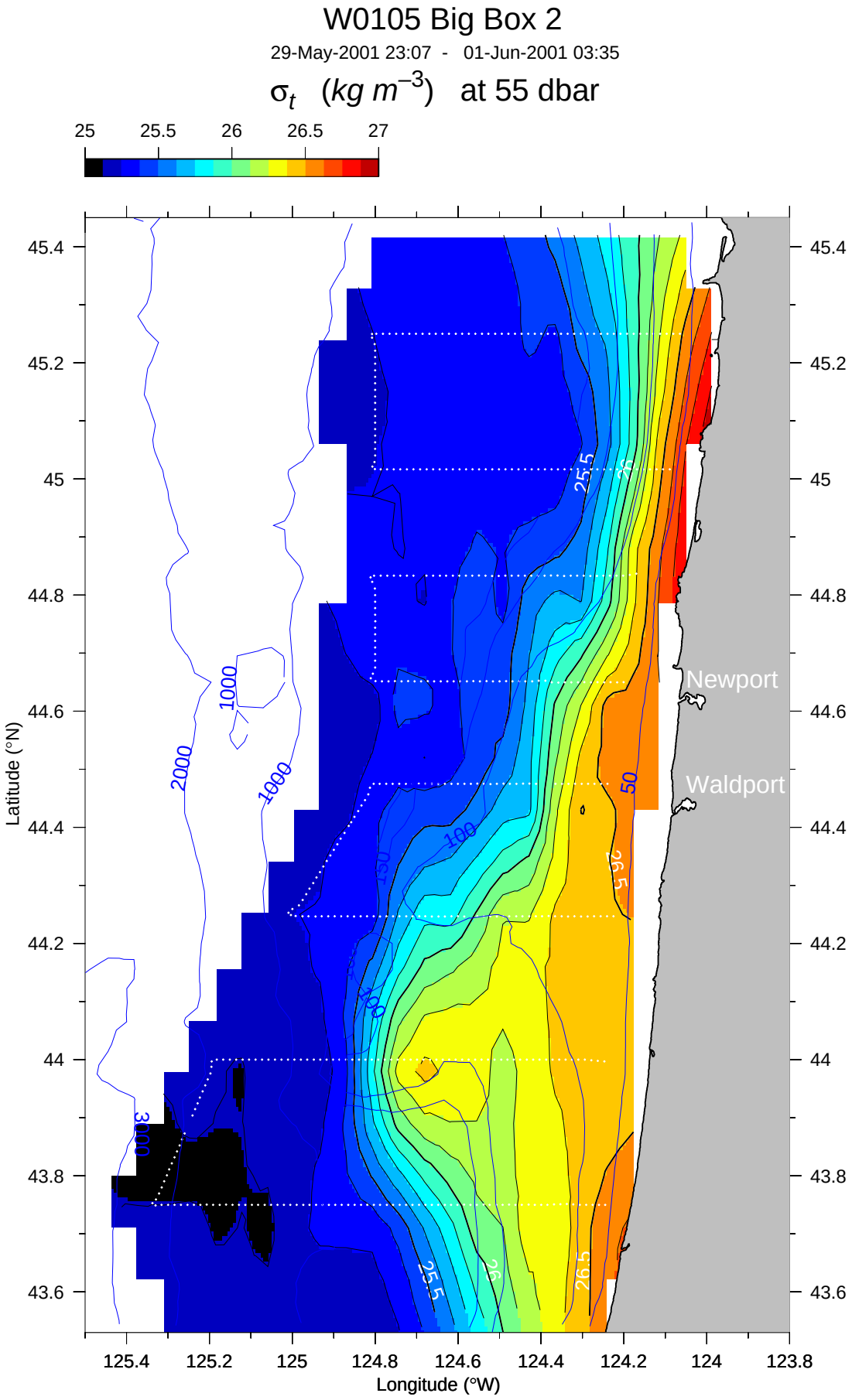

W0105 Big Box 2
29-May-2001 23:07 - 01-Jun-2001 03:35
σt (kg m−3) at 5 dbar
22
23
24
25
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8

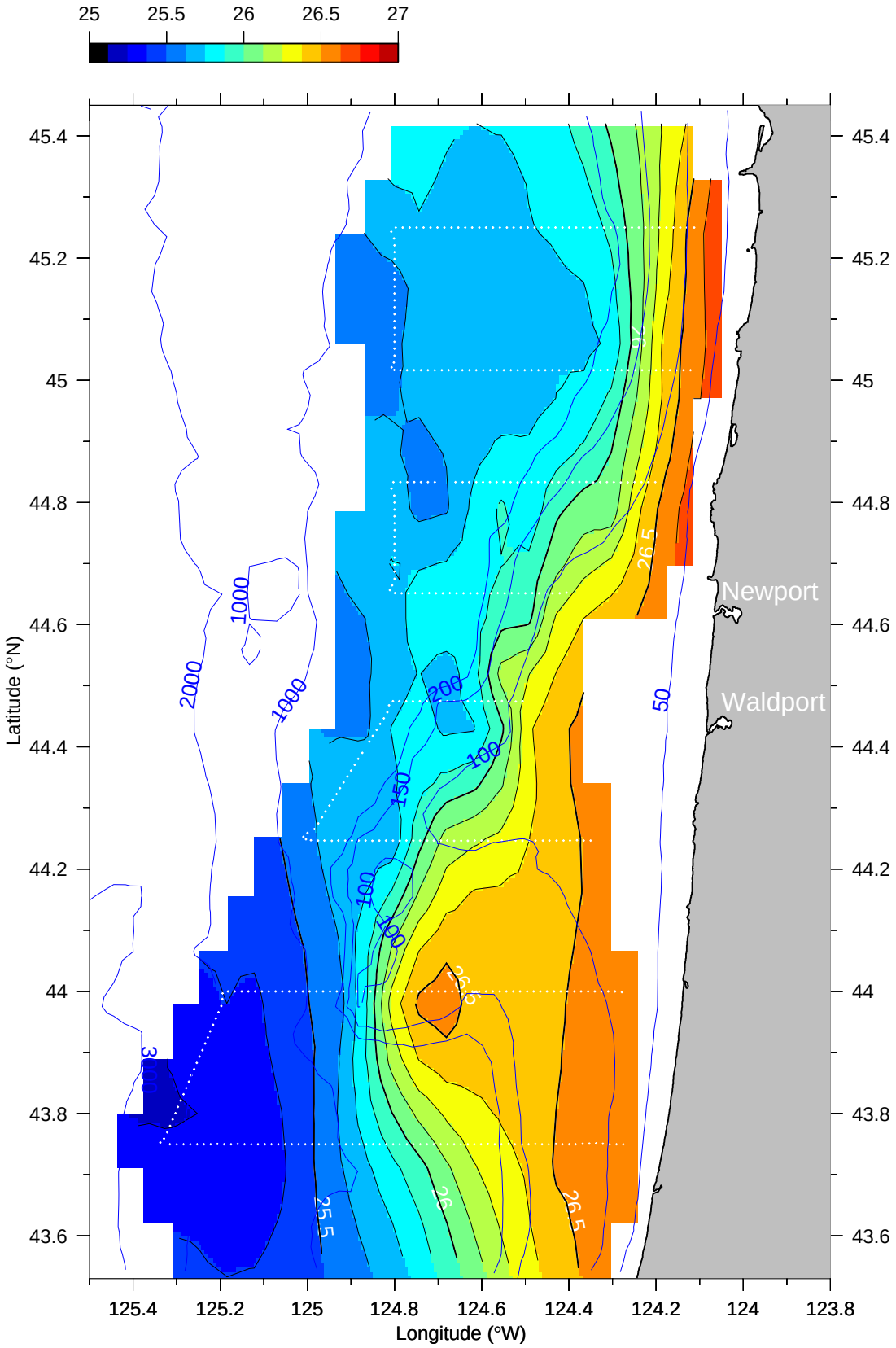

W0105 Big Box 2
29-May-2001 23:07 - 01-Jun-2001 03:35
σt (kg m−3) at 15 dbar
22
23
24
25
26
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
200
100
150
50
3000

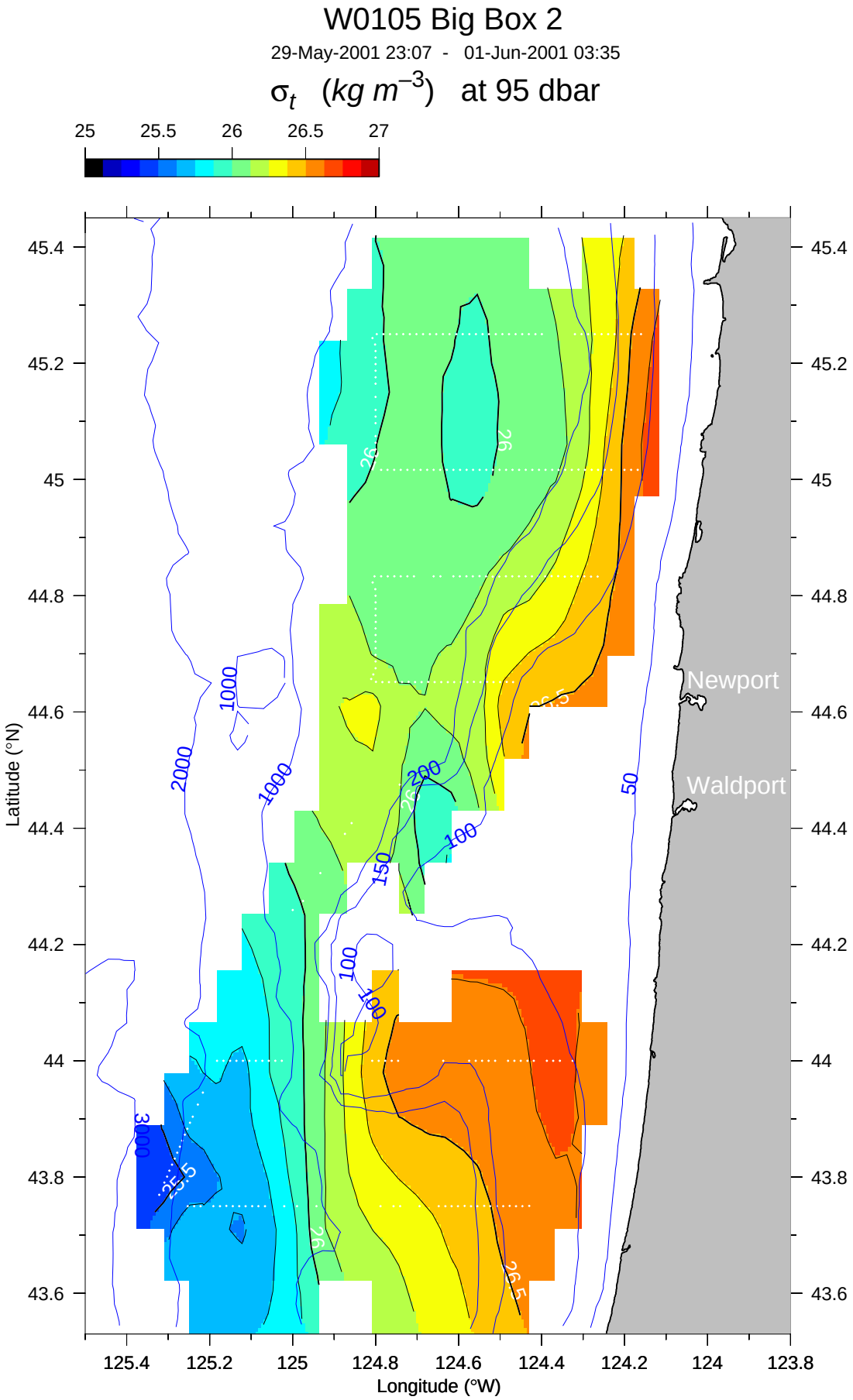

W0105 Big Box 2
29-May-2001 23:07 - 01-Jun-2001 03:35
σt (kg m−3) at 25 dbar
23
24
25
26
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
3000
200
100
150
50
25
26

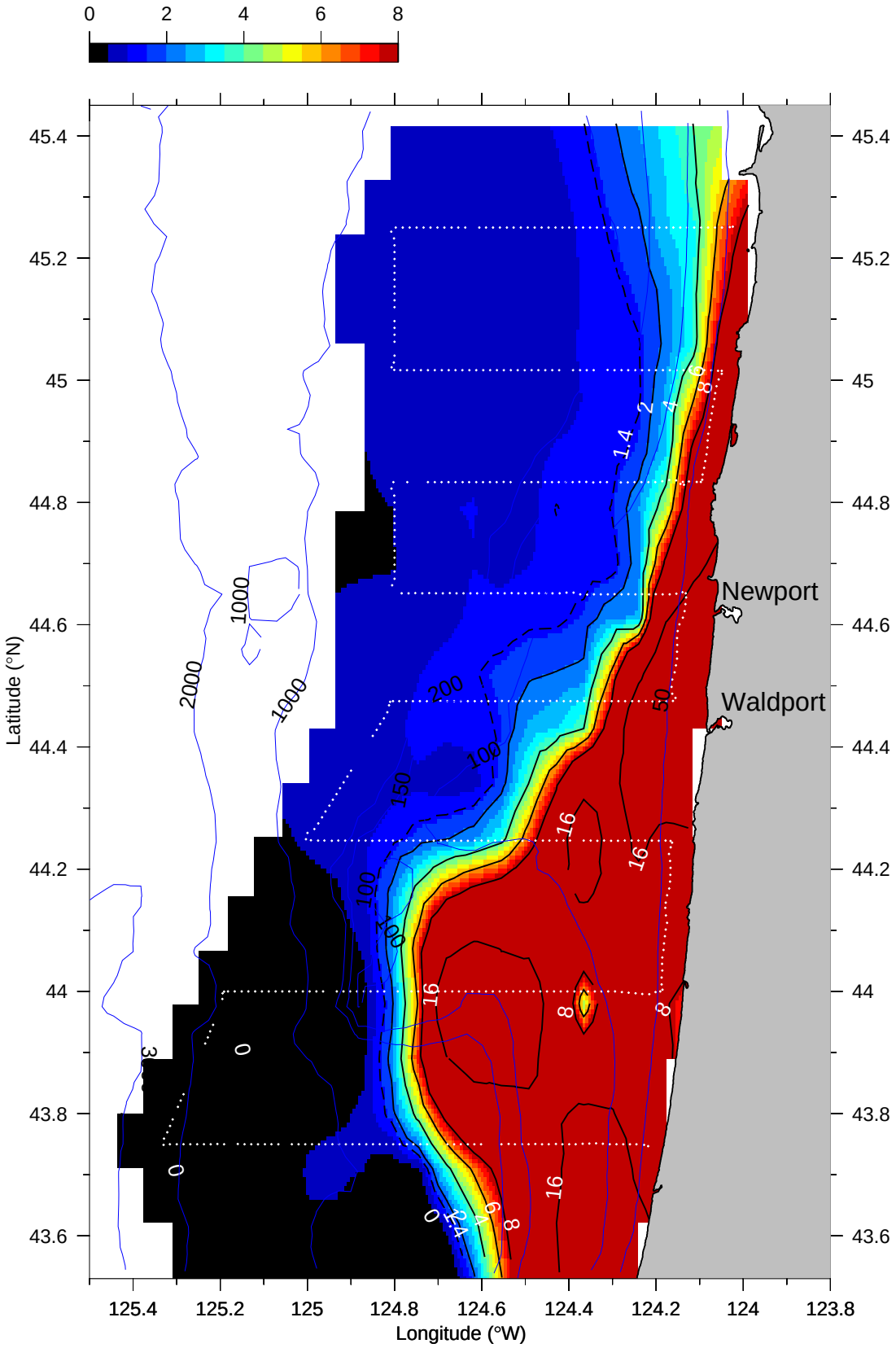

W0105 Big Box 2
29-May-2001 23:07 - 01-Jun-2001 03:35
σt (kg m−3) at 35 dbar
23
24
25
26
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
200
50
100
150
3000


W0105 Big Box 2
29-May-2001 23:07 - 01-Jun-2001 03:35
σt (kg m−3) at 45 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8


W0105 Big Box 2
29-May-2001 23:07 - 01-Jun-2001 03:35
σt (kg m−3) at 55 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
3000
100
150
50
25.5
26
26.5


W0105 Big Box 2
29-May-2001 23:07 - 01-Jun-2001 03:35
σt (kg m−3) at 75 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
200
100
150
50
300
25.5
26
26.5


W0105 Big Box 2
29-May-2001 23:07 - 01-Jun-2001 03:35
σt (kg m−3) at 95 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
200
100
150
50
3000


W0105 Big Box 2
29-May-2001 23:07 - 01-Jun-2001 03:35
Chlorophyll (µg L−1) at 5 dbar
0
2
4
6
8
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8

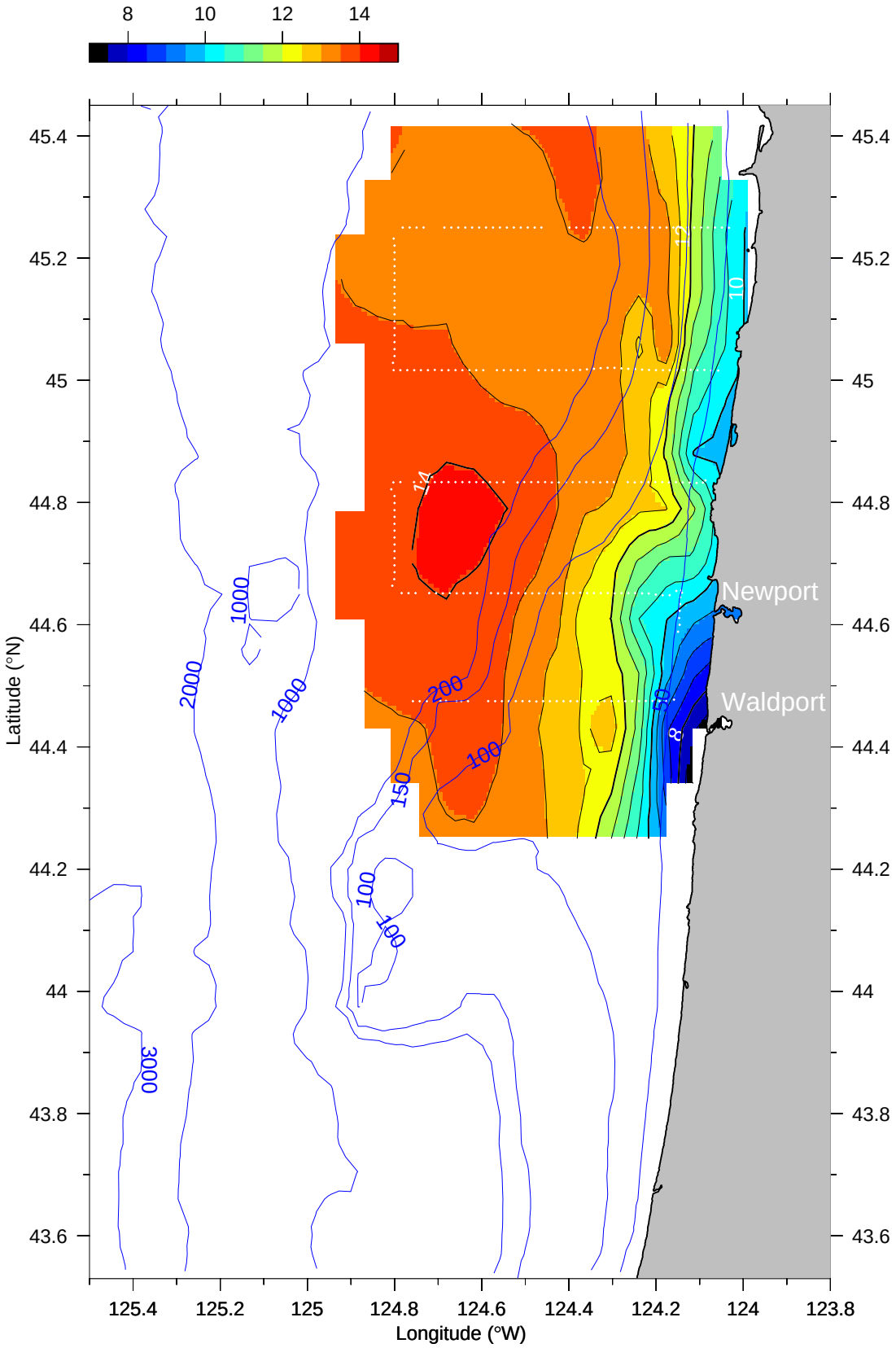
Big Box 3 Maps

Maps of Temperature, Salinity, σ_t, and Chlorophyll at Specified Depths

W0105 Big Box 3

02-Jun-2001 15:28 - 03-Jun-2001 20:15

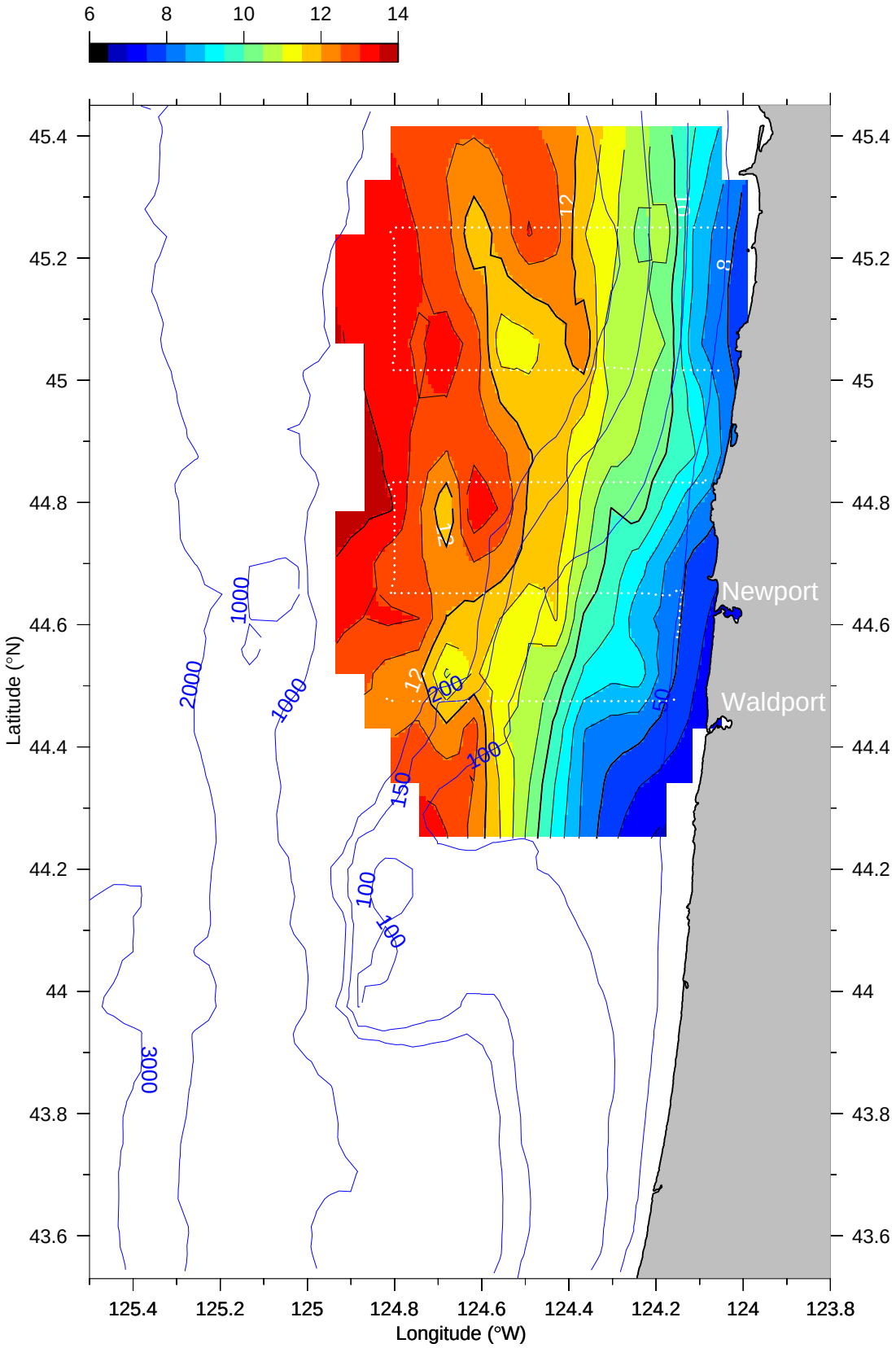
Temperature (°C) at 5 dbar



W0105 Big Box 3

02-Jun-2001 15:28 - 03-Jun-2001 20:15

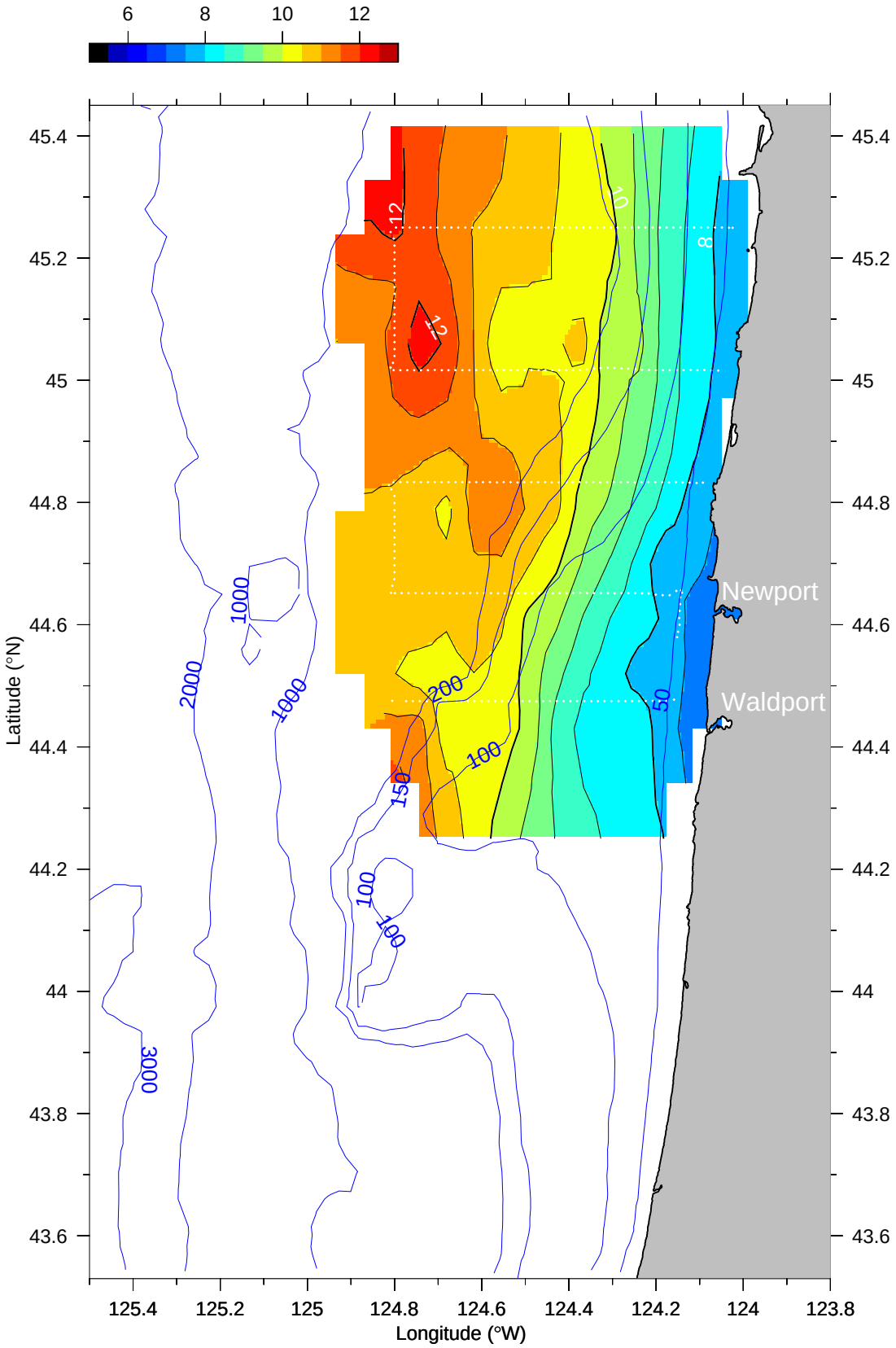
Temperature (°C) at 15 dbar



W0105 Big Box 3

02-Jun-2001 15:28 - 03-Jun-2001 20:15

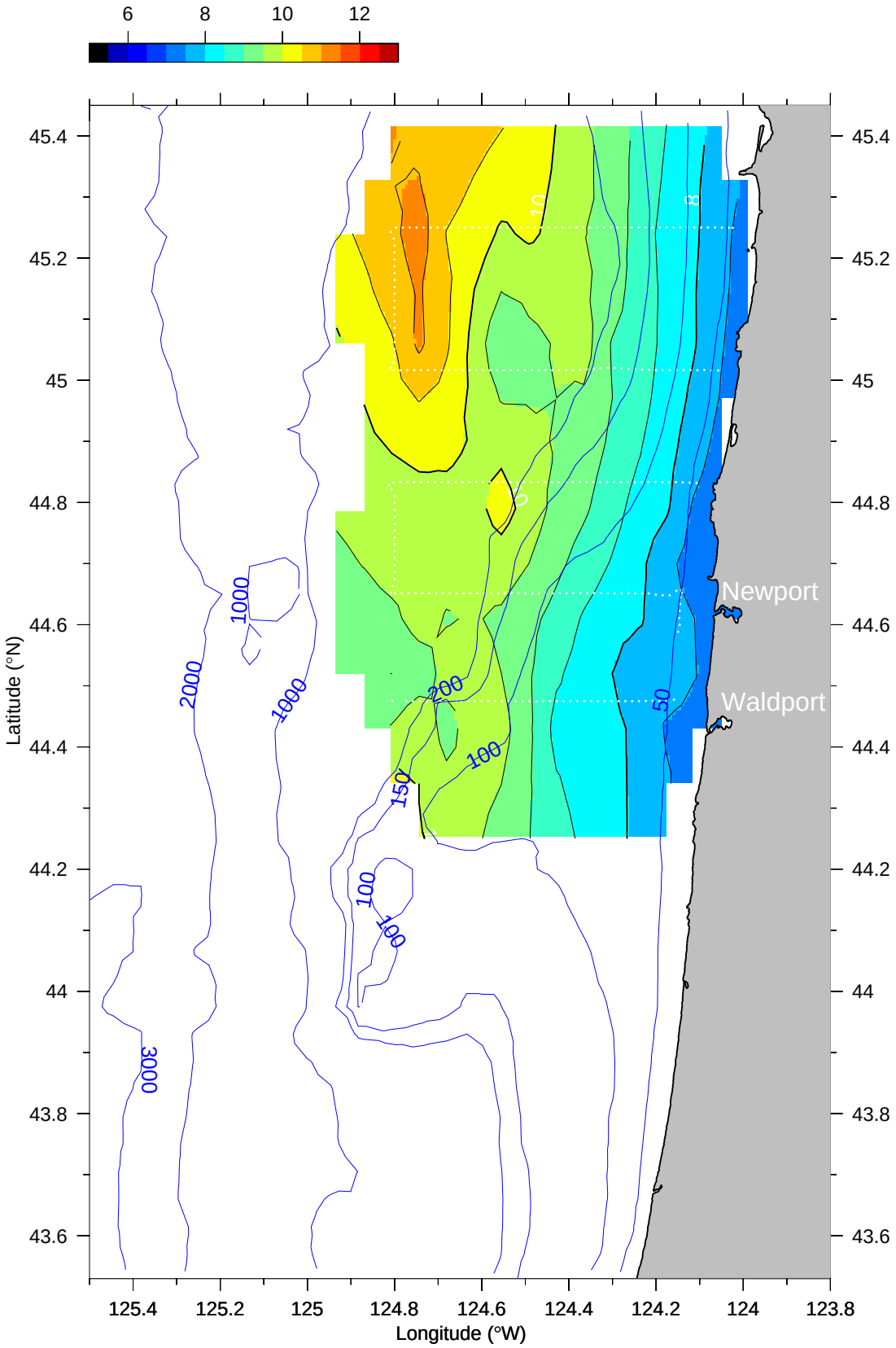
Temperature (°C) at 25 dbar



W0105 Big Box 3

02-Jun-2001 15:28 - 03-Jun-2001 20:15

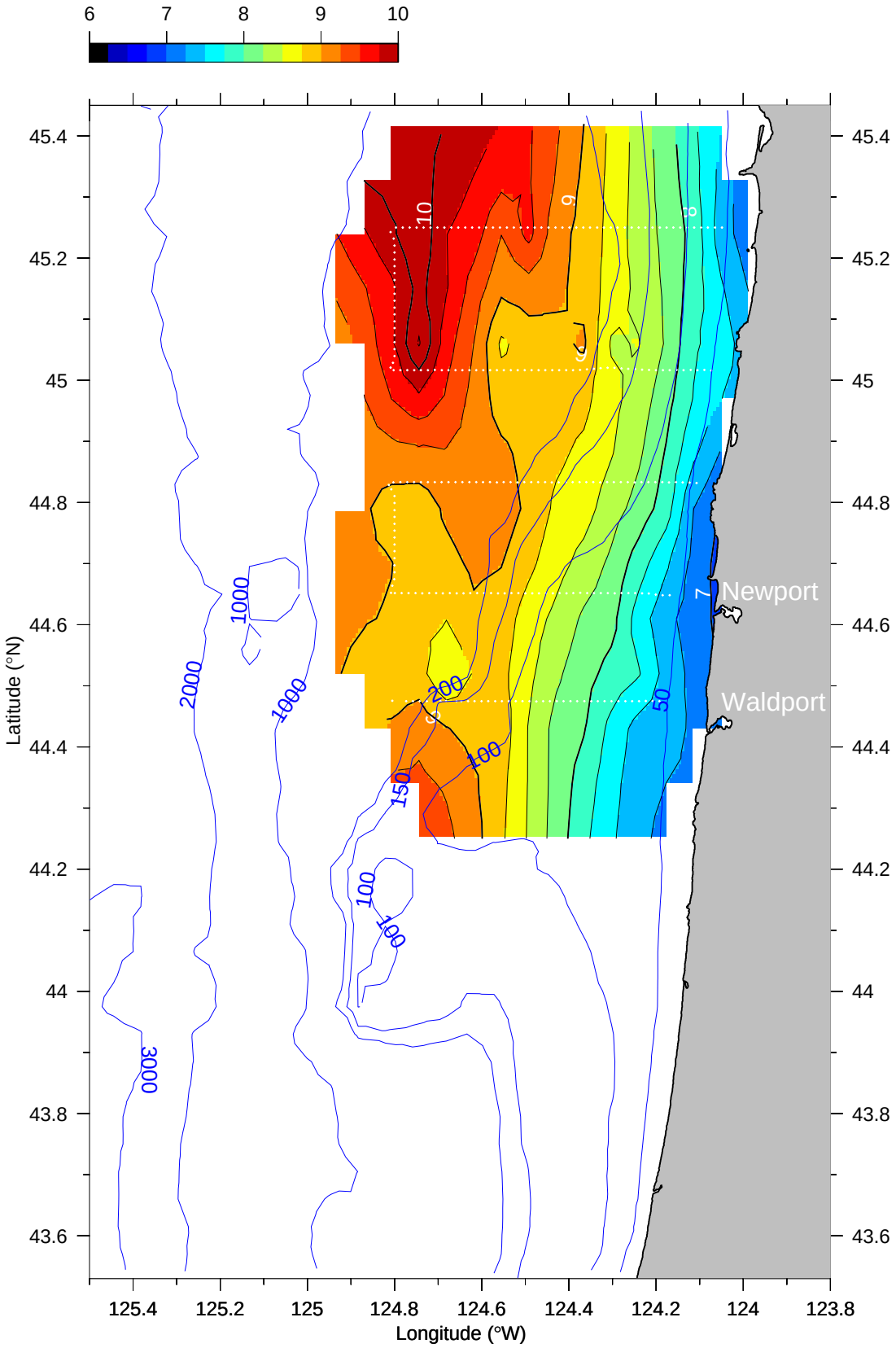
Temperature (°C) at 35 dbar



W0105 Big Box 3

02-Jun-2001 15:28 - 03-Jun-2001 20:15

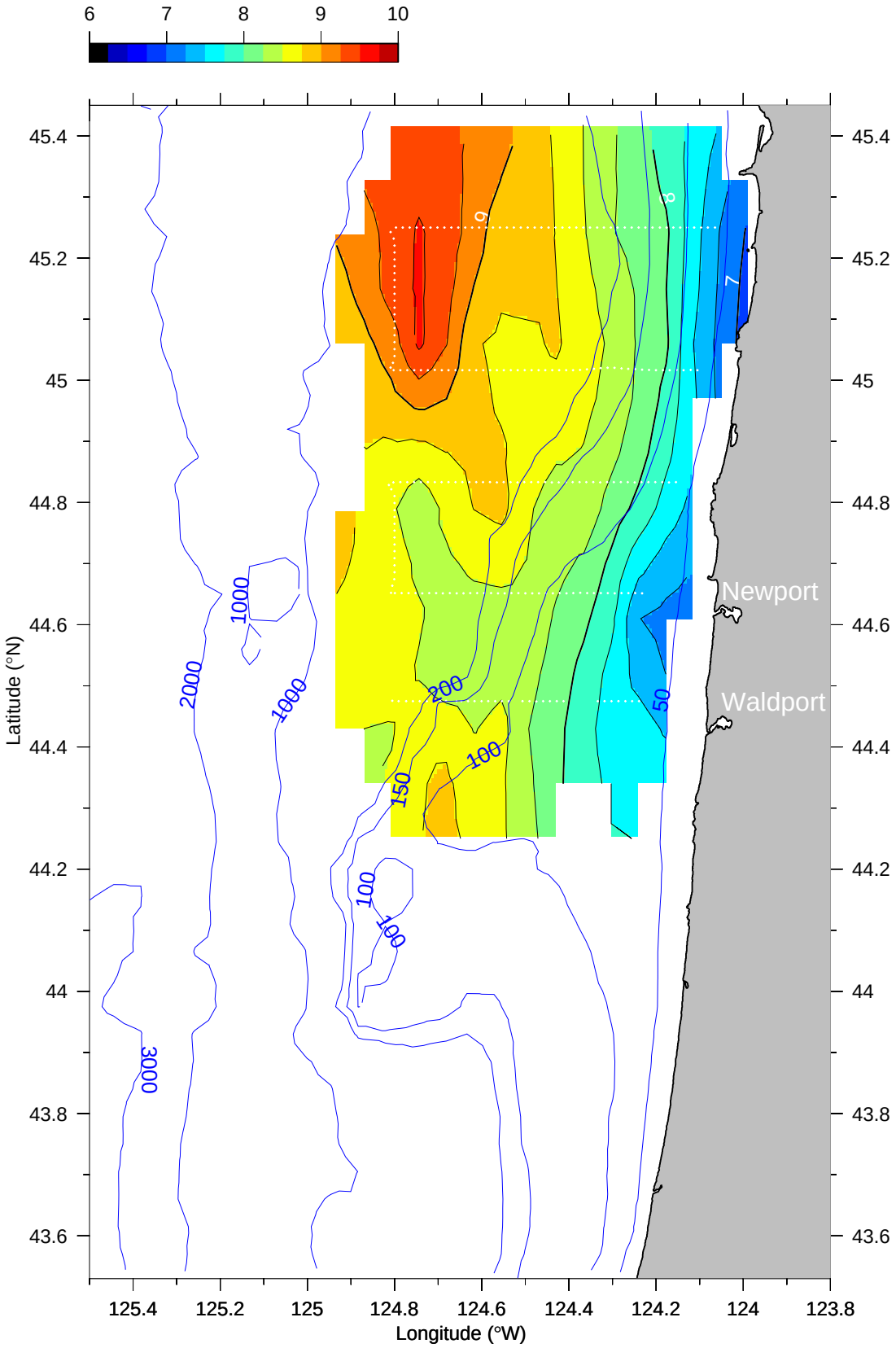
Temperature (°C) at 45 dbar



W0105 Big Box 3

02-Jun-2001 15:28 - 03-Jun-2001 20:15

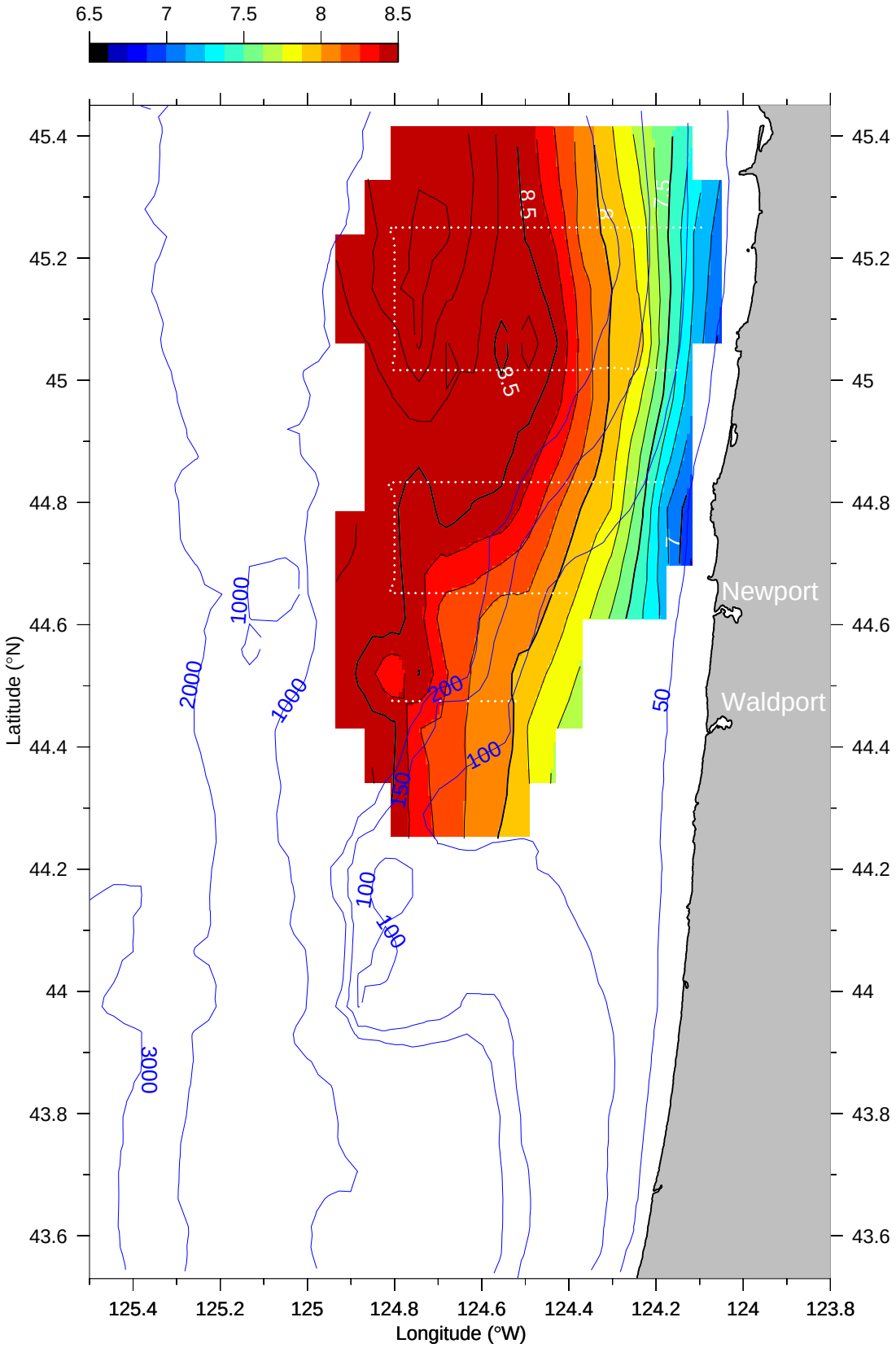
Temperature (°C) at 55 dbar



W0105 Big Box 3

02-Jun-2001 15:28 - 03-Jun-2001 20:15

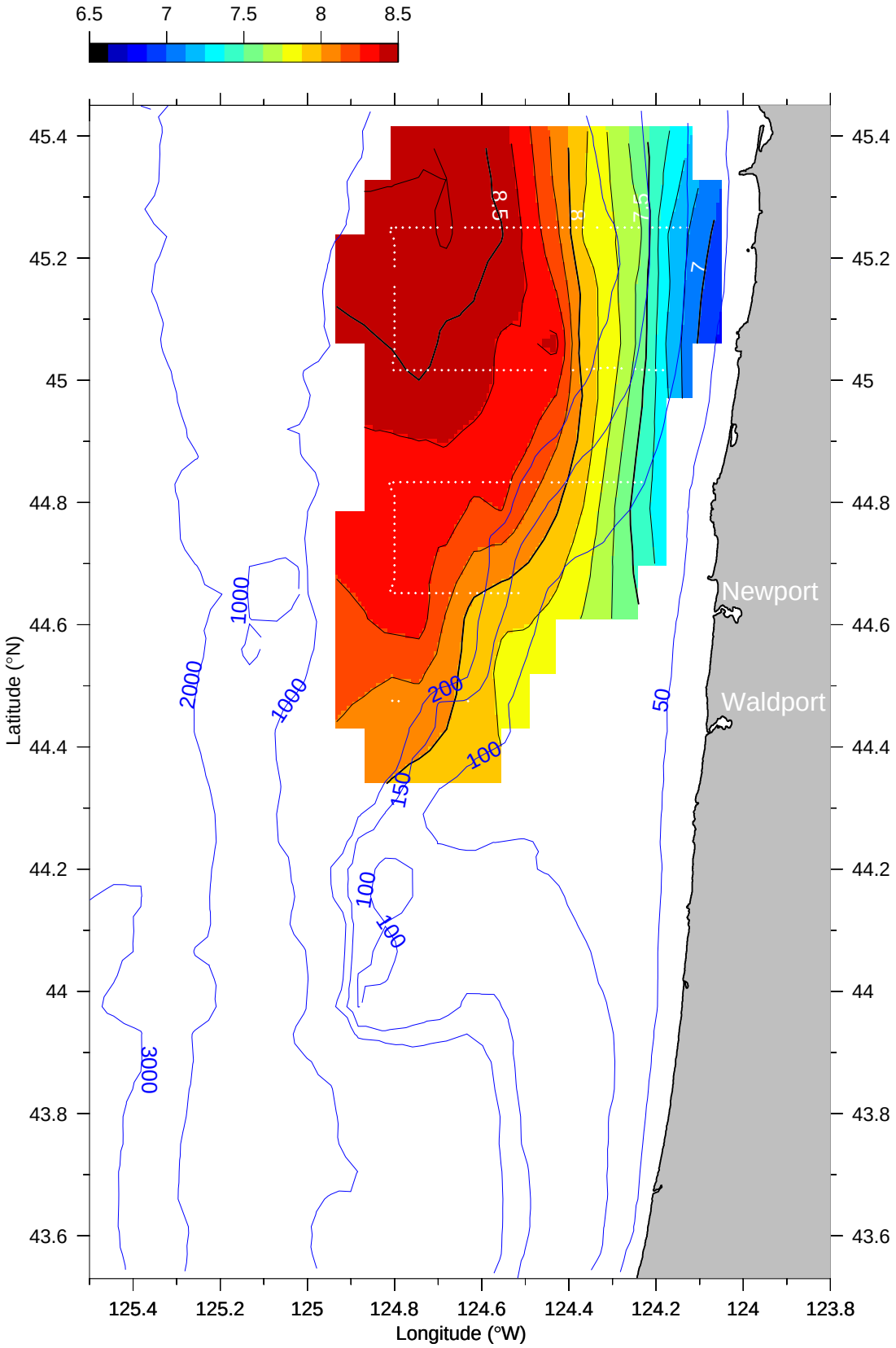
Temperature (°C) at 75 dbar



W0105 Big Box 3

02-Jun-2001 15:28 - 03-Jun-2001 20:15

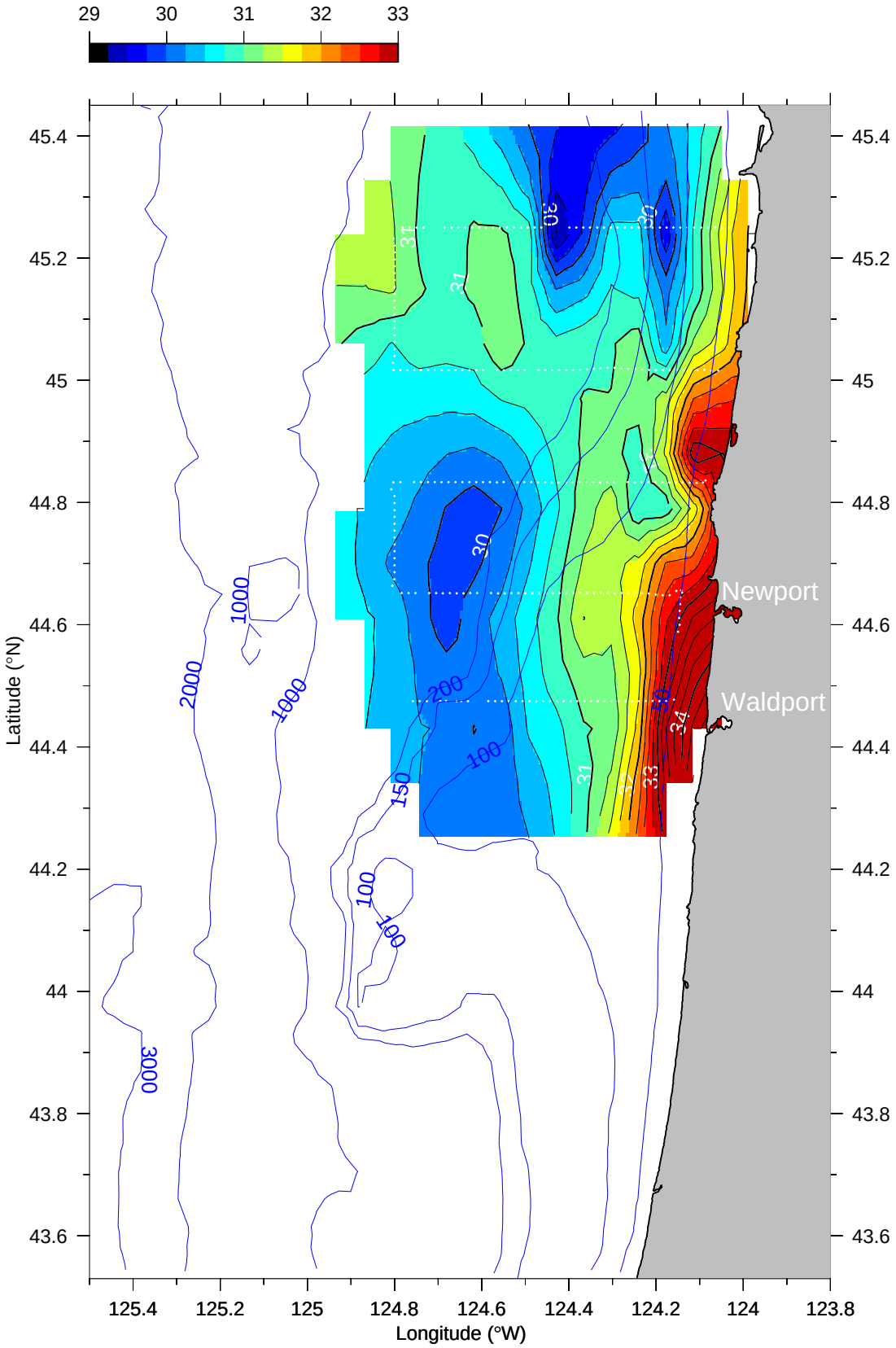
Temperature (°C) at 95 dbar



W0105 Big Box 3

02-Jun-2001 15:28 - 03-Jun-2001 20:15

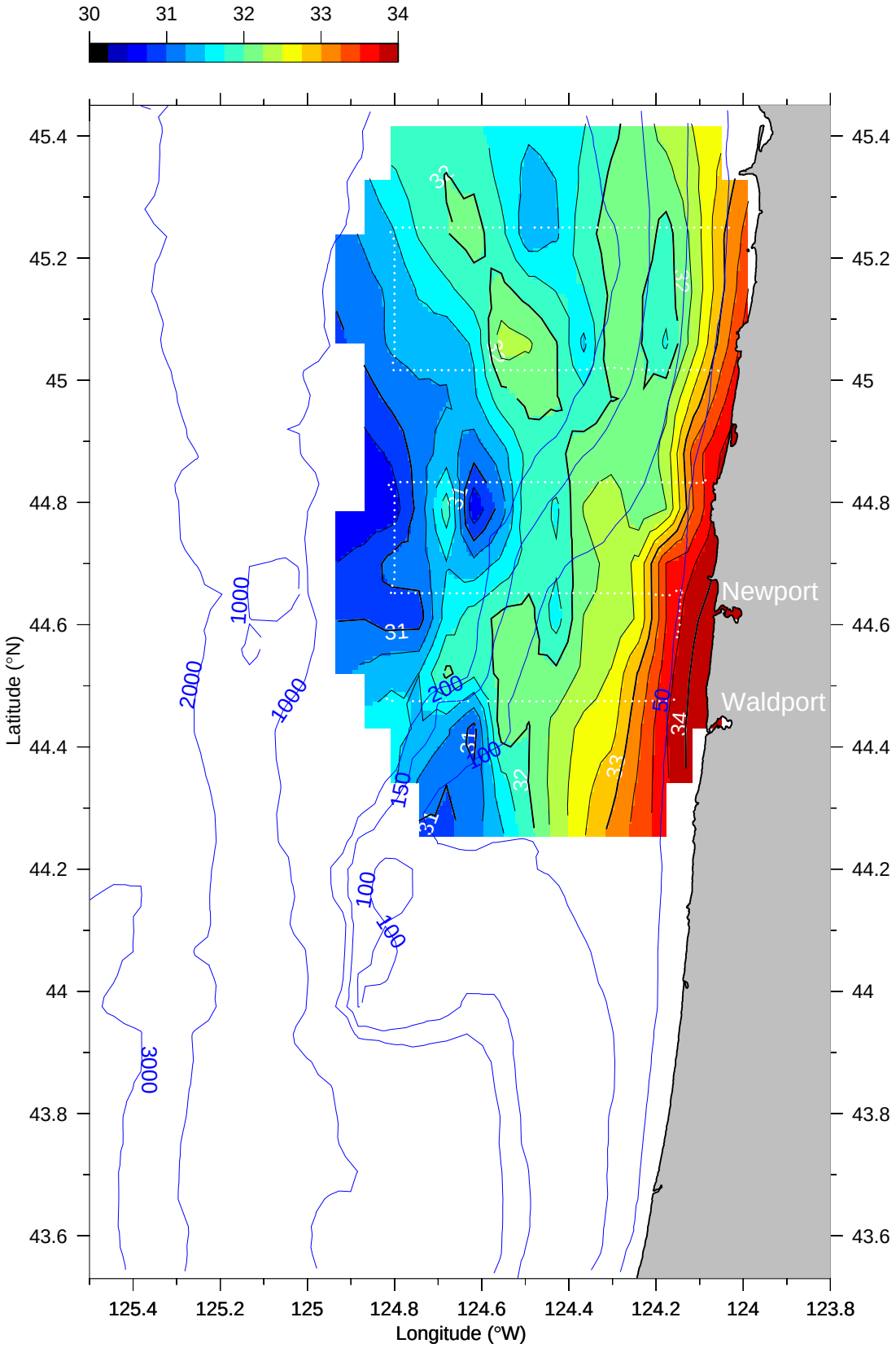
Salinity (PSS) at 5 dbar



W0105 Big Box 3

02-Jun-2001 15:28 - 03-Jun-2001 20:15

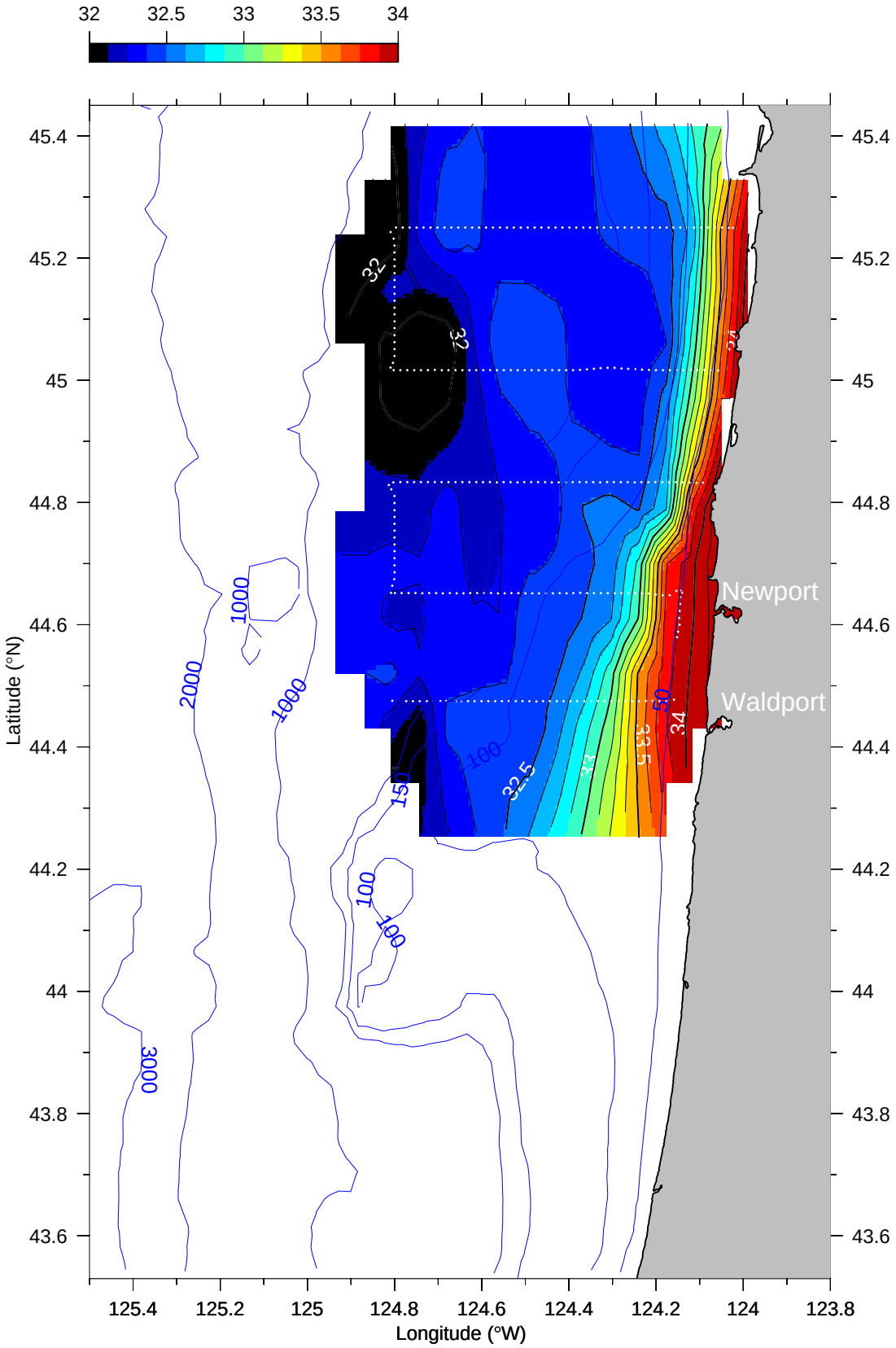
Salinity (PSS) at 15 dbar

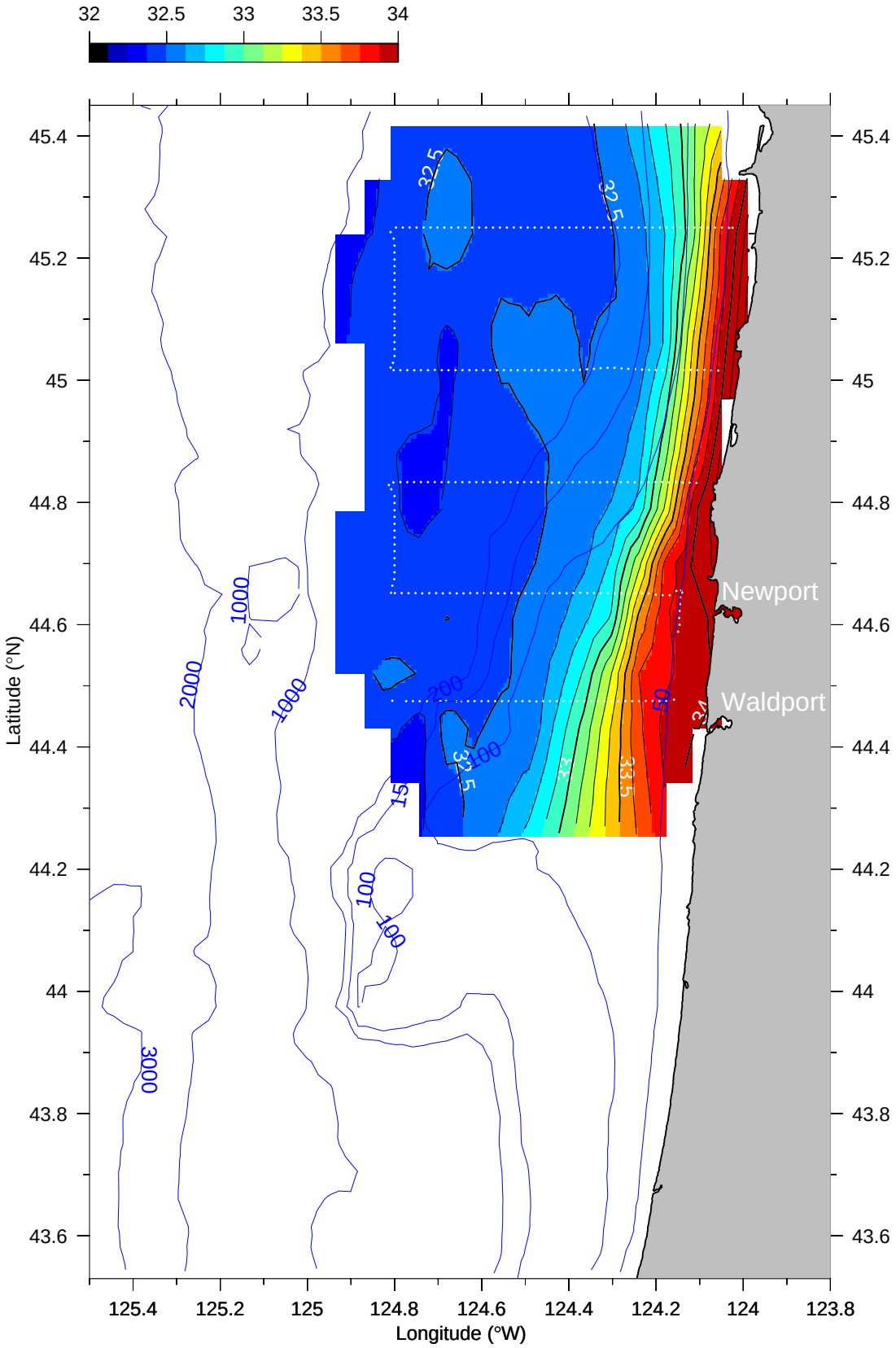


W0105 Big Box 3

02-Jun-2001 15:28 - 03-Jun-2001 20:15

Salinity (PSS) at 25 dbar

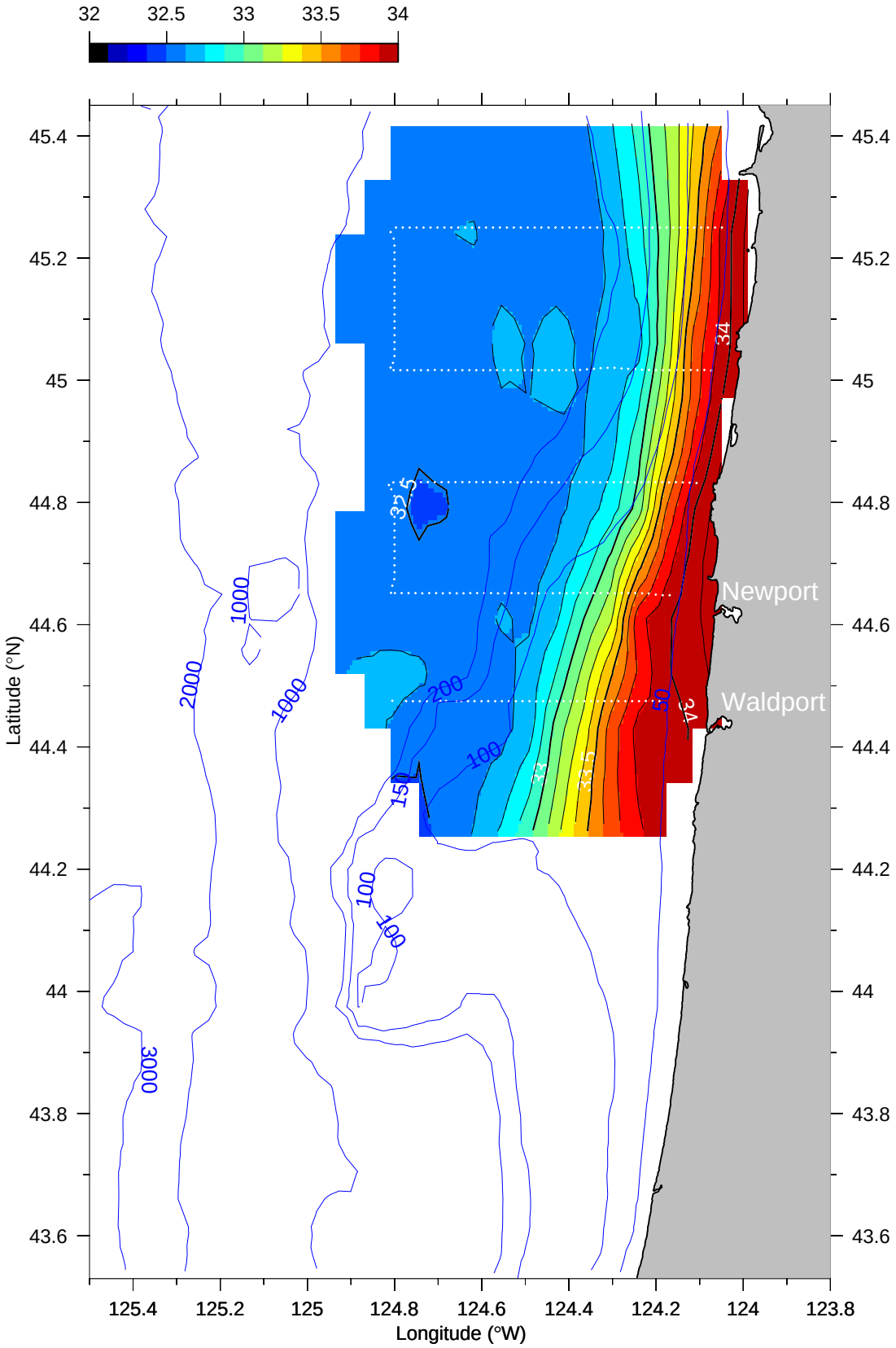



W0105 Big Box 3
02-Jun-2001 15:28 - 03-Jun-2001 20:15
Salinity (PSS) at 35 dbar
32
32.5
33
33.5
34
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8

W0105 Big Box 3

02-Jun-2001 15:28 - 03-Jun-2001 20:15

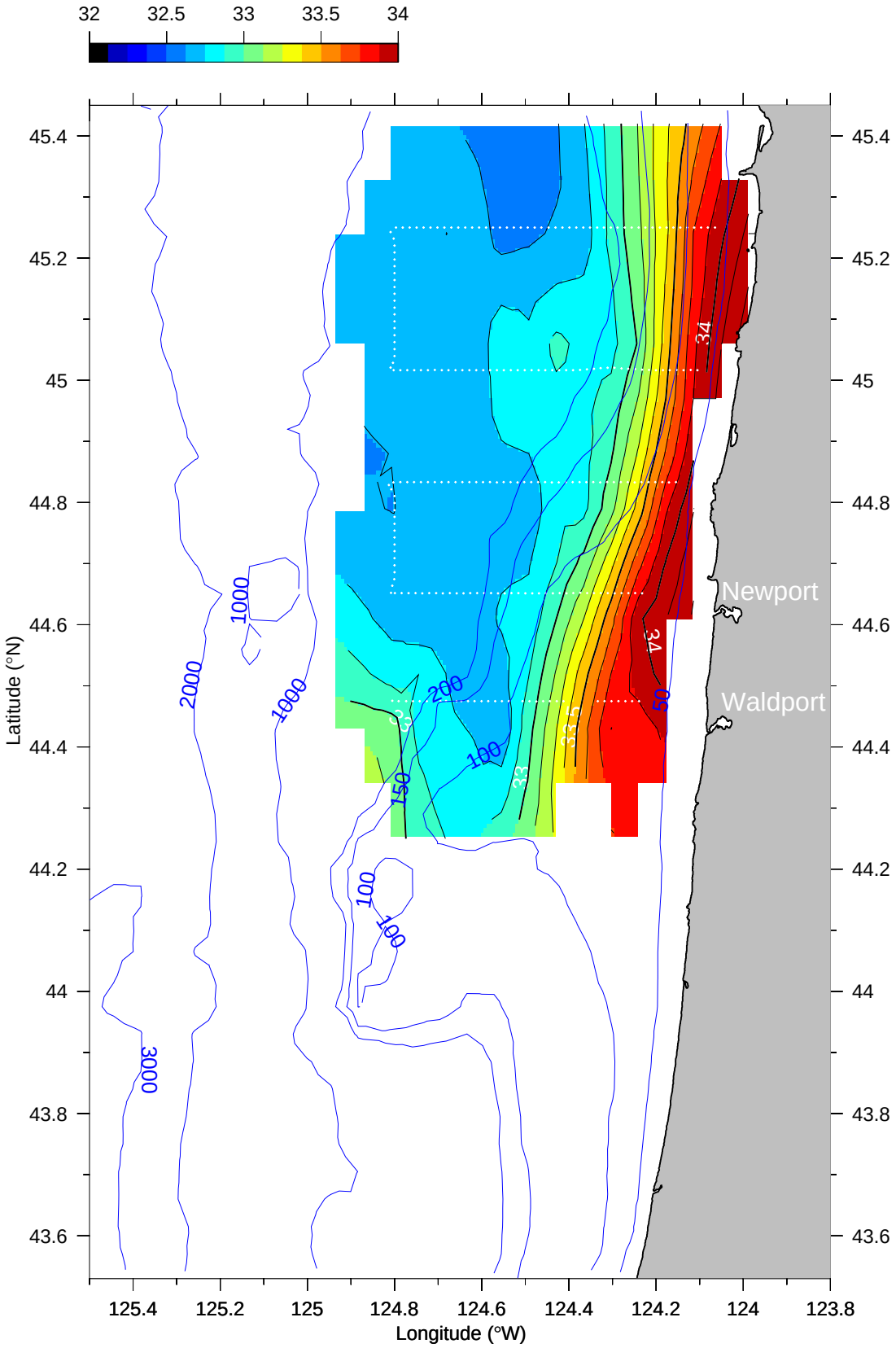
Salinity (PSS) at 45 dbar



W0105 Big Box 3

02-Jun-2001 15:28 - 03-Jun-2001 20:15

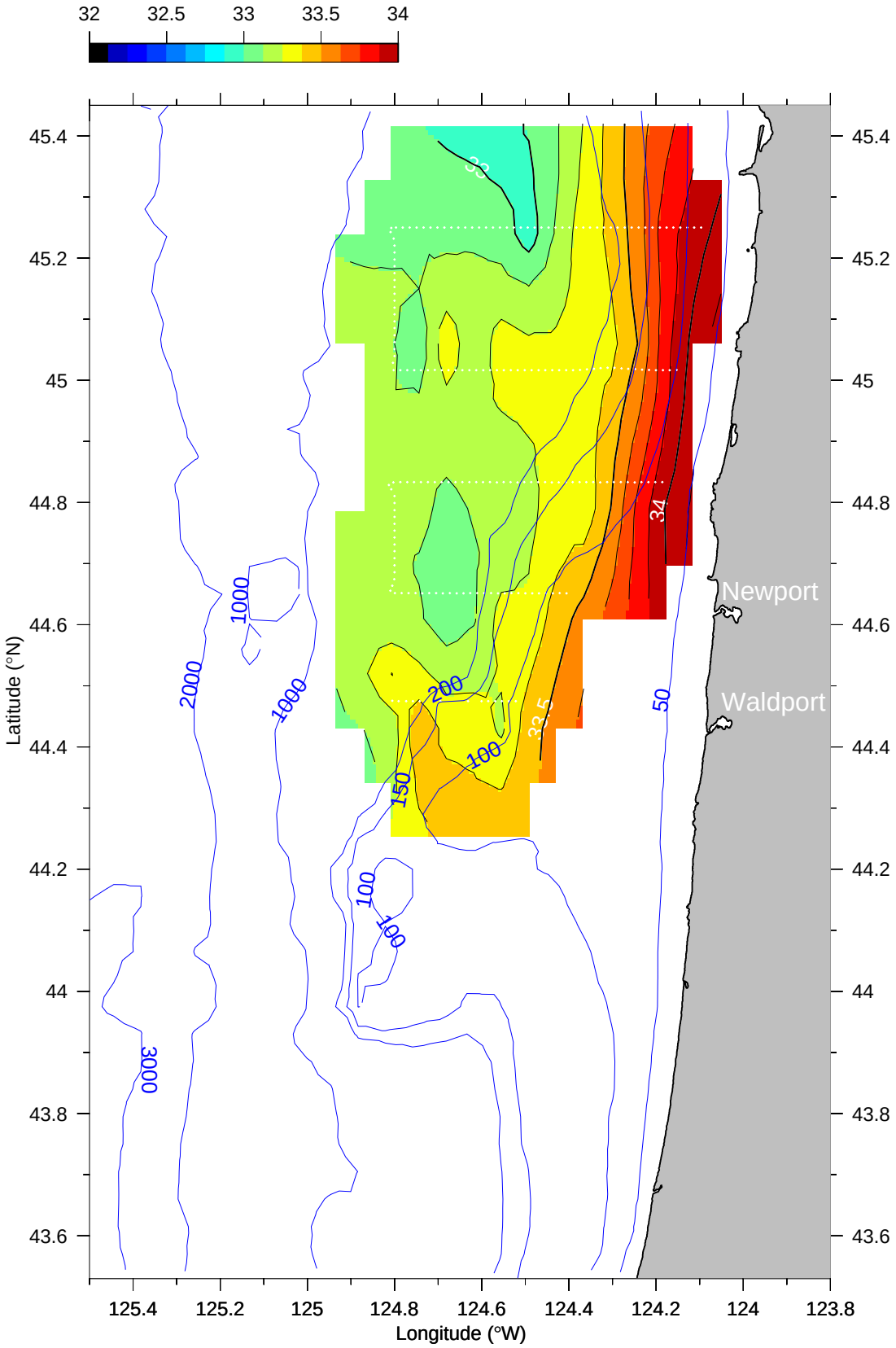
Salinity (PSS) at 55 dbar



W0105 Big Box 3

02-Jun-2001 15:28 - 03-Jun-2001 20:15

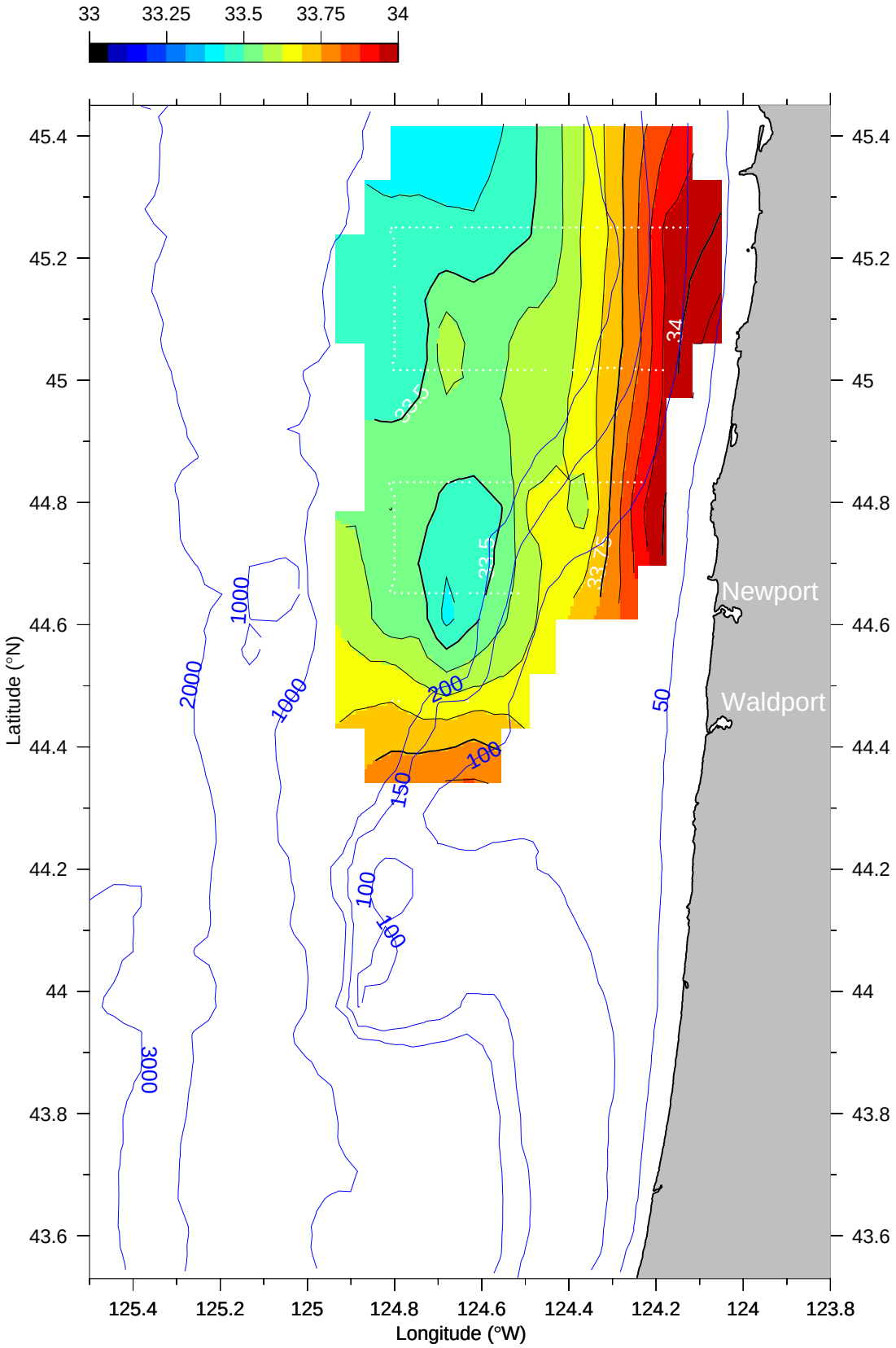
Salinity (PSS) at 75 dbar

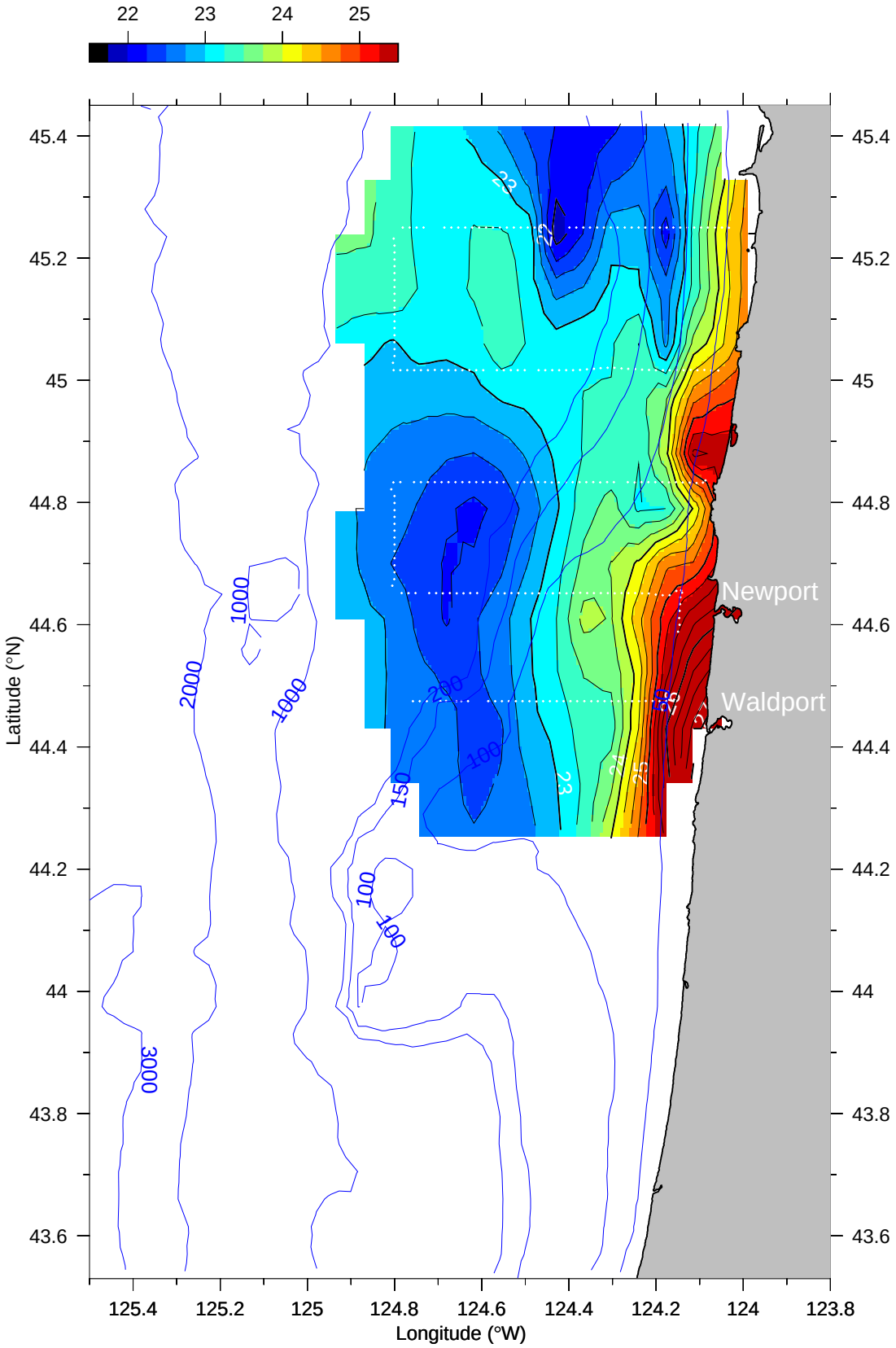


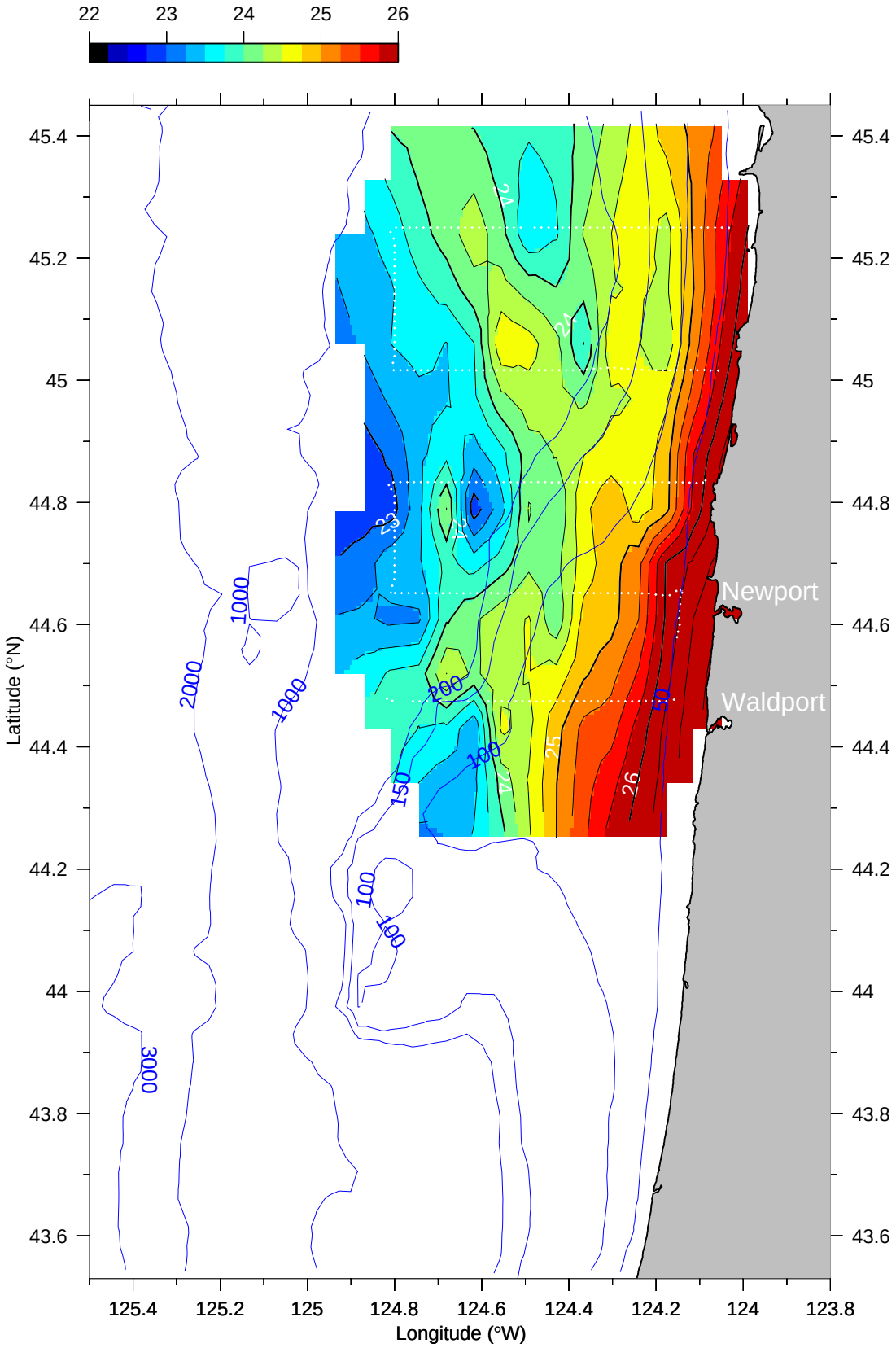
W0105 Big Box 3

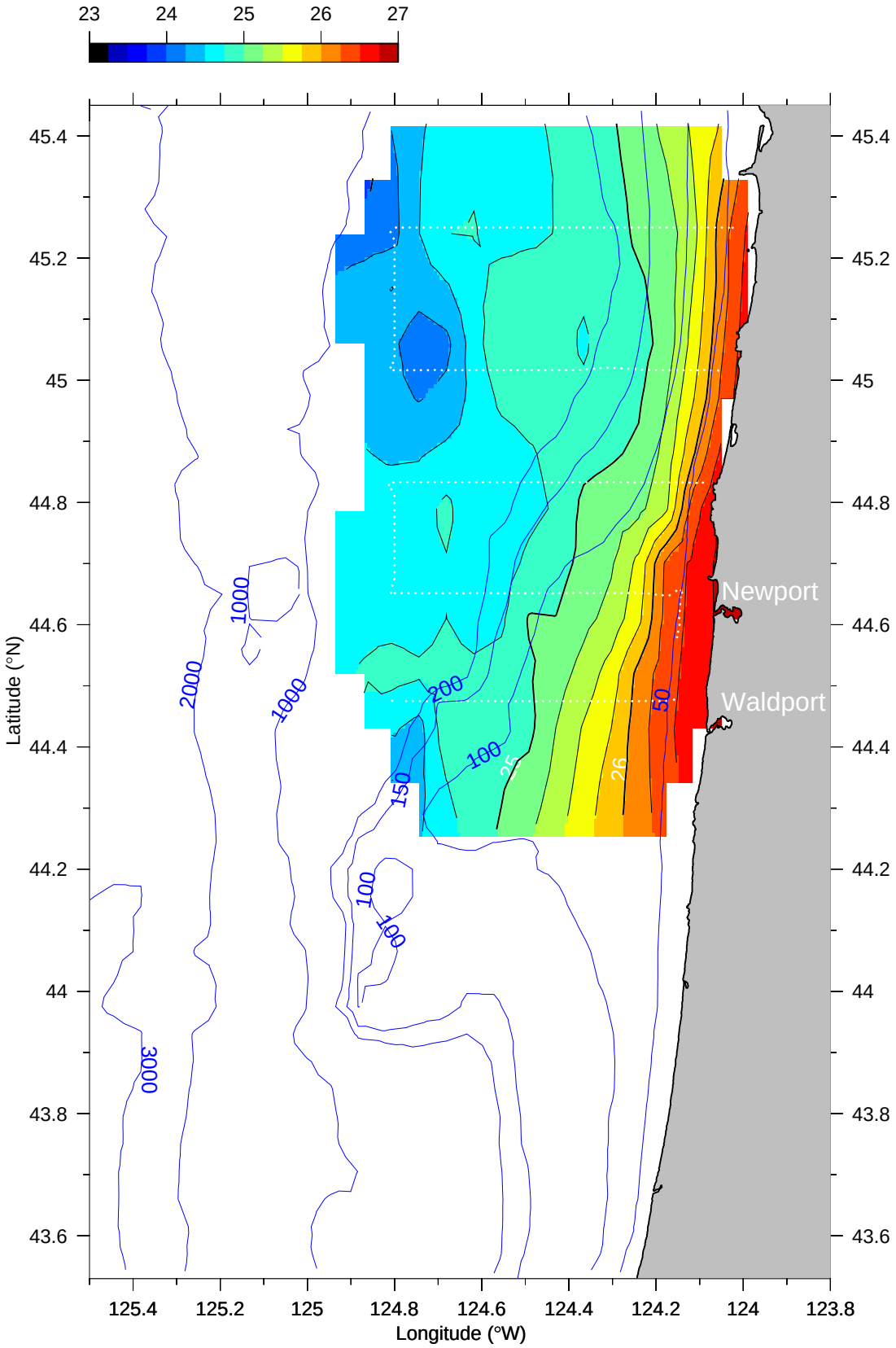
02-Jun-2001 15:28 - 03-Jun-2001 20:15

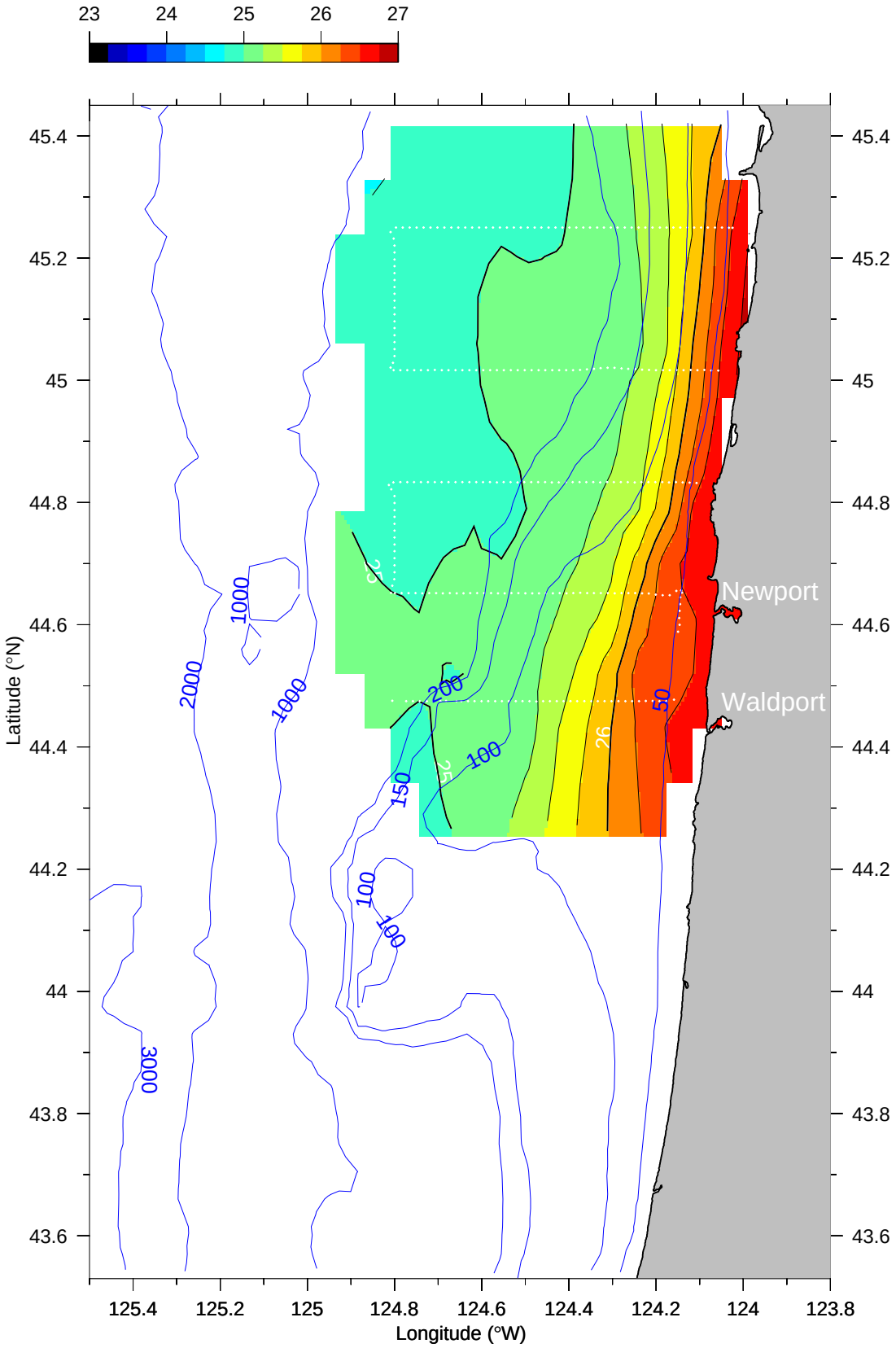
Salinity (PSS) at 95 dbar

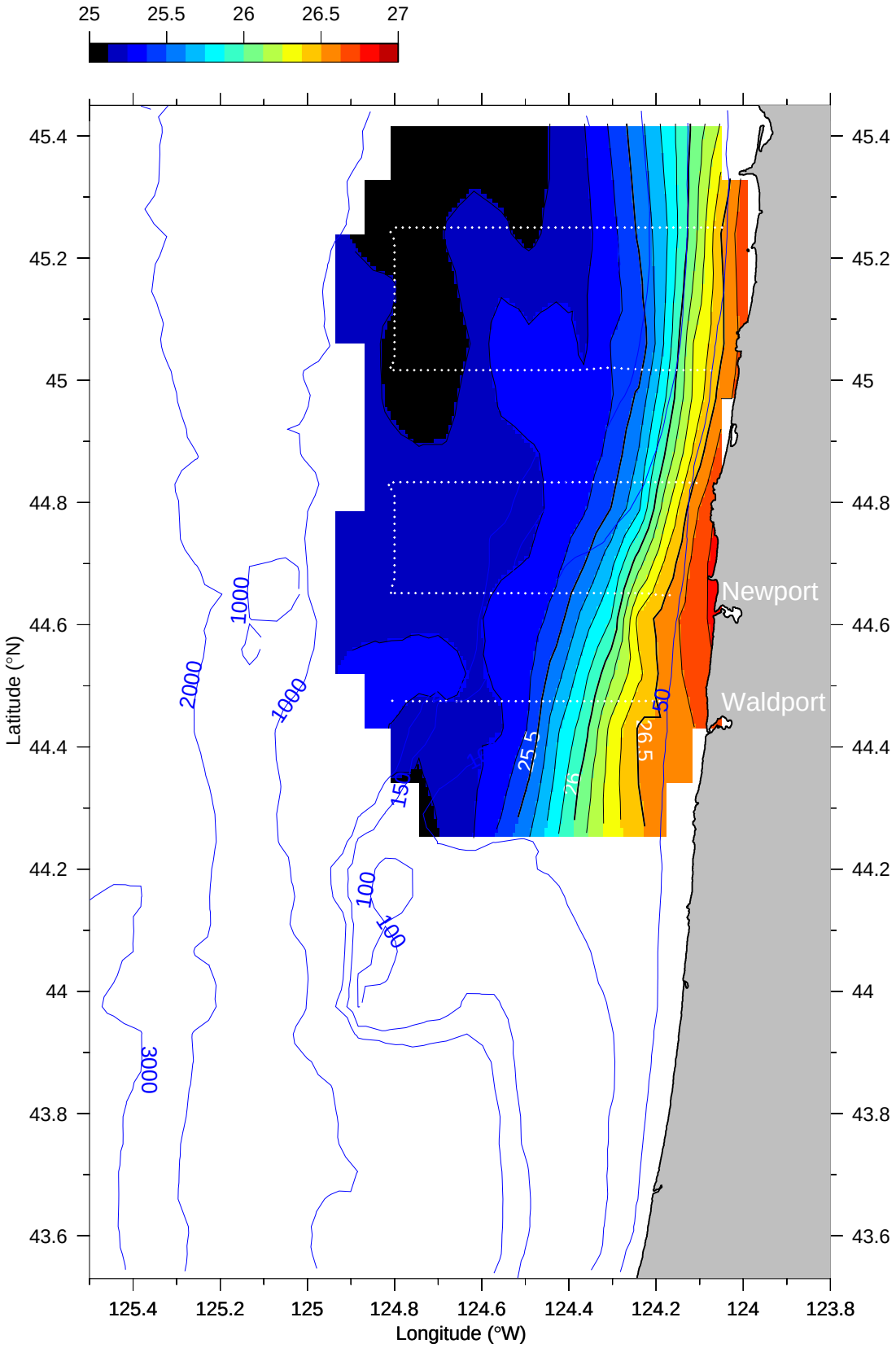


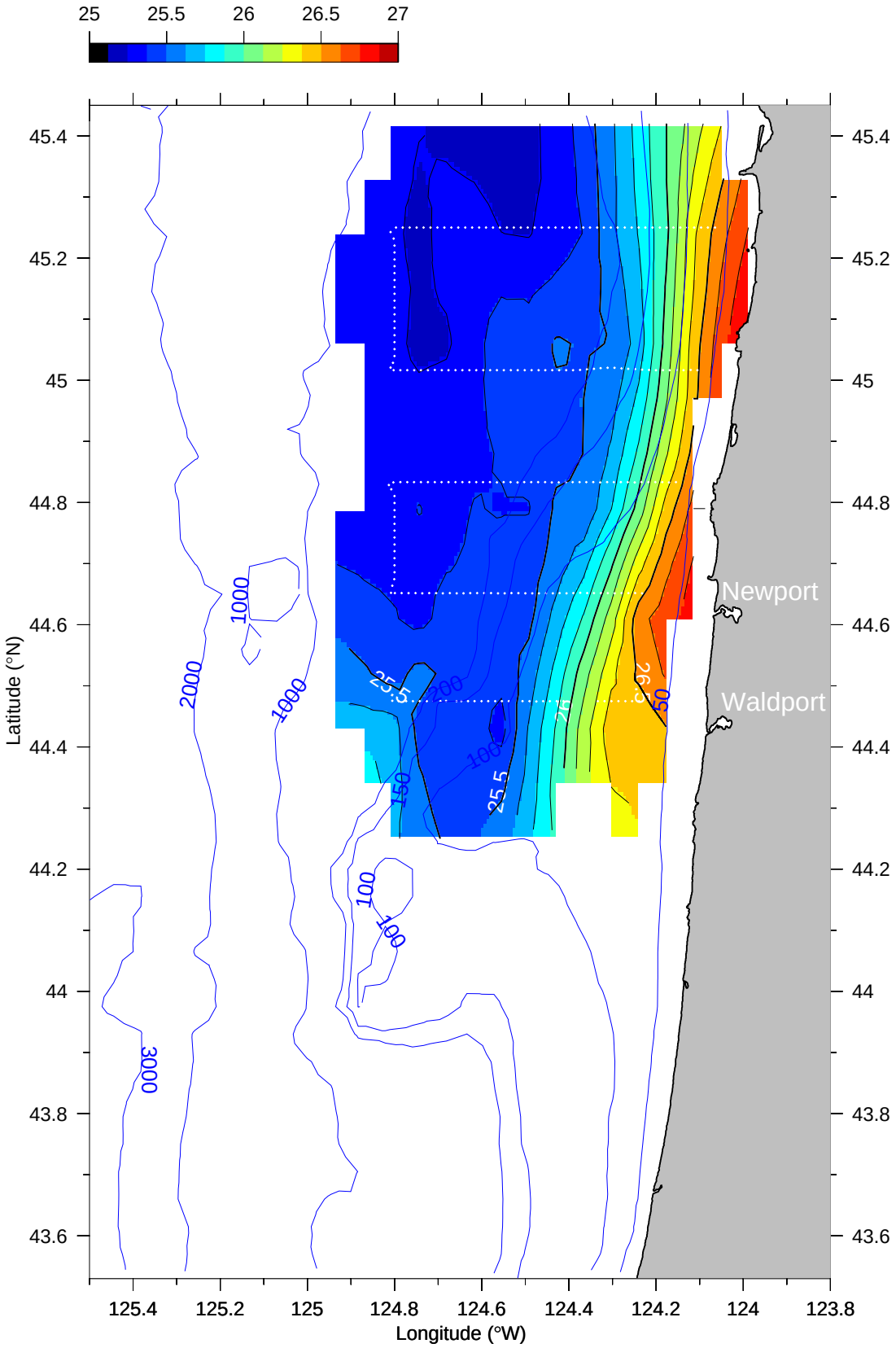

W0105 Big Box 3
02-Jun-2001 15:28 - 03-Jun-2001 20:15
σt (kg m−3) at 5 dbar
22
23
24
25
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8

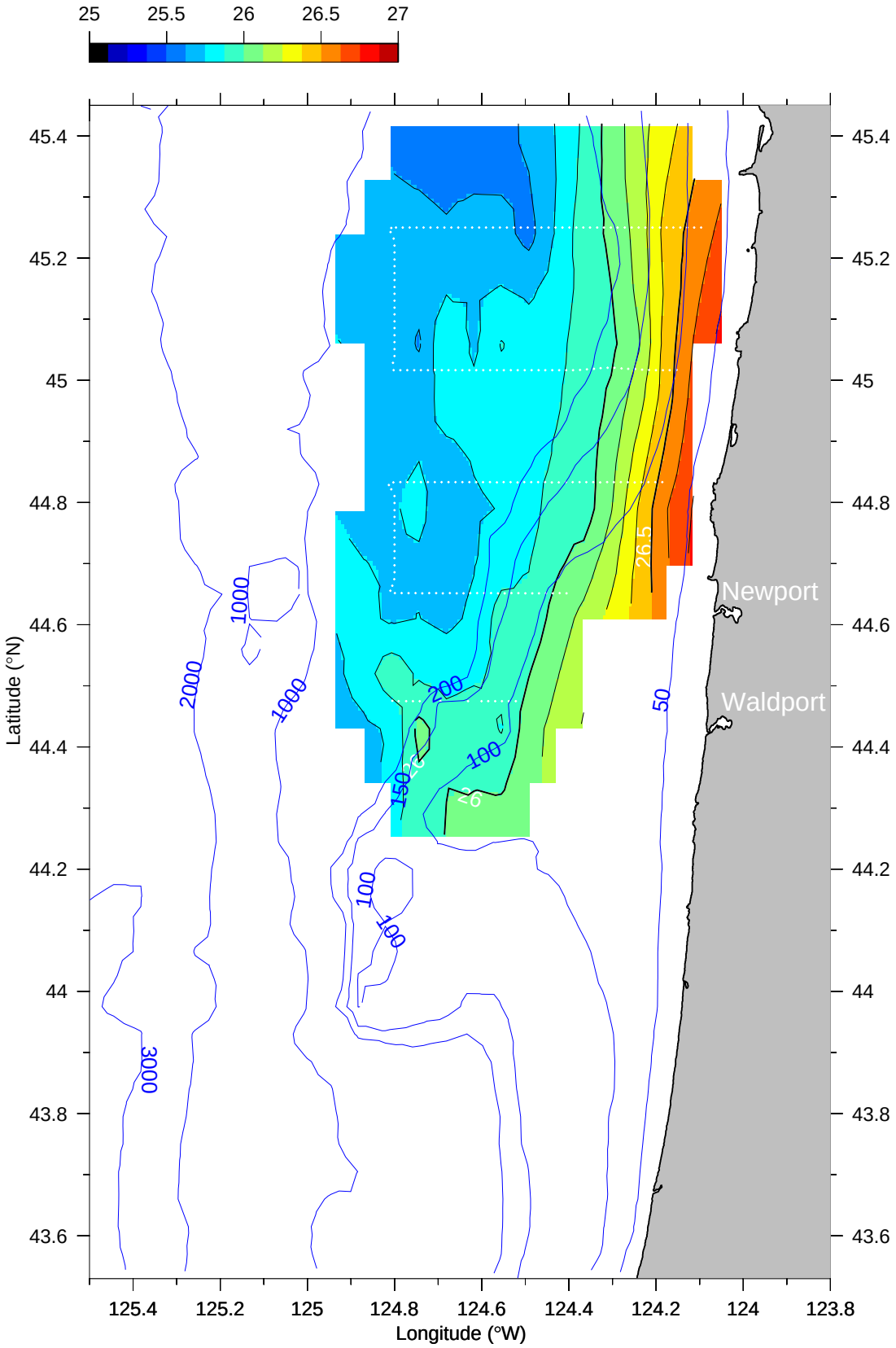

W0105 Big Box 3
02-Jun-2001 15:28 - 03-Jun-2001 20:15
σt (kg m−3) at 15 dbar
22
23
24
25
26
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
3000
200
100
150

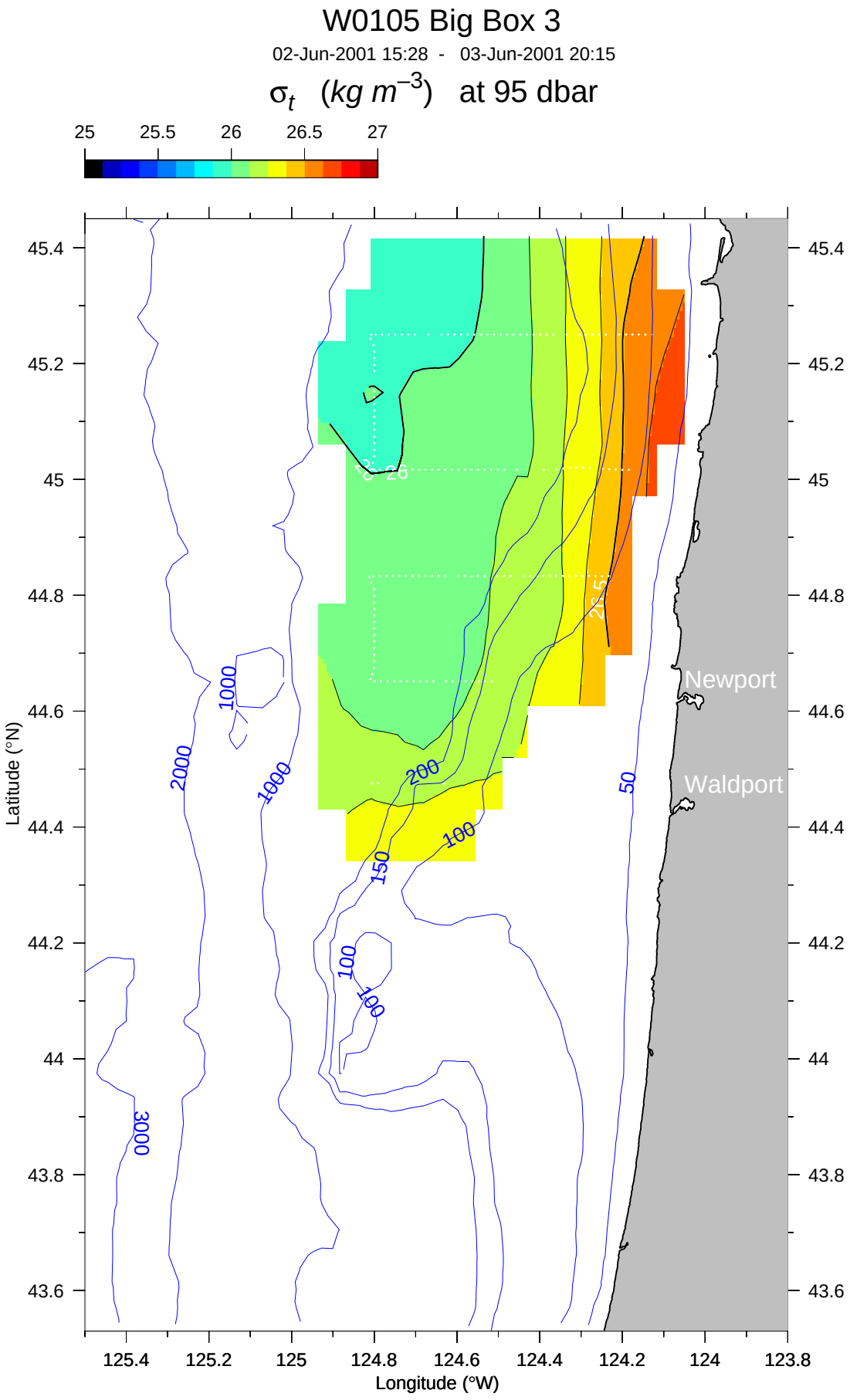

W0105 Big Box 3
02-Jun-2001 15:28 - 03-Jun-2001 20:15
σt (kg m−3) at 25 dbar
23
24
25
26
27
Newport
Waldport
1000
2000
1000
200
100
50
25
26
150
100
100
3000
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8

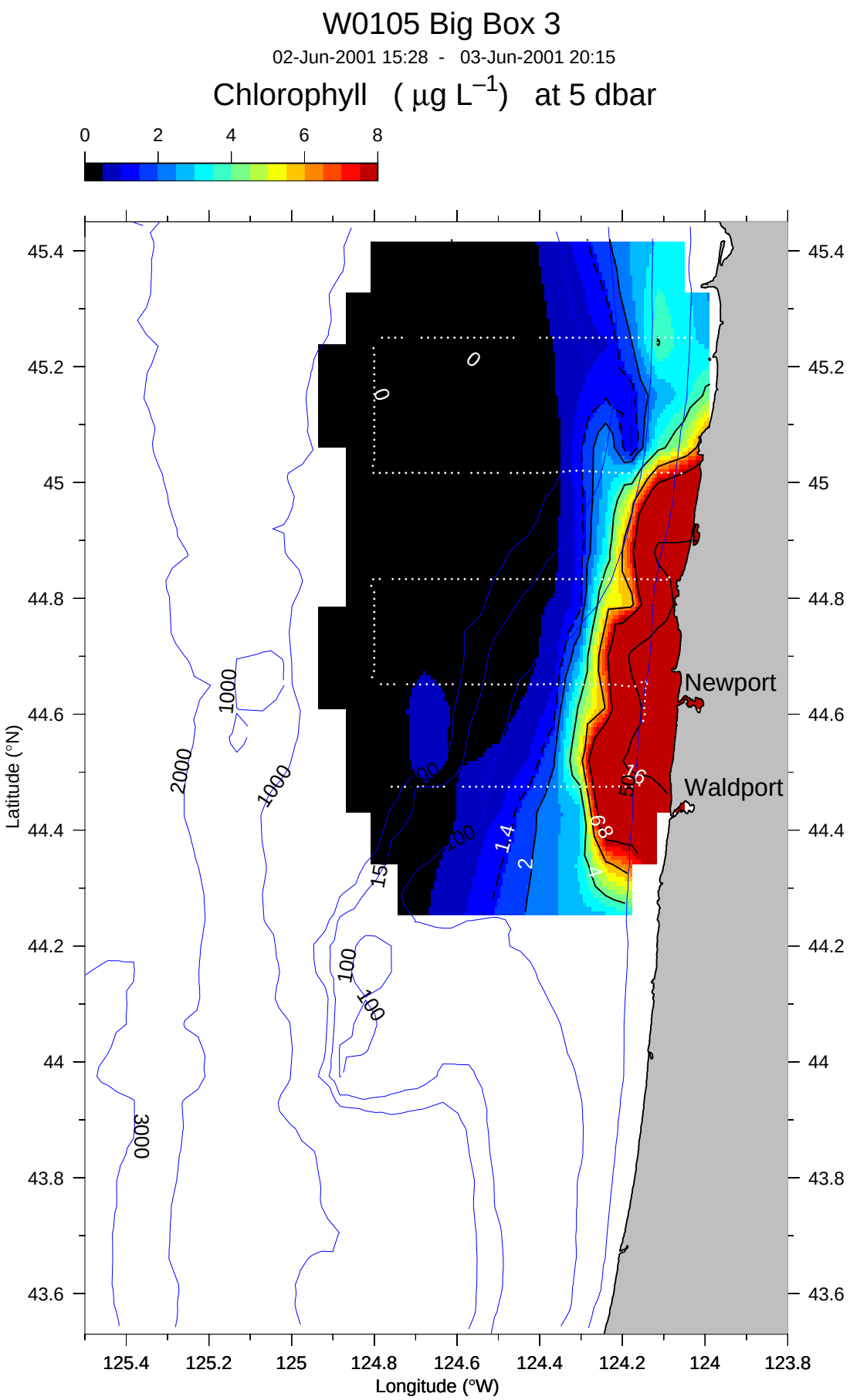

W0105 Big Box 3
02-Jun-2001 15:28 - 03-Jun-2001 20:15
σt (kg m−3) at 35 dbar
23
24
25
26
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
200
100
150
50
25
26
3000


W0105 Big Box 3
02-Jun-2001 15:28 - 03-Jun-2001 20:15
σt (kg m−3) at 45 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
3000
100
150
50


W0105 Big Box 3
02-Jun-2001 15:28 - 03-Jun-2001 20:15
σt (kg m−3) at 55 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
3000
100
150
200
50
25.5
26


W0105 Big Box 3
02-Jun-2001 15:28 - 03-Jun-2001 20:15
σt (kg m−3) at 75 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
1000
200
100
150
100
100
3000
26.5
50


W0105 Big Box 3
02-Jun-2001 15:28 - 03-Jun-2001 20:15
σt (kg m−3) at 95 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
1000
200
100
150
100
100
3000
50


W0105 Big Box 3
02-Jun-2001 15:28 - 03-Jun-2001 20:15
Chlorophyll (µg L−1) at 5 dbar
0
2
4
6
8
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8

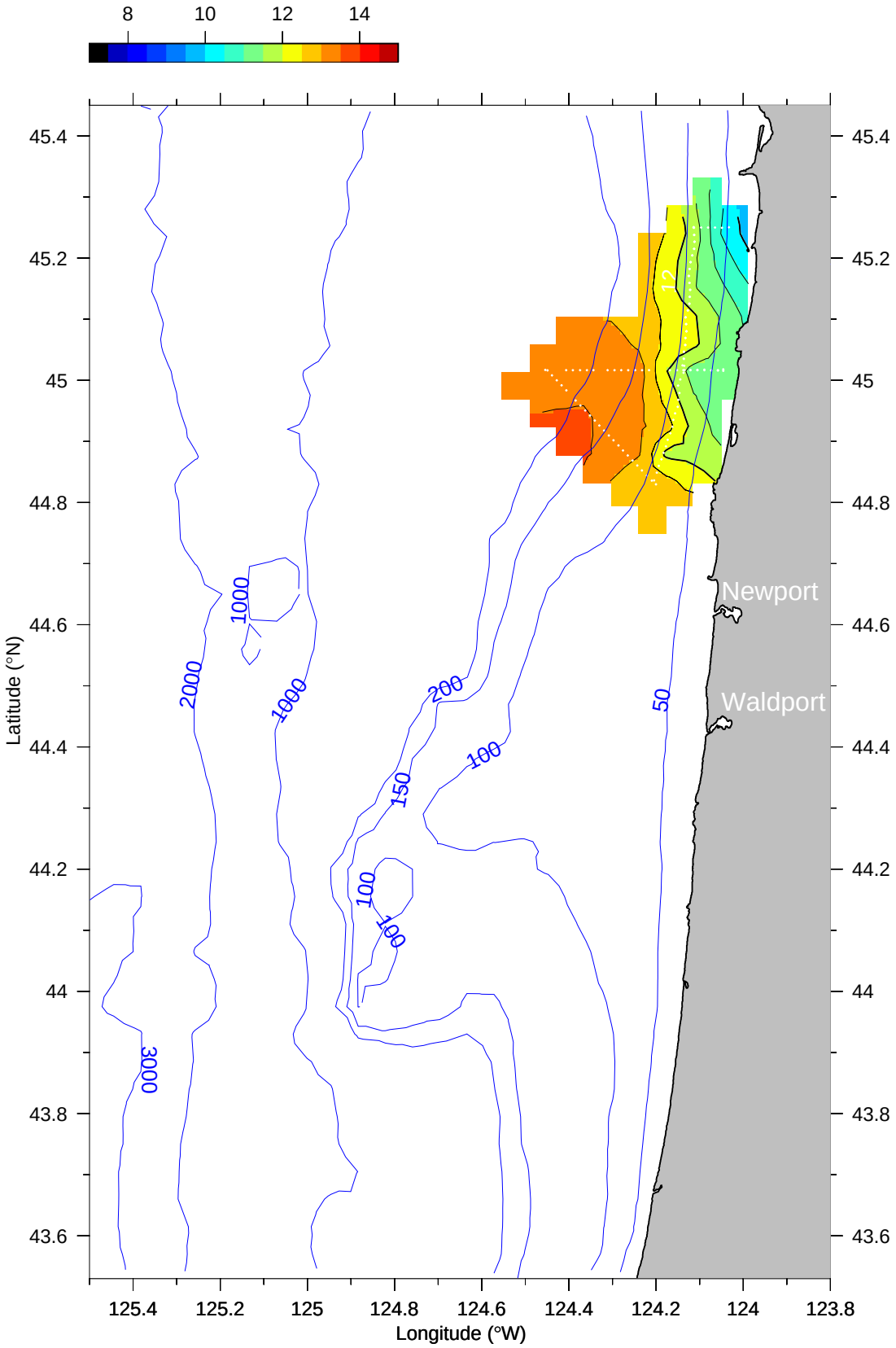
Butterfly 1 Maps

Maps of Temperature, Salinity, σ_t, and Chlorophyll at Specified Depths

W0105 Butterfly 1

03-Jun-2001 20:16 - 04-Jun-2001 07:23

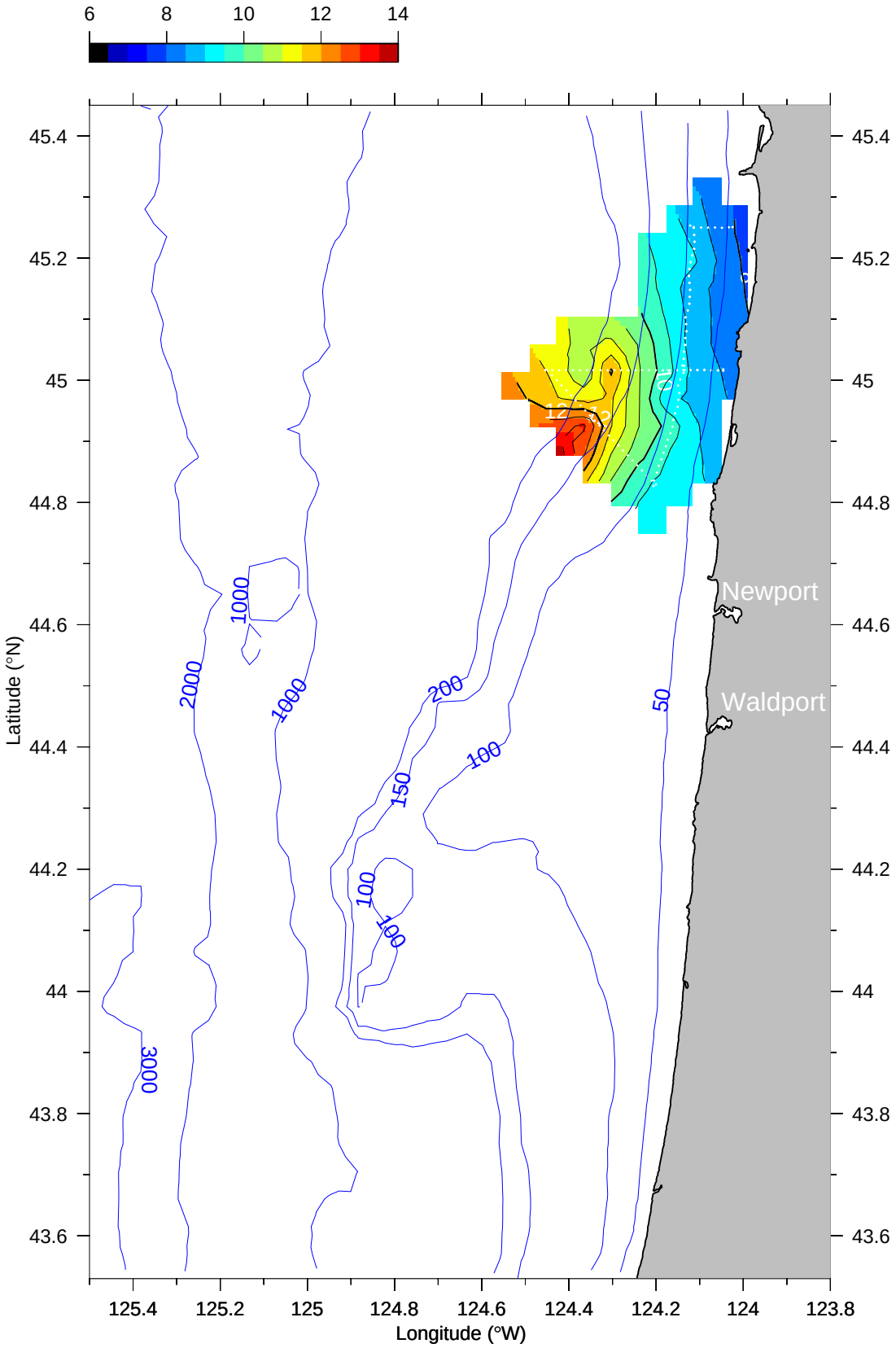
Temperature (°C) at 5 dbar

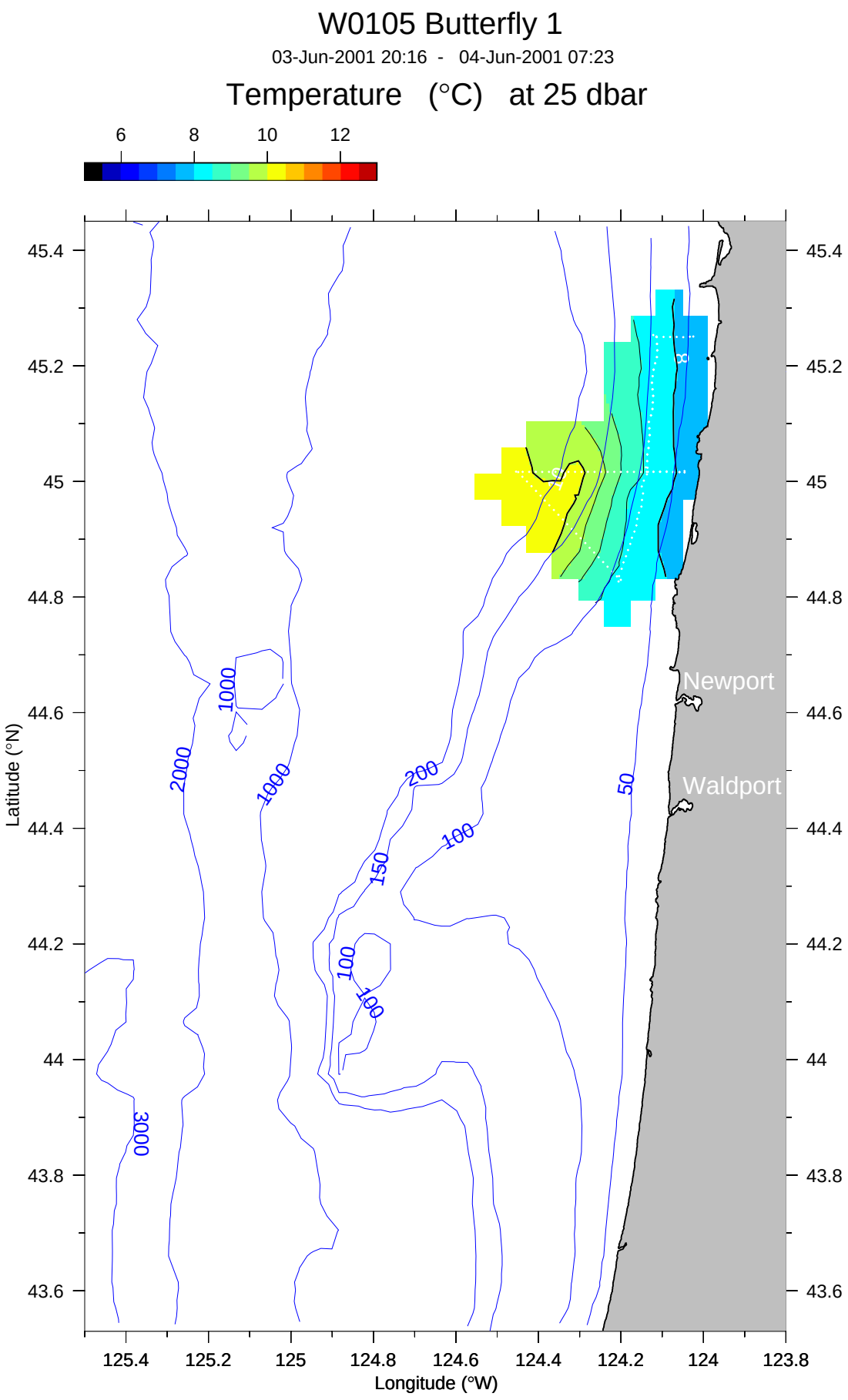


W0105 Butterfly 1

03-Jun-2001 20:16 - 04-Jun-2001 07:23

Temperature (°C) at 15 dbar

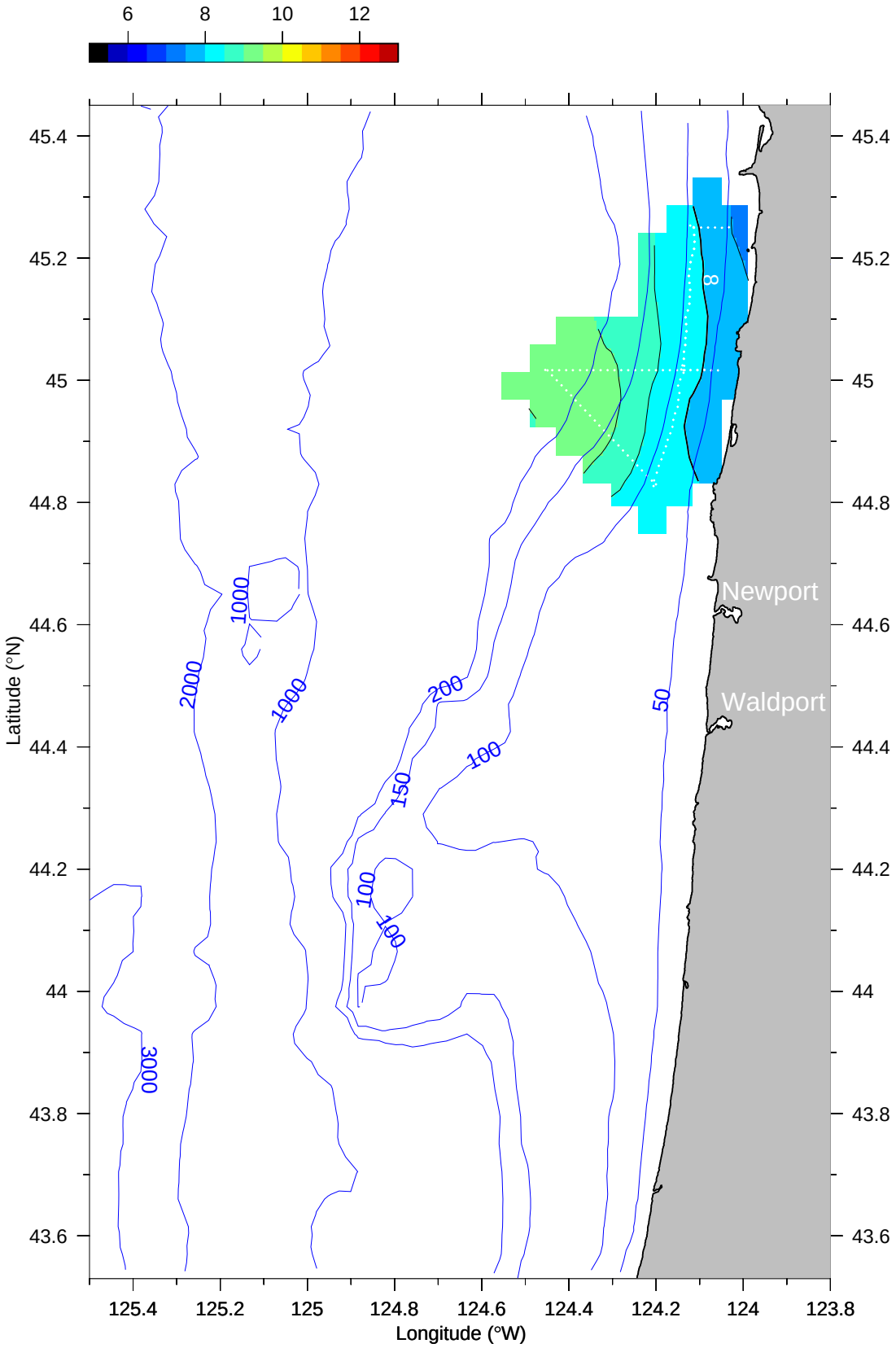



W0105 Butterfly 1
03-Jun-2001 20:16 - 04-Jun-2001 07:23
Temperature (°C) at 25 dbar
6
8
10
12
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50

W0105 Butterfly 1

03-Jun-2001 20:16 - 04-Jun-2001 07:23

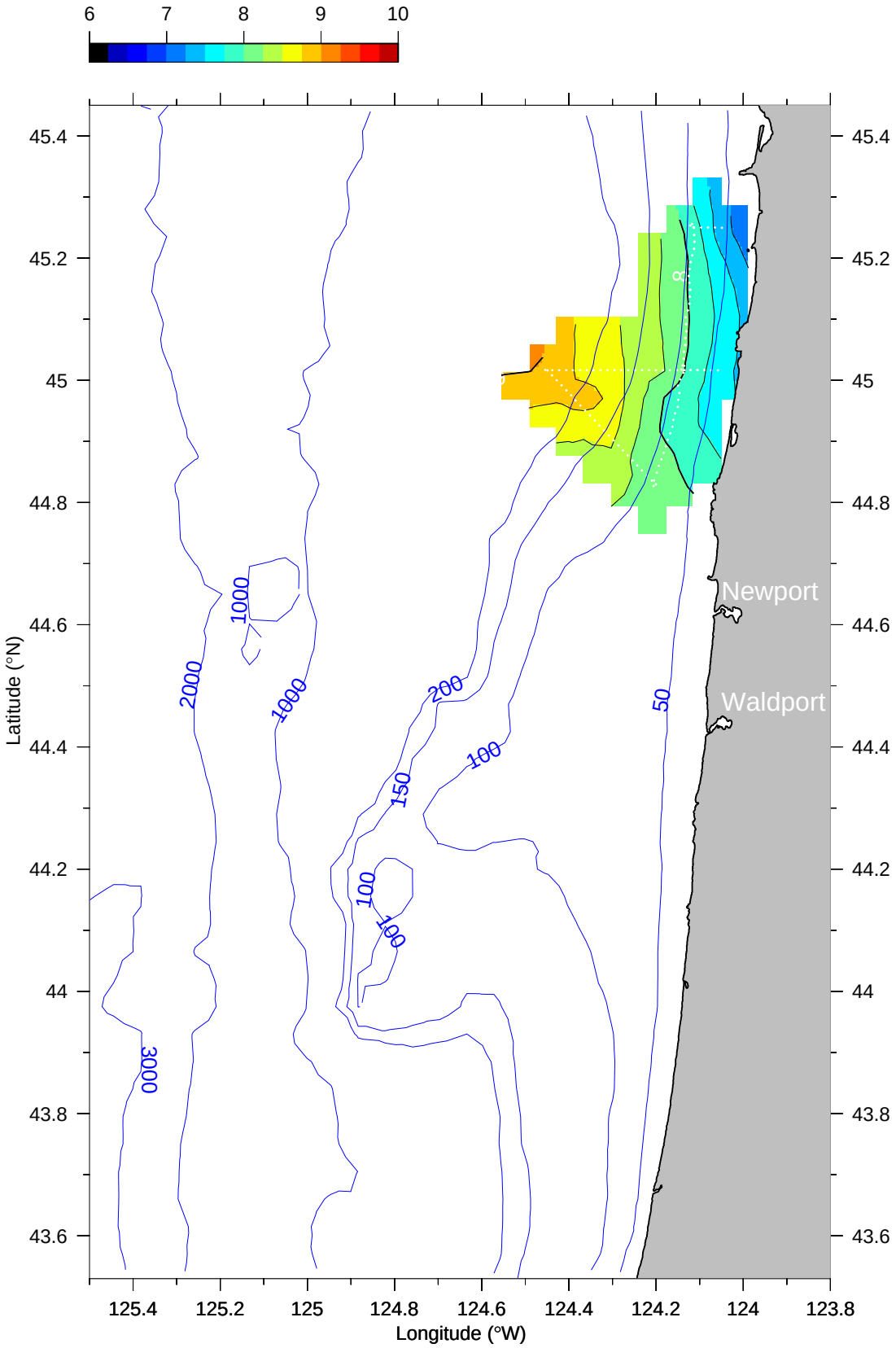
Temperature (°C) at 35 dbar



W0105 Butterfly 1

03-Jun-2001 20:16 - 04-Jun-2001 07:23

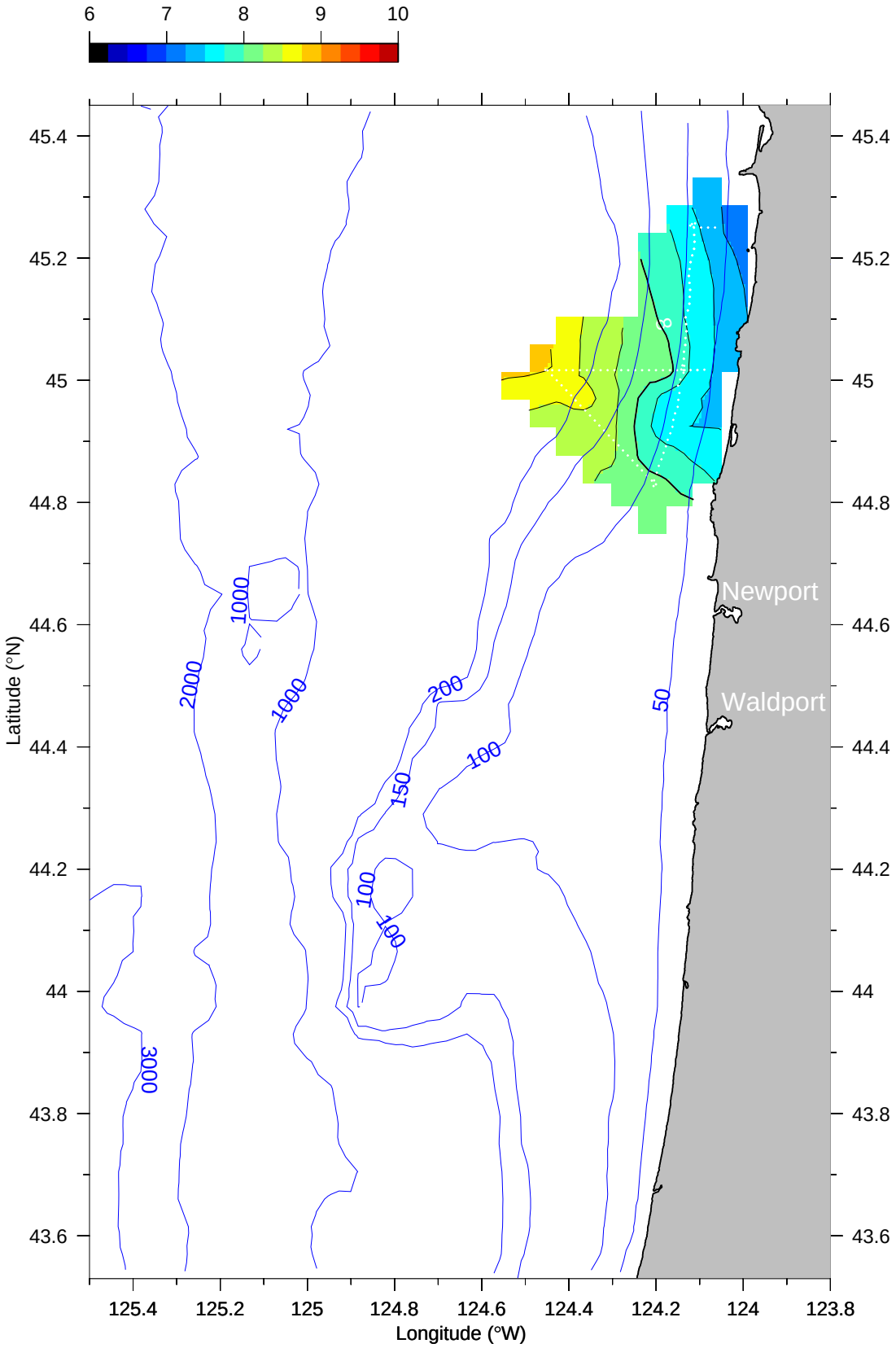
Temperature (°C) at 45 dbar

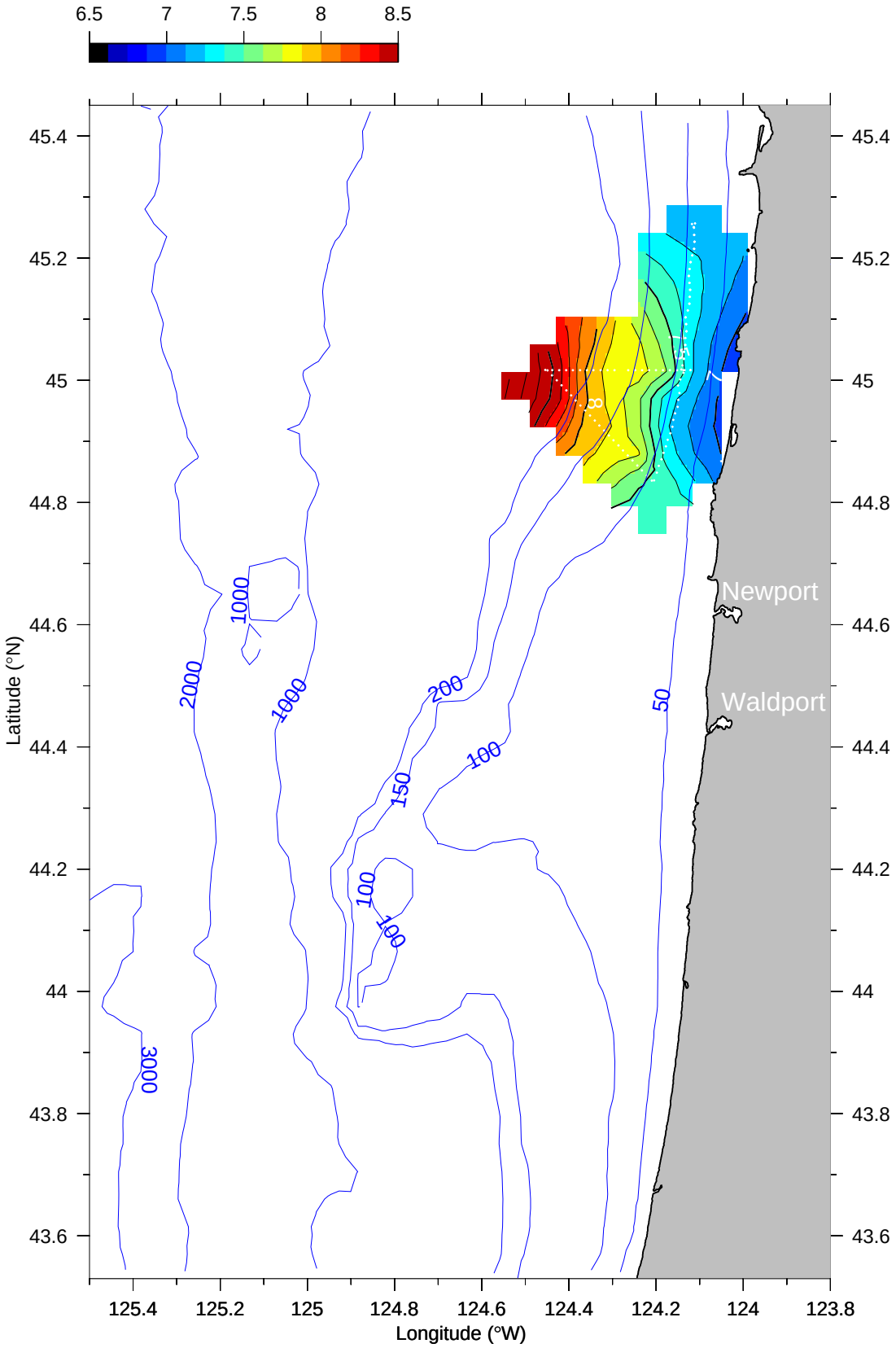


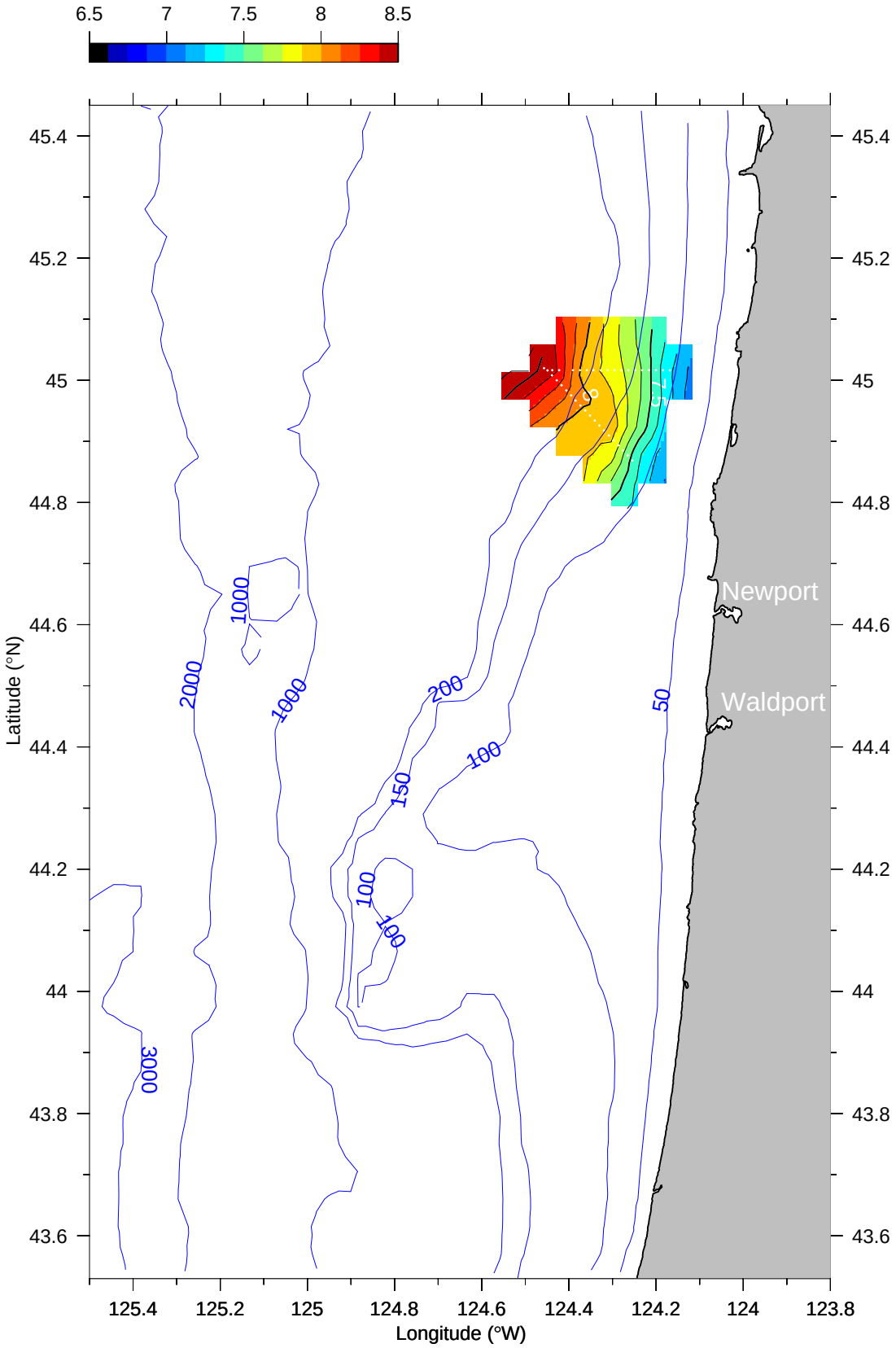
W0105 Butterfly 1

03-Jun-2001 20:16 - 04-Jun-2001 07:23

Temperature (°C) at 55 dbar



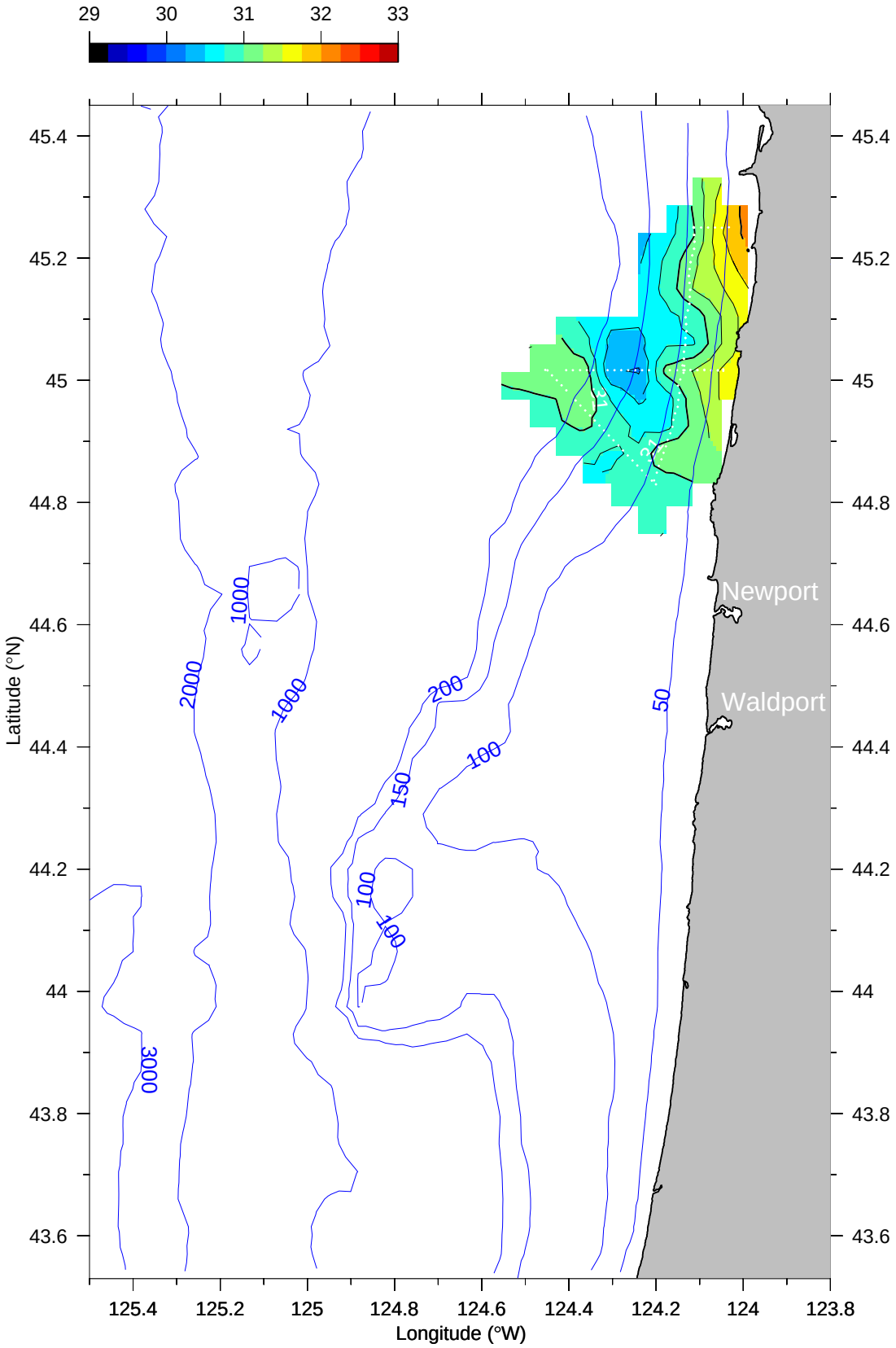

W0105 Butterfly 1
03-Jun-2001 20:16 - 04-Jun-2001 07:23
Temperature (°C) at 75 dbar
6.5
7
7.5
8
8.5
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Butterfly 1
03-Jun-2001 20:16 - 04-Jun-2001 07:23
Temperature (°C) at 95 dbar
6.5
7
7.5
8
8.5
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50

W0105 Butterfly 1

03-Jun-2001 20:16 - 04-Jun-2001 07:23

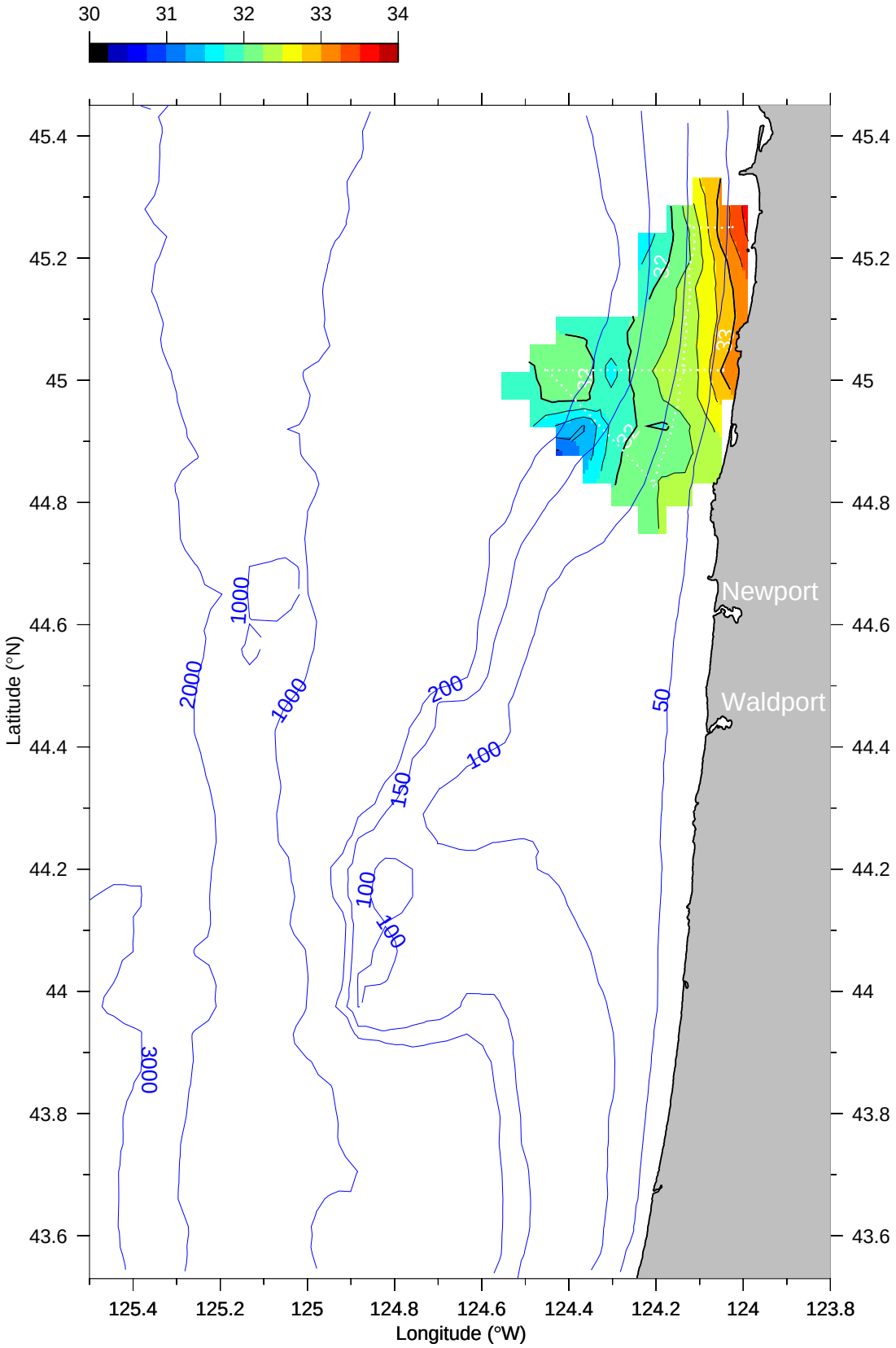
Salinity (PSS) at 5 dbar

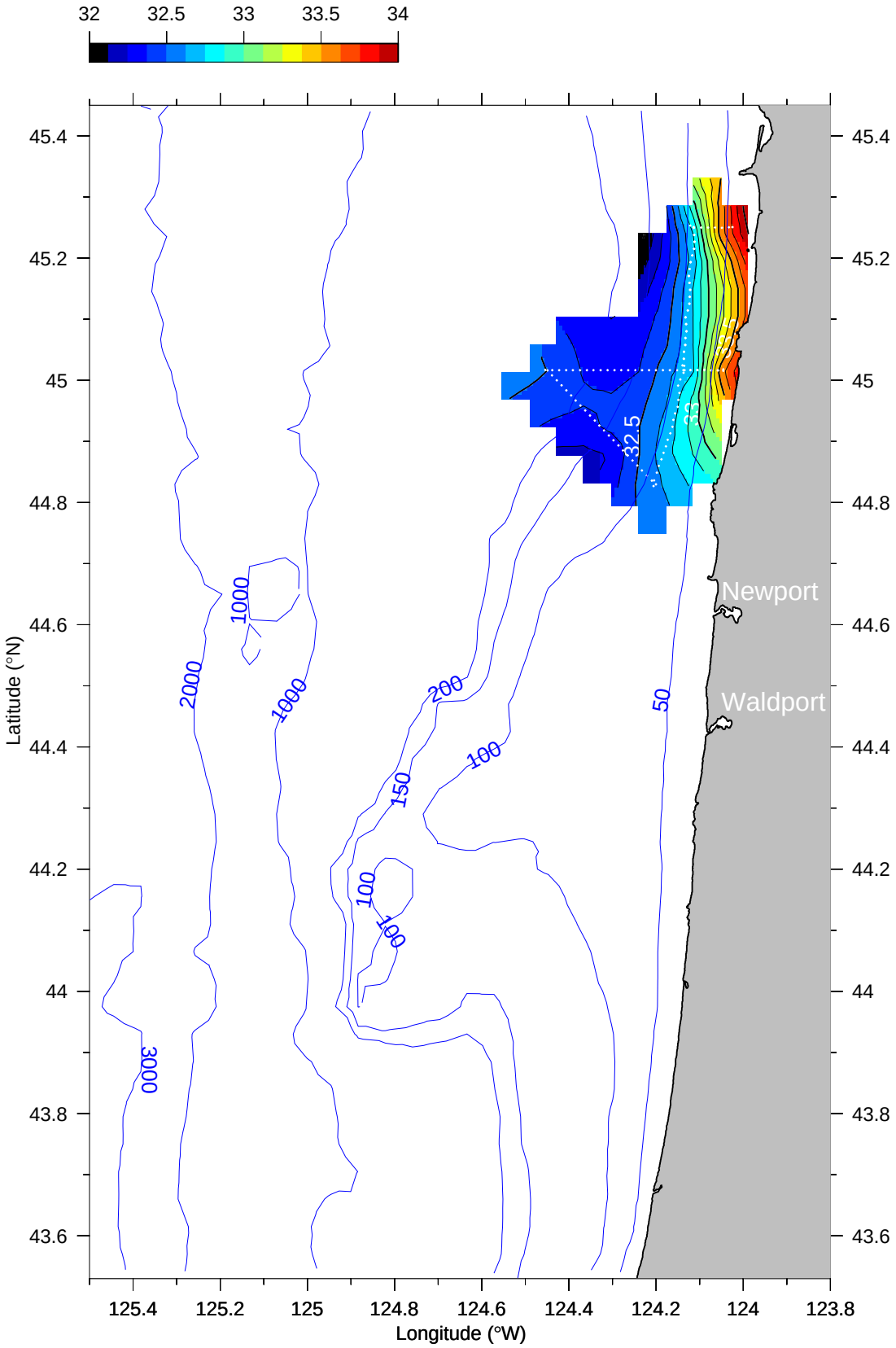


W0105 Butterfly 1

03-Jun-2001 20:16 - 04-Jun-2001 07:23

Salinity (PSS) at 15 dbar

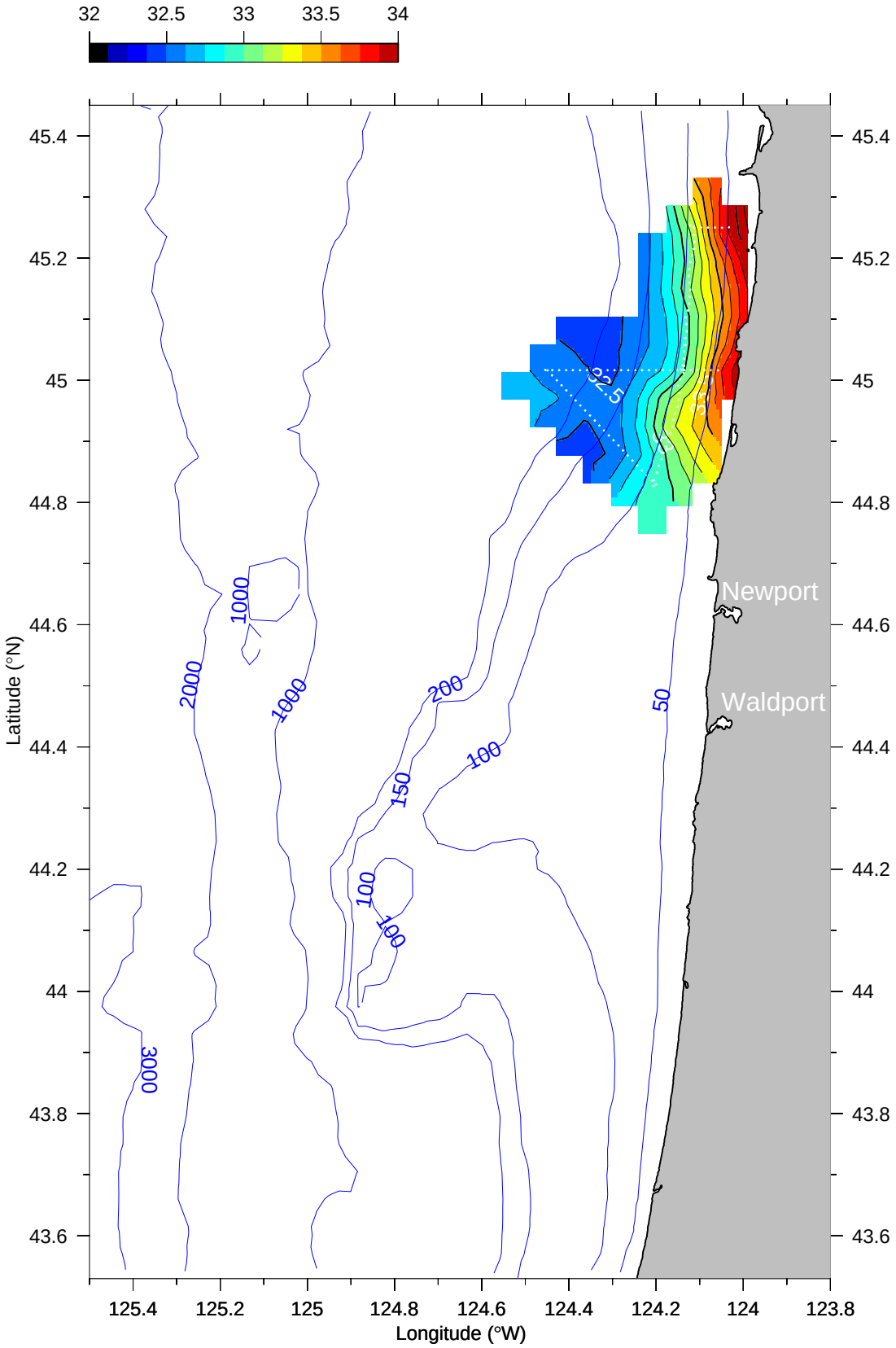



W0105 Butterfly 1
03-Jun-2001 20:16 - 04-Jun-2001 07:23
Salinity (PSS) at 25 dbar
32
32.5
33
33.5
34
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
3000
2000
1000
1000
200
150
100
100
100
50
32.5
33
33.5

W0105 Butterfly 1

03-Jun-2001 20:16 - 04-Jun-2001 07:23

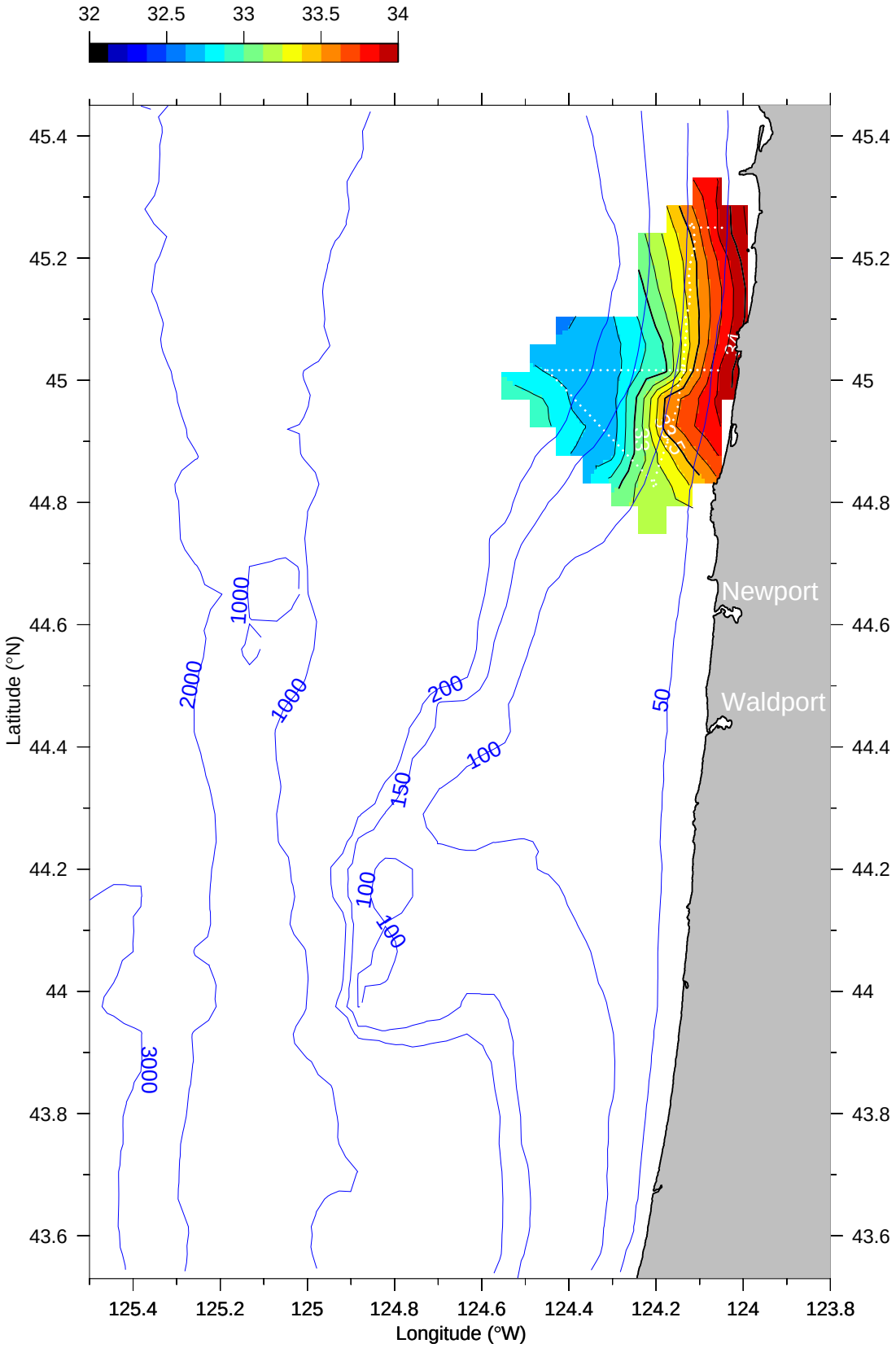
Salinity (PSS) at 35 dbar

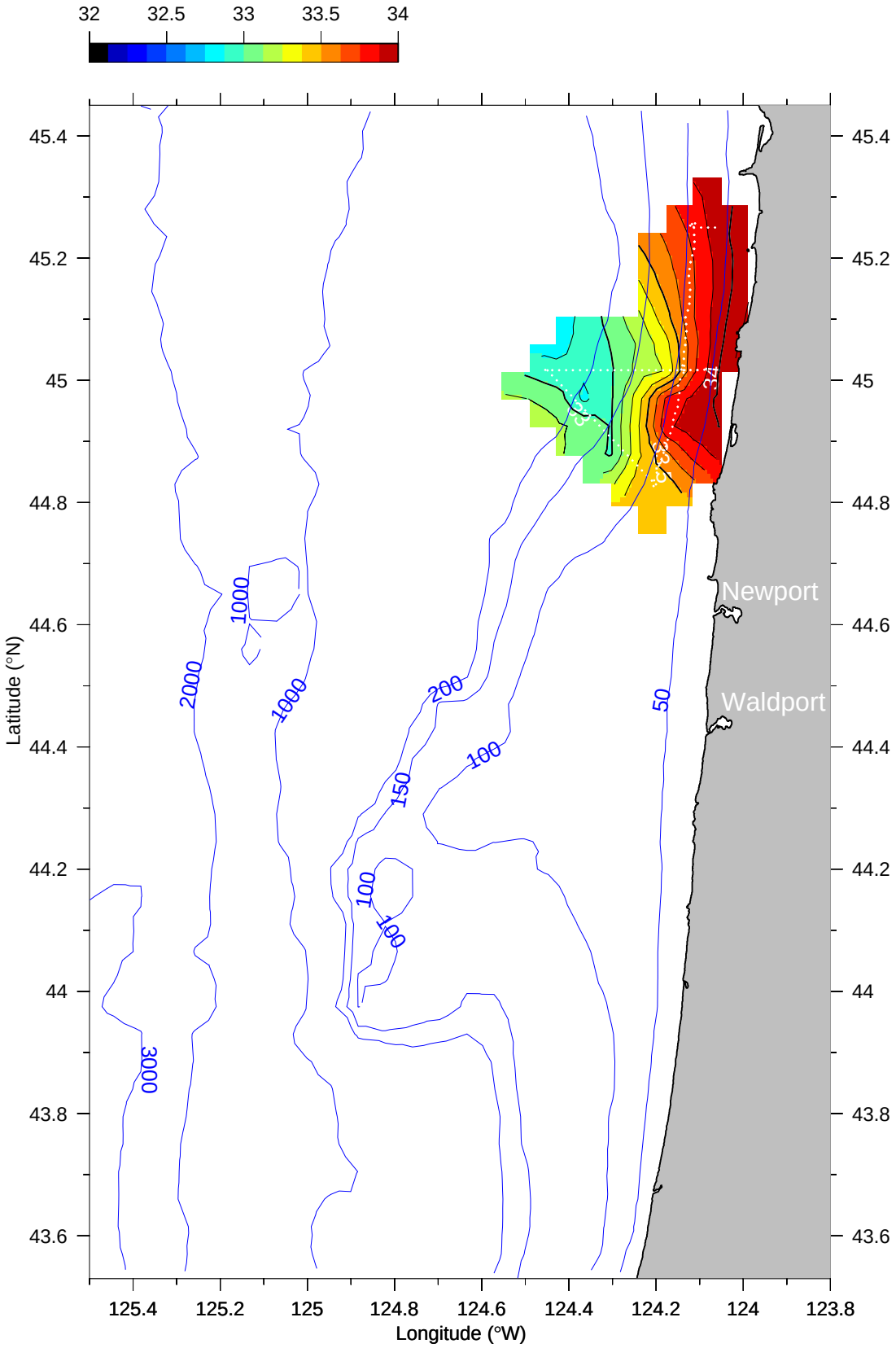


W0105 Butterfly 1

03-Jun-2001 20:16 - 04-Jun-2001 07:23

Salinity (PSS) at 45 dbar

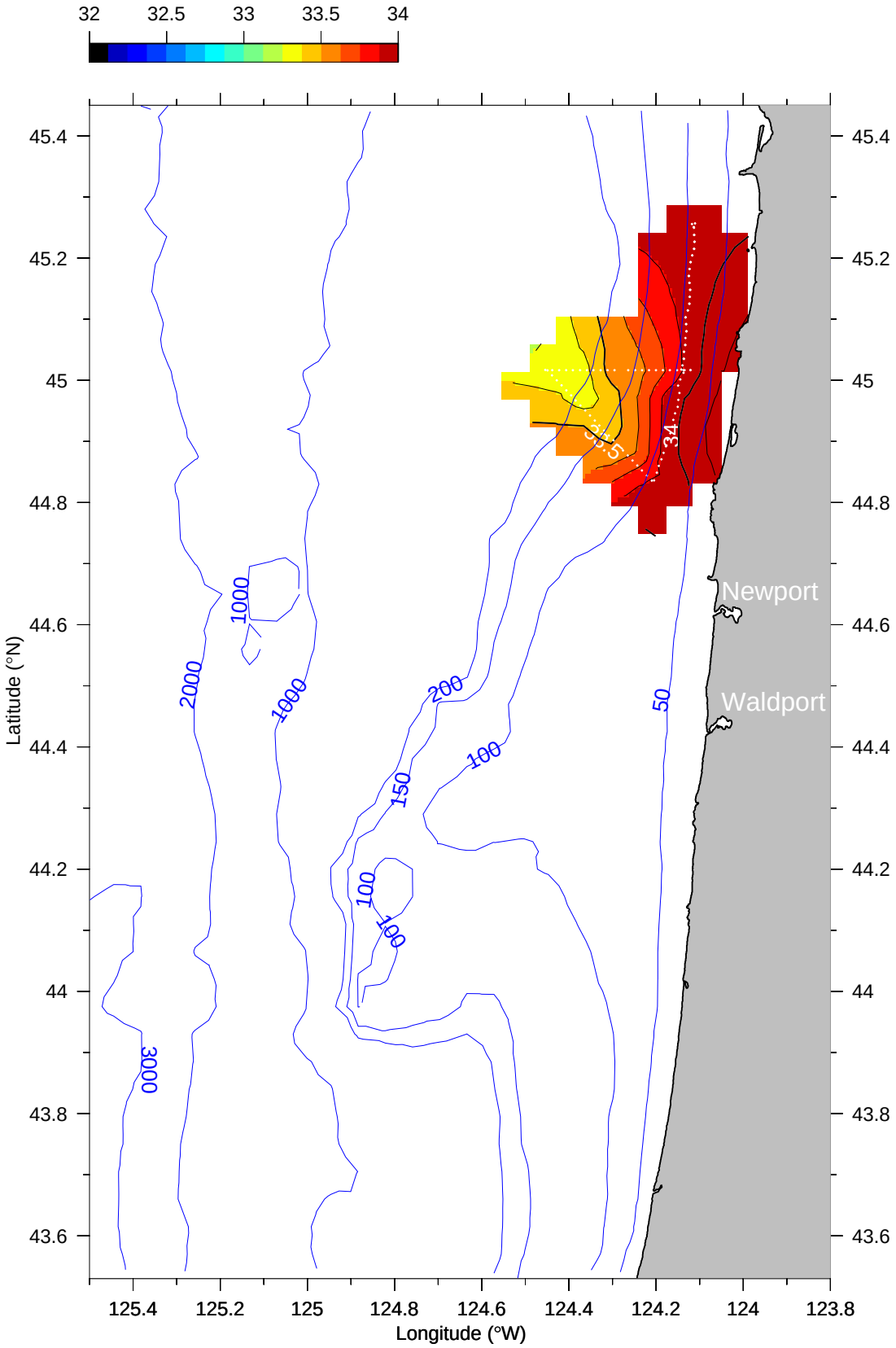



W0105 Butterfly 1
03-Jun-2001 20:16 - 04-Jun-2001 07:23
Salinity (PSS) at 55 dbar
32
32.5
33
33.5
34
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
3000
2000
1000
1000
200
150
100
100
100
50

W0105 Butterfly 1

03-Jun-2001 20:16 - 04-Jun-2001 07:23

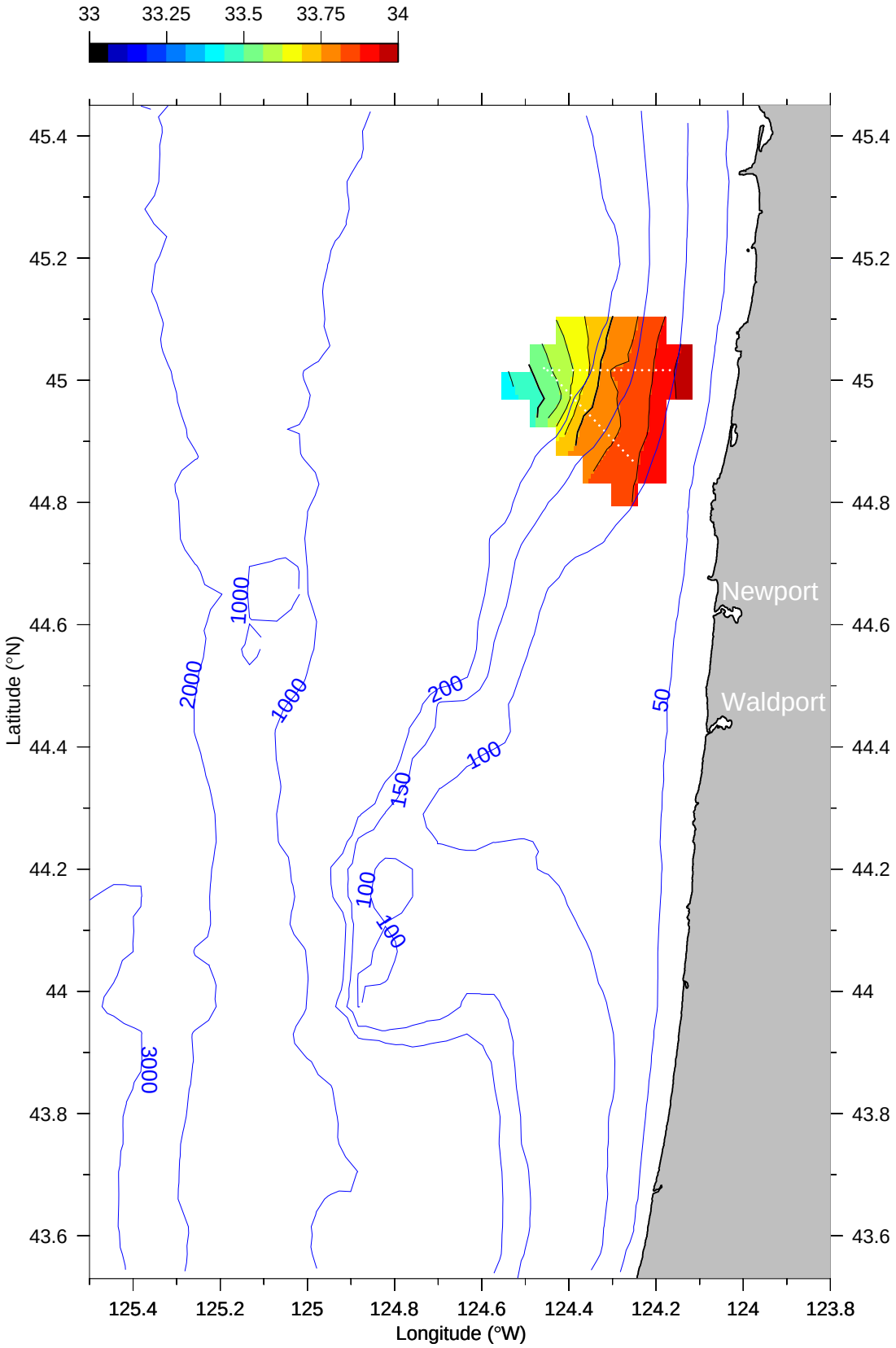
Salinity (PSS) at 75 dbar

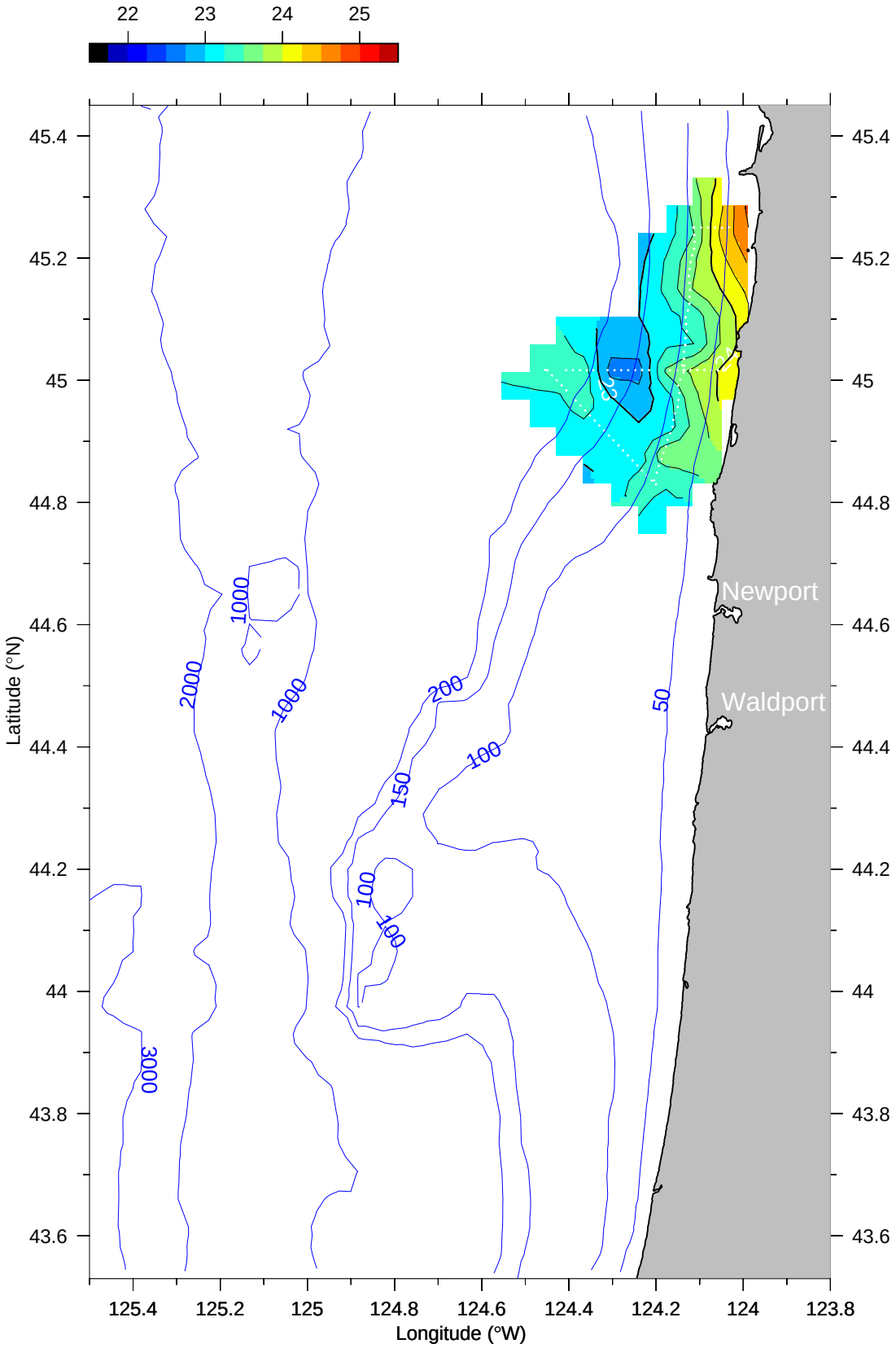


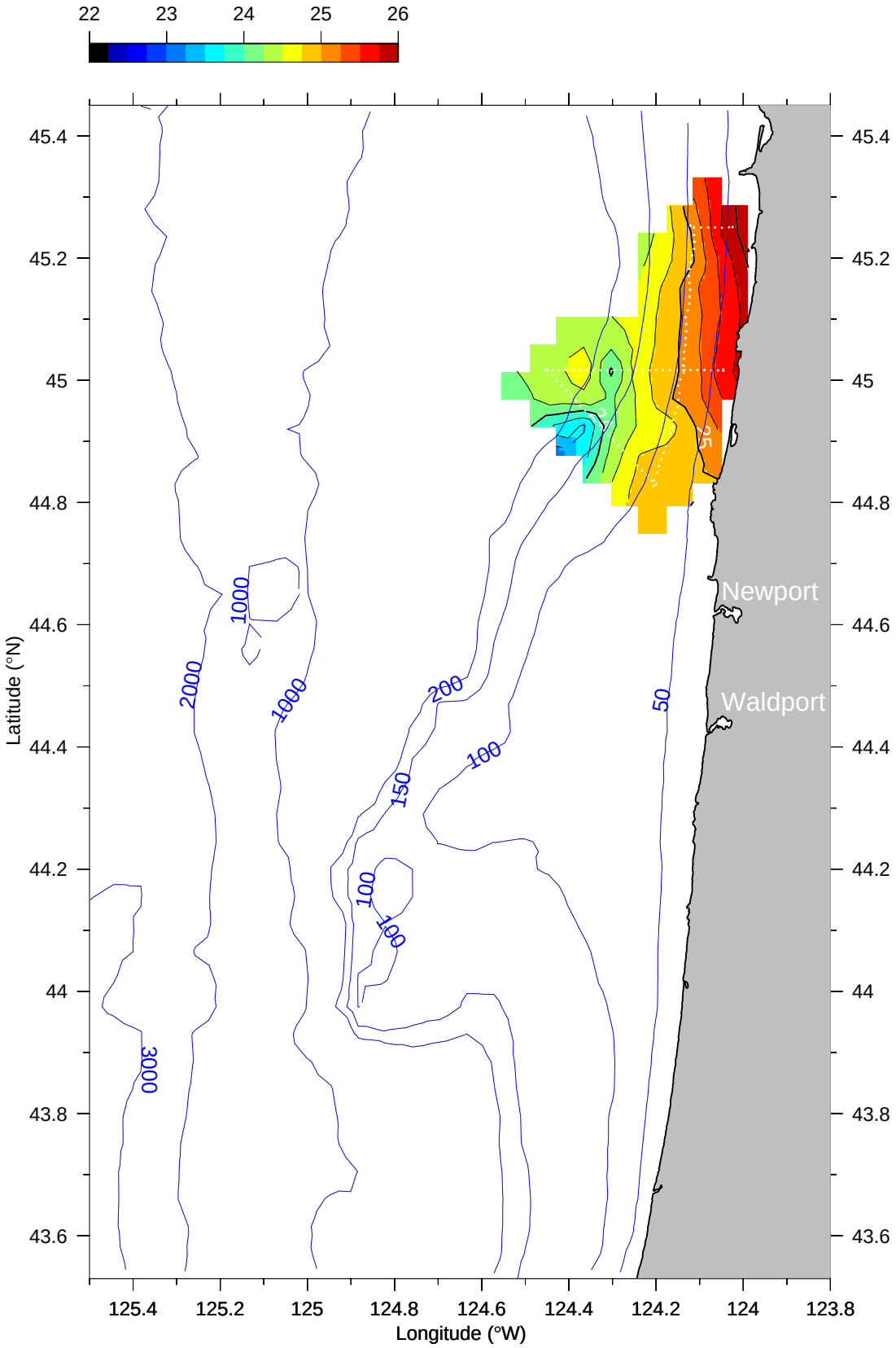
W0105 Butterfly 1

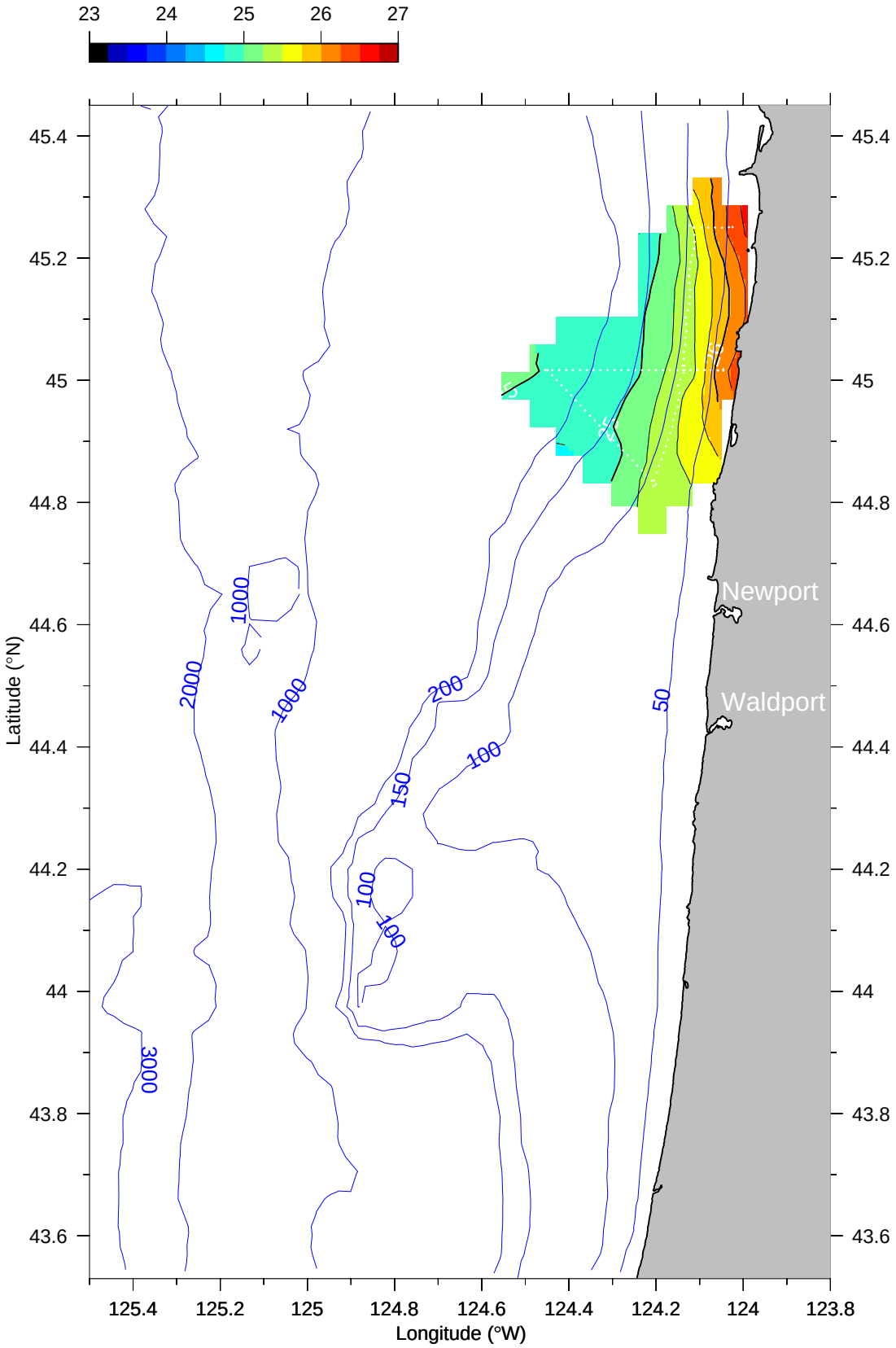
03-Jun-2001 20:16 - 04-Jun-2001 07:23

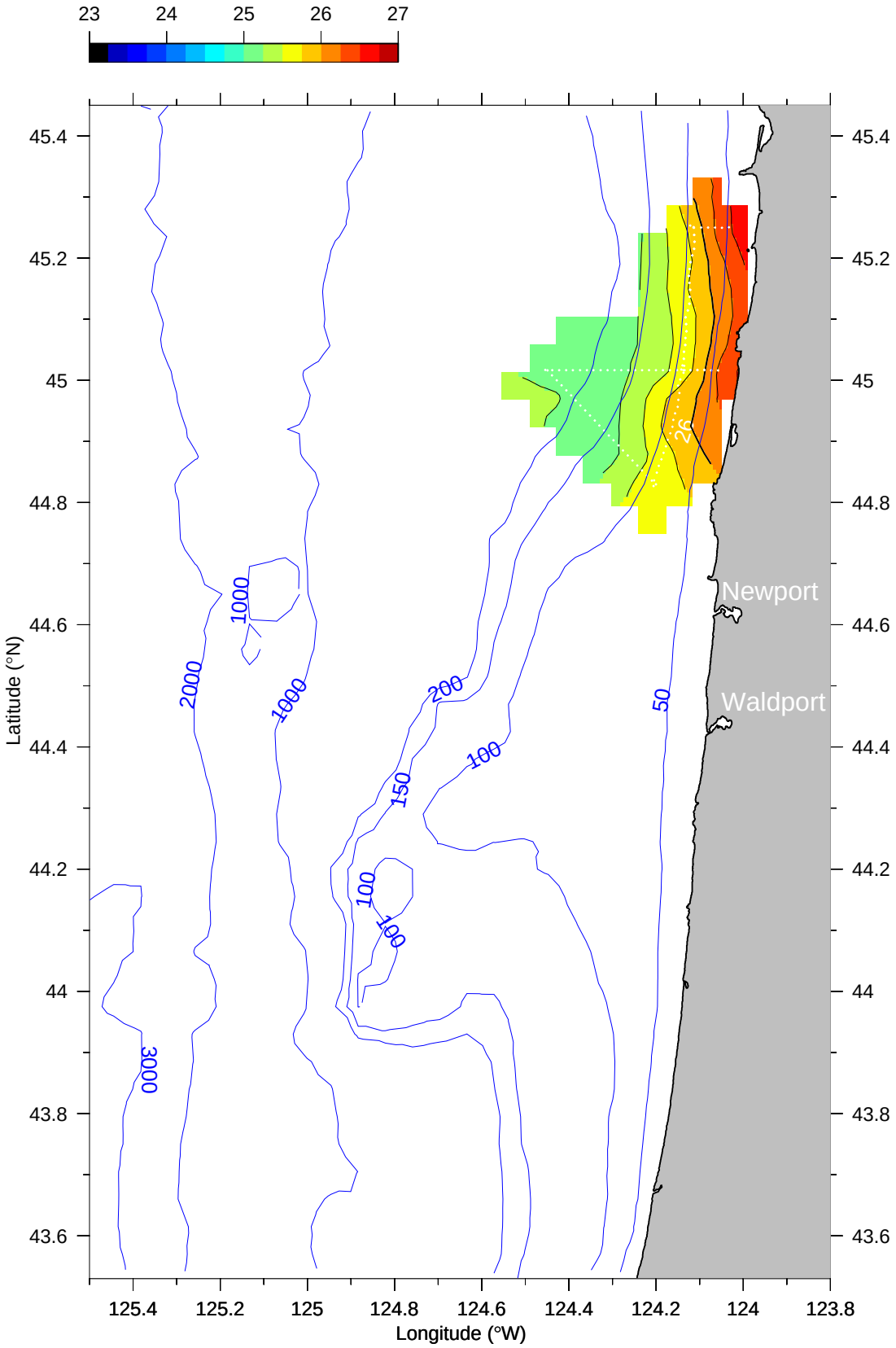
Salinity (PSS) at 95 dbar




W0105 Butterfly 1
03-Jun-2001 20:16 - 04-Jun-2001 07:23
σt (kg m−3) at 5 dbar
22
23
24
25
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Butterfly 1
03-Jun-2001 20:16 - 04-Jun-2001 07:23
σt (kg m−3) at 15 dbar
22
23
24
25
26
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50
25

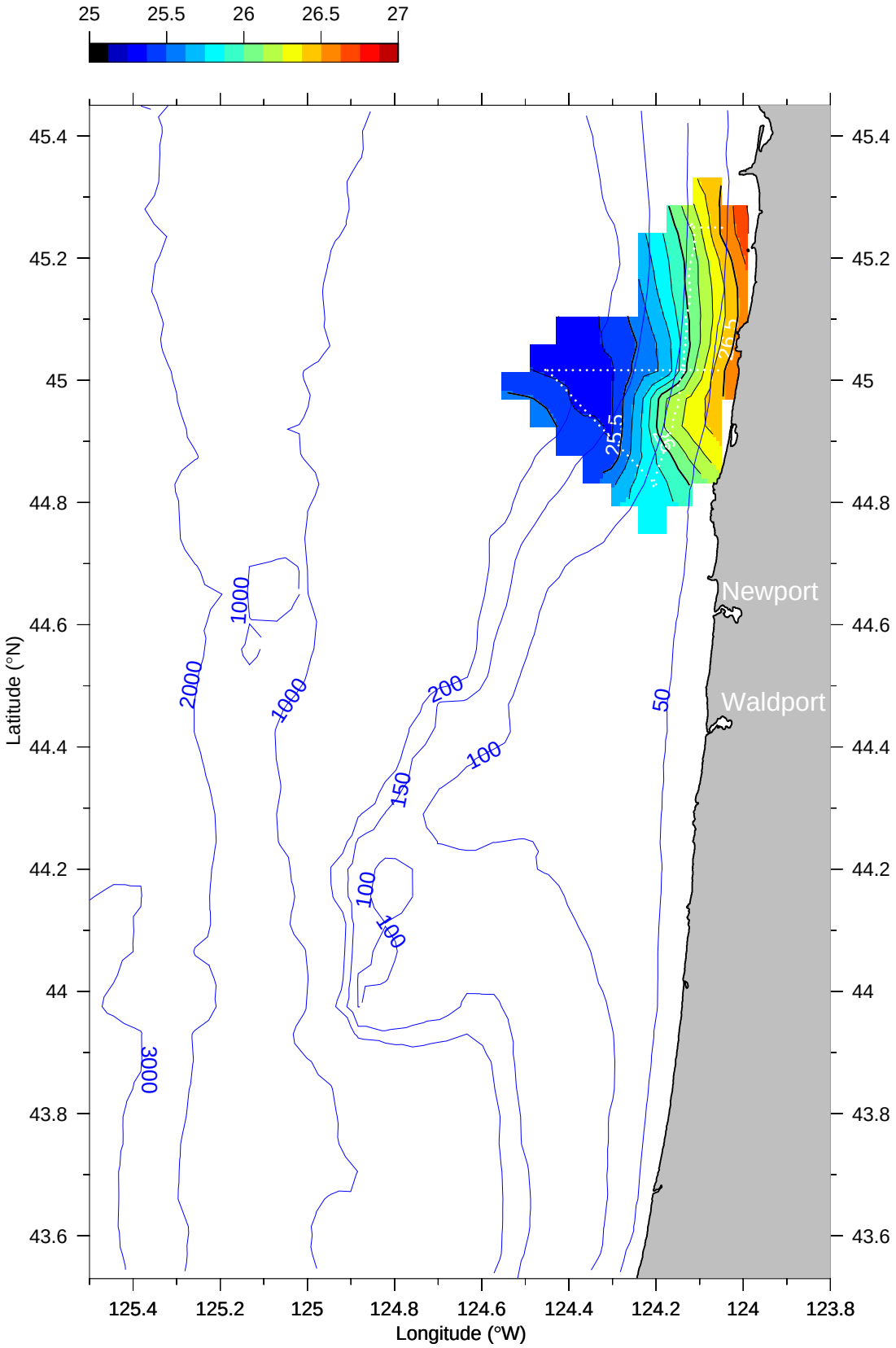

W0105 Butterfly 1
03-Jun-2001 20:16 - 04-Jun-2001 07:23
σt (kg m−3) at 25 dbar
23
24
25
26
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
3000
2000
1000
1000
200
150
100
100
100
50

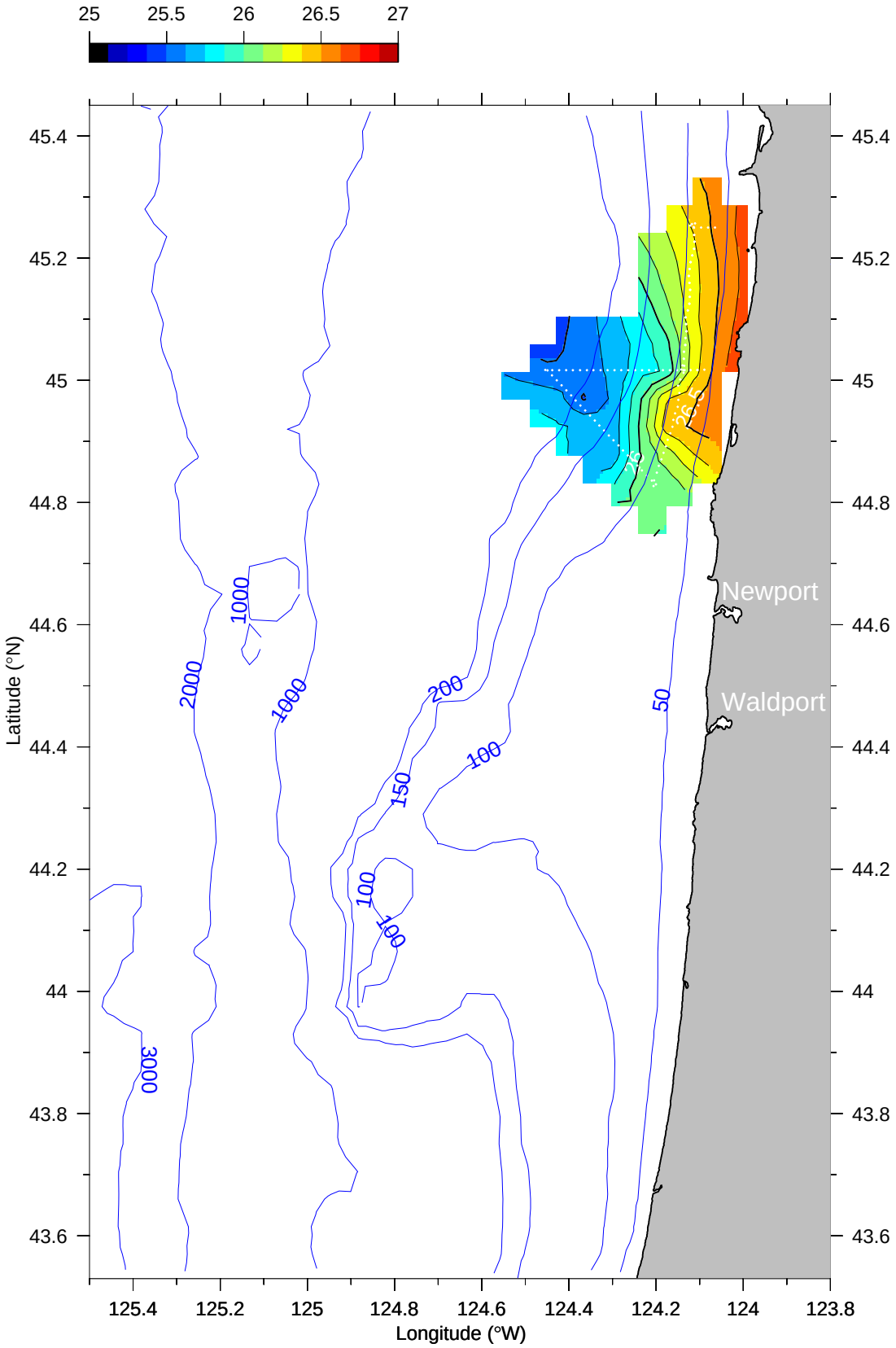

W0105 Butterfly 1
03-Jun-2001 20:16 - 04-Jun-2001 07:23
σt (kg m−3) at 35 dbar
23
24
25
26
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
1000
200
100
150
100
100
3000
50
26

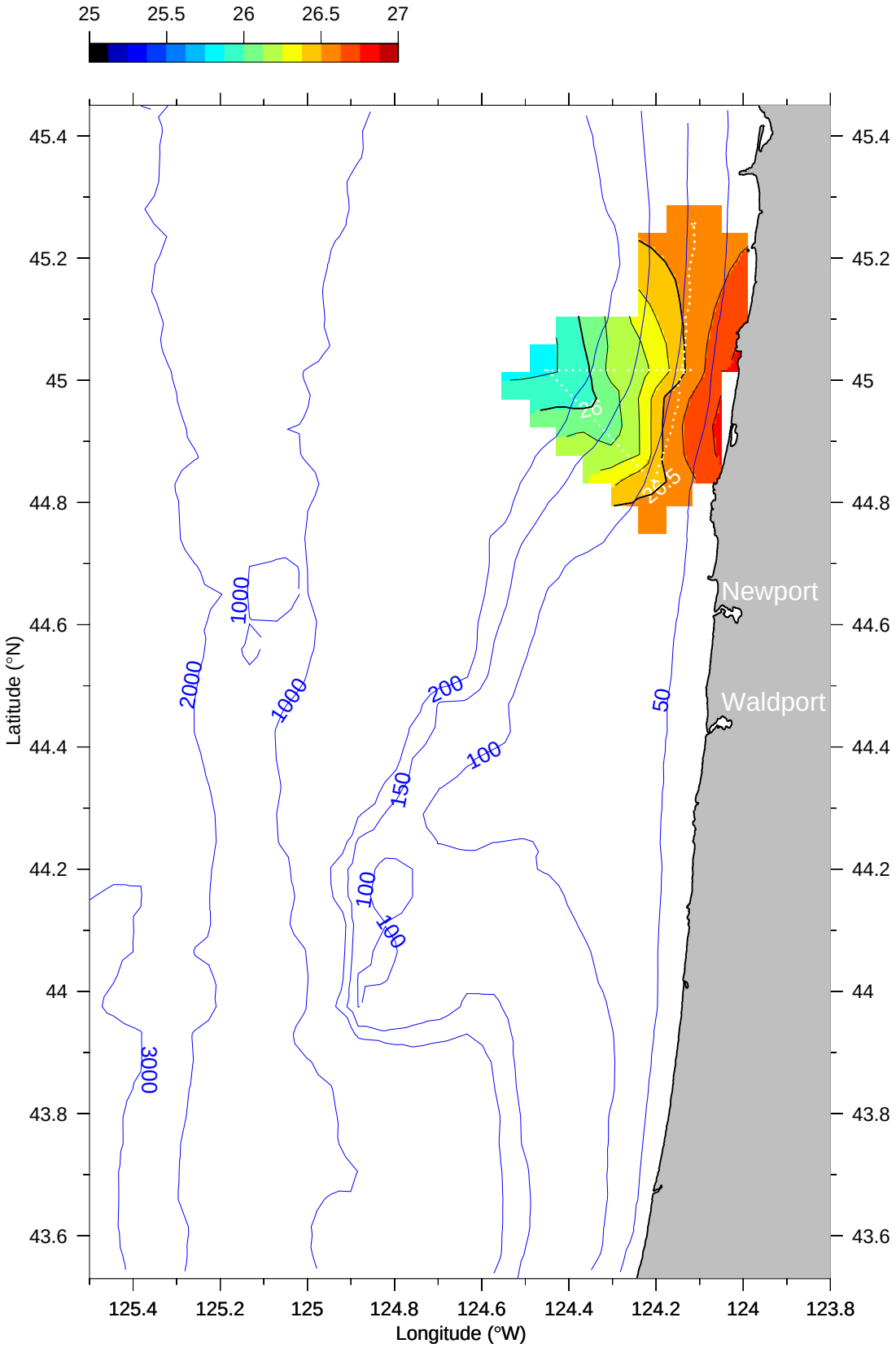
W0105 Butterfly 1

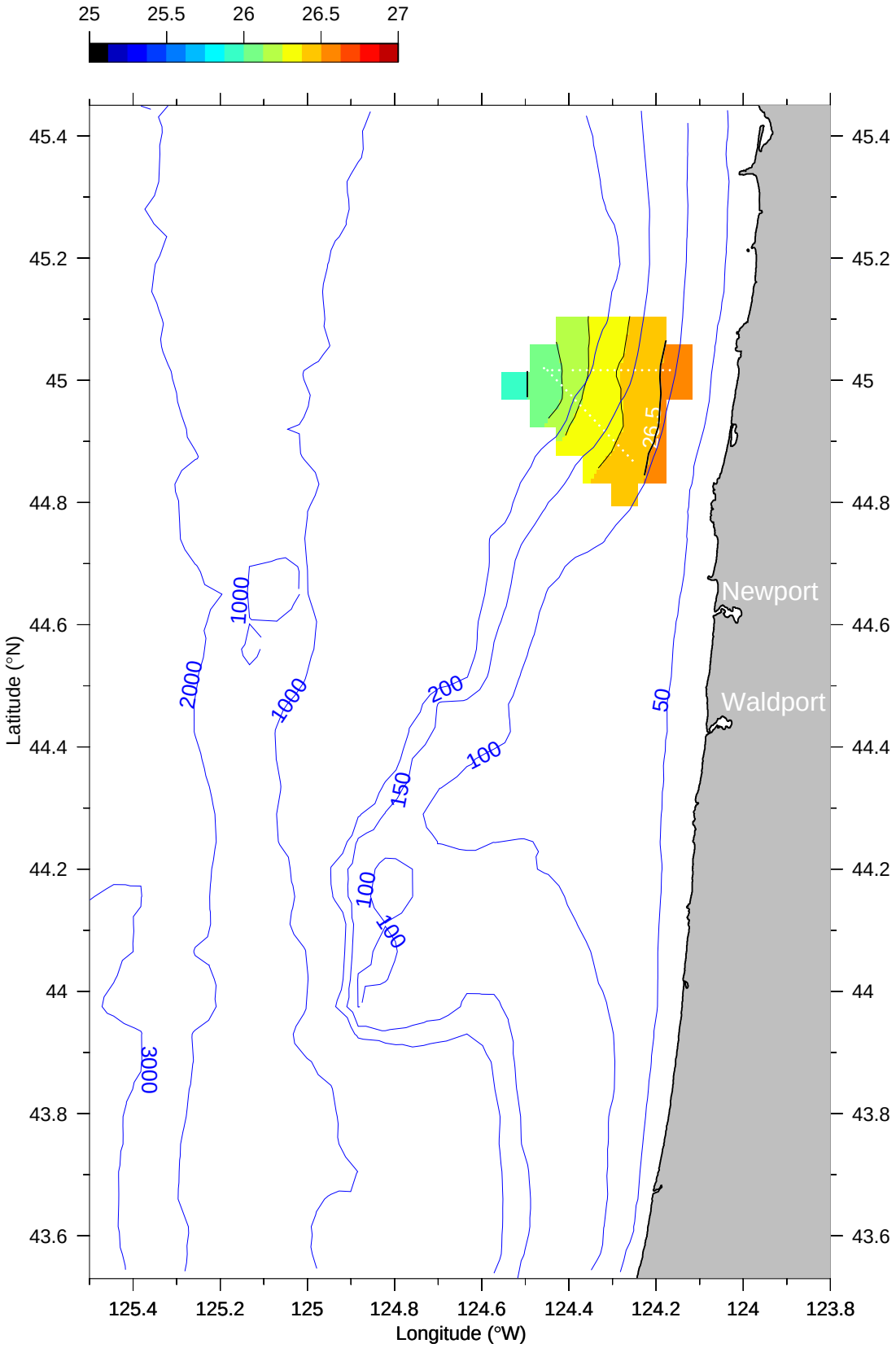
03-Jun-2001 20:16 - 04-Jun-2001 07:23

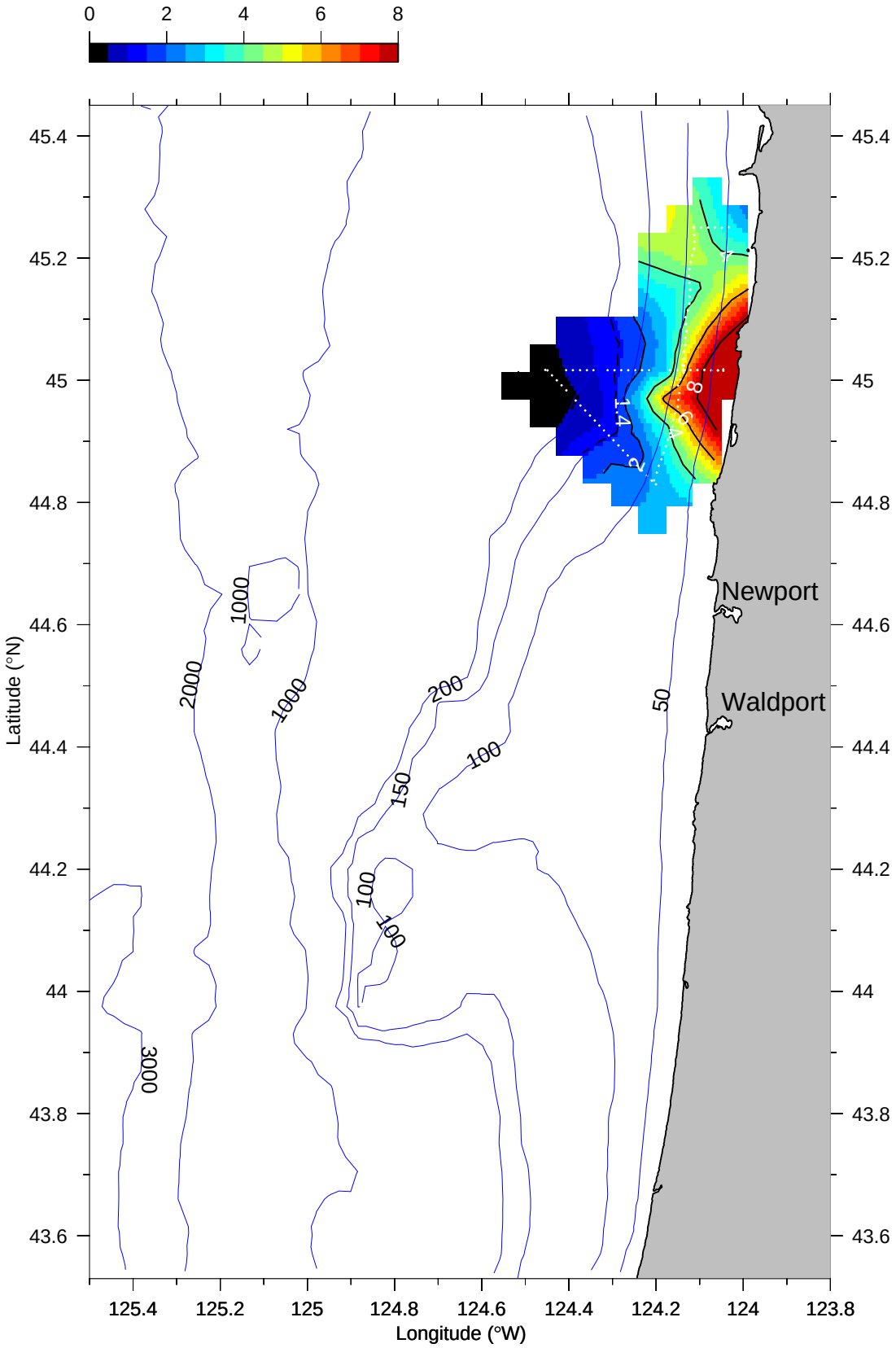
σ_t ($kg\ m^{-3}$) at 45 dbar




W0105 Butterfly 1
03-Jun-2001 20:16 - 04-Jun-2001 07:23
σt (kg m−3) at 55 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Butterfly 1
03-Jun-2001 20:16 - 04-Jun-2001 07:23
σt (kg m−3) at 75 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
2000
1000
1000
200
100
150
100
100
50
3000


W0105 Butterfly 1
03-Jun-2001 20:16 - 04-Jun-2001 07:23
σt (kg m−3) at 95 dbar
25
25.5
26
26.5
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
26.5
1000
2000
1000
200
100
150
100
100
50
3000


W0105 Butterfly 1
03-Jun-2001 20:16 - 04-Jun-2001 07:23
Chlorophyll (µg L−1) at 5 dbar
0
2
4
6
8
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
1000
2000
1000
200
100
150
100
100
50
3000

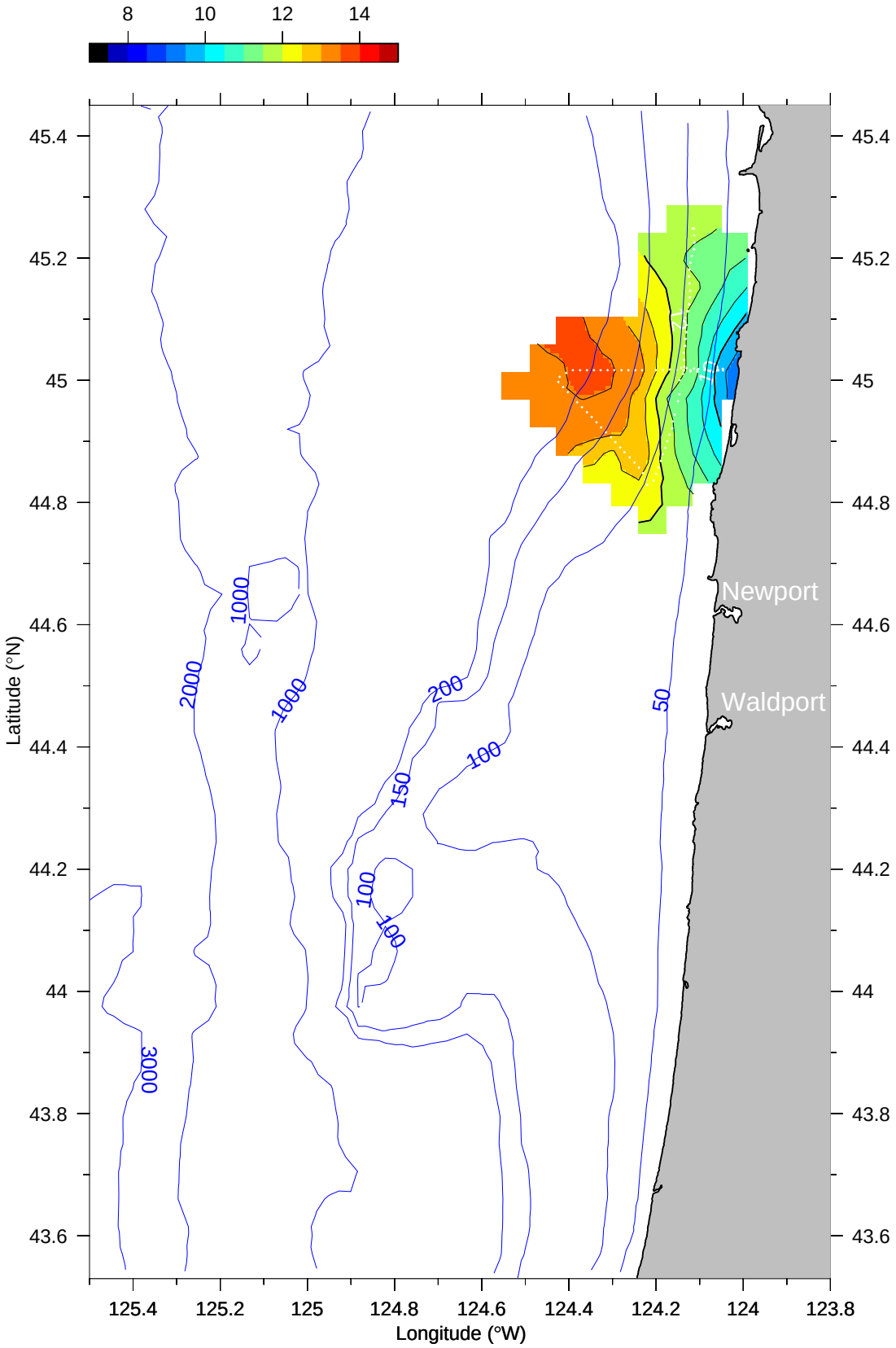
Butterfly 2 Maps

Maps of Temperature, Salinity, σ_t, and Chlorophyll at Specified Depths

W0105 Butterfly 2

04-Jun-2001 07:25 - 04-Jun-2001 18:16

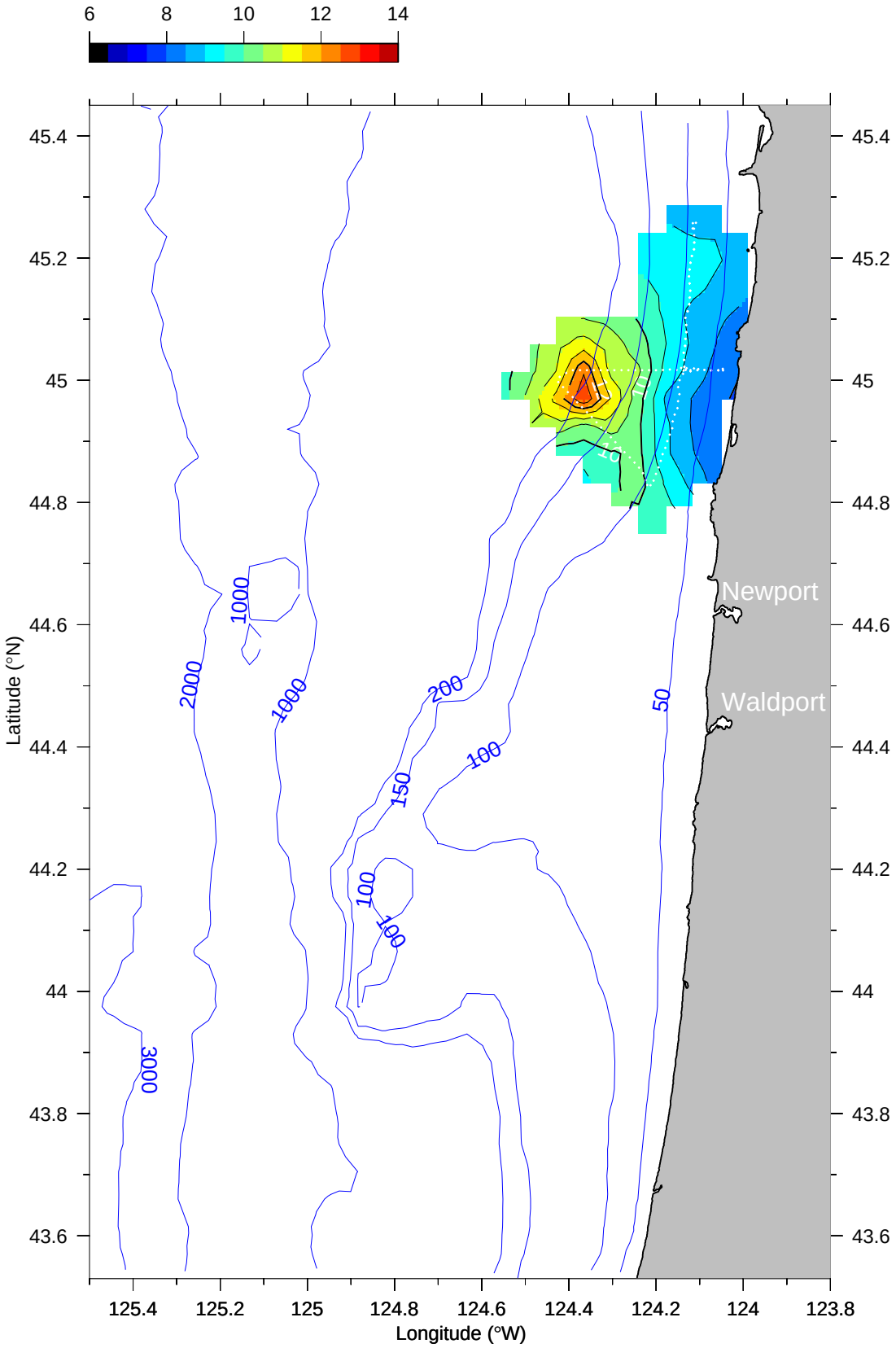
Temperature (°C) at 5 dbar



W0105 Butterfly 2

04-Jun-2001 07:25 - 04-Jun-2001 18:16

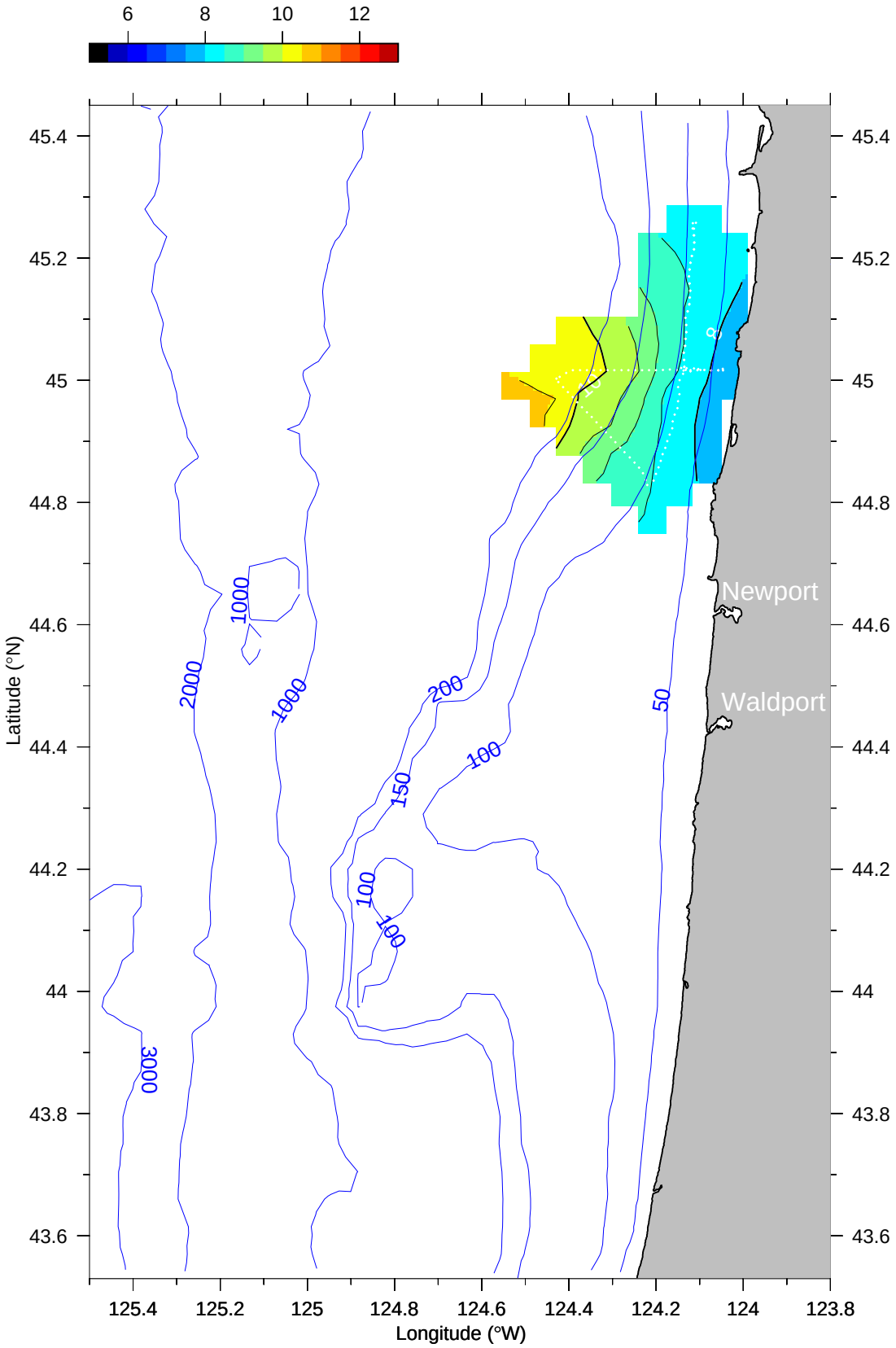
Temperature (°C) at 15 dbar



W0105 Butterfly 2

04-Jun-2001 07:25 - 04-Jun-2001 18:16

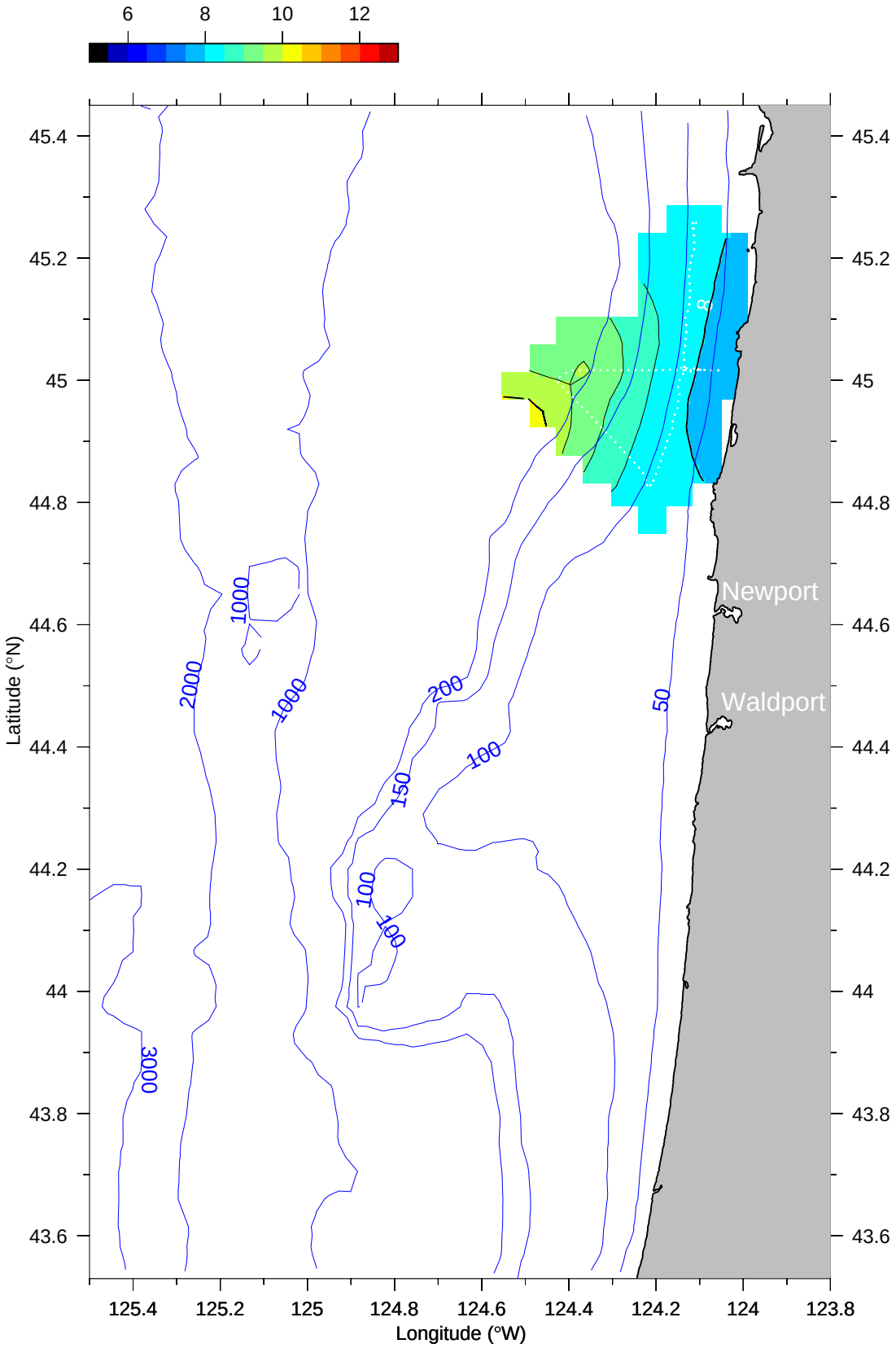
Temperature (°C) at 25 dbar



W0105 Butterfly 2

04-Jun-2001 07:25 - 04-Jun-2001 18:16

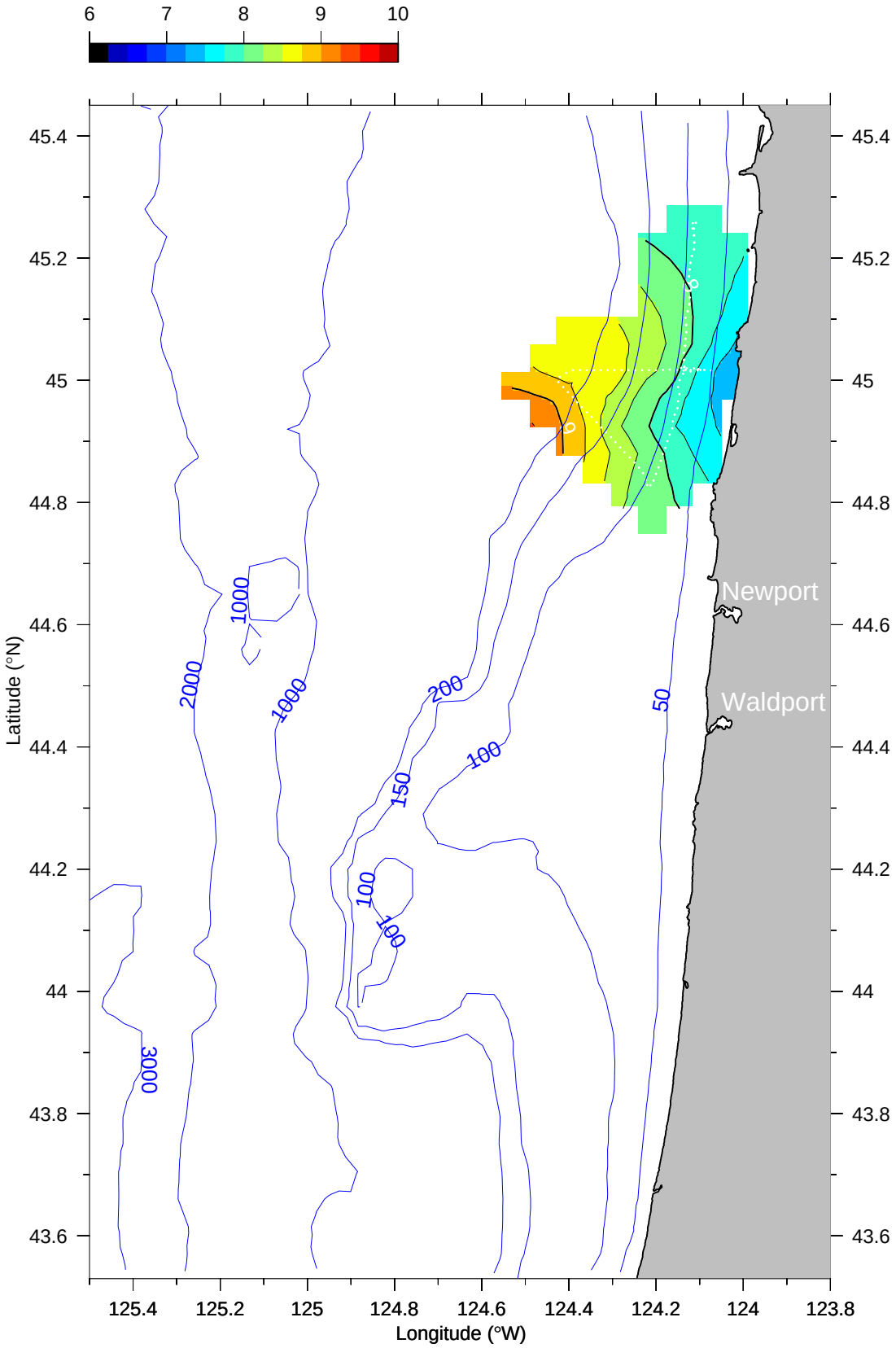
Temperature (°C) at 35 dbar



W0105 Butterfly 2

04-Jun-2001 07:25 - 04-Jun-2001 18:16

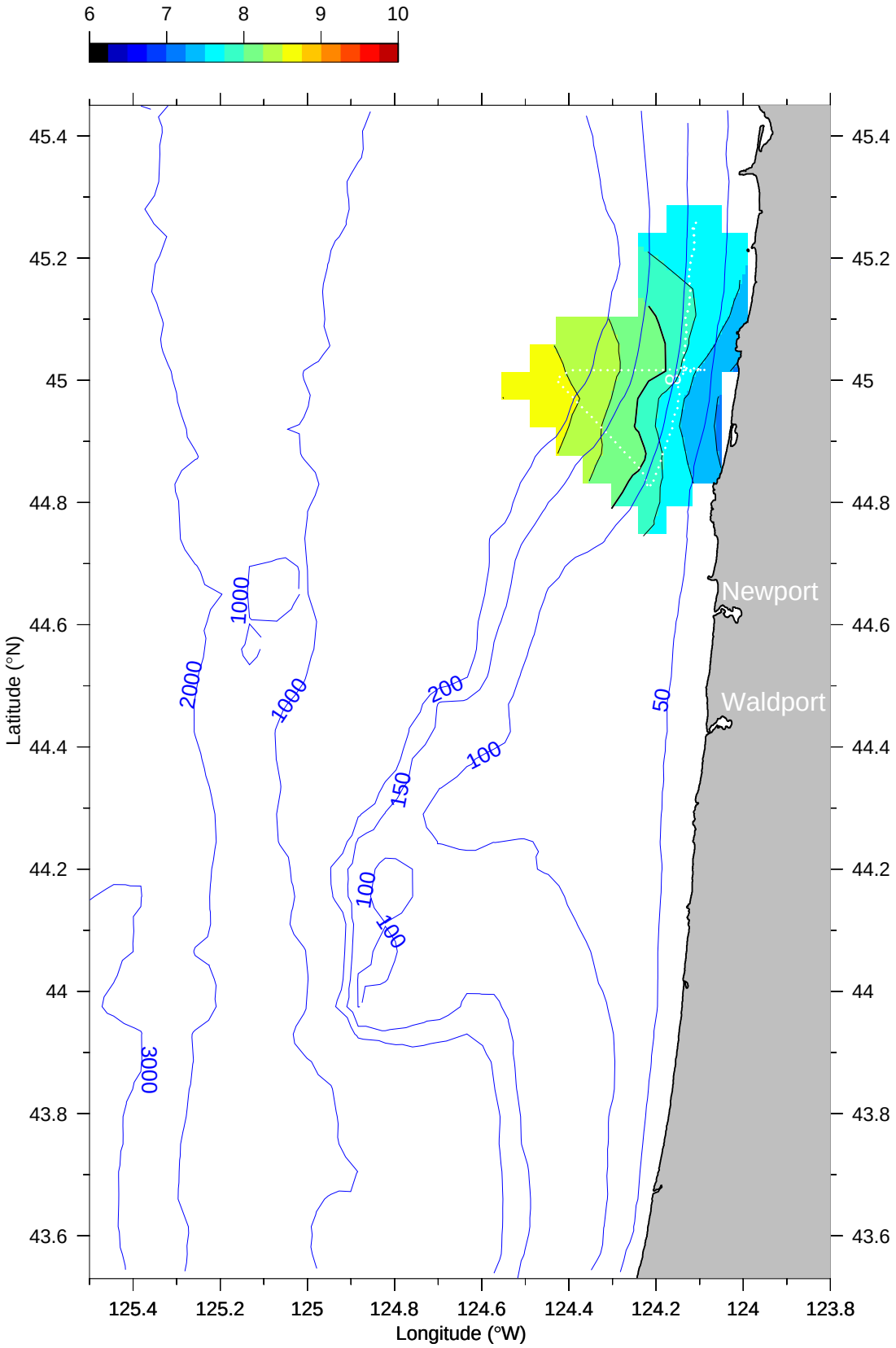
Temperature (°C) at 45 dbar



W0105 Butterfly 2

04-Jun-2001 07:25 - 04-Jun-2001 18:16

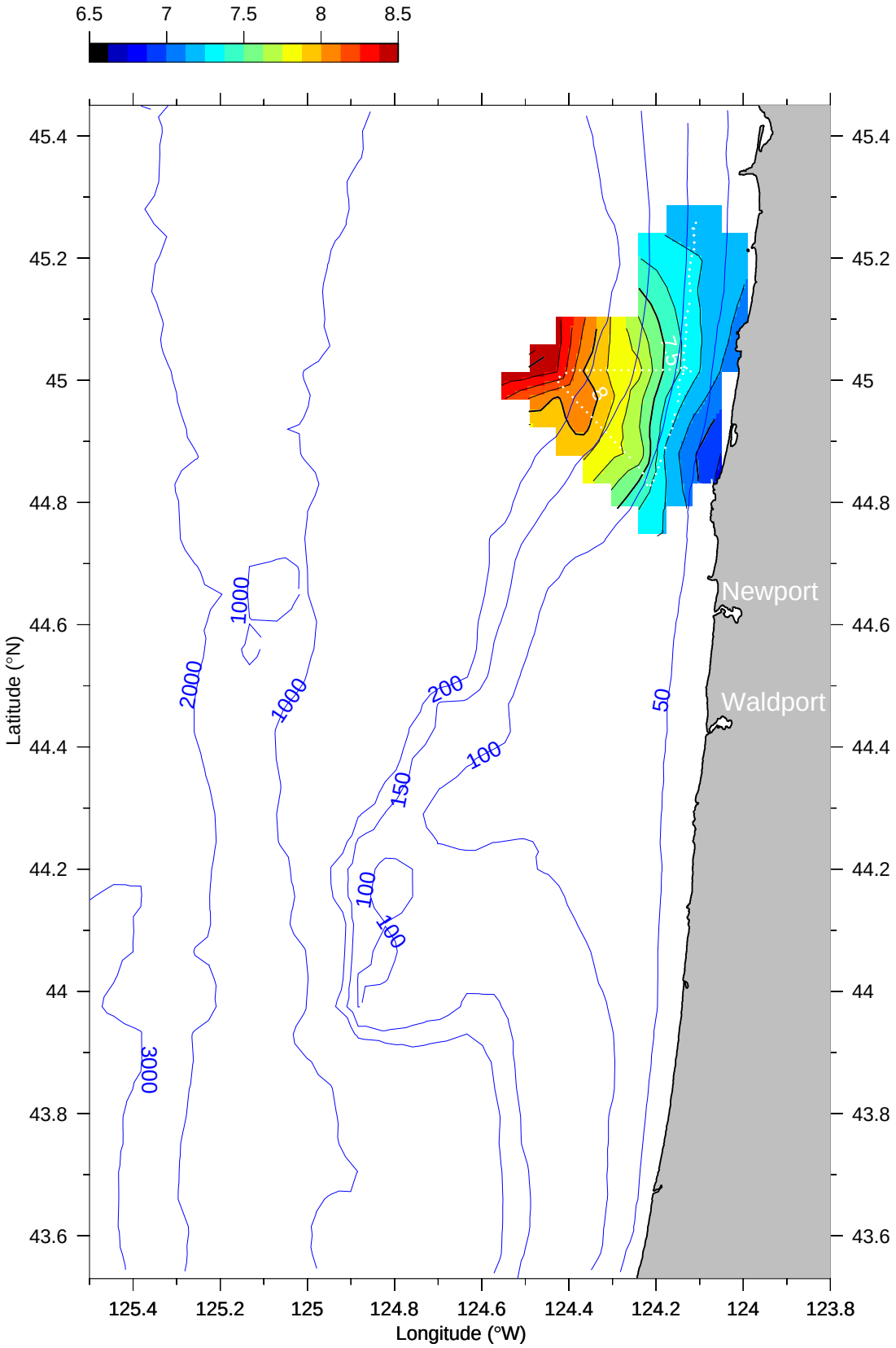
Temperature (°C) at 55 dbar



W0105 Butterfly 2

04-Jun-2001 07:25 - 04-Jun-2001 18:16

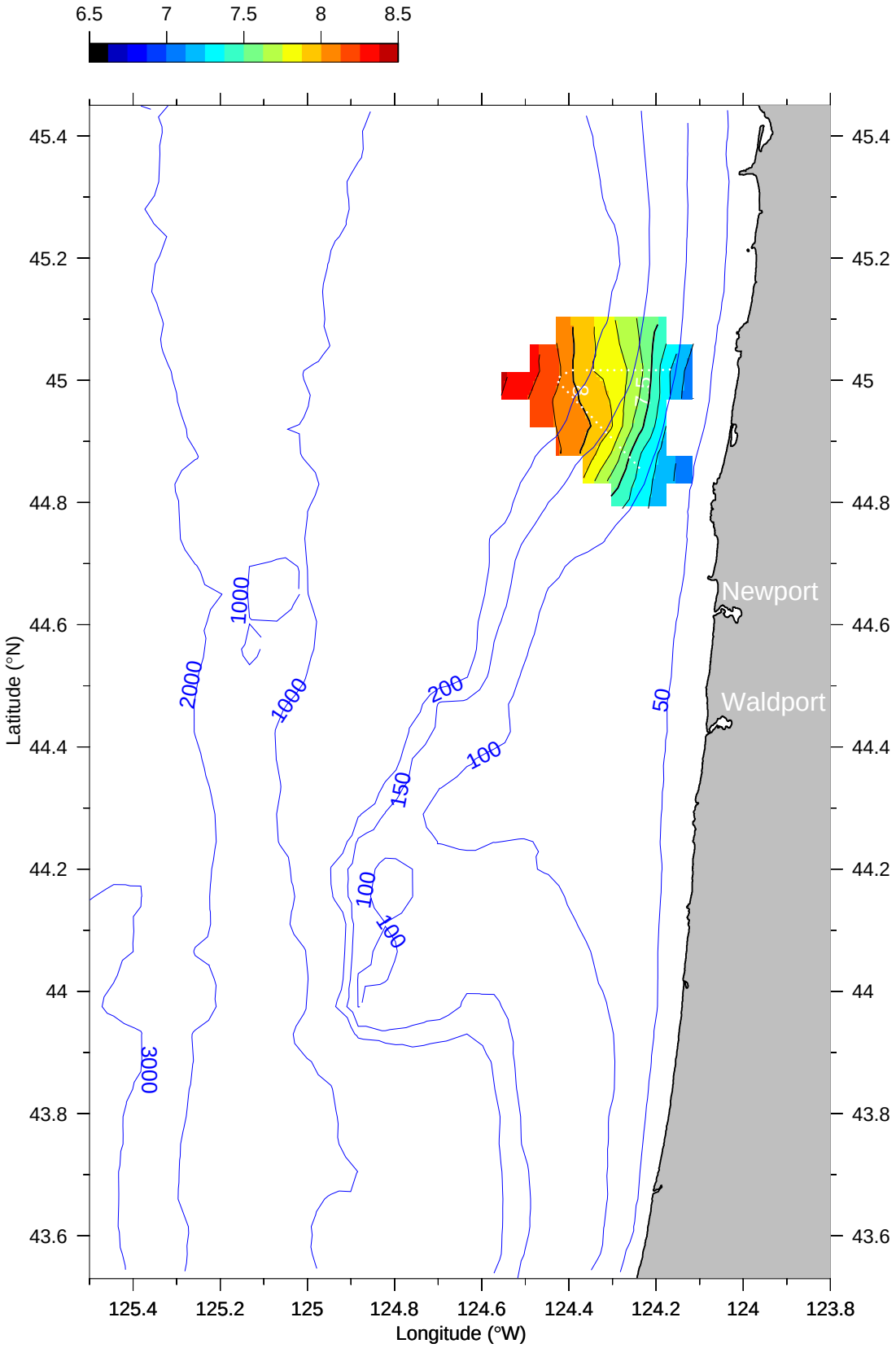
Temperature (°C) at 75 dbar



W0105 Butterfly 2

04-Jun-2001 07:25 - 04-Jun-2001 18:16

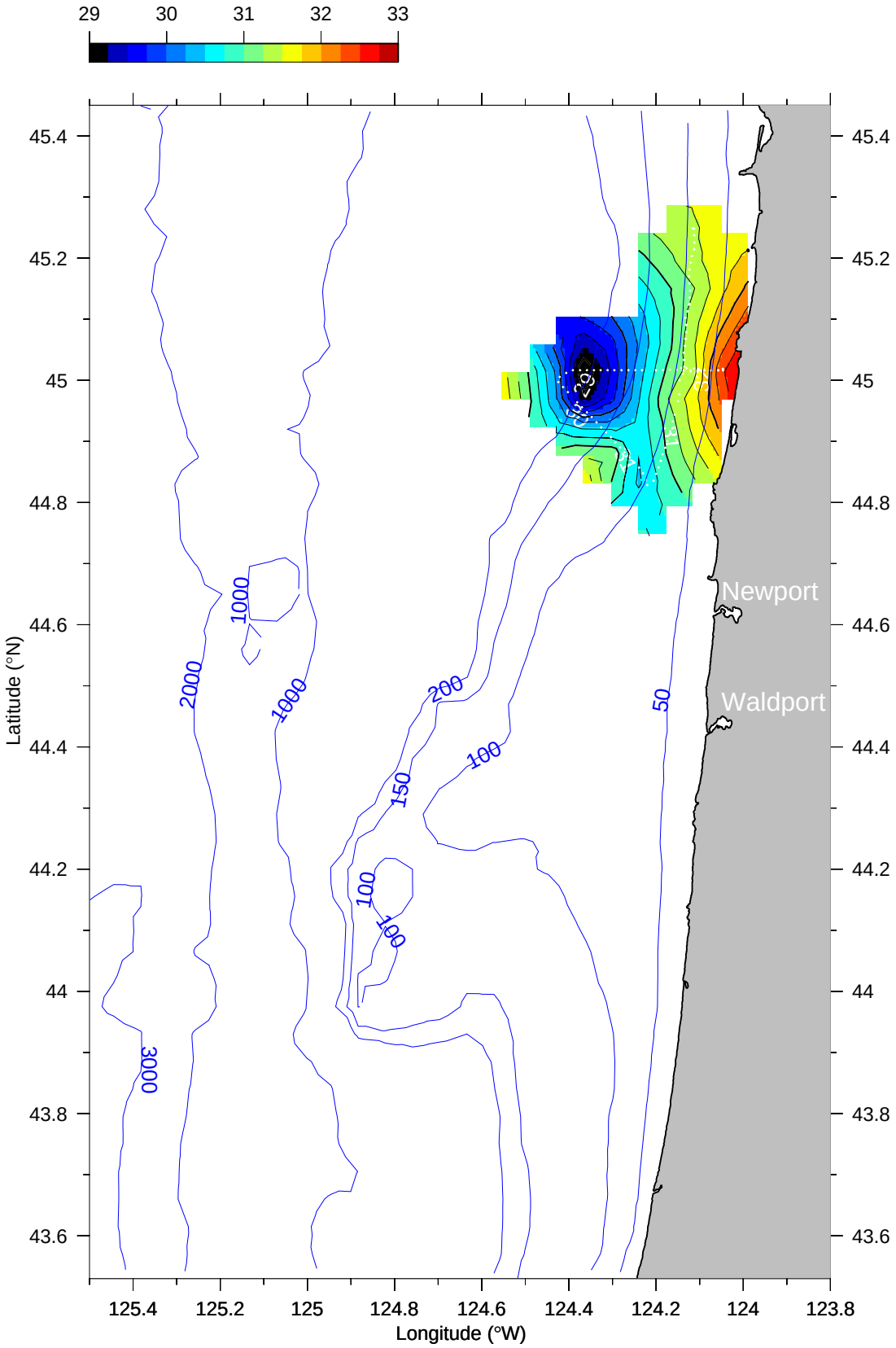
Temperature (°C) at 95 dbar



W0105 Butterfly 2

04-Jun-2001 07:25 - 04-Jun-2001 18:16

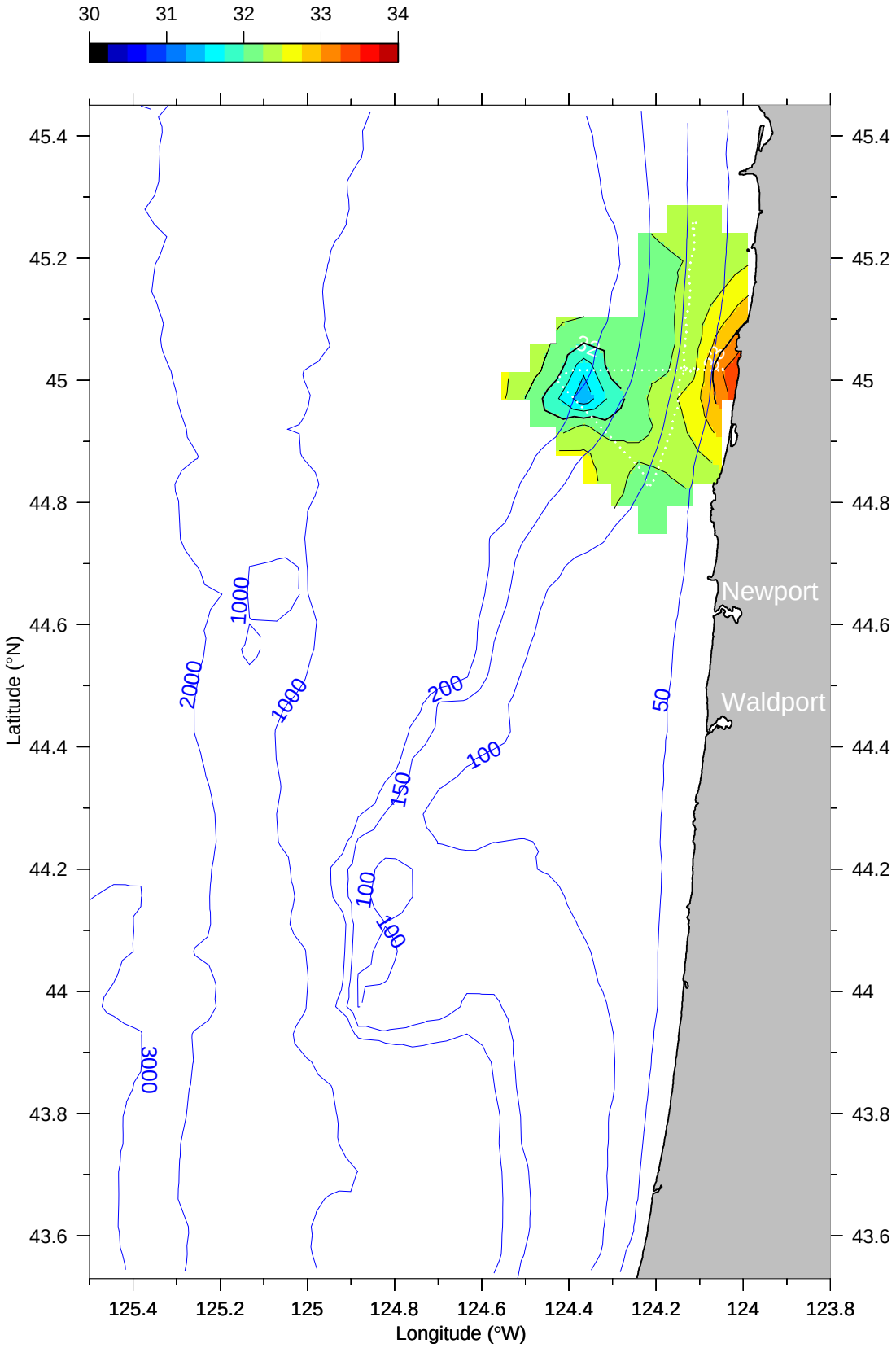
Salinity (PSS) at 5 dbar

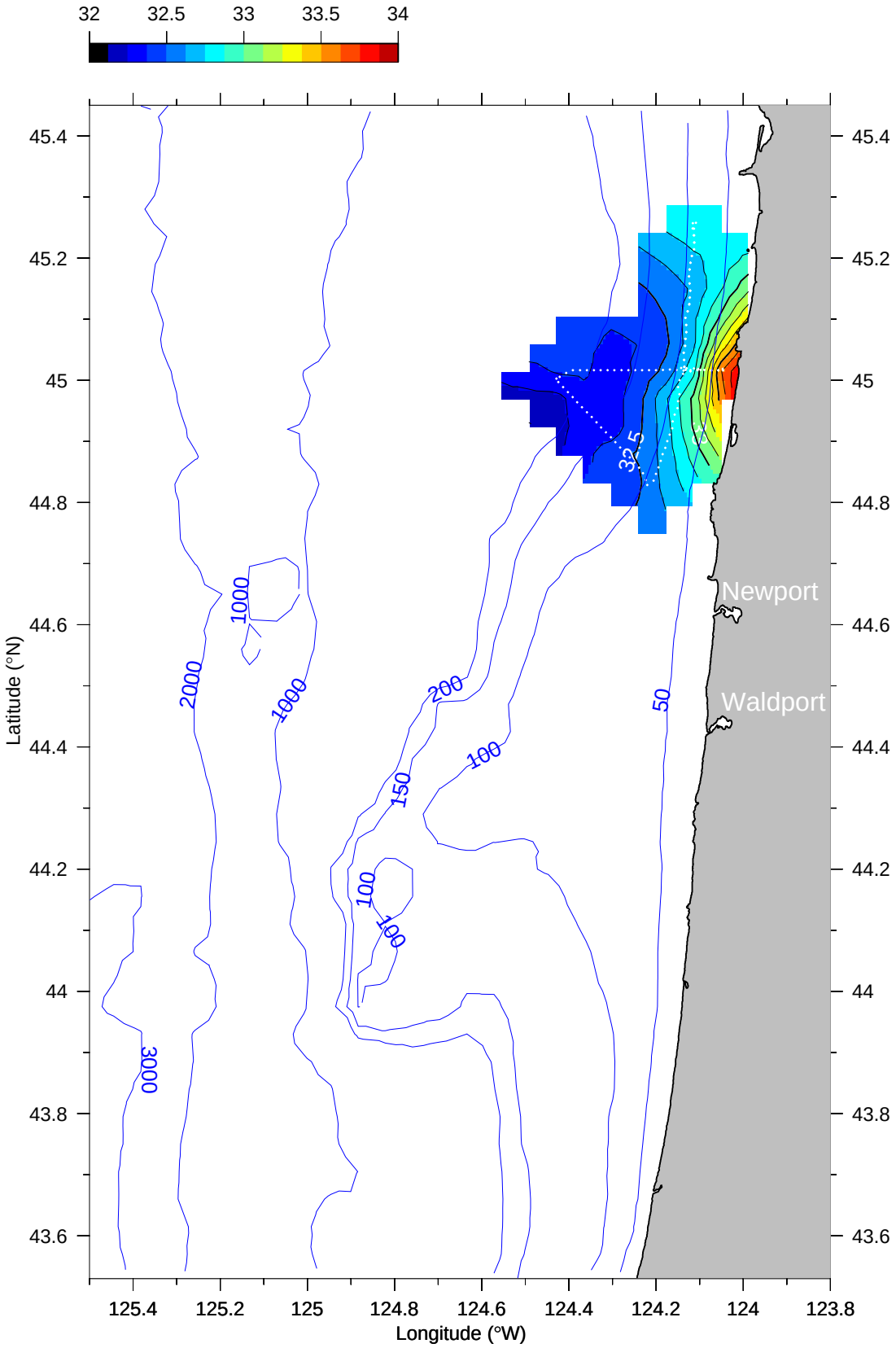


W0105 Butterfly 2

04-Jun-2001 07:25 - 04-Jun-2001 18:16

Salinity (PSS) at 15 dbar

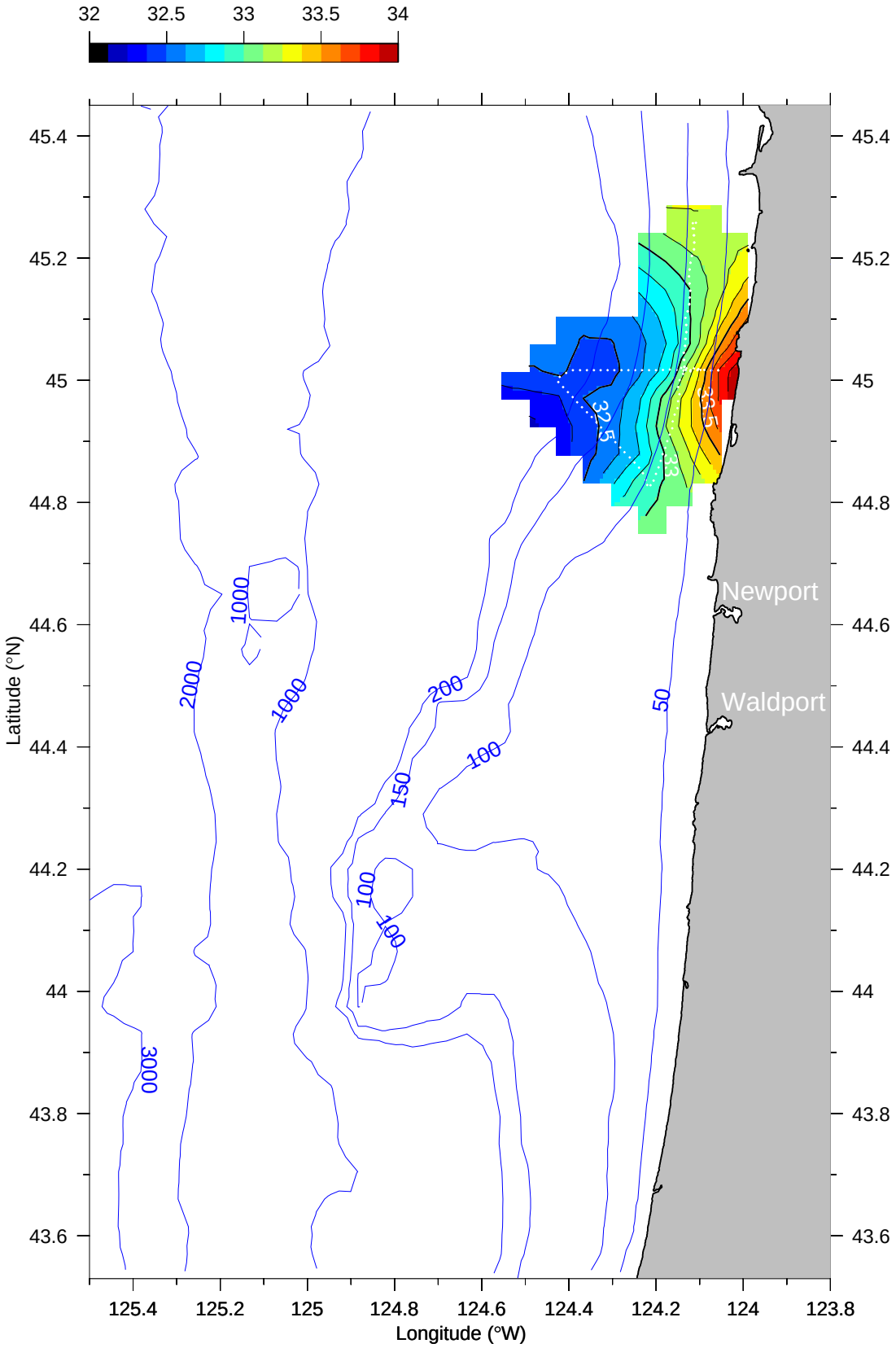



W0105 Butterfly 2
04-Jun-2001 07:25 - 04-Jun-2001 18:16
Salinity (PSS) at 25 dbar
32
32.5
33
33.5
34
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
32.5
3000
2000
1000
1000
200
150
100
100
100
50

W0105 Butterfly 2

04-Jun-2001 07:25 - 04-Jun-2001 18:16

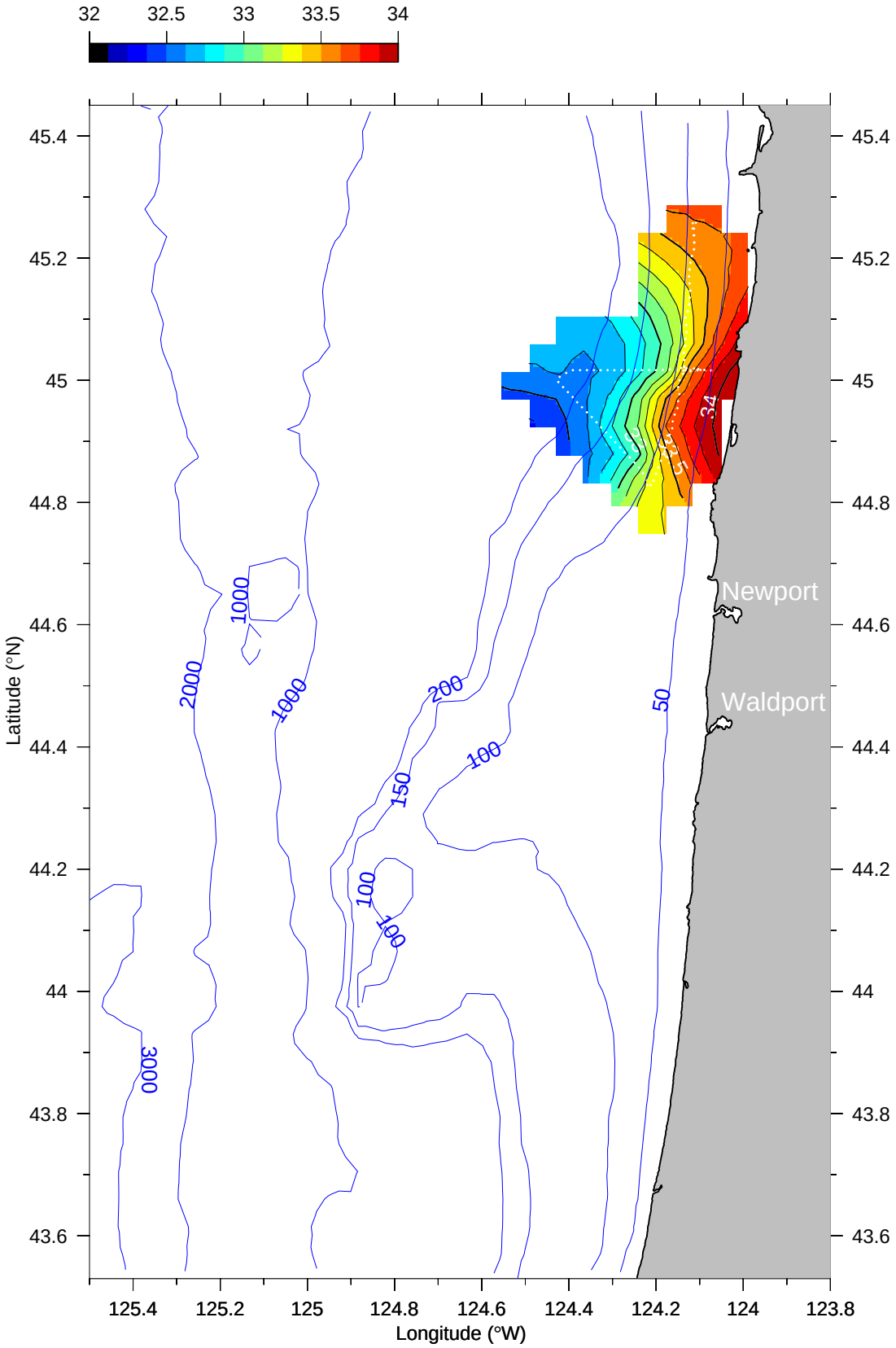
Salinity (PSS) at 35 dbar



W0105 Butterfly 2

04-Jun-2001 07:25 - 04-Jun-2001 18:16

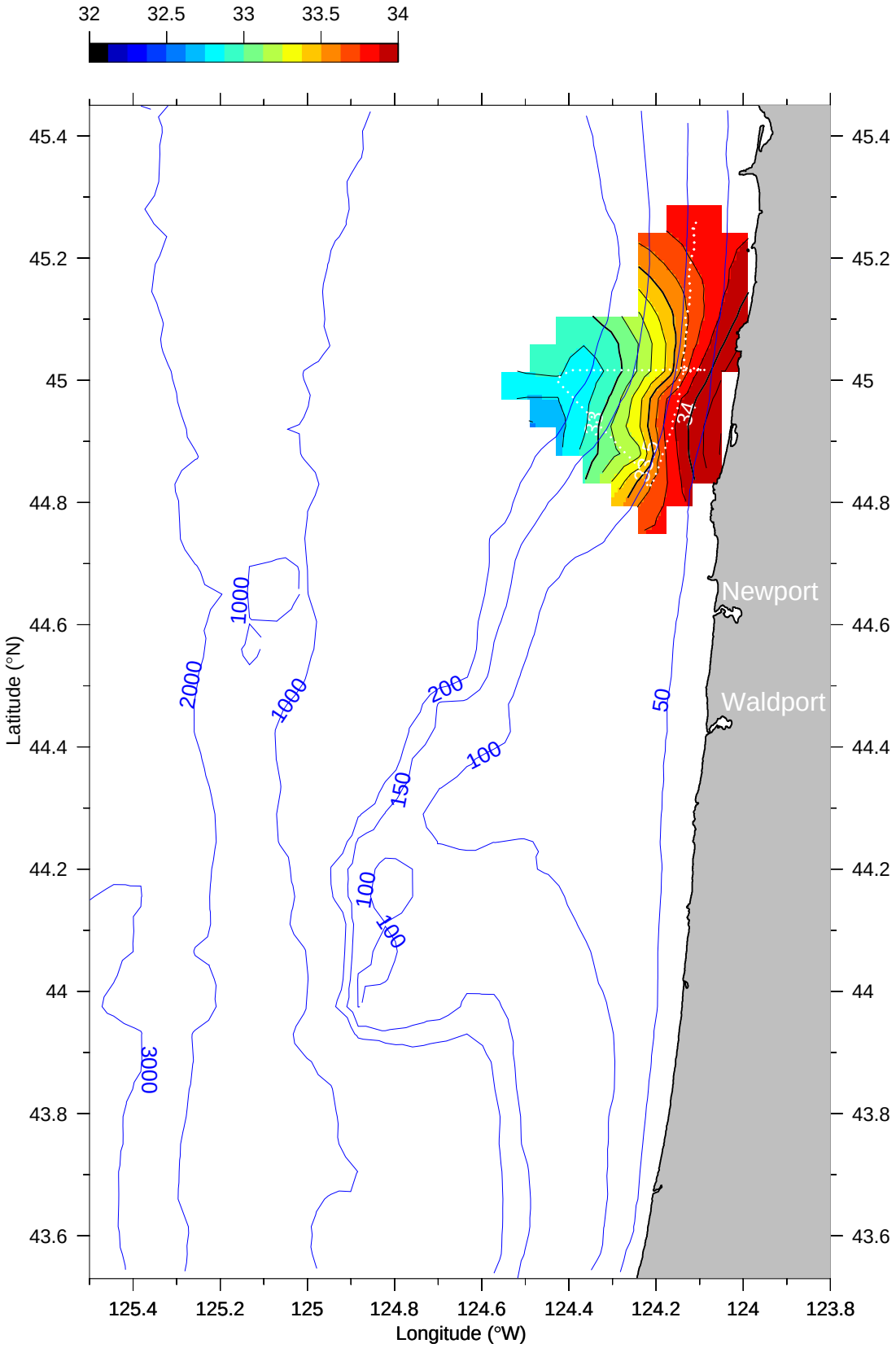
Salinity (PSS) at 45 dbar



W0105 Butterfly 2

04-Jun-2001 07:25 - 04-Jun-2001 18:16

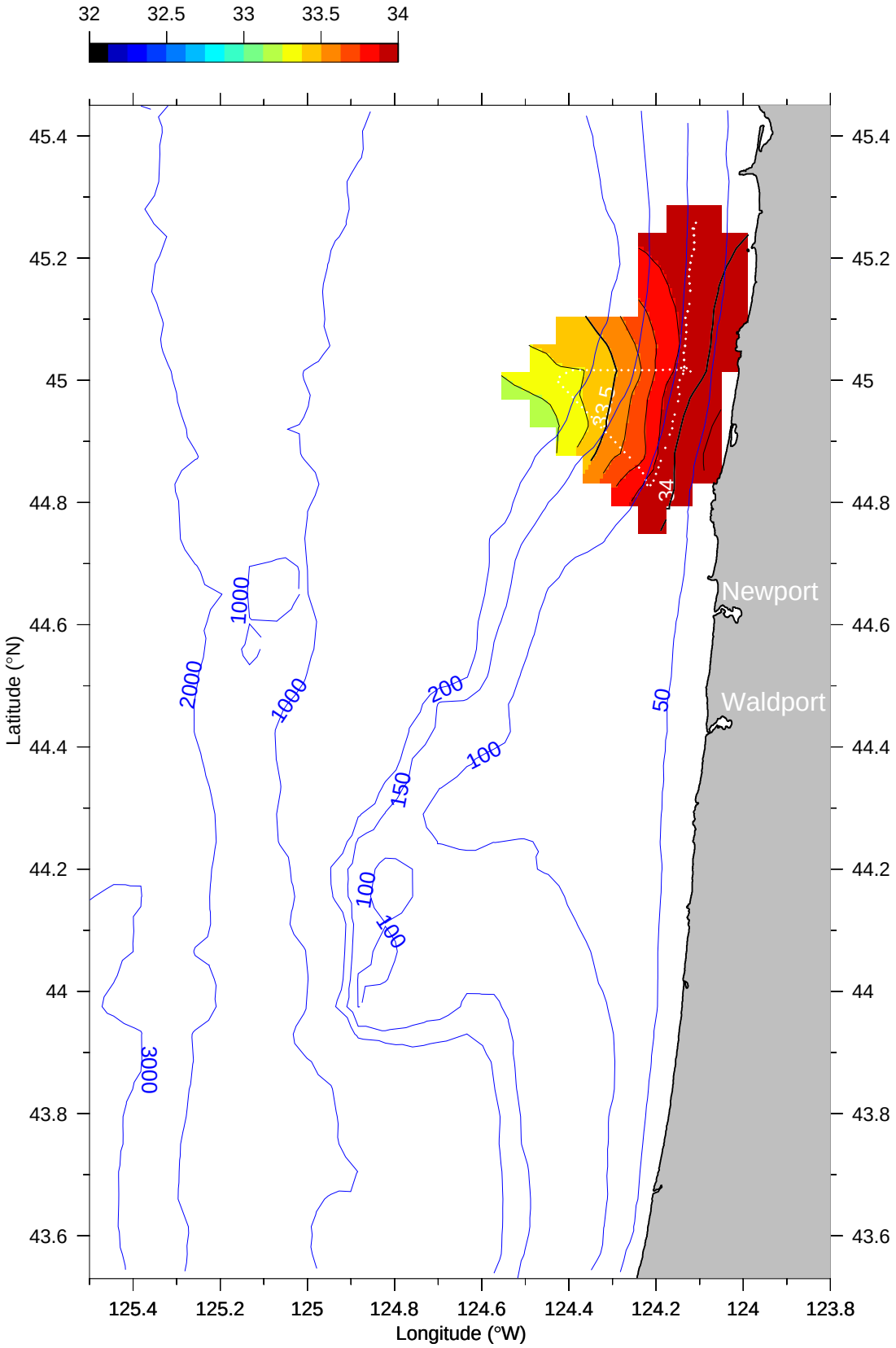
Salinity (PSS) at 55 dbar



W0105 Butterfly 2

04-Jun-2001 07:25 - 04-Jun-2001 18:16

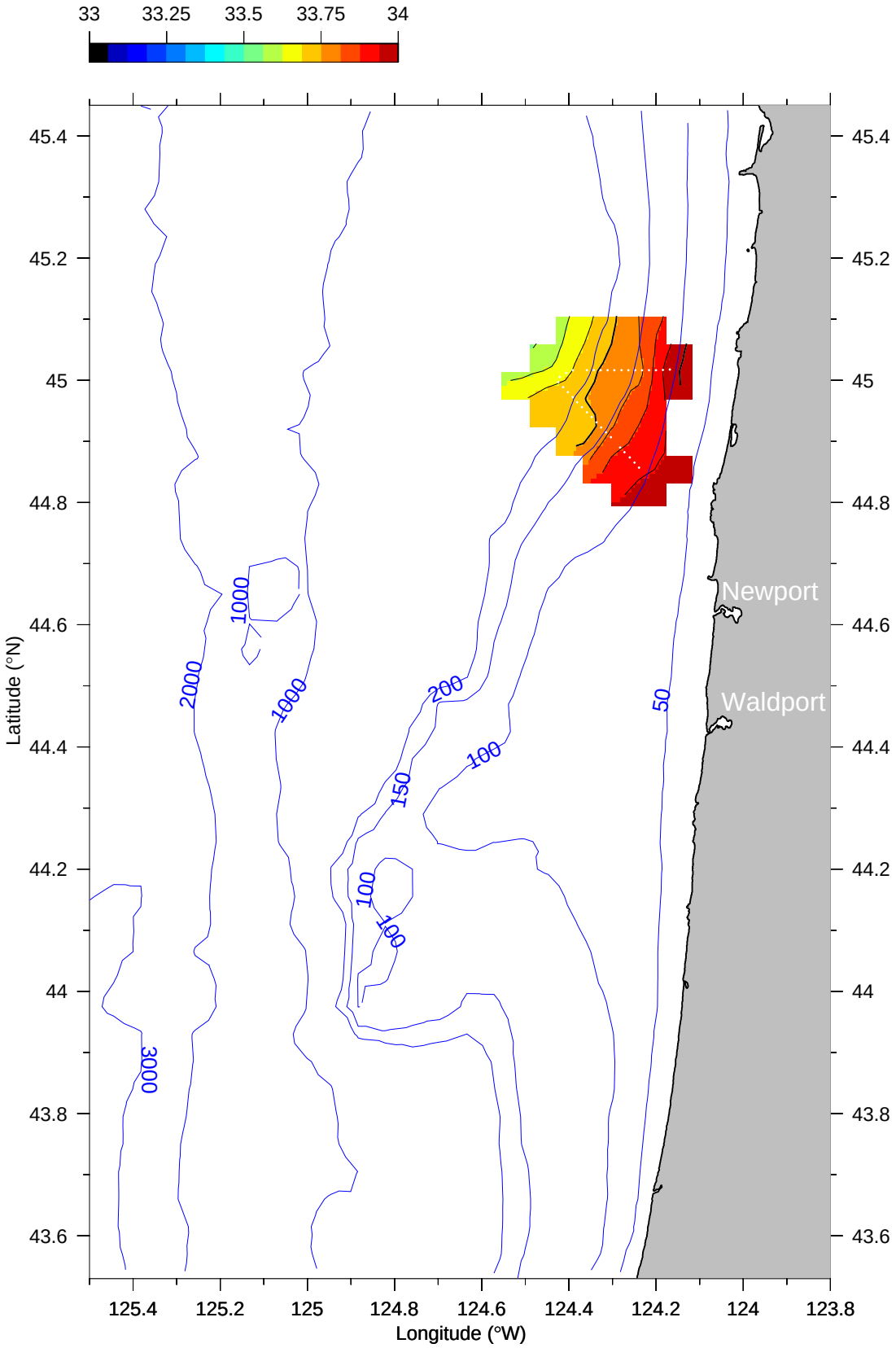
Salinity (PSS) at 75 dbar

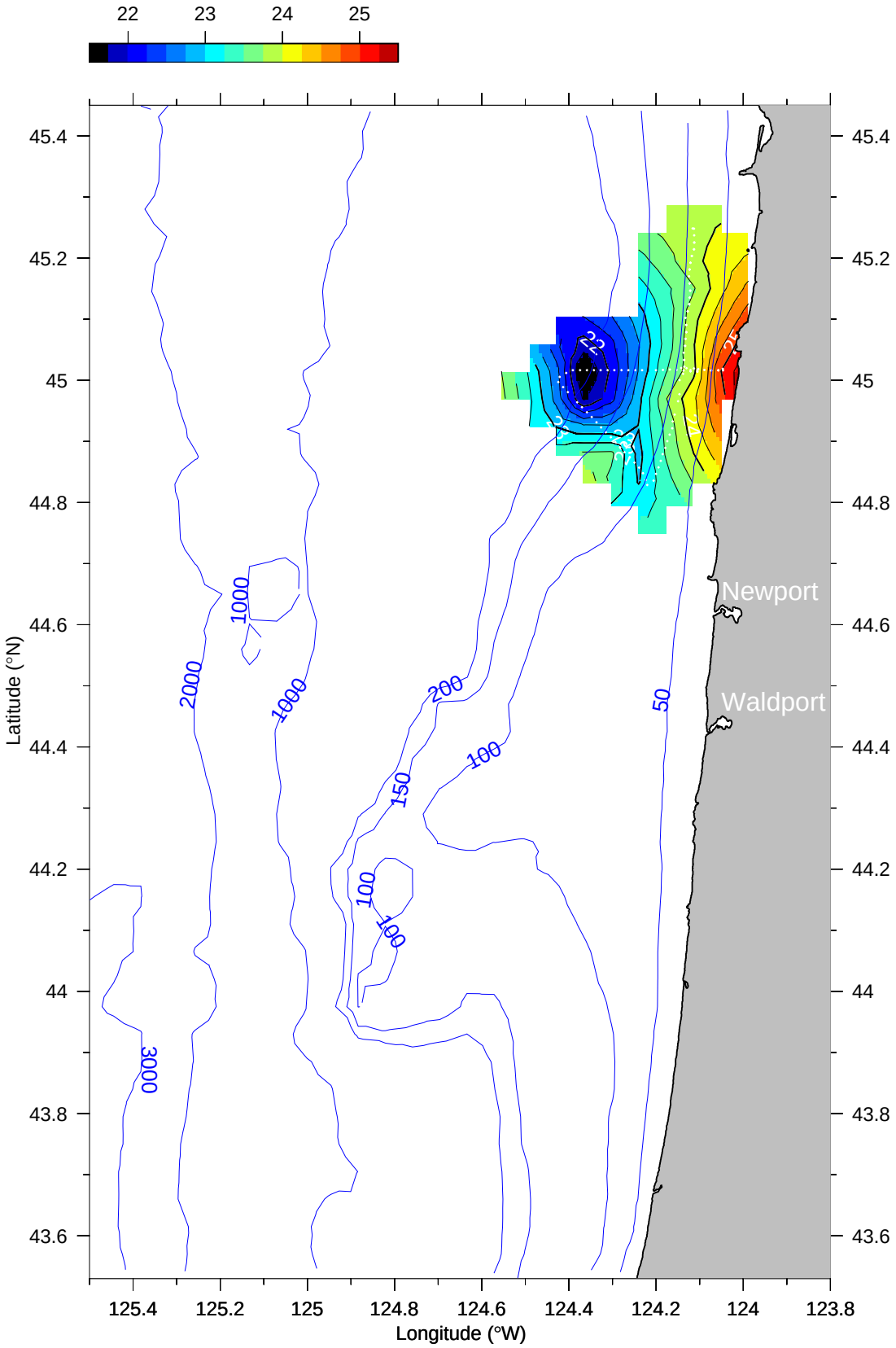


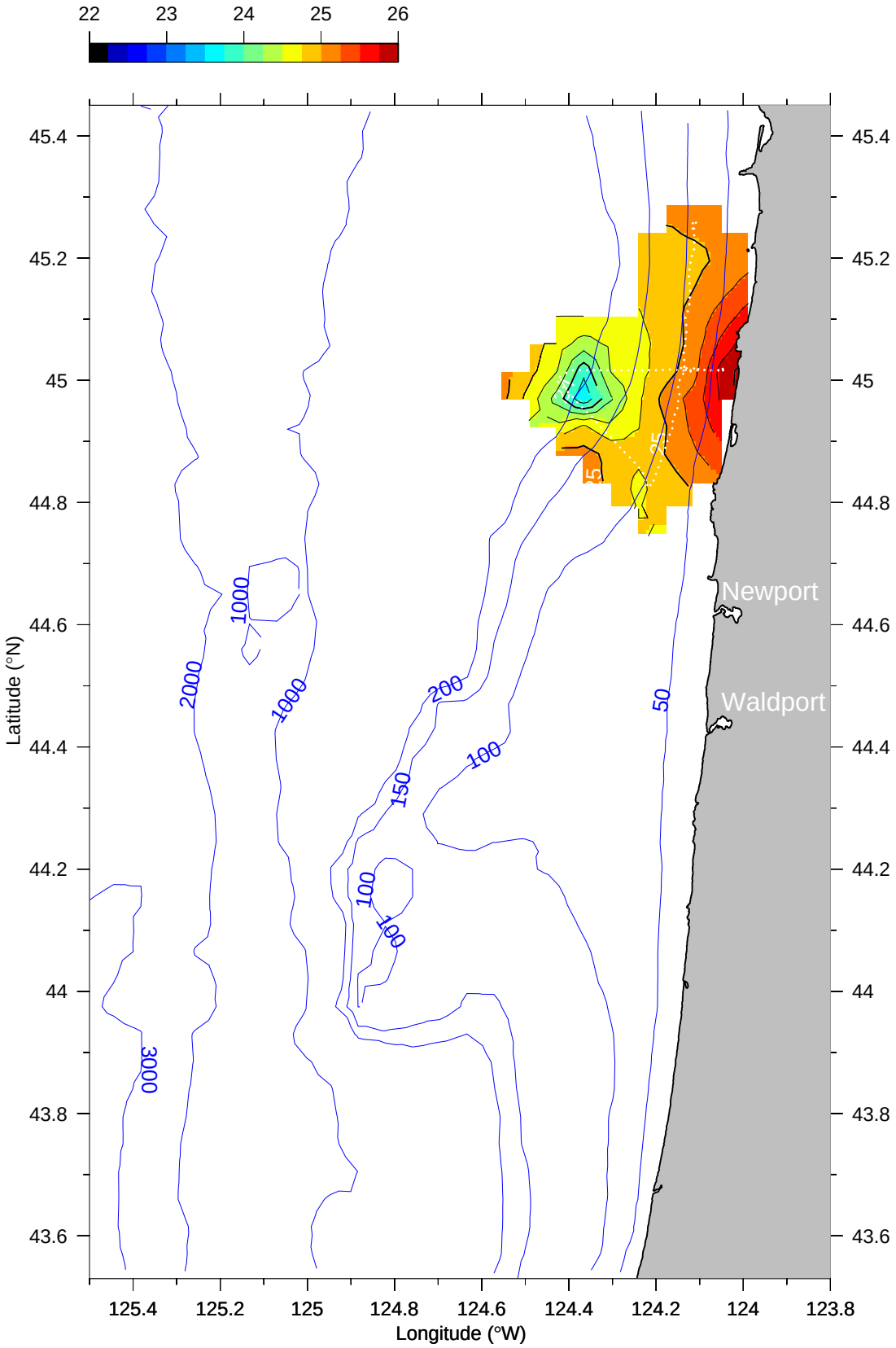
W0105 Butterfly 2

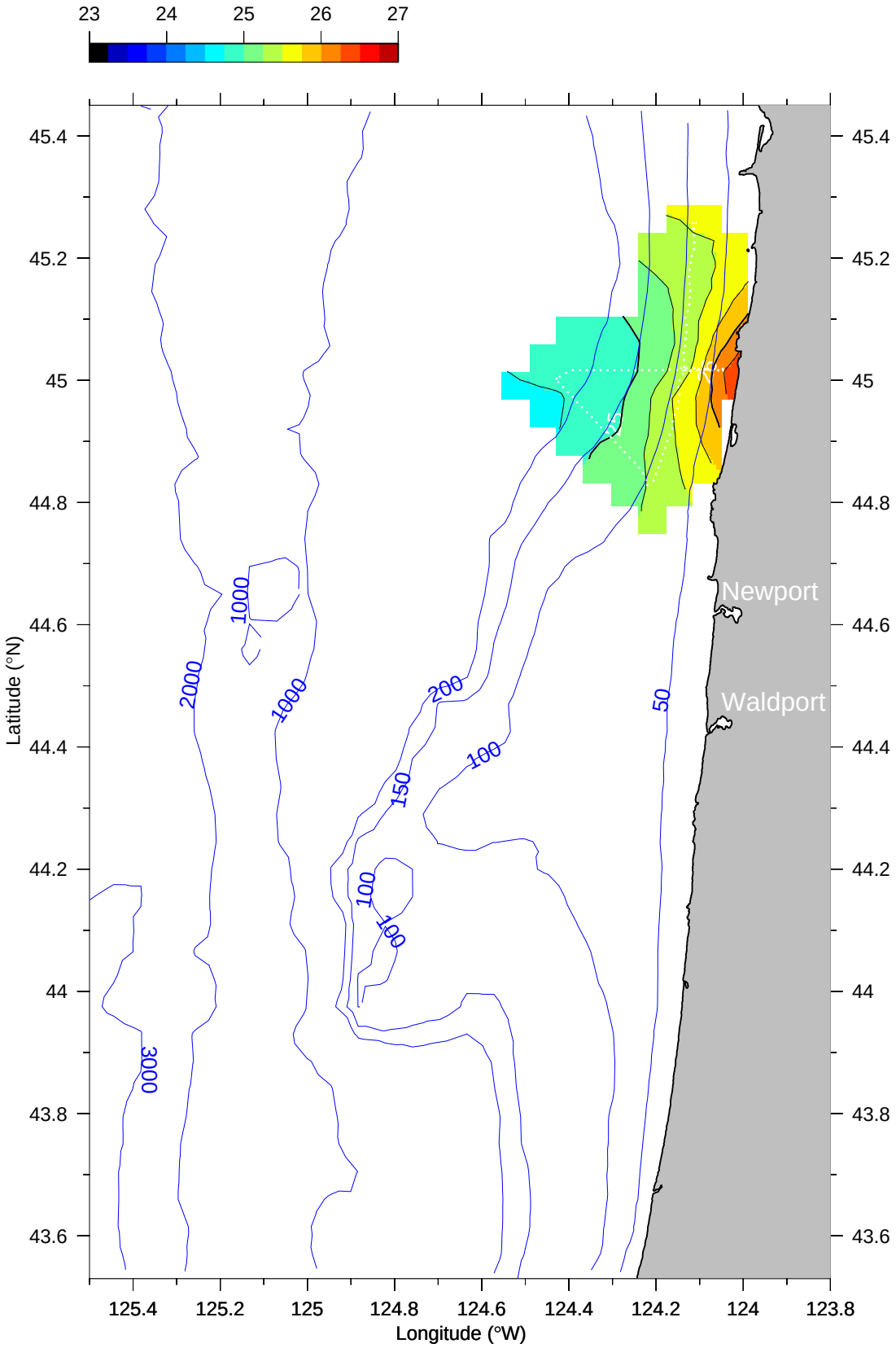
04-Jun-2001 07:25 - 04-Jun-2001 18:16

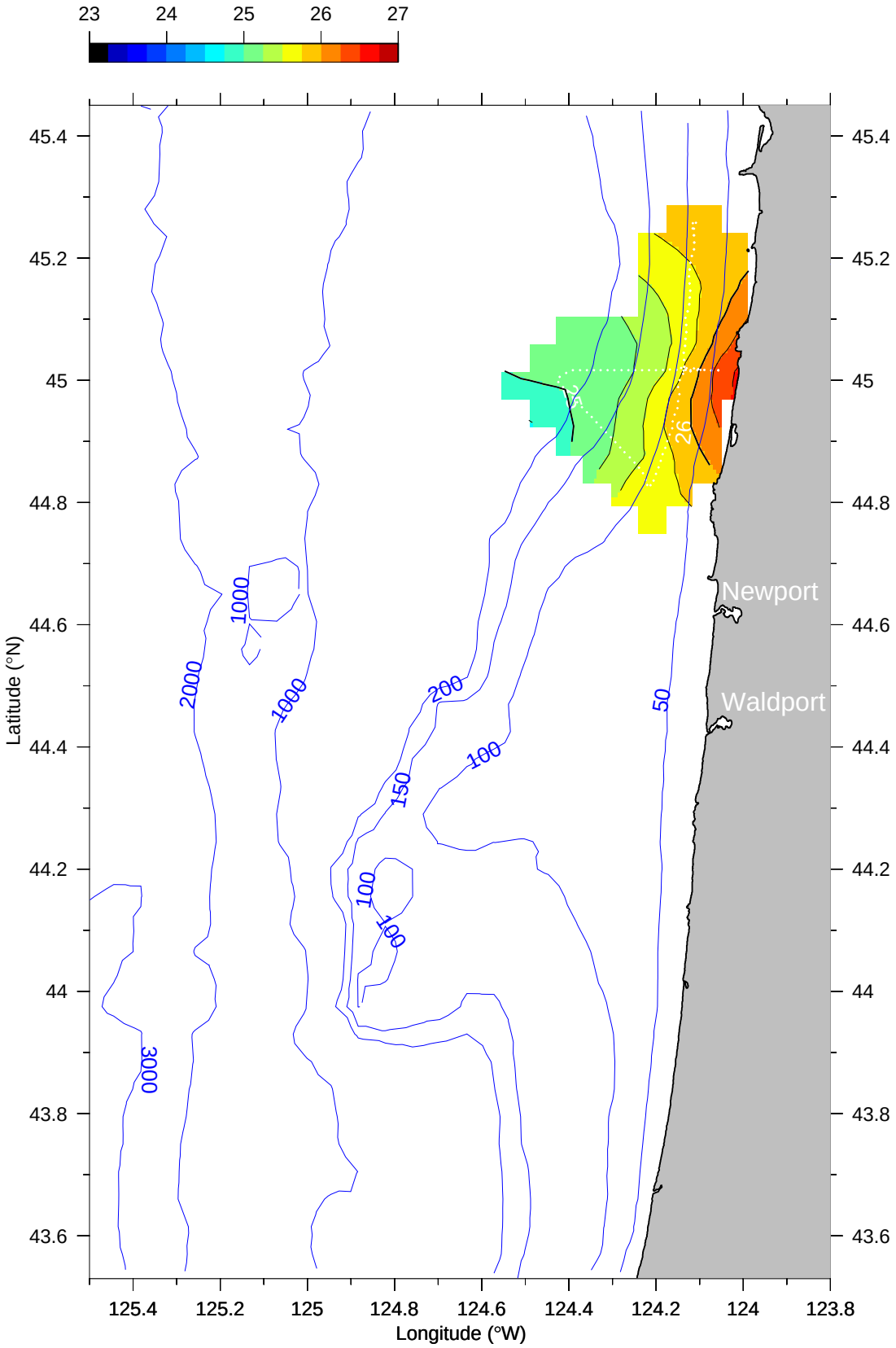
Salinity (PSS) at 95 dbar

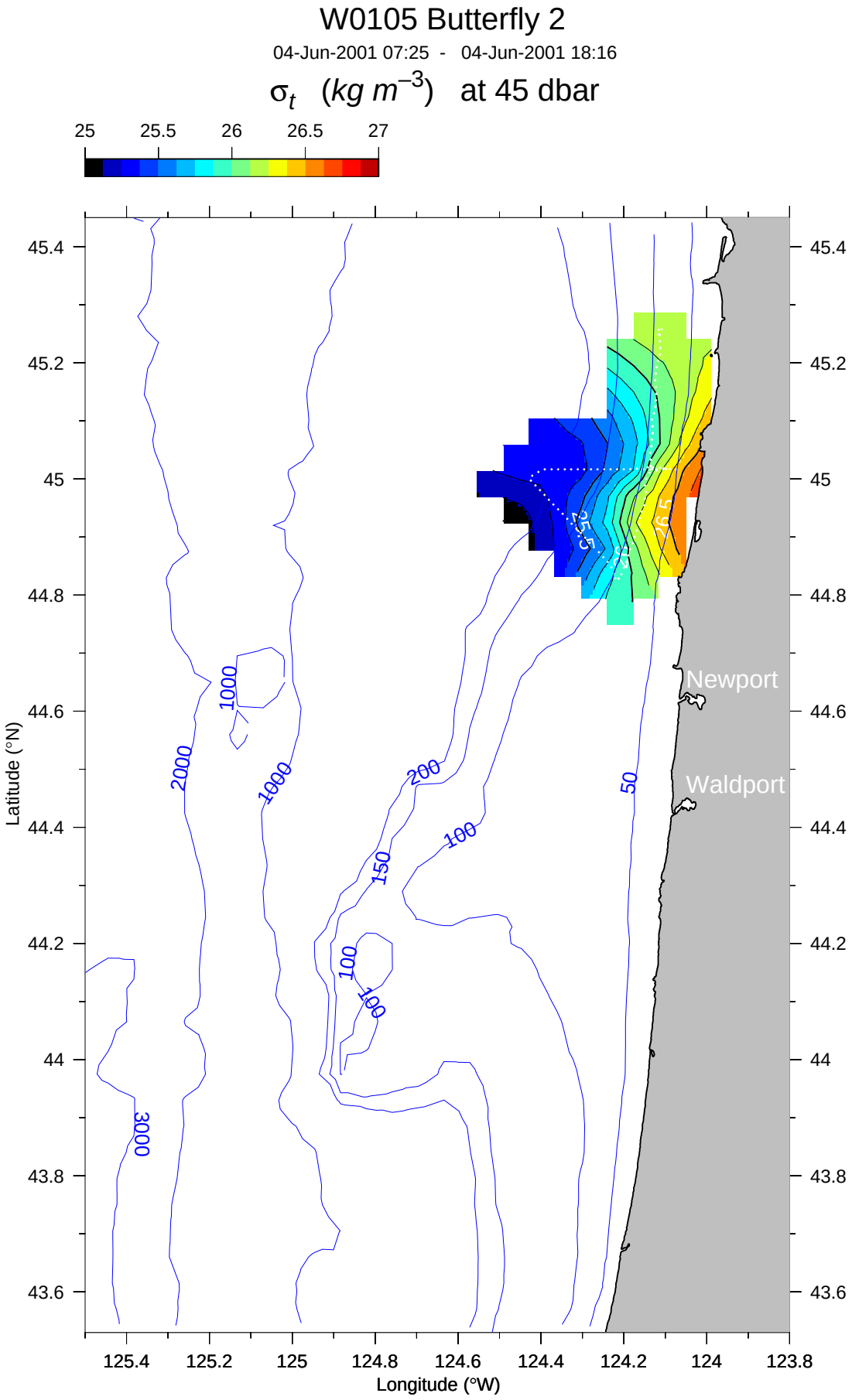


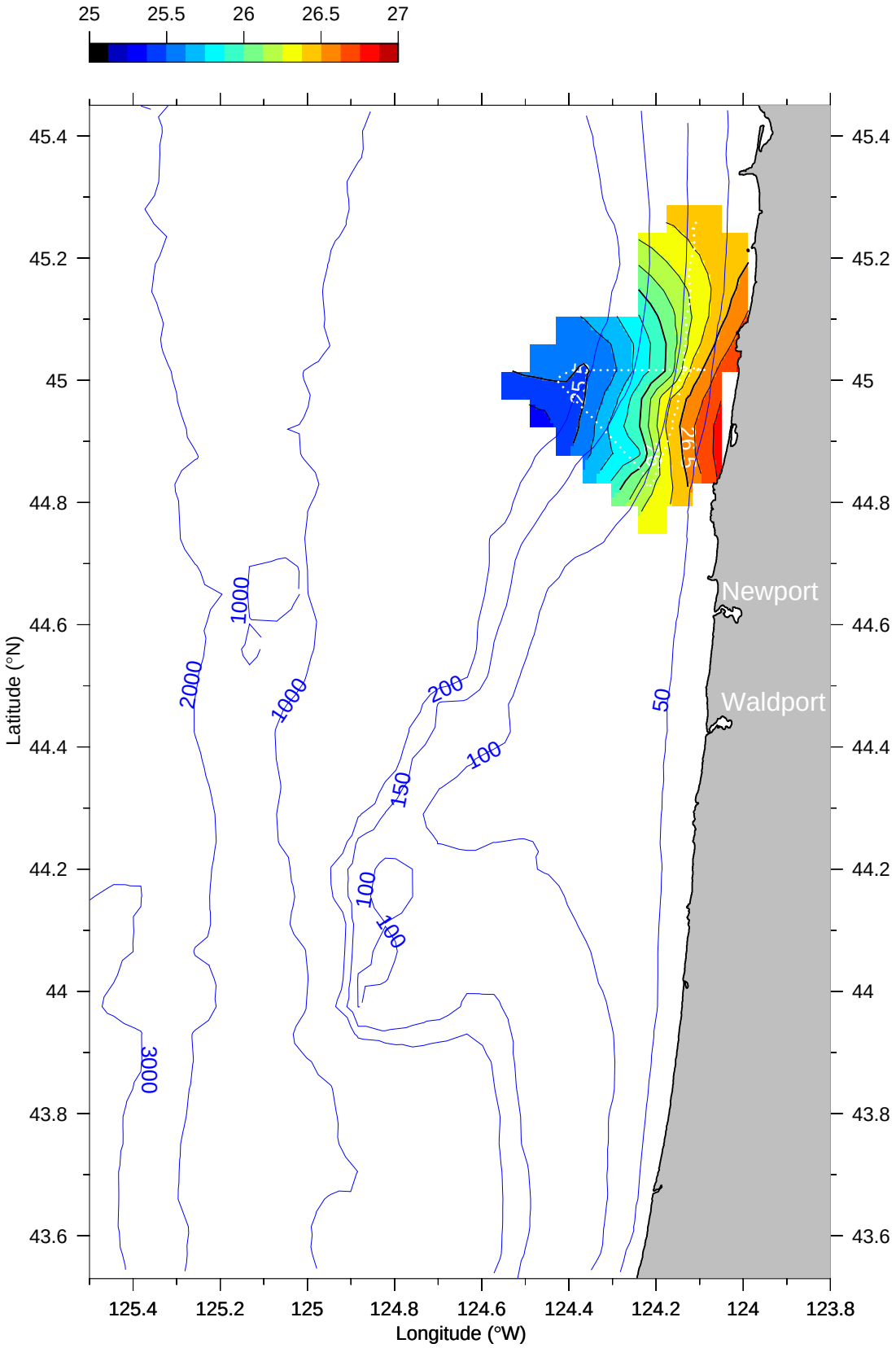

W0105 Butterfly 2
04-Jun-2001 07:25 - 04-Jun-2001 18:16
σt (kg m−3) at 5 dbar
22
23
24
25
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
3000
2000
1000
1000
200
150
100
100
100
50

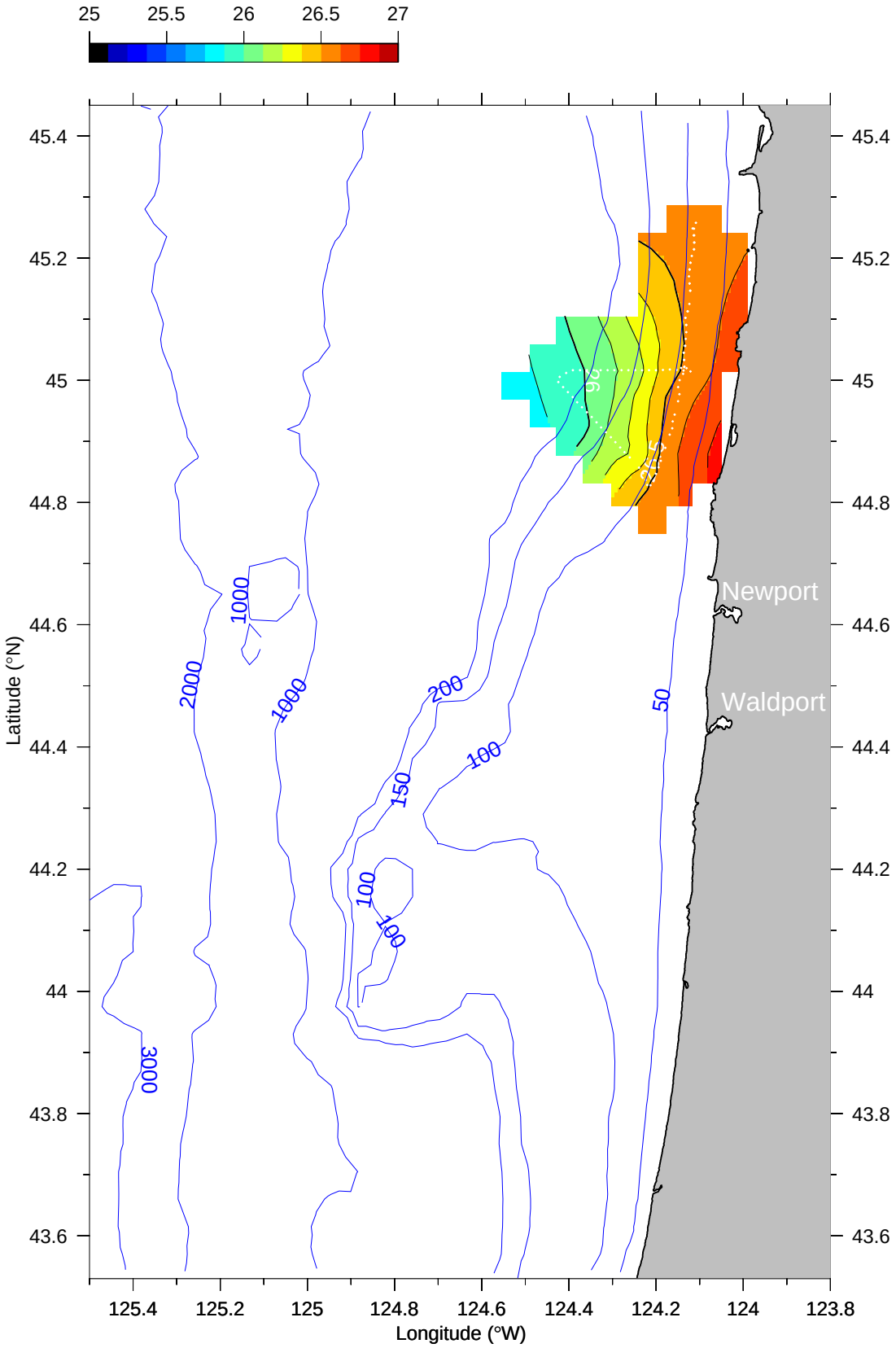

W0105 Butterfly 2
04-Jun-2001 07:25 - 04-Jun-2001 18:16
σt (kg m−3) at 15 dbar
22
23
24
25
26
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
3000
2000
1000
1000
200
150
100
100
100
50

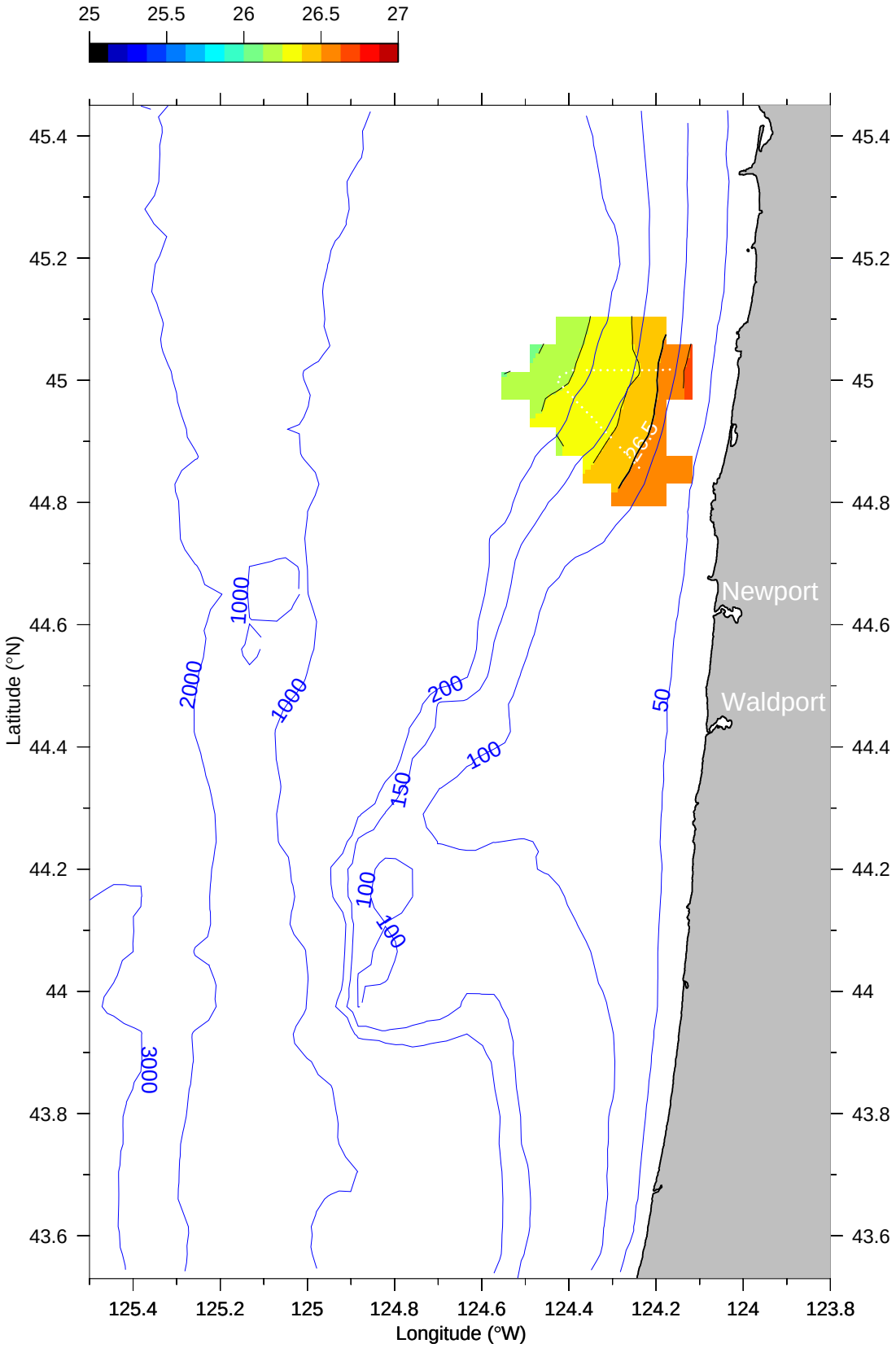

W0105 Butterfly 2
04-Jun-2001 07:25 - 04-Jun-2001 18:16
σt (kg m−3) at 25 dbar
23
24
25
26
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
3000
2000
1000
1000
200
150
100
100
100
50

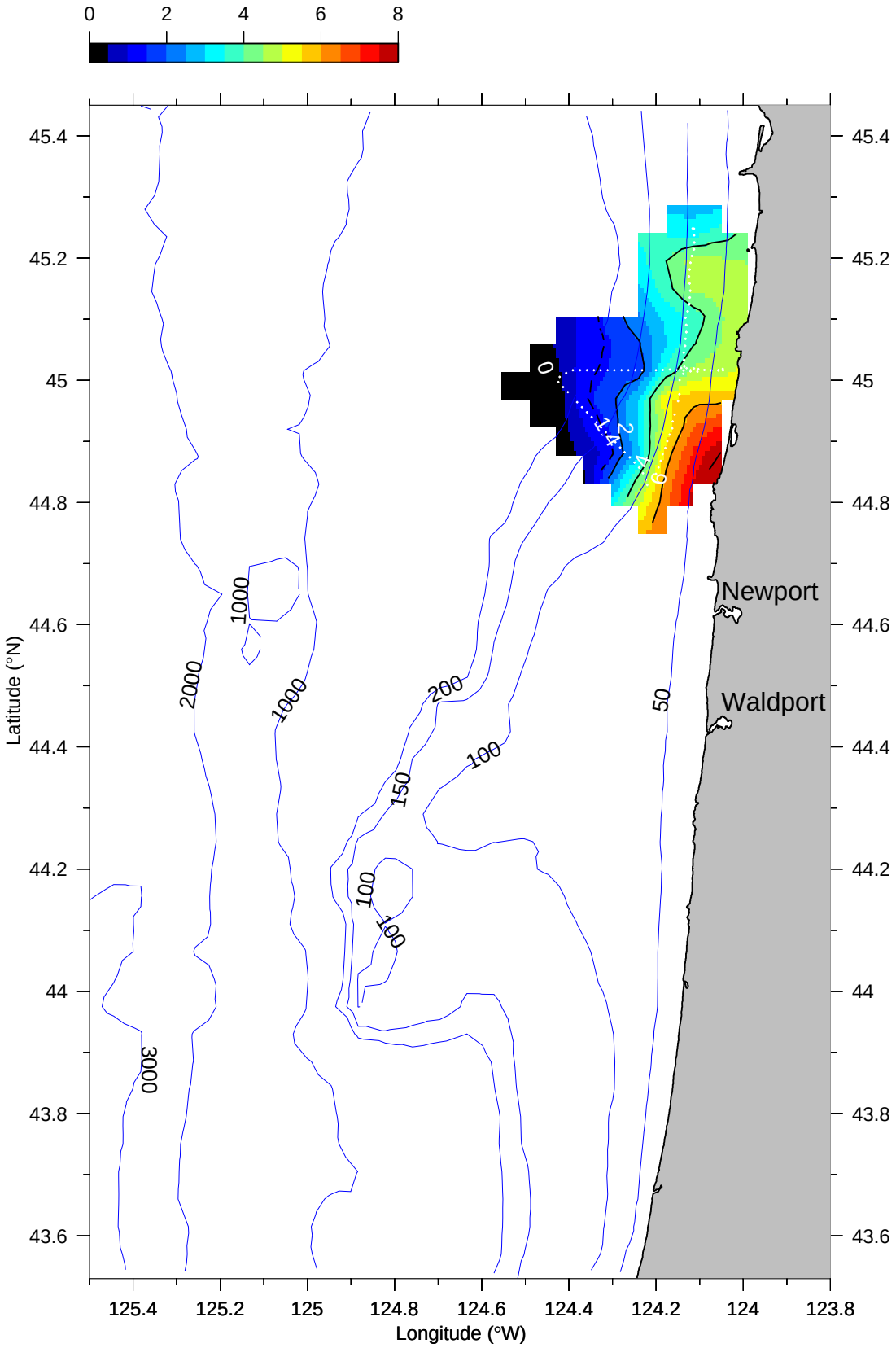

W0105 Butterfly 2
04-Jun-2001 07:25 - 04-Jun-2001 18:16
σt (kg m−3) at 35 dbar
23
24
25
26
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Butterfly 2
04-Jun-2001 07:25 - 04-Jun-2001 18:16
σt (kg m−3) at 45 dbar
25
25.5
26
26.5
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Butterfly 2
04-Jun-2001 07:25 - 04-Jun-2001 18:16
σt (kg m−3) at 55 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
1000
200
100
150
100
100
50
3000


W0105 Butterfly 2
04-Jun-2001 07:25 - 04-Jun-2001 18:16
σt (kg m−3) at 75 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
1000
200
100
150
100
100
50
3000


W0105 Butterfly 2
04-Jun-2001 07:25 - 04-Jun-2001 18:16
σt (kg m−3) at 95 dbar
25
25.5
26
26.5
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
1000
2000
1000
200
100
150
100
100
50
3000
26.5


W0105 Butterfly 2
04-Jun-2001 07:25 - 04-Jun-2001 18:16
Chlorophyll (µg L−1) at 5 dbar
0
2
4
6
8
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
0
1
2
4
6
1000
2000
1000
200
100
150
100
100
50
3000

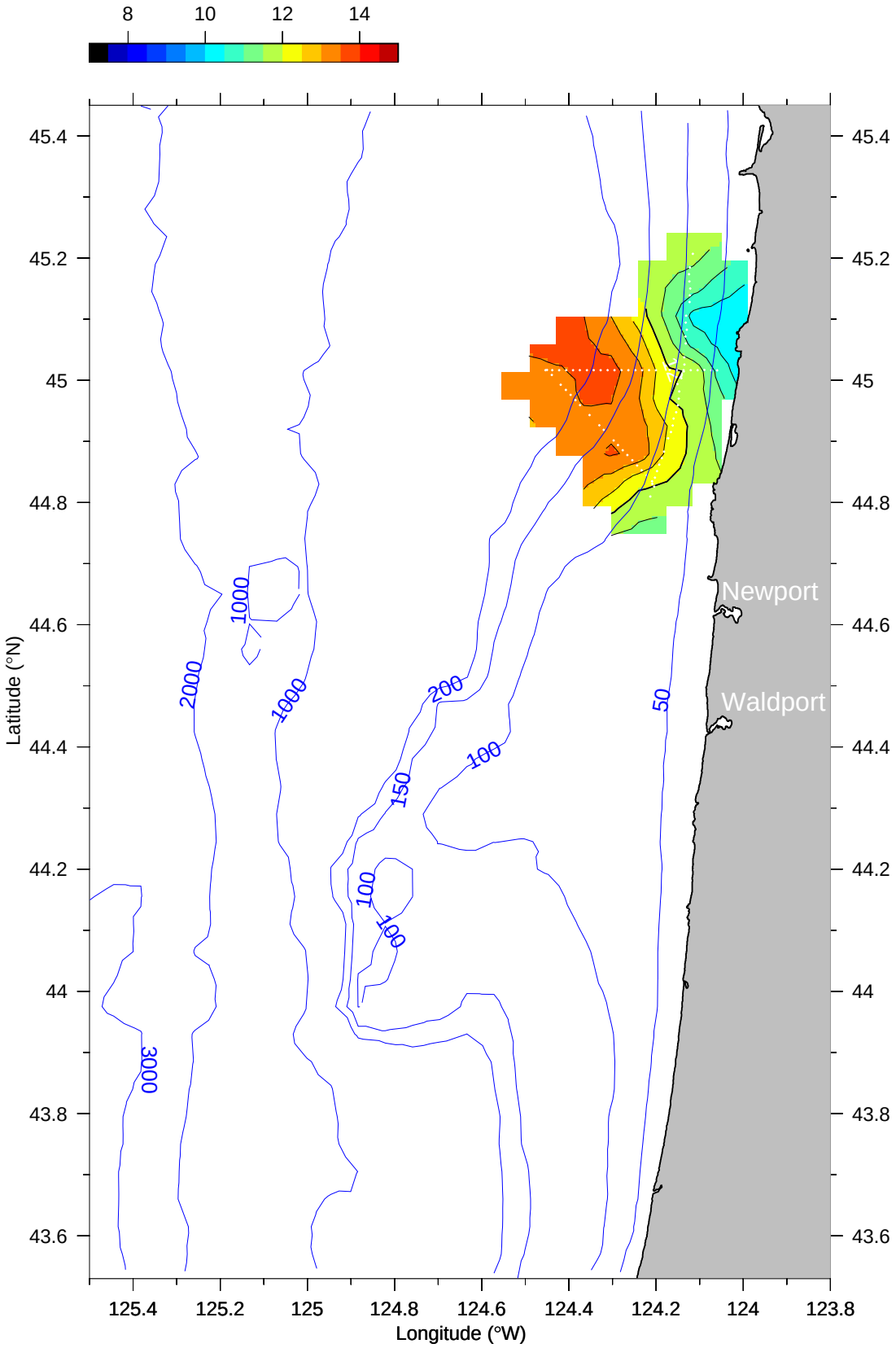
Butterfly 3 Maps

Maps of Temperature, Salinity, σ_t, and Chlorophyll at Specified Depths

W0105 Butterfly 3

04-Jun-2001 18:20 - 05-Jun-2001 07:49

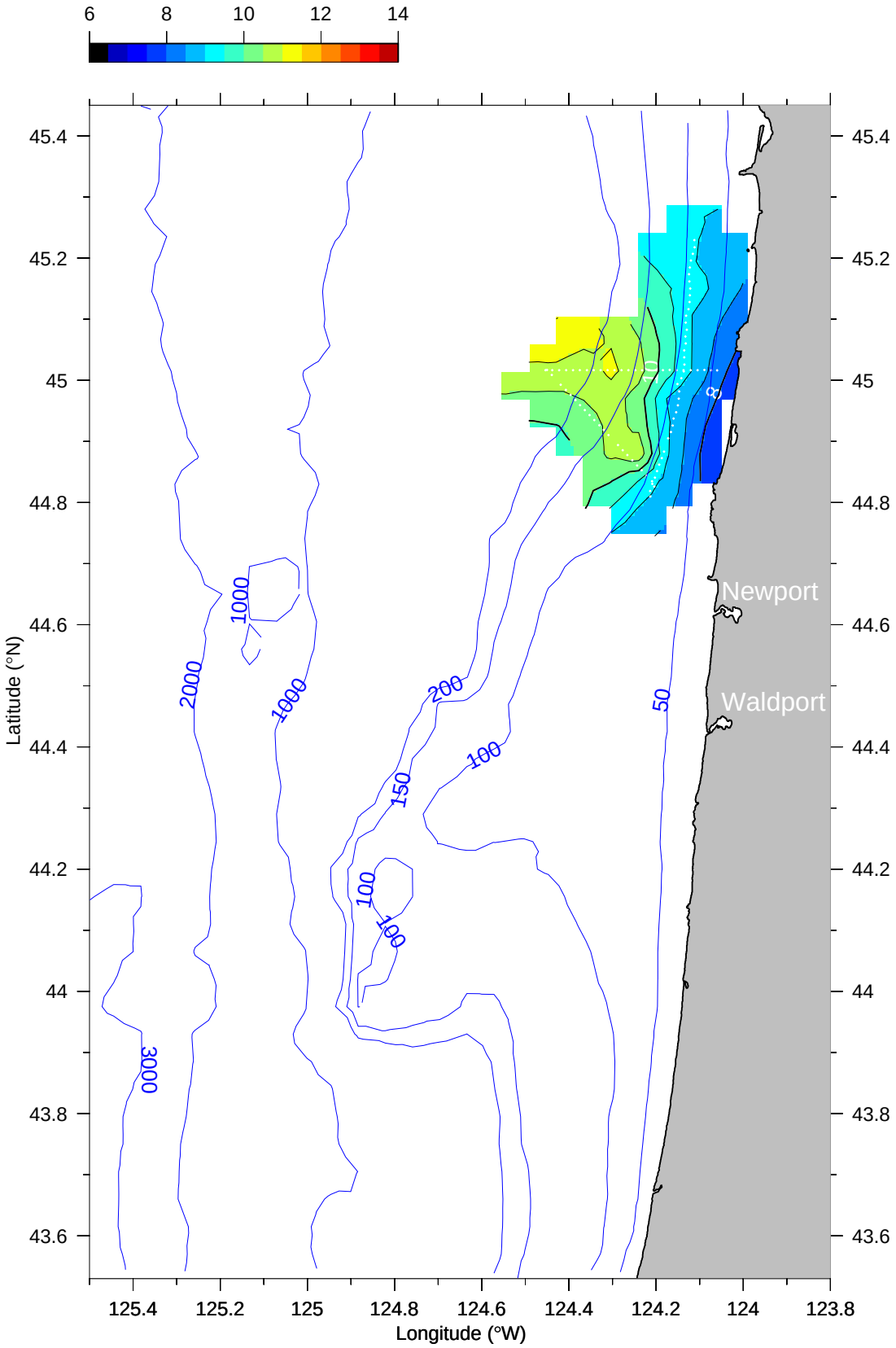
Temperature (°C) at 5 dbar



W0105 Butterfly 3

04-Jun-2001 18:20 - 05-Jun-2001 07:49

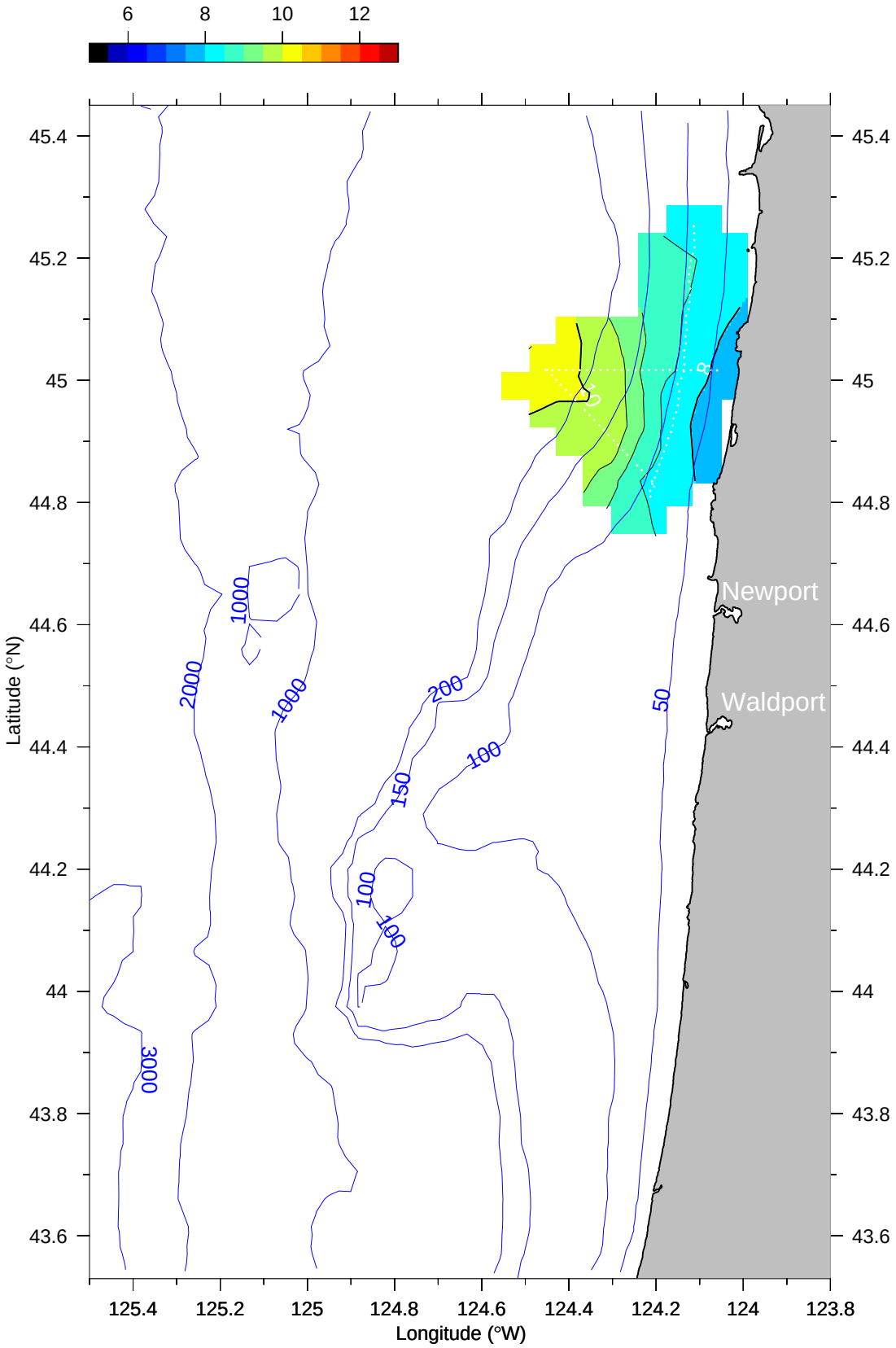
Temperature (°C) at 15 dbar



W0105 Butterfly 3

04-Jun-2001 18:20 - 05-Jun-2001 07:49

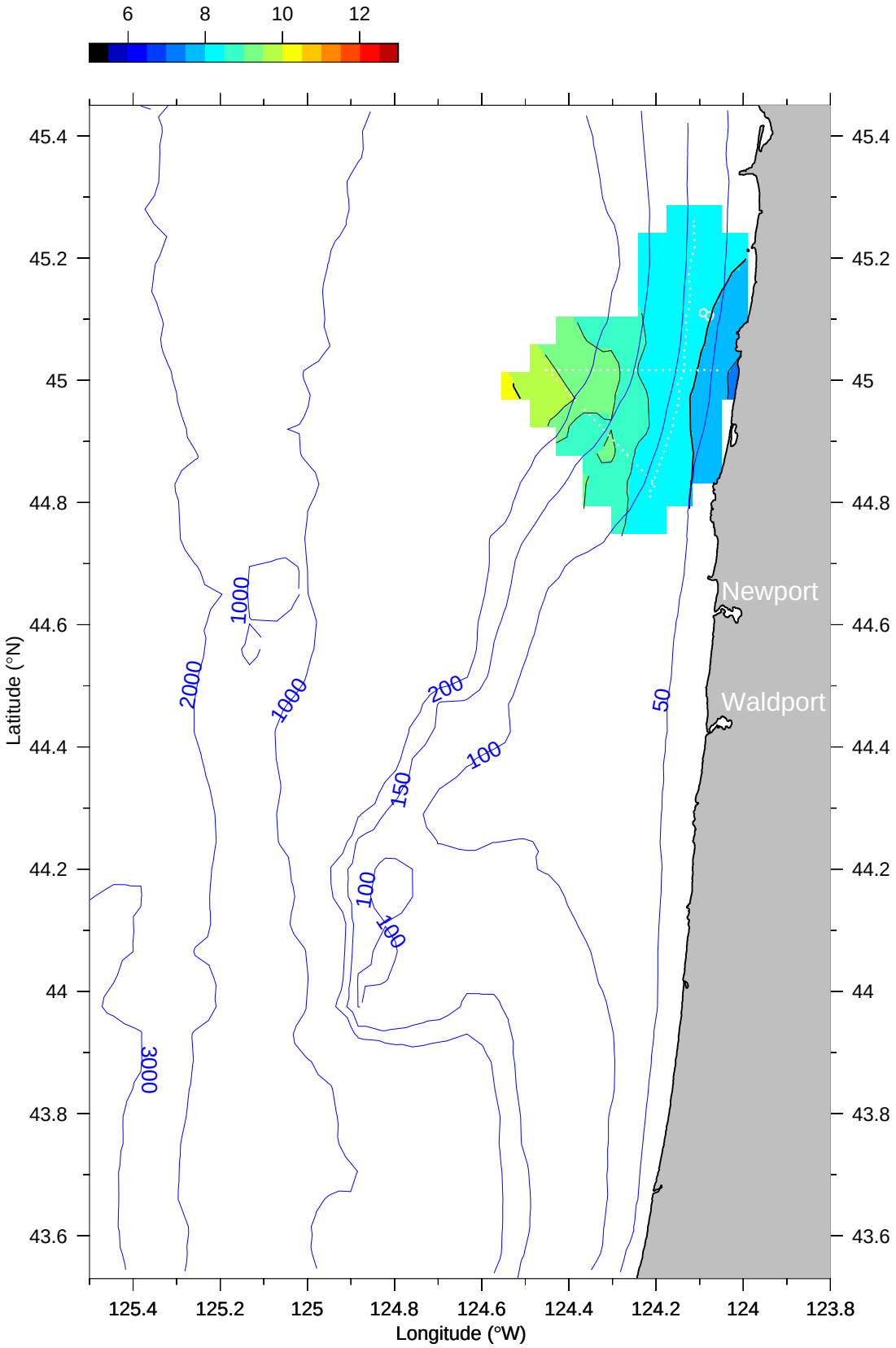
Temperature (°C) at 25 dbar



W0105 Butterfly 3

04-Jun-2001 18:20 - 05-Jun-2001 07:49

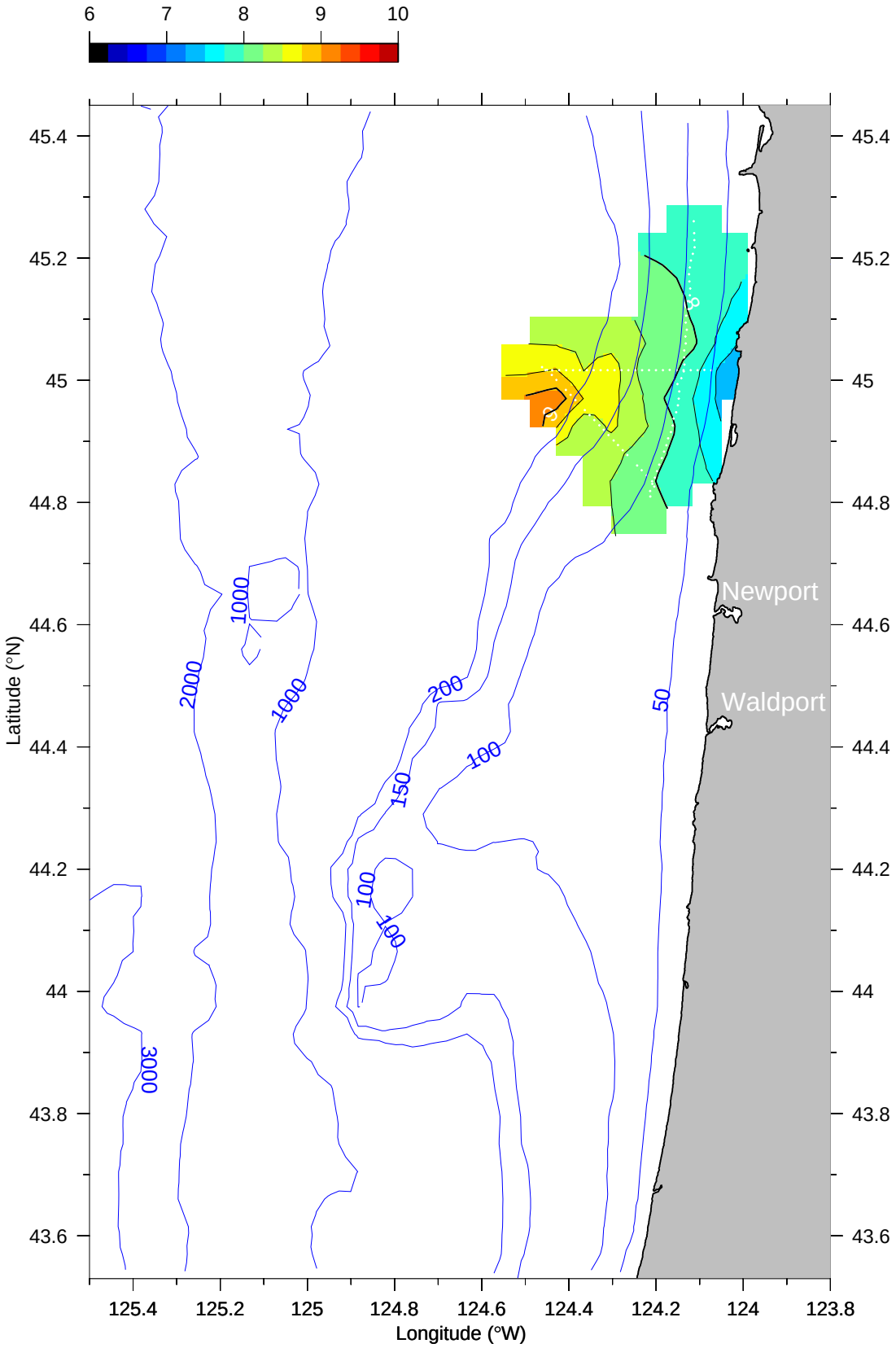
Temperature (°C) at 35 dbar



W0105 Butterfly 3

04-Jun-2001 18:20 - 05-Jun-2001 07:49

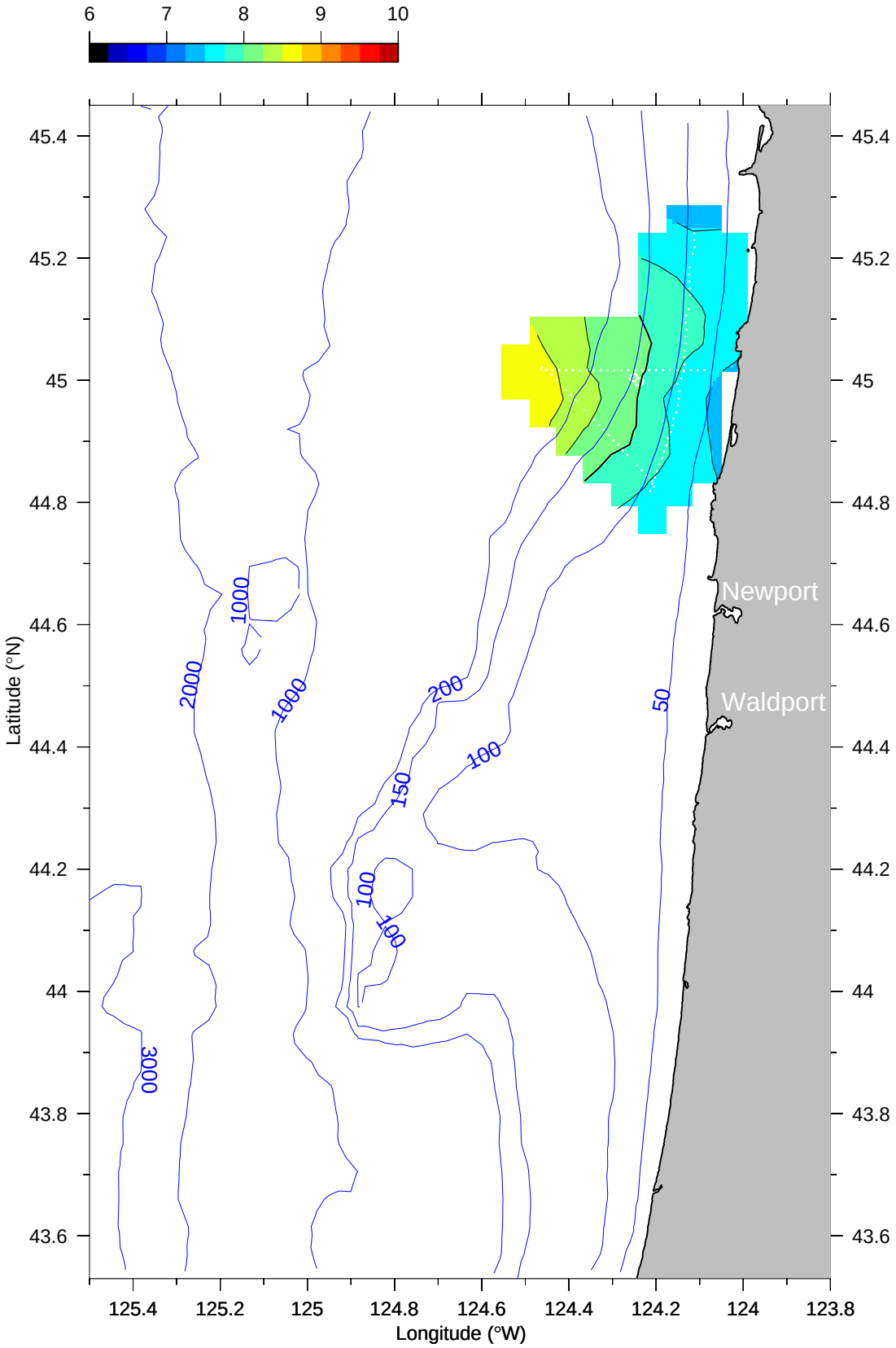
Temperature (°C) at 45 dbar



W0105 Butterfly 3

04-Jun-2001 18:20 - 05-Jun-2001 07:49

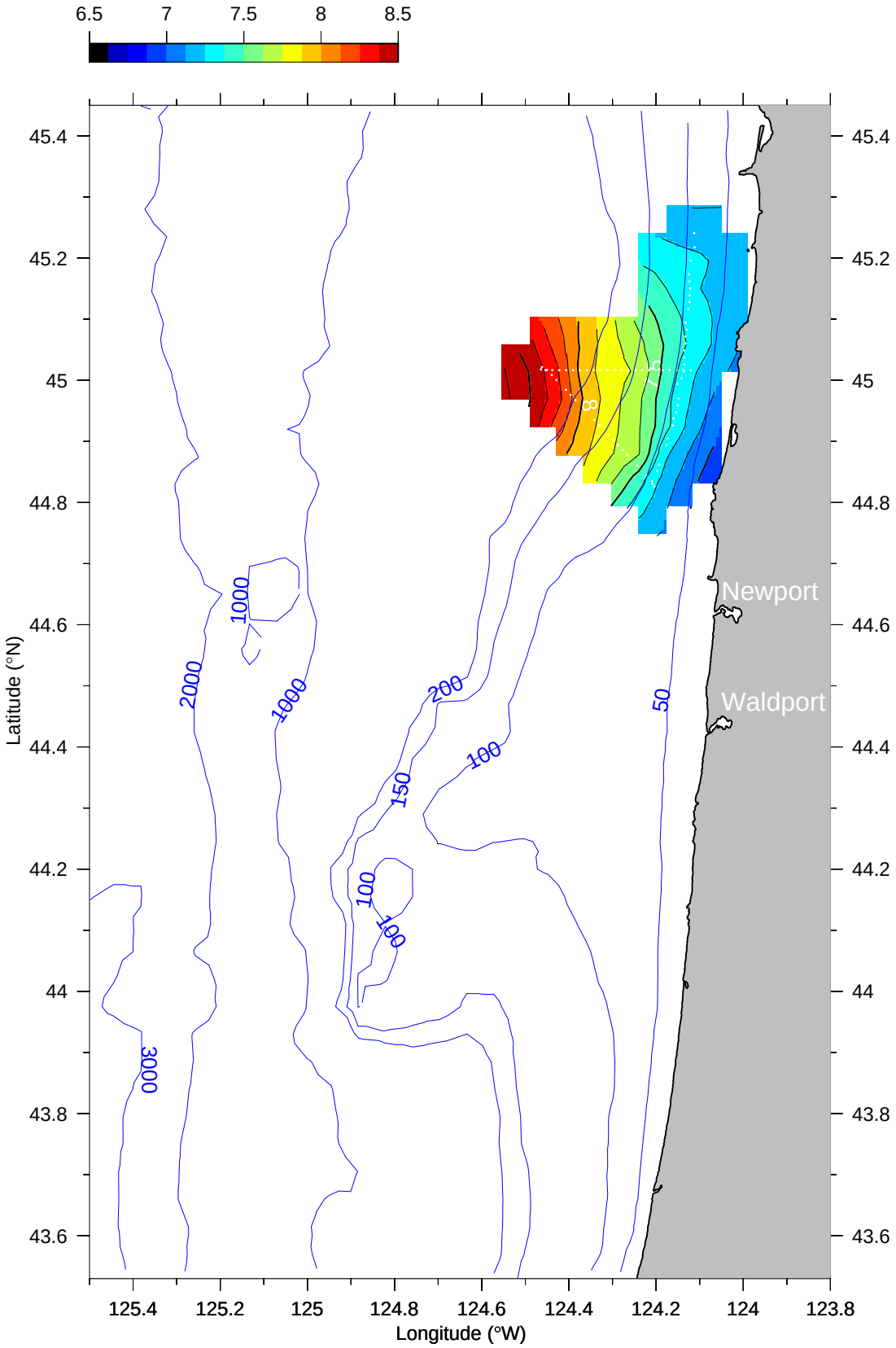
Temperature (°C) at 55 dbar

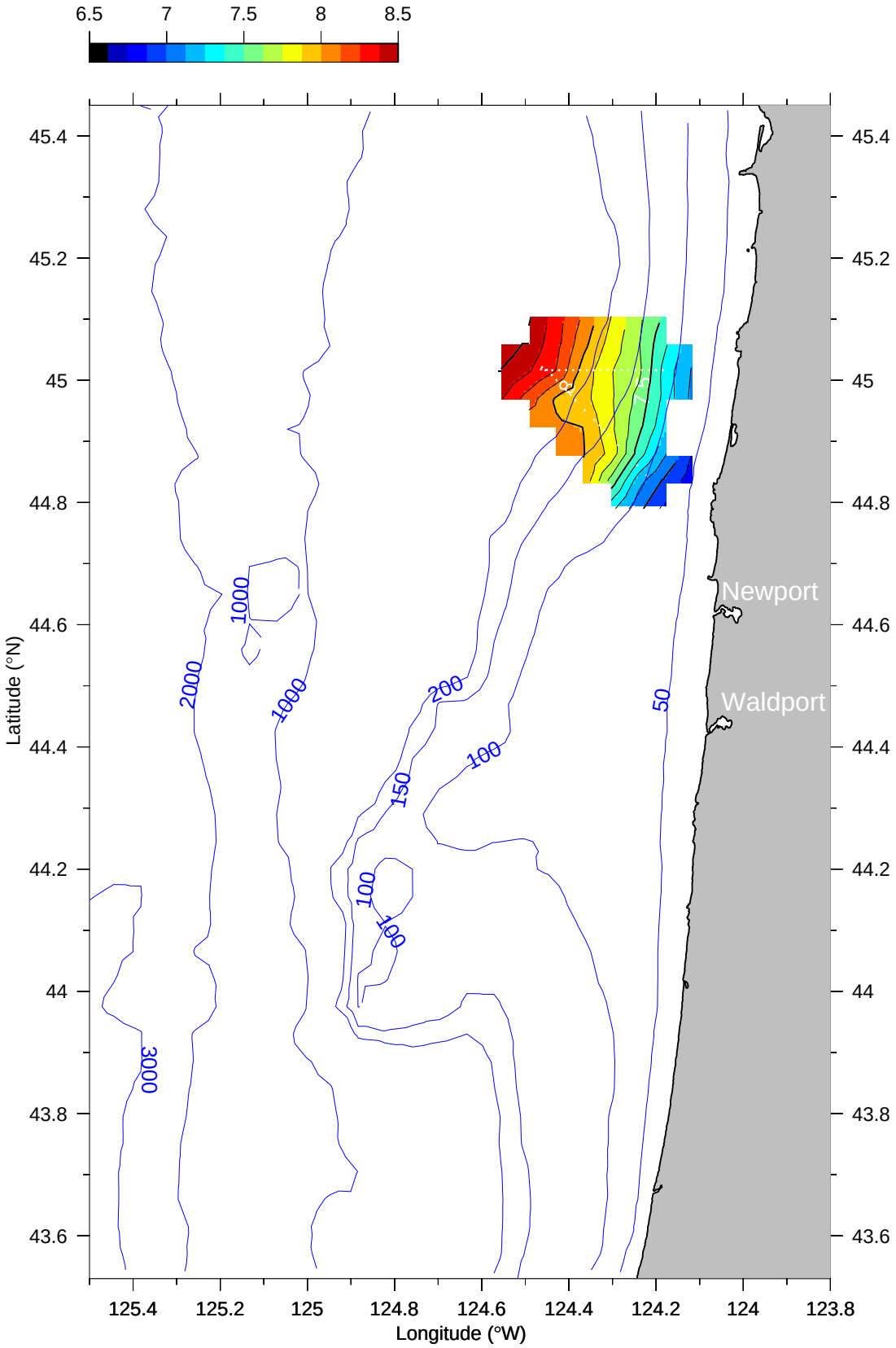


W0105 Butterfly 3

04-Jun-2001 18:20 - 05-Jun-2001 07:49

Temperature (°C) at 75 dbar

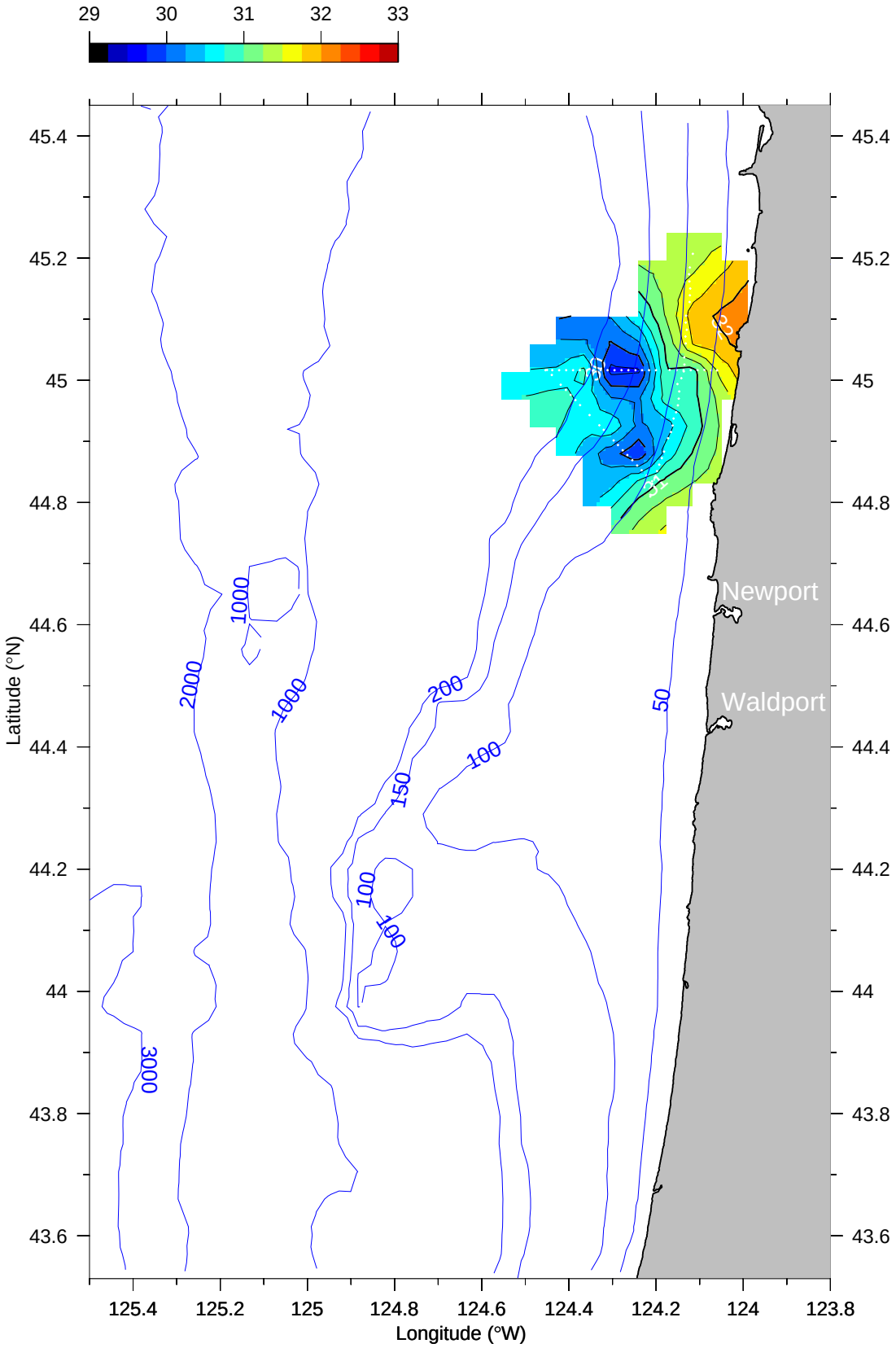



W0105 Butterfly 3
04-Jun-2001 18:20 - 05-Jun-2001 07:49
Temperature (°C) at 95 dbar
6.5
7
7.5
8
8.5
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
1000
2000
1000
200
100
150
100
100
50
3000

W0105 Butterfly 3

04-Jun-2001 18:20 - 05-Jun-2001 07:49

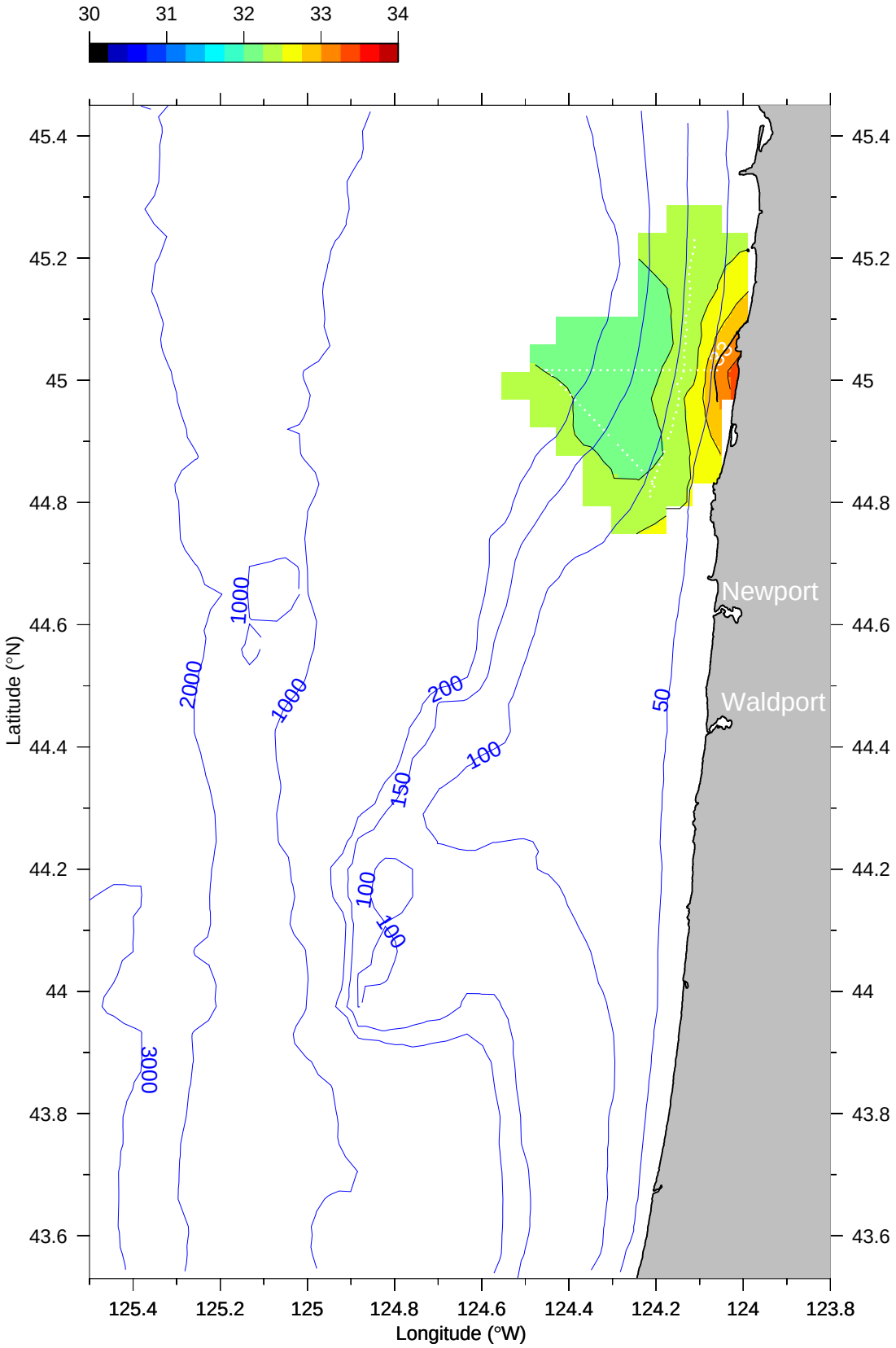
Salinity (PSS) at 5 dbar



W0105 Butterfly 3

04-Jun-2001 18:20 - 05-Jun-2001 07:49

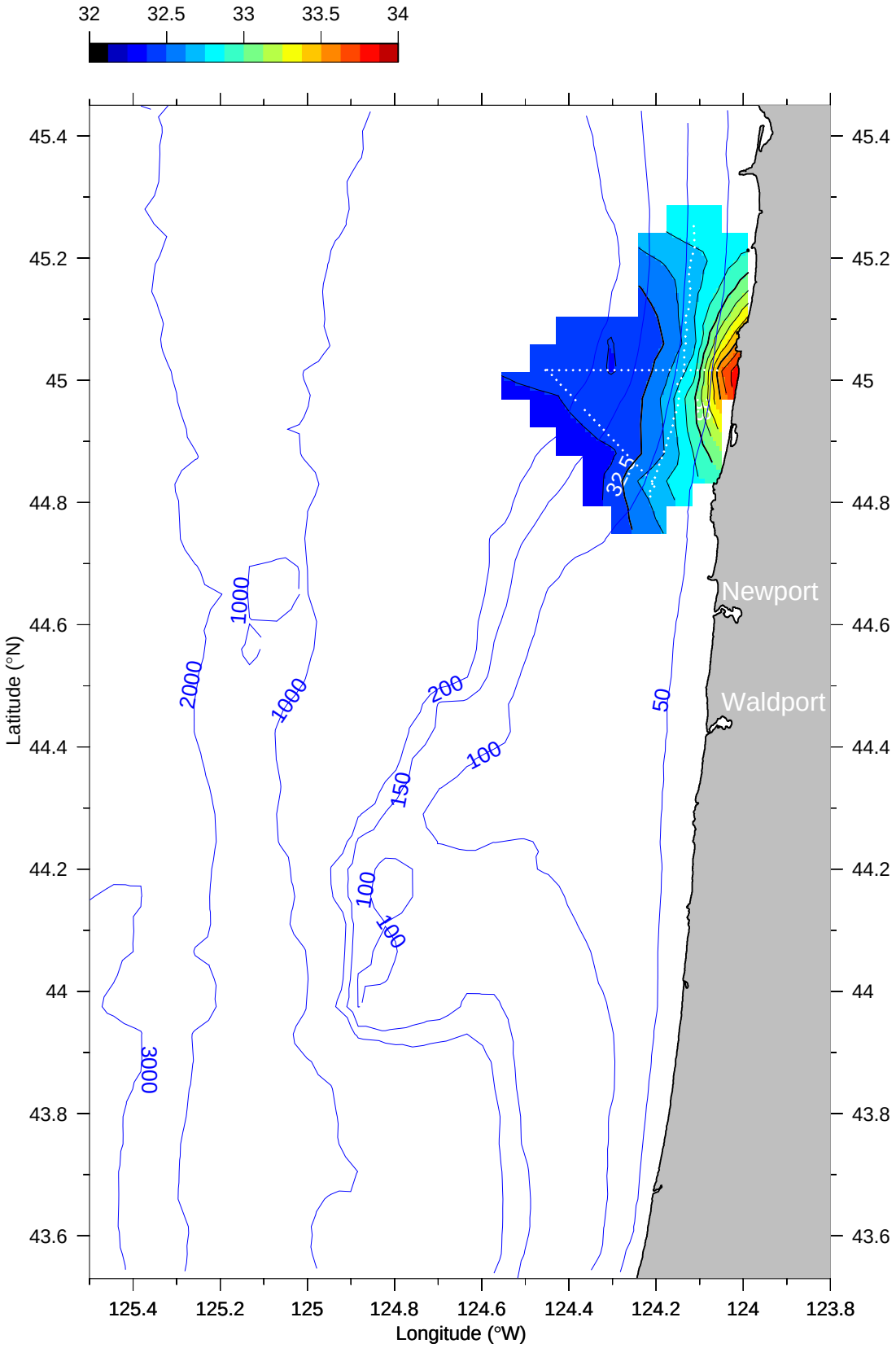
Salinity (PSS) at 15 dbar



W0105 Butterfly 3

04-Jun-2001 18:20 - 05-Jun-2001 07:49

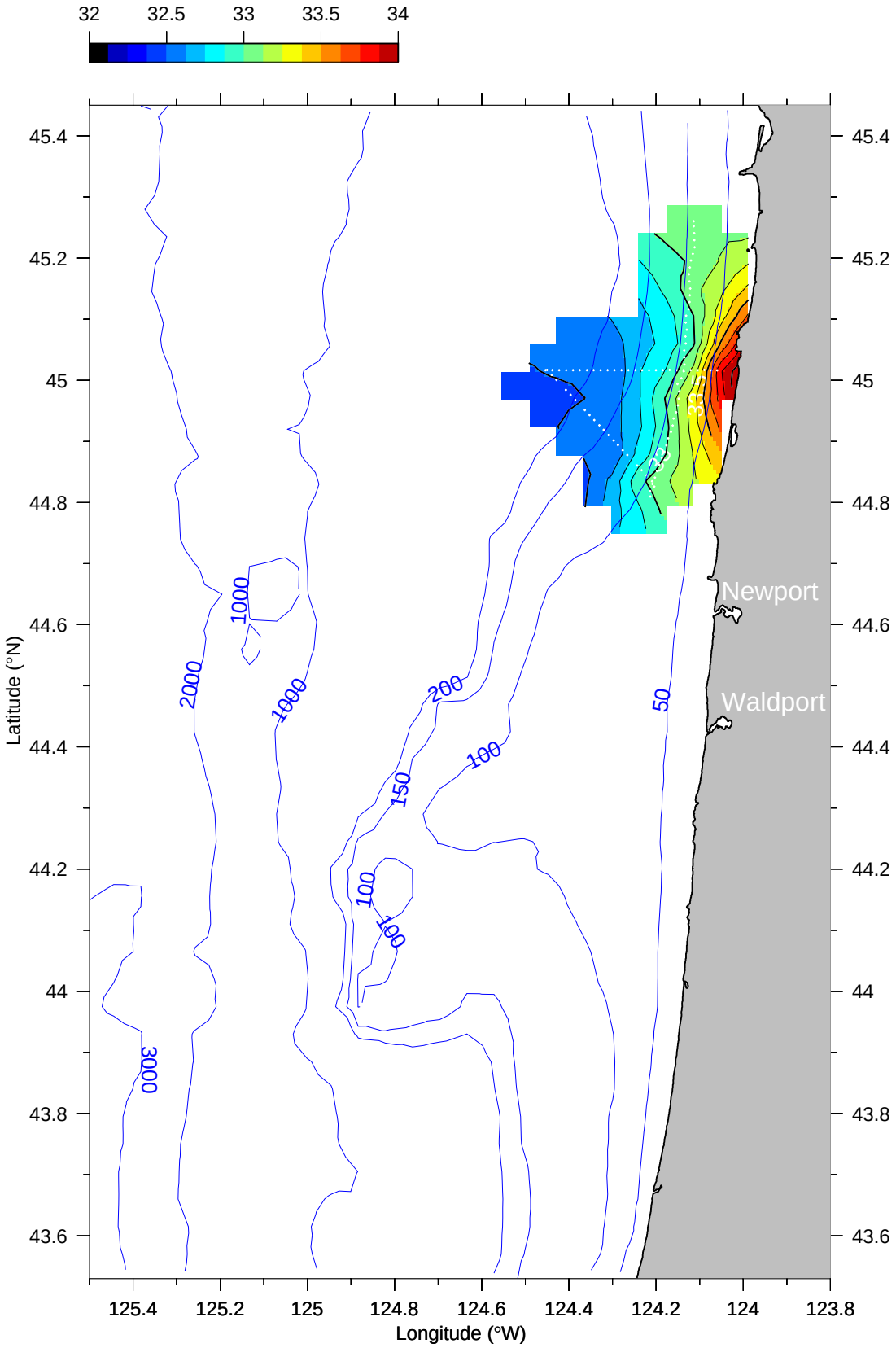
Salinity (PSS) at 25 dbar



W0105 Butterfly 3

04-Jun-2001 18:20 - 05-Jun-2001 07:49

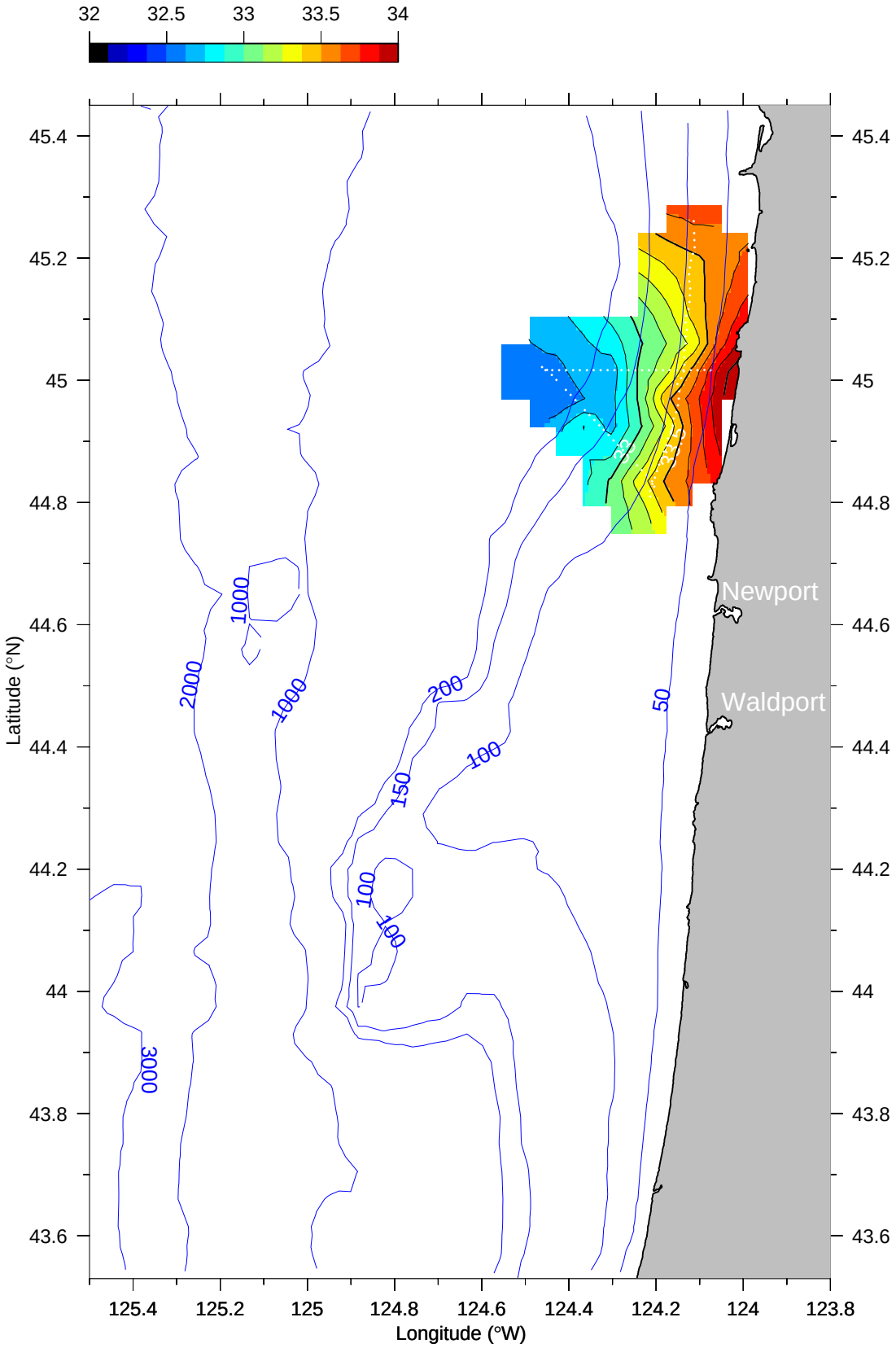
Salinity (PSS) at 35 dbar



W0105 Butterfly 3

04-Jun-2001 18:20 - 05-Jun-2001 07:49

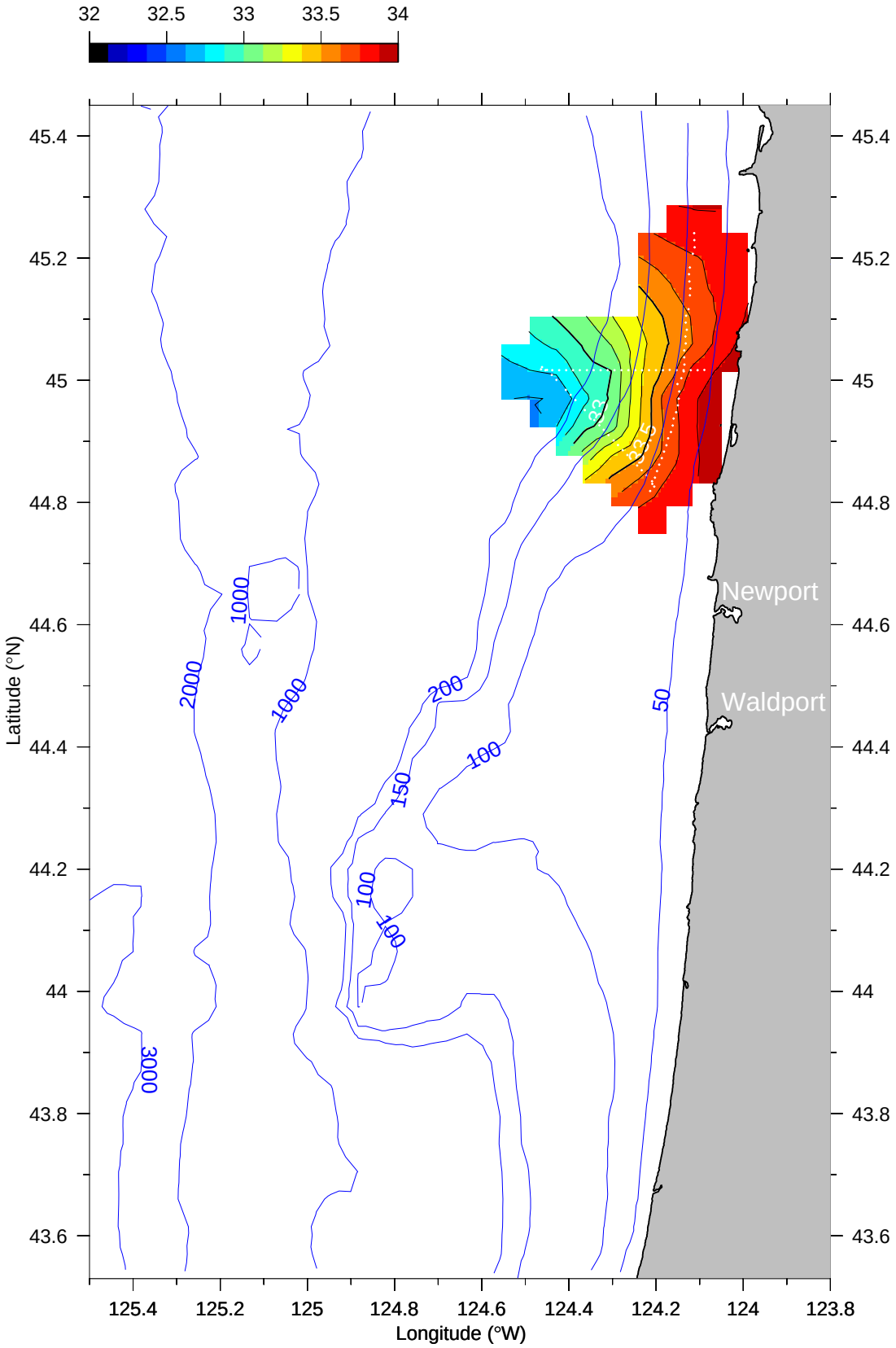
Salinity (PSS) at 45 dbar



W0105 Butterfly 3

04-Jun-2001 18:20 - 05-Jun-2001 07:49

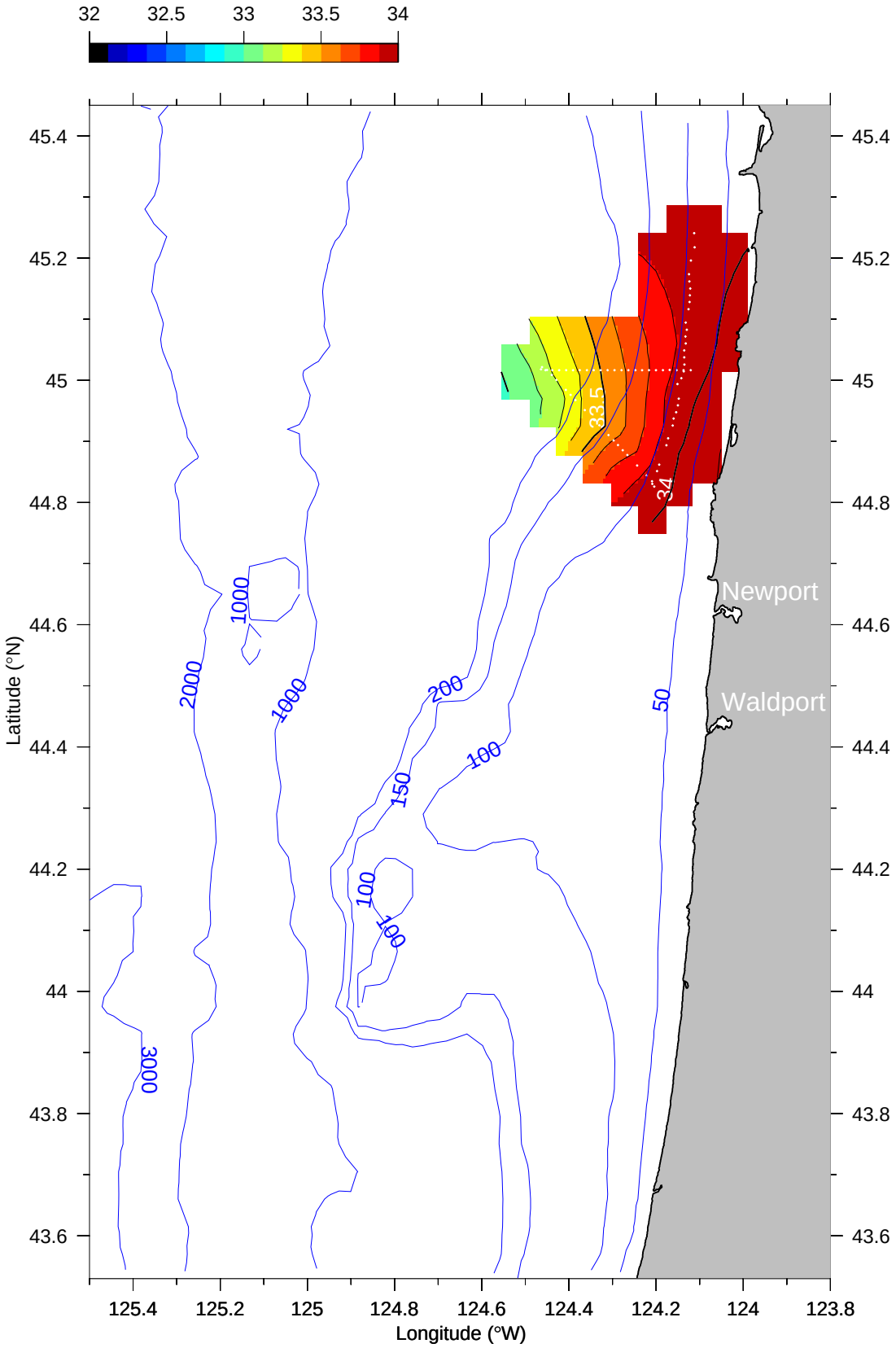
Salinity (PSS) at 55 dbar



W0105 Butterfly 3

04-Jun-2001 18:20 - 05-Jun-2001 07:49

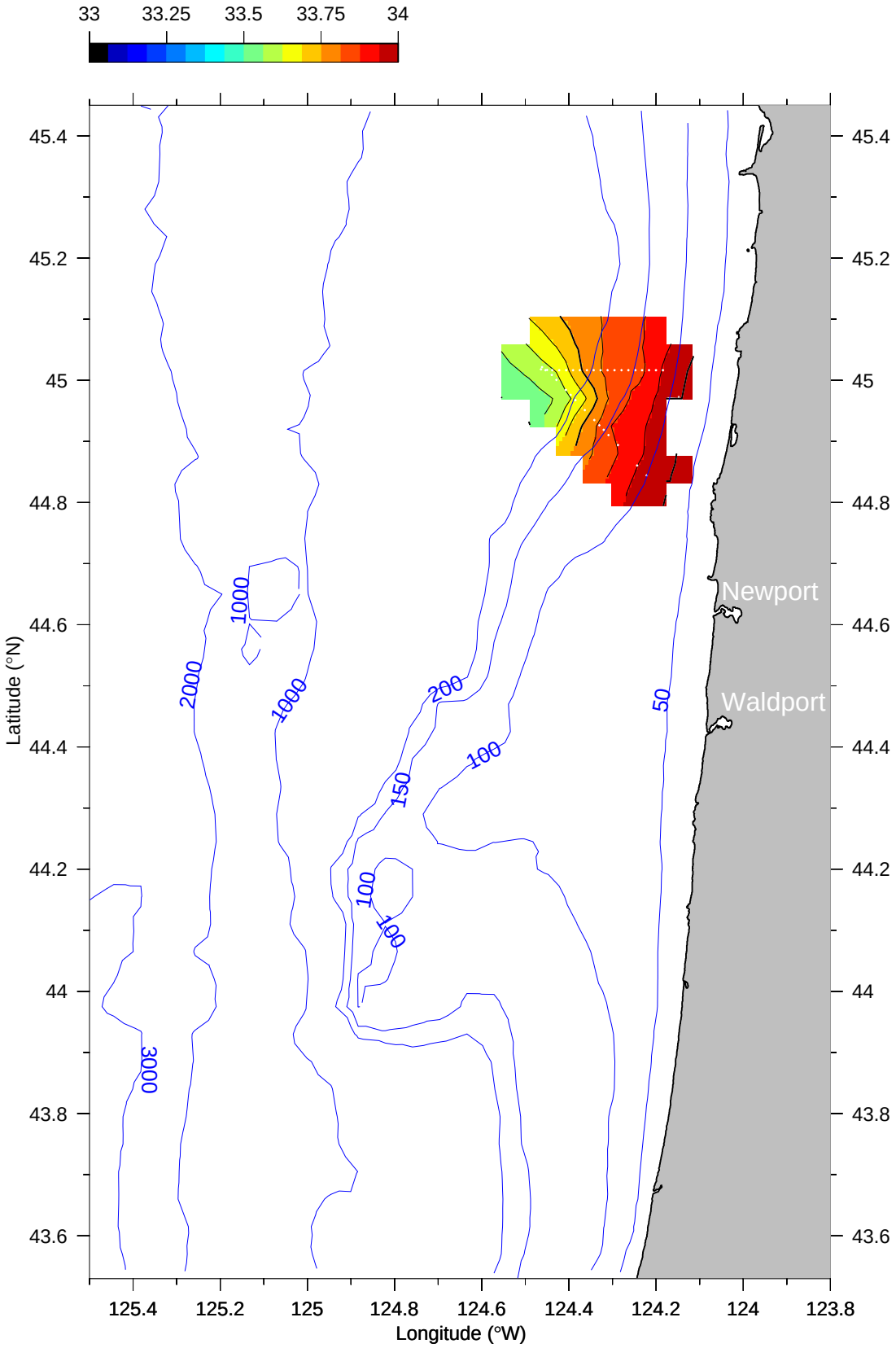
Salinity (PSS) at 75 dbar

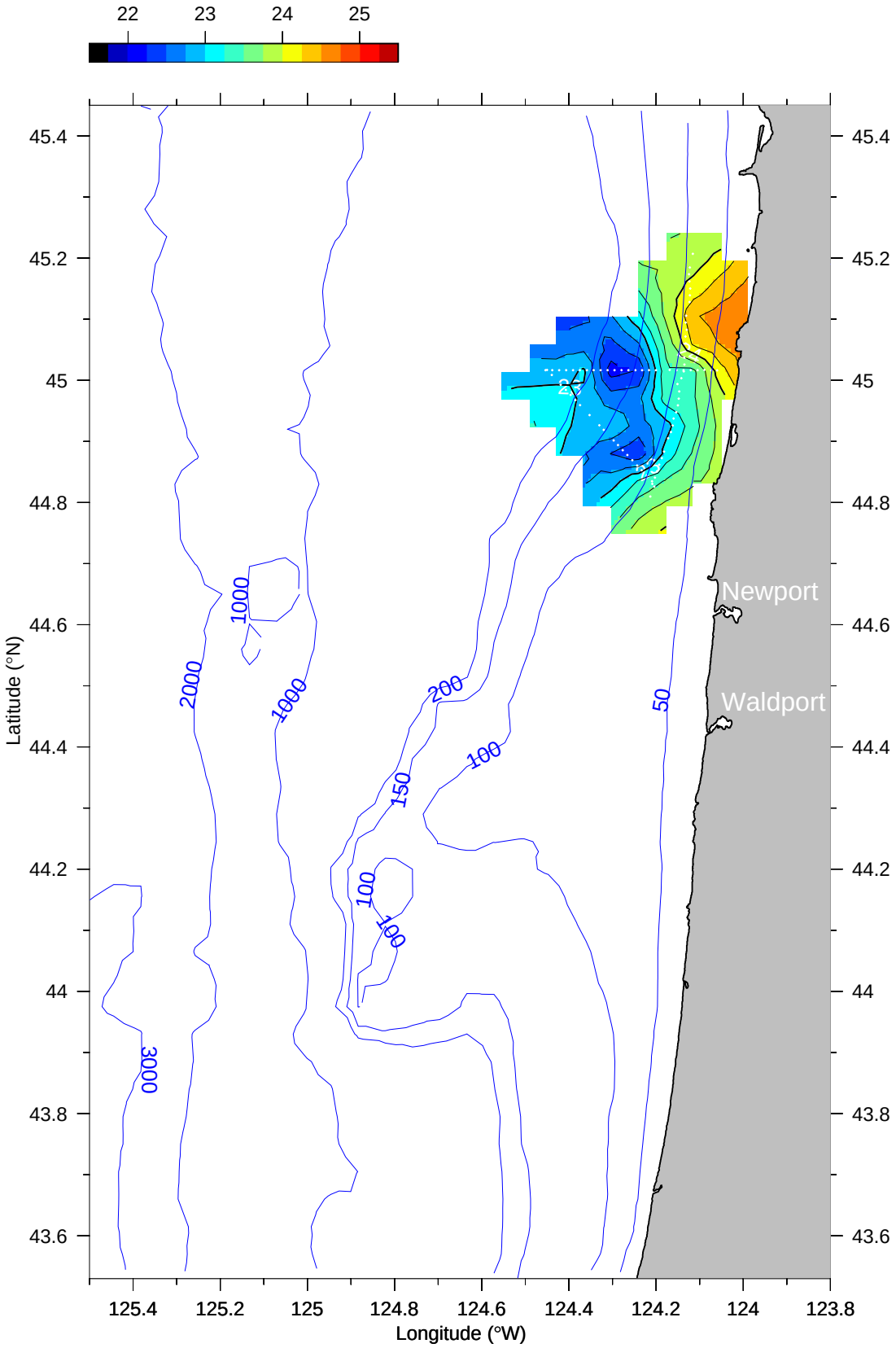


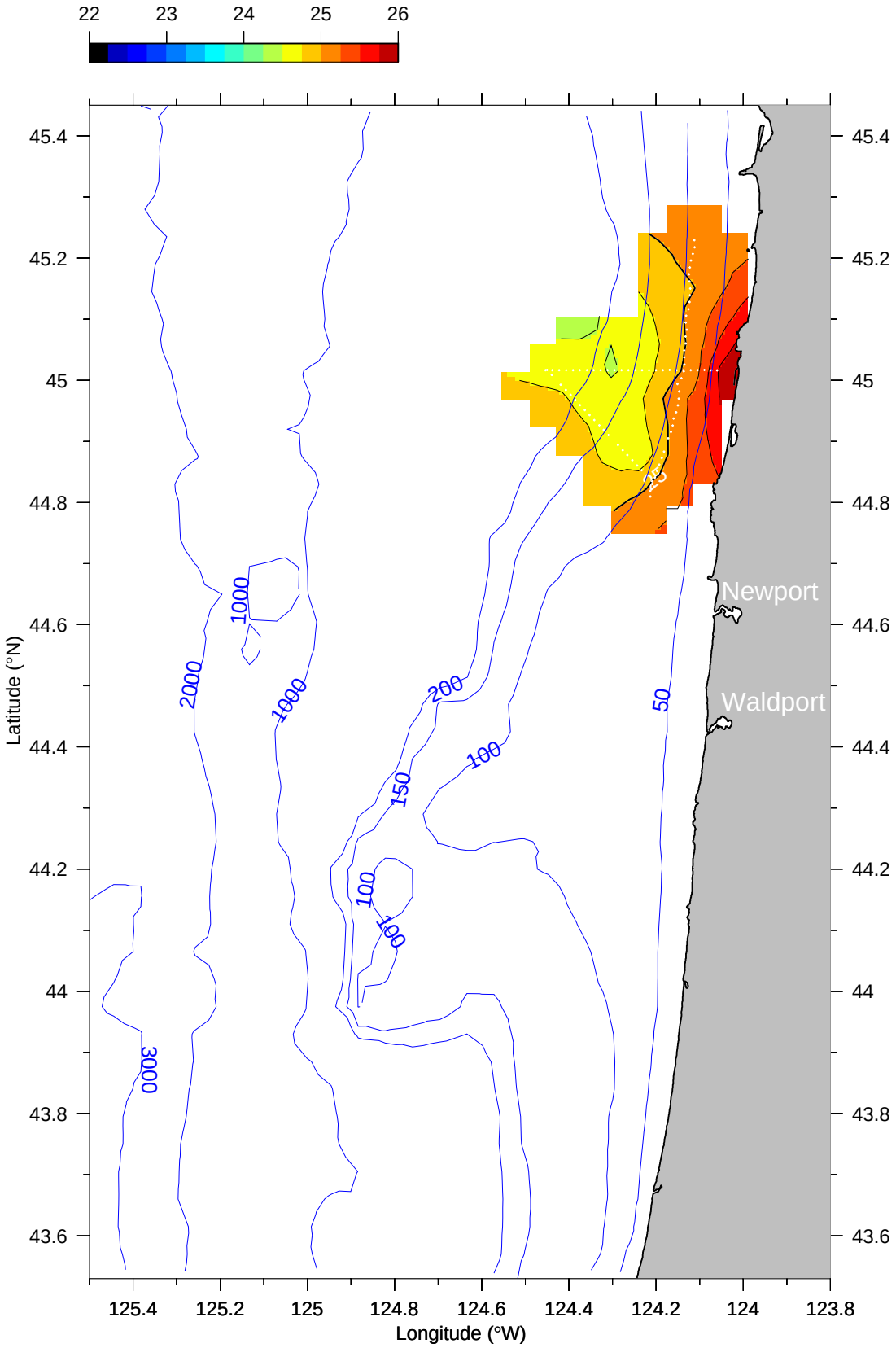
W0105 Butterfly 3

04-Jun-2001 18:20 - 05-Jun-2001 07:49

Salinity (PSS) at 95 dbar




W0105 Butterfly 3
04-Jun-2001 18:20 - 05-Jun-2001 07:49
σt (kg m−3) at 5 dbar
22
23
24
25
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Butterfly 3
04-Jun-2001 18:20 - 05-Jun-2001 07:49
σt (kg m−3) at 15 dbar
22
23
24
25
26
Newport
Waldport
3000
2000
1000
1000
200
100
150
100
100
50
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
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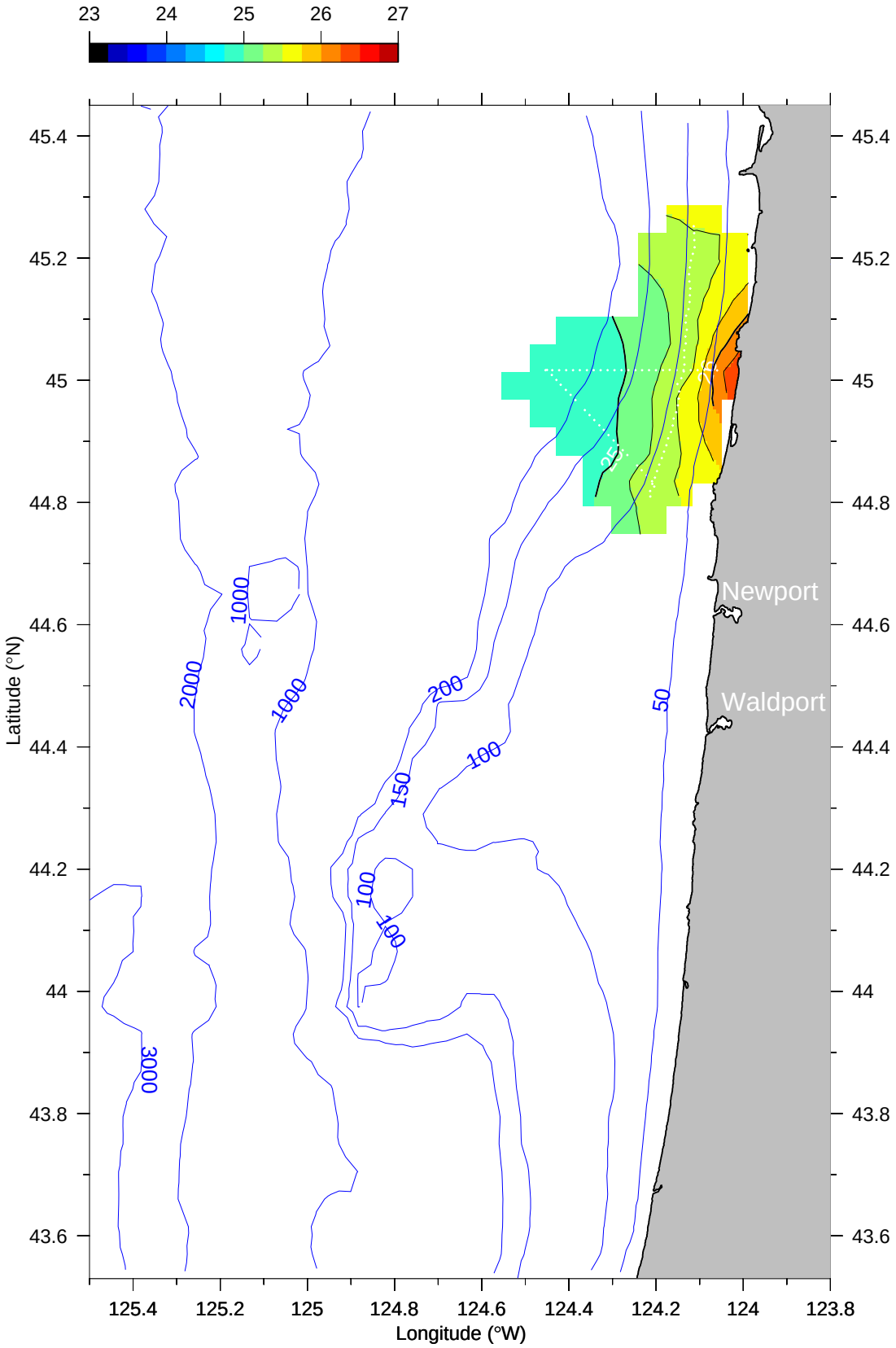
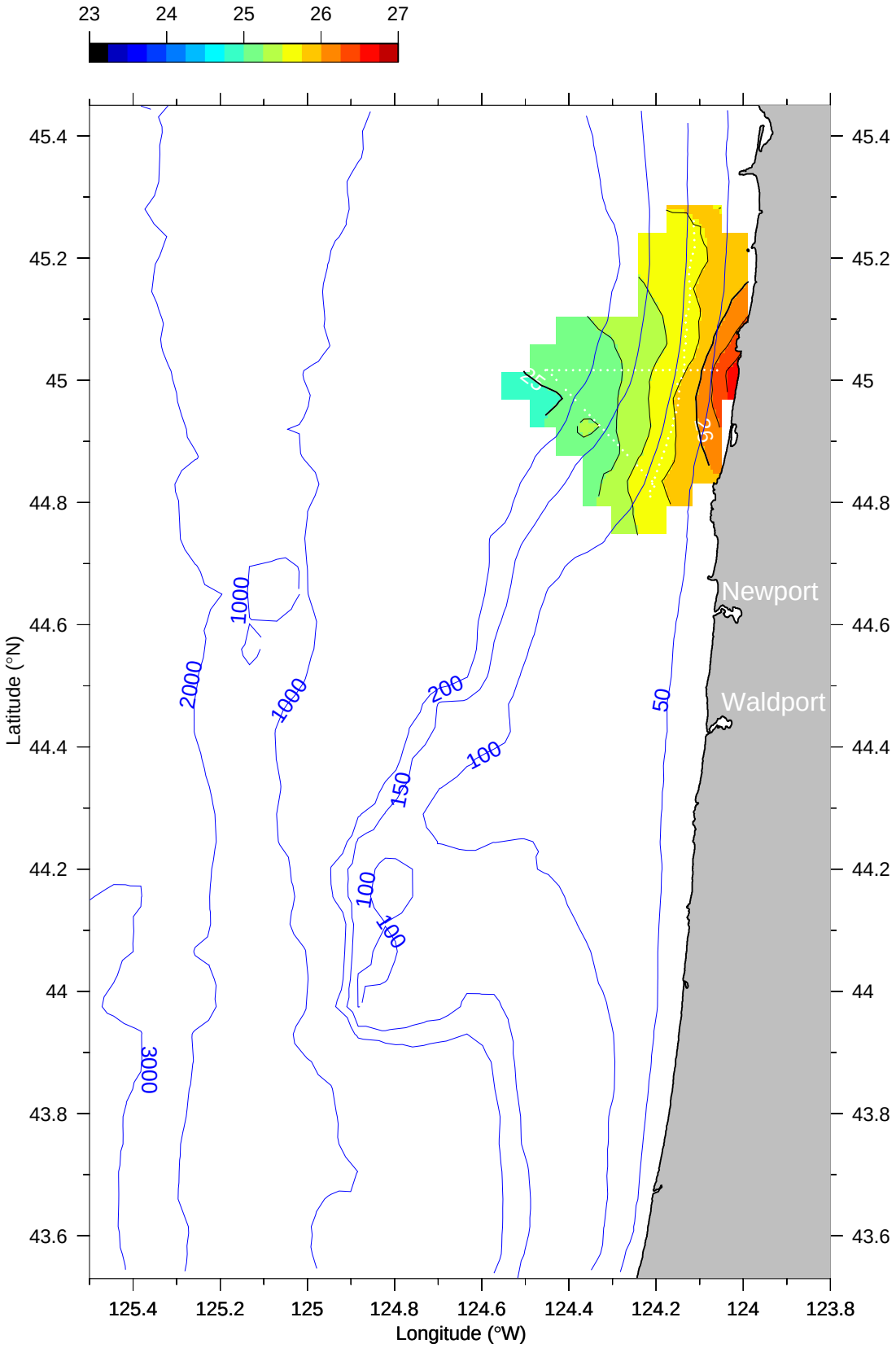
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8


W0105 Butterfly 3
04-Jun-2001 18:20 - 05-Jun-2001 07:49
σt (kg m−3) at 25 dbar
23
24
25
26
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
3000
2000
1000
1000
200
150
100
100
100
50
25


W0105 Butterfly 3
04-Jun-2001 18:20 - 05-Jun-2001 07:49
σt (kg m−3) at 35 dbar
23
24
25
26
27
Newport
Waldport
1000
2000
1000
200
100
150
100
100
50
3000
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
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43.8
43.6
125.4
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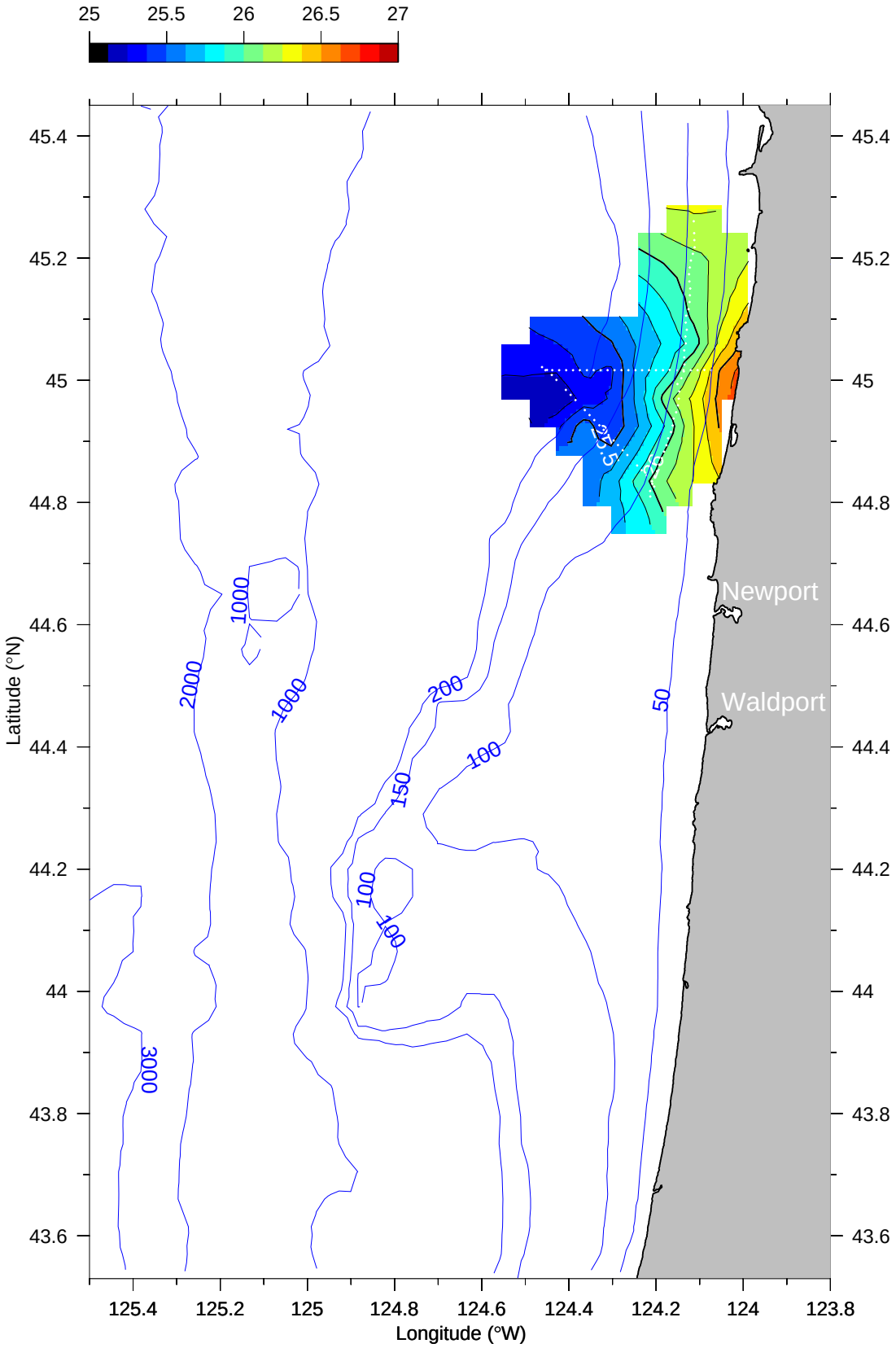
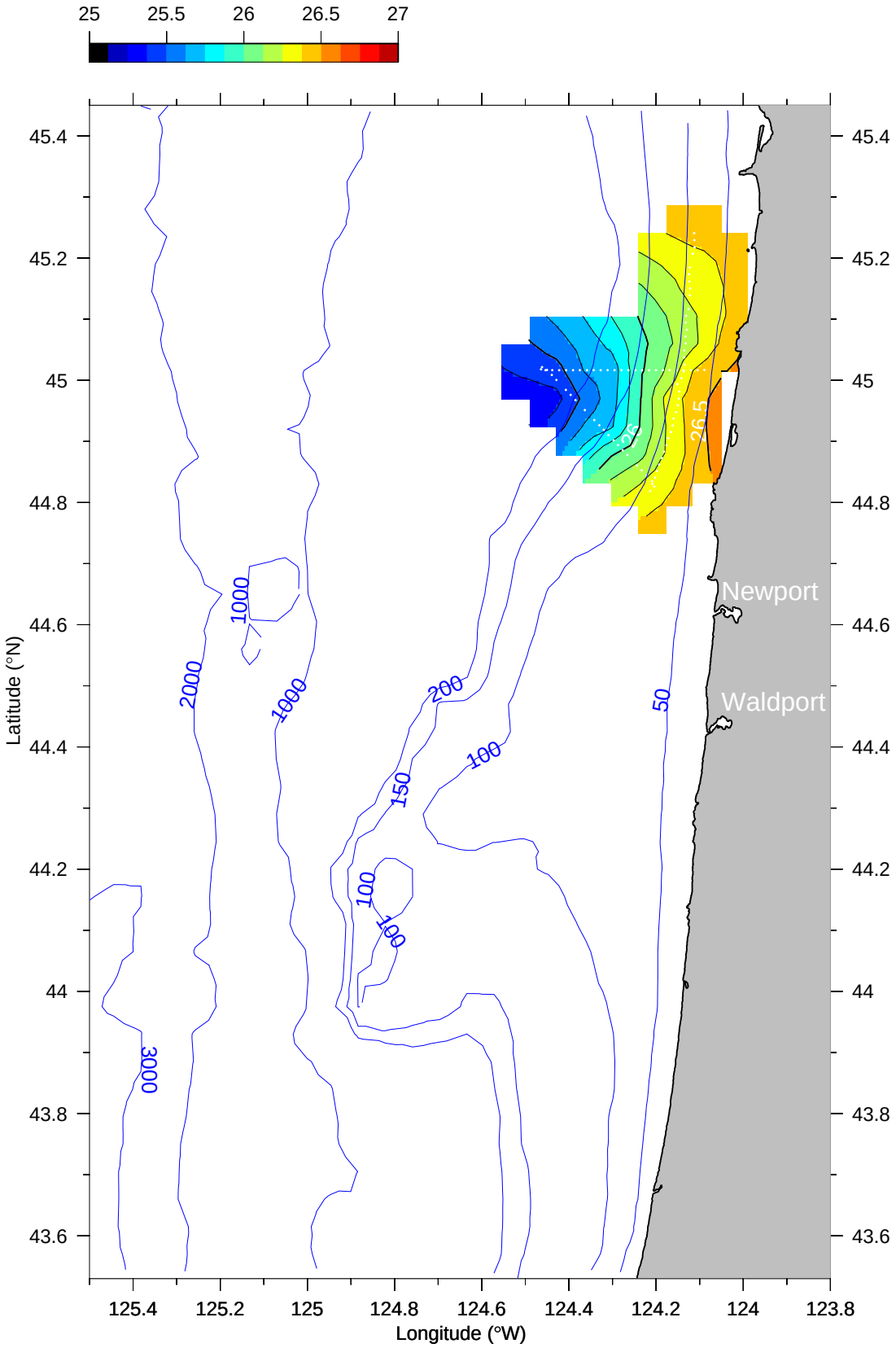
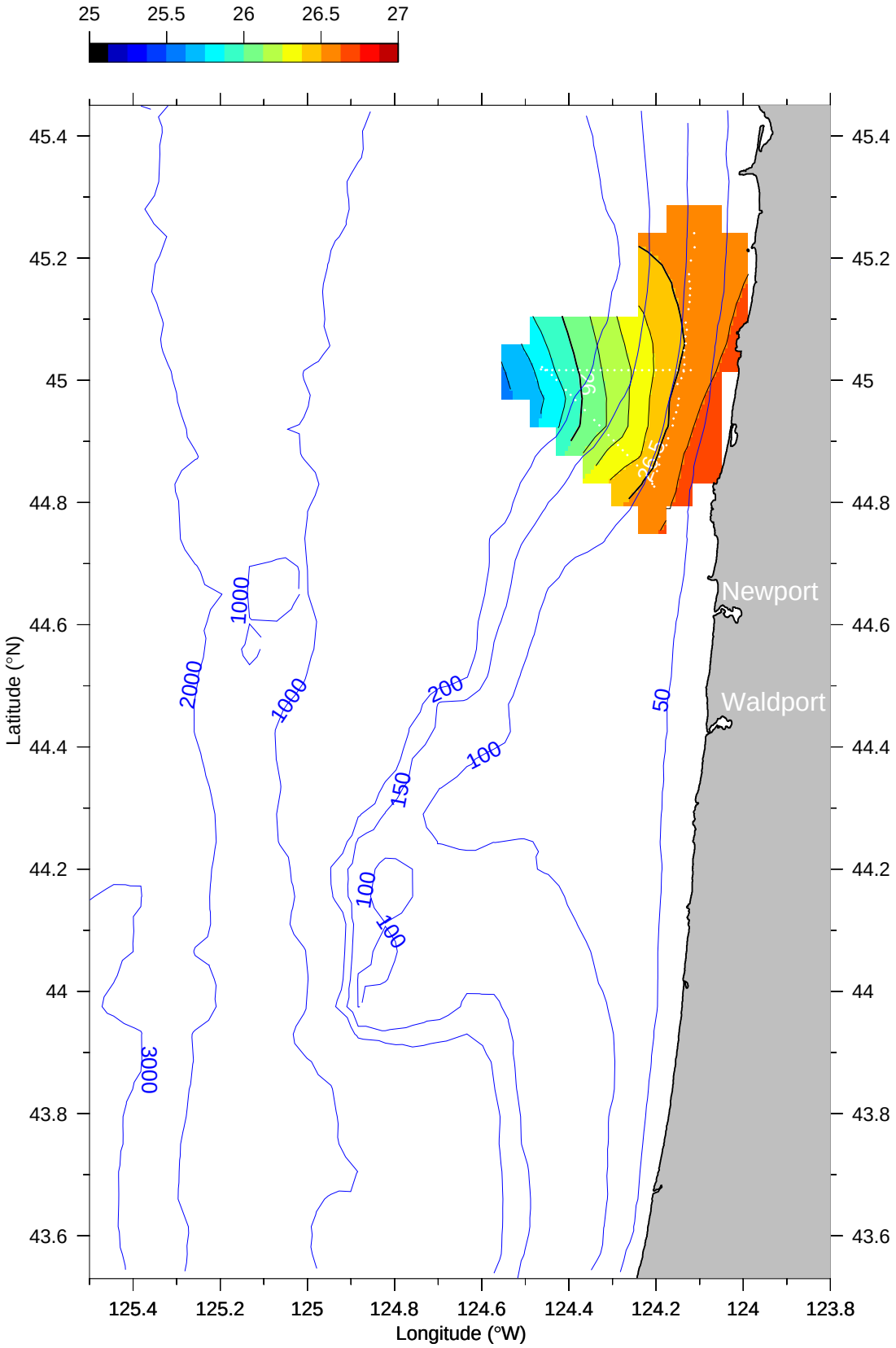
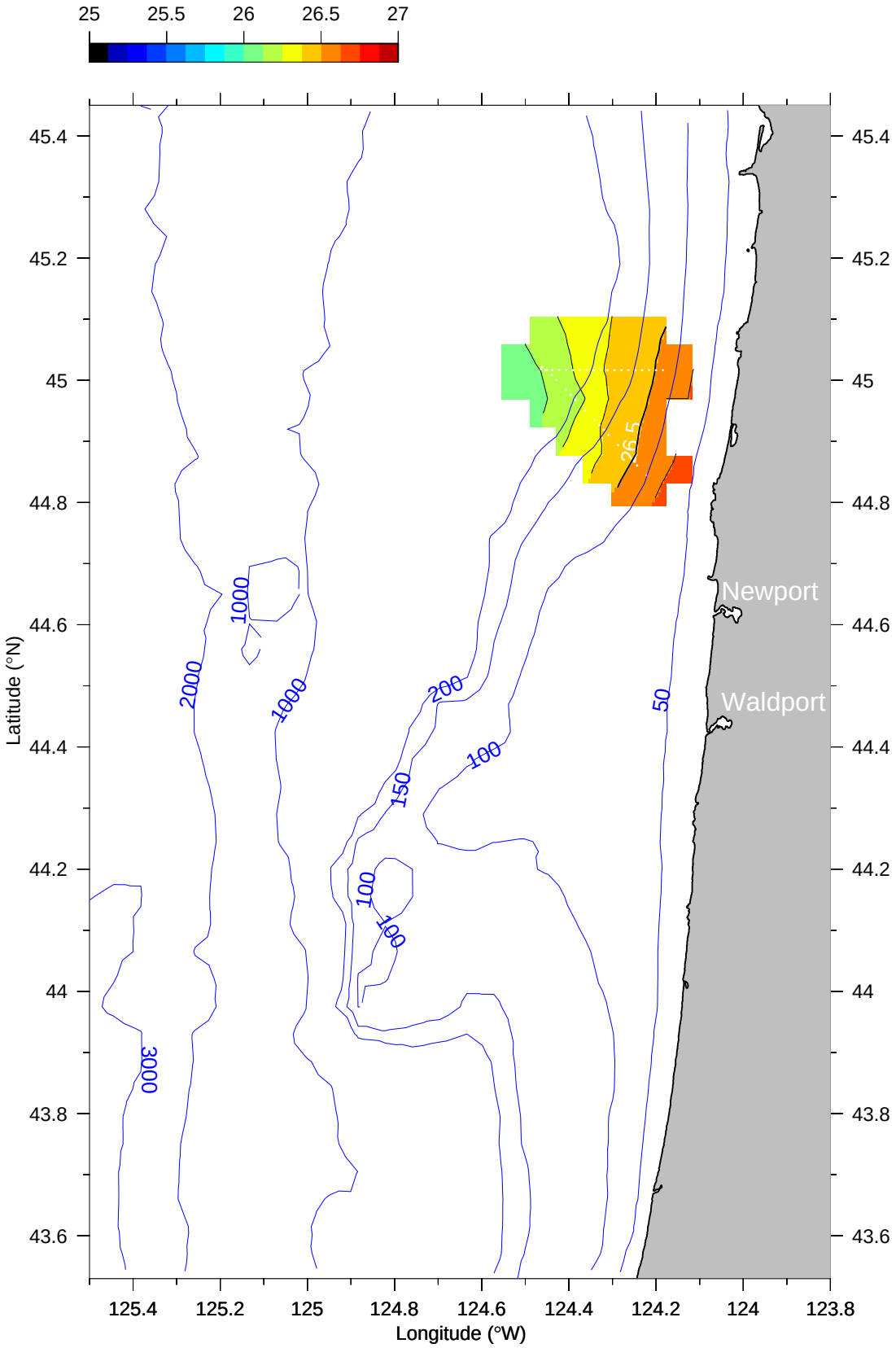
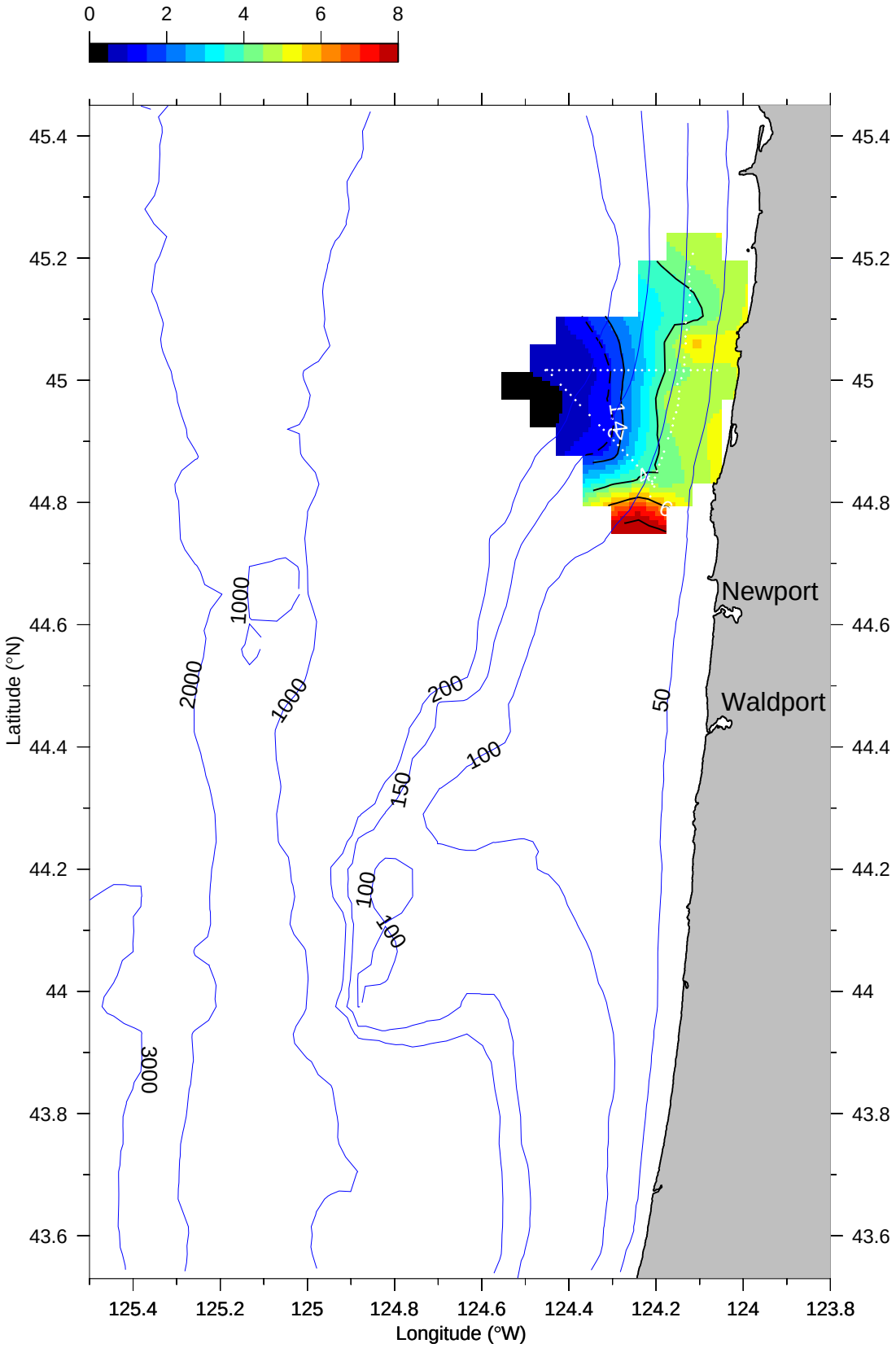
124.8
124.6
124.4
124.2
124
123.8


W0105 Butterfly 3
04-Jun-2001 18:20 - 05-Jun-2001 07:49
σt (kg m−3) at 45 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Butterfly 3
04-Jun-2001 18:20 - 05-Jun-2001 07:49
σt (kg m−3) at 55 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Butterfly 3
04-Jun-2001 18:20 - 05-Jun-2001 07:49
σt (kg m−3) at 75 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
200
100
150
50
3000


W0105 Butterfly 3
04-Jun-2001 18:20 - 05-Jun-2001 07:49
σt (kg m−3) at 95 dbar
25
25.5
26
26.5
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
26.5
1000
2000
1000
200
100
150
100
100
50
3000


W0105 Butterfly 3
04-Jun-2001 18:20 - 05-Jun-2001 07:49
Chlorophyll (µg L−1) at 5 dbar
0
2
4
6
8
Newport
Waldport
1000
2000
1000
200
100
150
100
100
50
3000
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8

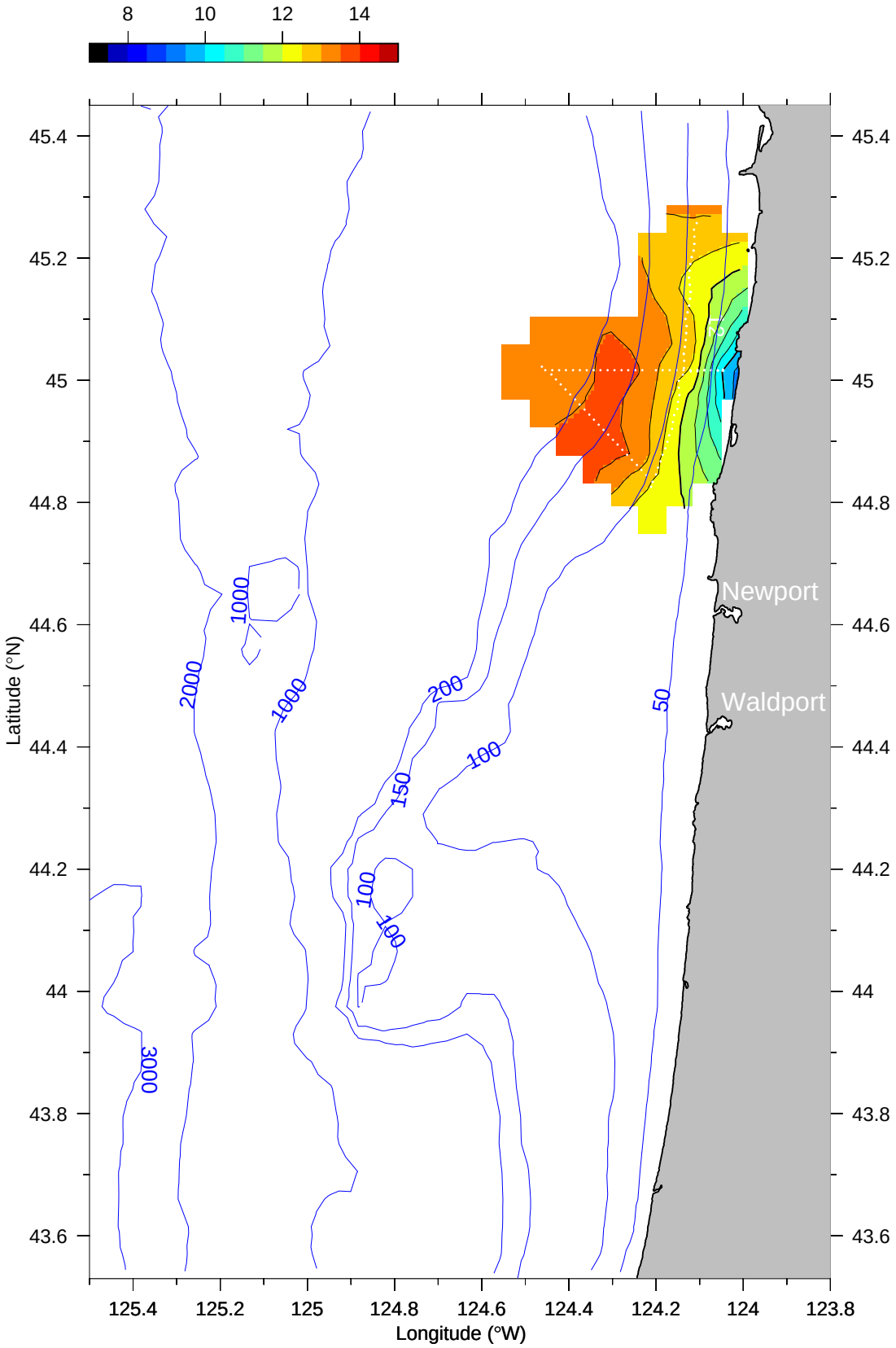
Butterfly 4 Maps

Maps of Temperature, Salinity, σ_t, and Chlorophyll at Specified Depths

W0105 Butterfly 4

05-Jun-2001 07:52 - 05-Jun-2001 18:55

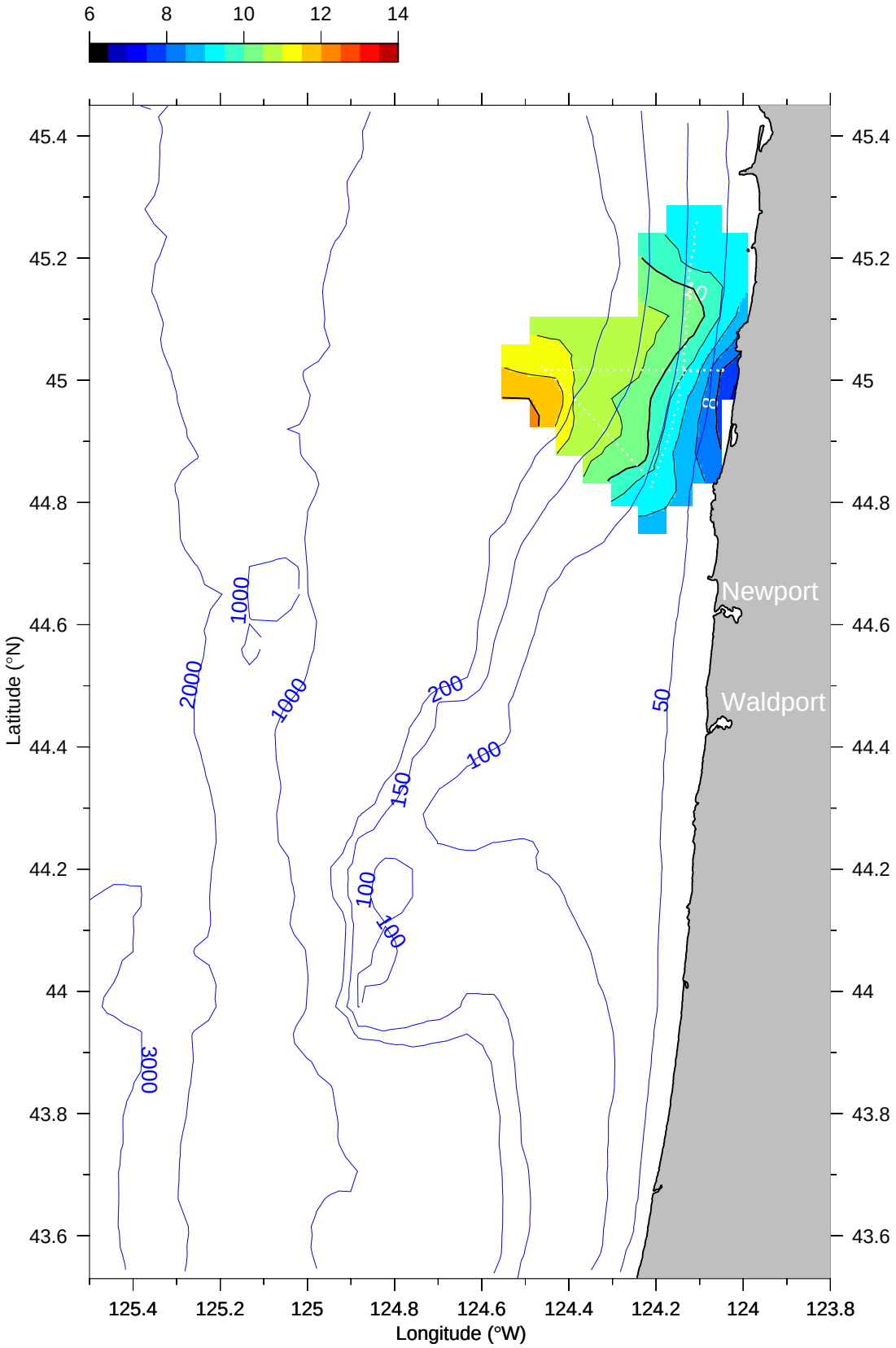
Temperature (°C) at 5 dbar



W0105 Butterfly 4

05-Jun-2001 07:52 - 05-Jun-2001 18:55

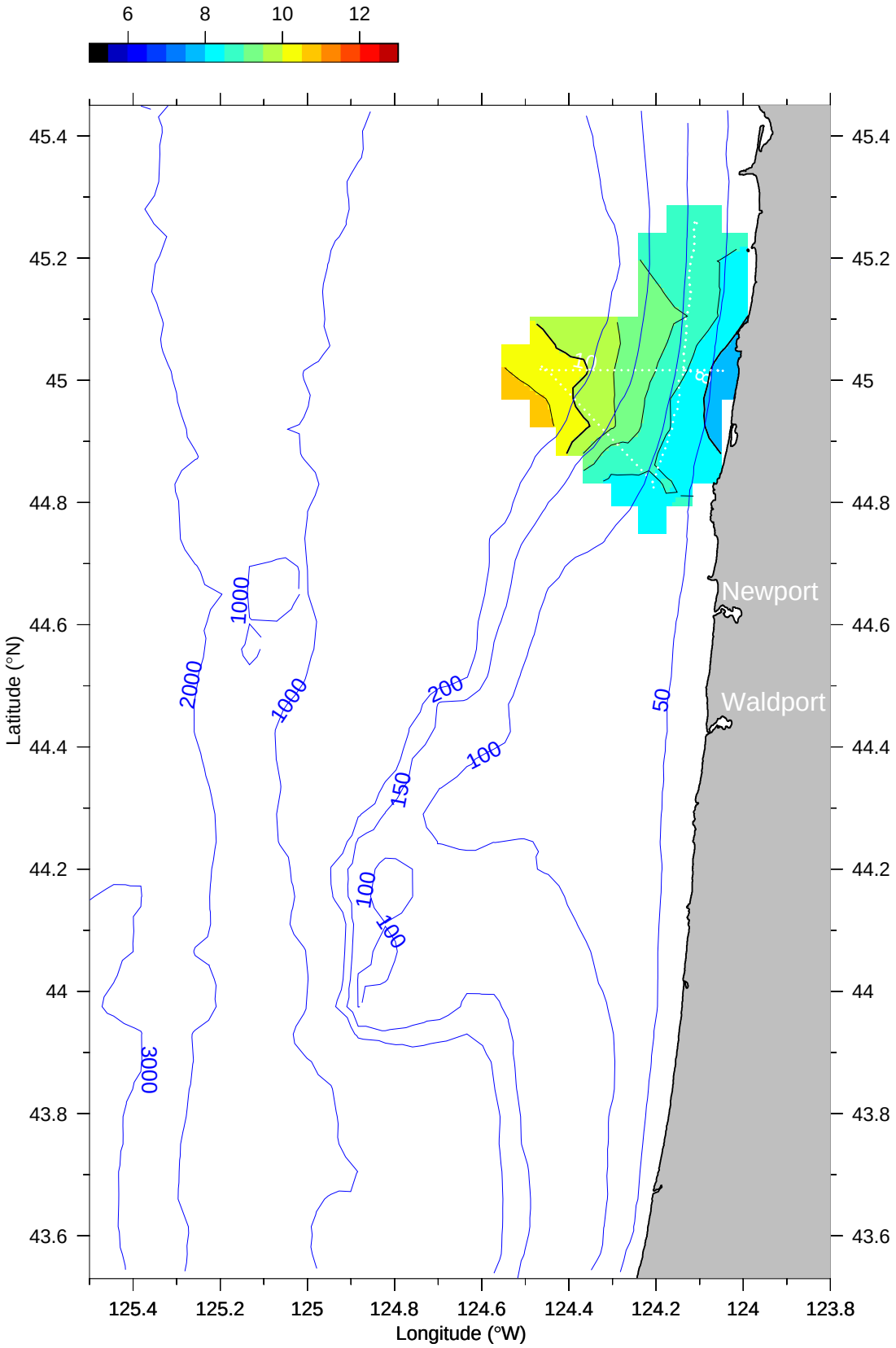
Temperature (°C) at 15 dbar



W0105 Butterfly 4

05-Jun-2001 07:52 - 05-Jun-2001 18:55

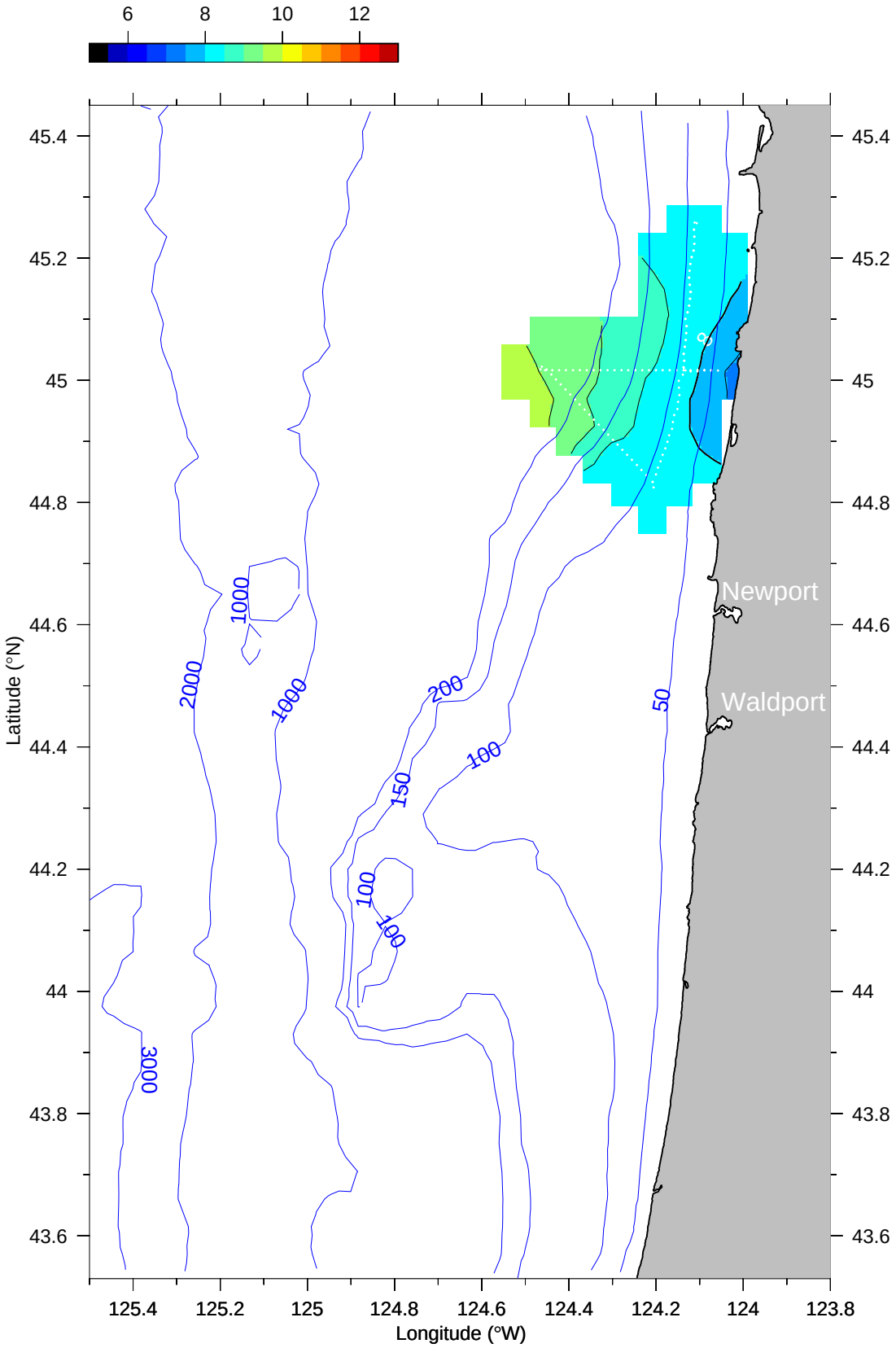
Temperature (°C) at 25 dbar



W0105 Butterfly 4

05-Jun-2001 07:52 - 05-Jun-2001 18:55

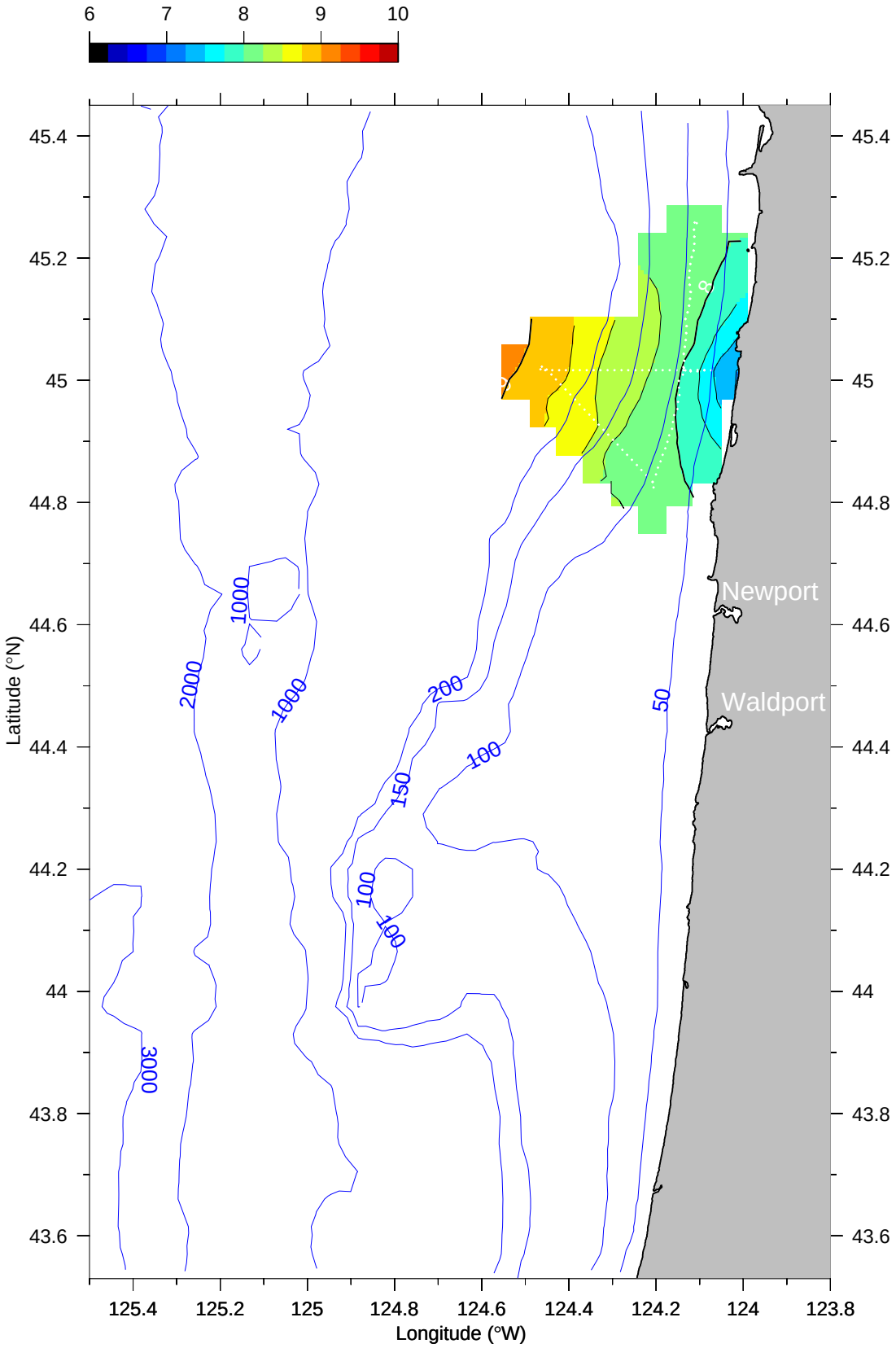
Temperature (°C) at 35 dbar



W0105 Butterfly 4

05-Jun-2001 07:52 - 05-Jun-2001 18:55

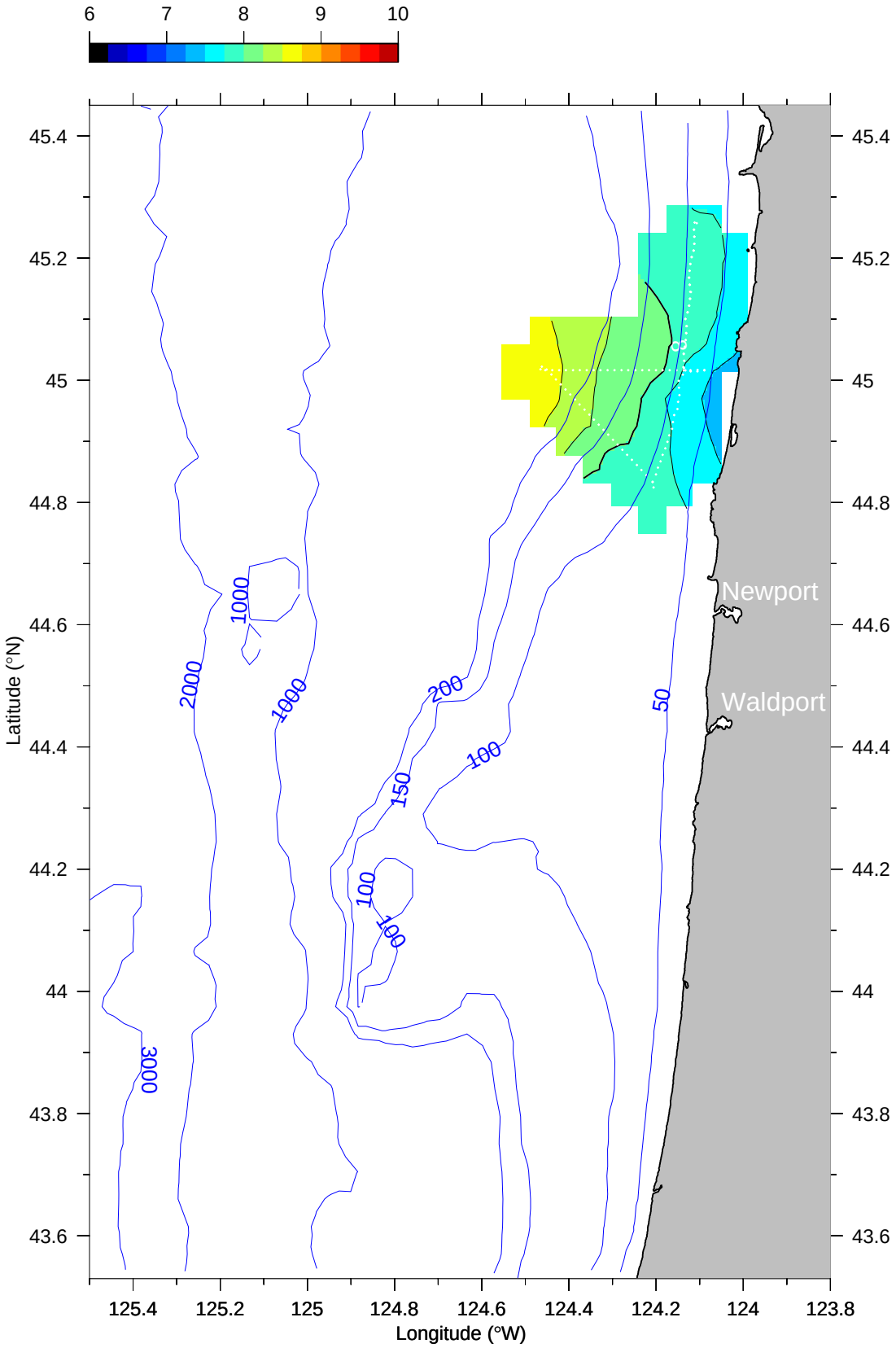
Temperature (°C) at 45 dbar



W0105 Butterfly 4

05-Jun-2001 07:52 - 05-Jun-2001 18:55

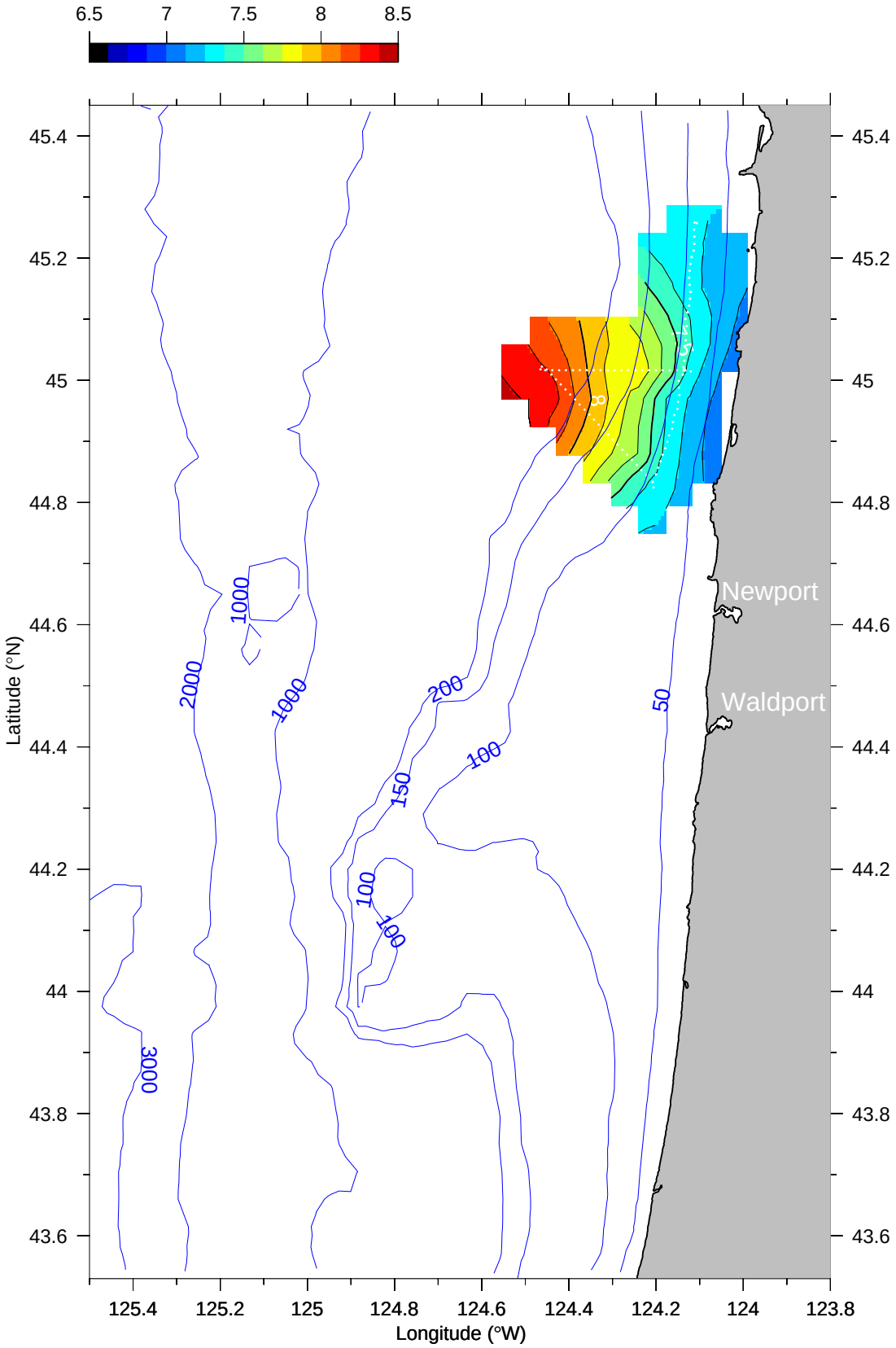
Temperature (°C) at 55 dbar

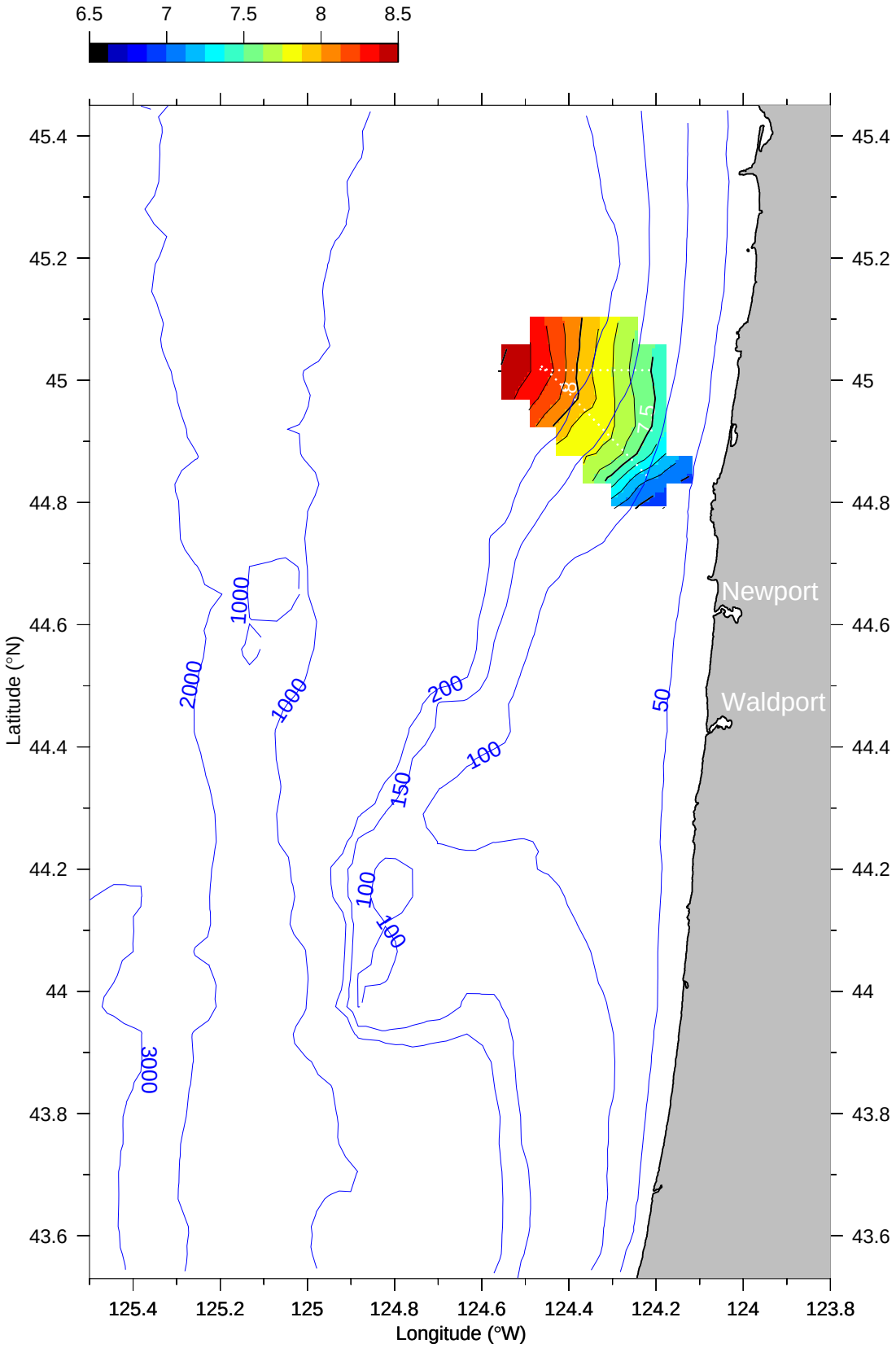


W0105 Butterfly 4

05-Jun-2001 07:52 - 05-Jun-2001 18:55

Temperature (°C) at 75 dbar

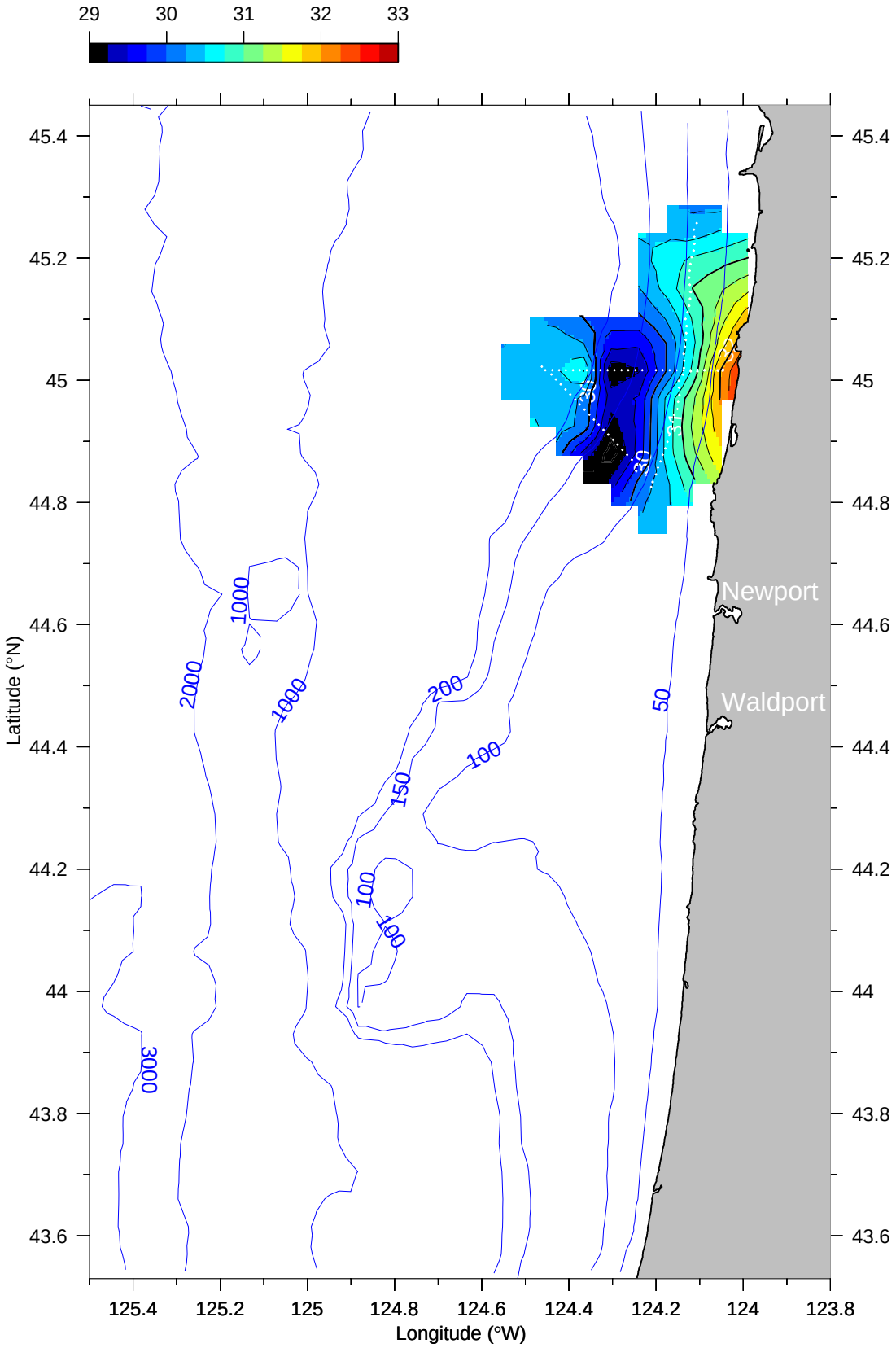



W0105 Butterfly 4
05-Jun-2001 07:52 - 05-Jun-2001 18:55
Temperature (°C) at 95 dbar
6.5
7
7.5
8
8.5
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
1000
2000
1000
200
100
150
100
100
3000
50

W0105 Butterfly 4

05-Jun-2001 07:52 - 05-Jun-2001 18:55

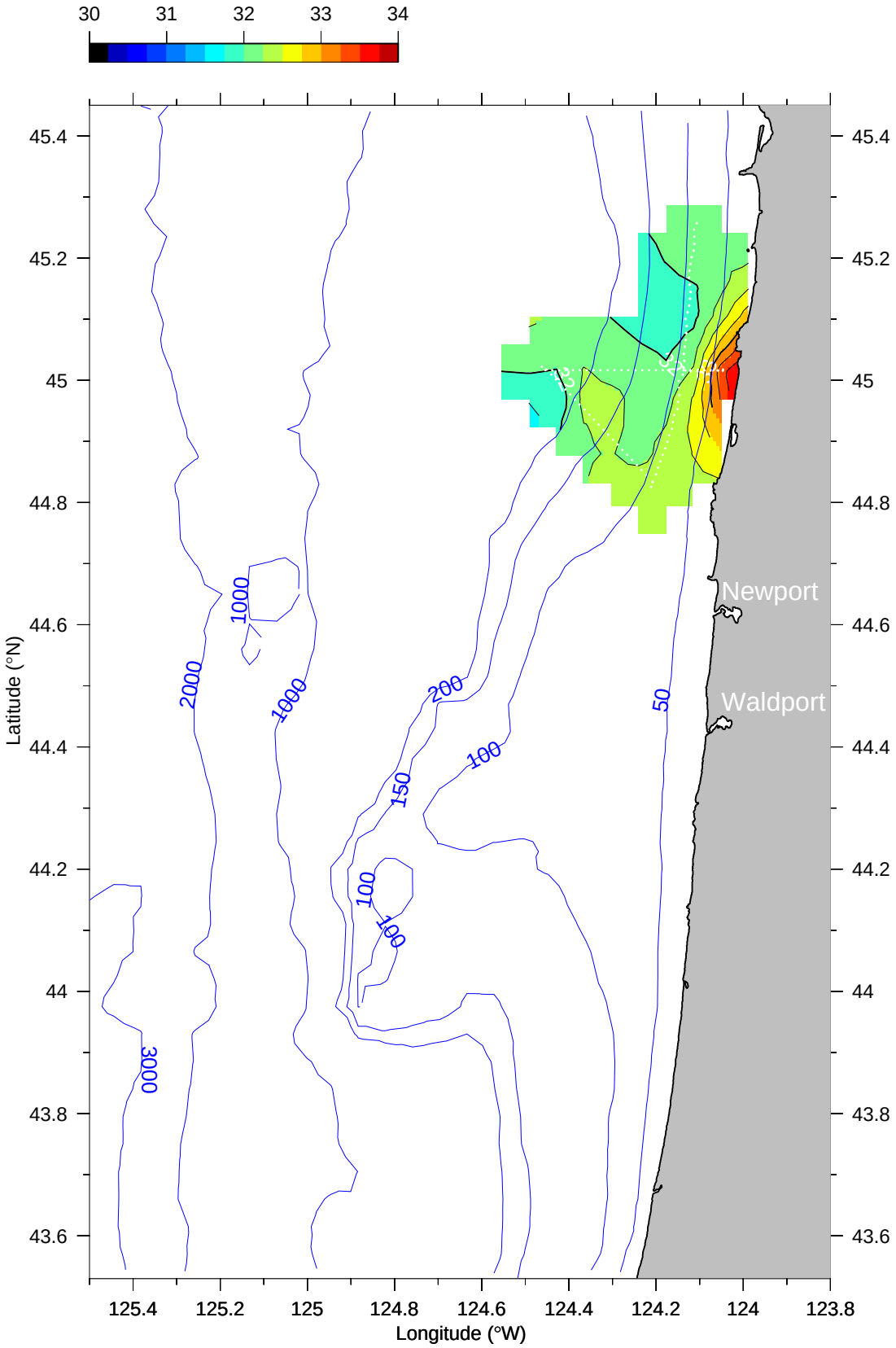
Salinity (PSS) at 5 dbar



W0105 Butterfly 4

05-Jun-2001 07:52 - 05-Jun-2001 18:55

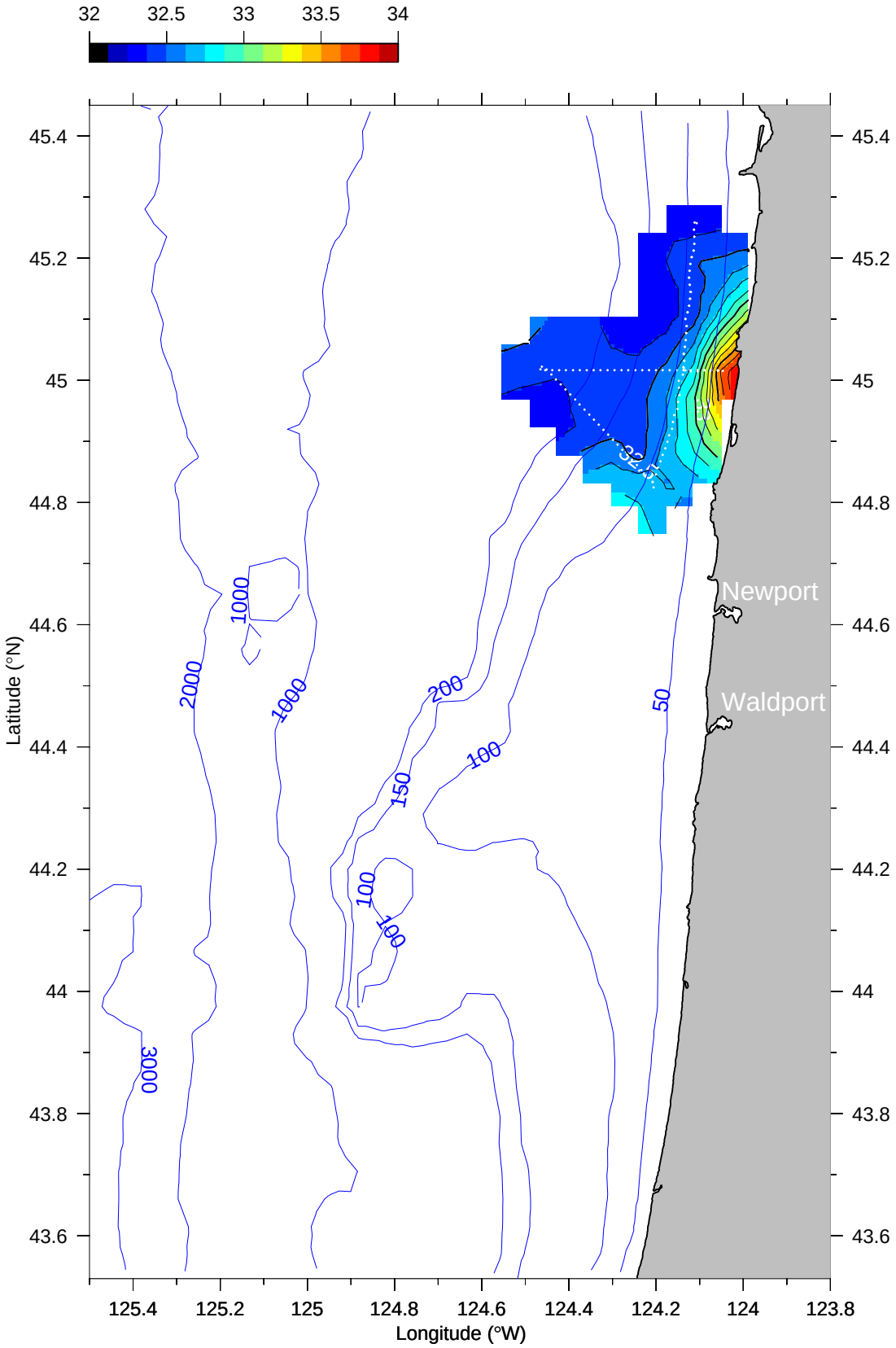
Salinity (PSS) at 15 dbar



W0105 Butterfly 4

05-Jun-2001 07:52 - 05-Jun-2001 18:55

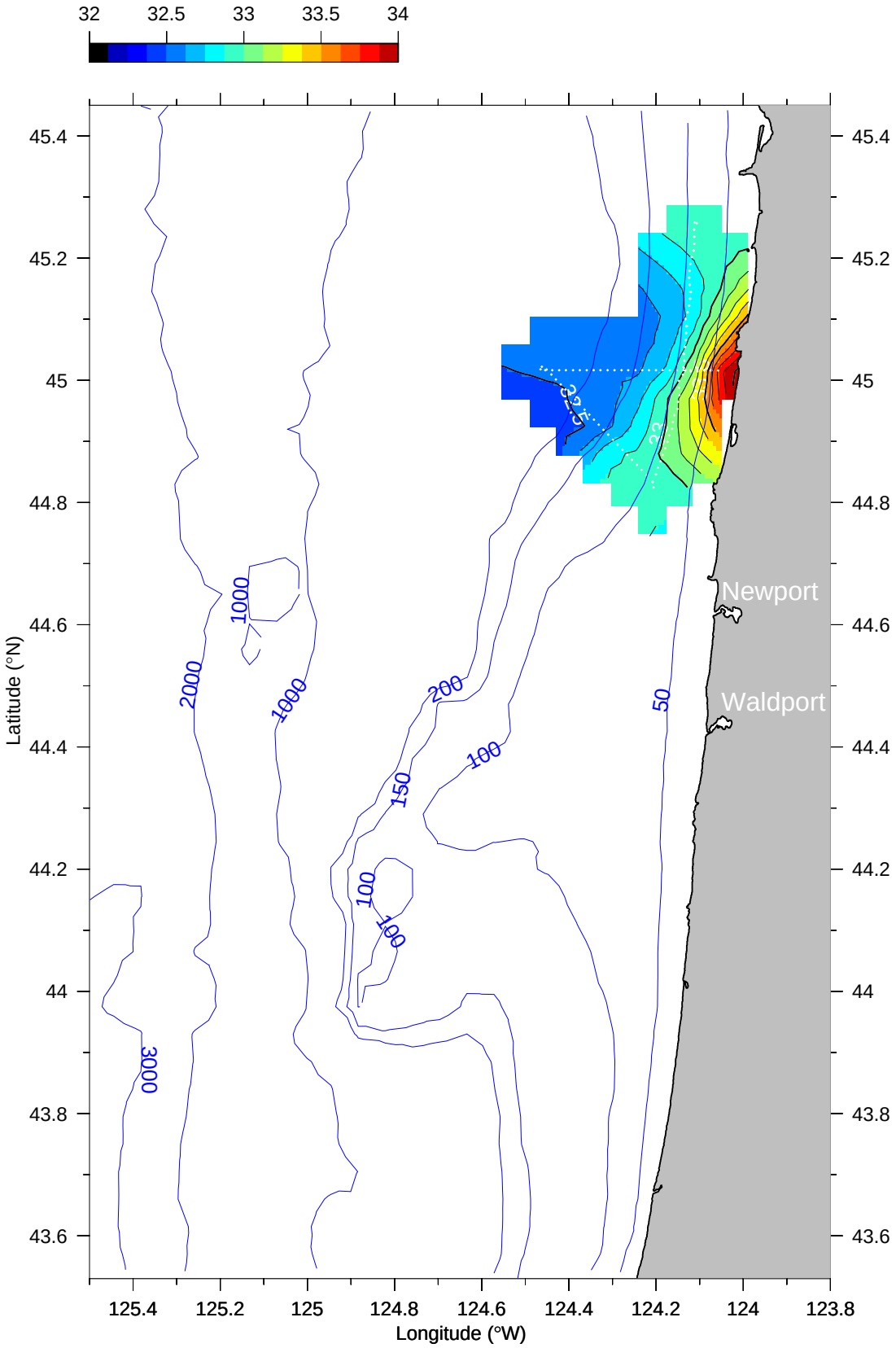
Salinity (PSS) at 25 dbar



W0105 Butterfly 4

05-Jun-2001 07:52 - 05-Jun-2001 18:55

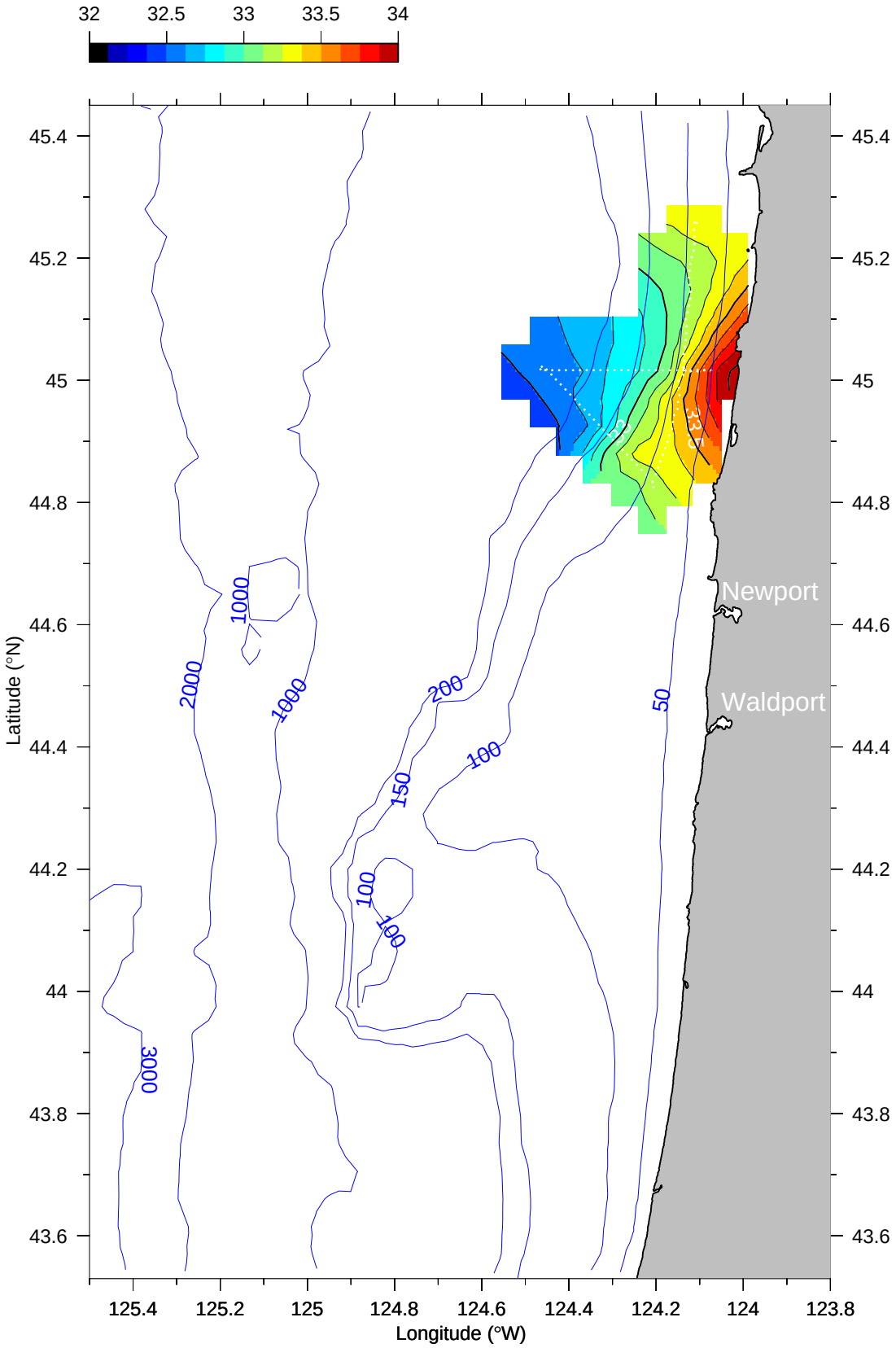
Salinity (PSS) at 35 dbar



W0105 Butterfly 4

05-Jun-2001 07:52 - 05-Jun-2001 18:55

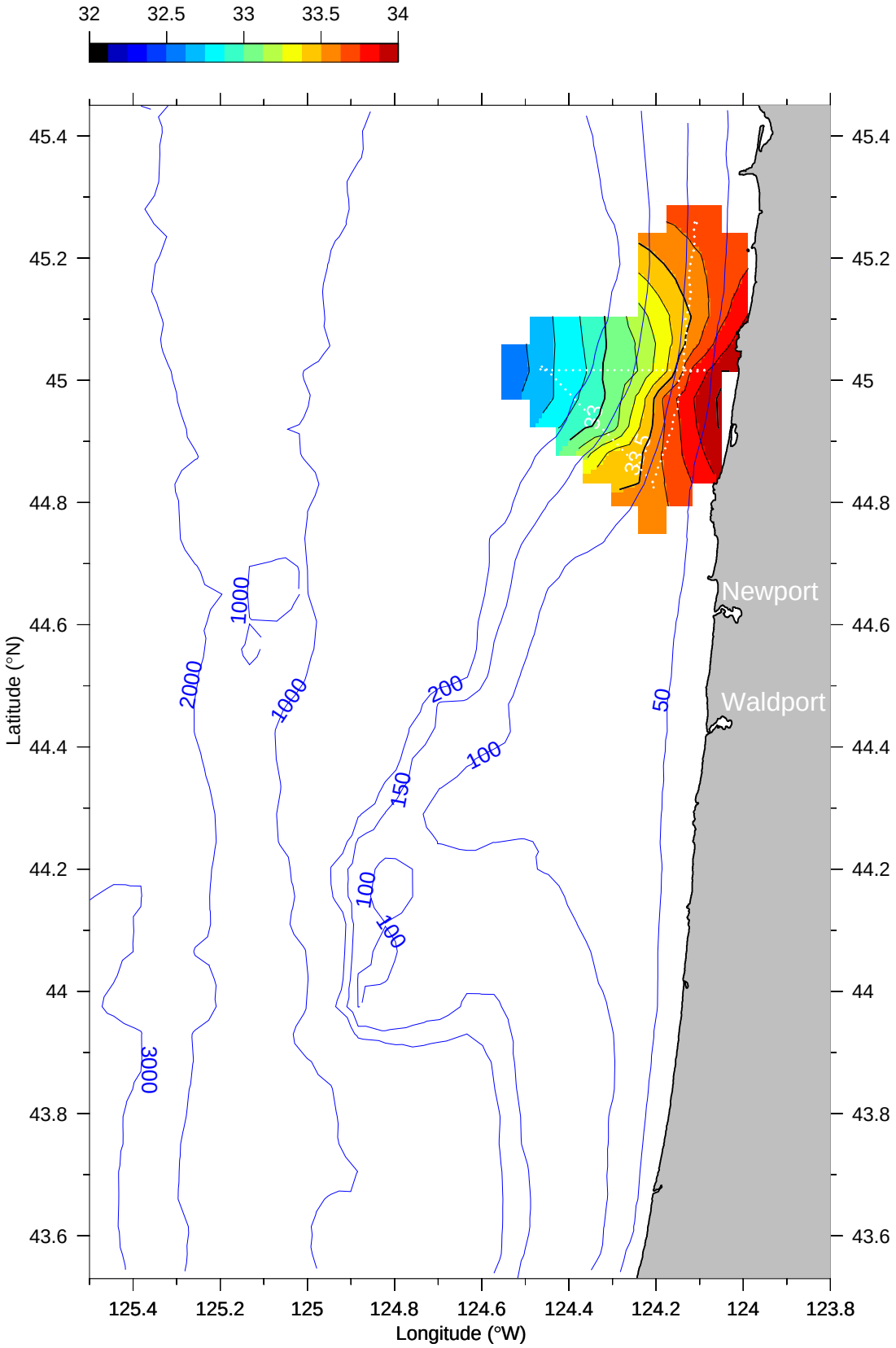
Salinity (PSS) at 45 dbar



W0105 Butterfly 4

05-Jun-2001 07:52 - 05-Jun-2001 18:55

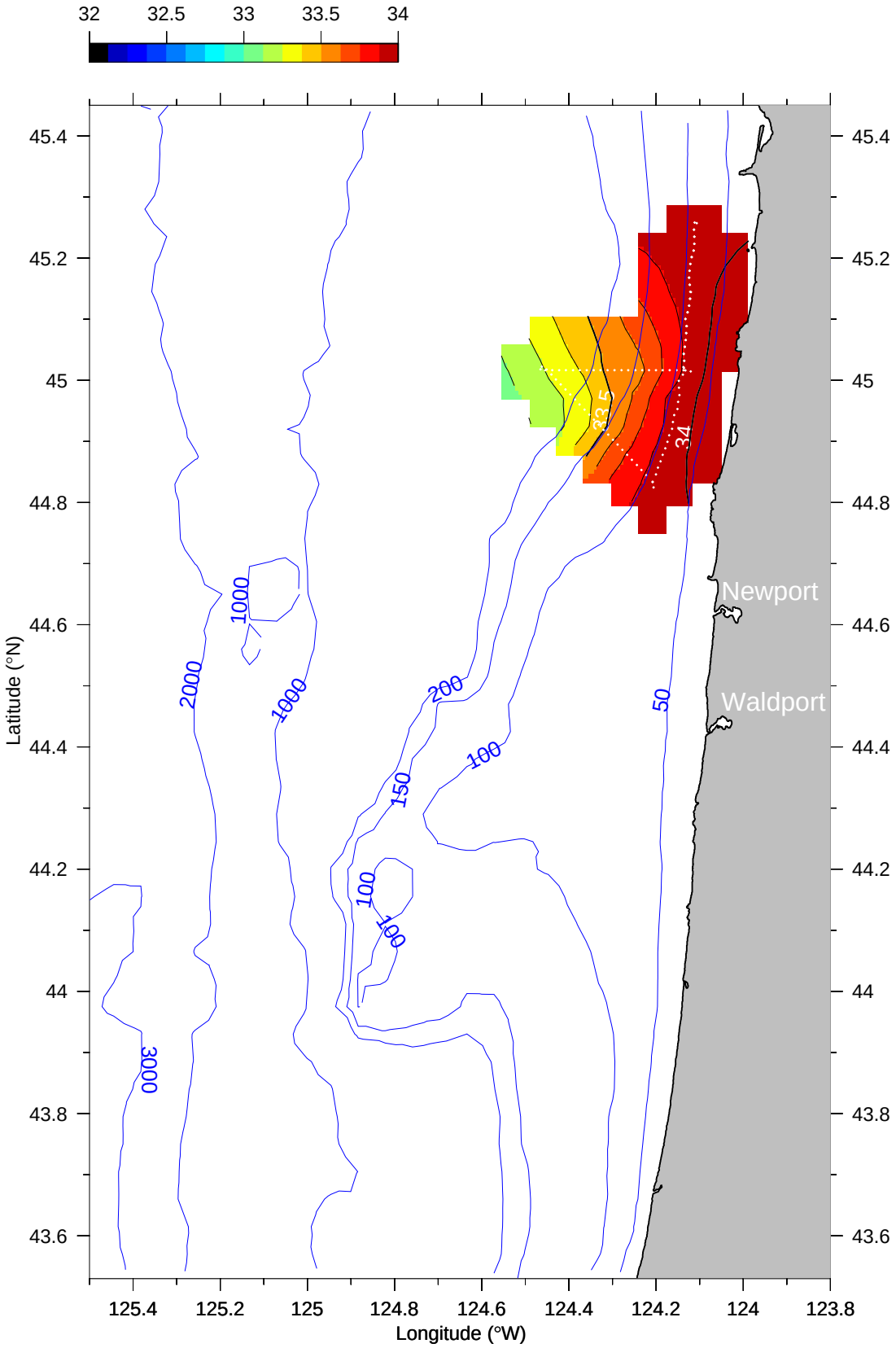
Salinity (PSS) at 55 dbar



W0105 Butterfly 4

05-Jun-2001 07:52 - 05-Jun-2001 18:55

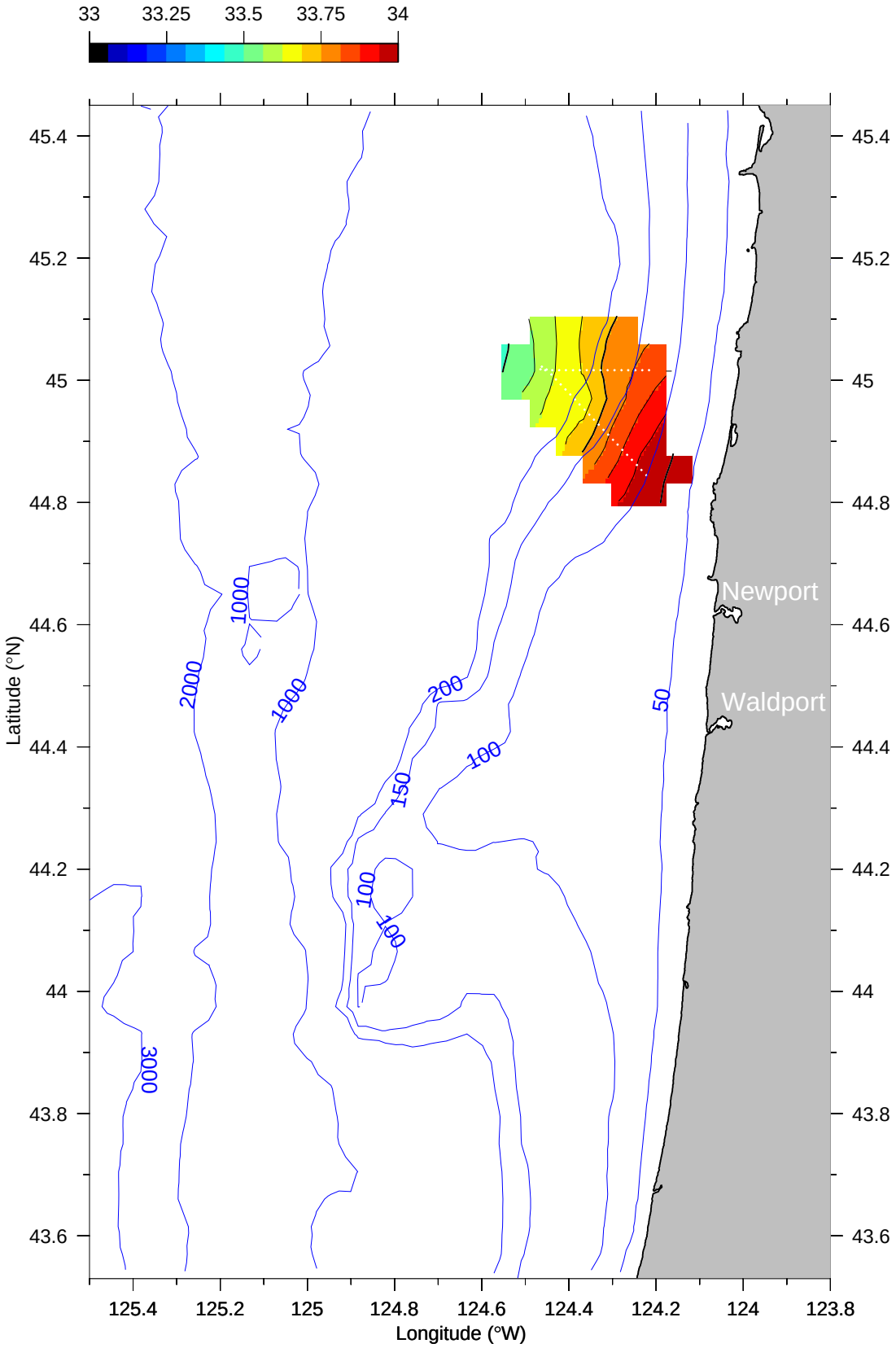
Salinity (PSS) at 75 dbar

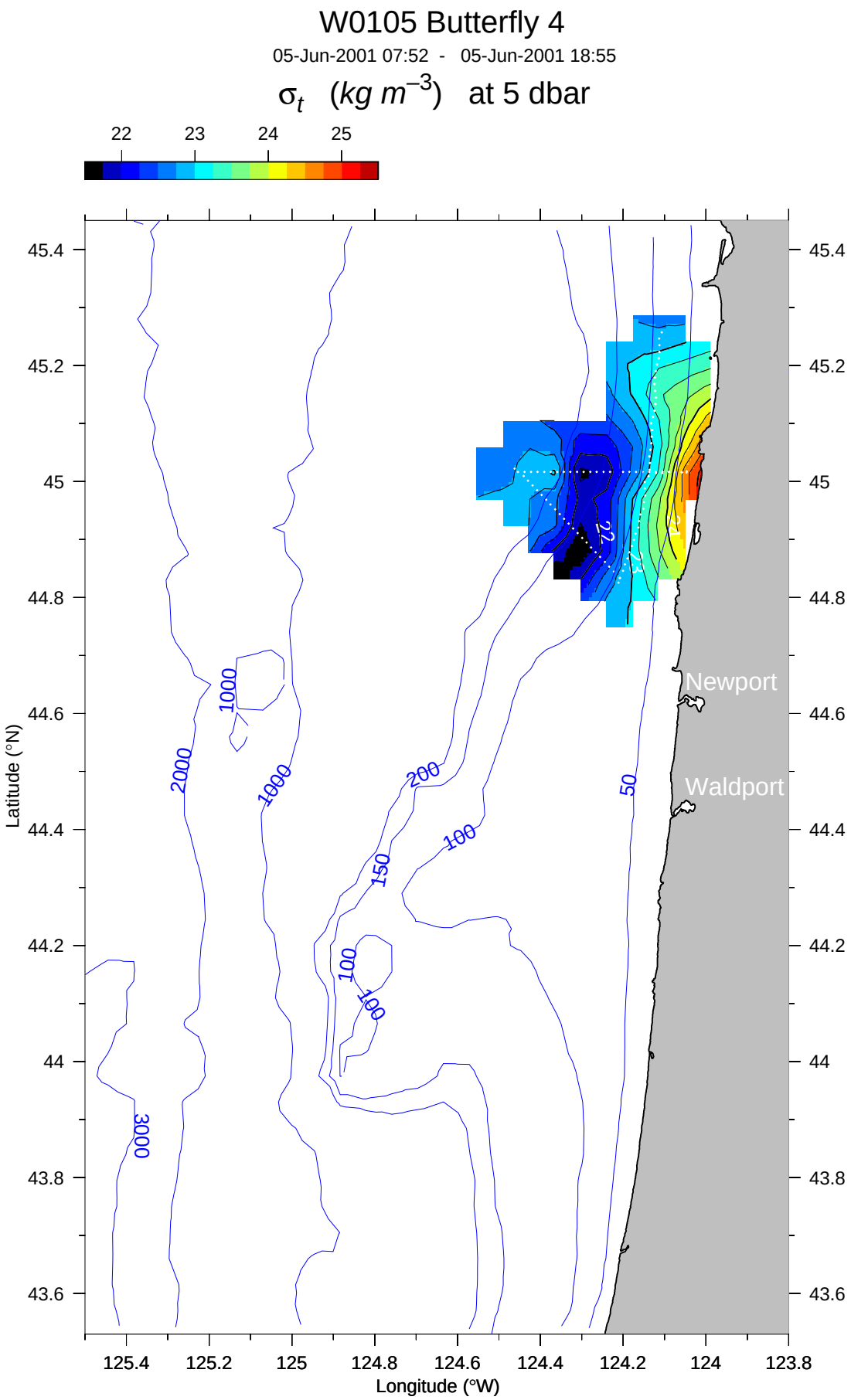


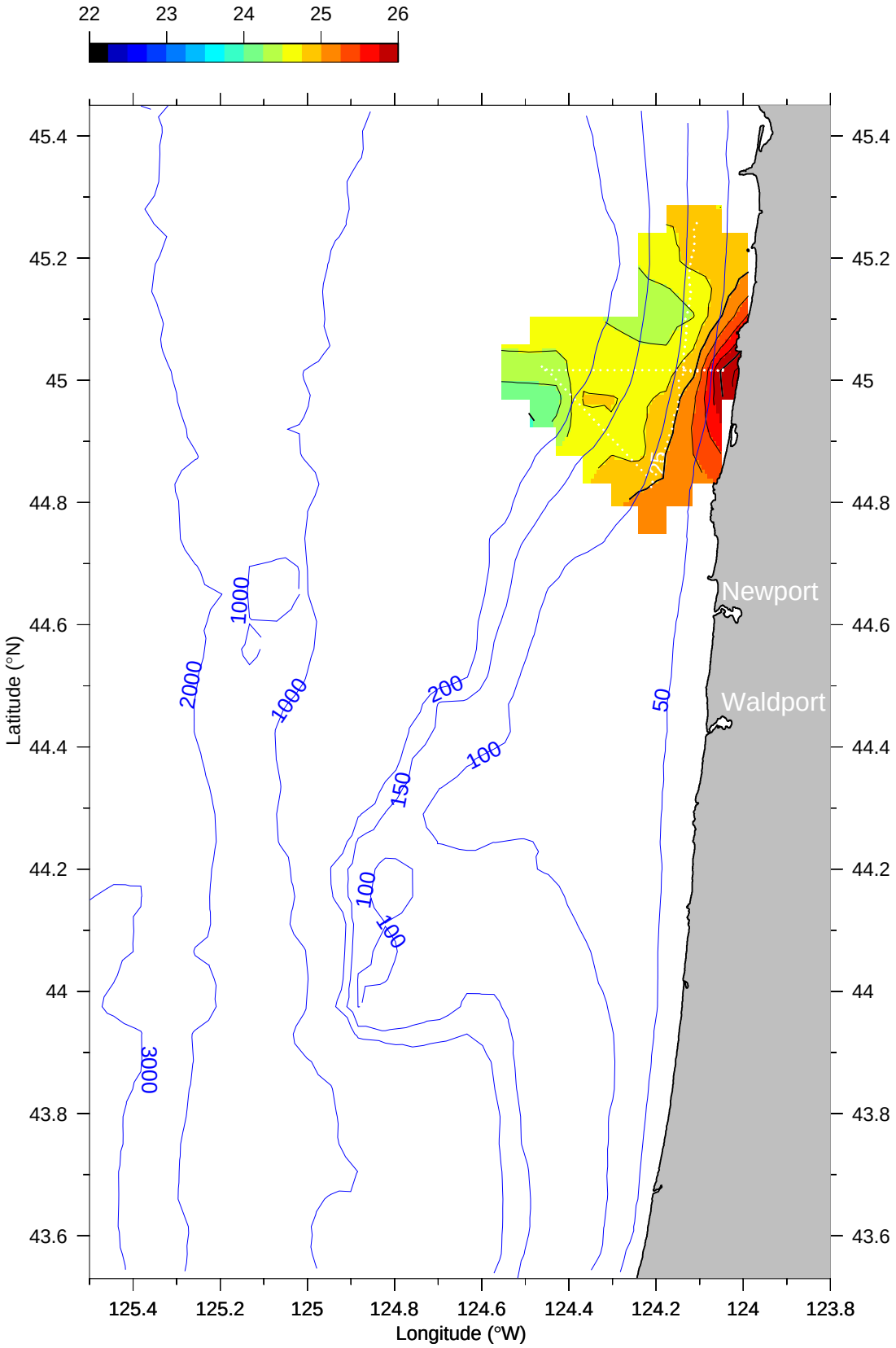
W0105 Butterfly 4

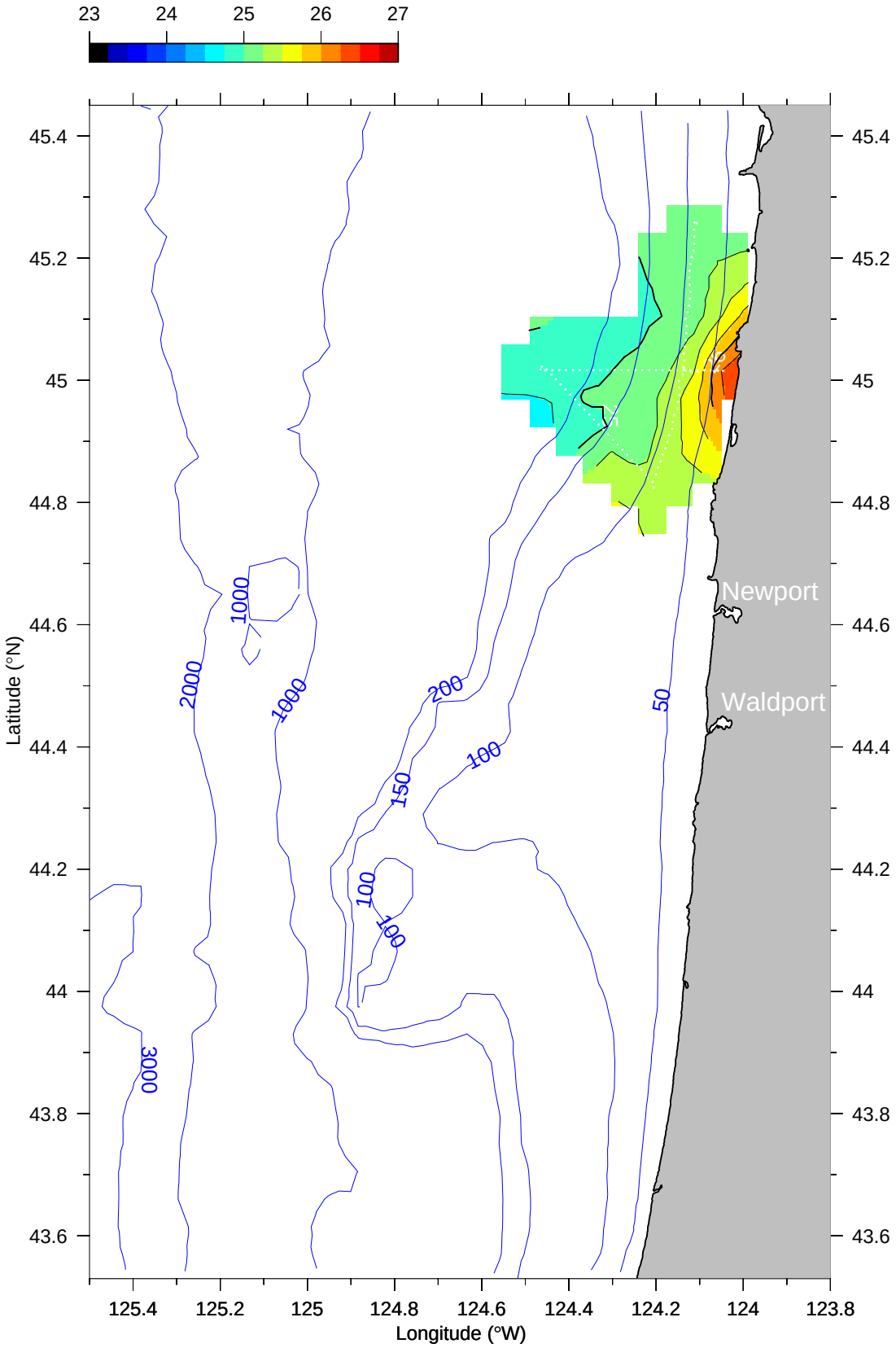
05-Jun-2001 07:52 - 05-Jun-2001 18:55

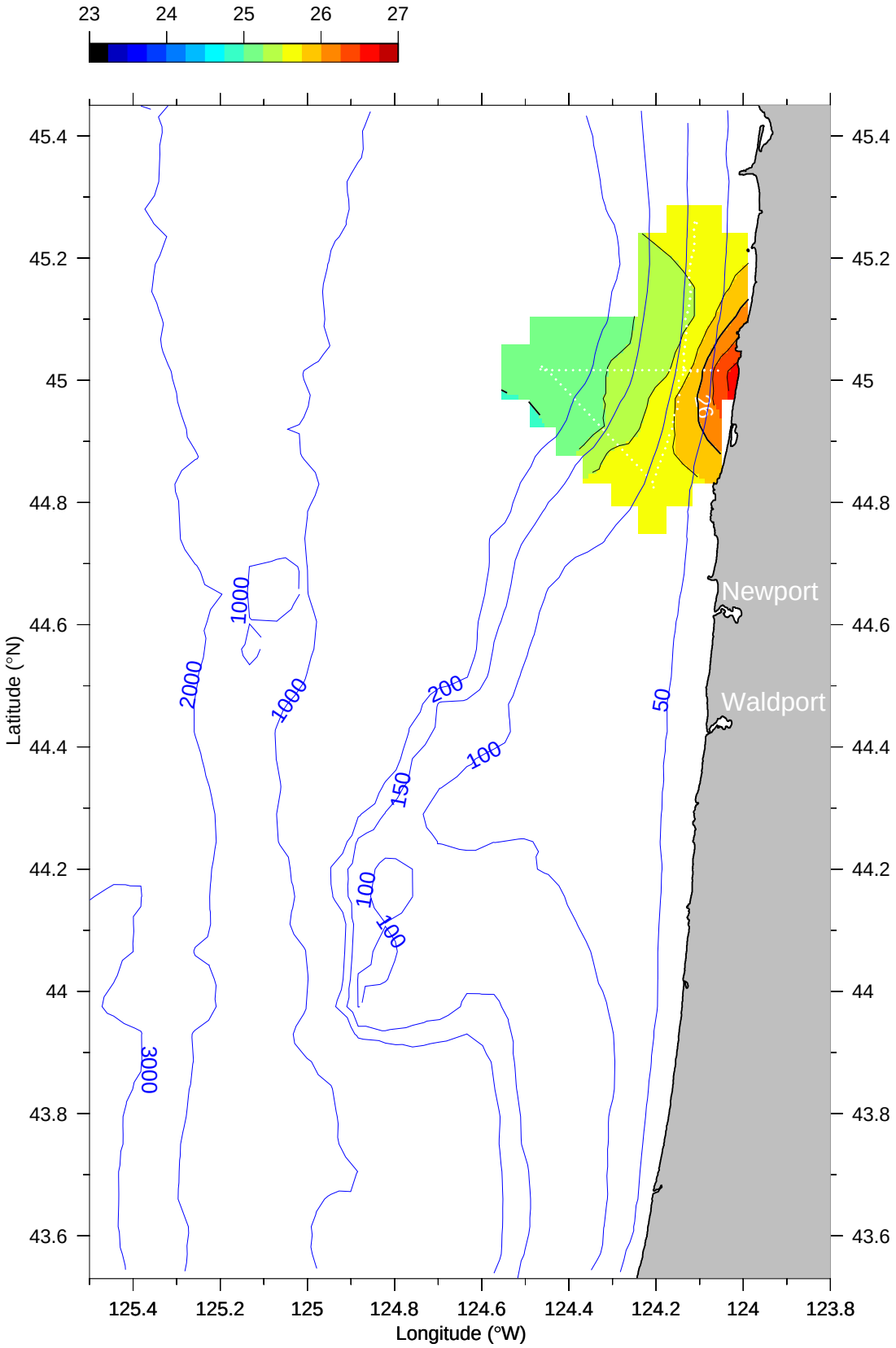
Salinity (PSS) at 95 dbar




W0105 Butterfly 4
05-Jun-2001 07:52 - 05-Jun-2001 18:55
σt (kg m−3) at 5 dbar
22
23
24
25
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
1000
200
100
150
100
100
50
3000


W0105 Butterfly 4
05-Jun-2001 07:52 - 05-Jun-2001 18:55
σt (kg m−3) at 15 dbar
22
23
24
25
26
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Butterfly 4
05-Jun-2001 07:52 - 05-Jun-2001 18:55
σt (kg m−3) at 25 dbar
23
24
25
26
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Butterfly 4
05-Jun-2001 07:52 - 05-Jun-2001 18:55
σt (kg m−3) at 35 dbar
23
24
25
26
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
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123.8
Longitude (°W)
Newport
Waldport
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1000
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100
100
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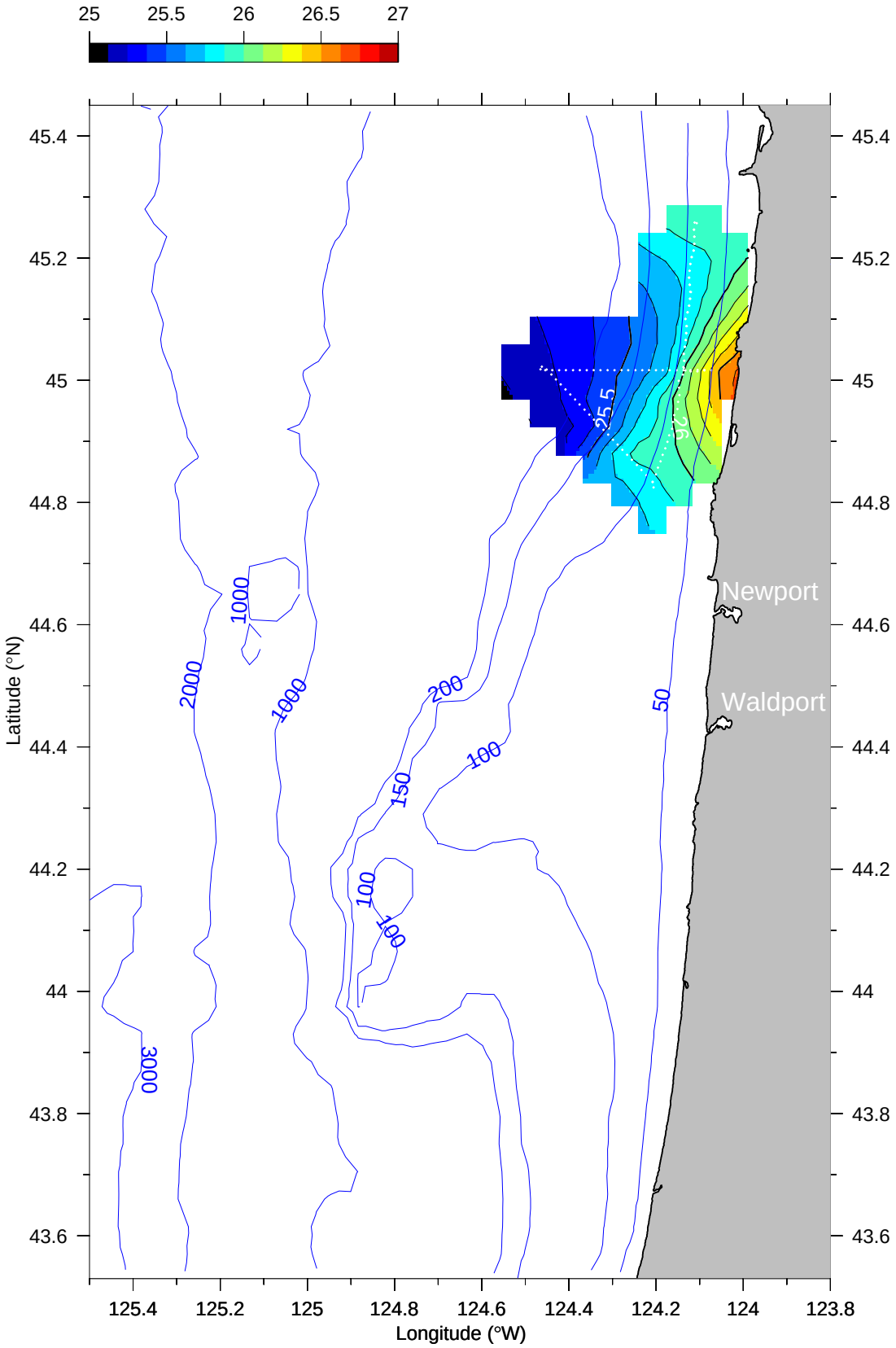
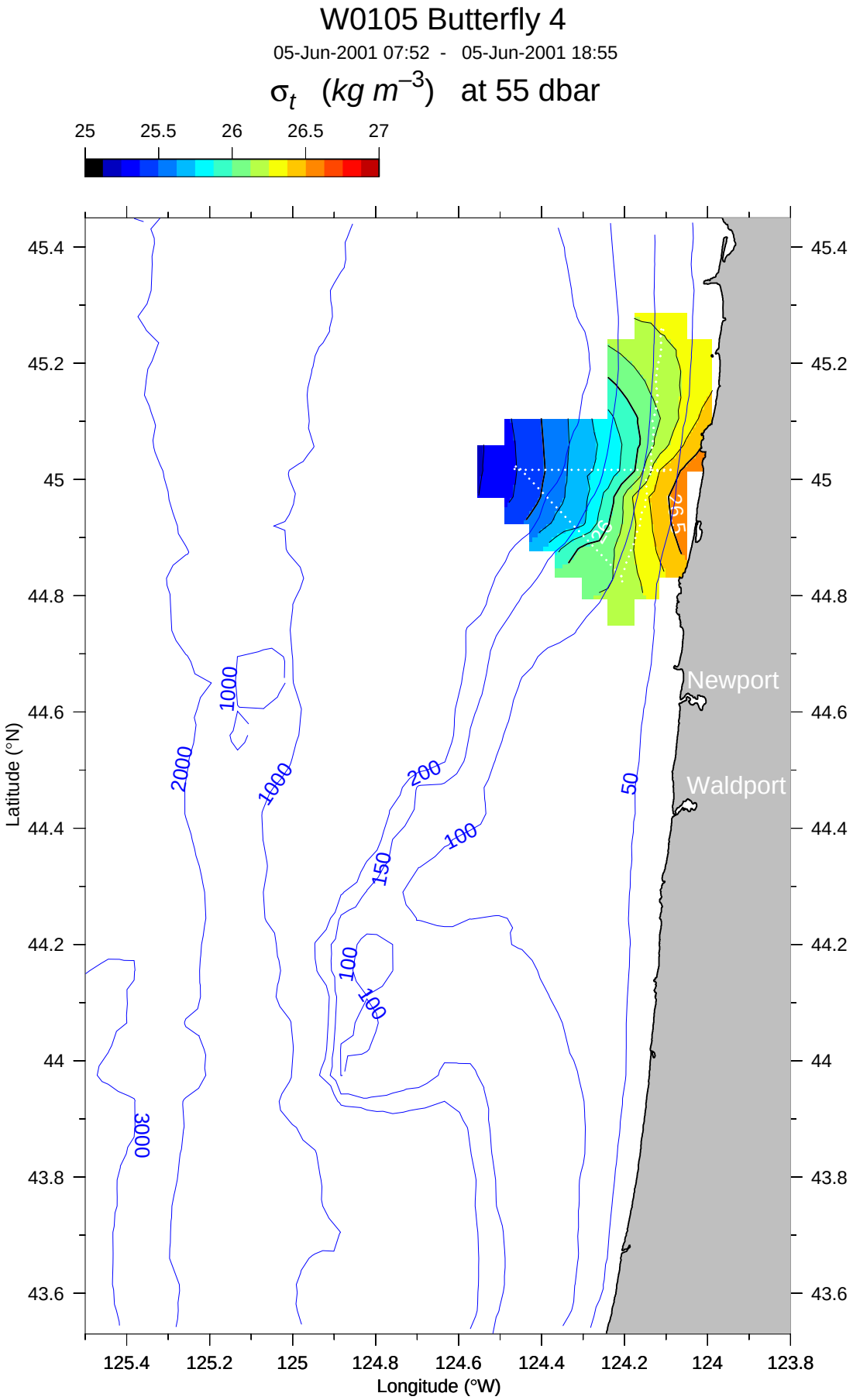
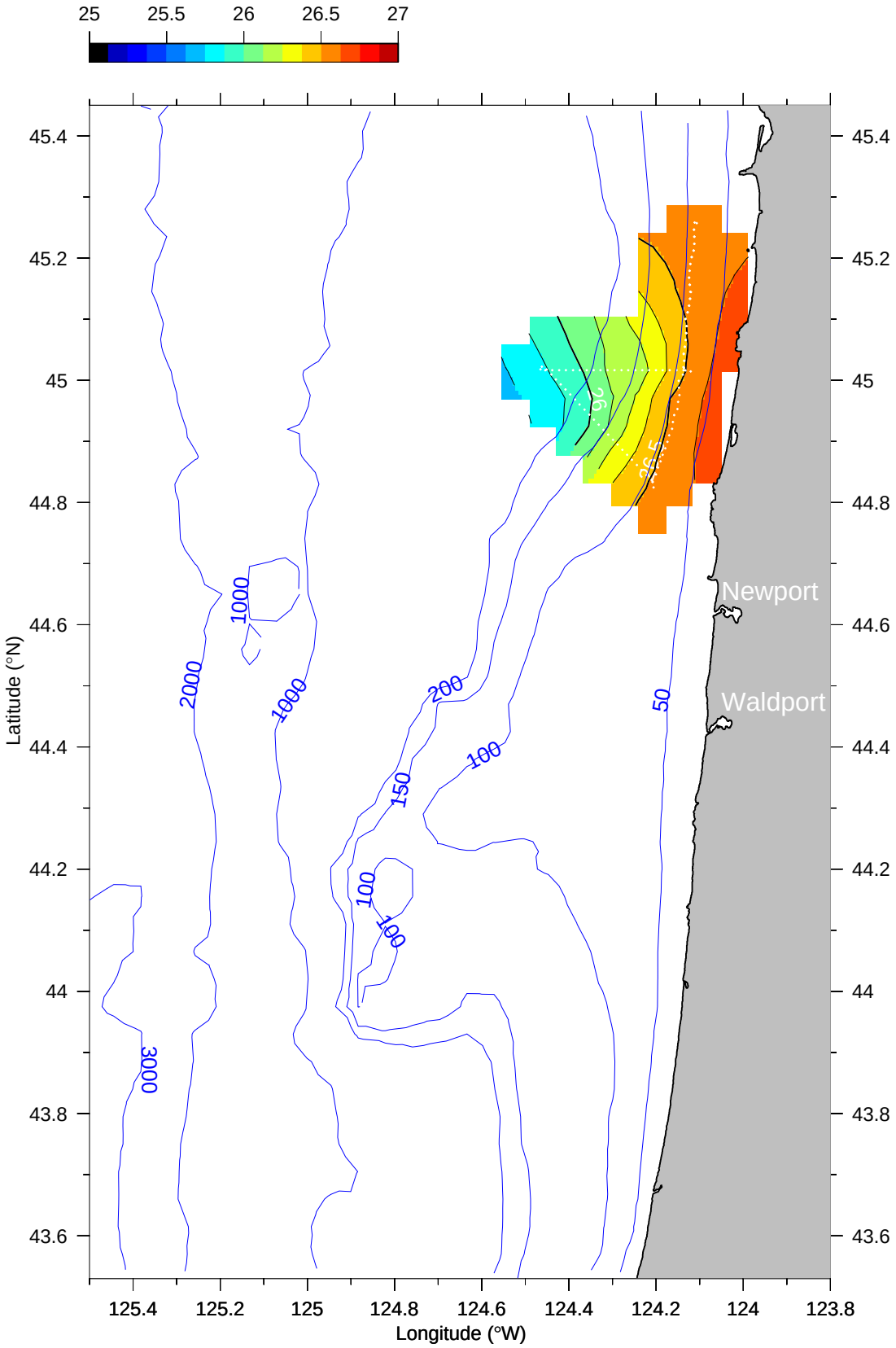
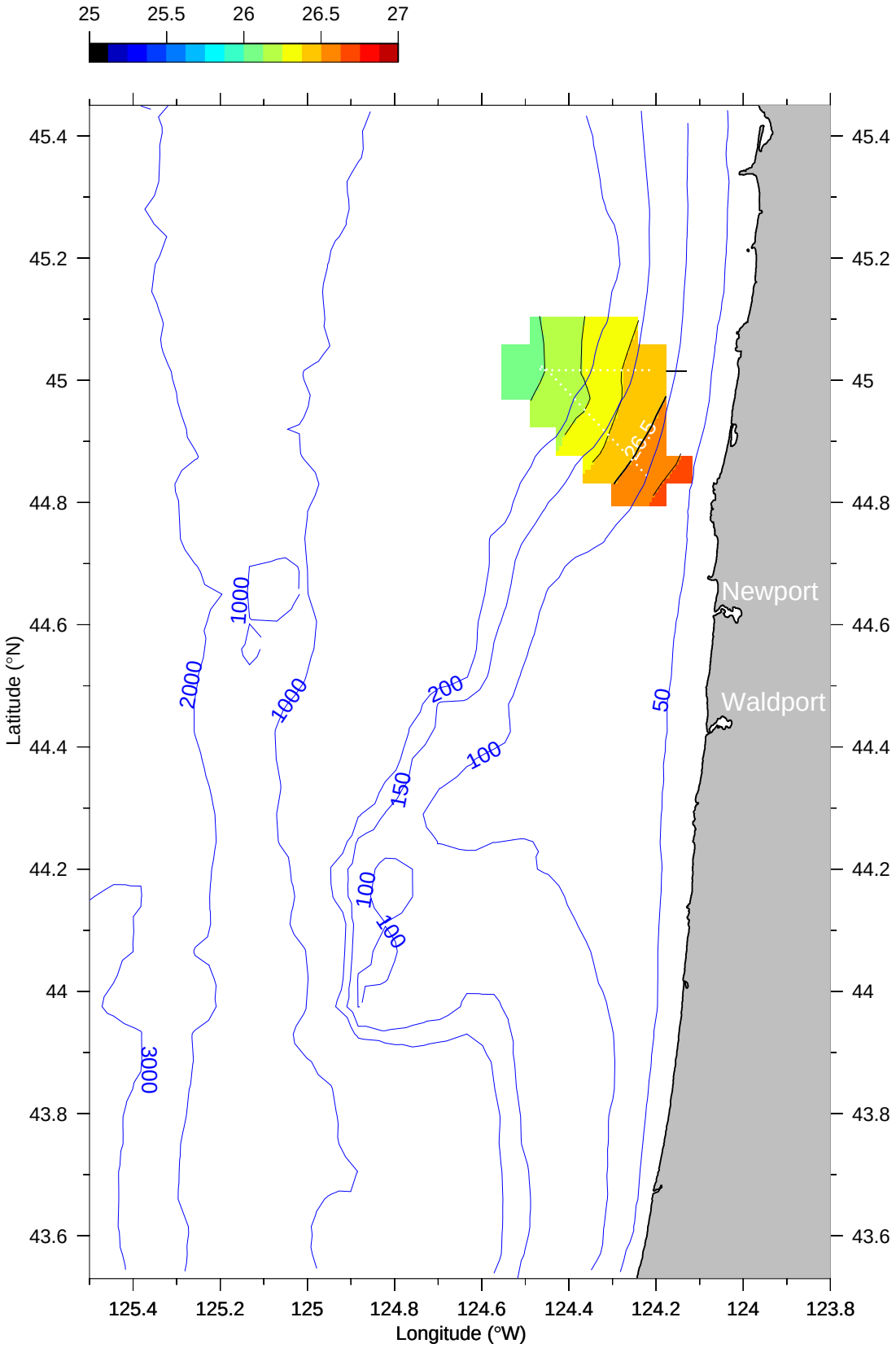
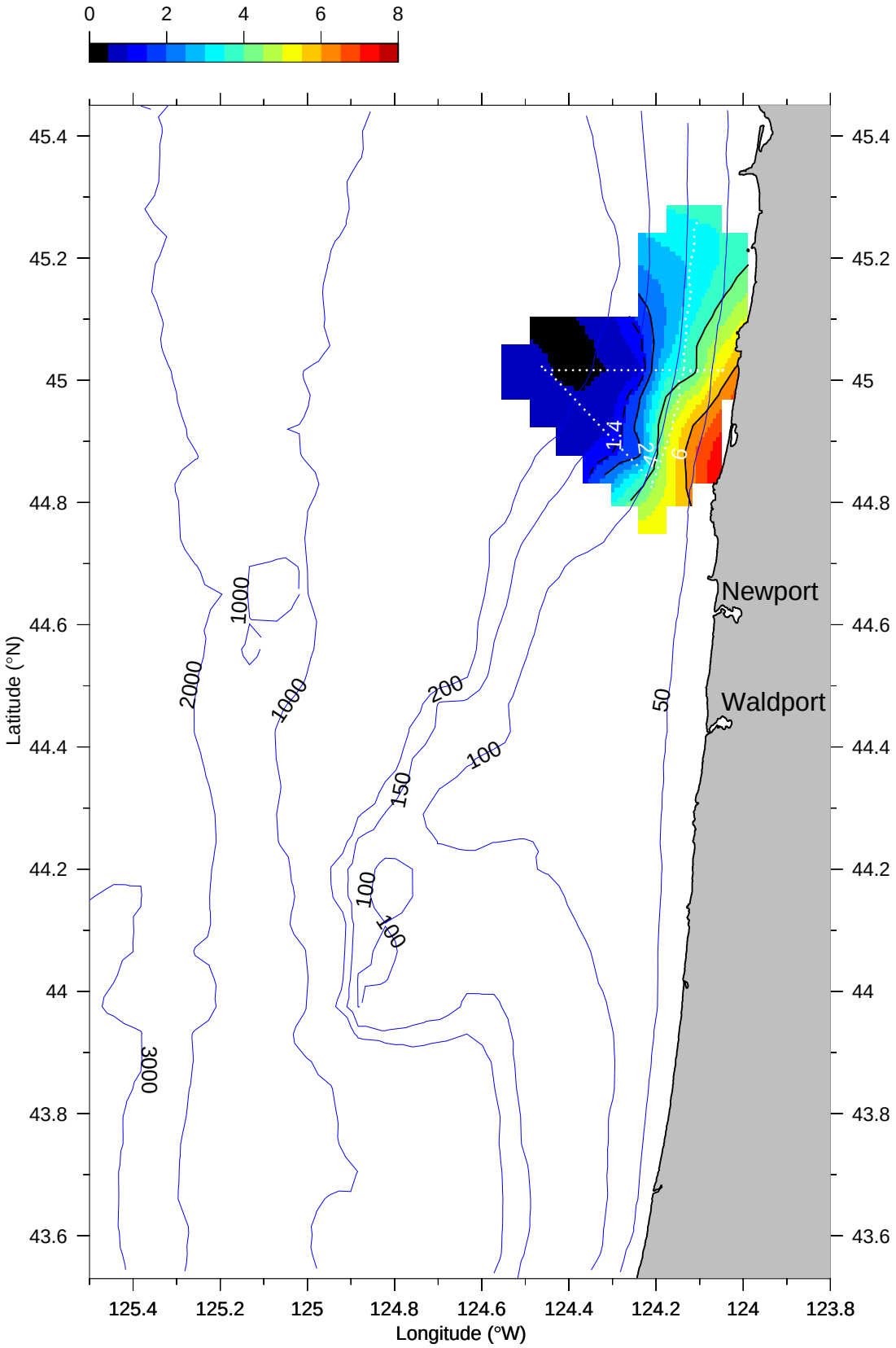

W0105 Butterfly 4
05-Jun-2001 07:52 - 05-Jun-2001 18:55
σt (kg m−3) at 45 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
2000
1000
1000
200
100
150
100
100
50
3000


W0105 Butterfly 4
05-Jun-2001 07:52 - 05-Jun-2001 18:55
σt (kg m−3) at 55 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Butterfly 4
05-Jun-2001 07:52 - 05-Jun-2001 18:55
σt (kg m−3) at 75 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Butterfly 4
05-Jun-2001 07:52 - 05-Jun-2001 18:55
σt (kg m−3) at 95 dbar
25
25.5
26
26.5
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
26.5
1000
2000
1000
200
150
100
100
100
50
3000


W0105 Butterfly 4
05-Jun-2001 07:52 - 05-Jun-2001 18:55
Chlorophyll (µg L−1) at 5 dbar
0
2
4
6
8
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
1000
2000
1000
200
100
150
100
100
3000
50
1.4
2
4
6

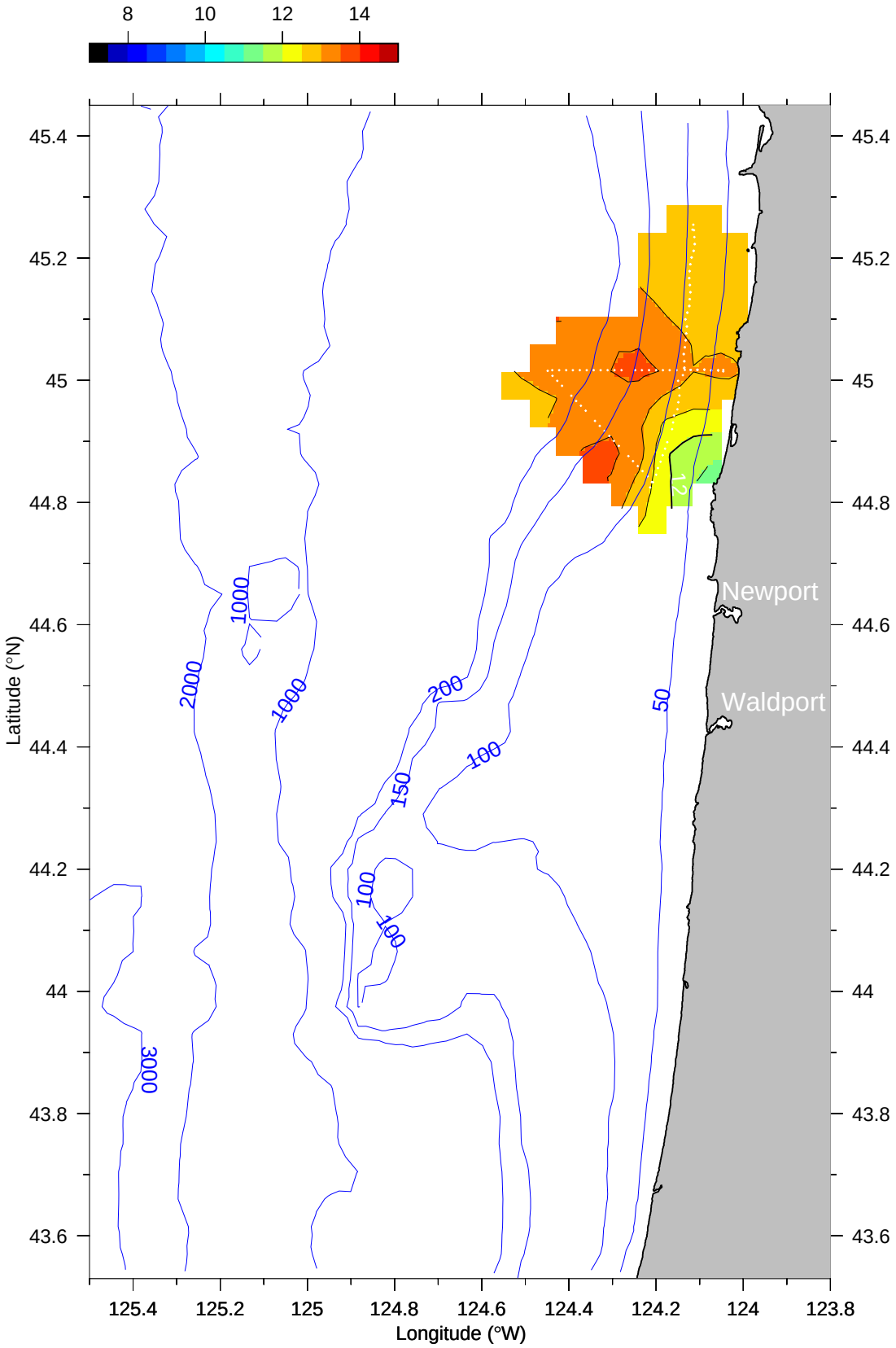
Butterfly 5 Maps

Maps of Temperature, Salinity, σ_t, and Chlorophyll at Specified Depths

W0105 Butterfly 5

05-Jun-2001 18:58 - 06-Jun-2001 05:35

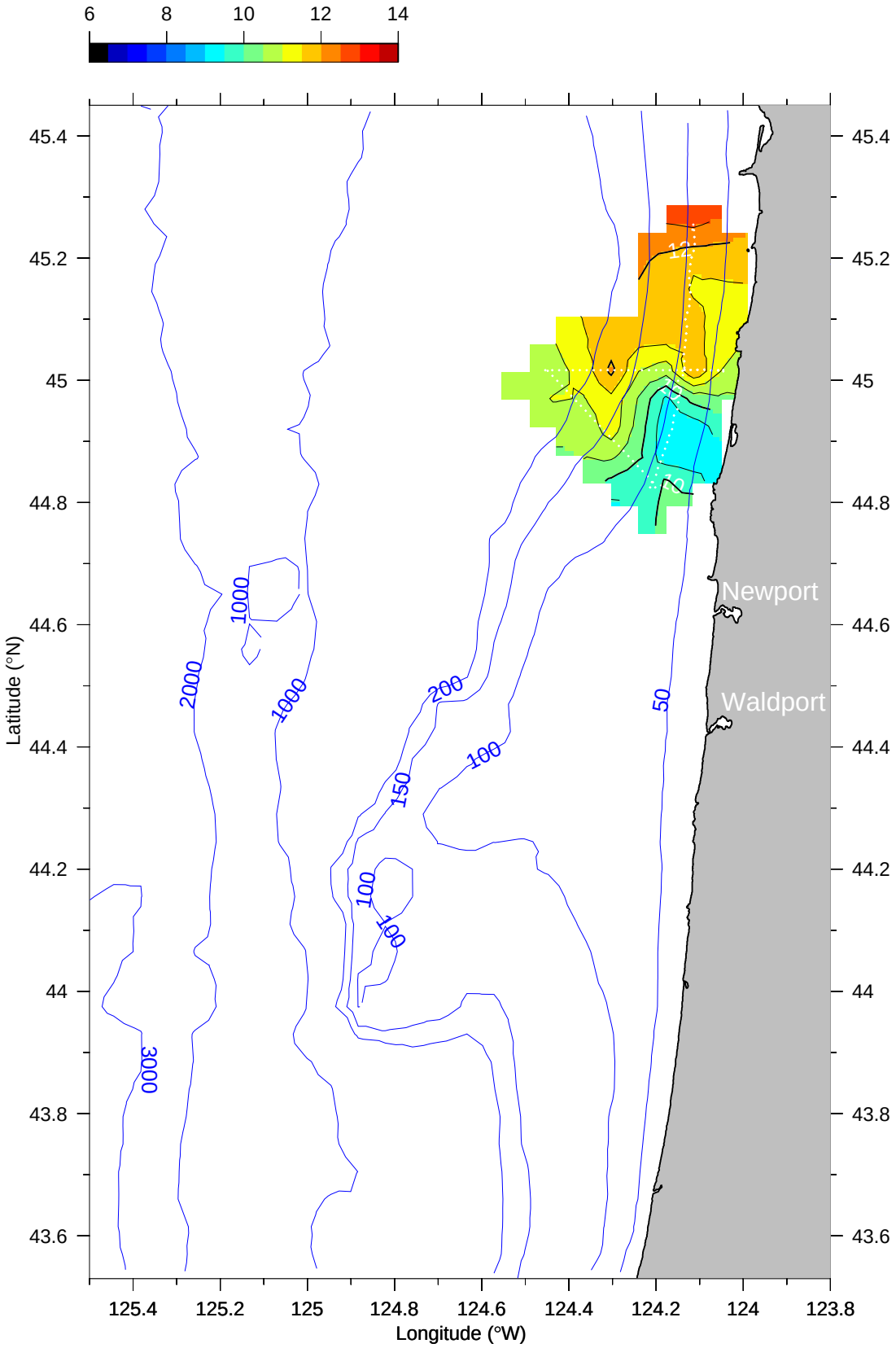
Temperature (°C) at 5 dbar



W0105 Butterfly 5

05-Jun-2001 18:58 - 06-Jun-2001 05:35

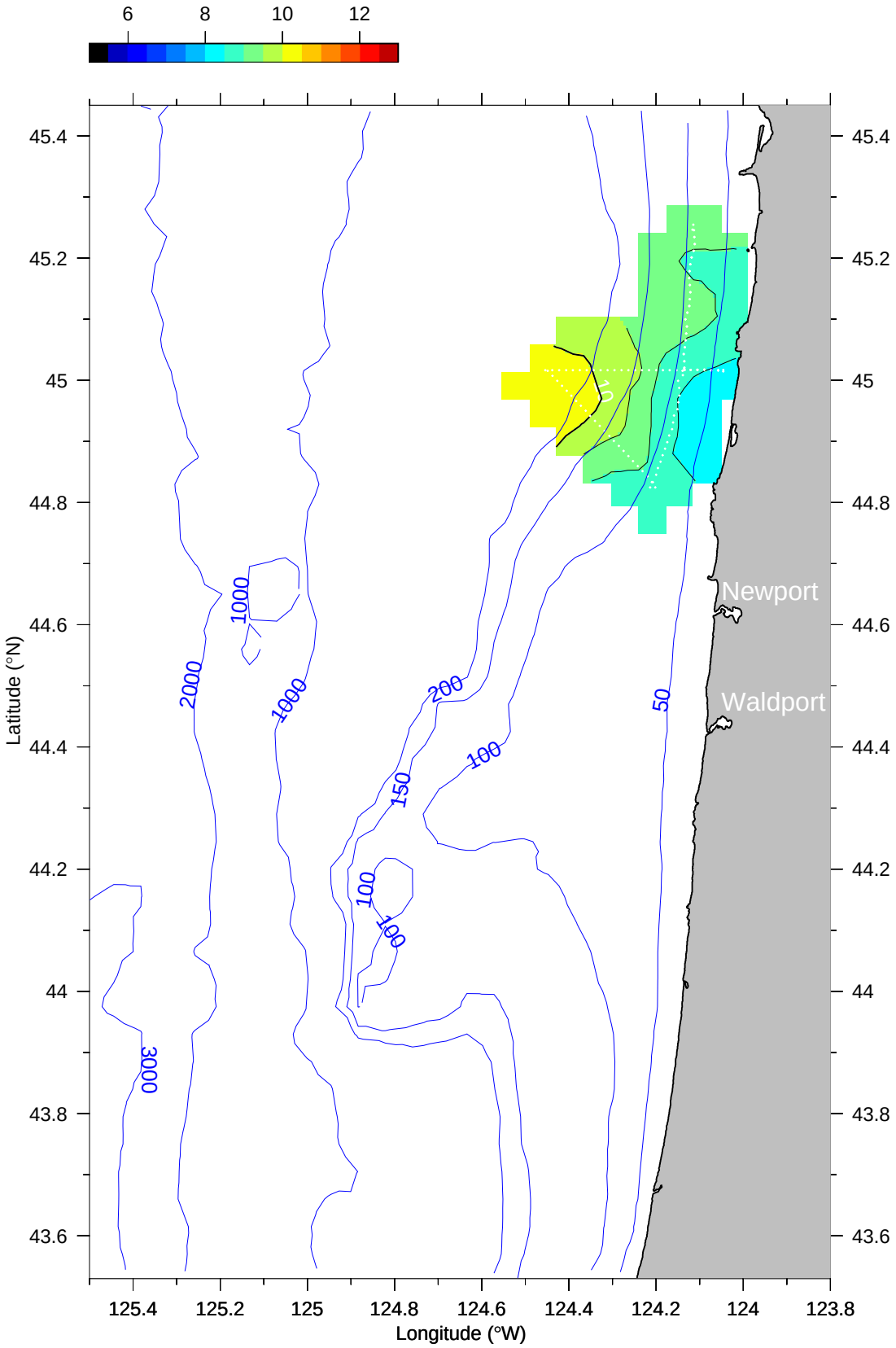
Temperature (°C) at 15 dbar



W0105 Butterfly 5

05-Jun-2001 18:58 - 06-Jun-2001 05:35

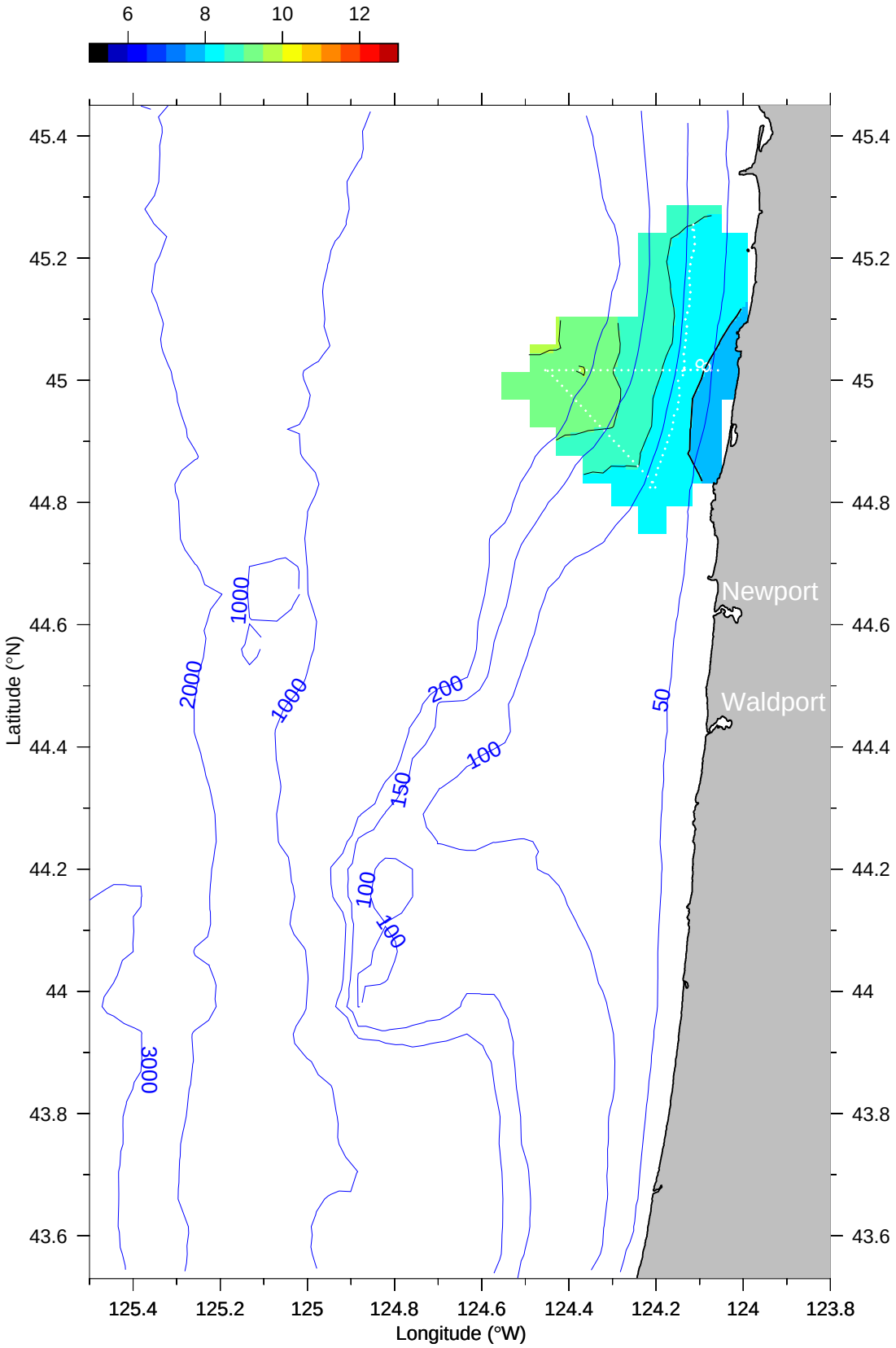
Temperature (°C) at 25 dbar



W0105 Butterfly 5

05-Jun-2001 18:58 - 06-Jun-2001 05:35

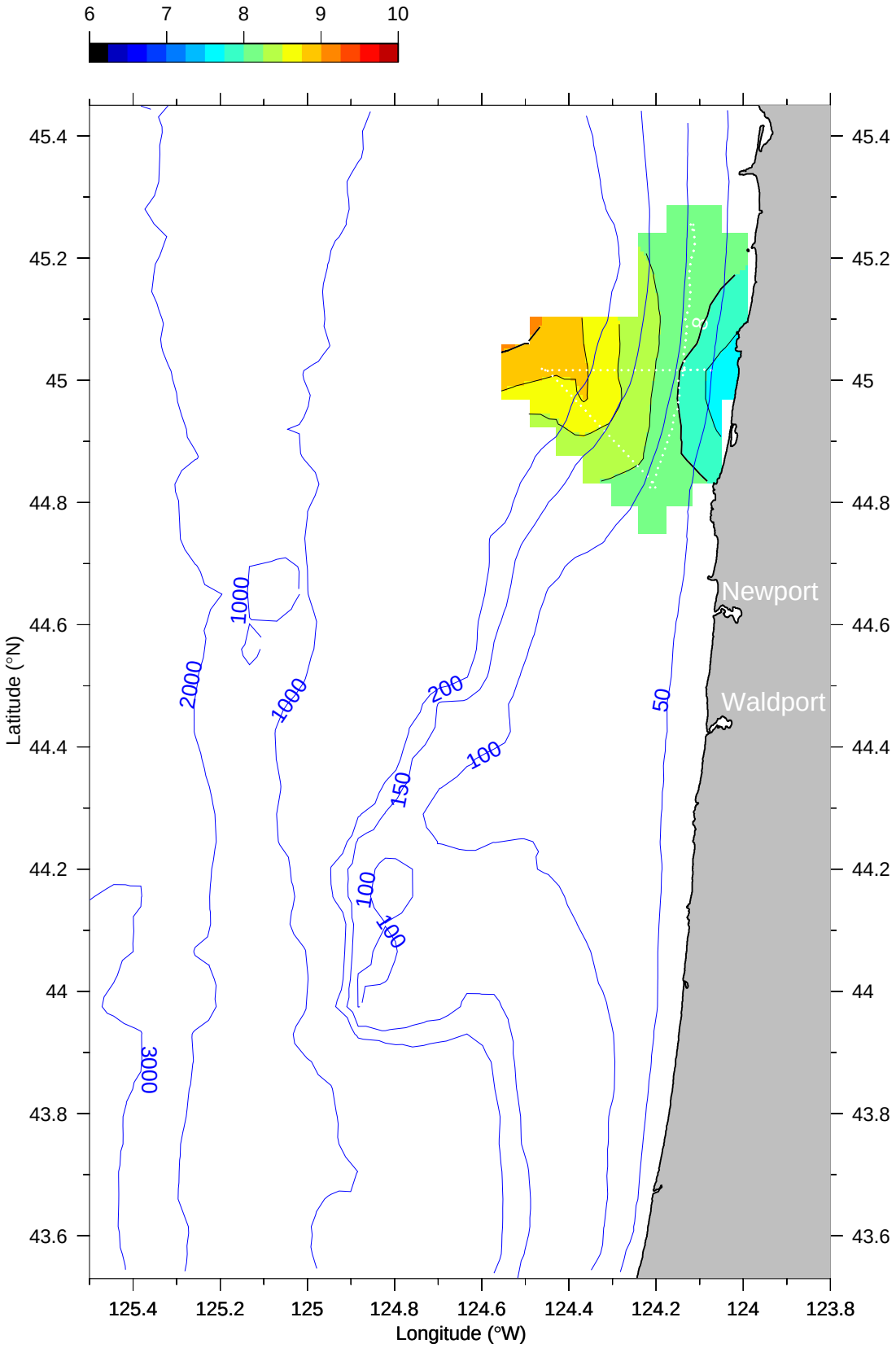
Temperature (°C) at 35 dbar



W0105 Butterfly 5

05-Jun-2001 18:58 - 06-Jun-2001 05:35

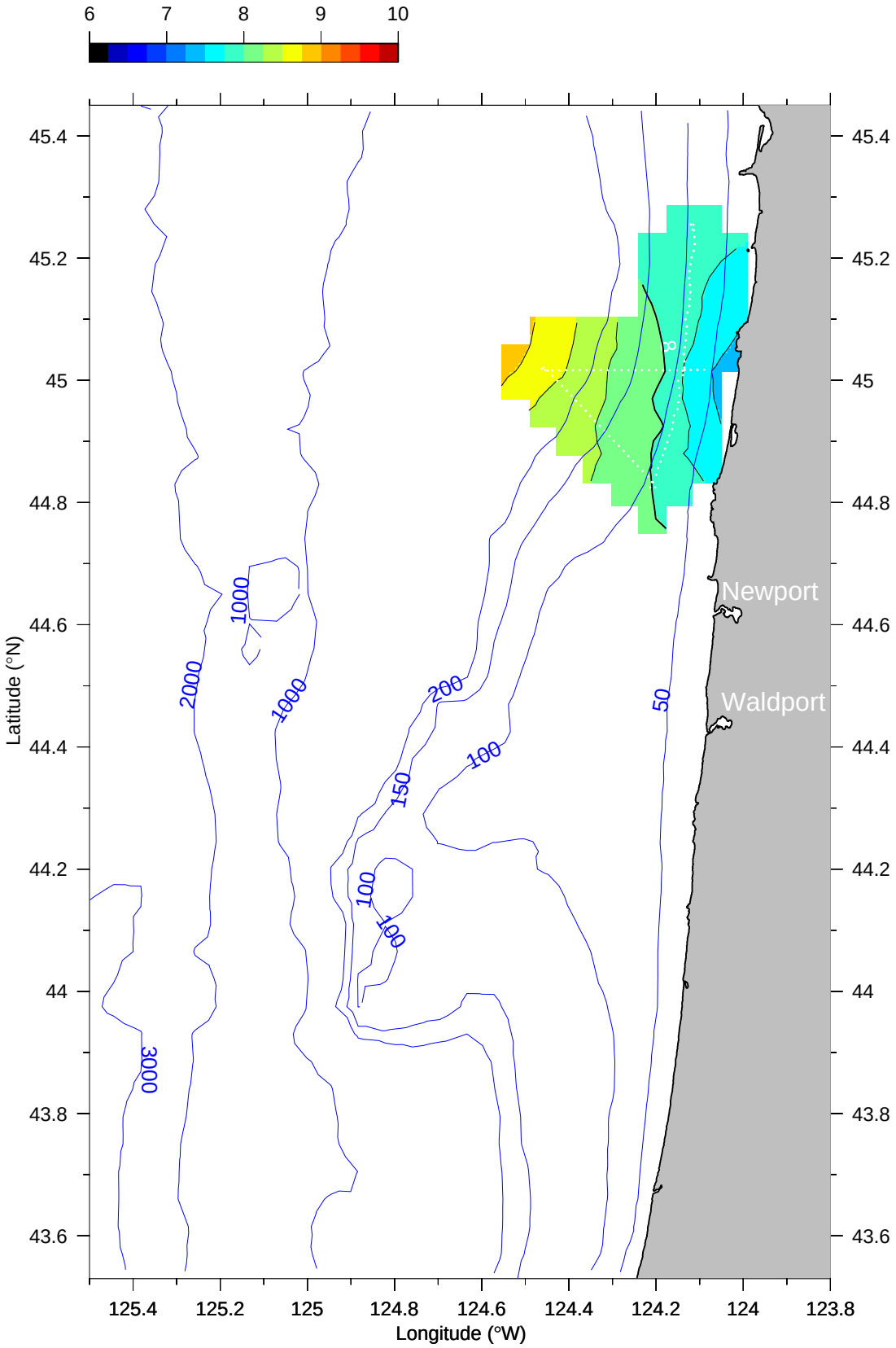
Temperature (°C) at 45 dbar

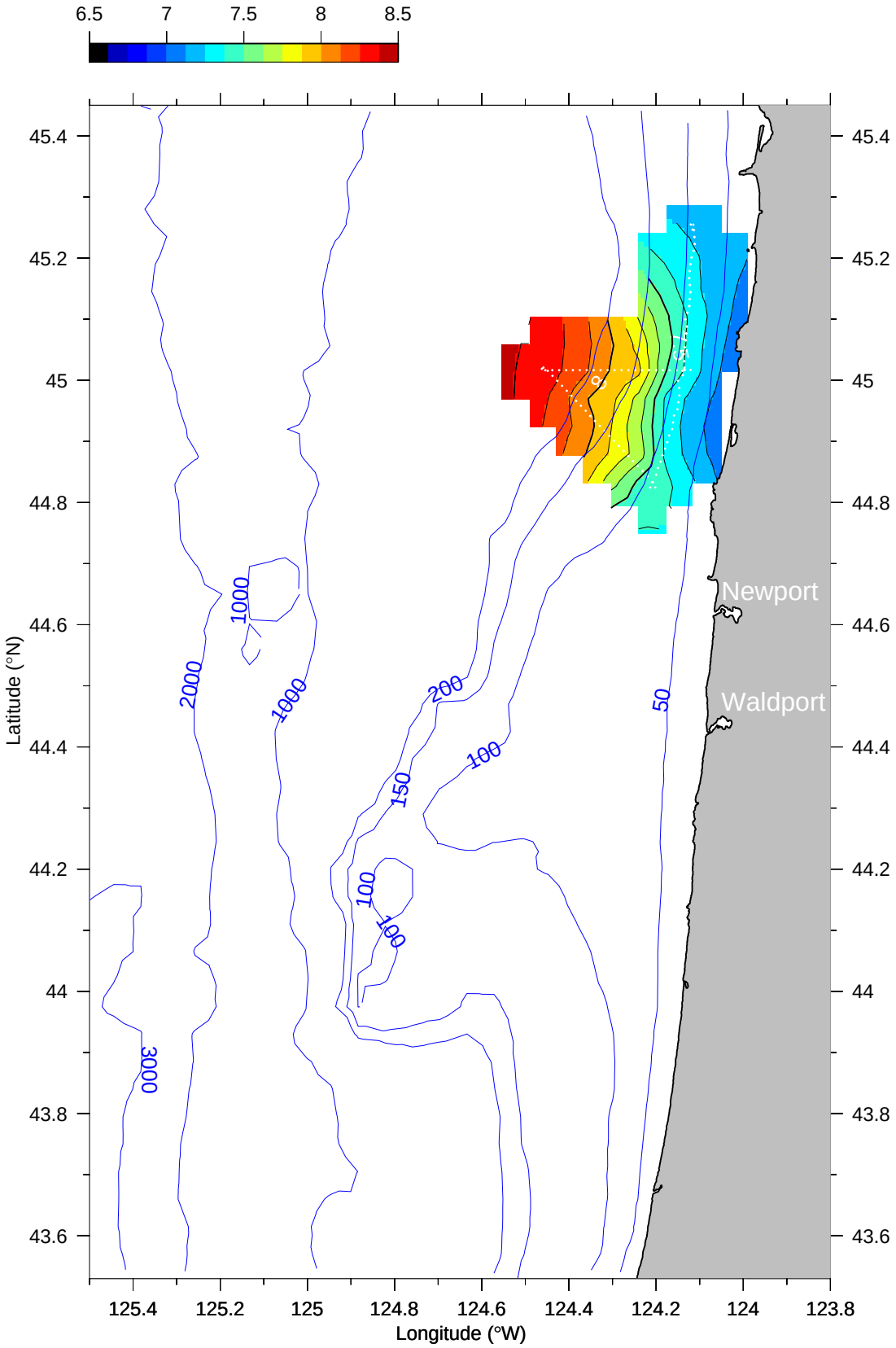


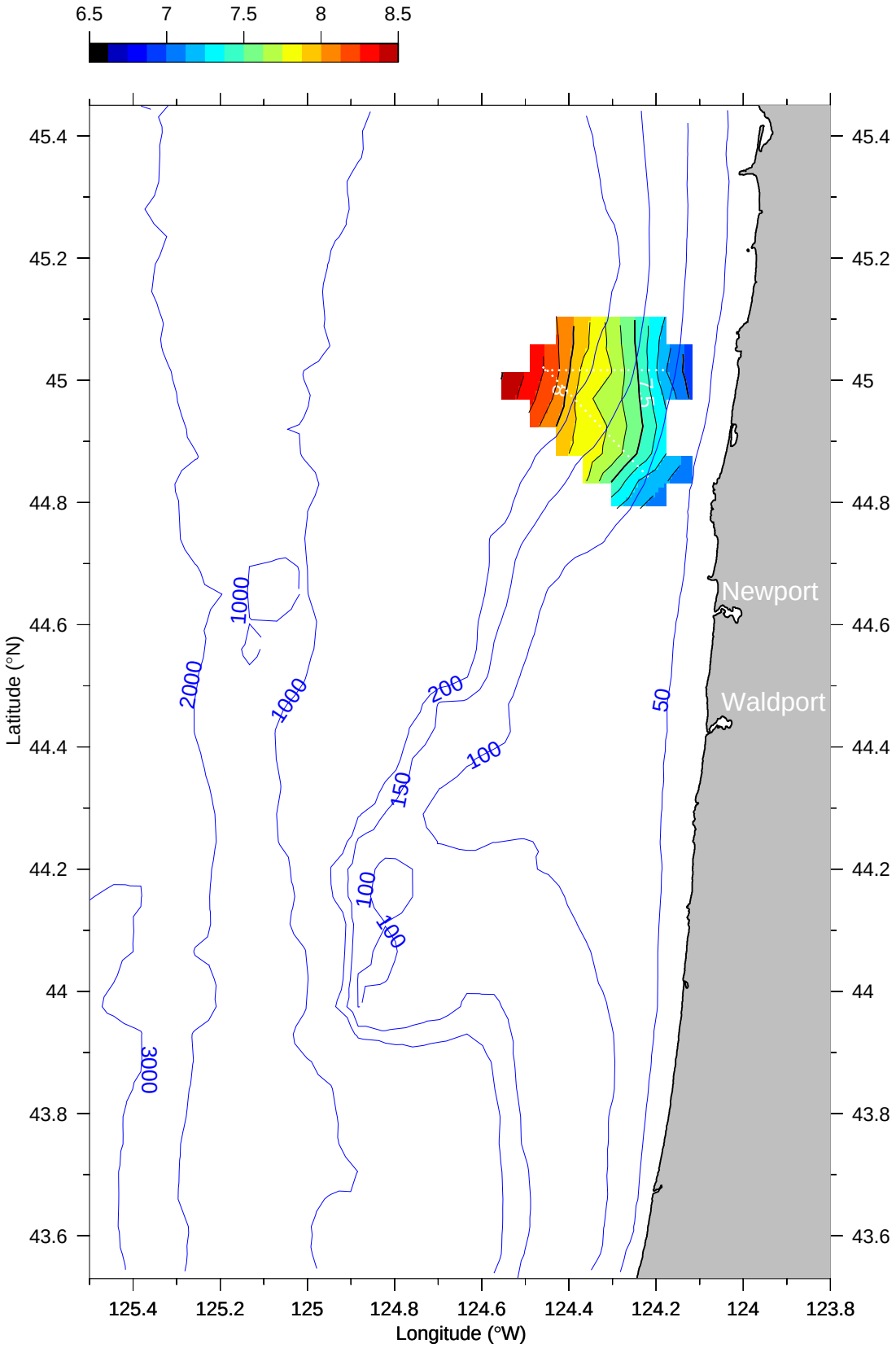
W0105 Butterfly 5

05-Jun-2001 18:58 - 06-Jun-2001 05:35

Temperature (°C) at 55 dbar



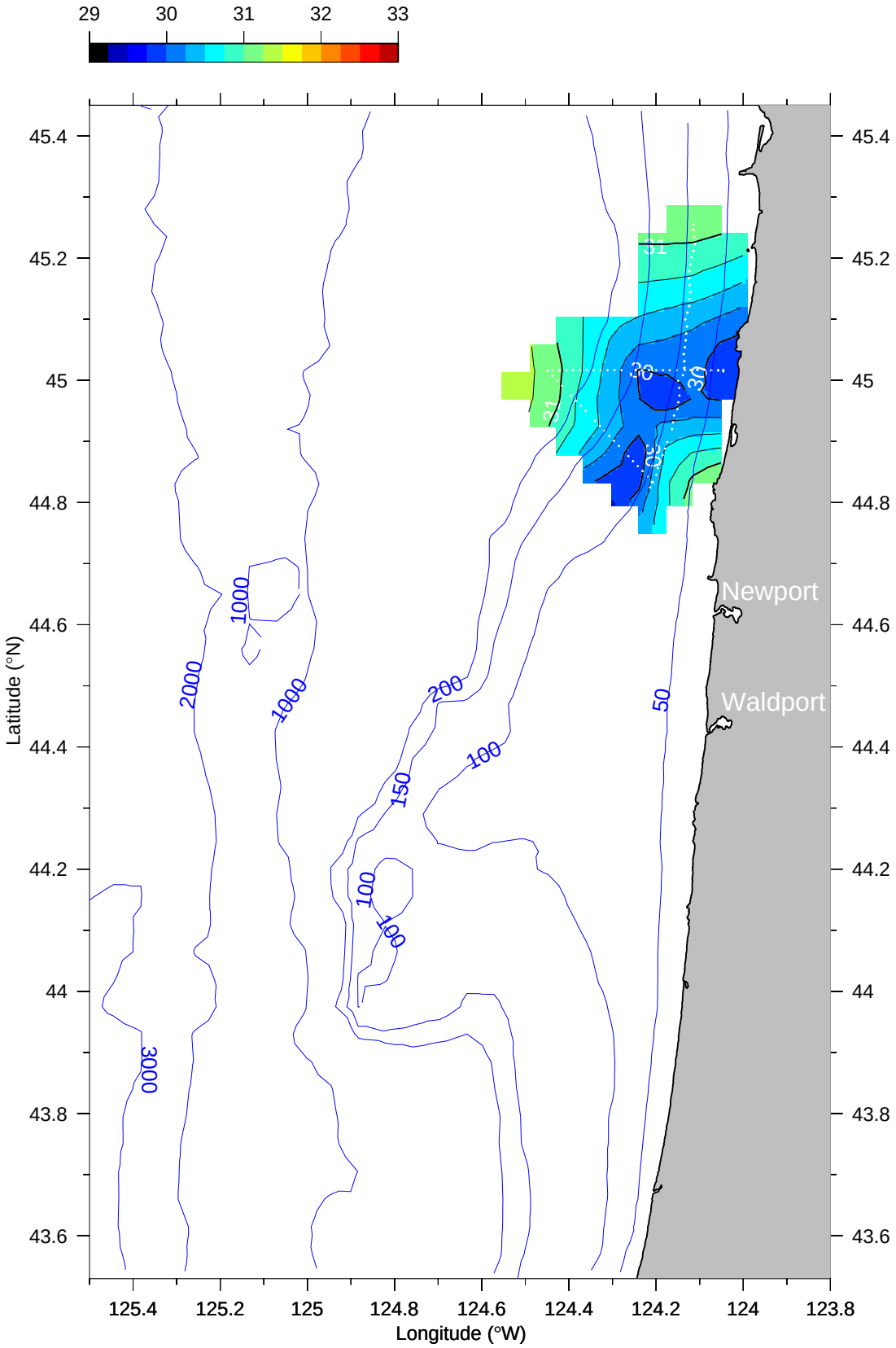

W0105 Butterfly 5
05-Jun-2001 18:58 - 06-Jun-2001 05:35
Temperature (°C) at 75 dbar
6.5
7
7.5
8
8.5
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
1000
200
100
150
100
100
50
3000


W0105 Butterfly 5
05-Jun-2001 18:58 - 06-Jun-2001 05:35
Temperature (°C) at 95 dbar
6.5
7
7.5
8
8.5
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50

W0105 Butterfly 5

05-Jun-2001 18:58 - 06-Jun-2001 05:35

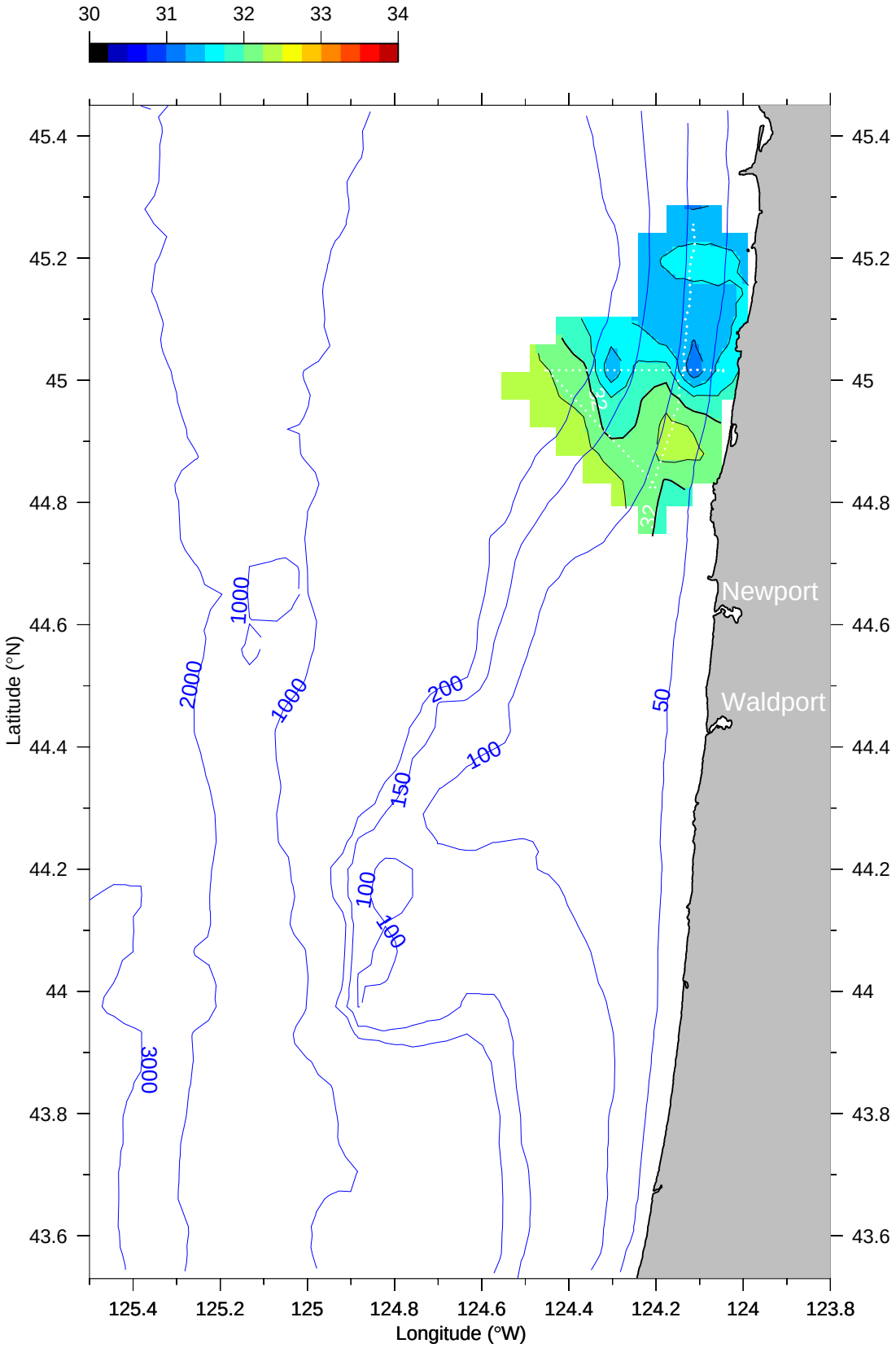
Salinity (PSS) at 5 dbar



W0105 Butterfly 5

05-Jun-2001 18:58 - 06-Jun-2001 05:35

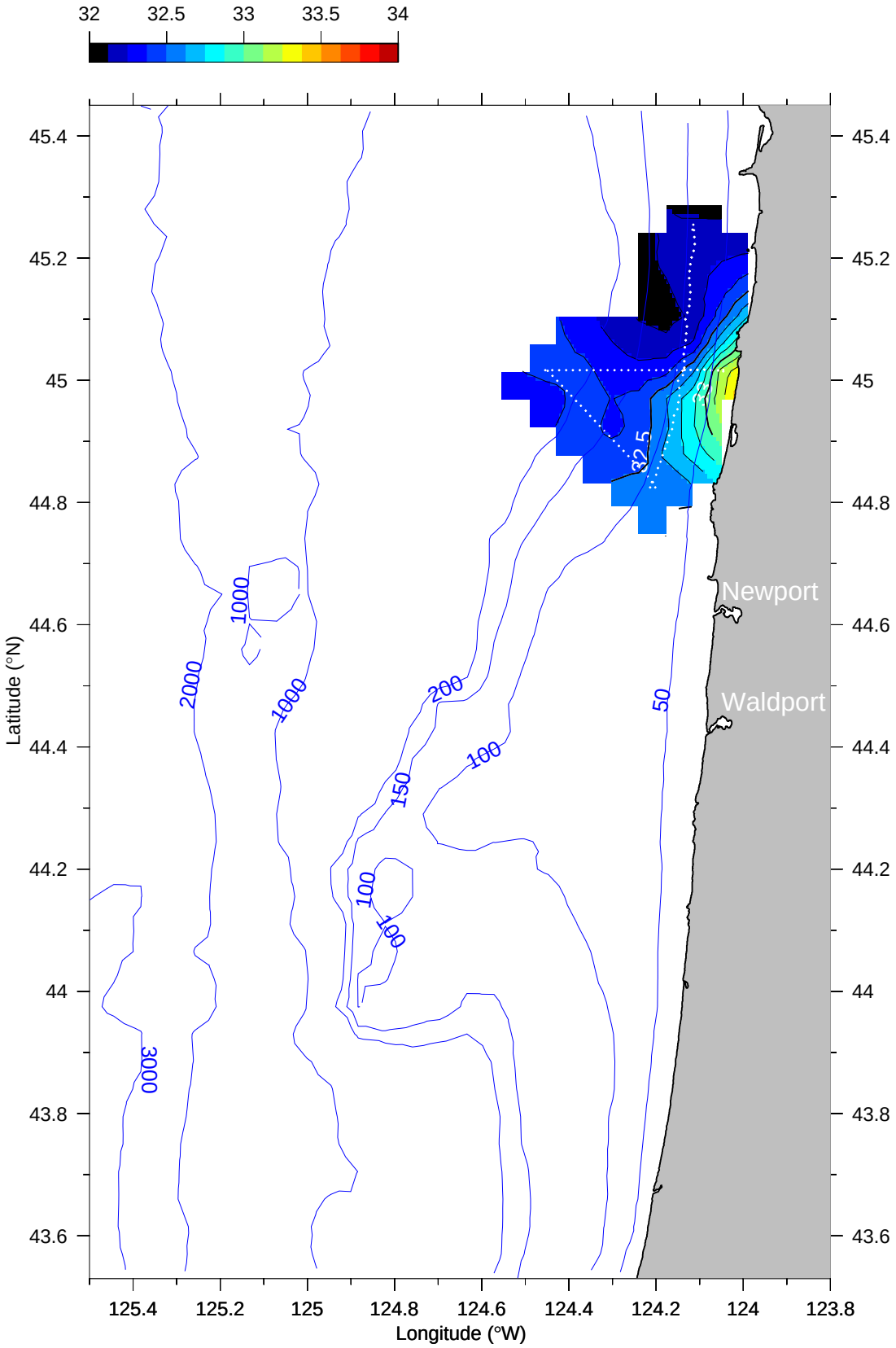
Salinity (PSS) at 15 dbar



W0105 Butterfly 5

05-Jun-2001 18:58 - 06-Jun-2001 05:35

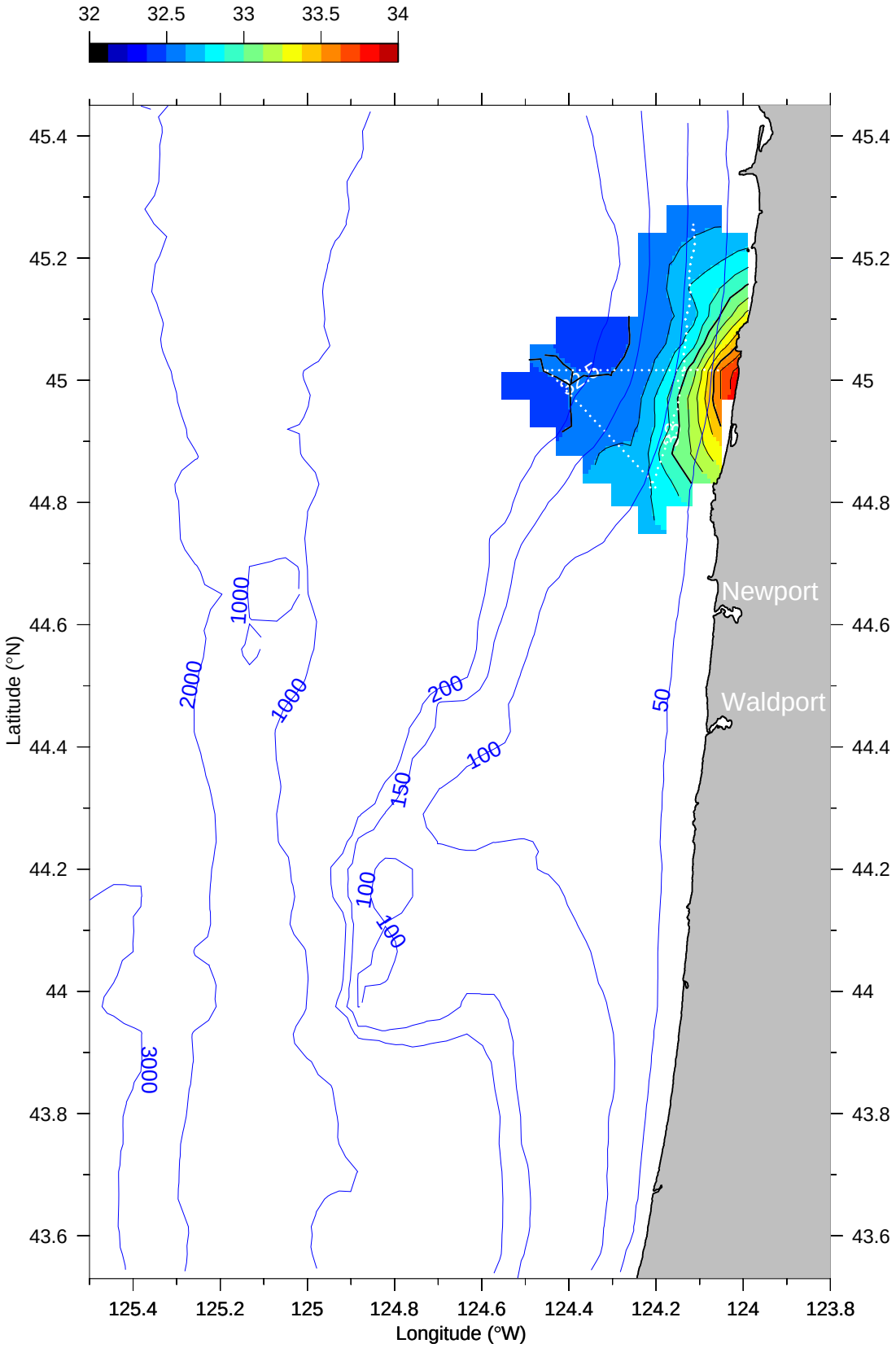
Salinity (PSS) at 25 dbar



W0105 Butterfly 5

05-Jun-2001 18:58 - 06-Jun-2001 05:35

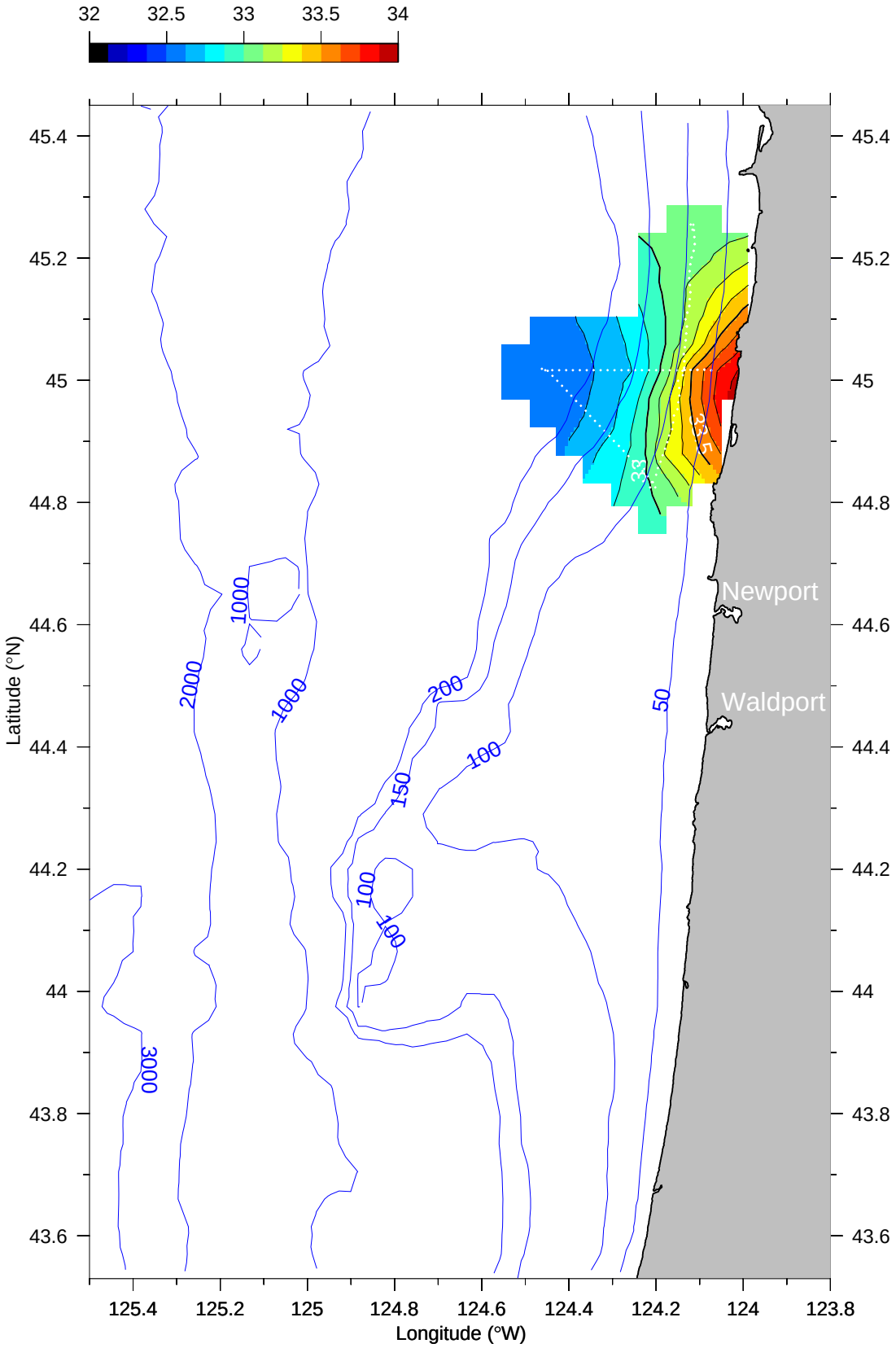
Salinity (PSS) at 35 dbar



W0105 Butterfly 5

05-Jun-2001 18:58 - 06-Jun-2001 05:35

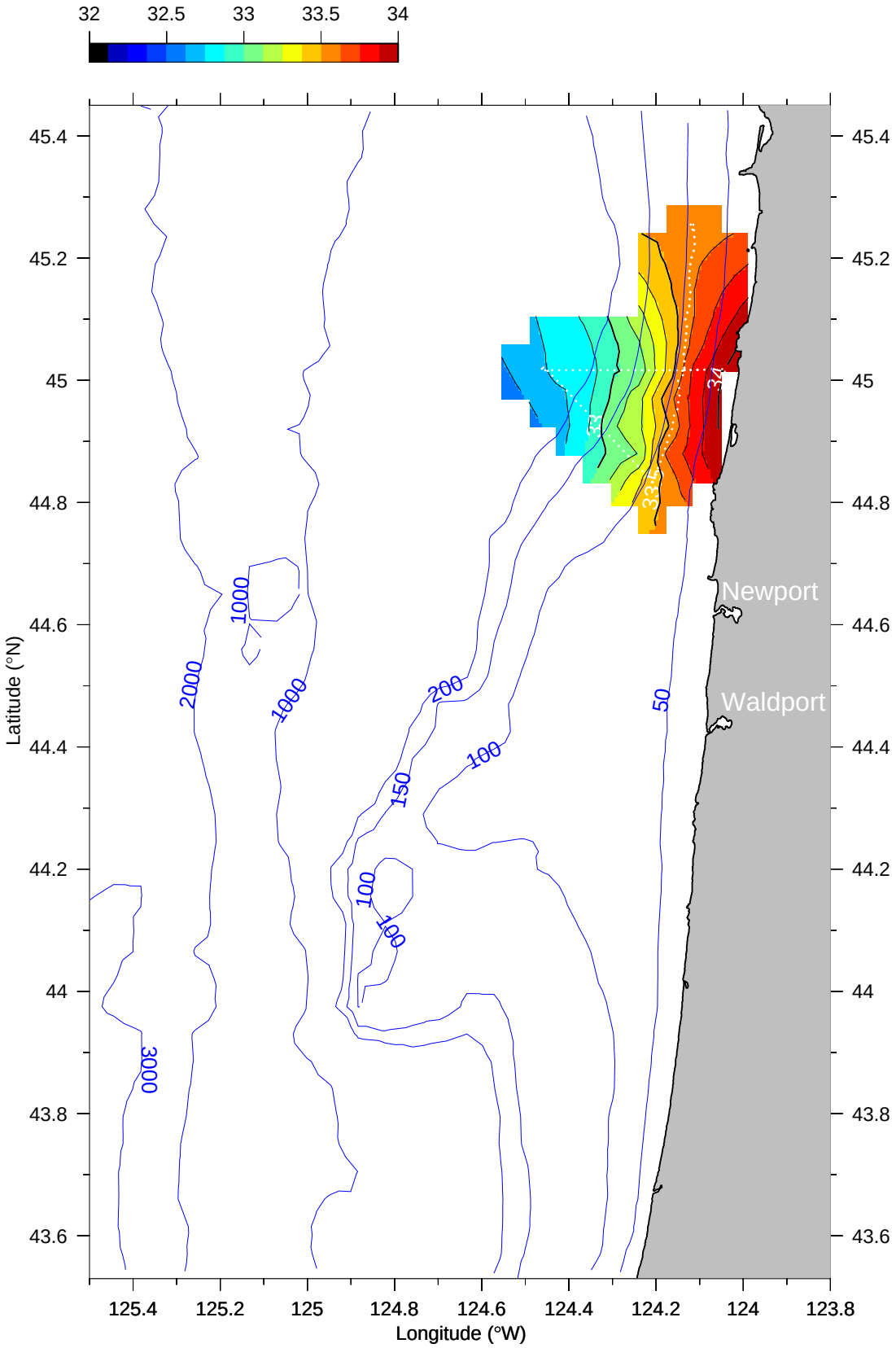
Salinity (PSS) at 45 dbar



W0105 Butterfly 5

05-Jun-2001 18:58 - 06-Jun-2001 05:35

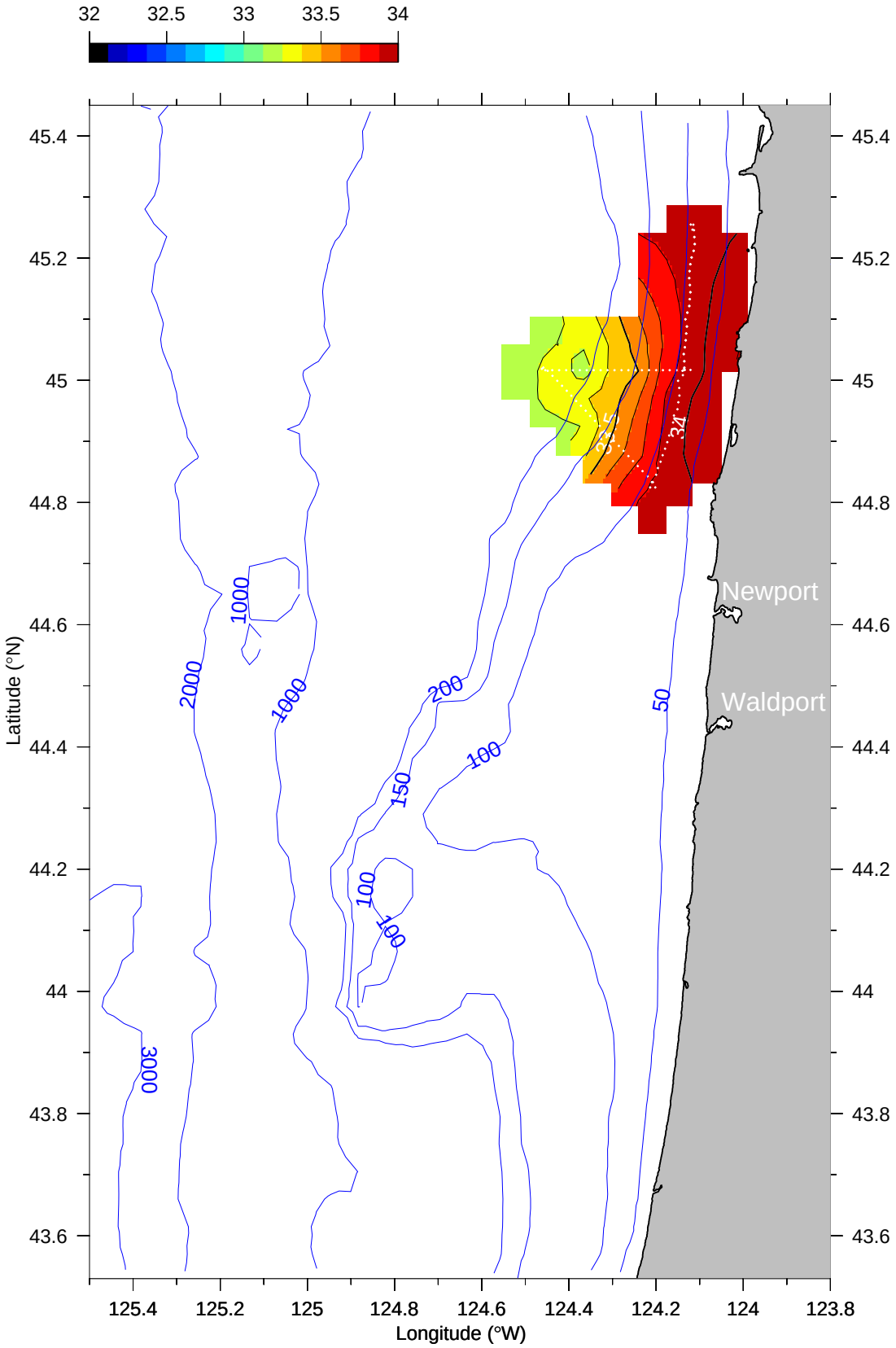
Salinity (PSS) at 55 dbar



W0105 Butterfly 5

05-Jun-2001 18:58 - 06-Jun-2001 05:35

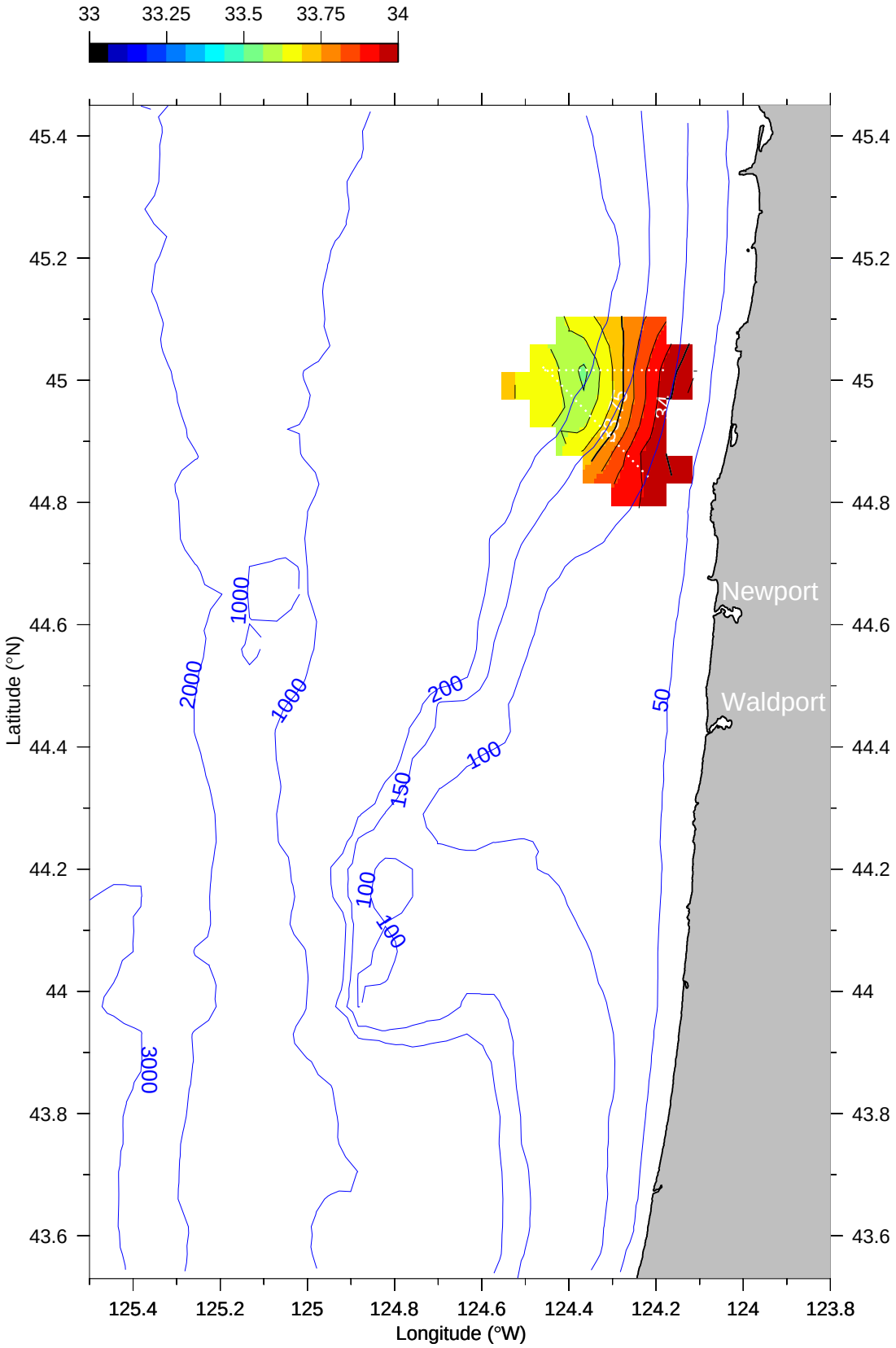
Salinity (PSS) at 75 dbar

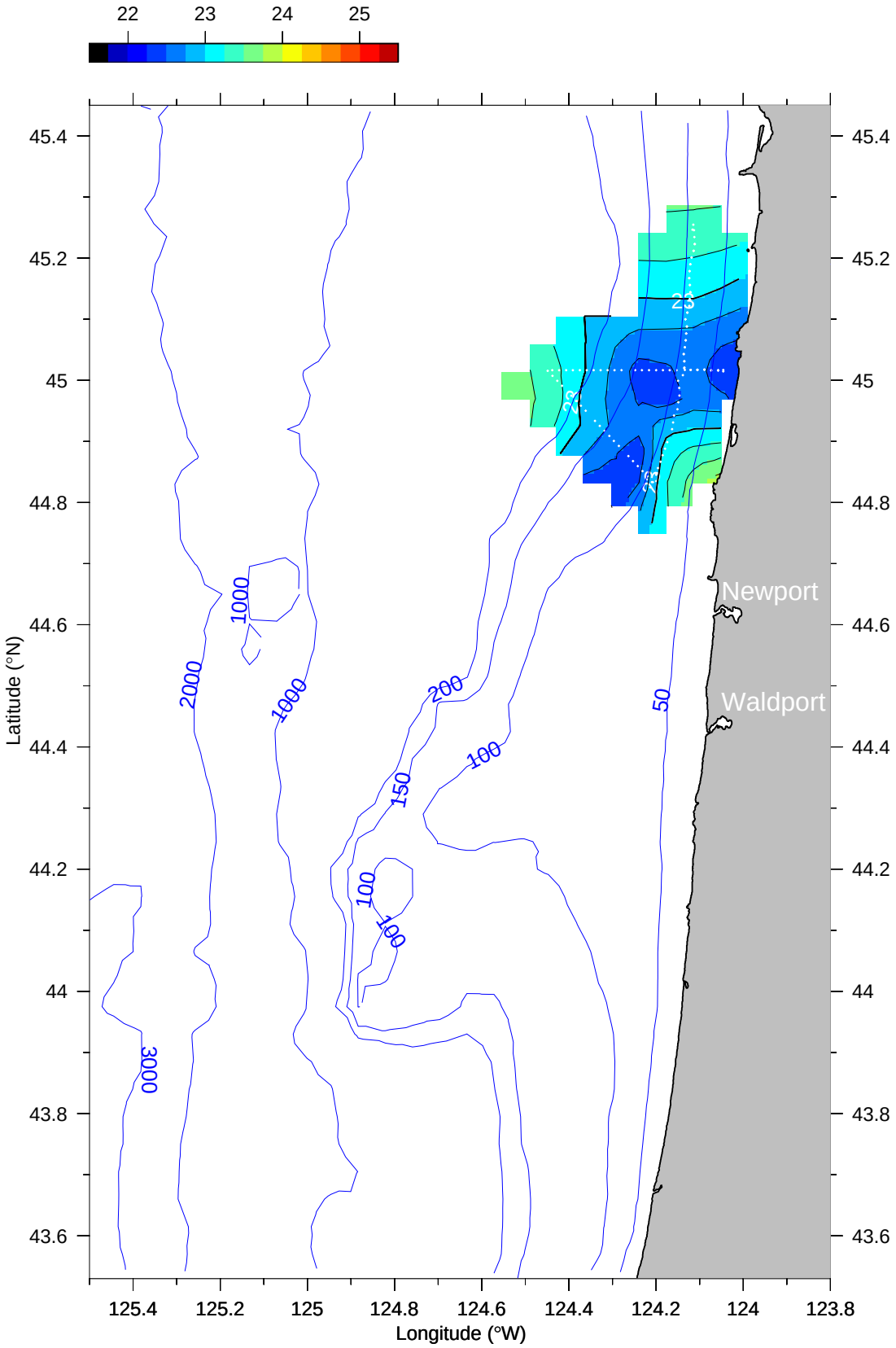


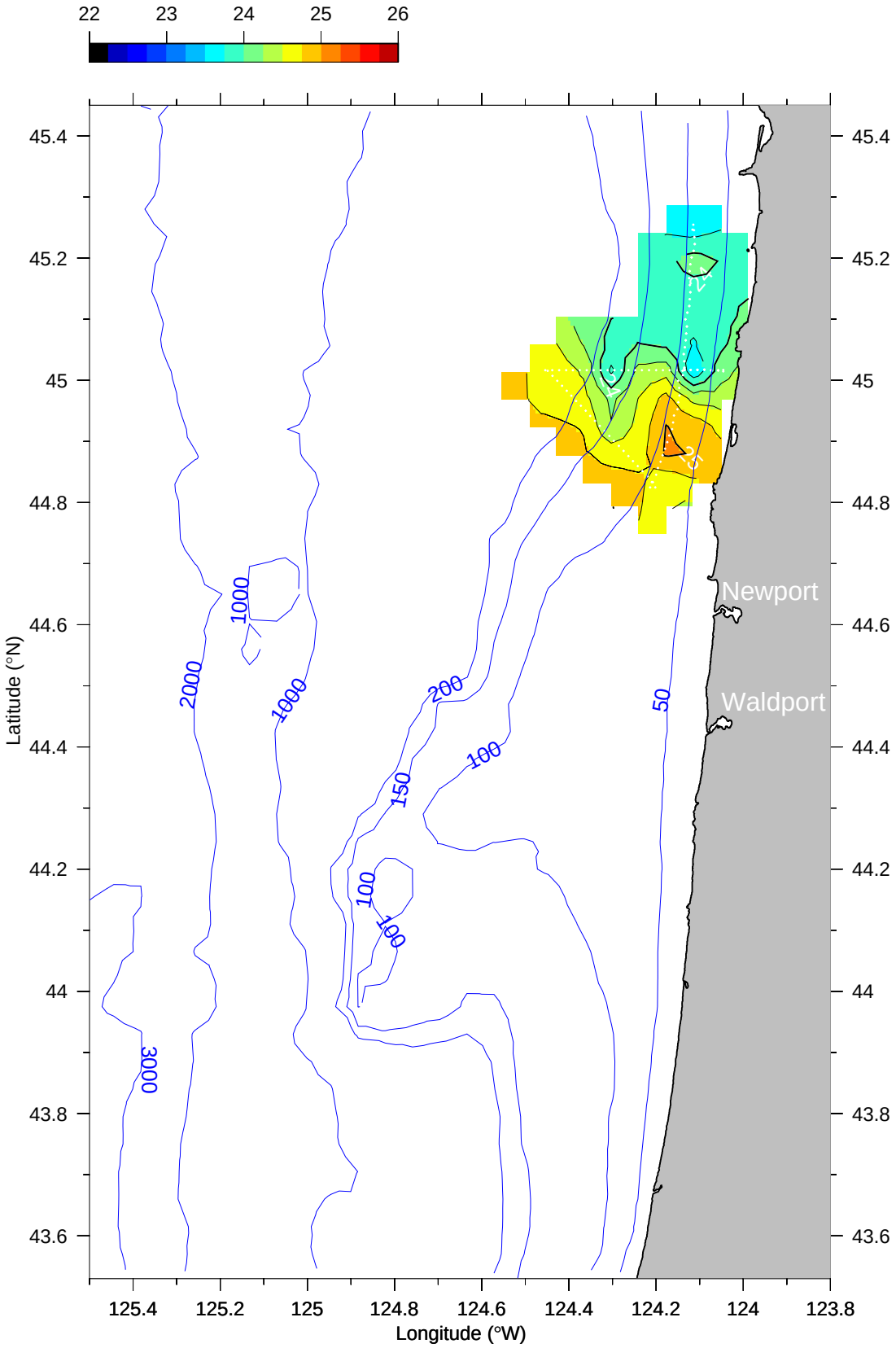
W0105 Butterfly 5

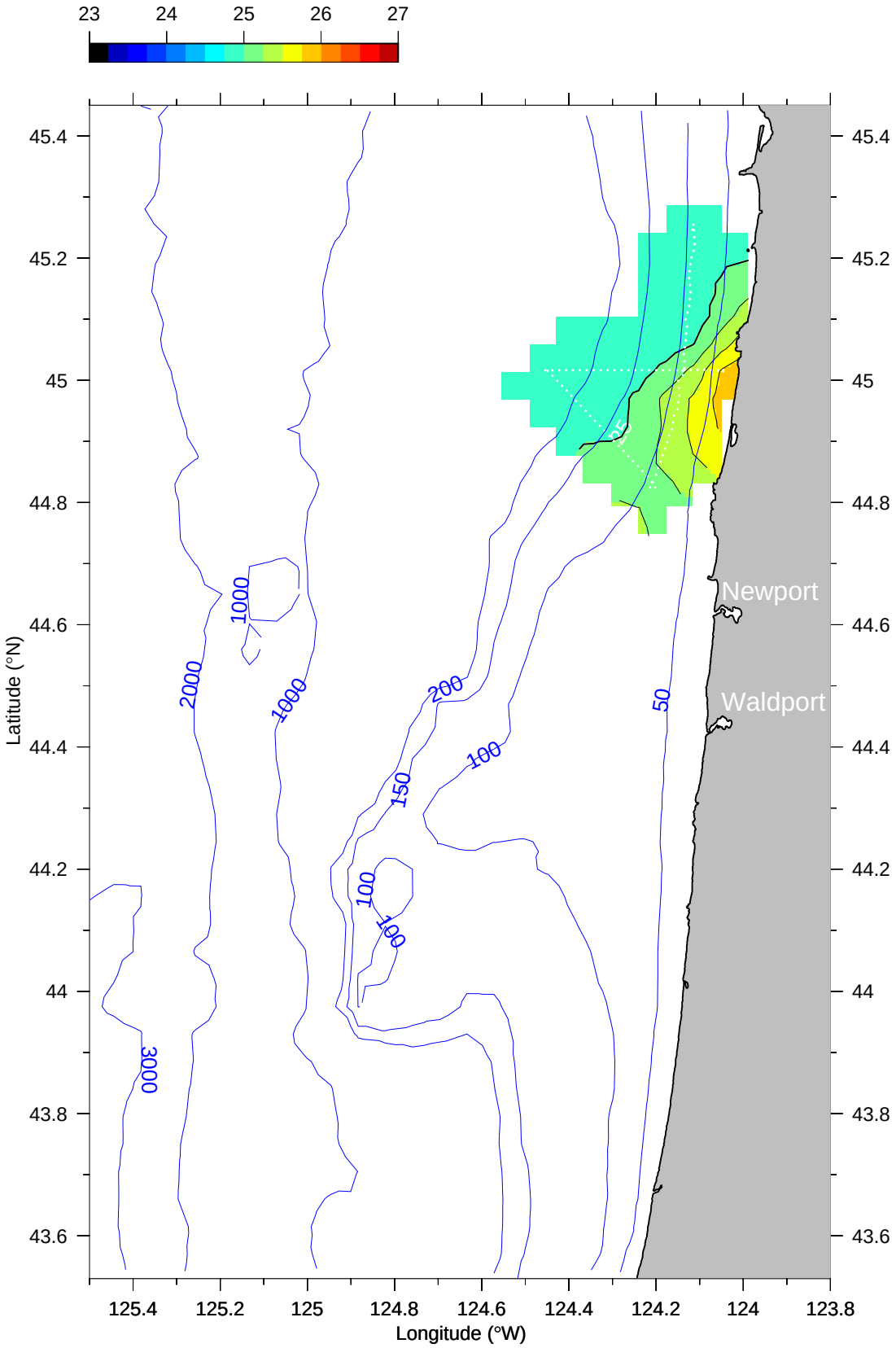
05-Jun-2001 18:58 - 06-Jun-2001 05:35

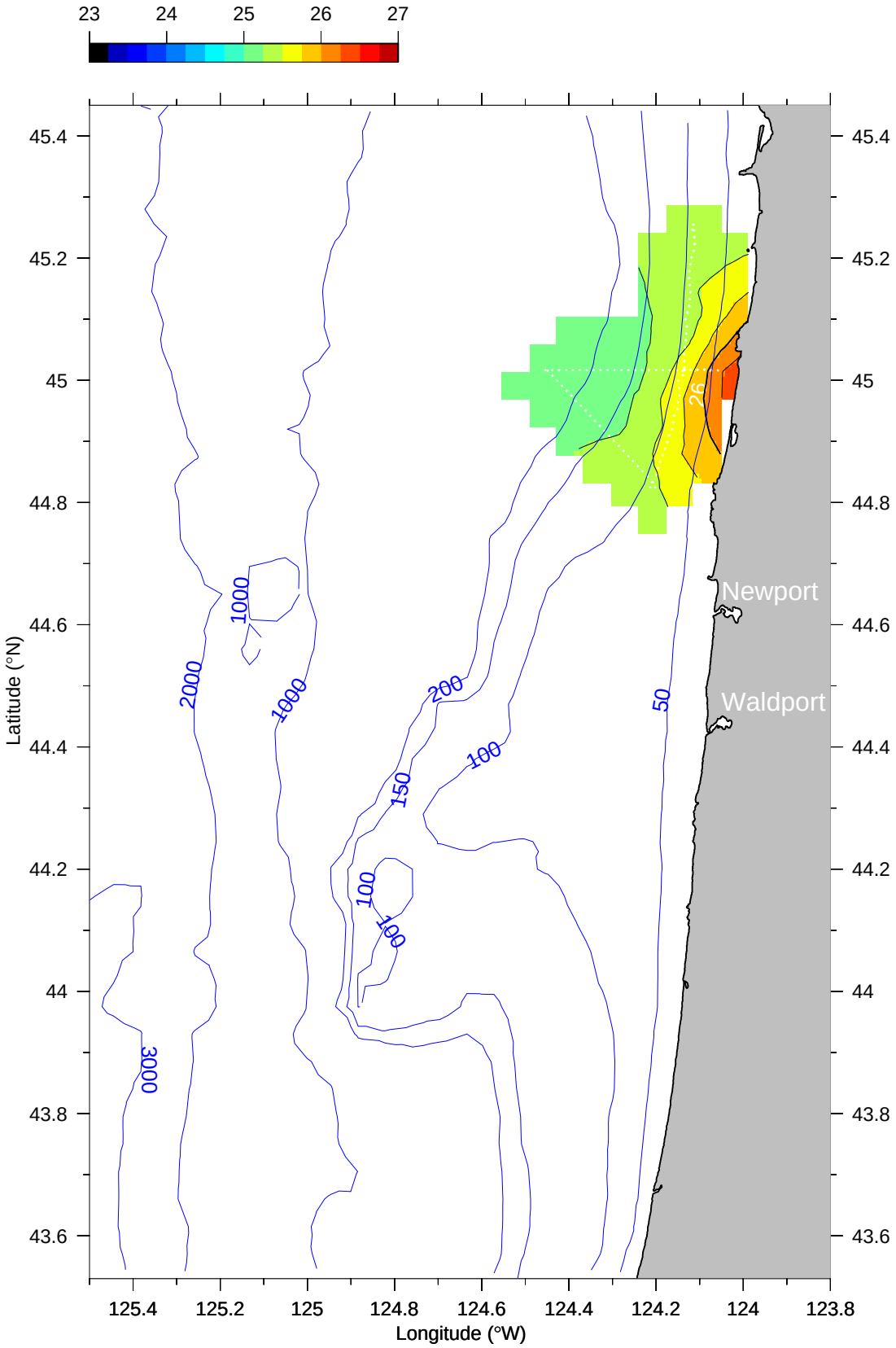
Salinity (PSS) at 95 dbar

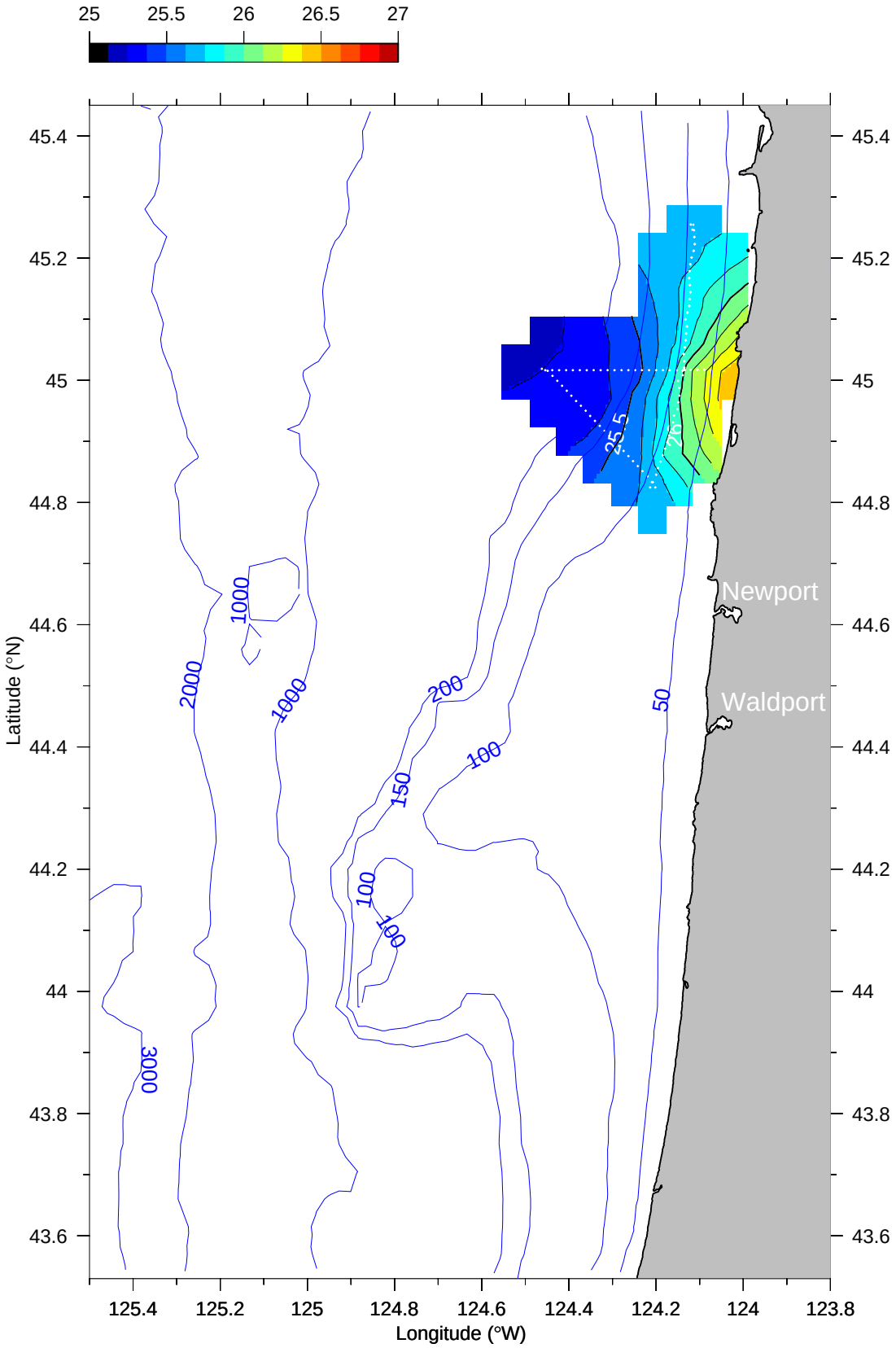


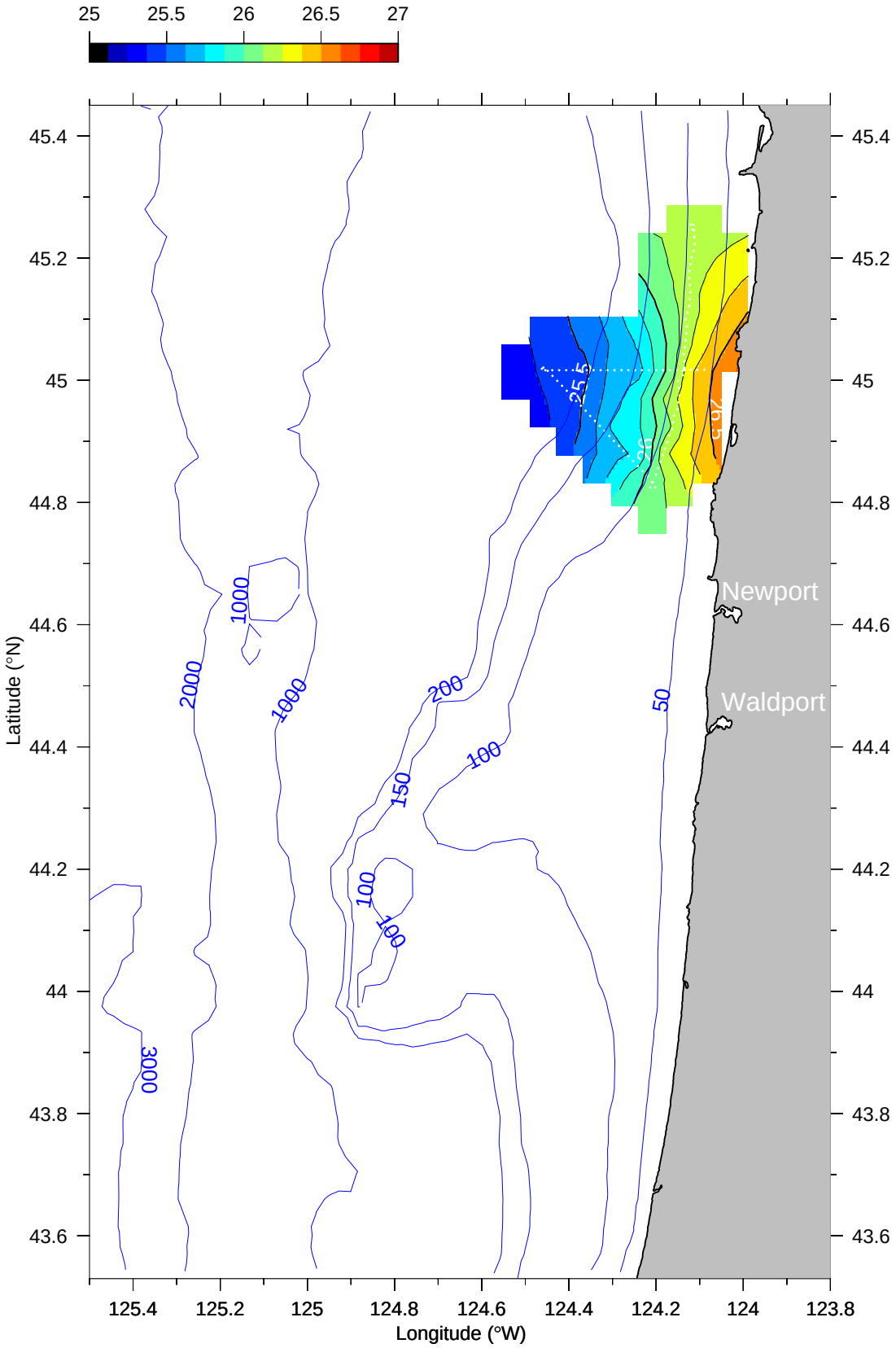

W0105 Butterfly 5
05-Jun-2001 18:58 - 06-Jun-2001 05:35
σt (kg m−3) at 5 dbar
22
23
24
25
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50

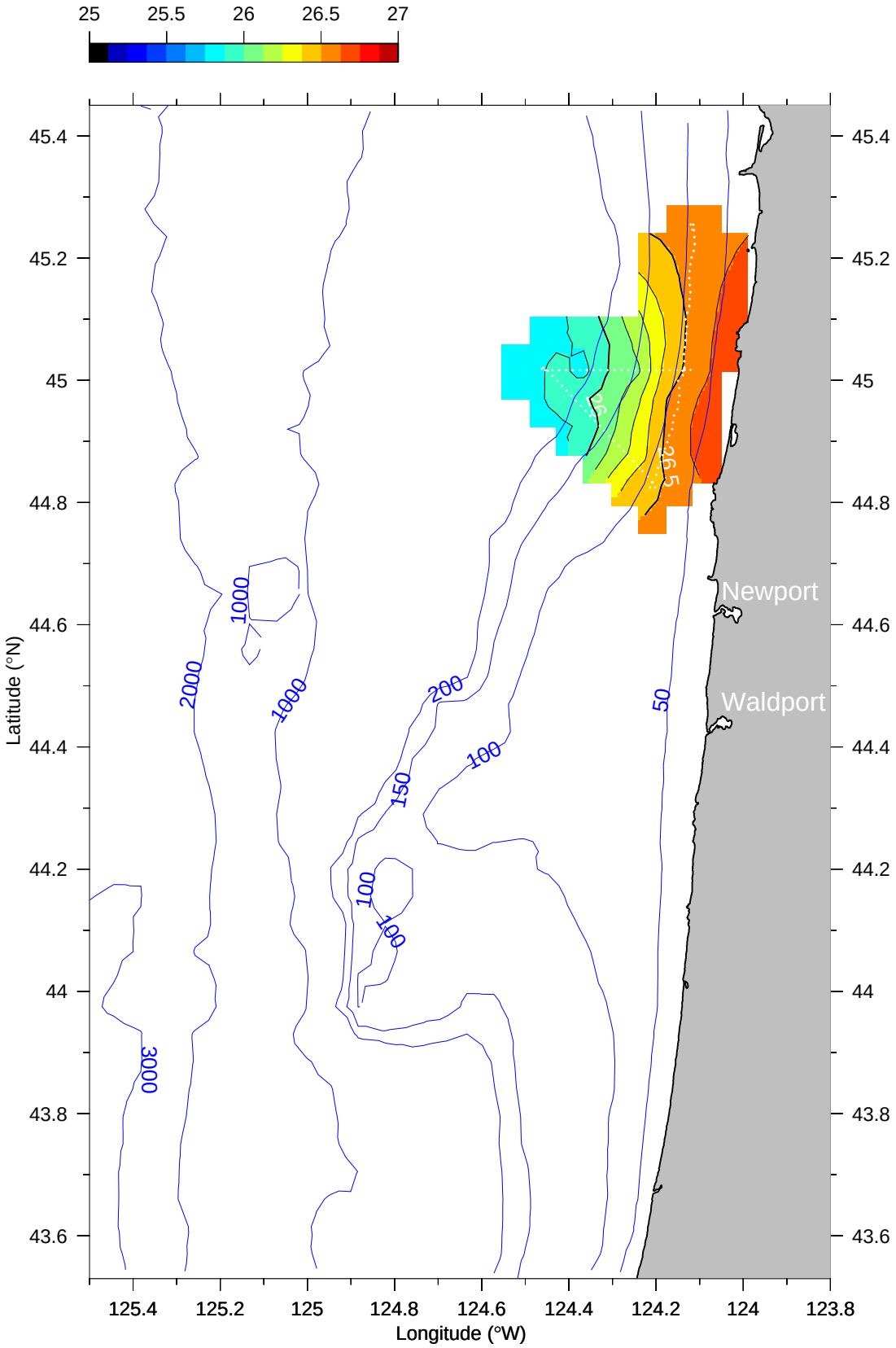

W0105 Butterfly 5
05-Jun-2001 18:58 - 06-Jun-2001 05:35
σt (kg m−3) at 15 dbar
22
23
24
25
26
Newport
Waldport
1000
2000
1000
200
100
150
100
100
50
3000
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8

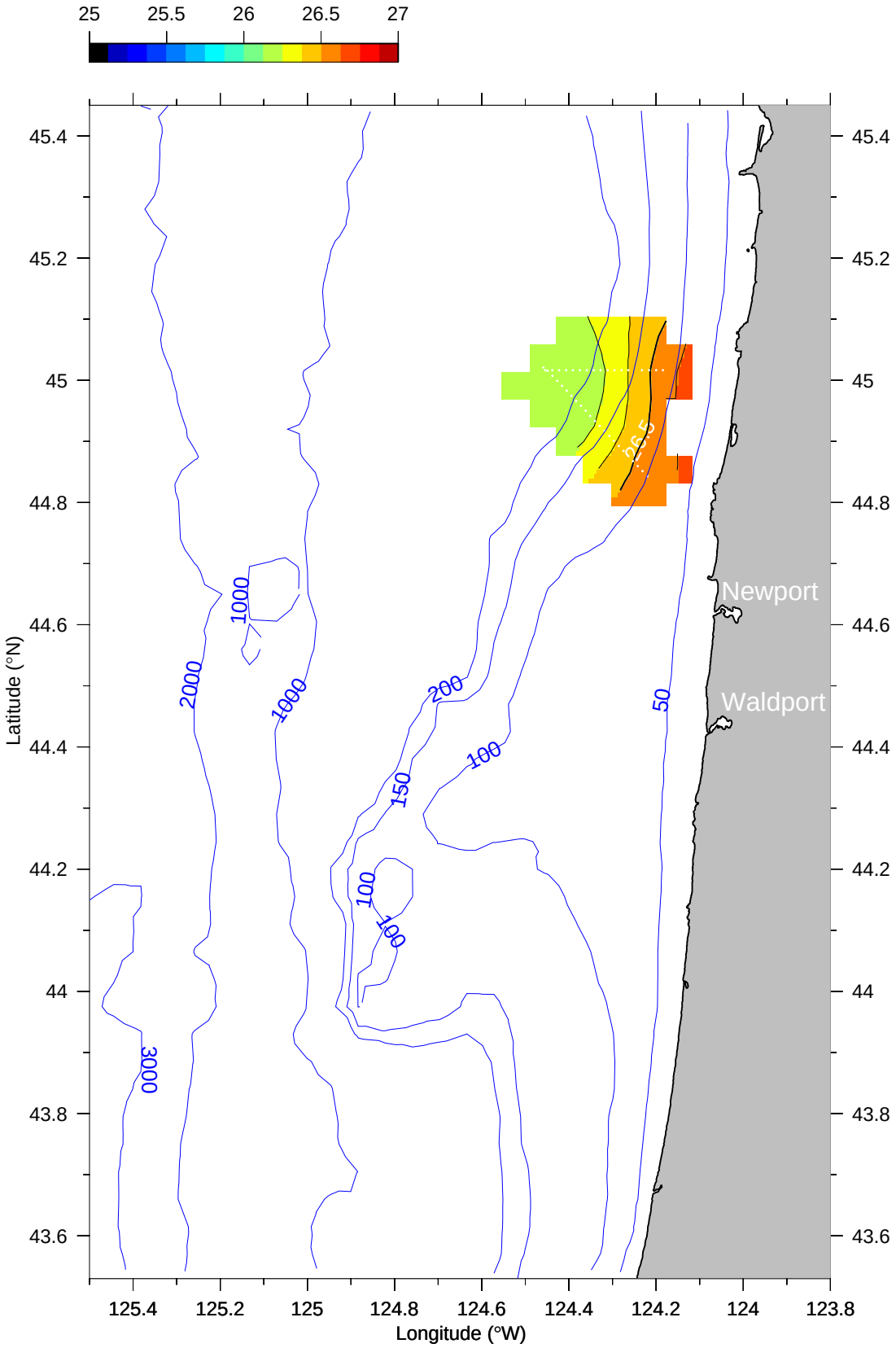

W0105 Butterfly 5
05-Jun-2001 18:58 - 06-Jun-2001 05:35
σt (kg m−3) at 25 dbar
23
24
25
26
27
Newport
Waldport
3000
2000
1000
1000
200
100
150
100
100
50
15
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8

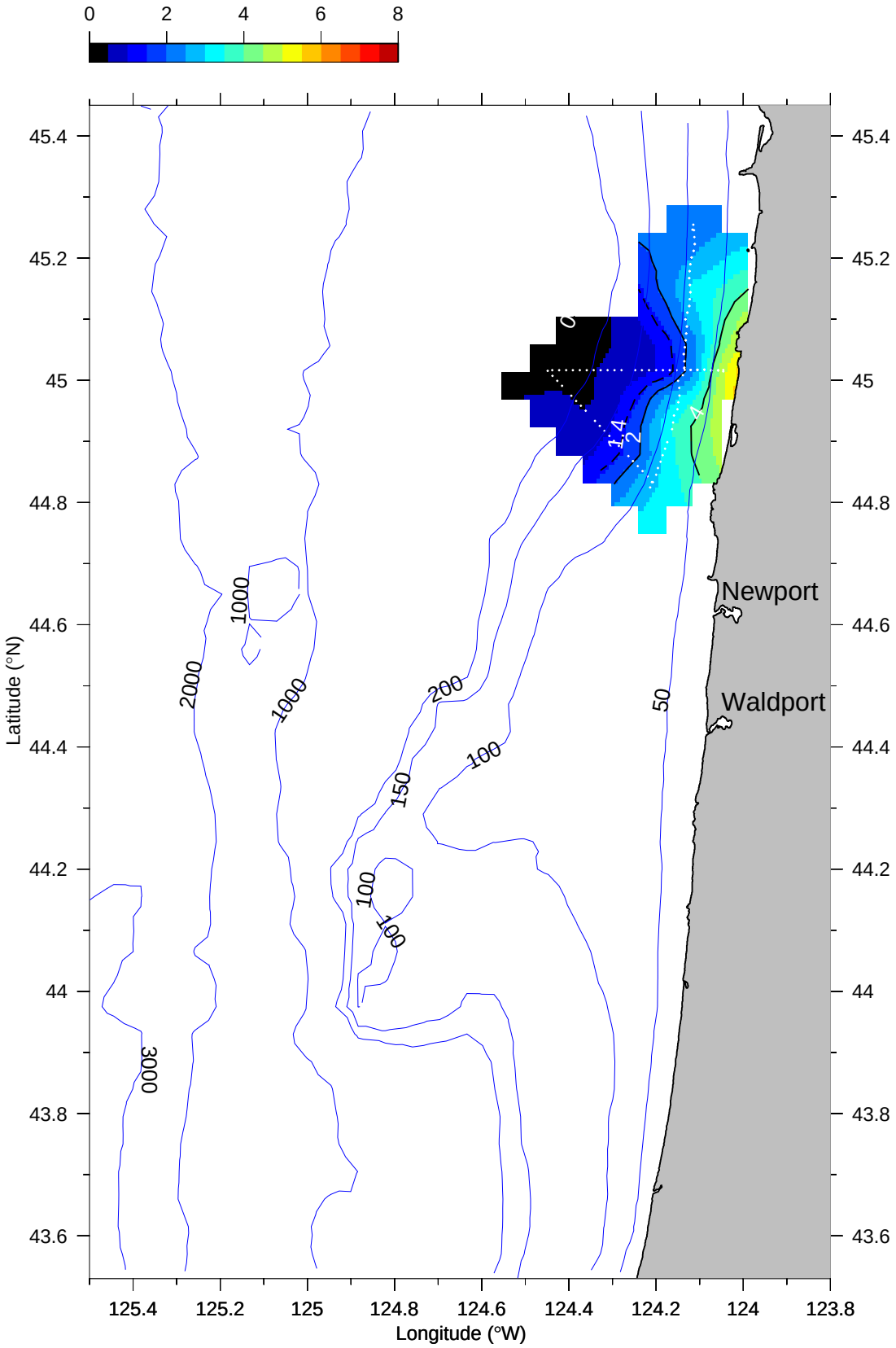

W0105 Butterfly 5
05-Jun-2001 18:58 - 06-Jun-2001 05:35
σt (kg m−3) at 35 dbar
23
24
25
26
27
Newport
Waldport
2000
1000
1000
200
100
150
100
100
50
3000
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8


W0105 Butterfly 5
05-Jun-2001 18:58 - 06-Jun-2001 05:35
σt (kg m−3) at 45 dbar
25
25.5
26
26.5
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
25.5
26
1000
2000
1000
200
100
150
100
100
50
3000


W0105 Butterfly 5
05-Jun-2001 18:58 - 06-Jun-2001 05:35
σt (kg m−3) at 55 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Butterfly 5
05-Jun-2001 18:58 - 06-Jun-2001 05:35
σt (kg m−3) at 75 dbar
25
25.5
26
26.5
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50
25
25.5


W0105 Butterfly 5
05-Jun-2001 18:58 - 06-Jun-2001 05:35
σt (kg m−3) at 95 dbar
25
25.5
26
26.5
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
26.5
1000
2000
1000
200
100
150
100
100
50
3000


W0105 Butterfly 5
05-Jun-2001 18:58 - 06-Jun-2001 05:35
Chlorophyll (µg L−1) at 5 dbar
0
2
4
6
8
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
1000
2000
1000
200
100
150
100
100
50
3000
1.4
2
4

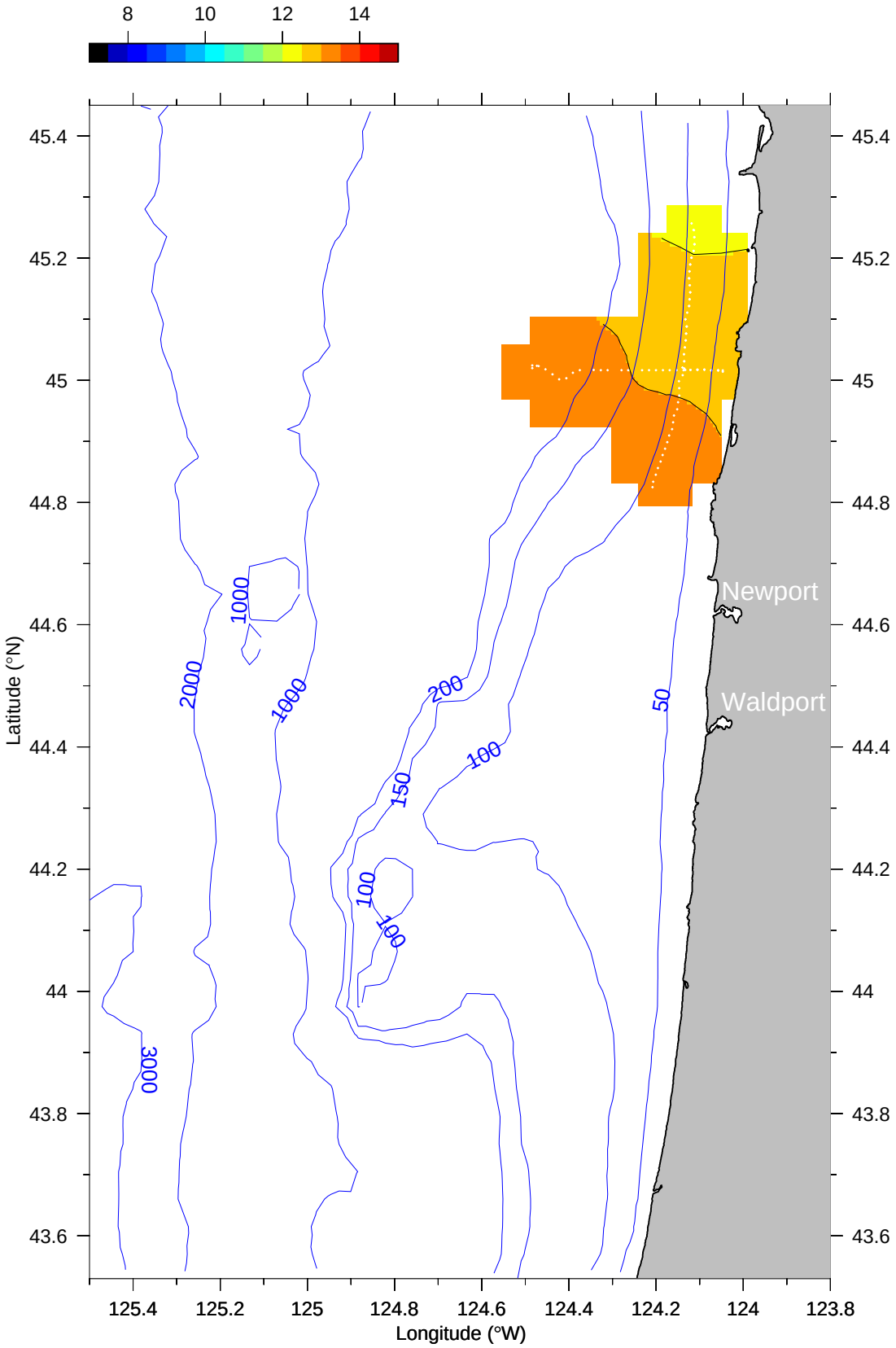
Butterfly 6 Maps

Maps of Temperature, Salinity, σ_t, and Chlorophyll at Specified Depths

W0105 Butterfly 6

06-Jun-2001 05:38 - 06-Jun-2001 14:31

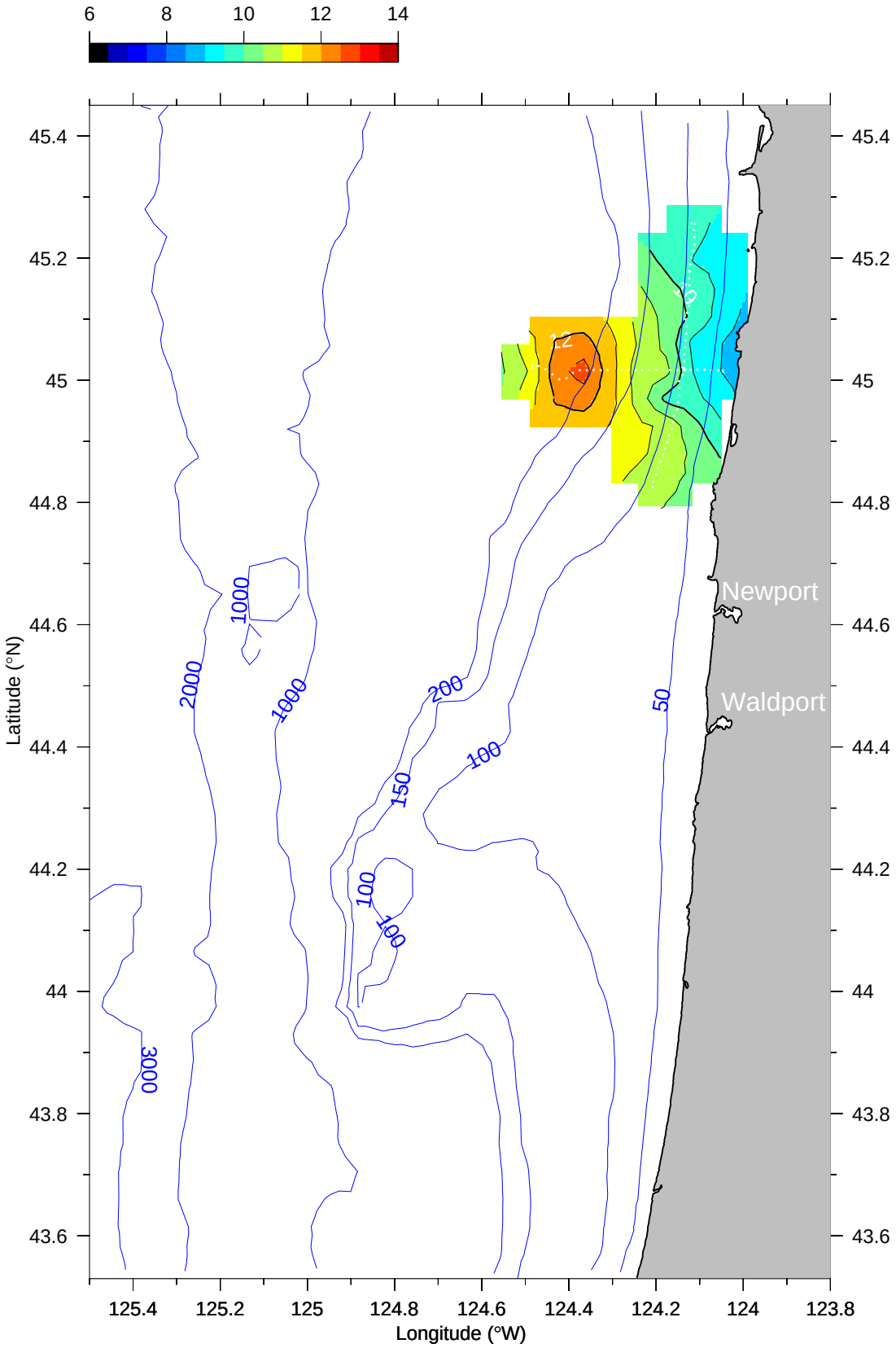
Temperature (°C) at 5 dbar



W0105 Butterfly 6

06-Jun-2001 05:38 - 06-Jun-2001 14:31

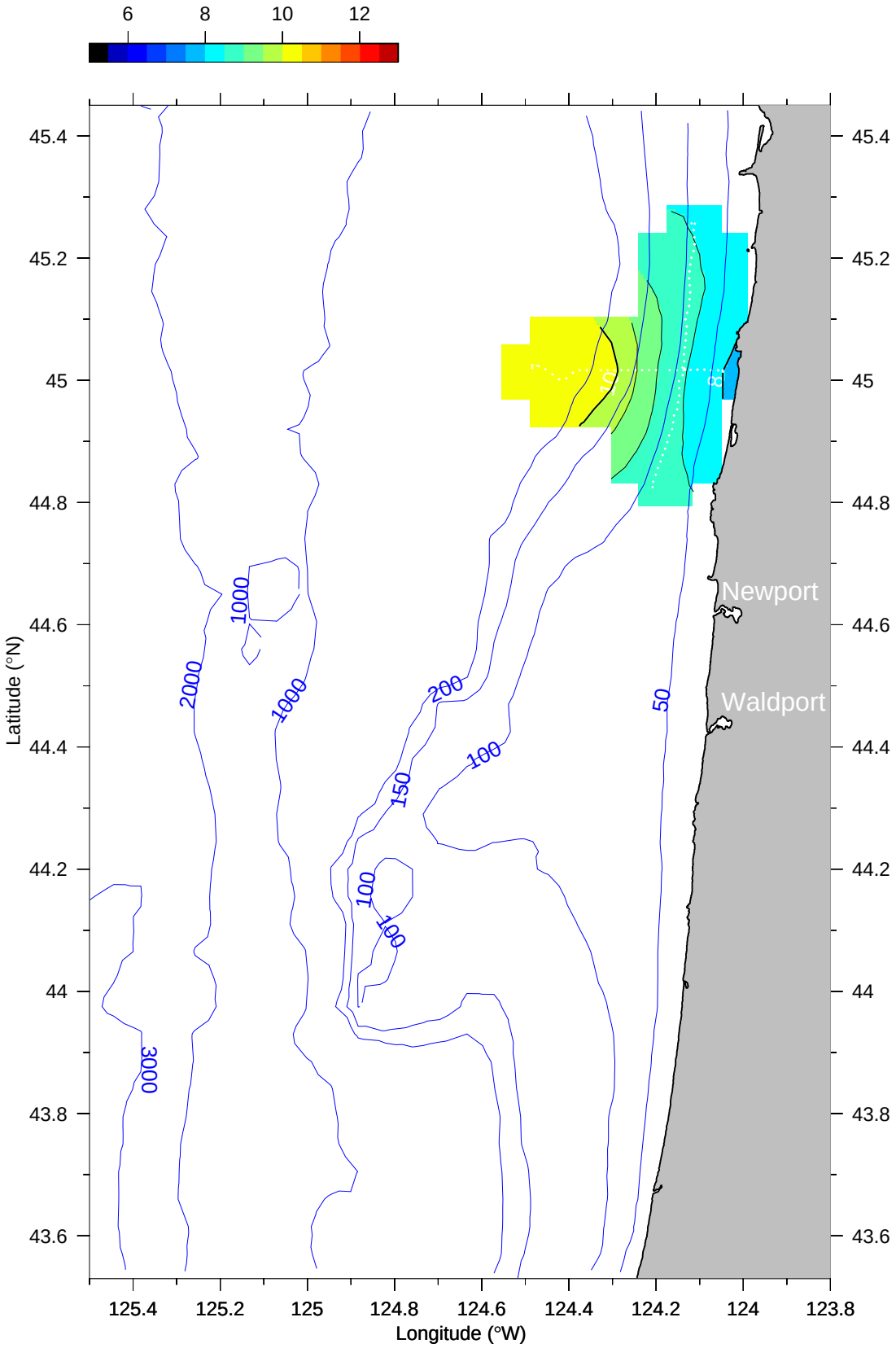
Temperature (°C) at 15 dbar



W0105 Butterfly 6

06-Jun-2001 05:38 - 06-Jun-2001 14:31

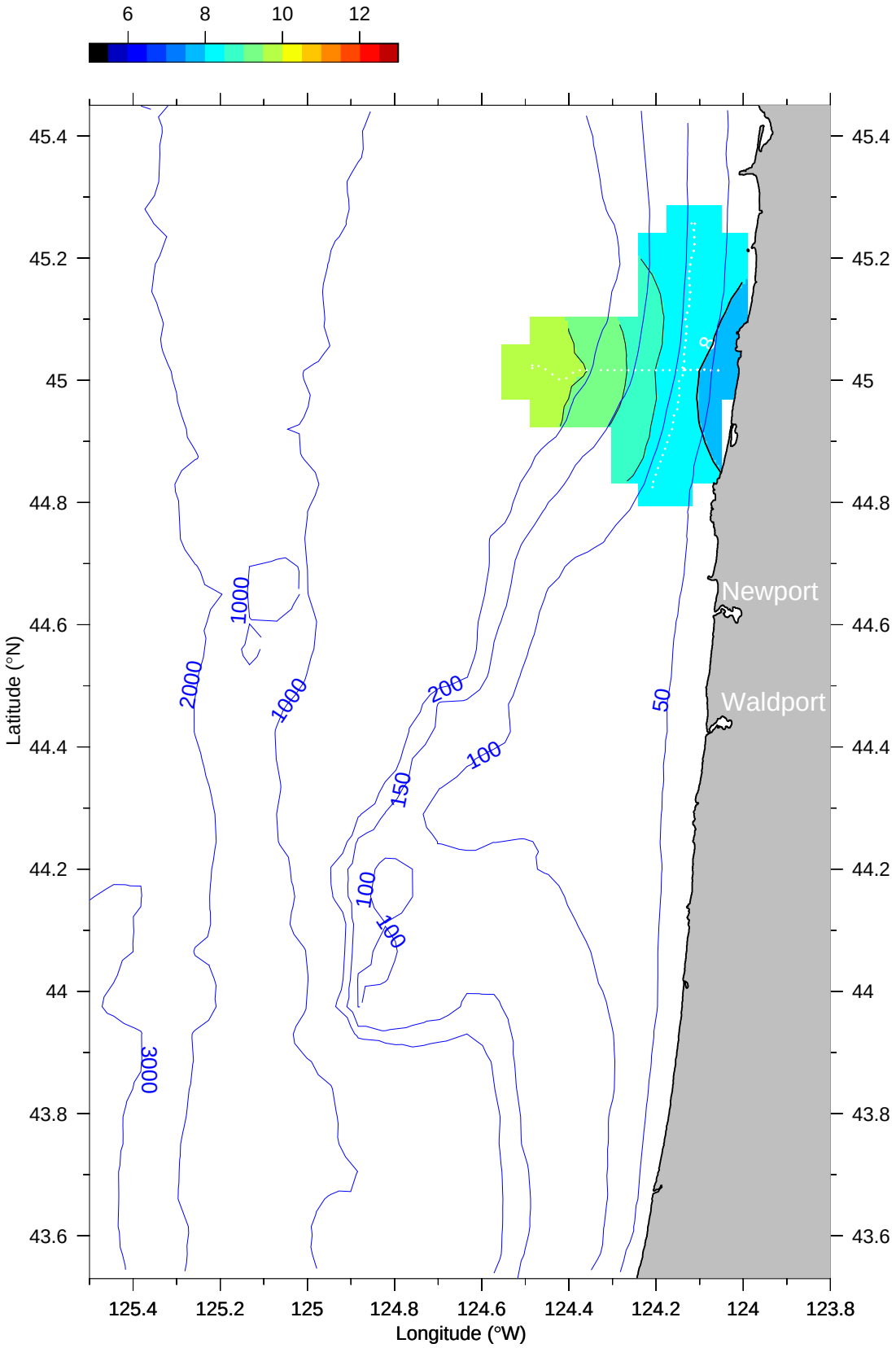
Temperature (°C) at 25 dbar



W0105 Butterfly 6

06-Jun-2001 05:38 - 06-Jun-2001 14:31

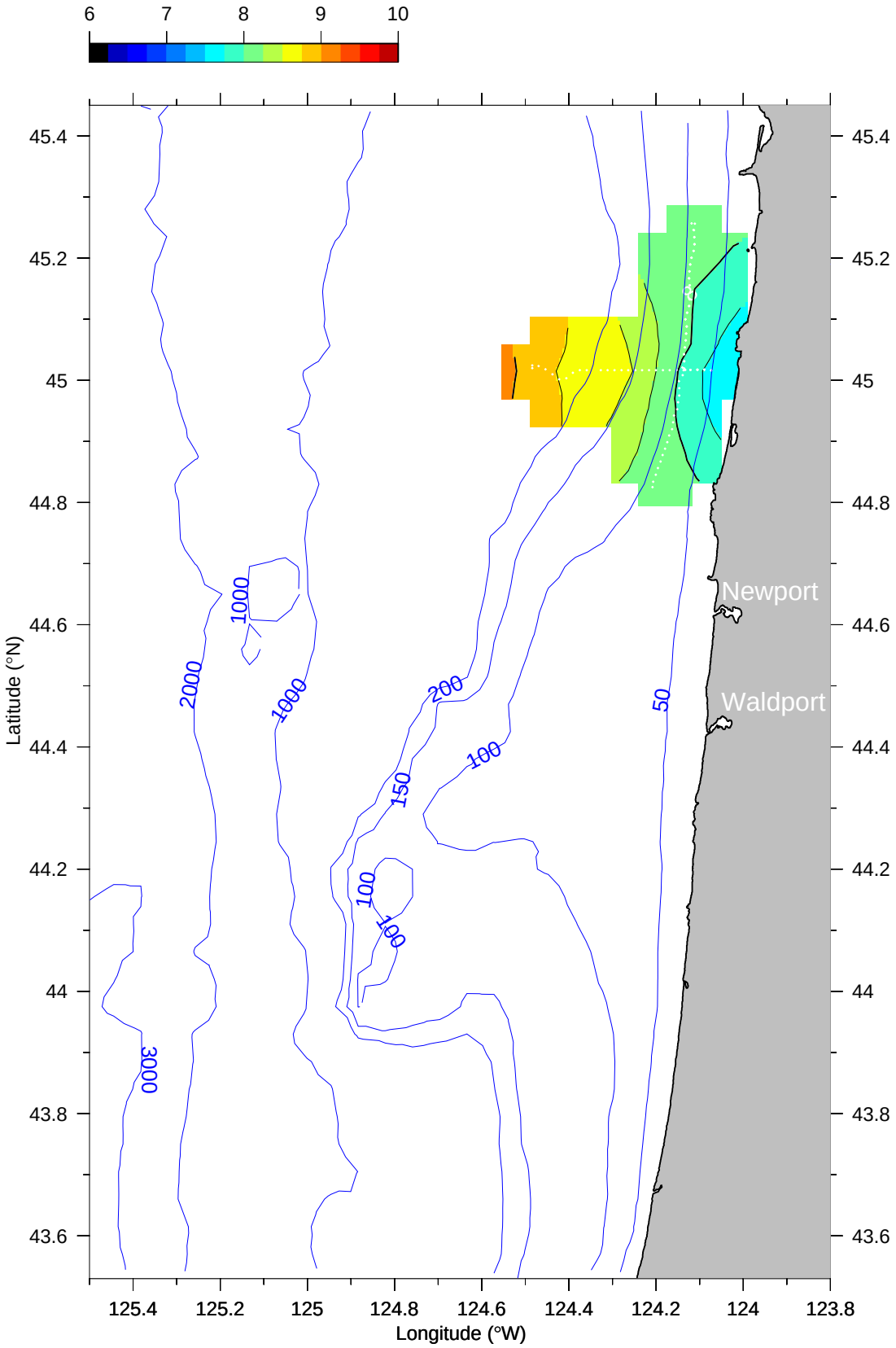
Temperature (°C) at 35 dbar



W0105 Butterfly 6

06-Jun-2001 05:38 - 06-Jun-2001 14:31

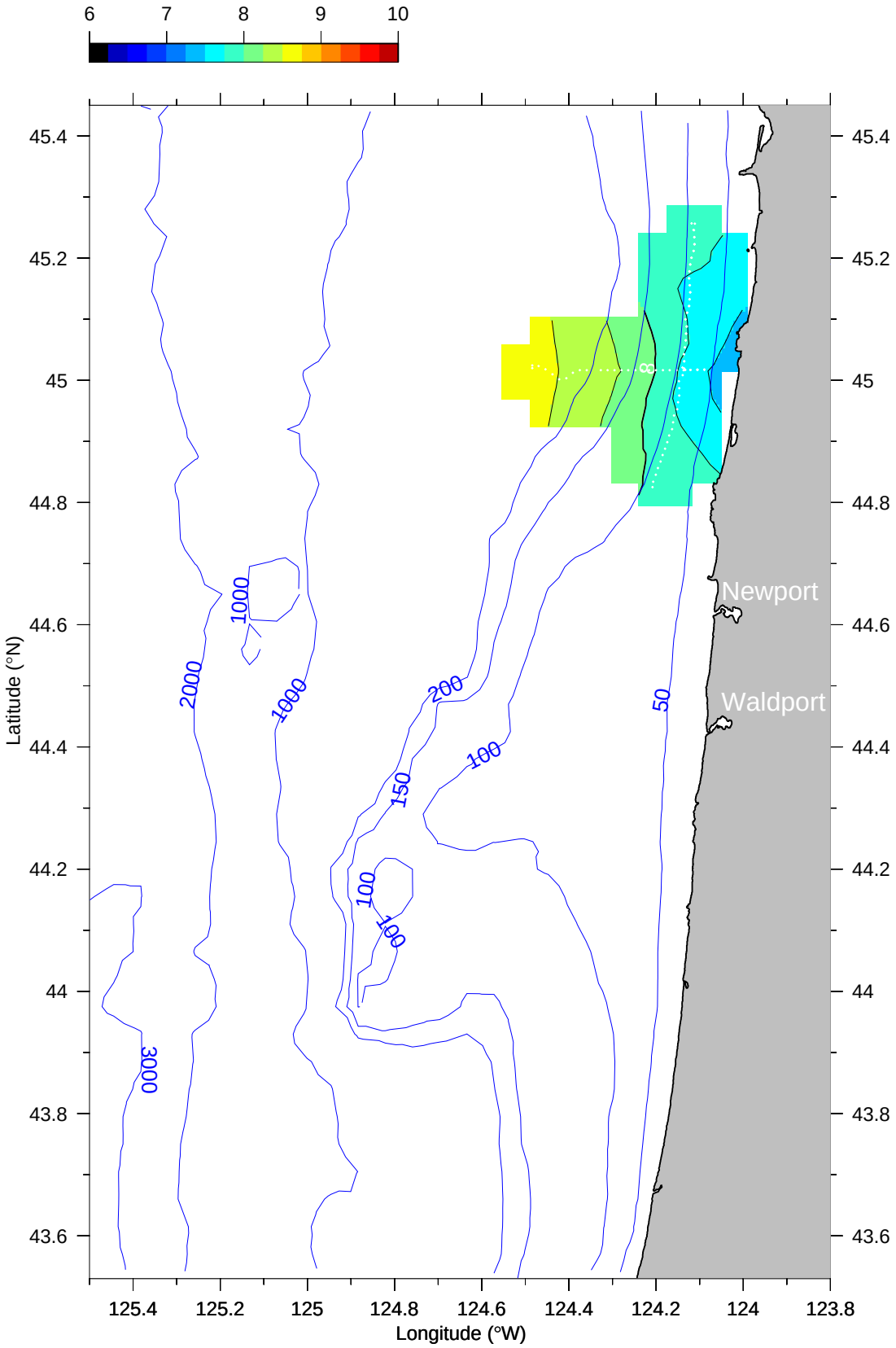
Temperature (°C) at 45 dbar

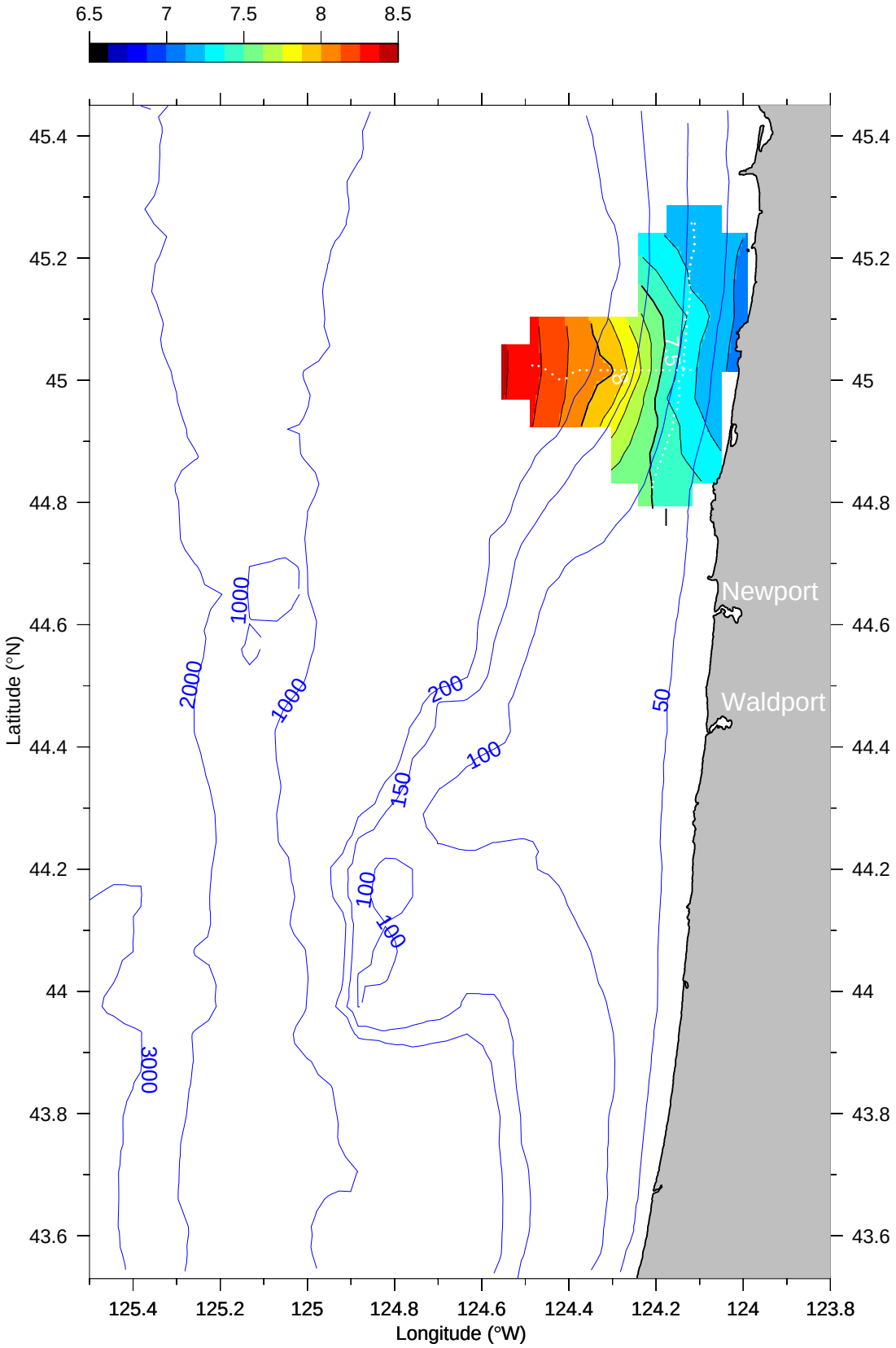


W0105 Butterfly 6

06-Jun-2001 05:38 - 06-Jun-2001 14:31

Temperature (°C) at 55 dbar

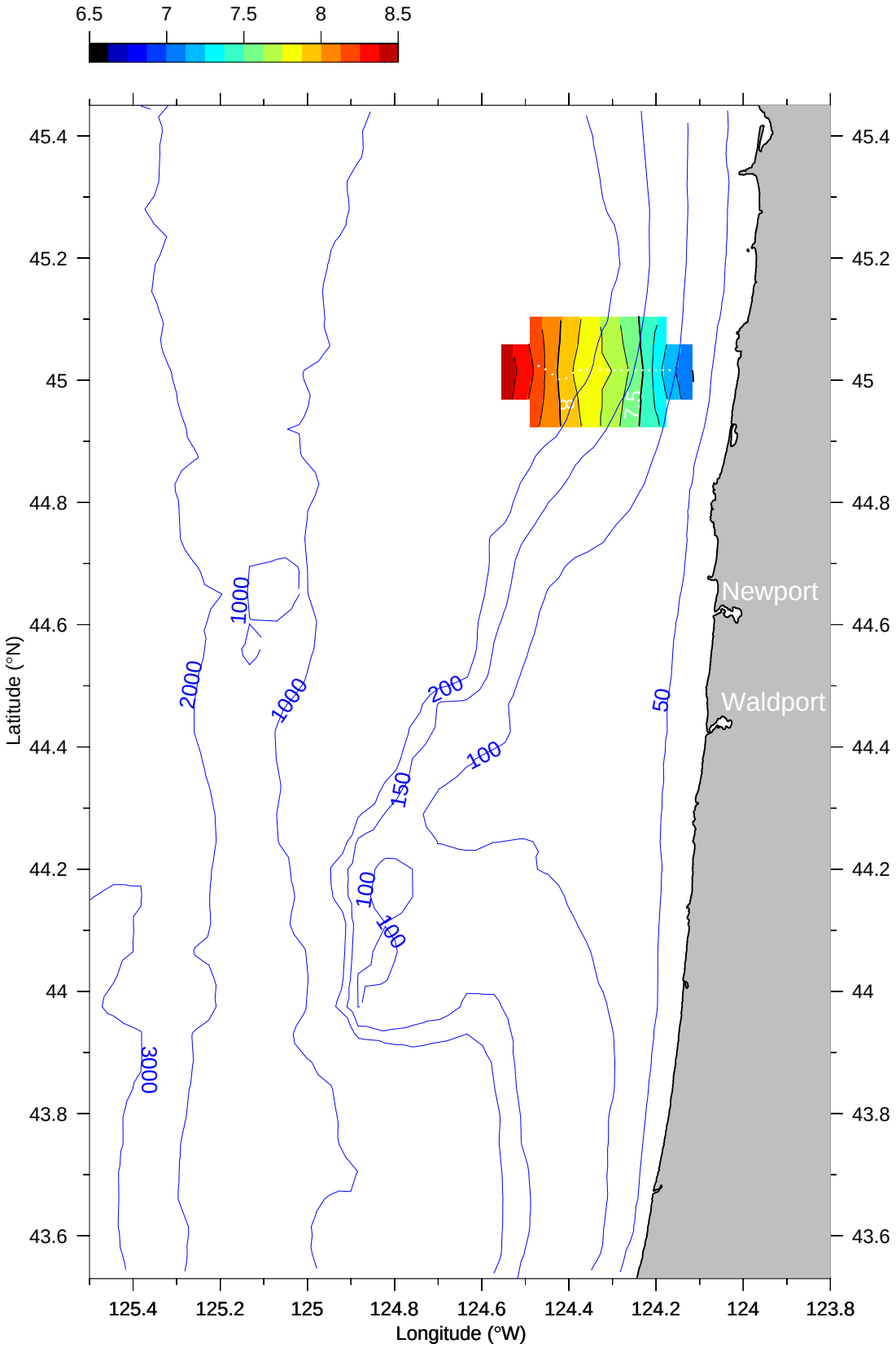



W0105 Butterfly 6
06-Jun-2001 05:38 - 06-Jun-2001 14:31
Temperature (°C) at 75 dbar
6.5
7
7.5
8
8.5
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50

W0105 Butterfly 6

06-Jun-2001 05:38 - 06-Jun-2001 14:31

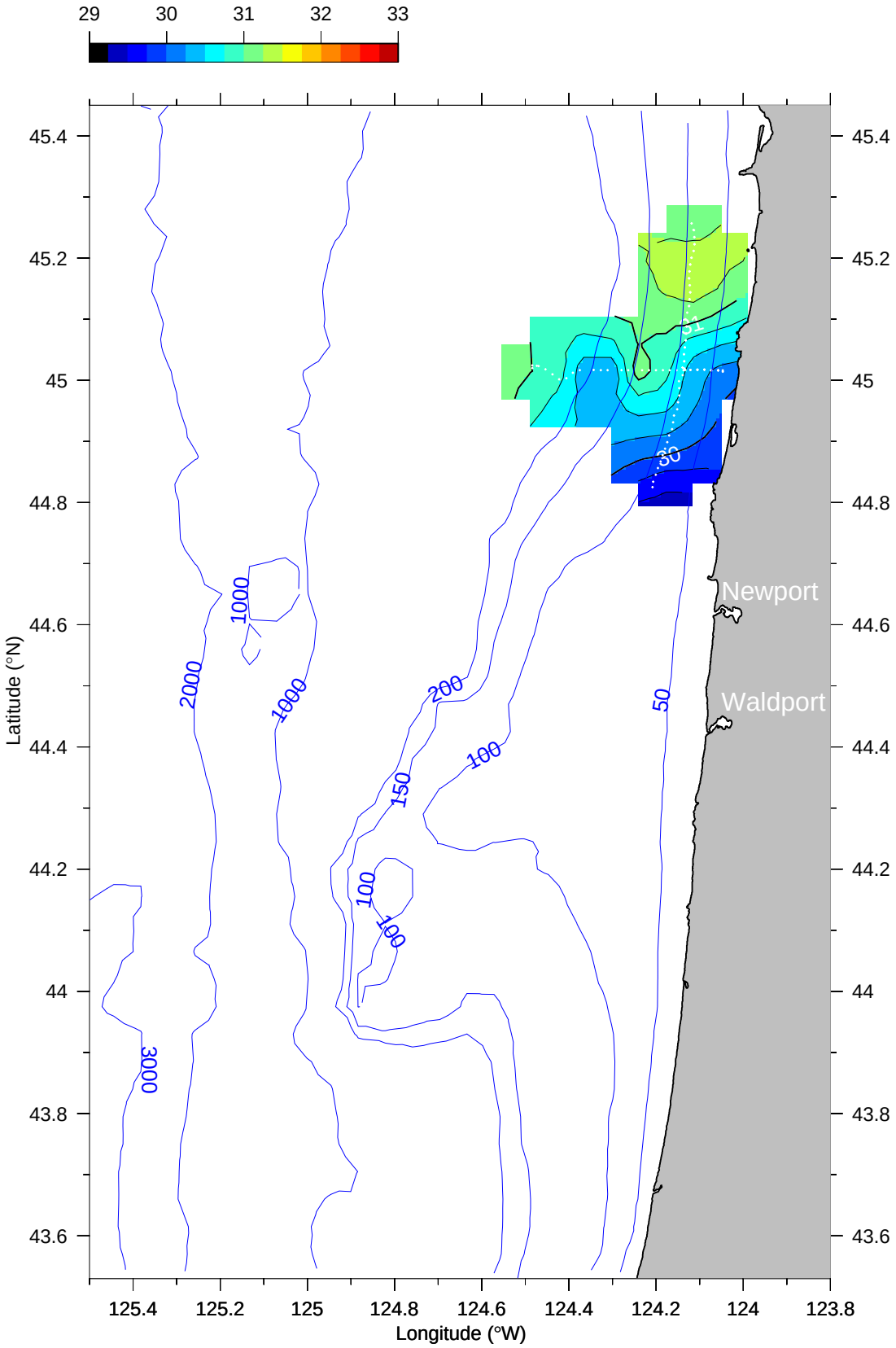
Temperature (°C) at 95 dbar



W0105 Butterfly 6

06-Jun-2001 05:38 - 06-Jun-2001 14:31

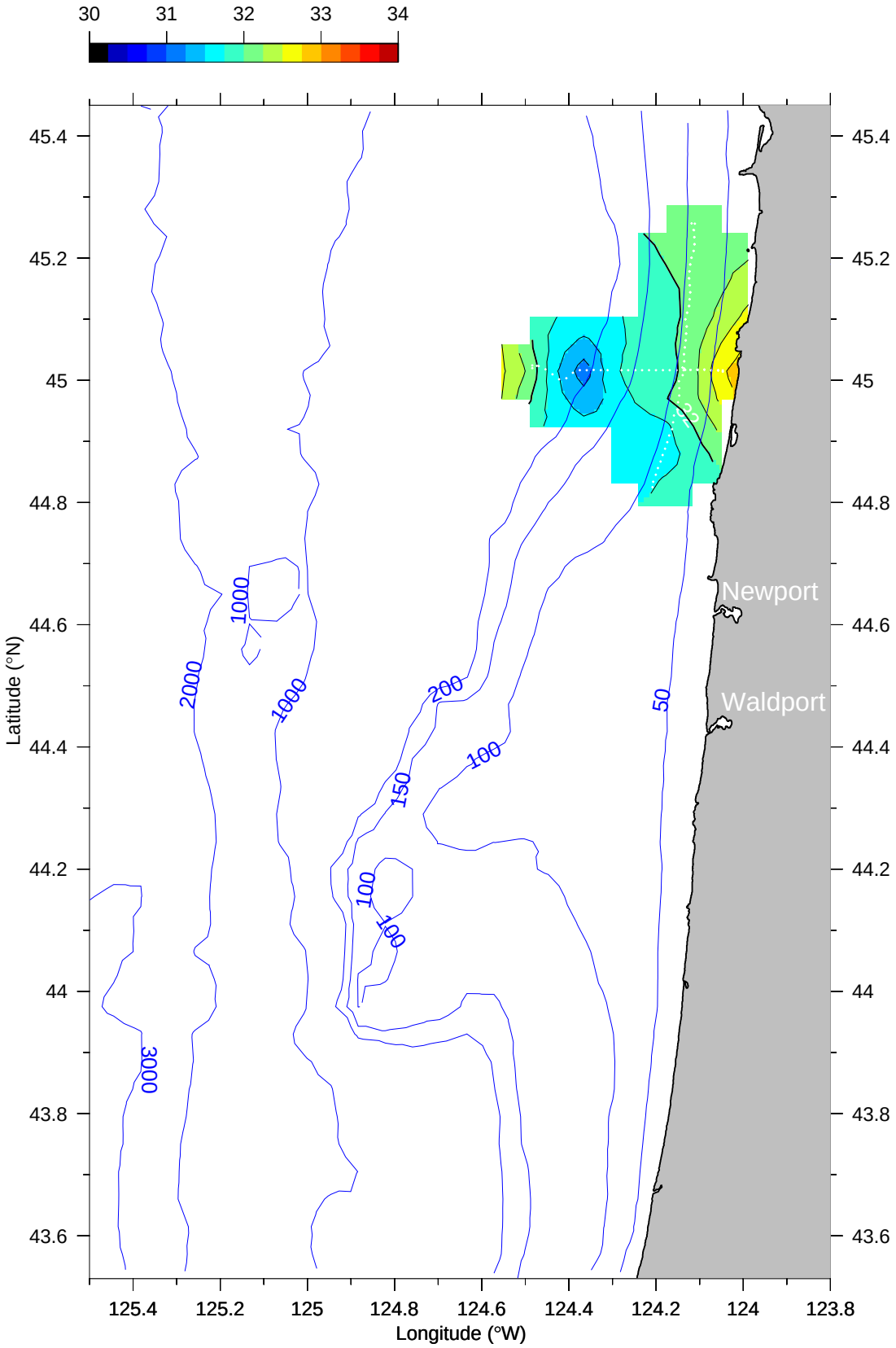
Salinity (PSS) at 5 dbar



W0105 Butterfly 6

06-Jun-2001 05:38 - 06-Jun-2001 14:31

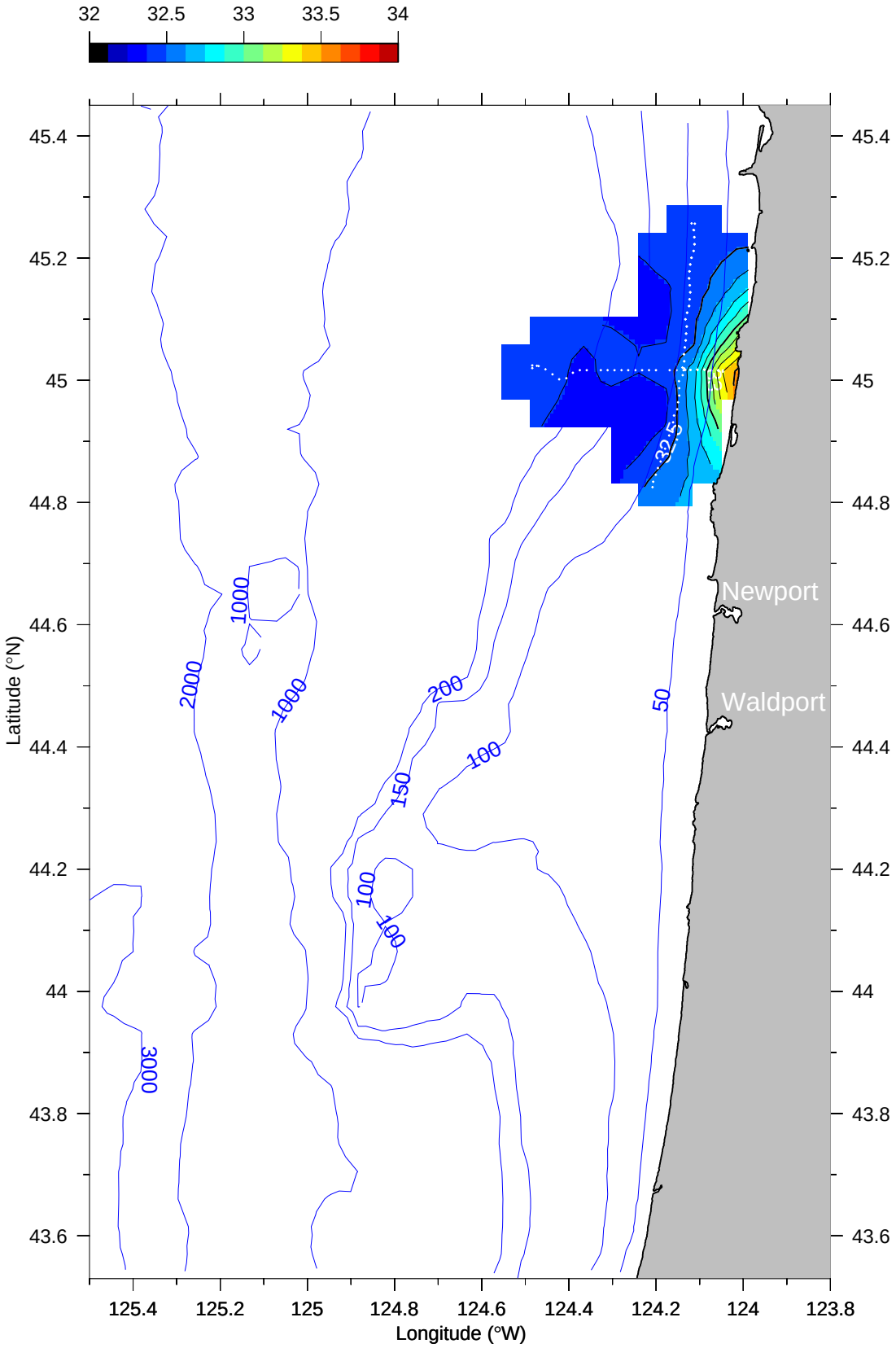
Salinity (PSS) at 15 dbar



W0105 Butterfly 6

06-Jun-2001 05:38 - 06-Jun-2001 14:31

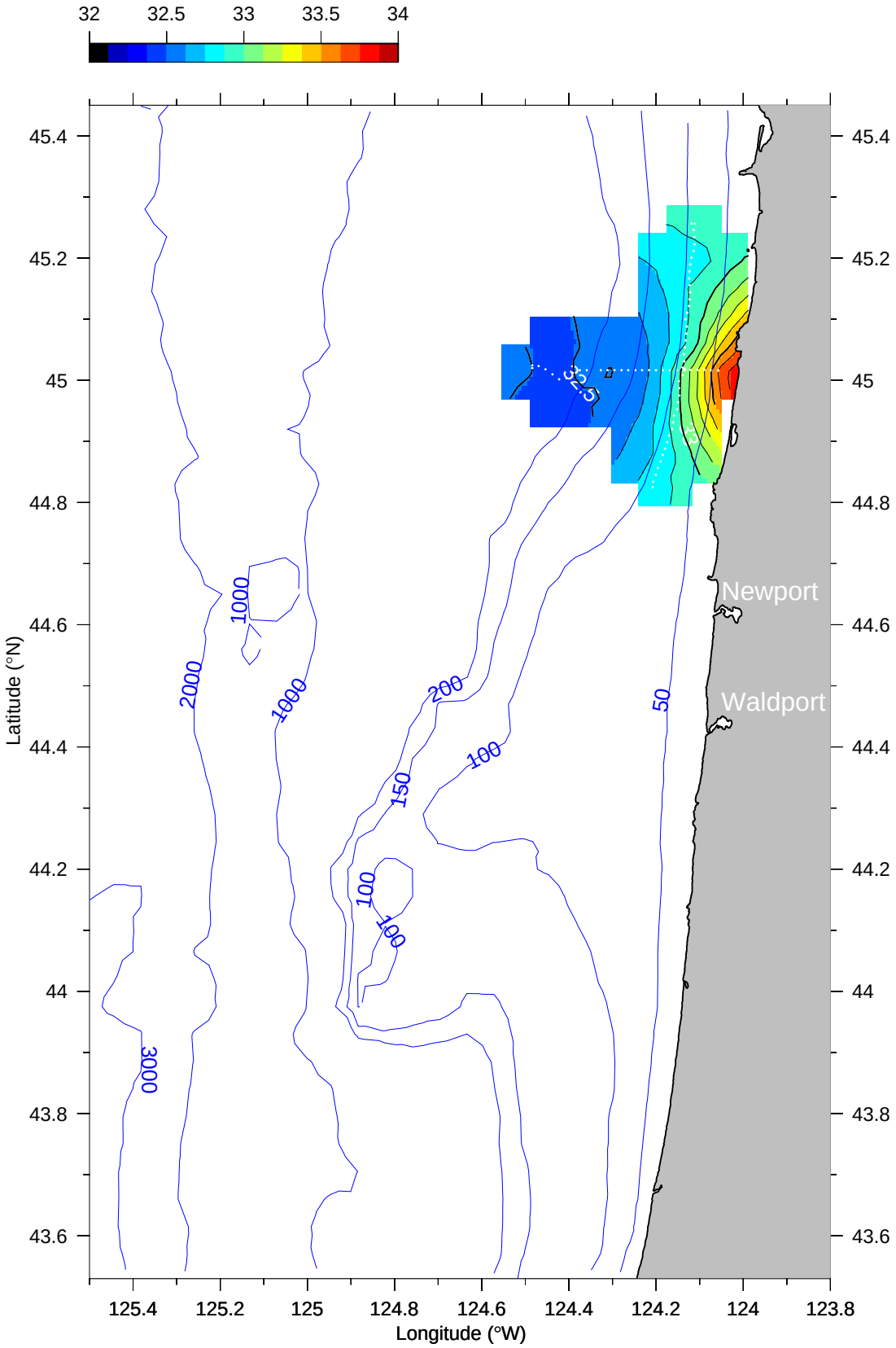
Salinity (PSS) at 25 dbar



W0105 Butterfly 6

06-Jun-2001 05:38 - 06-Jun-2001 14:31

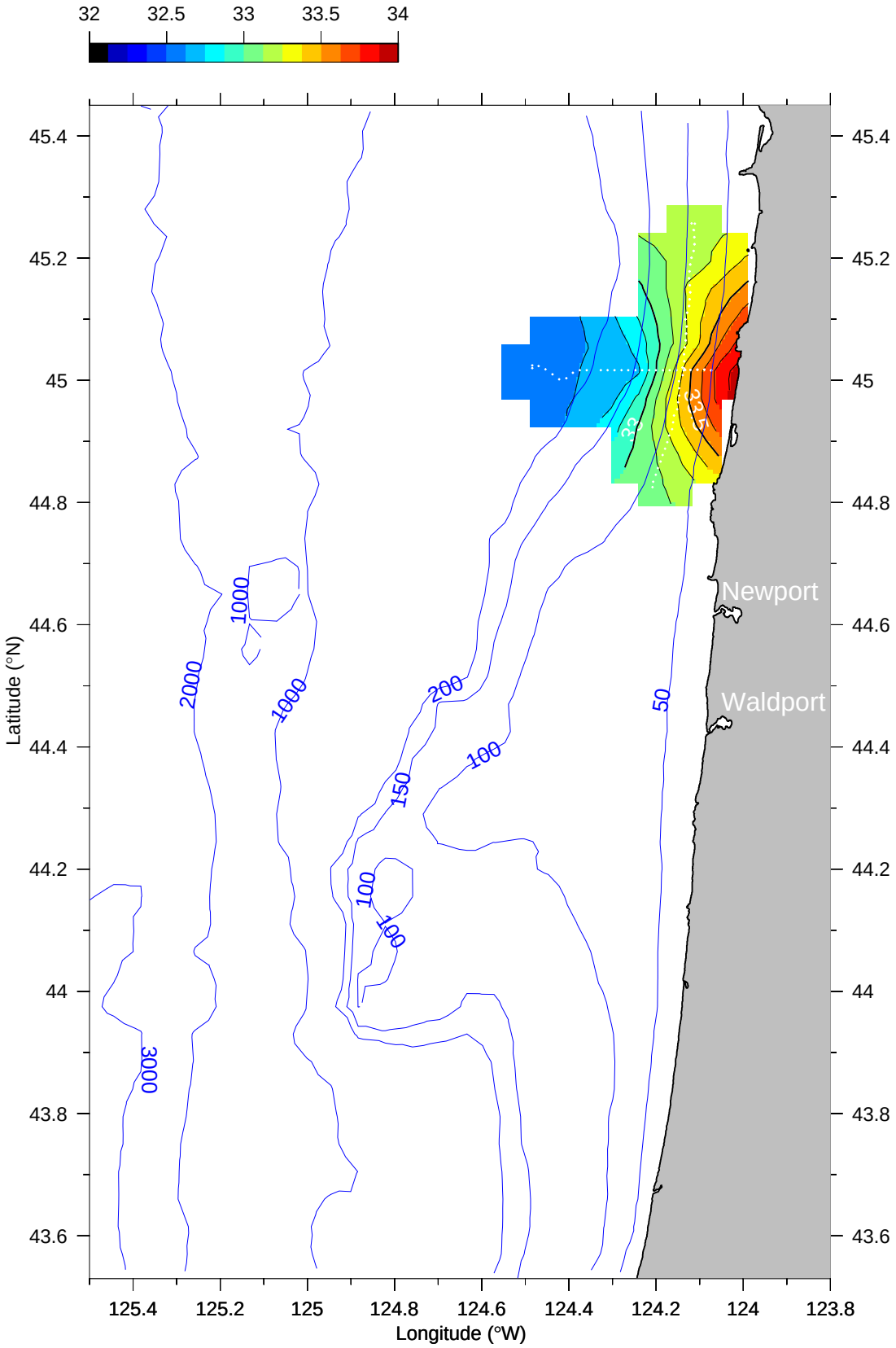
Salinity (PSS) at 35 dbar



W0105 Butterfly 6

06-Jun-2001 05:38 - 06-Jun-2001 14:31

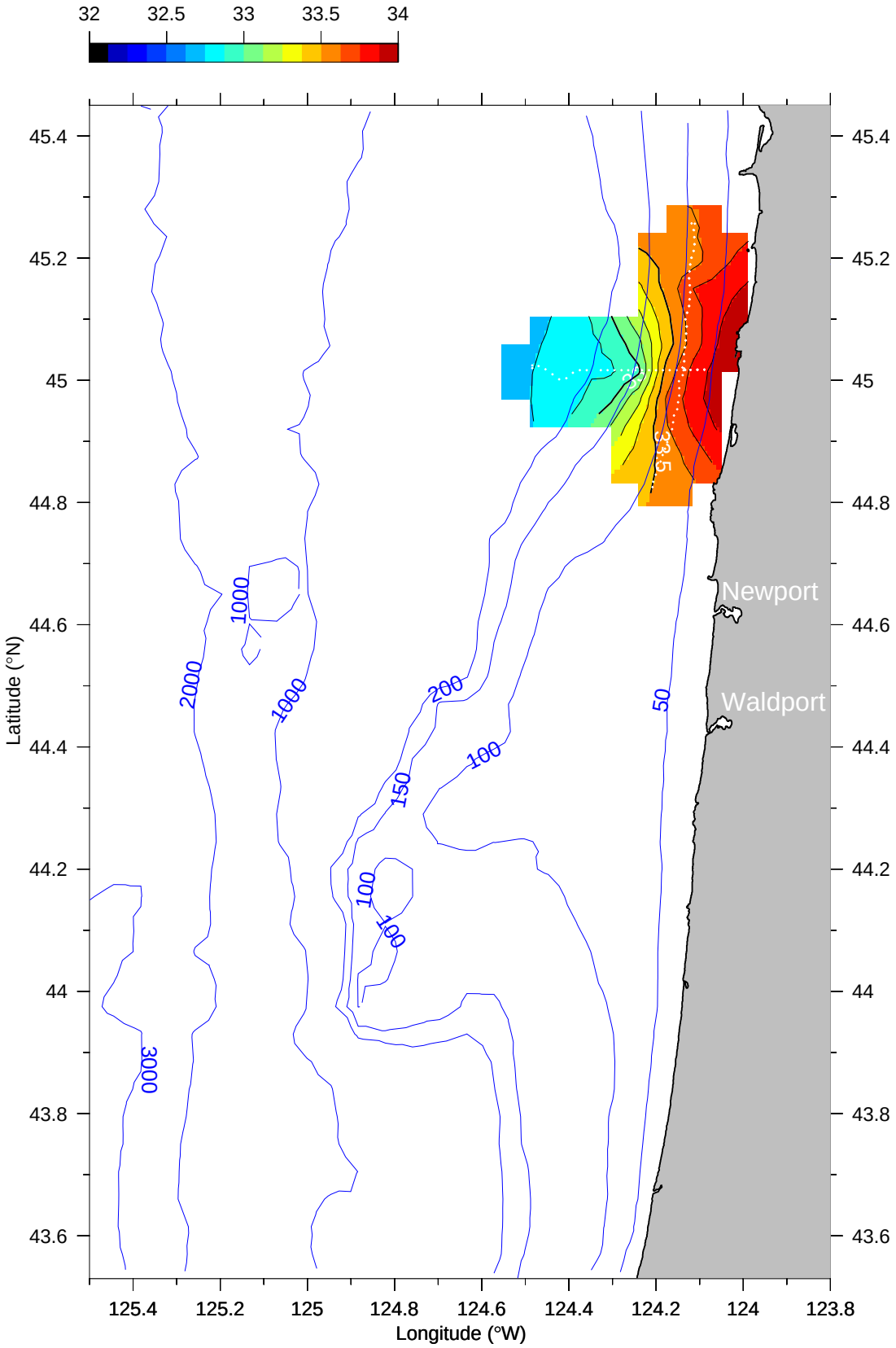
Salinity (PSS) at 45 dbar



W0105 Butterfly 6

06-Jun-2001 05:38 - 06-Jun-2001 14:31

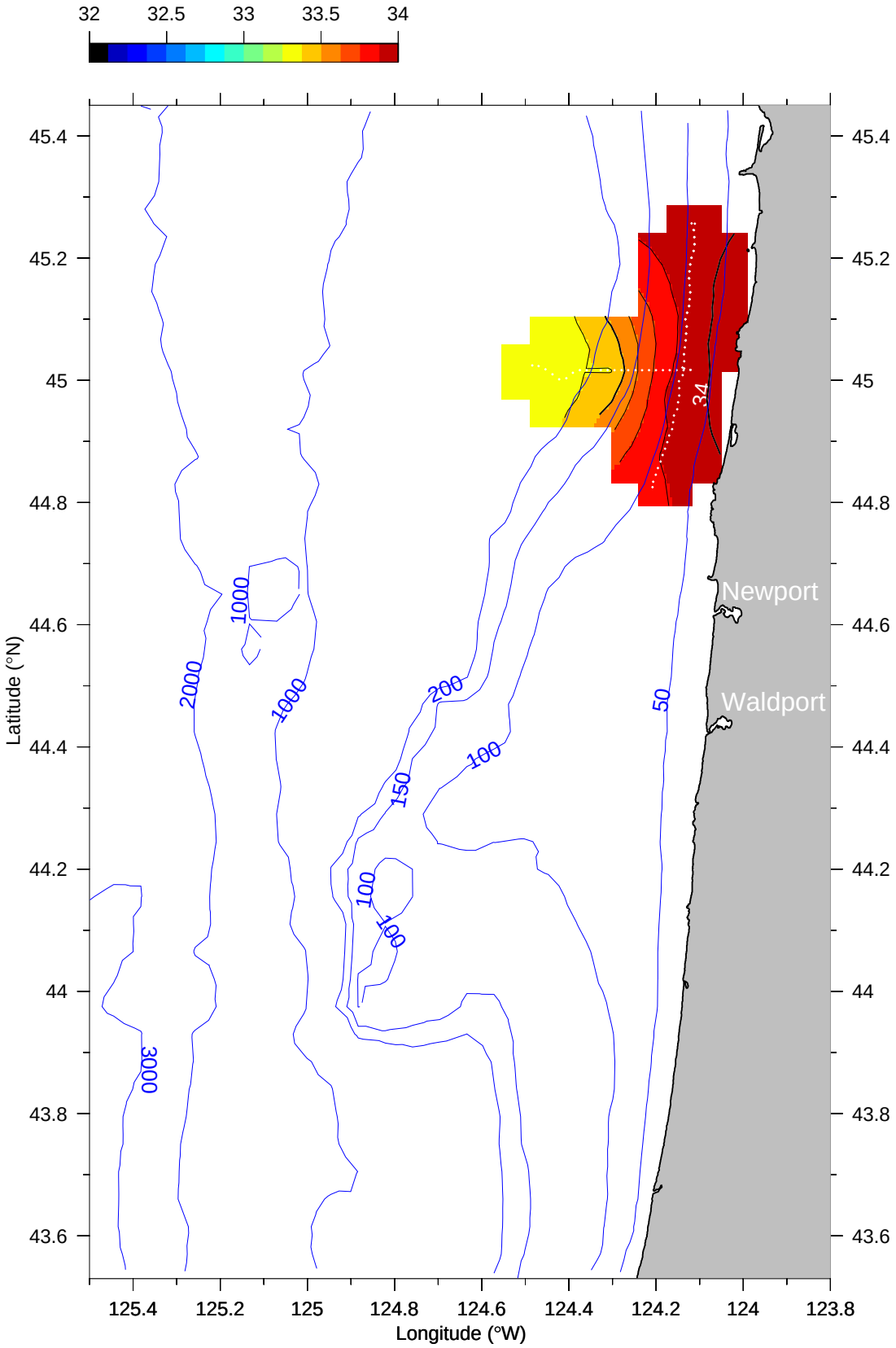
Salinity (PSS) at 55 dbar



W0105 Butterfly 6

06-Jun-2001 05:38 - 06-Jun-2001 14:31

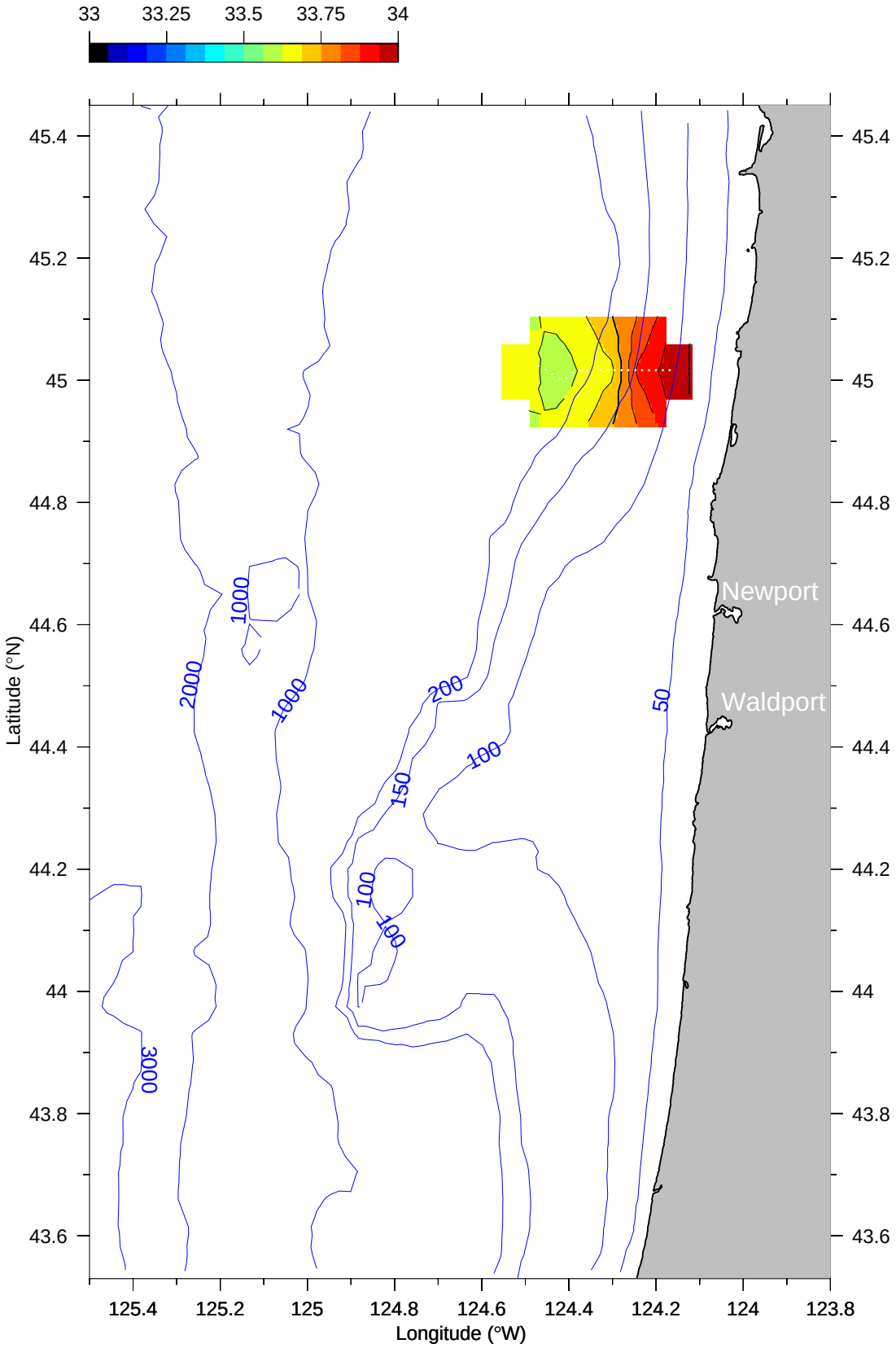
Salinity (PSS) at 75 dbar



W0105 Butterfly 6

06-Jun-2001 05:38 - 06-Jun-2001 14:31

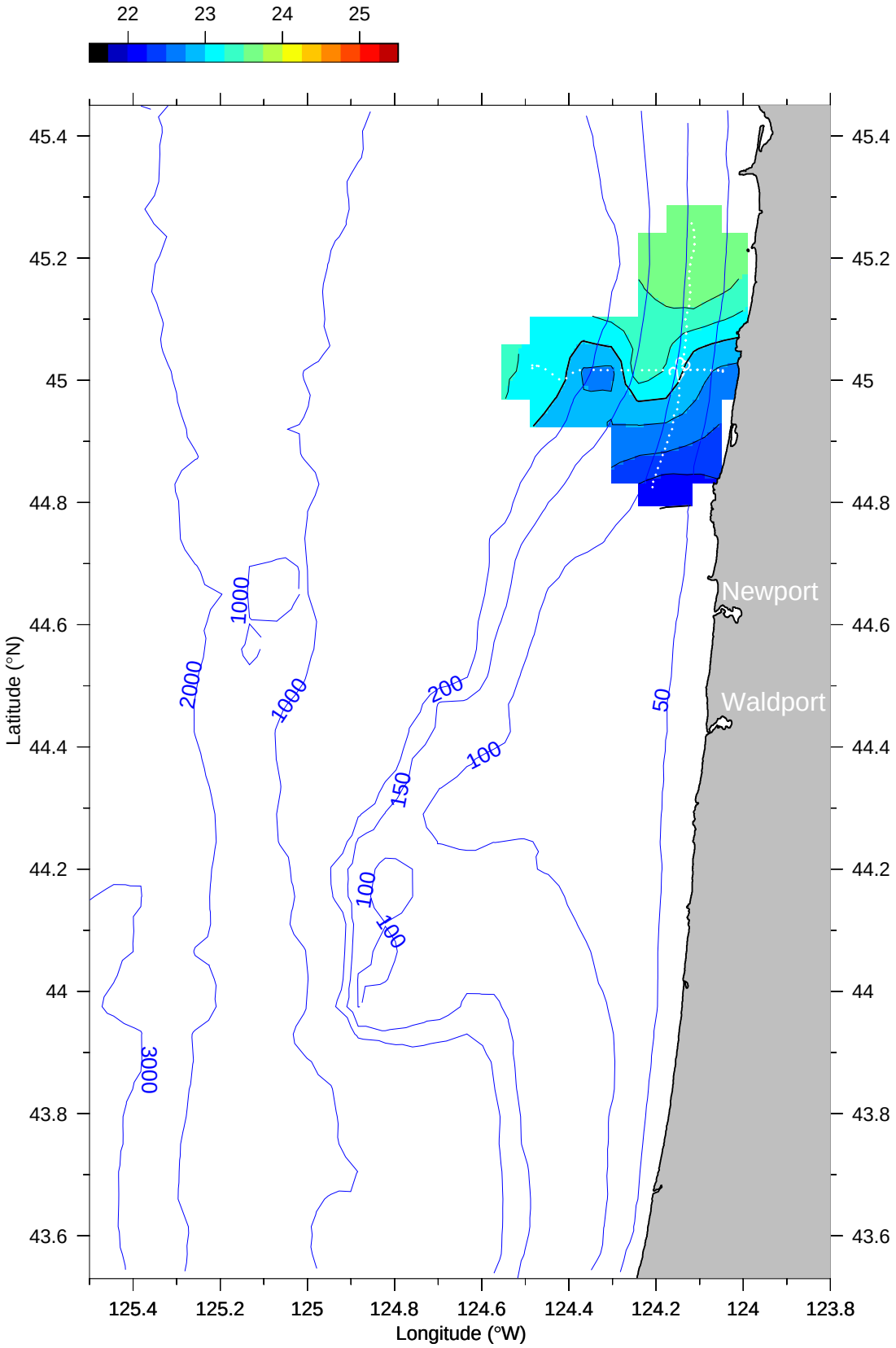
Salinity (PSS) at 95 dbar

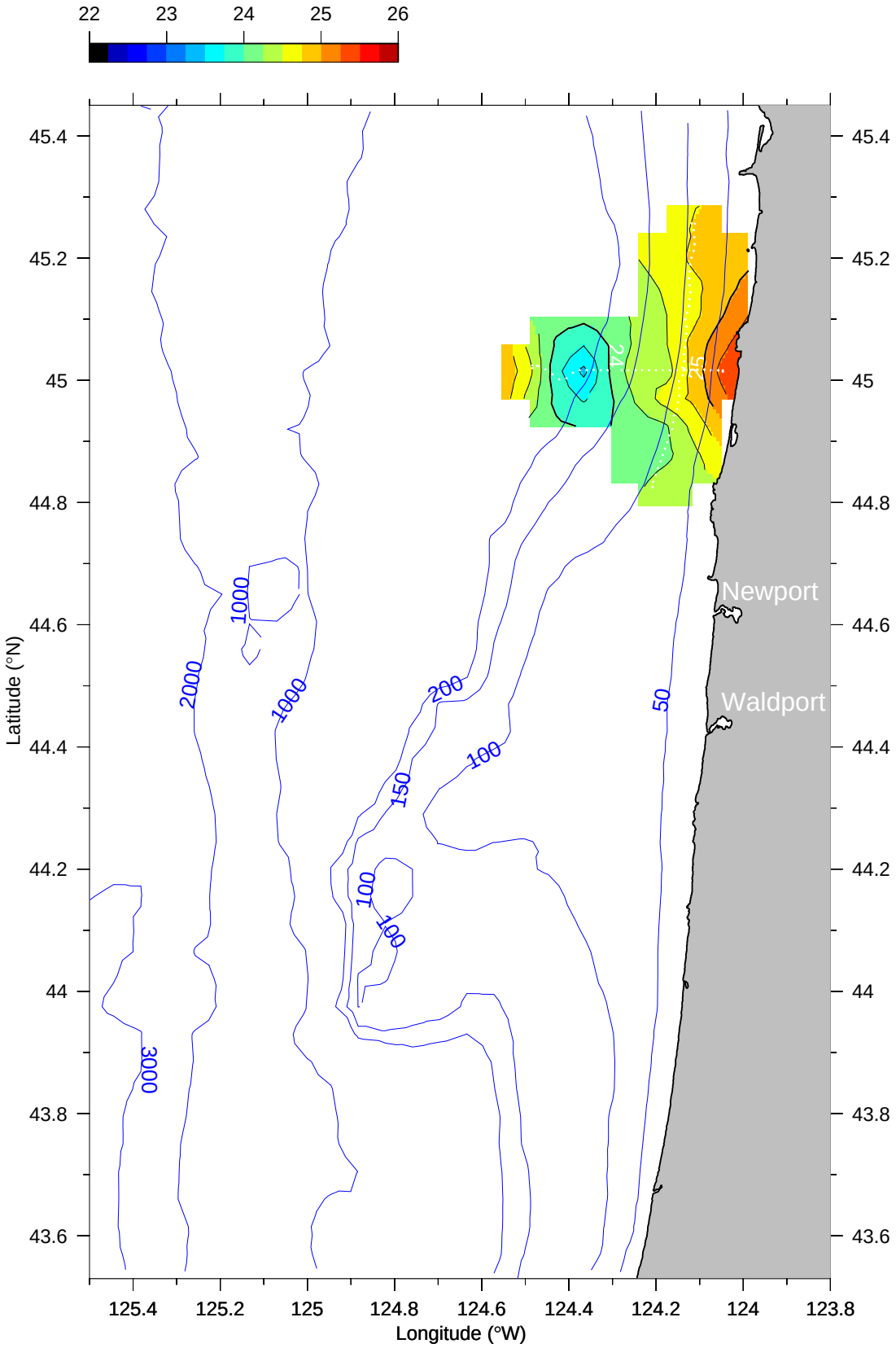


W0105 Butterfly 6

06-Jun-2001 05:38 - 06-Jun-2001 14:31

σ_t ($kg\ m^{-3}$) at 5 dbar

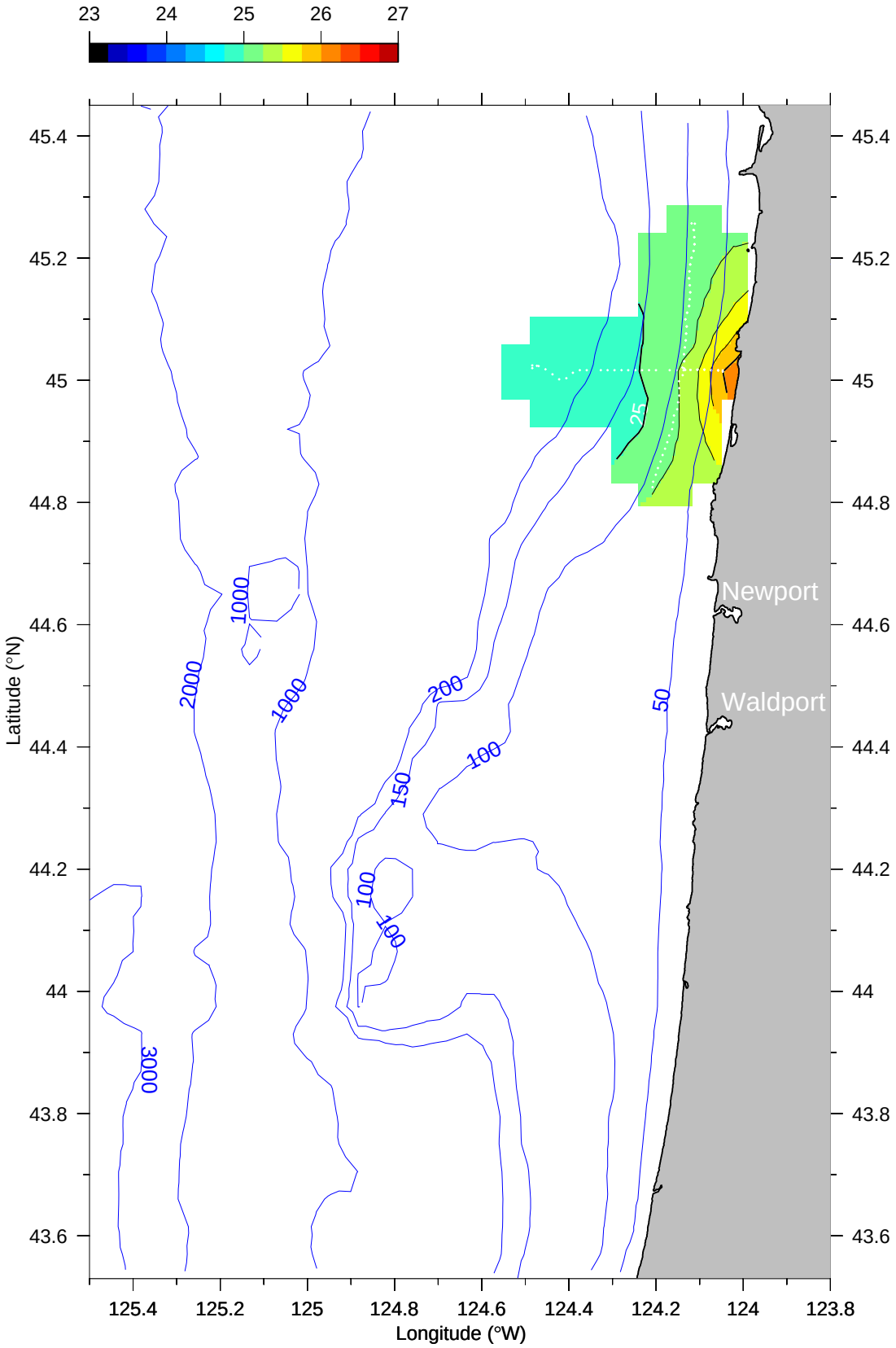


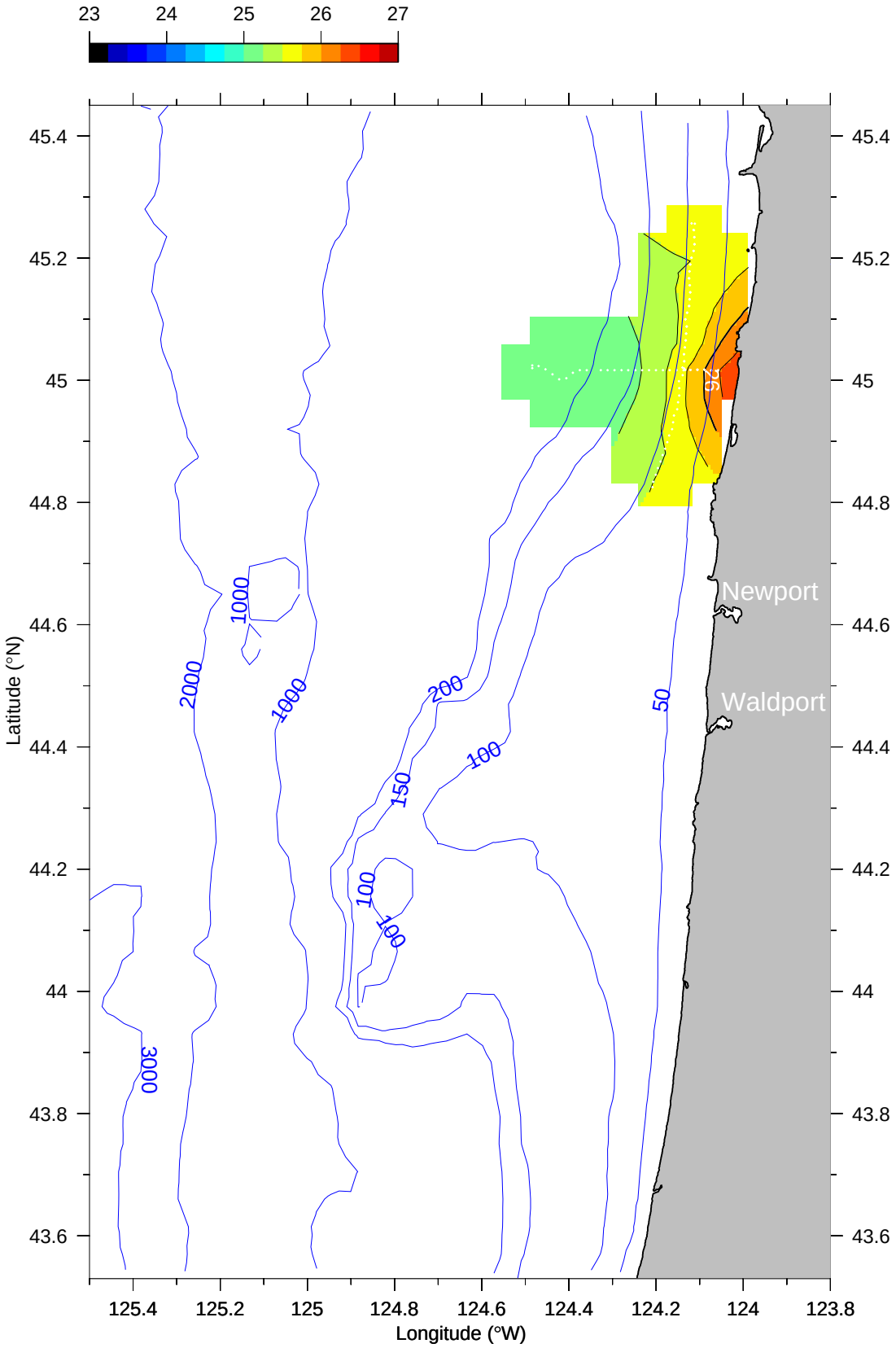

W0105 Butterfly 6
06-Jun-2001 05:38 - 06-Jun-2001 14:31
σt (kg m−3) at 15 dbar
22
23
24
25
26
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
3000
2000
1000
1000
200
150
100
100
100
50

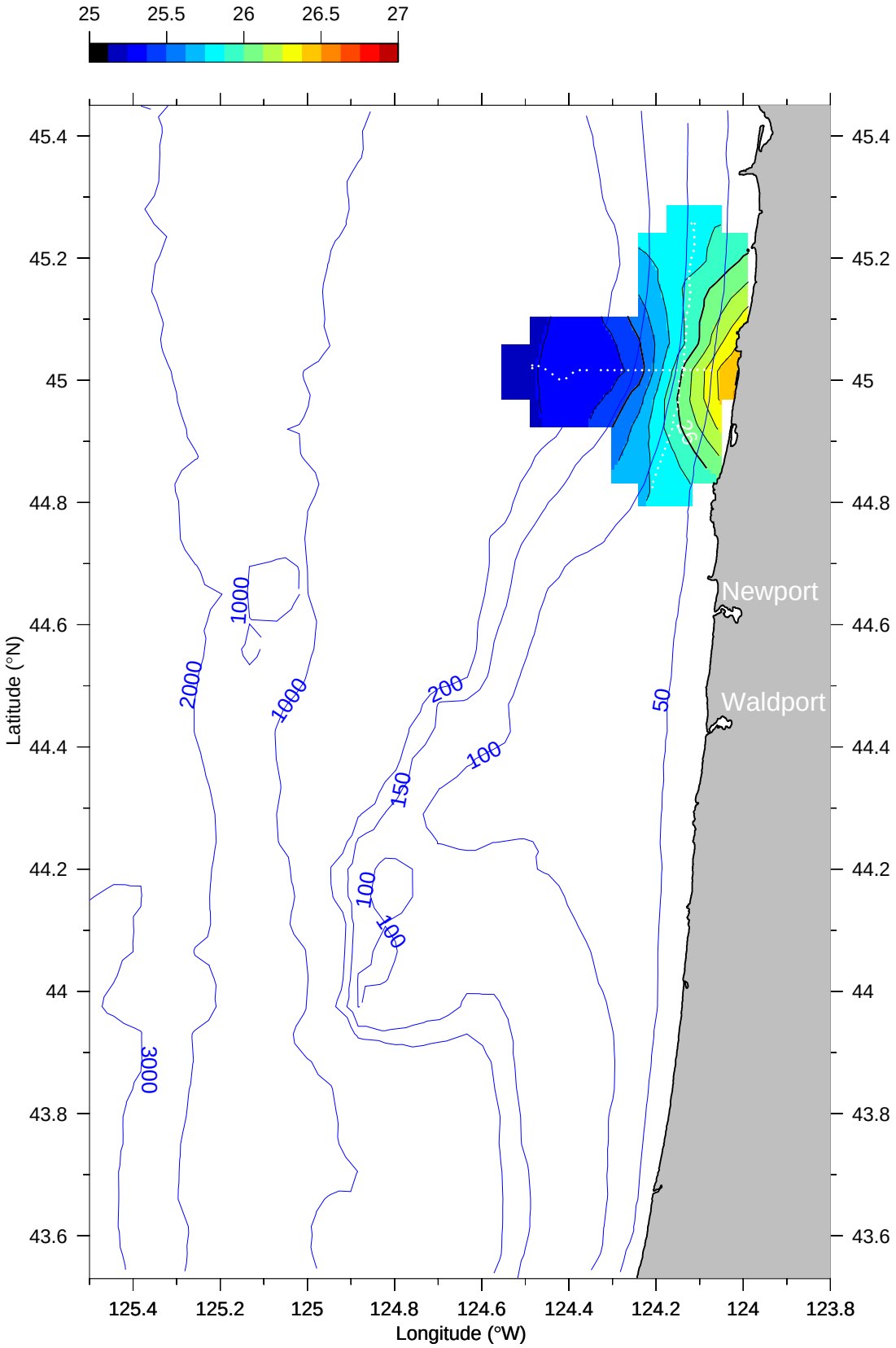
W0105 Butterfly 6

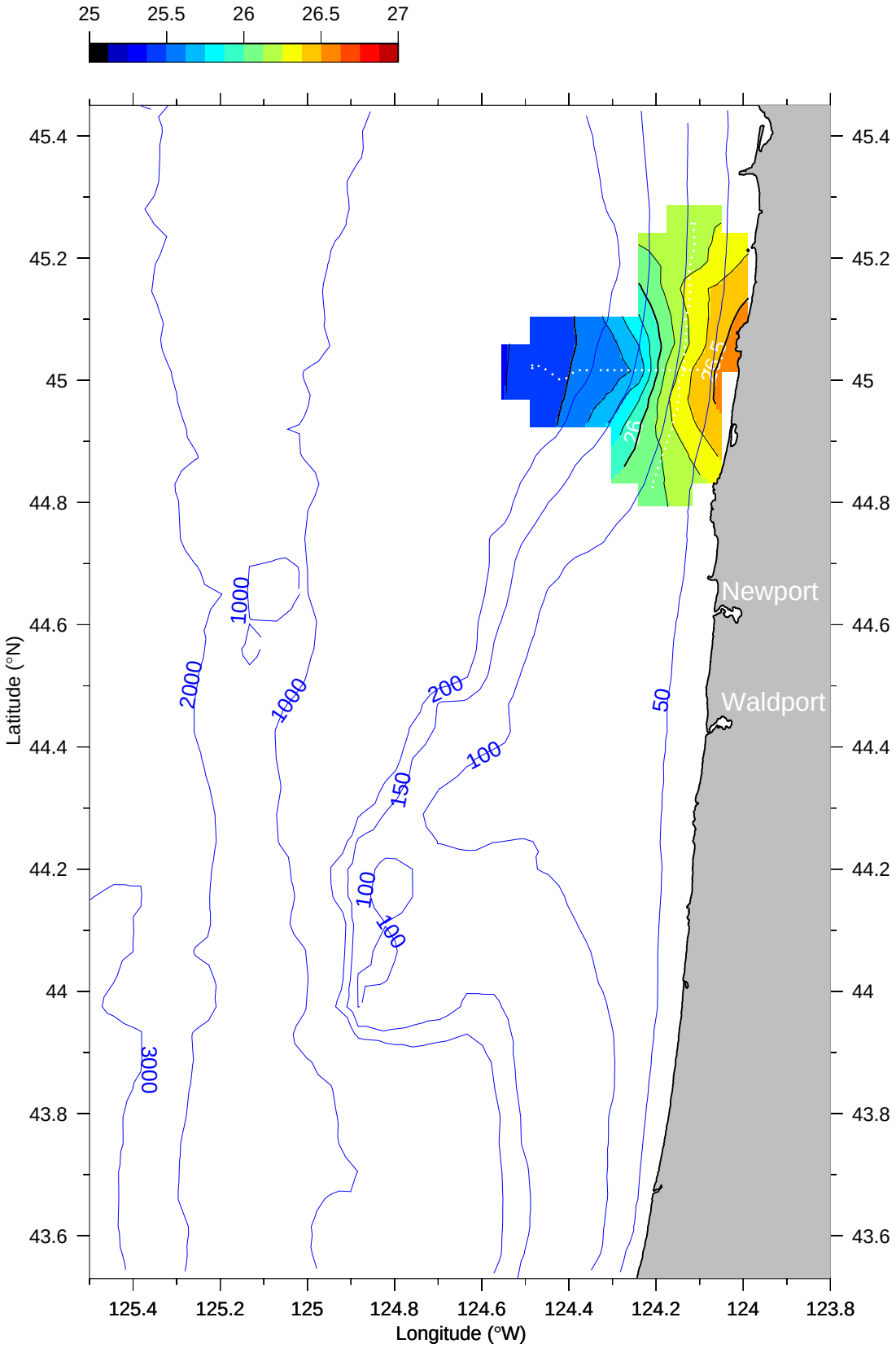
06-Jun-2001 05:38 - 06-Jun-2001 14:31

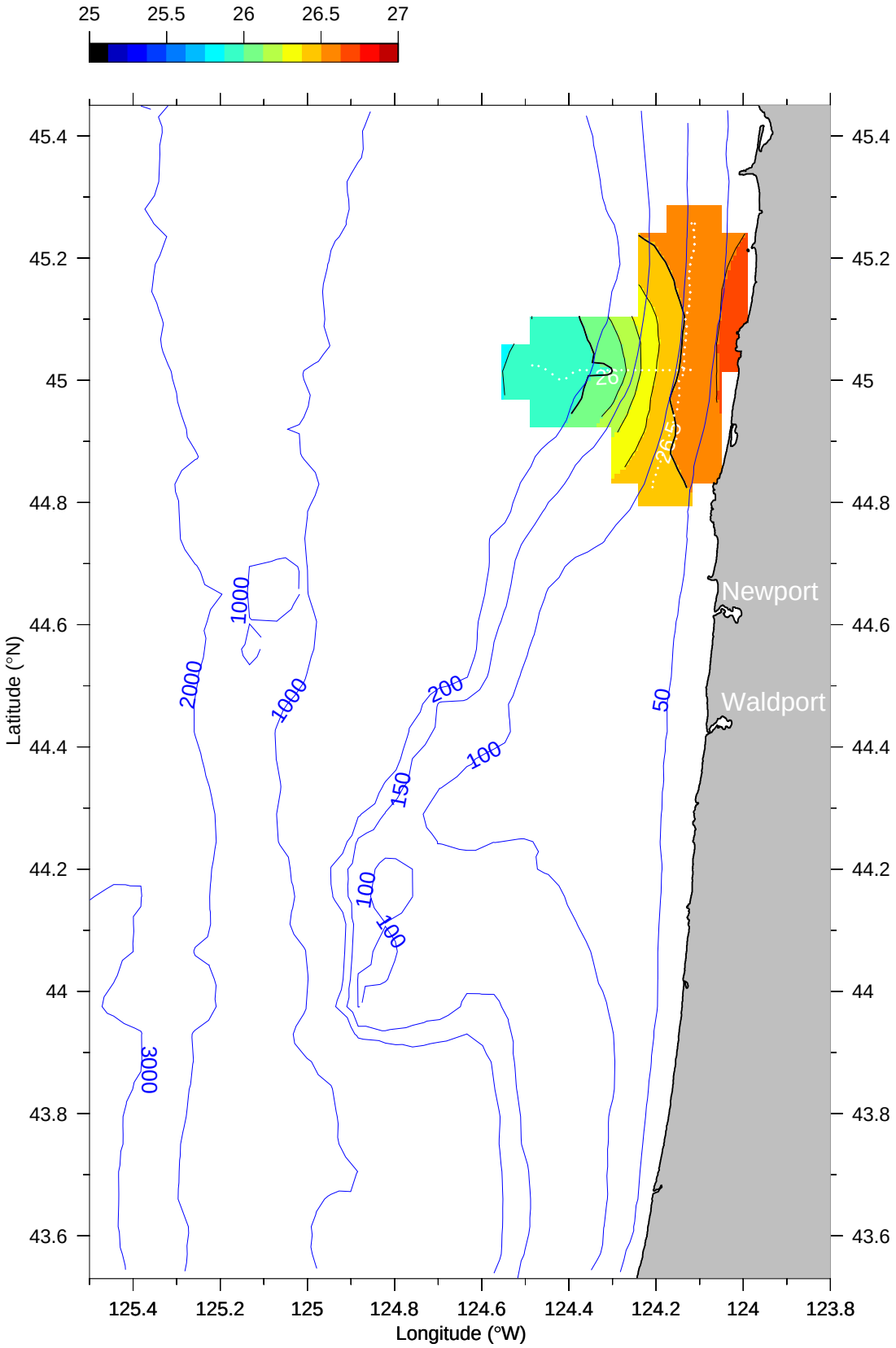
σ_t ($kg\ m^{-3}$) at 25 dbar

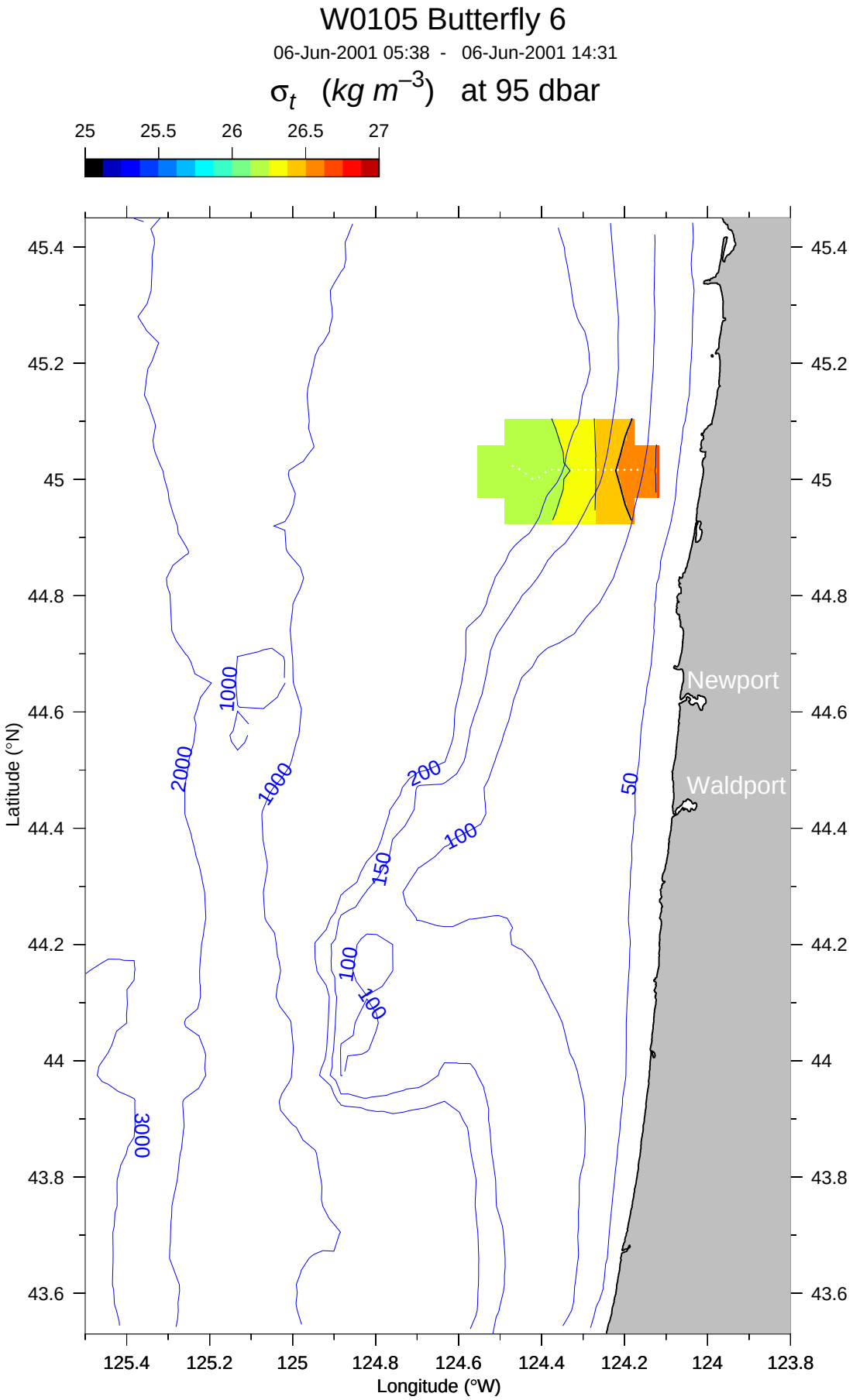


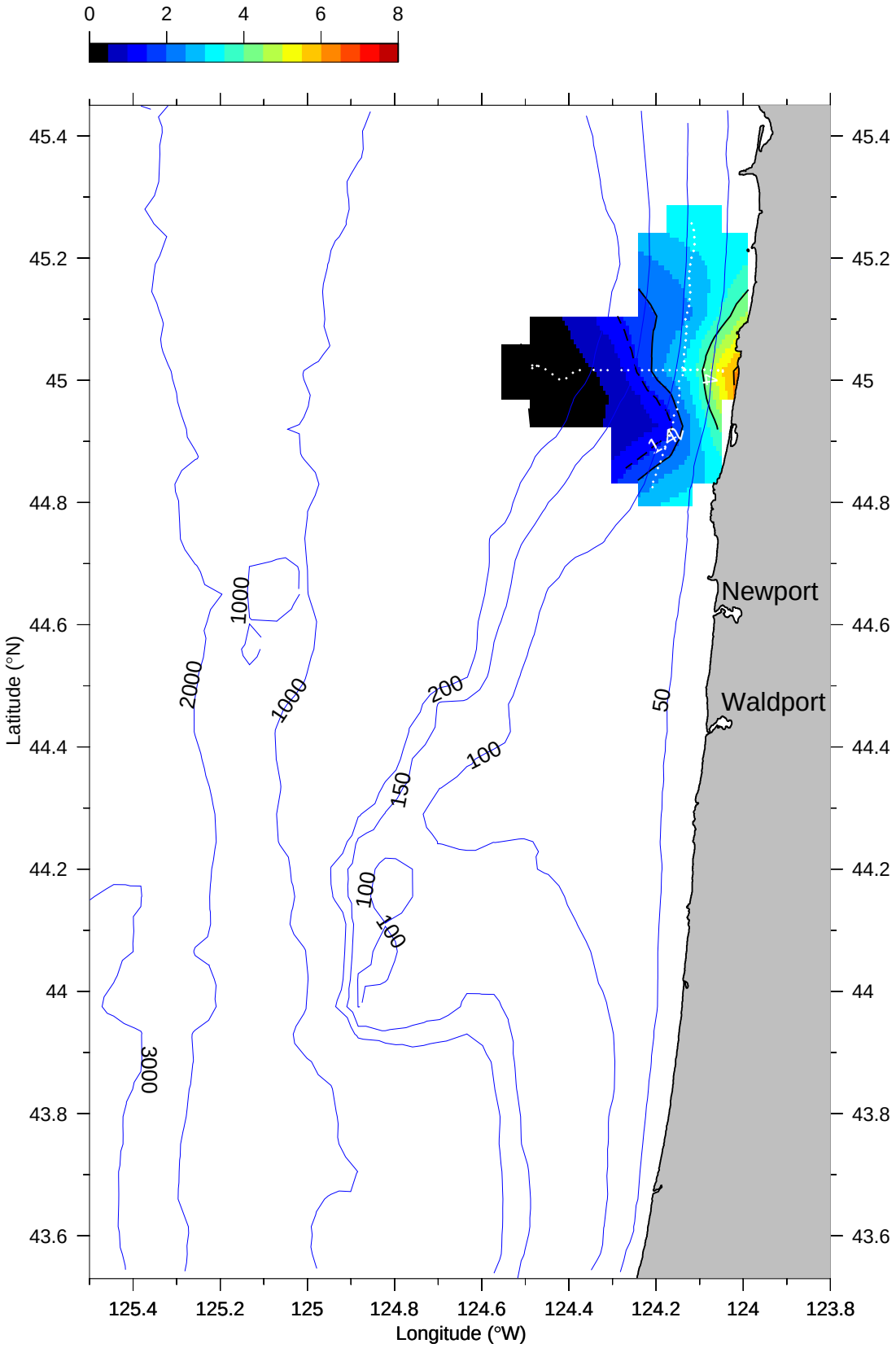

W0105 Butterfly 6
06-Jun-2001 05:38 - 06-Jun-2001 14:31
σt (kg m−3) at 35 dbar
23
24
25
26
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Butterfly 6
06-Jun-2001 05:38 - 06-Jun-2001 14:31
σt (kg m−3) at 45 dbar
25
25.5
26
26.5
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Butterfly 6
06-Jun-2001 05:38 - 06-Jun-2001 14:31
σt (kg m−3) at 55 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
1000
200
100
150
100
100
50
3000


W0105 Butterfly 6
06-Jun-2001 05:38 - 06-Jun-2001 14:31
σt (kg m−3) at 75 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
1000
200
100
150
100
100
50
3000


W0105 Butterfly 6
06-Jun-2001 05:38 - 06-Jun-2001 14:31
σt (kg m−3) at 95 dbar
25
25.5
26
26.5
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Butterfly 6
06-Jun-2001 05:38 - 06-Jun-2001 14:31
Chlorophyll (µg L−1) at 5 dbar
0
2
4
6
8
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
1000
2000
1000
200
100
150
100
100
50
3000
1.4

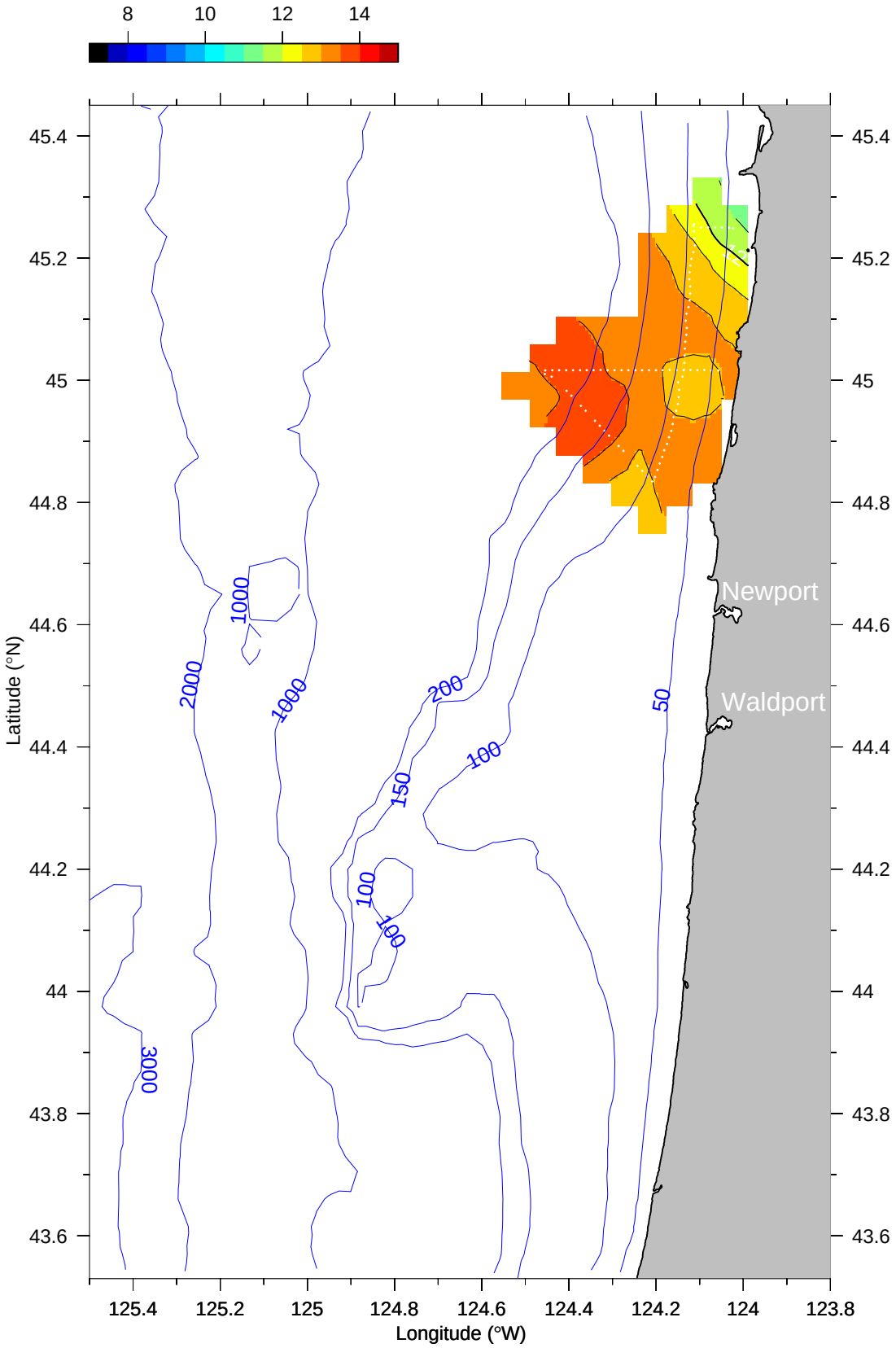
Butterfly 7 Maps

Maps of Temperature, Salinity, σ_t, and Chlorophyll at Specified Depths

W0105 Butterfly 7

07-Jun-2001 05:26 - 07-Jun-2001 14:07

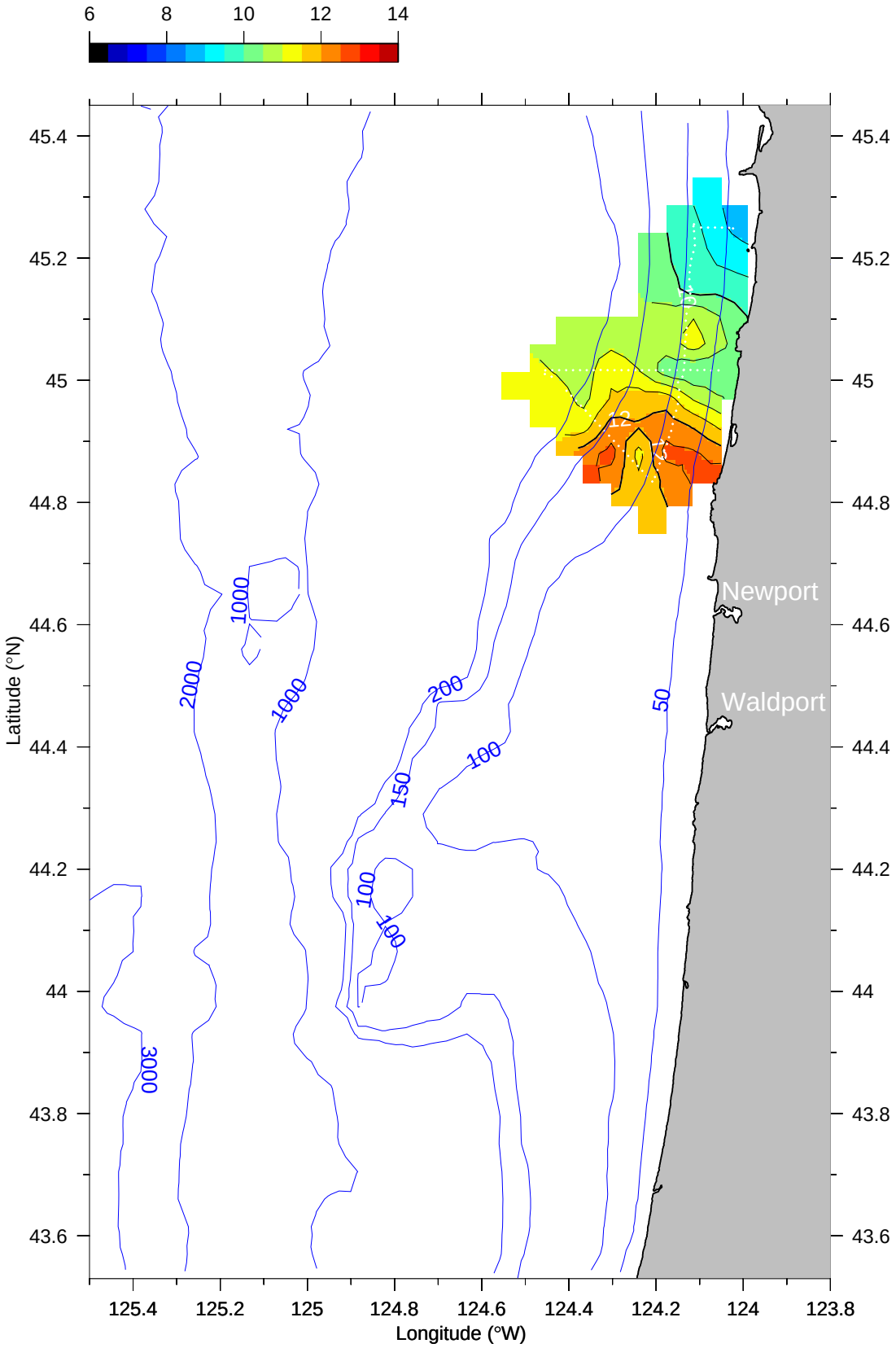
Temperature (°C) at 5 dbar



W0105 Butterfly 7

07-Jun-2001 05:26 - 07-Jun-2001 14:07

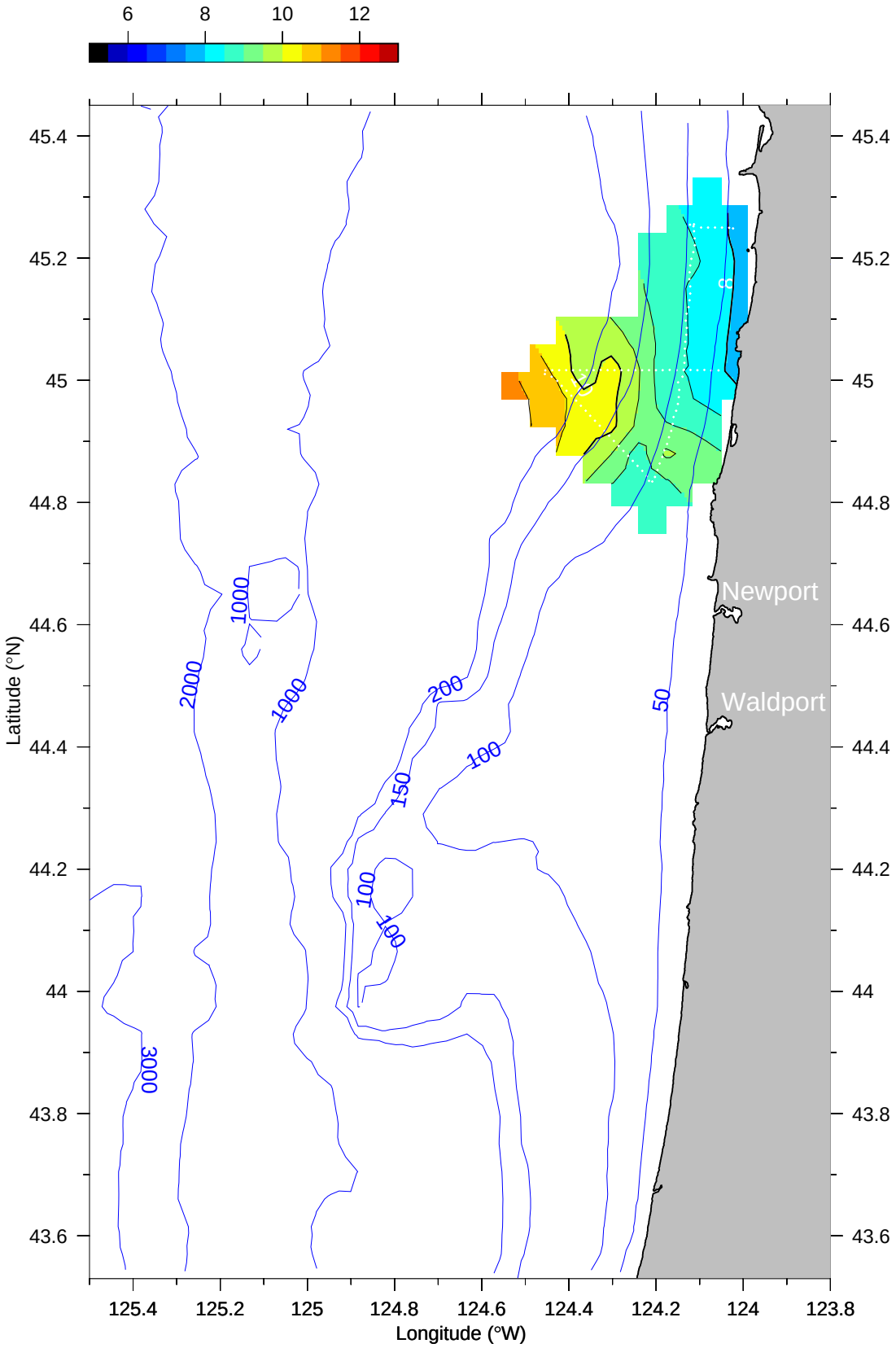
Temperature (°C) at 15 dbar



W0105 Butterfly 7

07-Jun-2001 05:26 - 07-Jun-2001 14:07

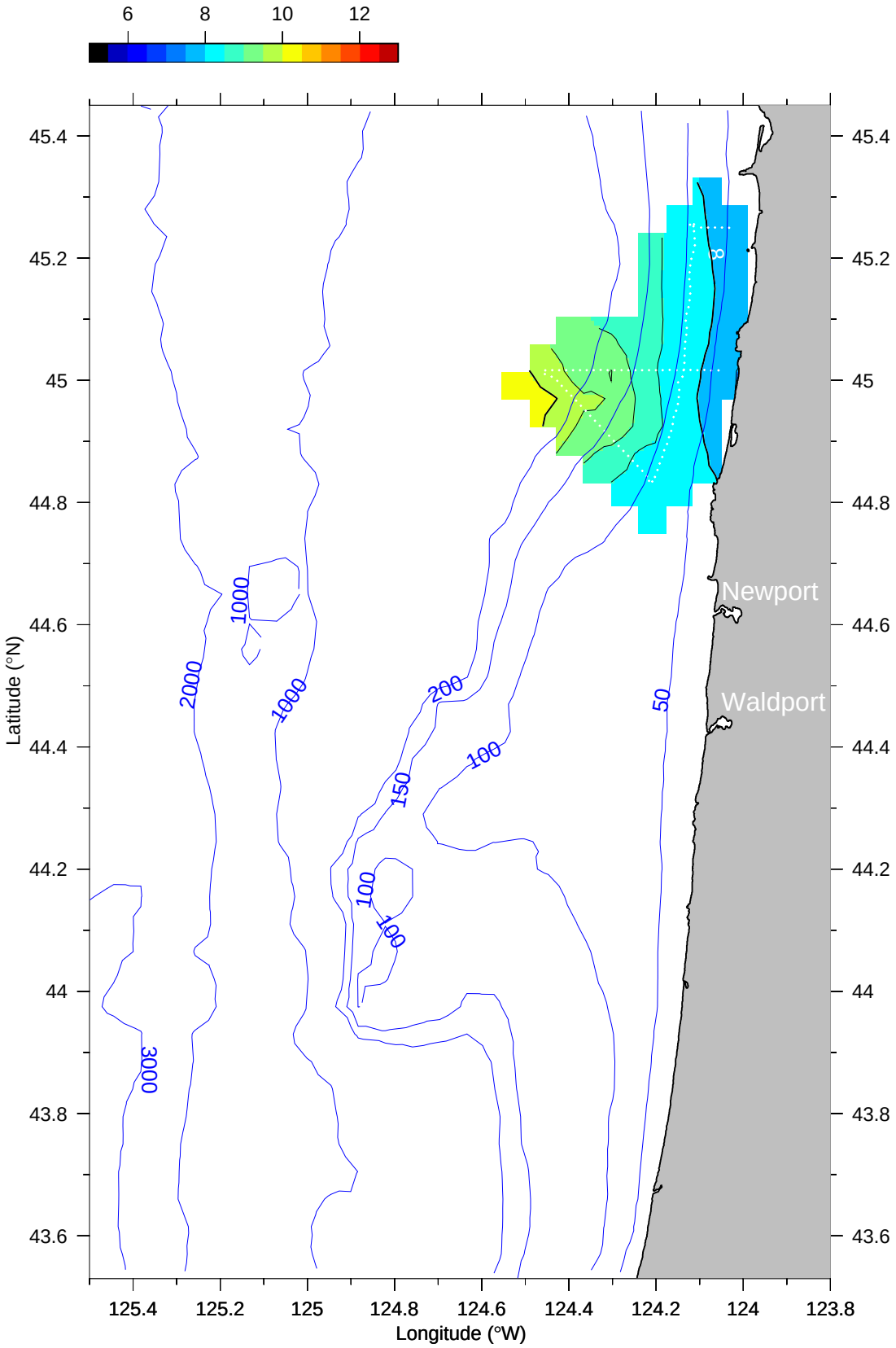
Temperature (°C) at 25 dbar



W0105 Butterfly 7

07-Jun-2001 05:26 - 07-Jun-2001 14:07

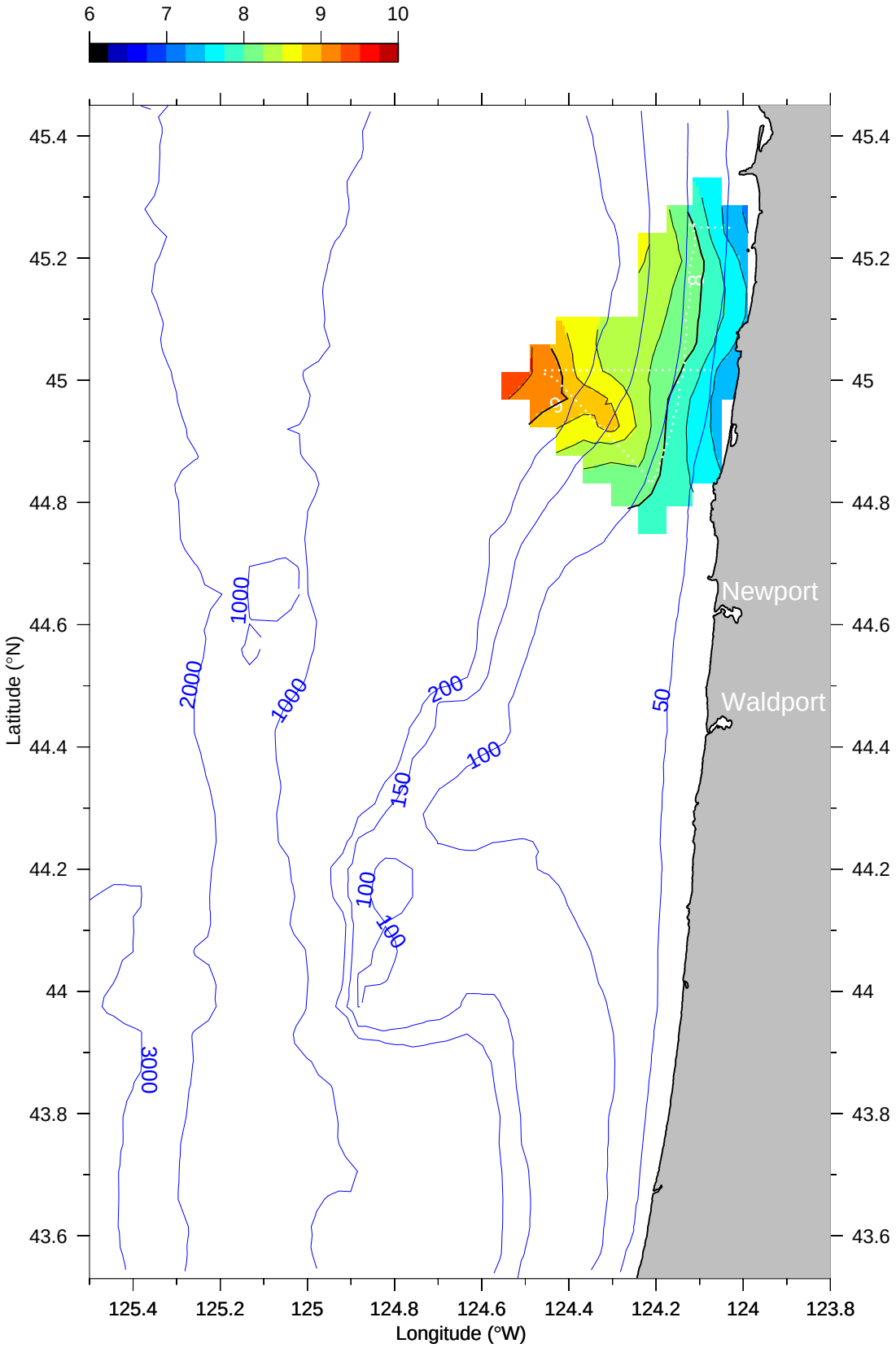
Temperature (°C) at 35 dbar



W0105 Butterfly 7

07-Jun-2001 05:26 - 07-Jun-2001 14:07

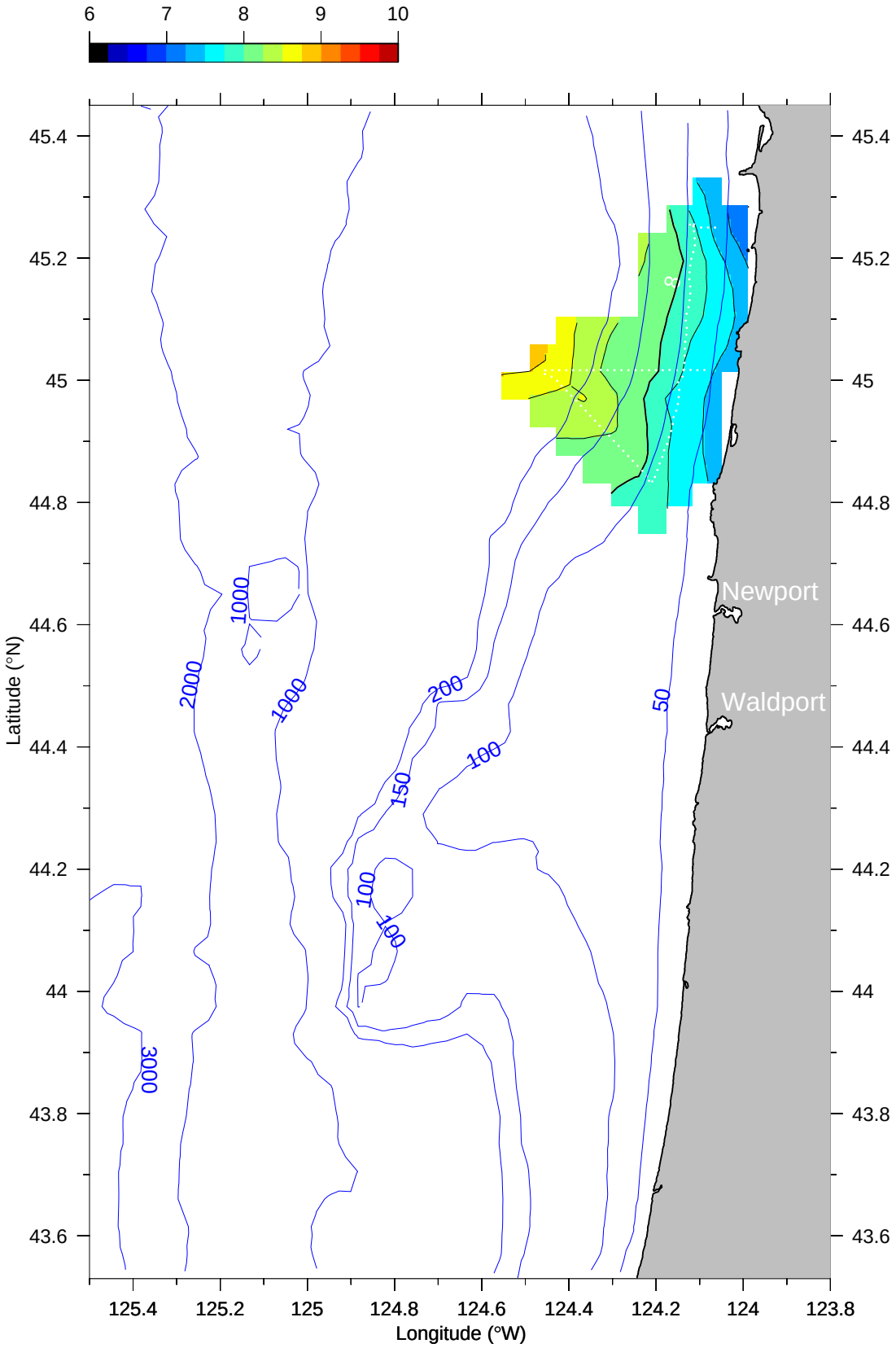
Temperature (°C) at 45 dbar



W0105 Butterfly 7

07-Jun-2001 05:26 - 07-Jun-2001 14:07

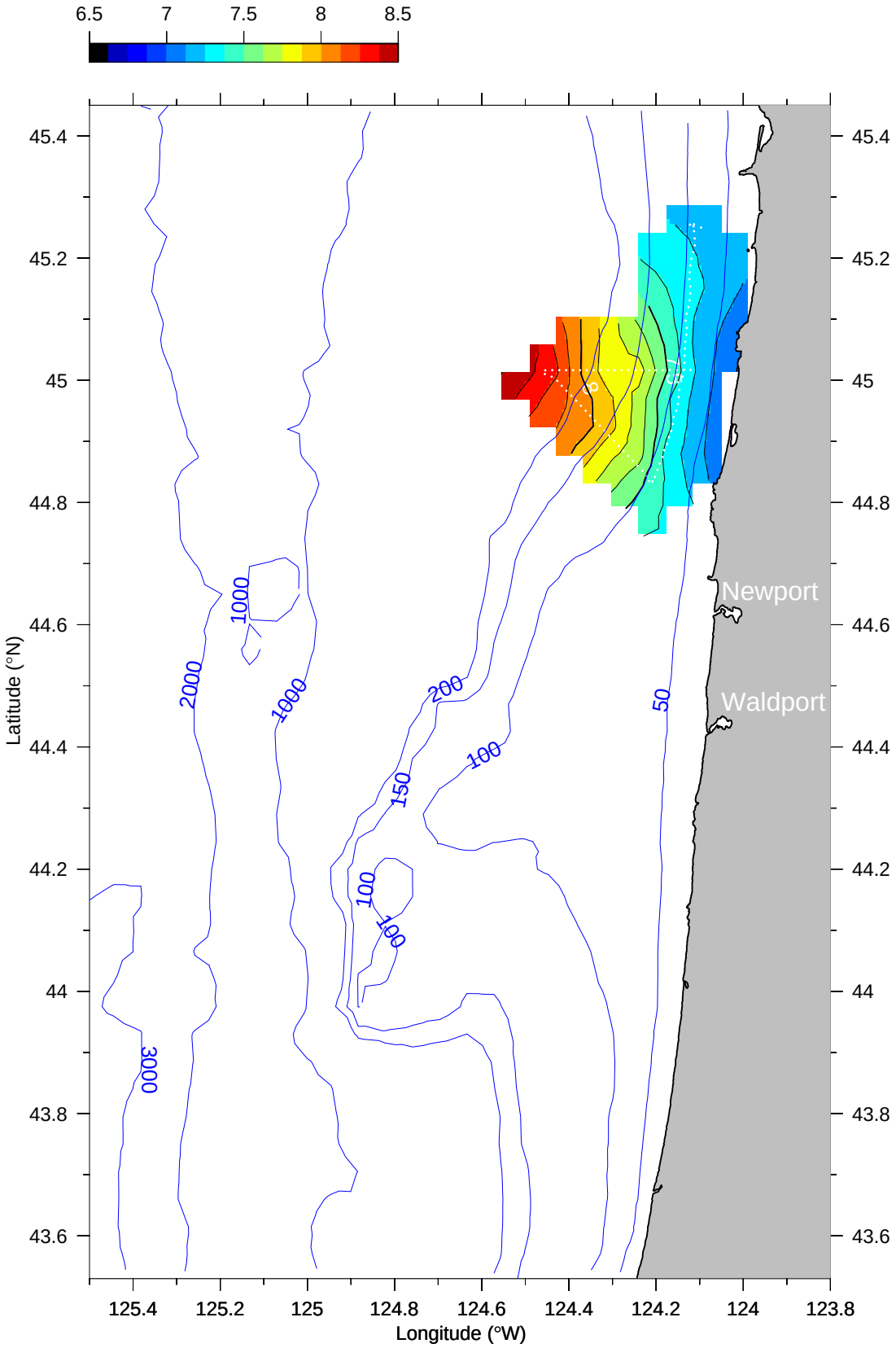
Temperature (°C) at 55 dbar



W0105 Butterfly 7

07-Jun-2001 05:26 - 07-Jun-2001 14:07

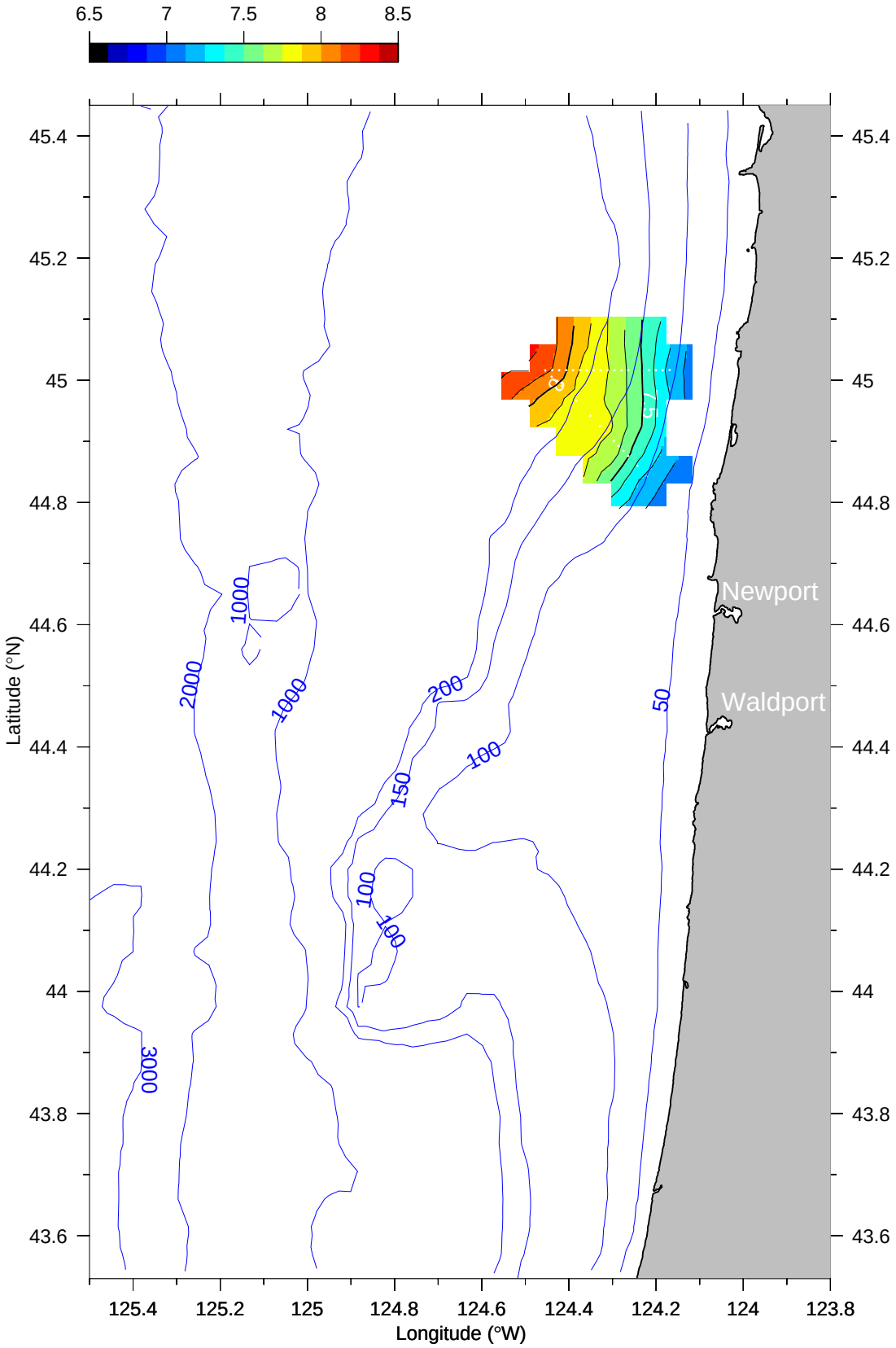
Temperature (°C) at 75 dbar



W0105 Butterfly 7

07-Jun-2001 05:26 - 07-Jun-2001 14:07

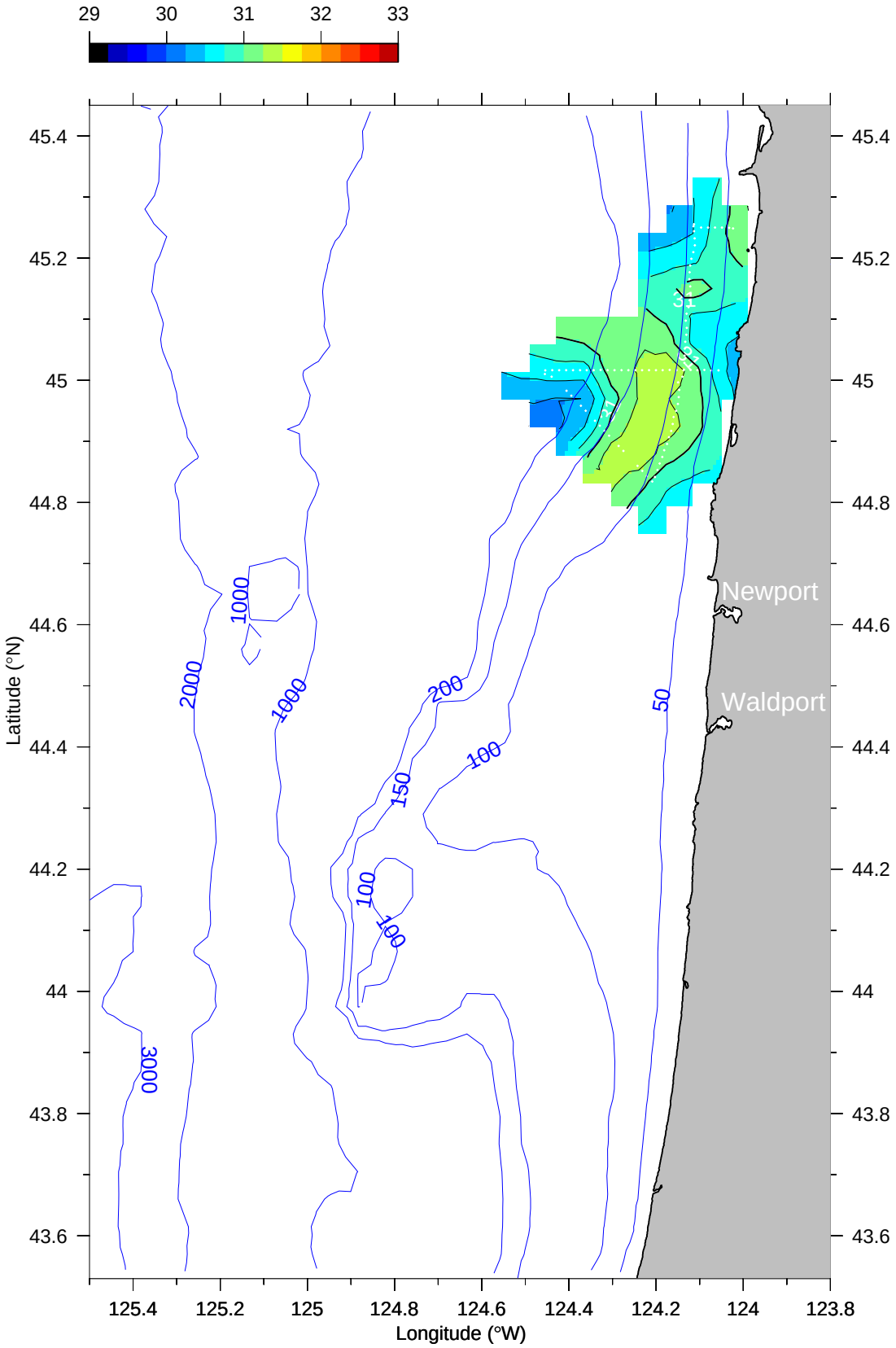
Temperature (°C) at 95 dbar



W0105 Butterfly 7

07-Jun-2001 05:26 - 07-Jun-2001 14:07

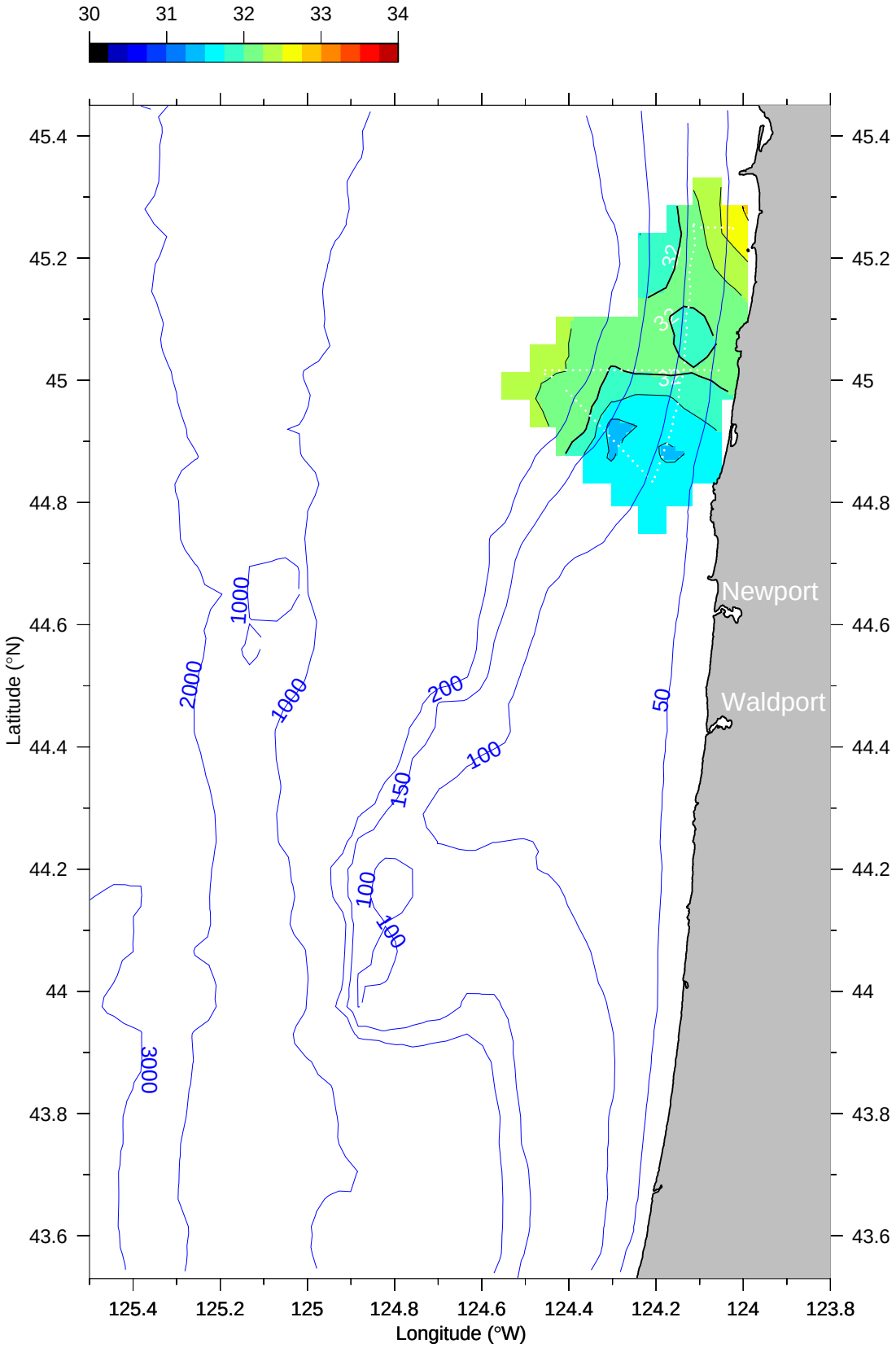
Salinity (PSS) at 5 dbar



W0105 Butterfly 7

07-Jun-2001 05:26 - 07-Jun-2001 14:07

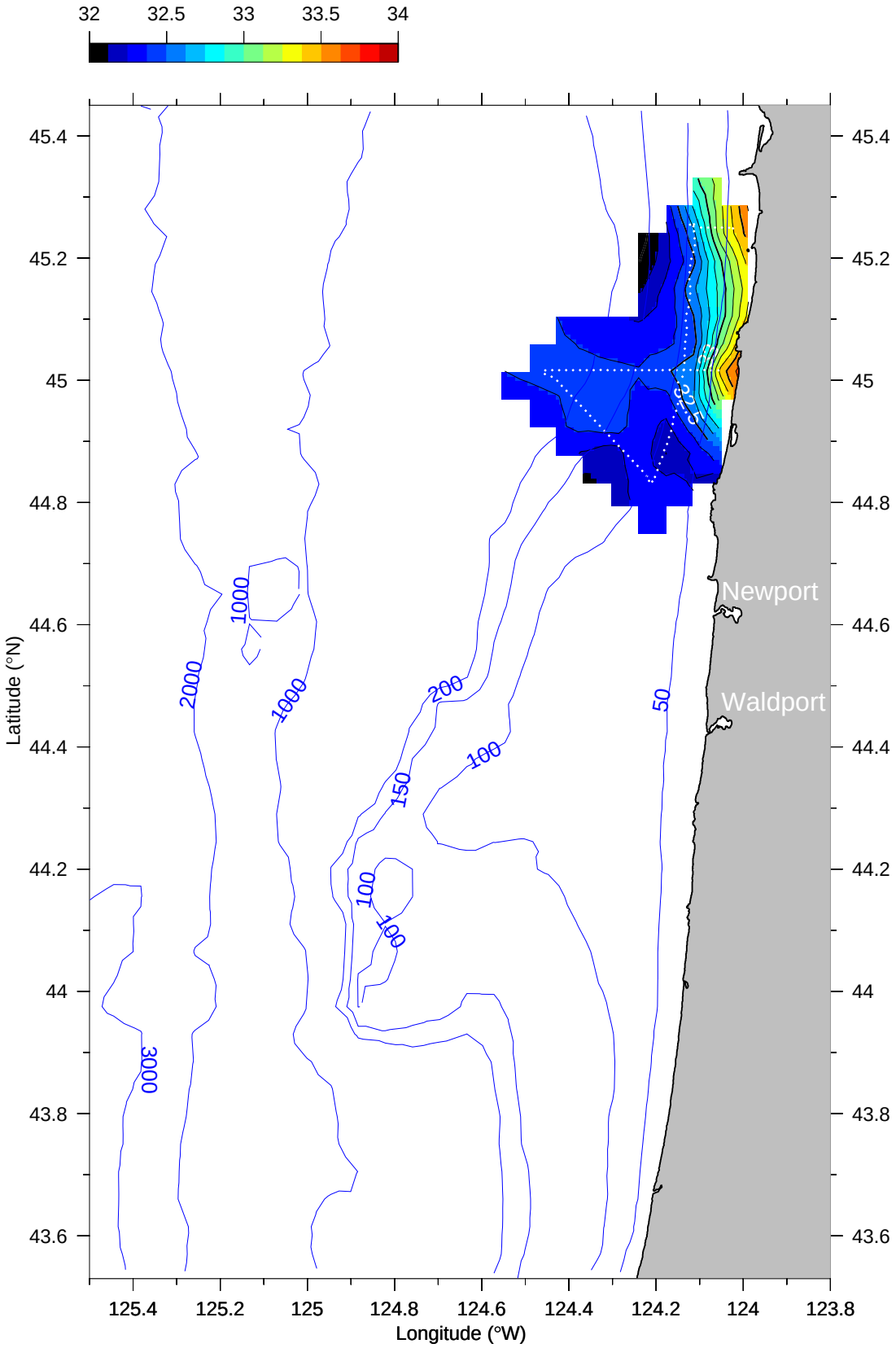
Salinity (PSS) at 15 dbar



W0105 Butterfly 7

07-Jun-2001 05:26 - 07-Jun-2001 14:07

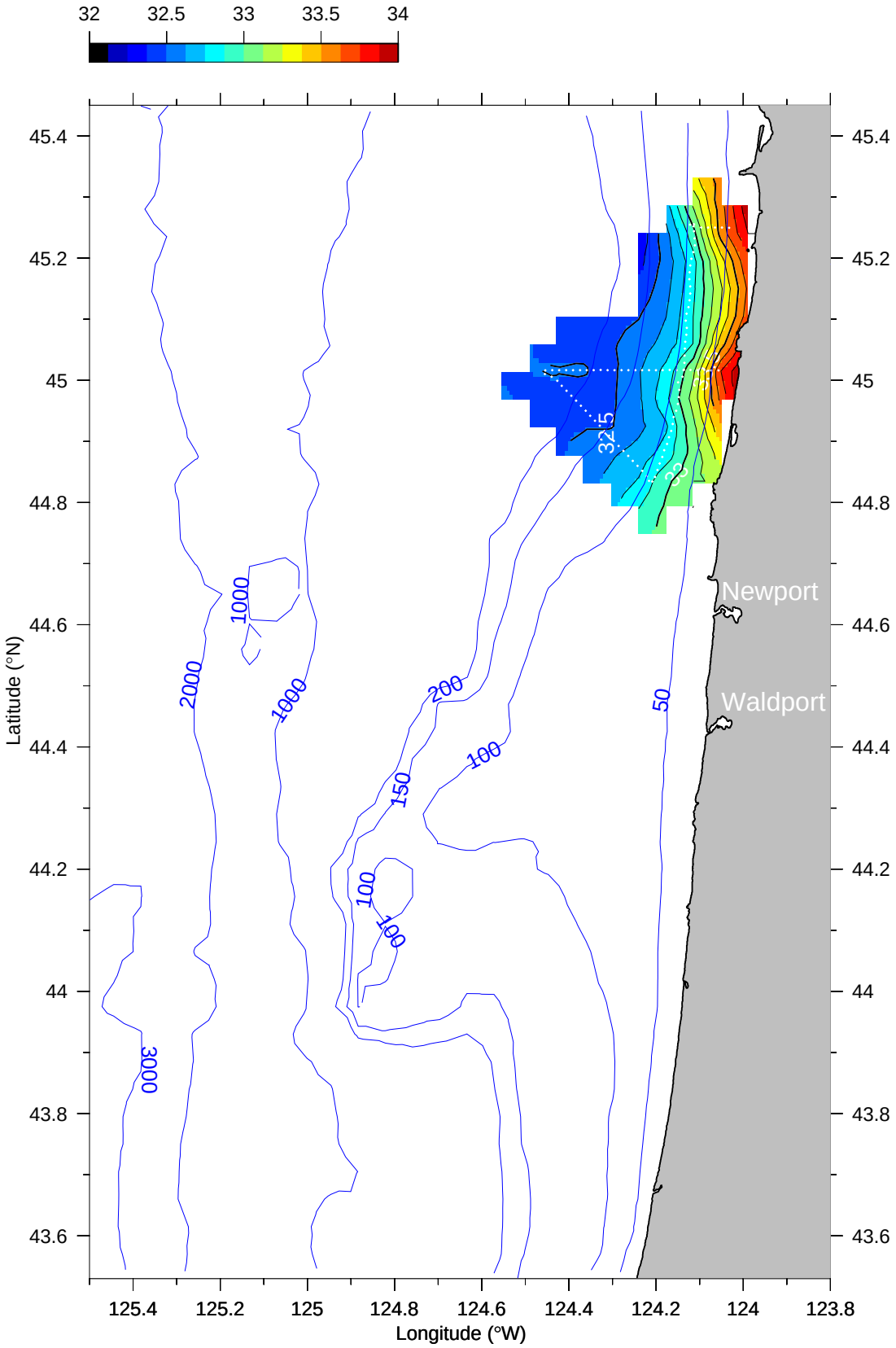
Salinity (PSS) at 25 dbar



W0105 Butterfly 7

07-Jun-2001 05:26 - 07-Jun-2001 14:07

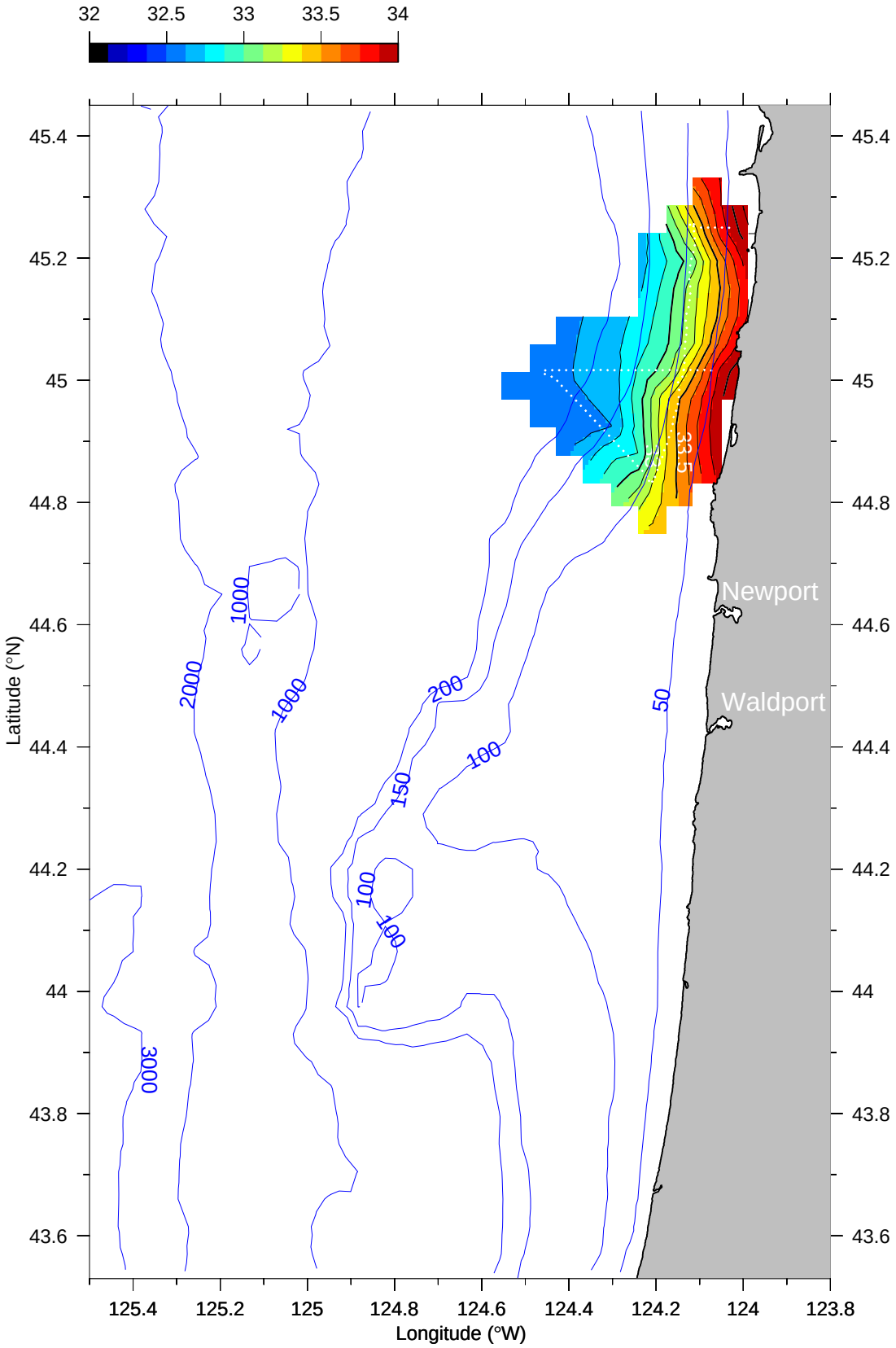
Salinity (PSS) at 35 dbar



W0105 Butterfly 7

07-Jun-2001 05:26 - 07-Jun-2001 14:07

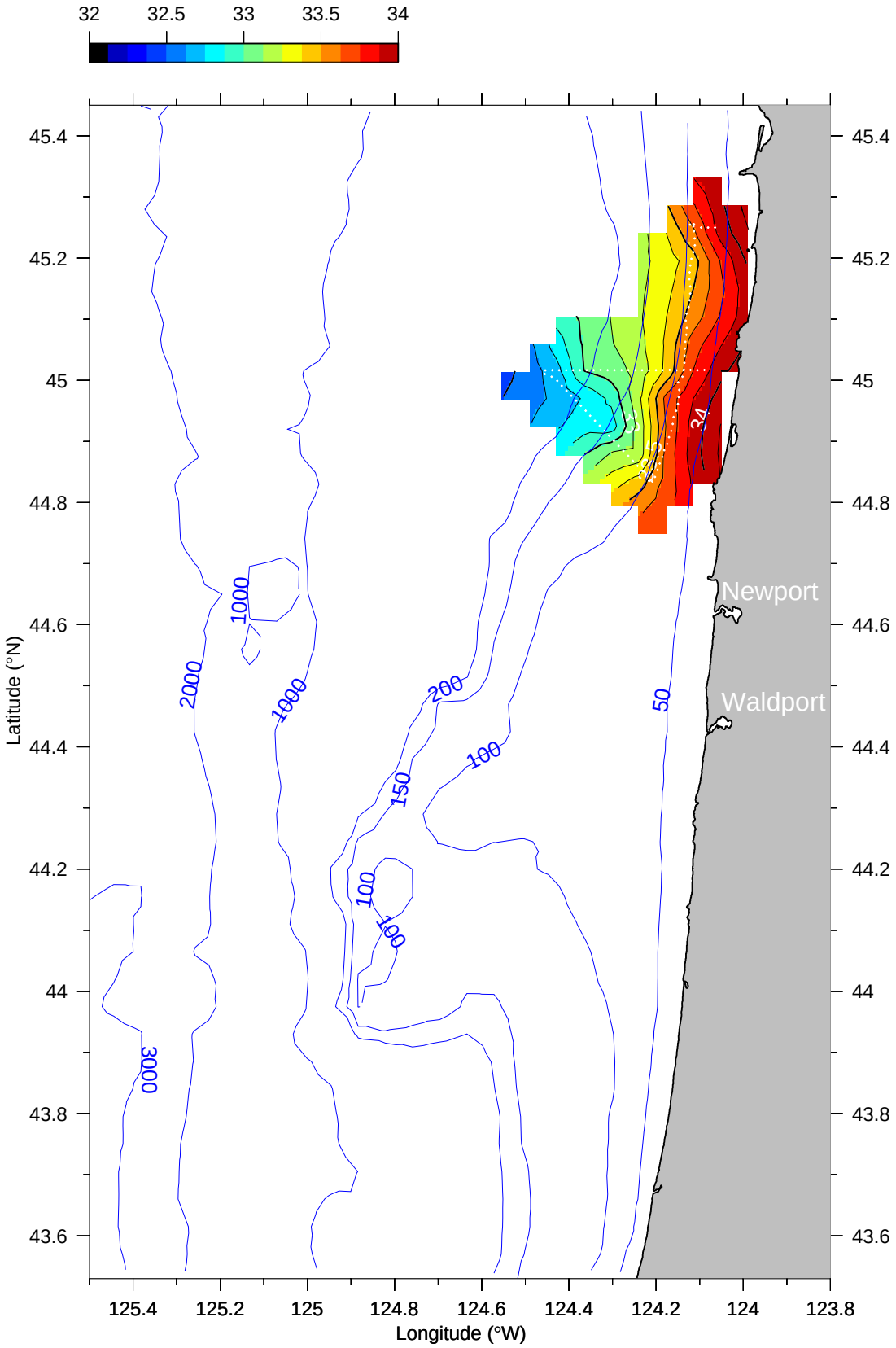
Salinity (PSS) at 45 dbar



W0105 Butterfly 7

07-Jun-2001 05:26 - 07-Jun-2001 14:07

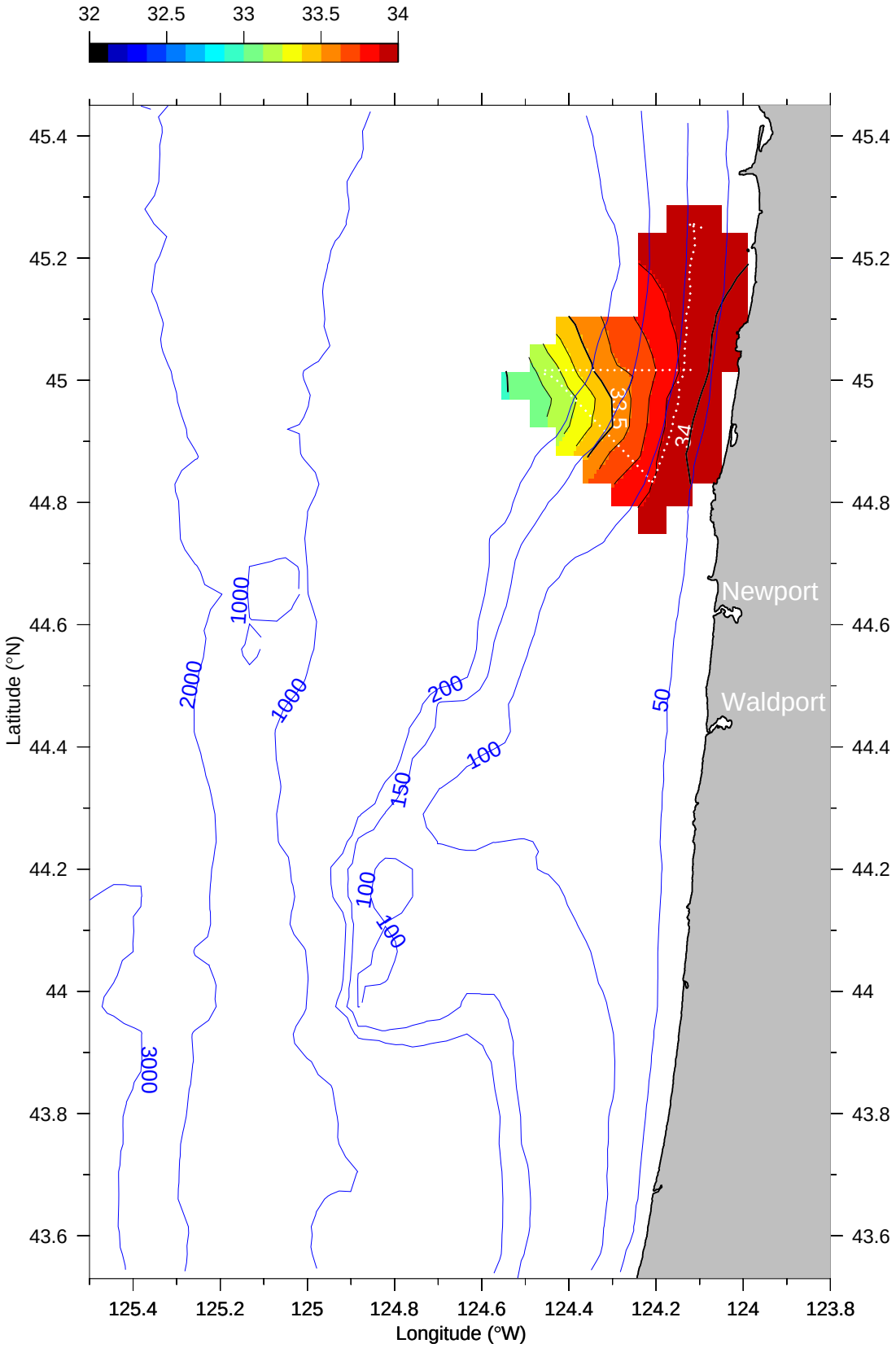
Salinity (PSS) at 55 dbar



W0105 Butterfly 7

07-Jun-2001 05:26 - 07-Jun-2001 14:07

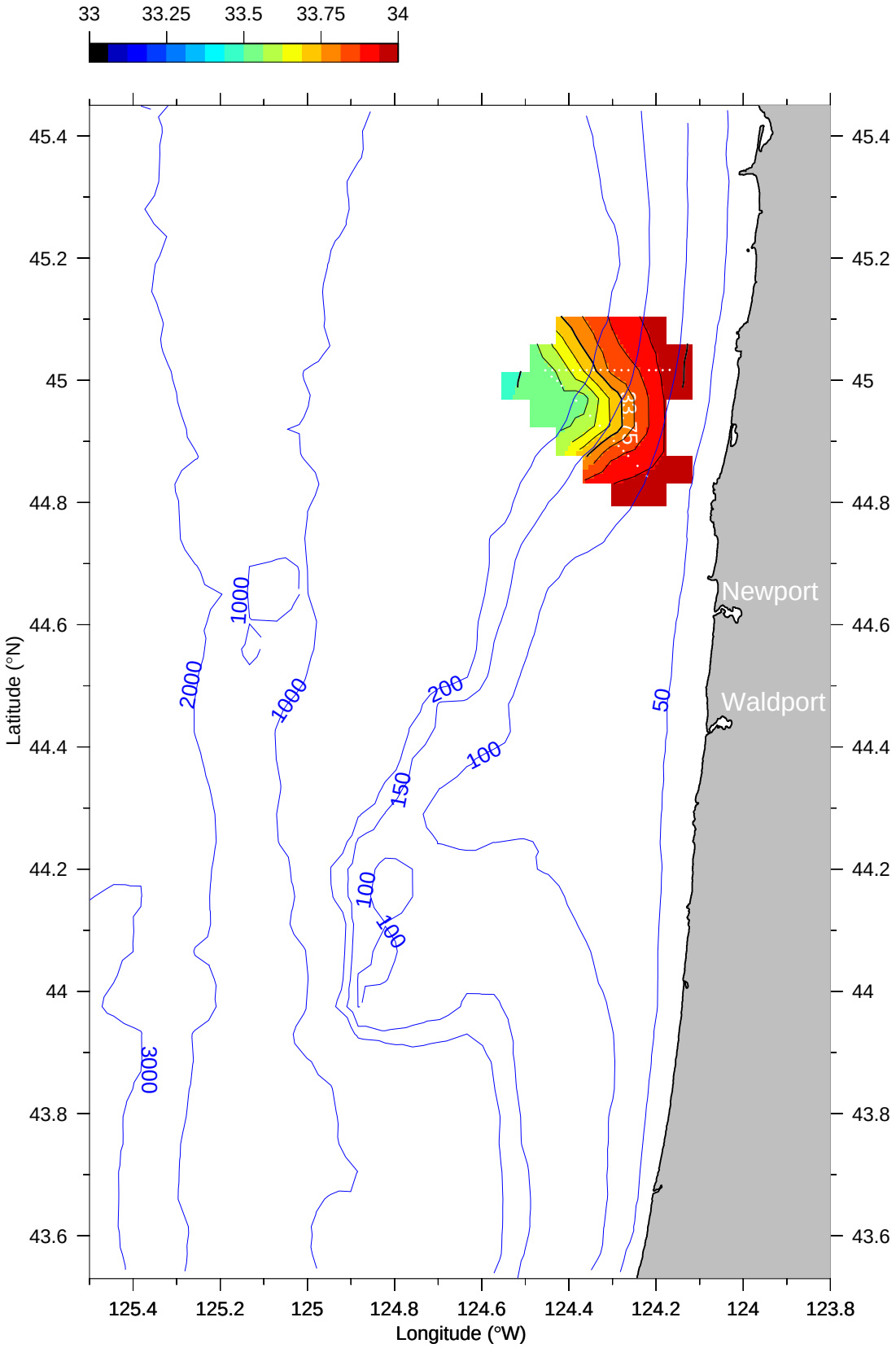
Salinity (PSS) at 75 dbar

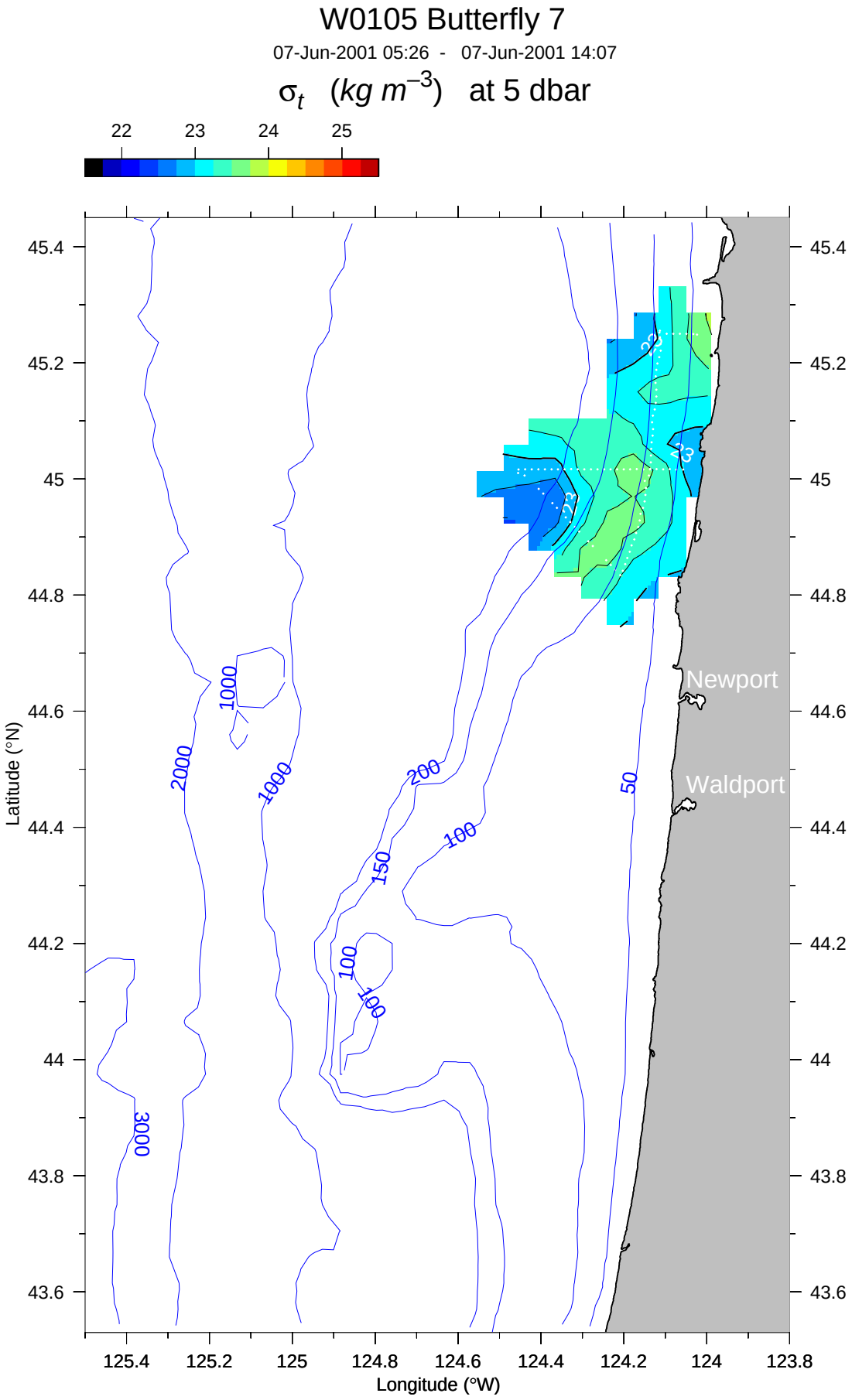


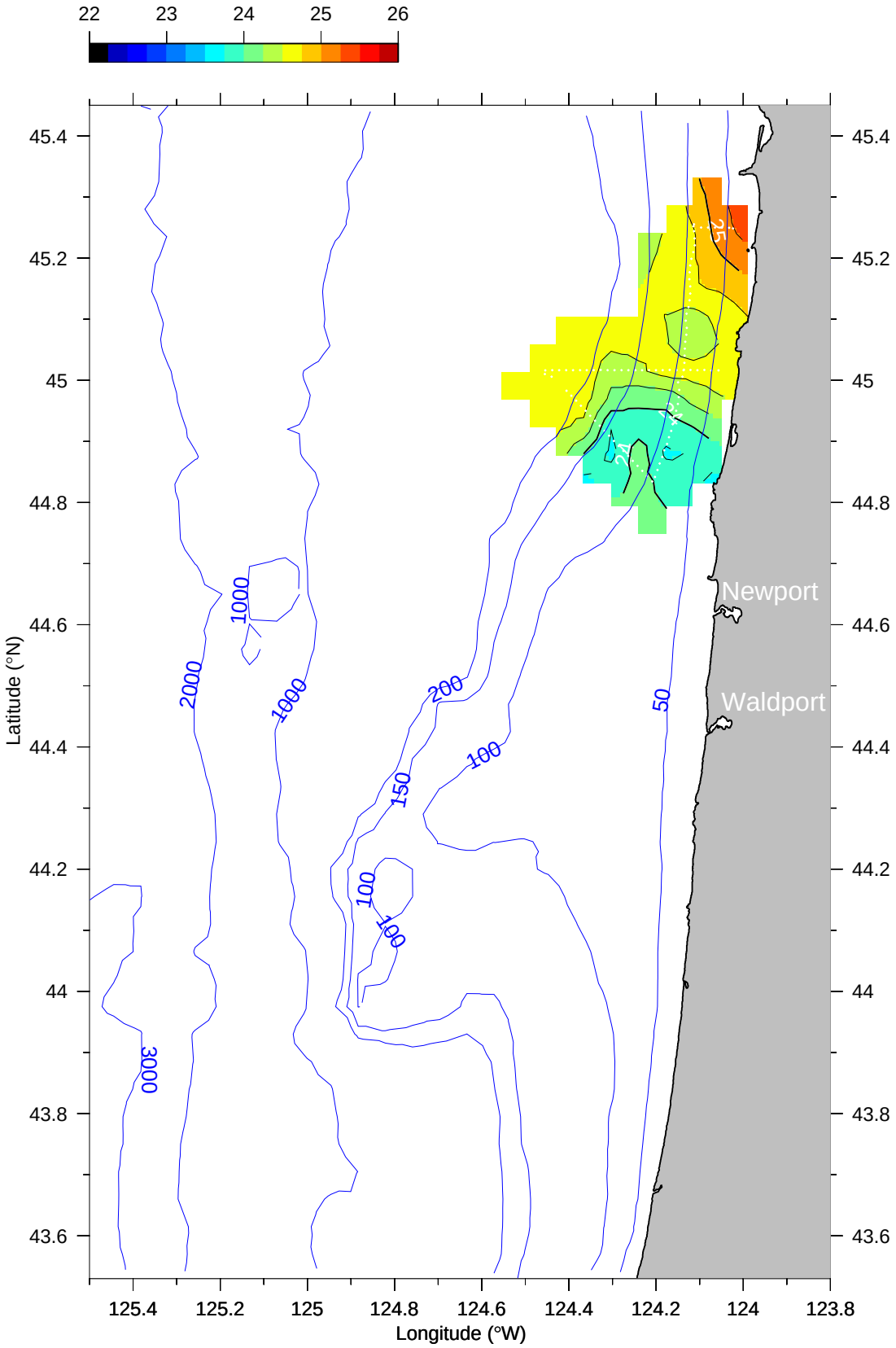
W0105 Butterfly 7

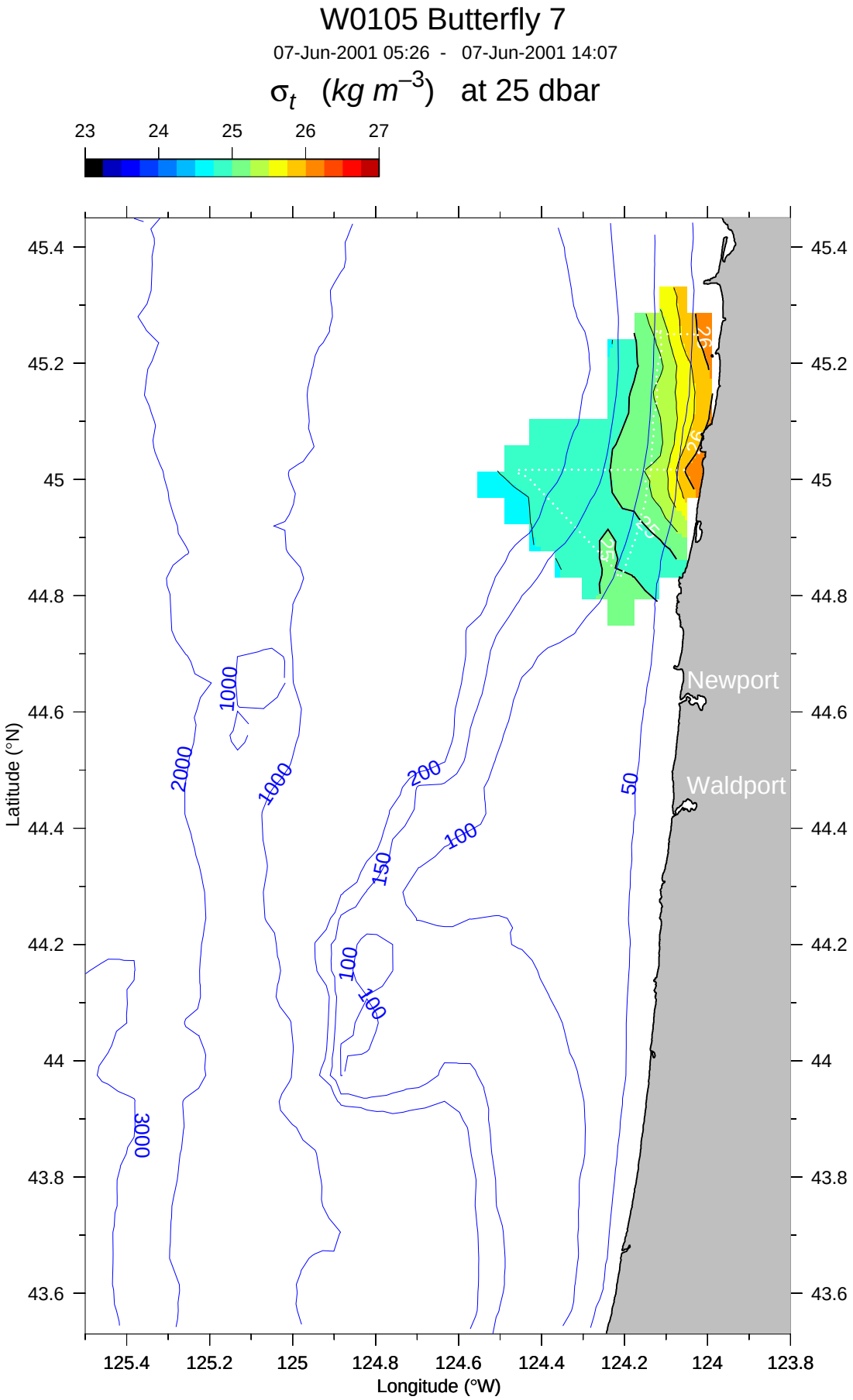
07-Jun-2001 05:26 - 07-Jun-2001 14:07

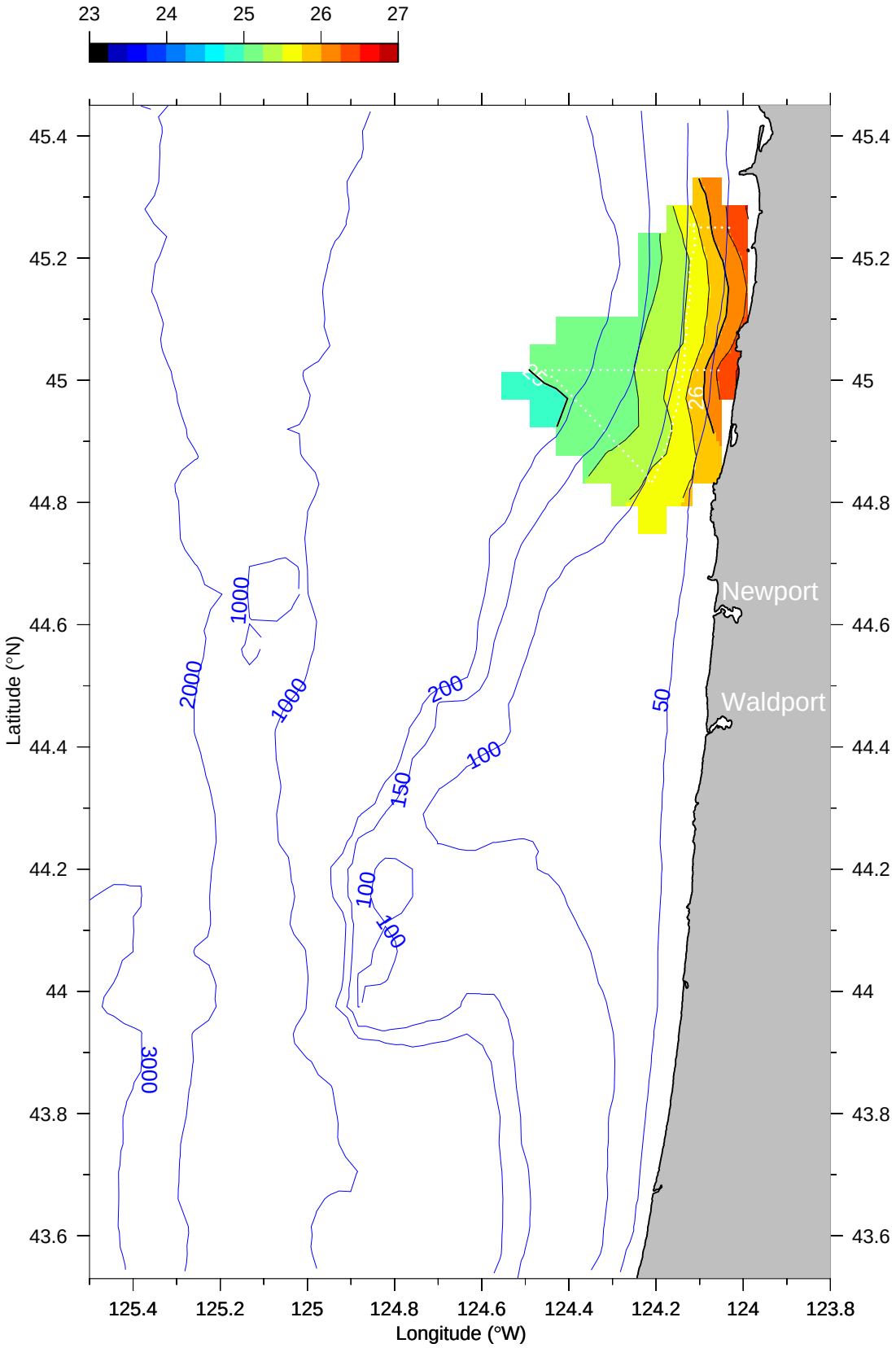
Salinity (PSS) at 95 dbar

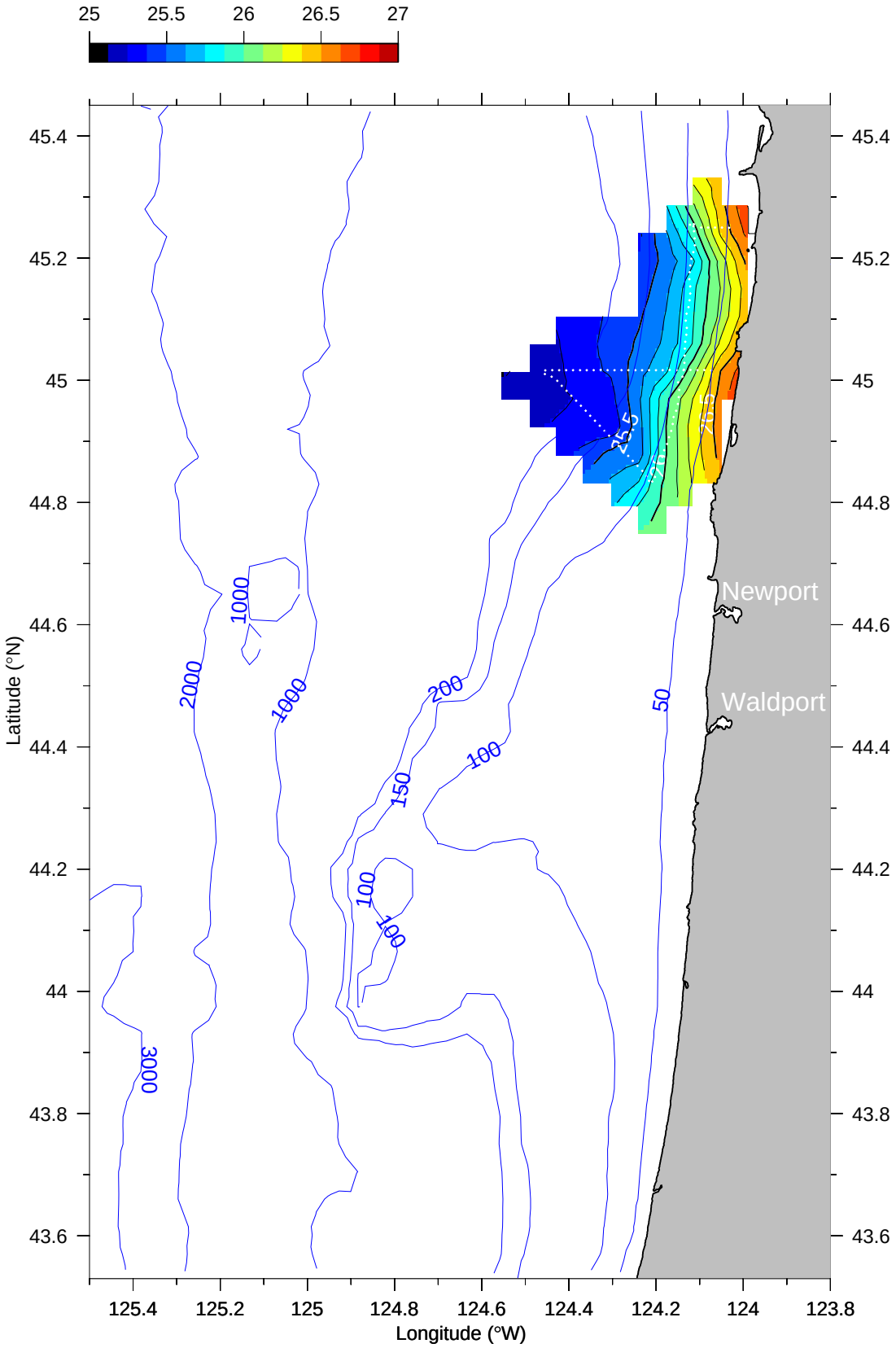


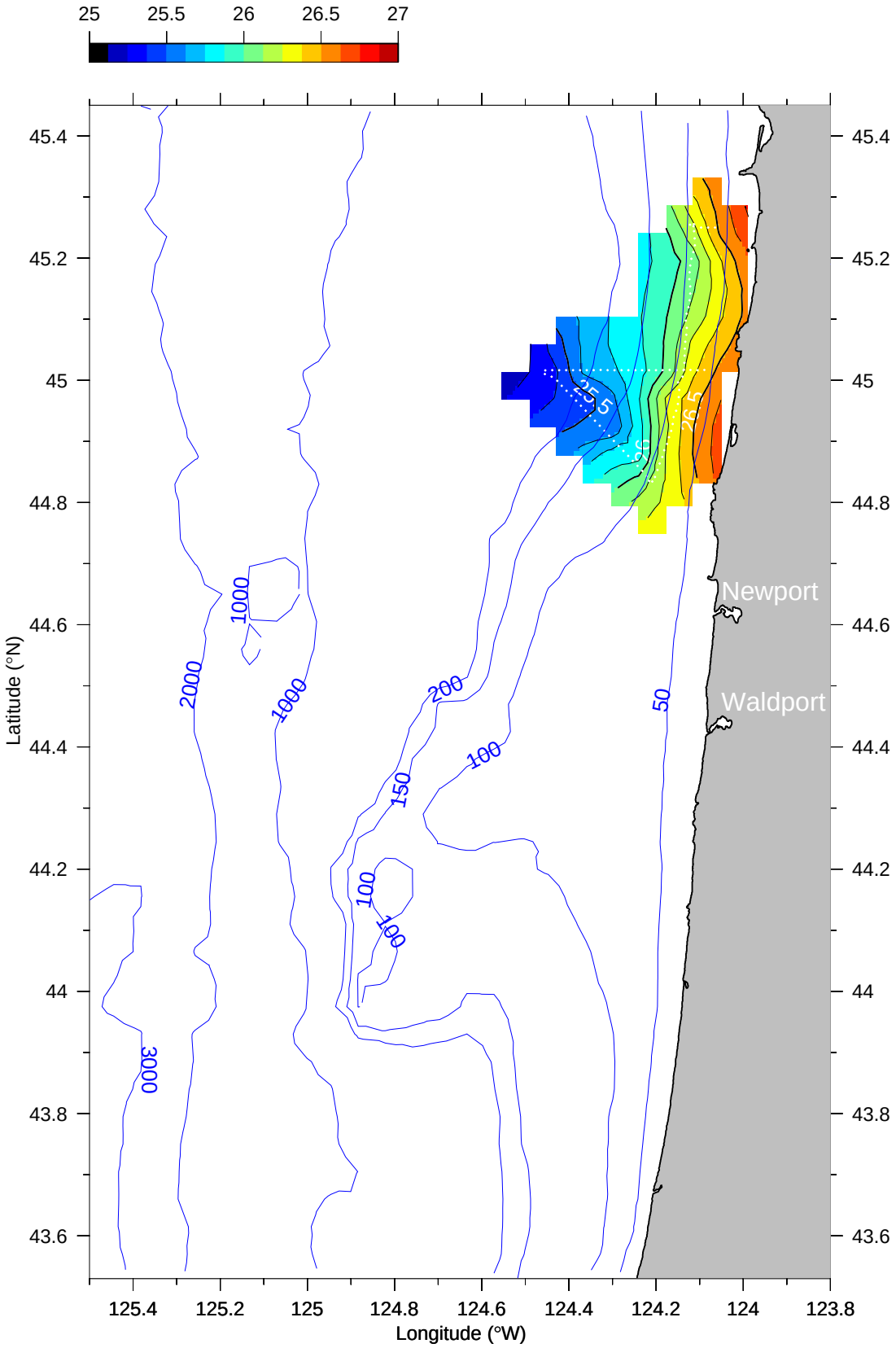

W0105 Butterfly 7
07-Jun-2001 05:26 - 07-Jun-2001 14:07
σt (kg m−3) at 5 dbar
22
23
24
25
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
1000
200
100
150
100
100
50
3000

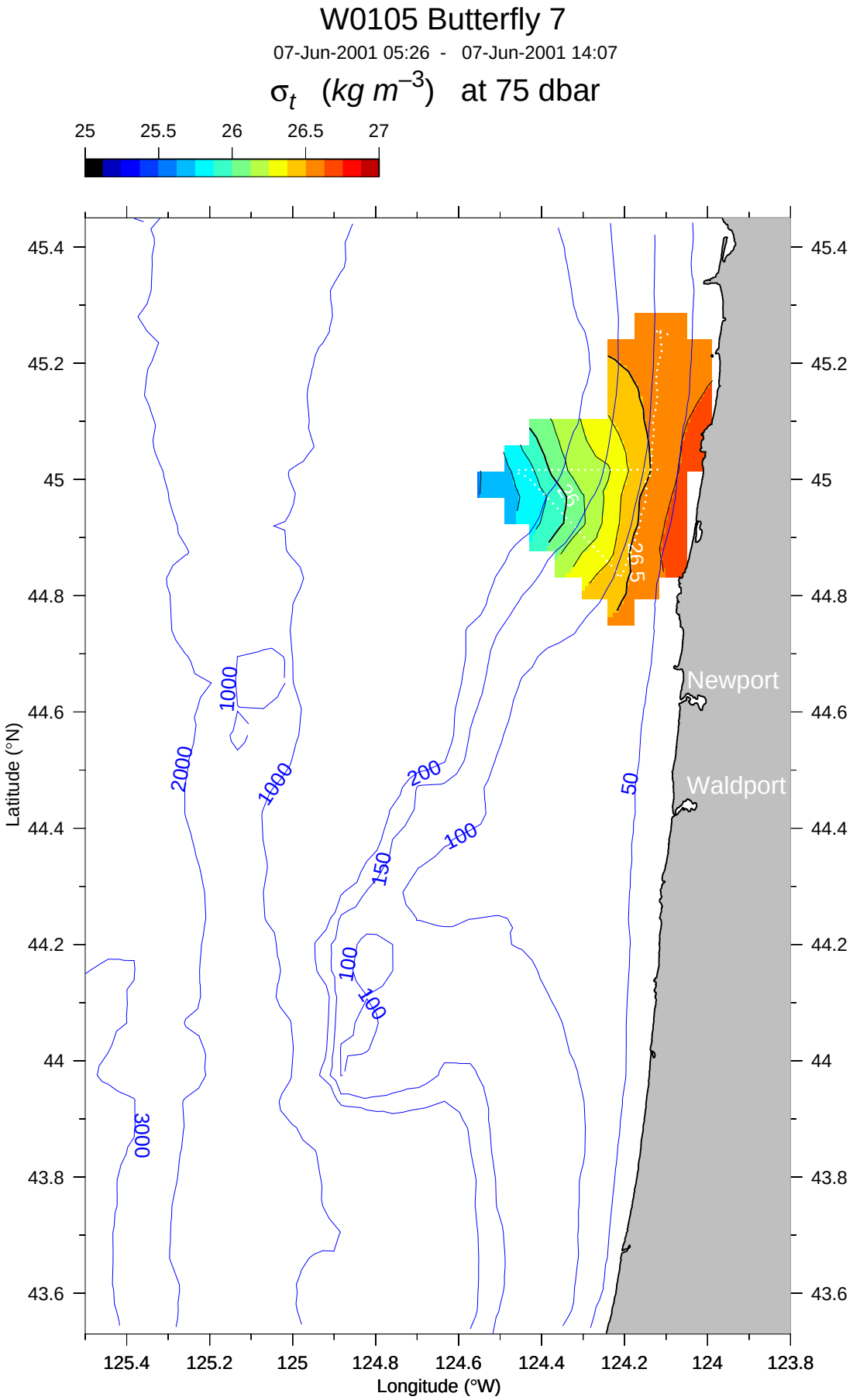

W0105 Butterfly 7
07-Jun-2001 05:26 - 07-Jun-2001 14:07
σt (kg m−3) at 15 dbar
22
23
24
25
26
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
100
150
100
100
50

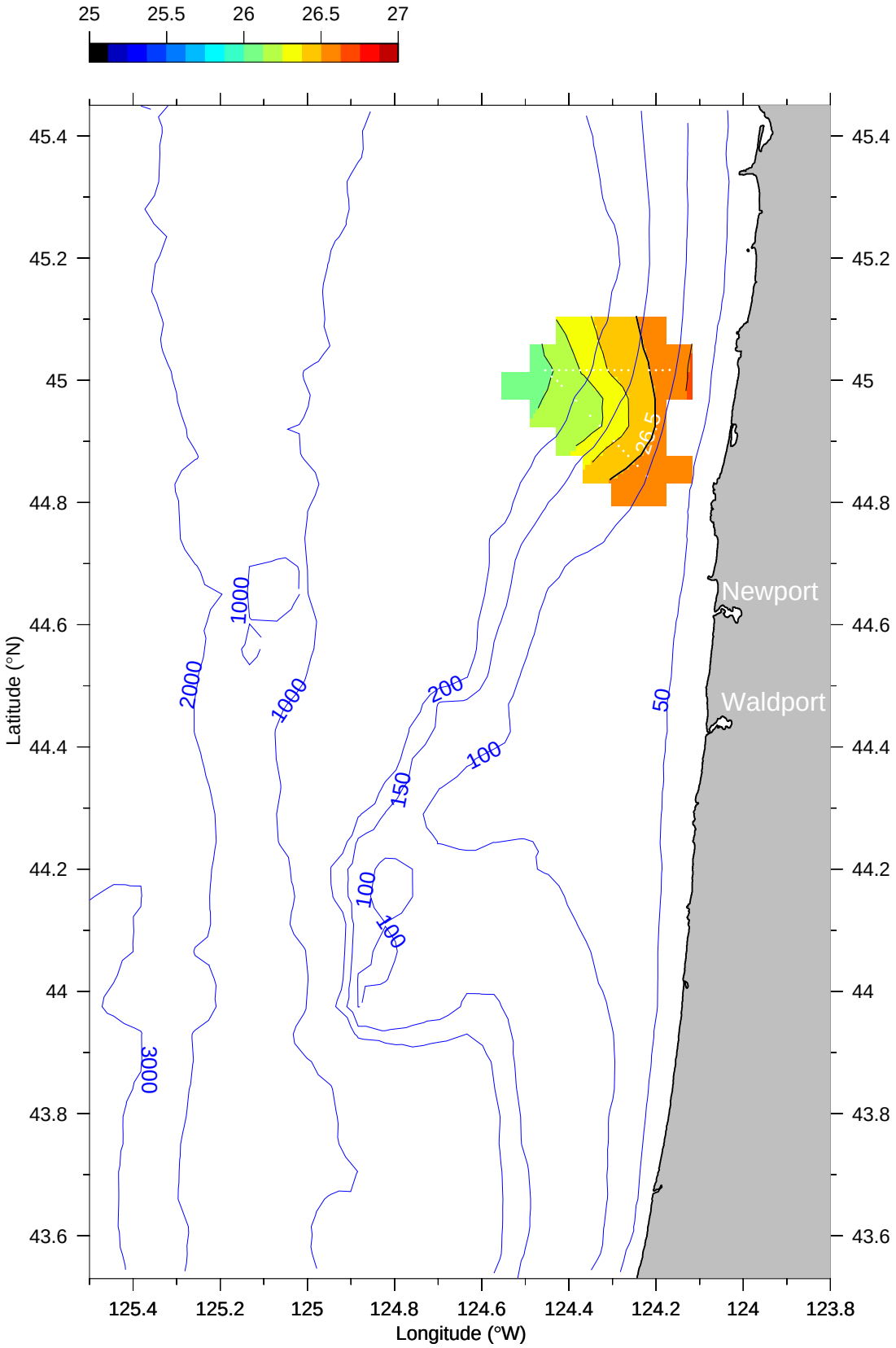

W0105 Butterfly 7
07-Jun-2001 05:26 - 07-Jun-2001 14:07
σt (kg m−3) at 25 dbar
23
24
25
26
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
100
150
100
100
50

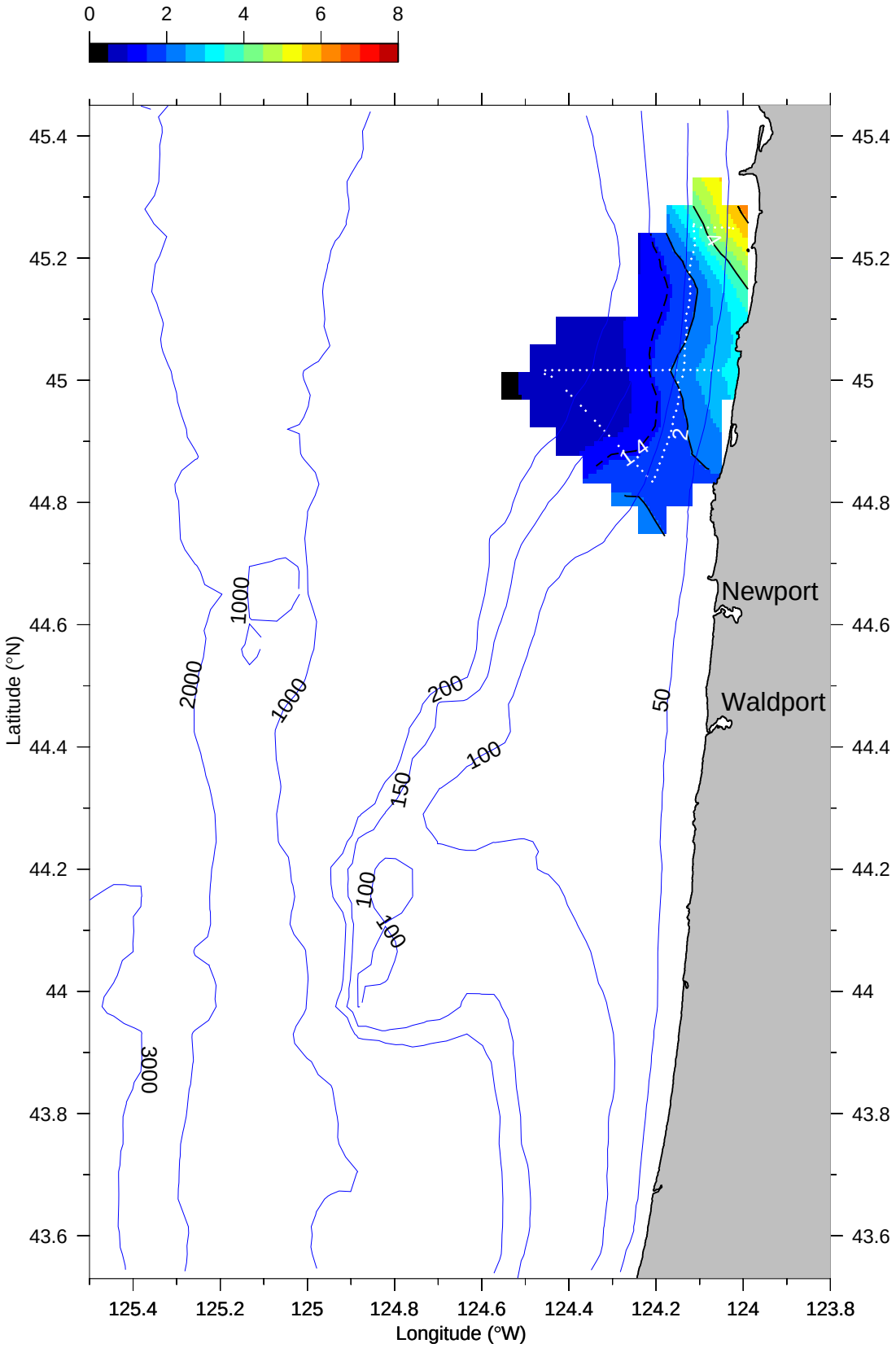

W0105 Butterfly 7
07-Jun-2001 05:26 - 07-Jun-2001 14:07
σt (kg m−3) at 35 dbar
23
24
25
26
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
3000
2000
1000
1000
200
150
100
100
100
50


W0105 Butterfly 7
07-Jun-2001 05:26 - 07-Jun-2001 14:07
σt (kg m−3) at 45 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
2000
1000
1000
200
100
150
100
100
50
3000


W0105 Butterfly 7
07-Jun-2001 05:26 - 07-Jun-2001 14:07
σt (kg m−3) at 55 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
200
100
150
50
3000


W0105 Butterfly 7
07-Jun-2001 05:26 - 07-Jun-2001 14:07
σt (kg m−3) at 75 dbar
25
25.5
26
26.5
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
3000
2000
1000
1000
200
150
100
100
100
50
26.5


W0105 Butterfly 7
07-Jun-2001 05:26 - 07-Jun-2001 14:07
σt (kg m−3) at 95 dbar
25
25.5
26
26.5
27
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
26.5
1000
2000
1000
200
100
150
100
100
50
3000


W0105 Butterfly 7
07-Jun-2001 05:26 - 07-Jun-2001 14:07
Chlorophyll (µg L−1) at 5 dbar
0
2
4
6
8
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
Latitude (°N)
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
Longitude (°W)
Newport
Waldport
1000
2000
1000
200
100
150
100
100
3000
50
1.4
2

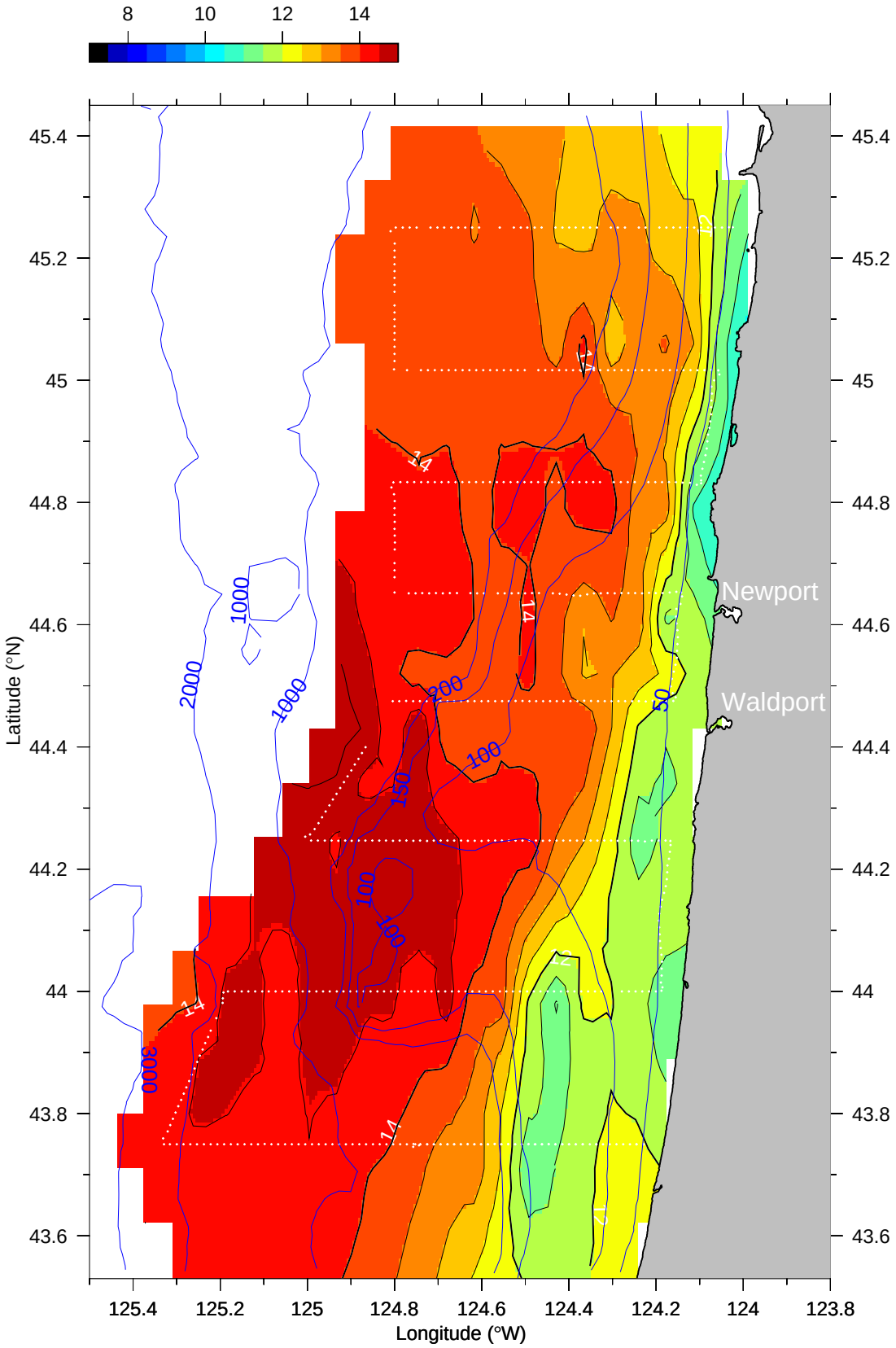
Big Box 4 Maps

Maps of Temperature, Salinity, σ_t, and Chlorophyll at Specified Depths

W0105 Big Box 4

07-Jun-2001 14:08 - 09-Jun-2001 20:52

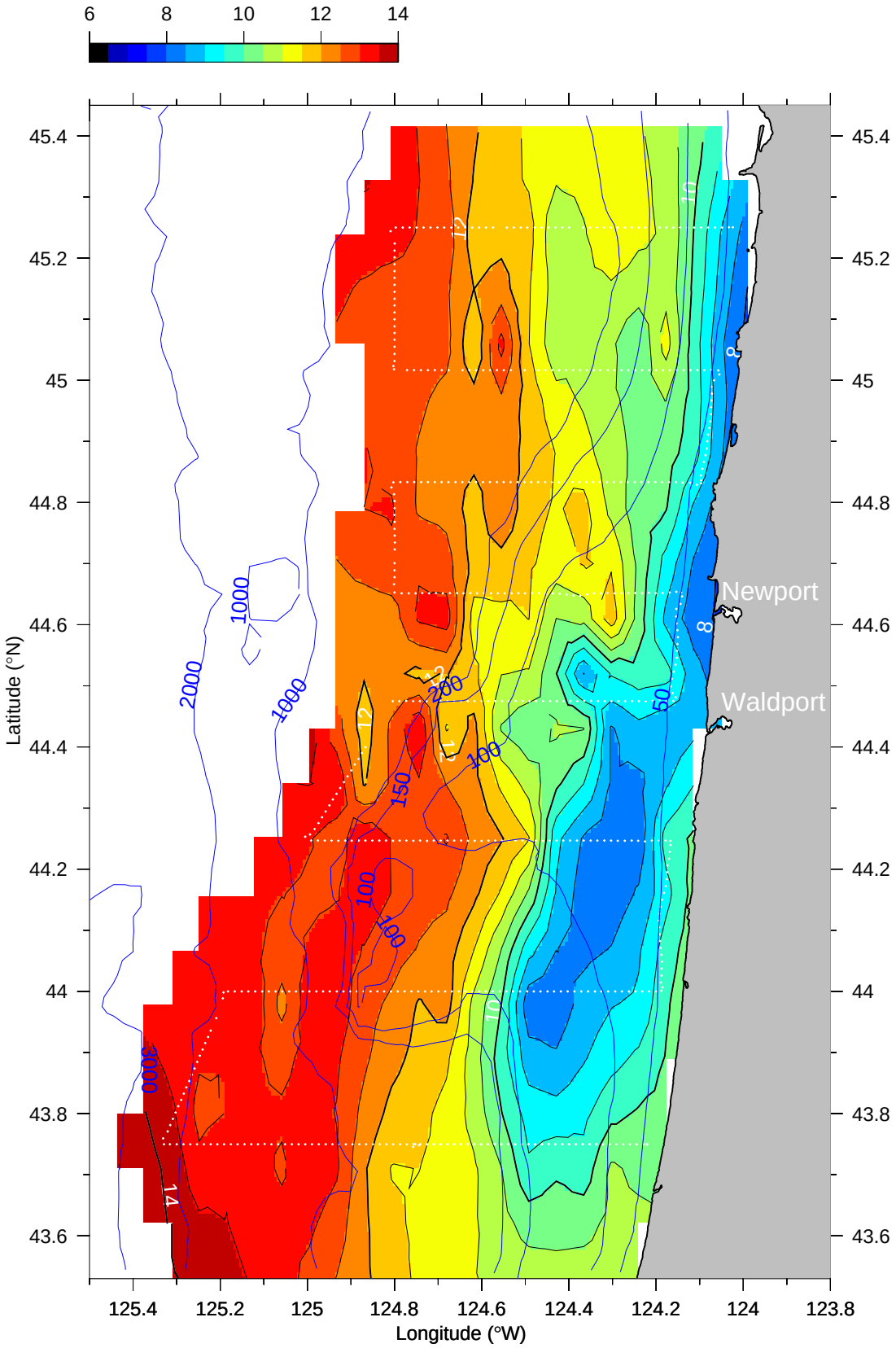
Temperature (°C) at 5 dbar



W0105 Big Box 4

07-Jun-2001 14:08 - 09-Jun-2001 20:52

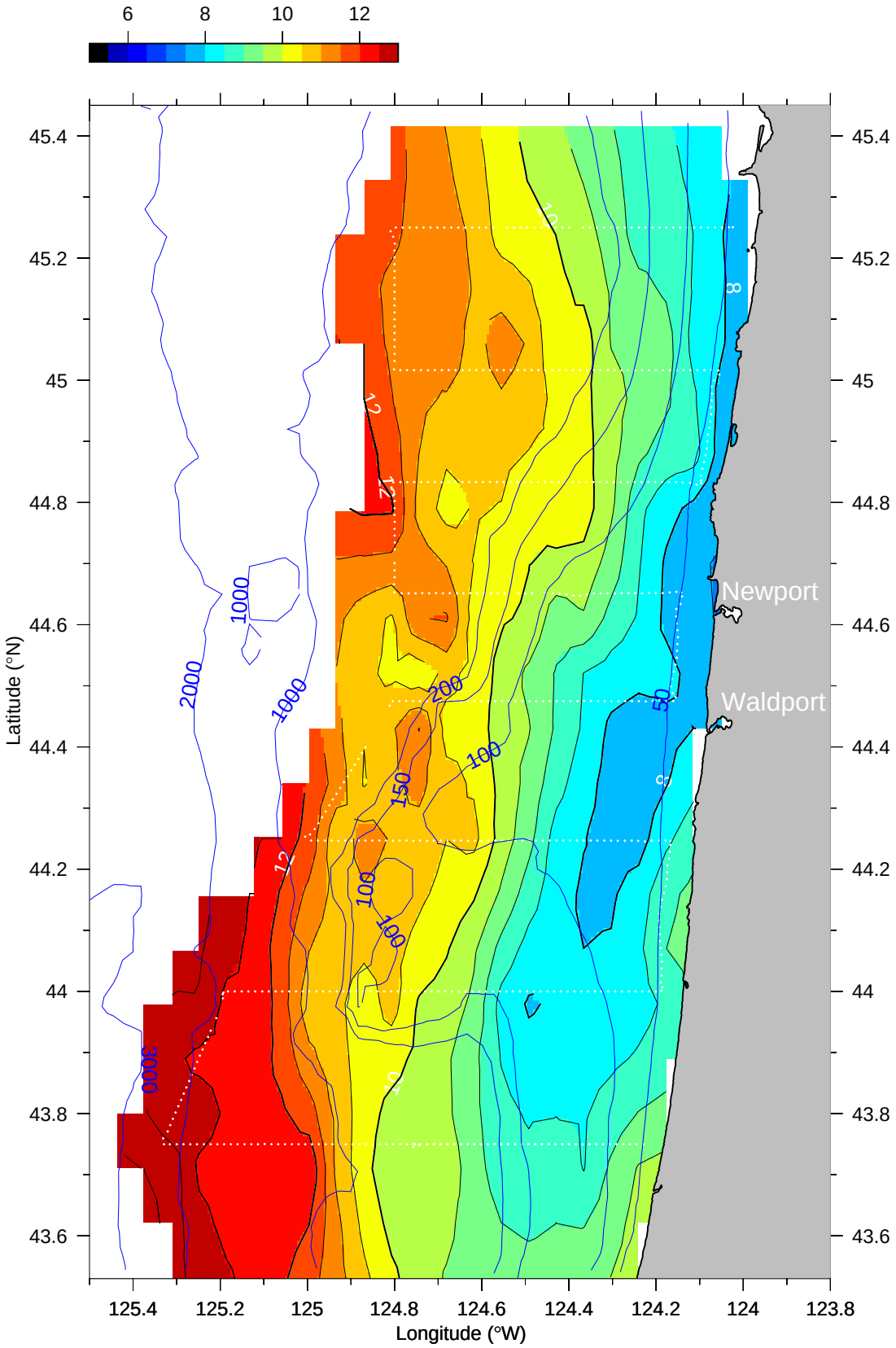
Temperature (°C) at 15 dbar



W0105 Big Box 4

07-Jun-2001 14:08 - 09-Jun-2001 20:52

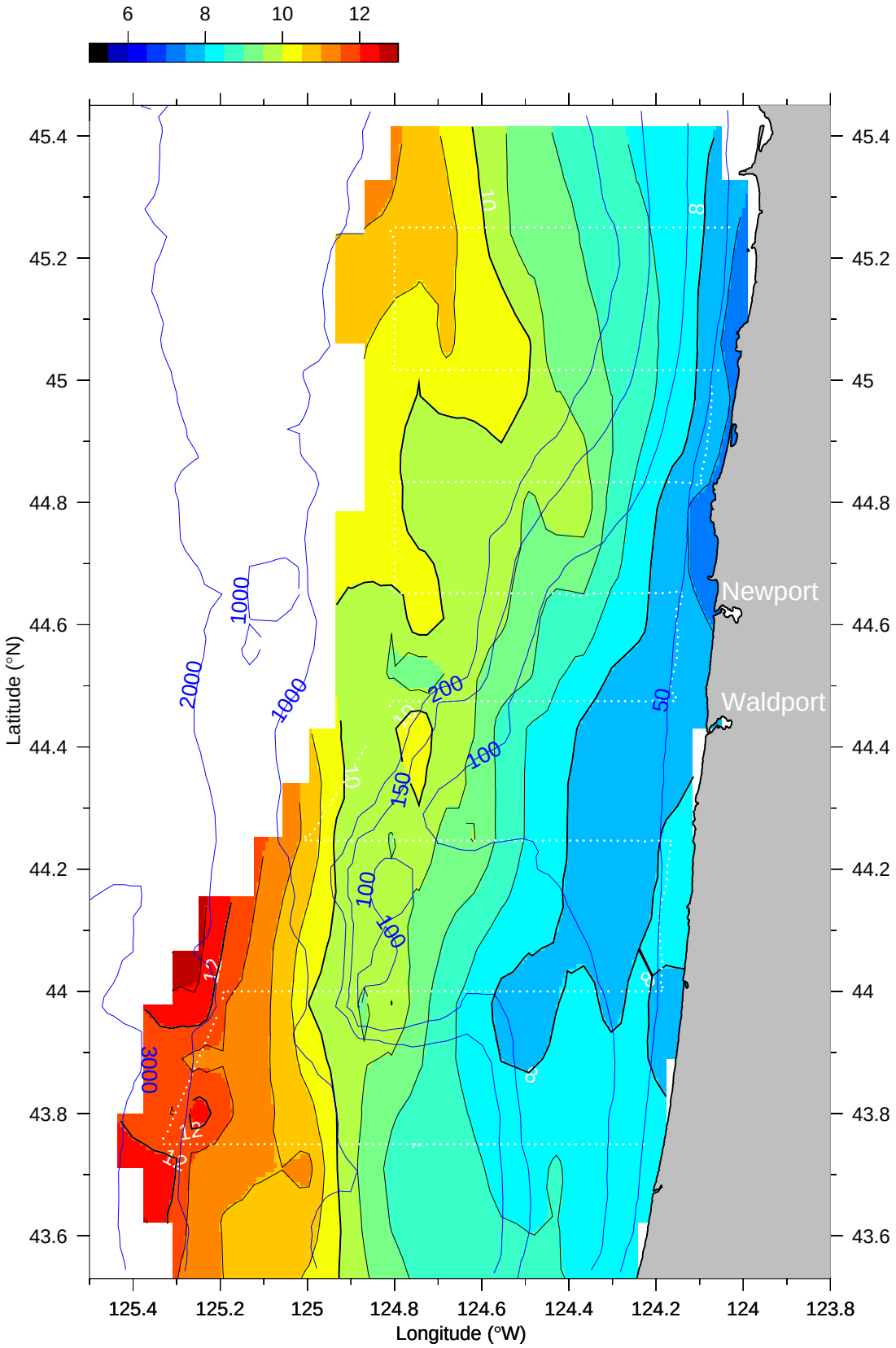
Temperature (°C) at 25 dbar



W0105 Big Box 4

07-Jun-2001 14:08 - 09-Jun-2001 20:52

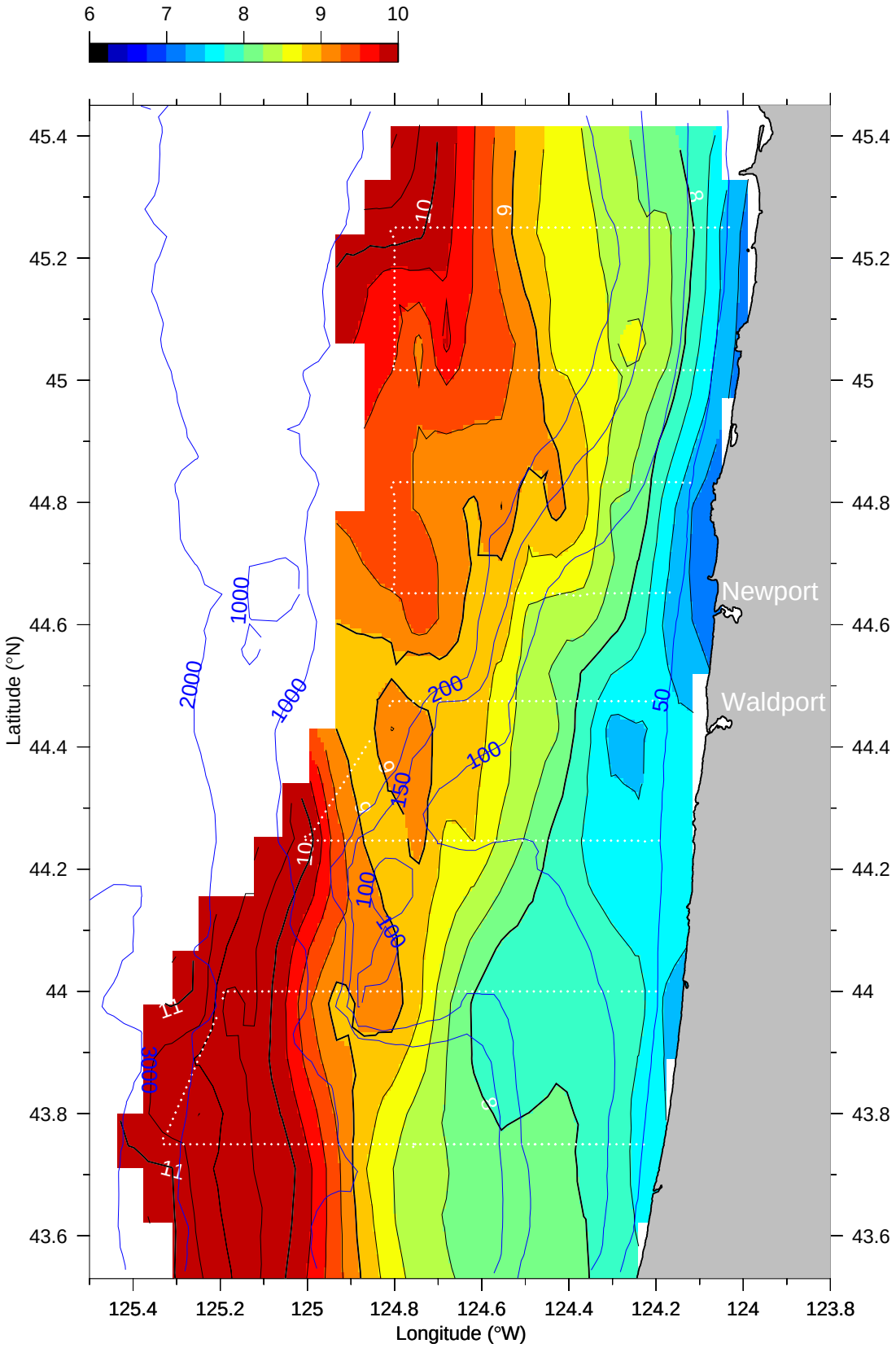
Temperature (°C) at 35 dbar



W0105 Big Box 4

07-Jun-2001 14:08 - 09-Jun-2001 20:52

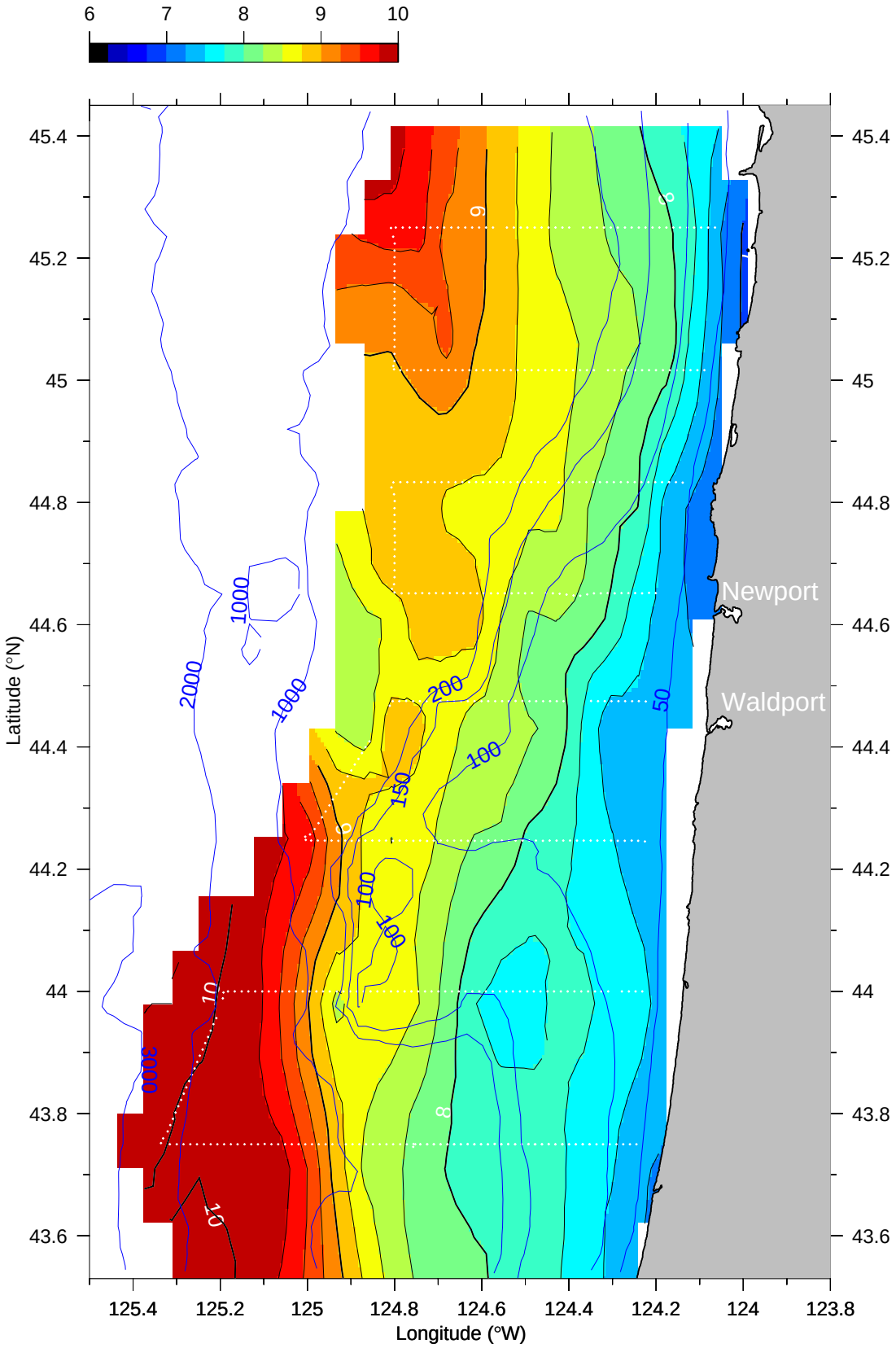
Temperature (°C) at 45 dbar



W0105 Big Box 4

07-Jun-2001 14:08 - 09-Jun-2001 20:52

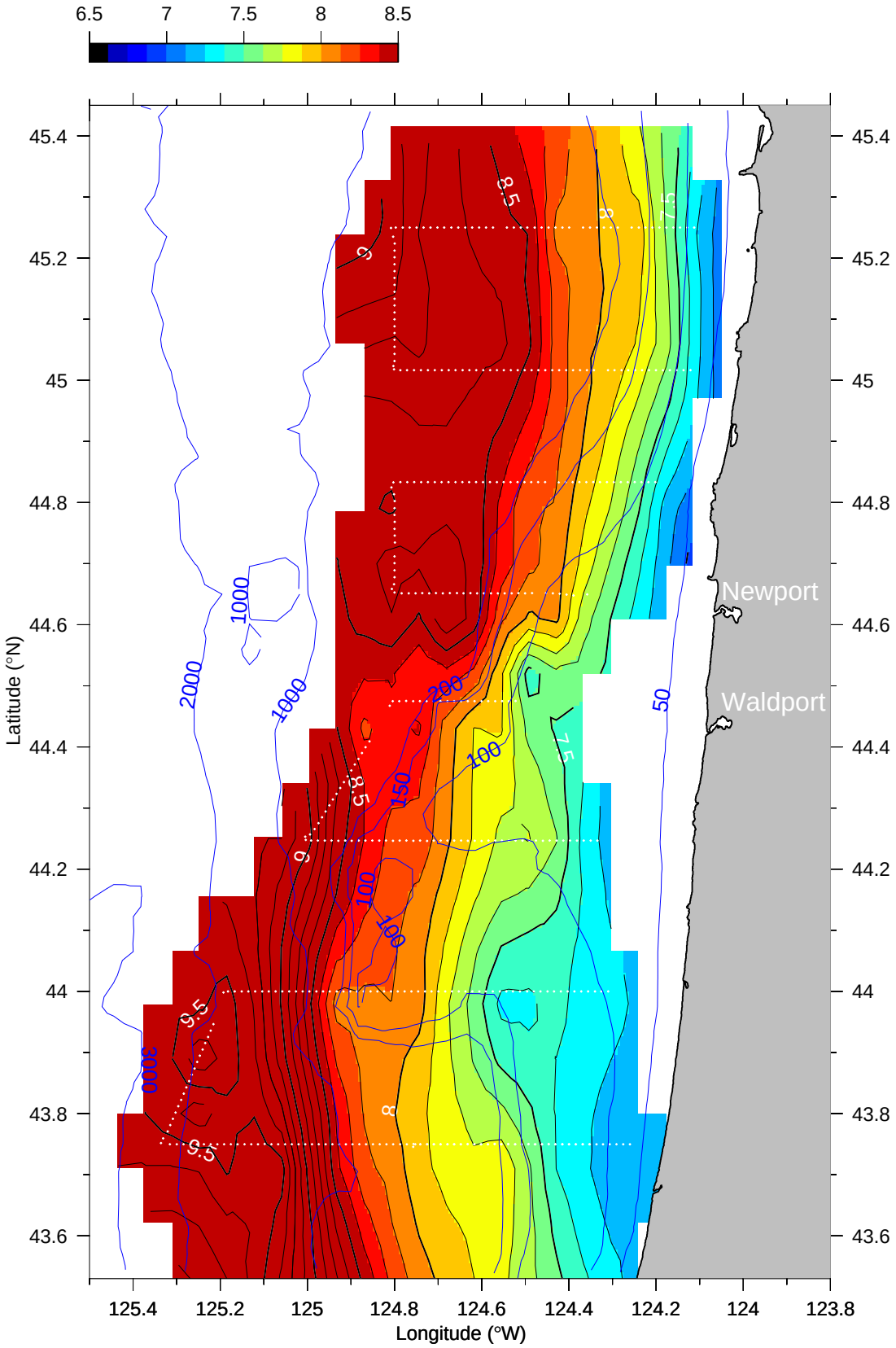
Temperature (°C) at 55 dbar



W0105 Big Box 4

07-Jun-2001 14:08 - 09-Jun-2001 20:52

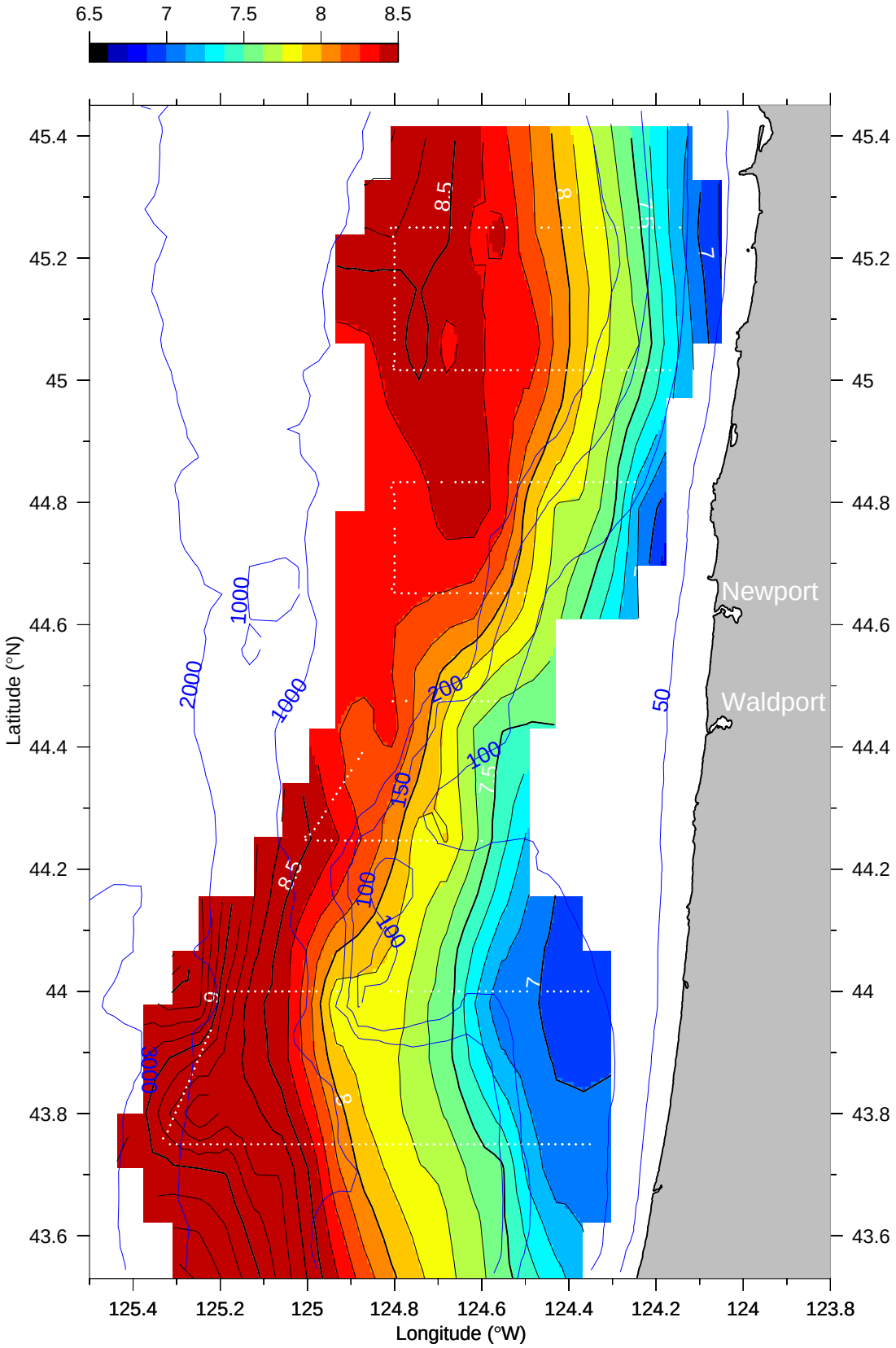
Temperature (°C) at 75 dbar



W0105 Big Box 4

07-Jun-2001 14:08 - 09-Jun-2001 20:52

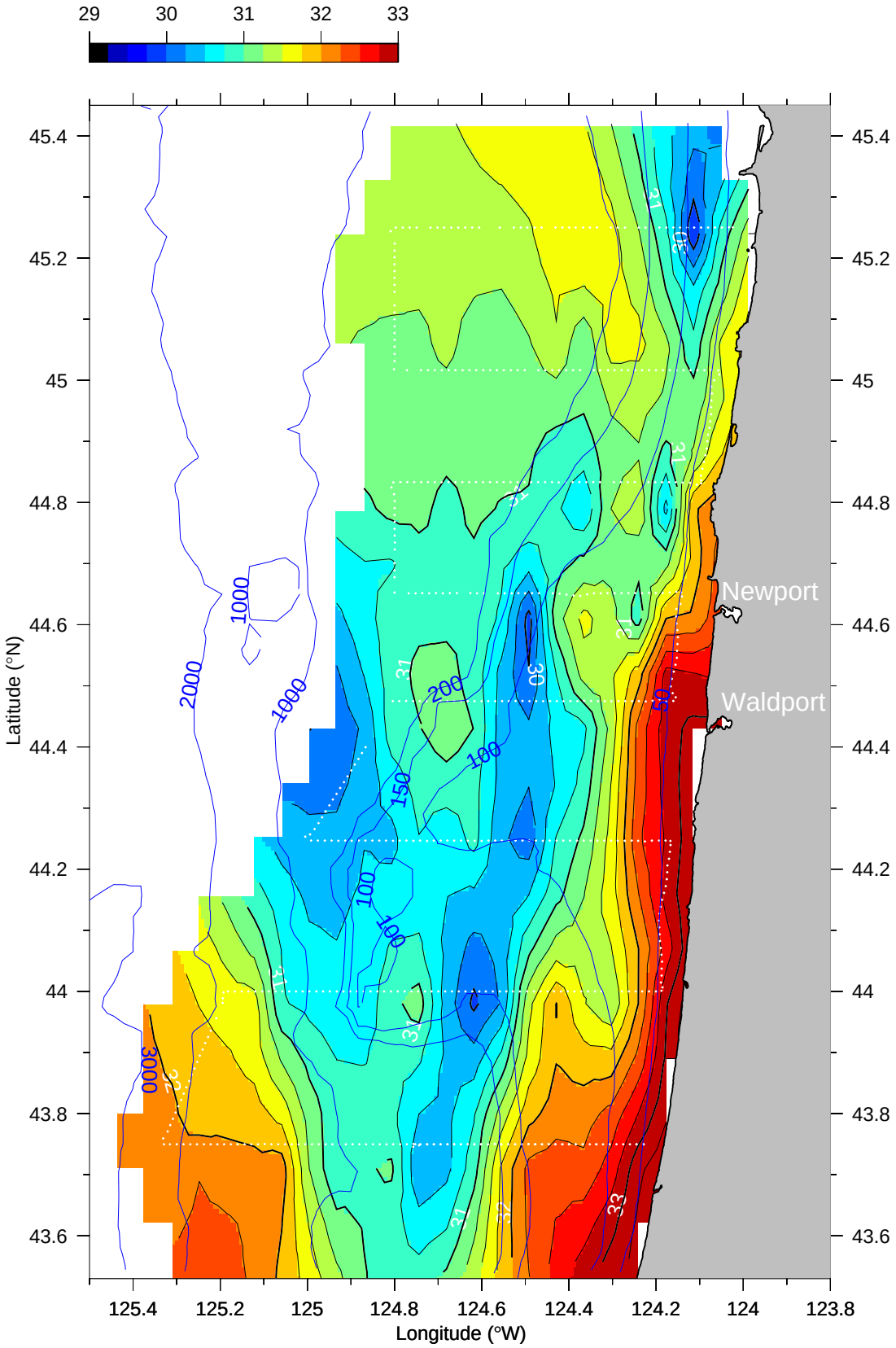
Temperature (°C) at 95 dbar



W0105 Big Box 4

07-Jun-2001 14:08 - 09-Jun-2001 20:52

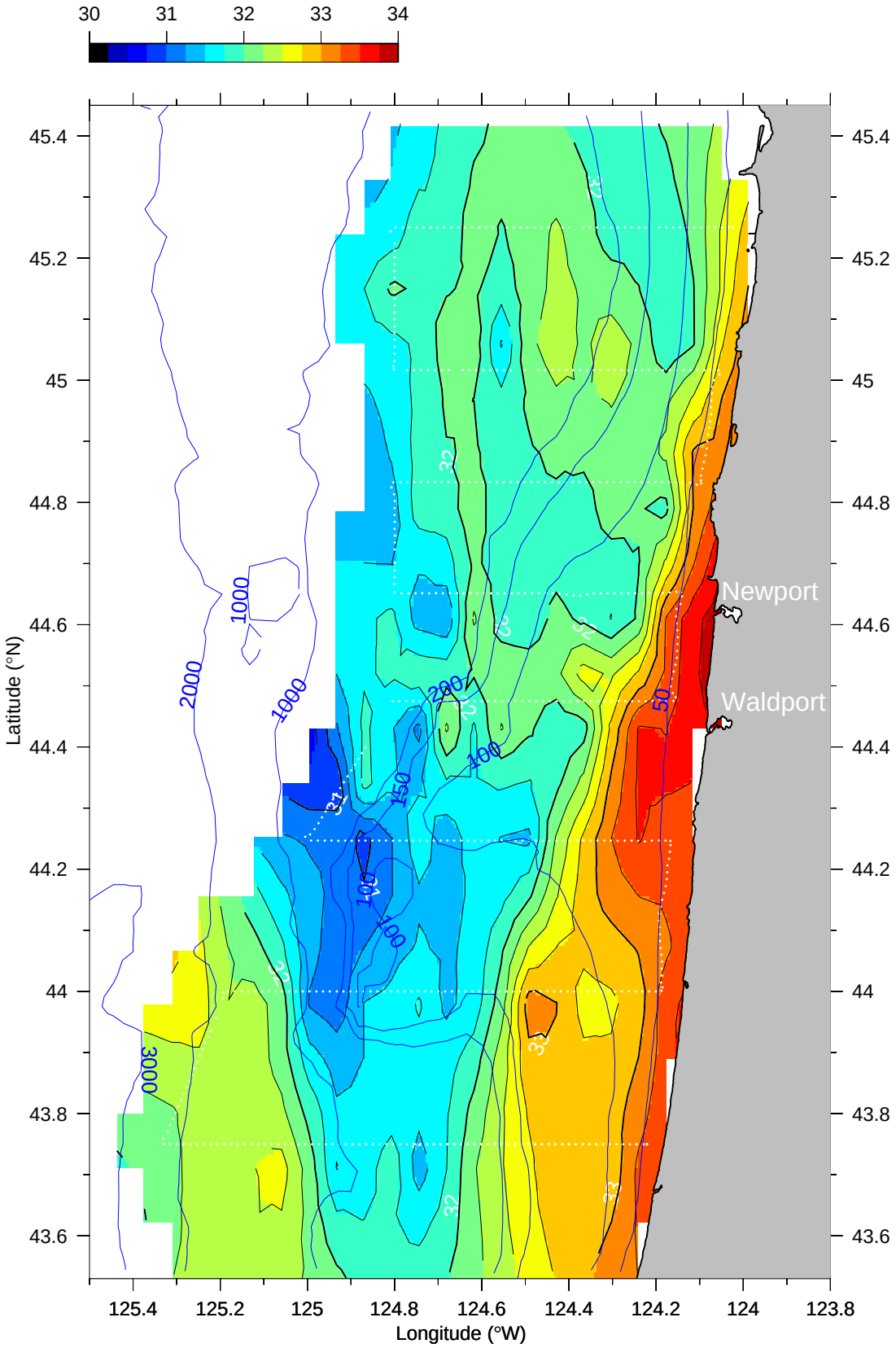
Salinity (PSS) at 5 dbar



W0105 Big Box 4

07-Jun-2001 14:08 - 09-Jun-2001 20:52

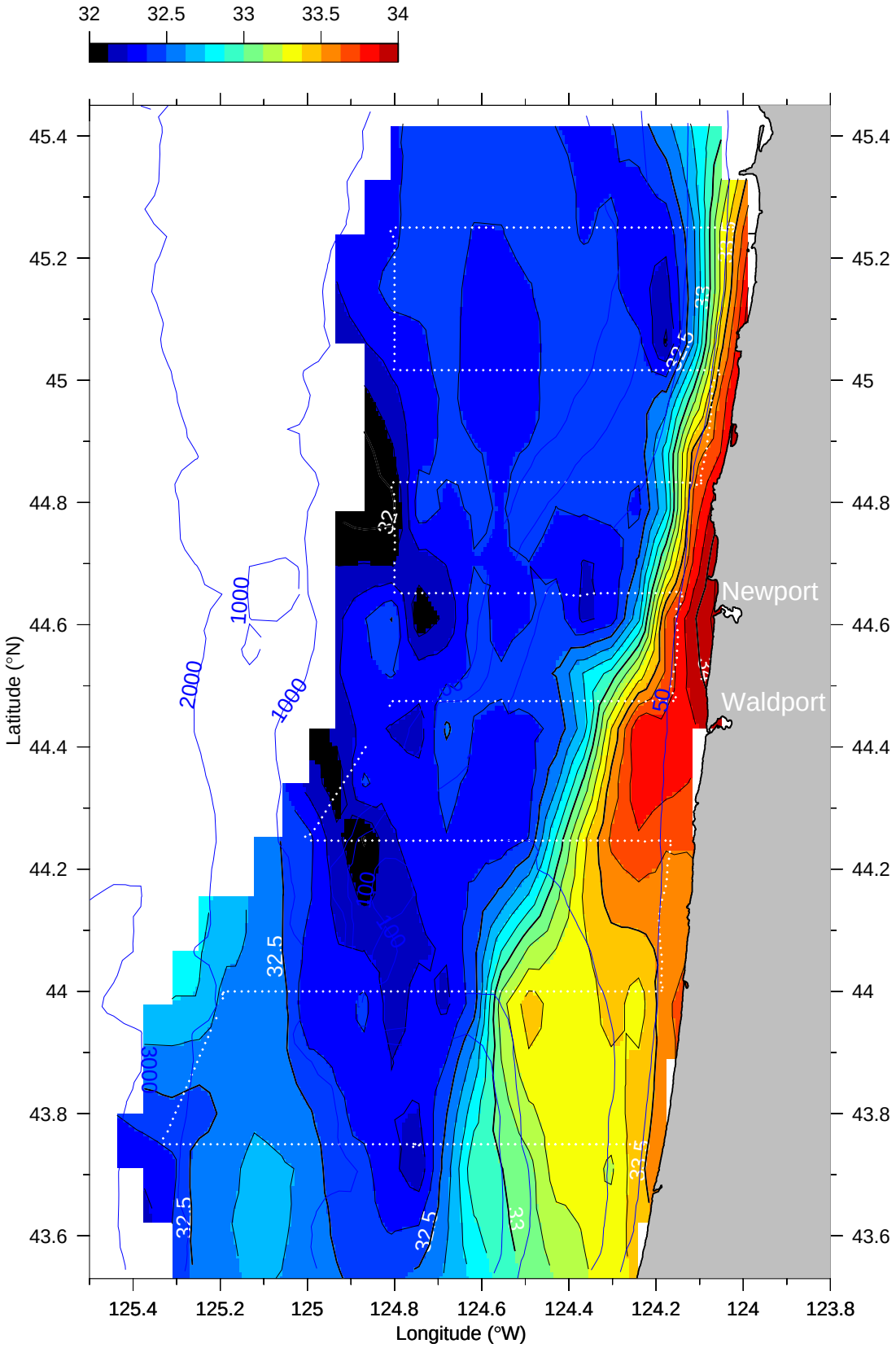
Salinity (PSS) at 15 dbar



W0105 Big Box 4

07-Jun-2001 14:08 - 09-Jun-2001 20:52

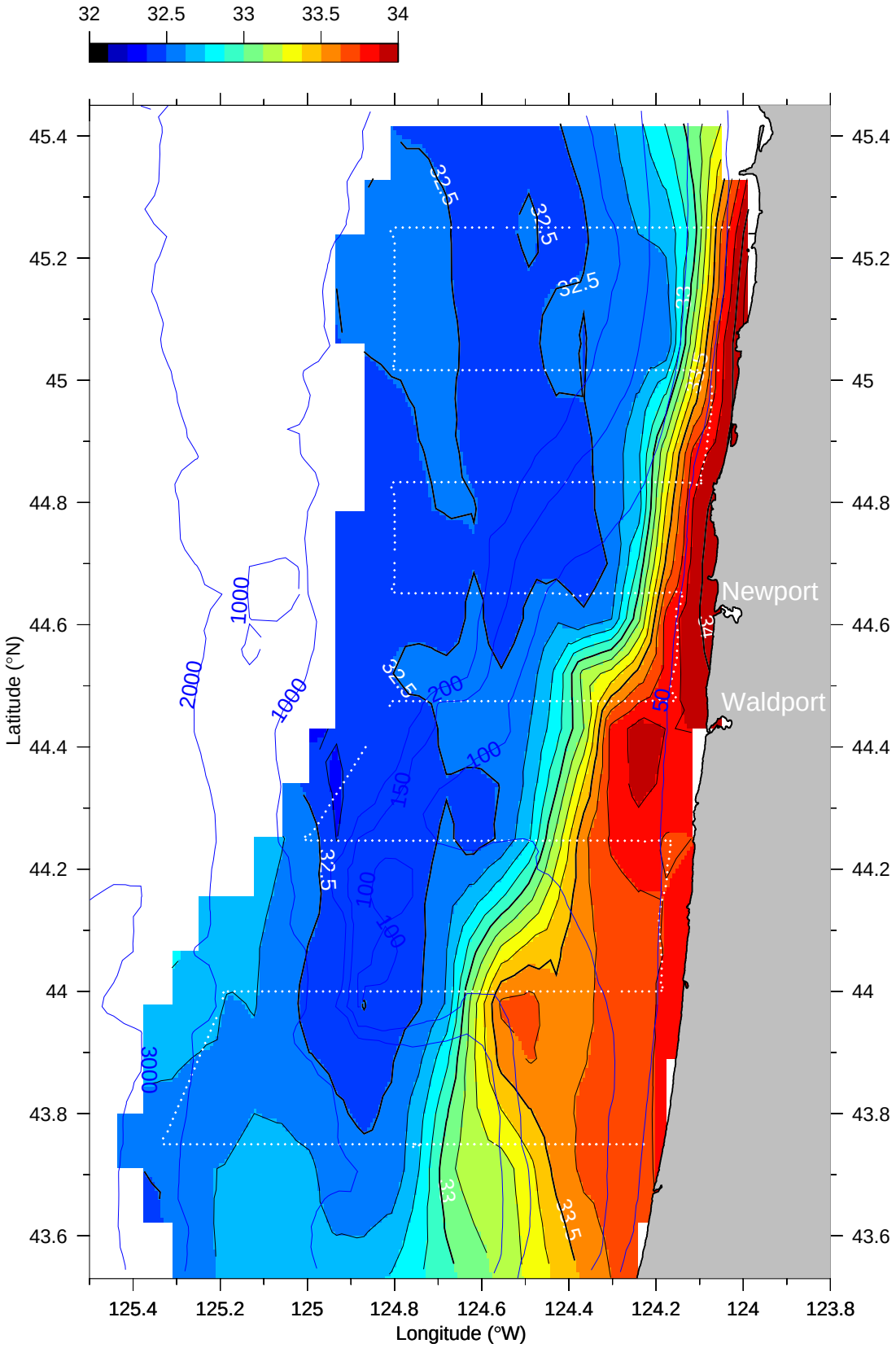
Salinity (PSS) at 25 dbar



W0105 Big Box 4

07-Jun-2001 14:08 - 09-Jun-2001 20:52

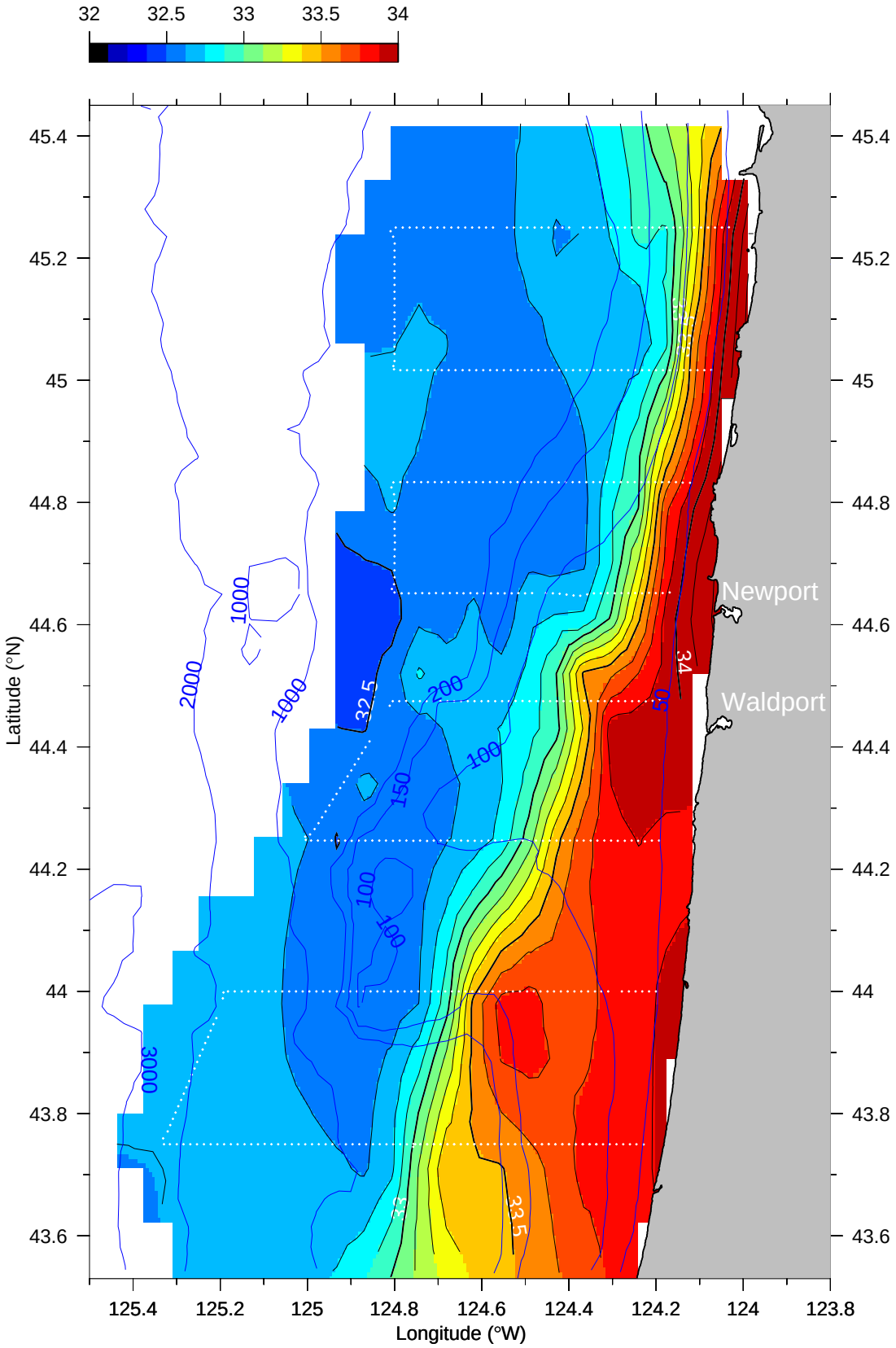
Salinity (PSS) at 35 dbar



W0105 Big Box 4

07-Jun-2001 14:08 - 09-Jun-2001 20:52

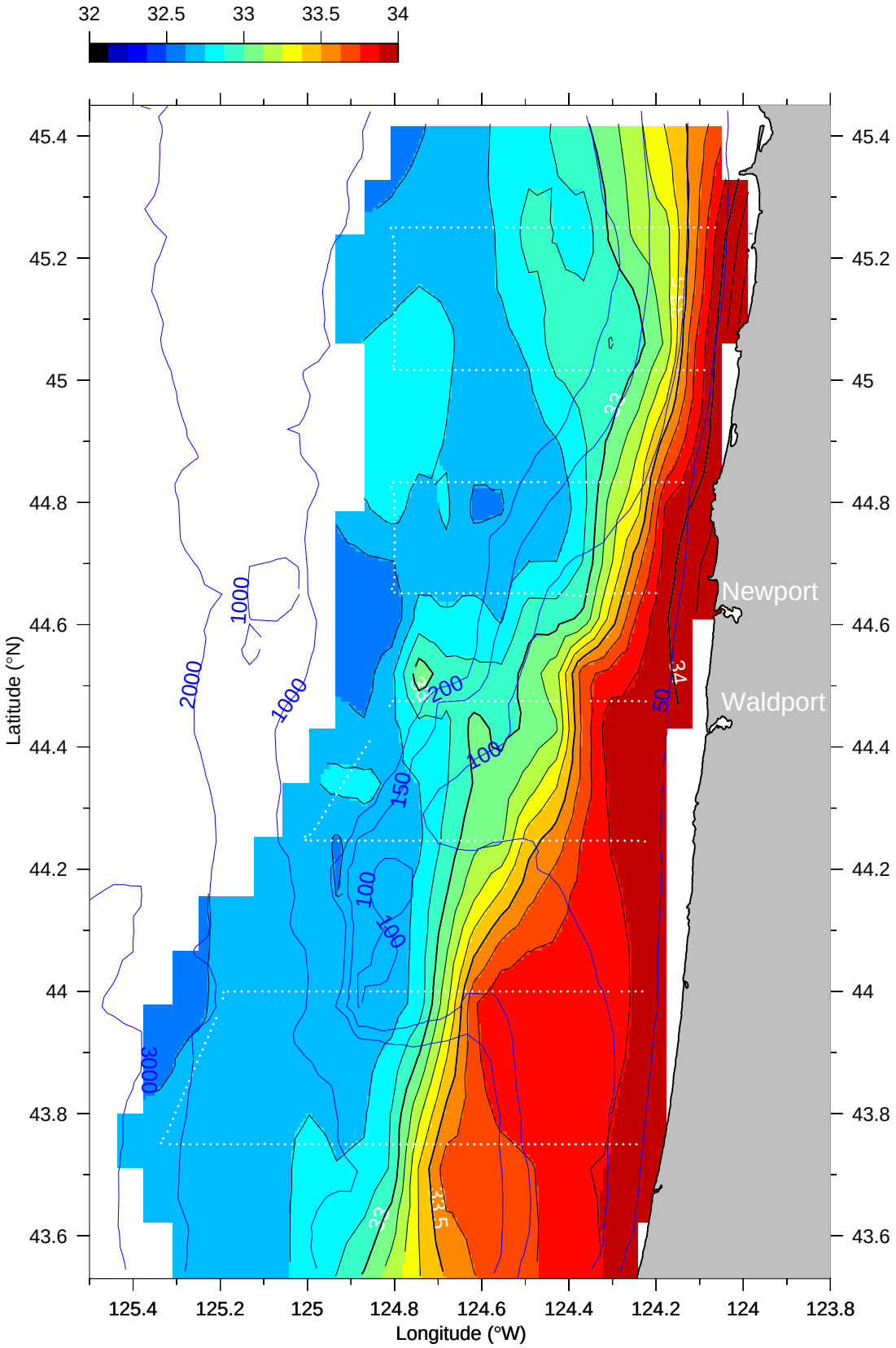
Salinity (PSS) at 45 dbar



W0105 Big Box 4

07-Jun-2001 14:08 - 09-Jun-2001 20:52

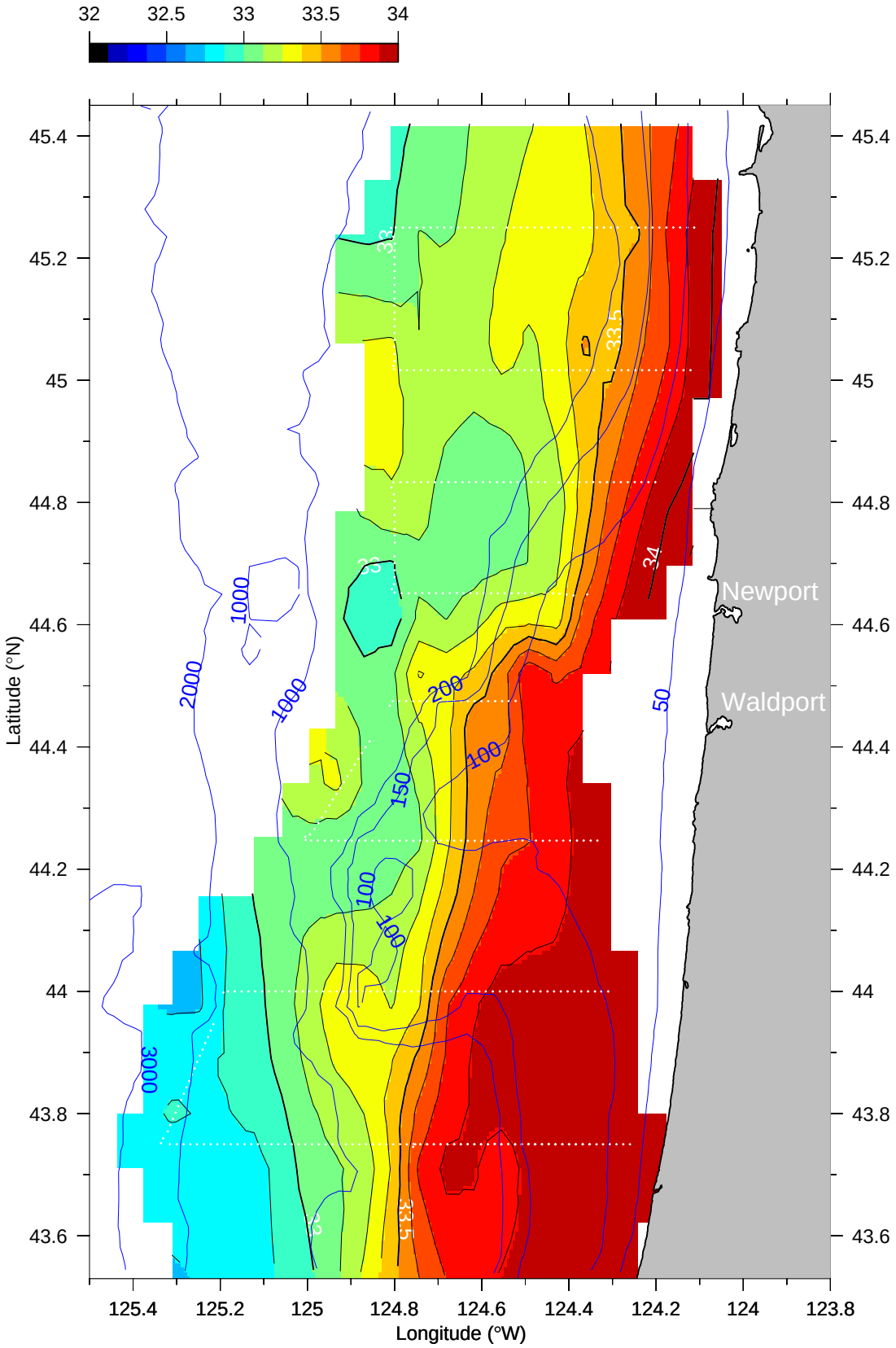
Salinity (PSS) at 55 dbar



W0105 Big Box 4

07-Jun-2001 14:08 - 09-Jun-2001 20:52

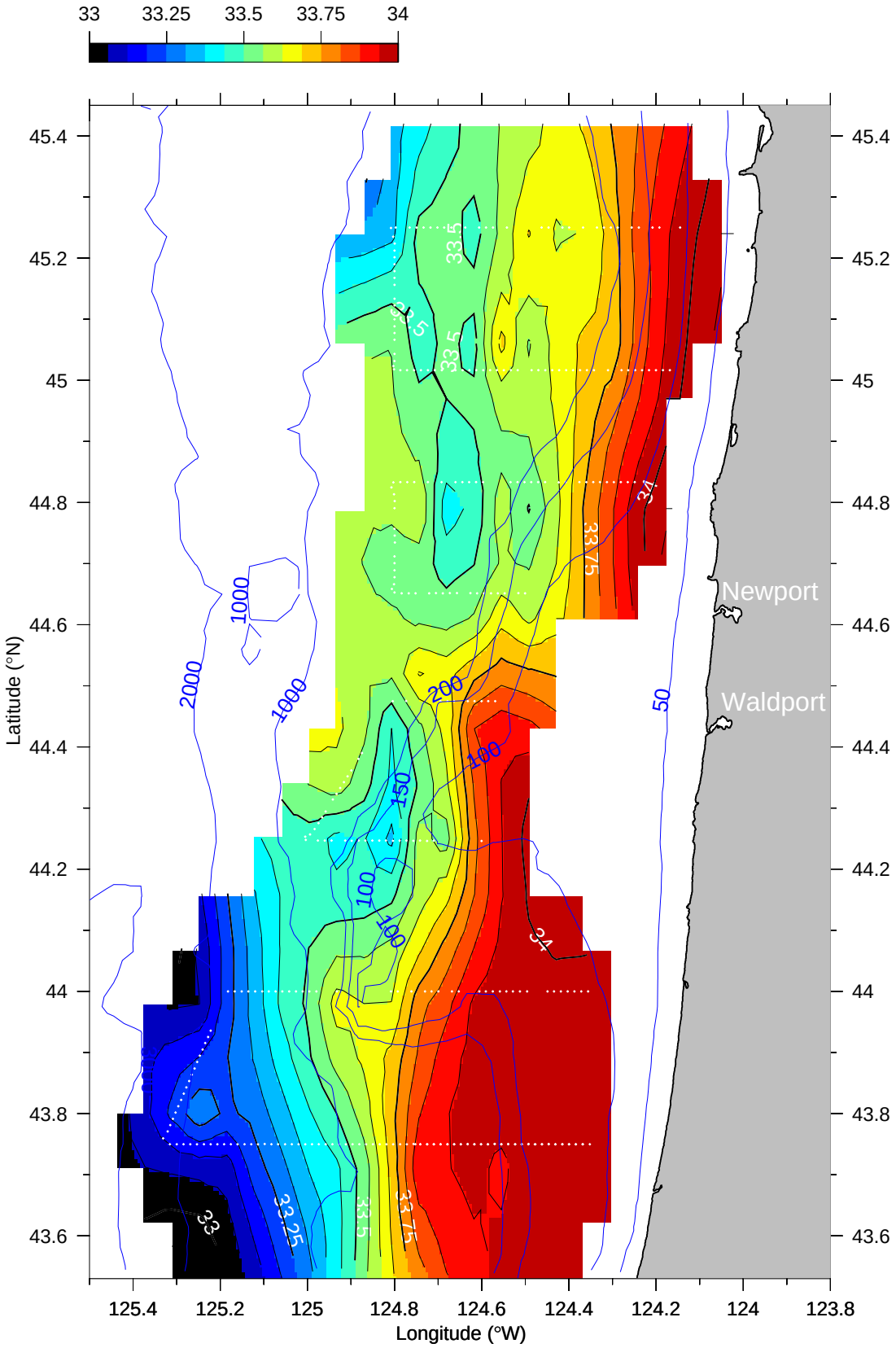
Salinity (PSS) at 75 dbar

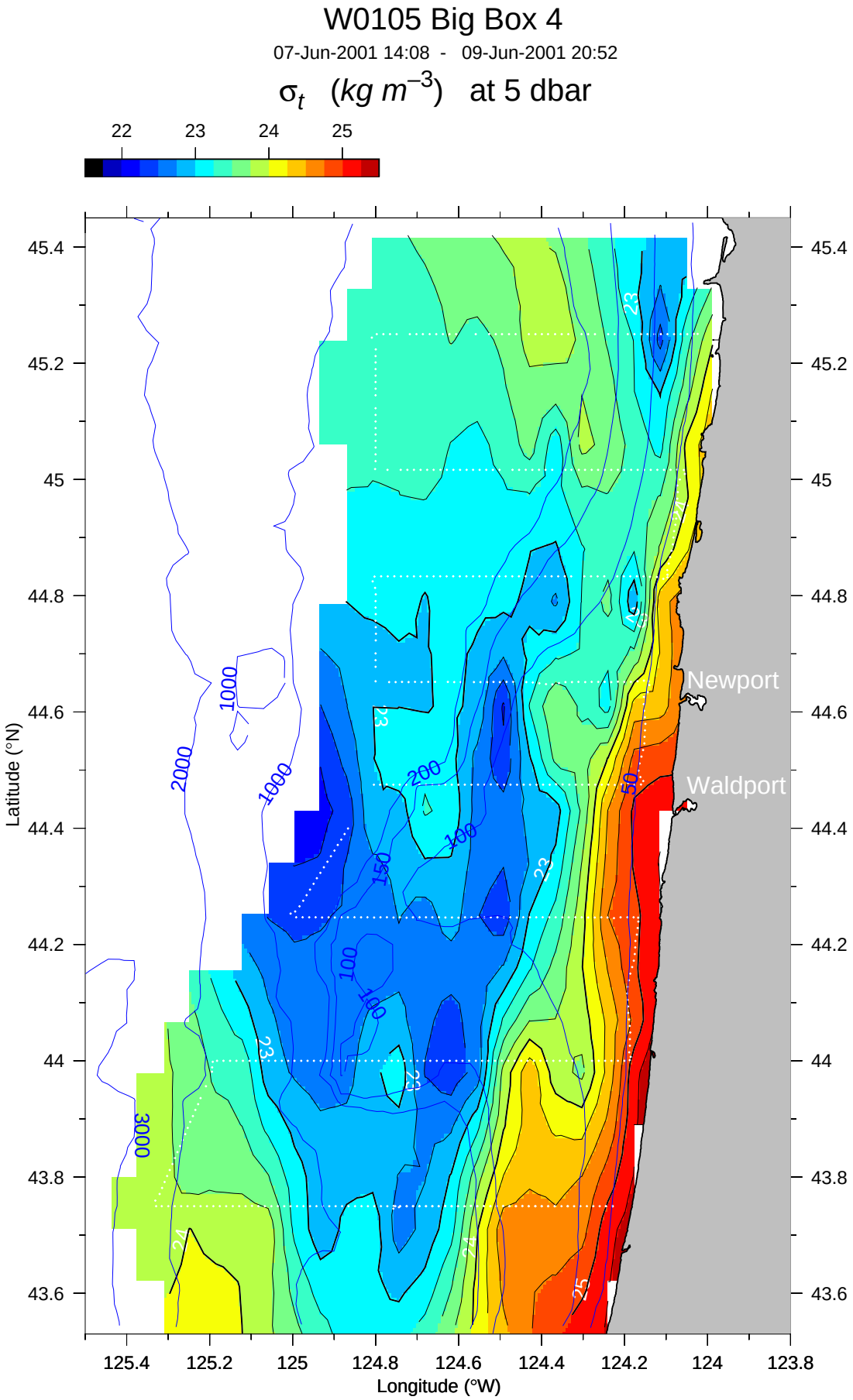


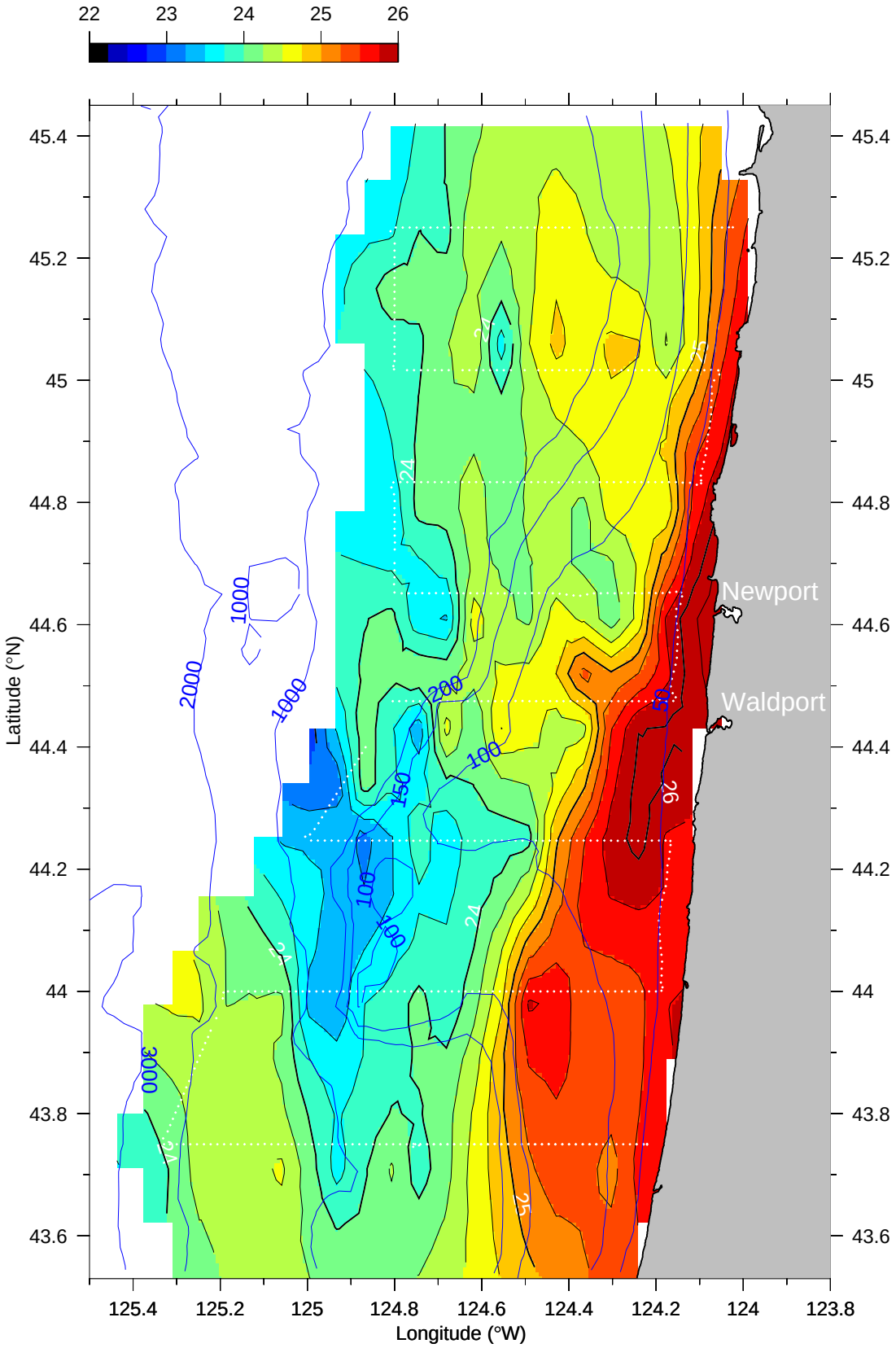
W0105 Big Box 4

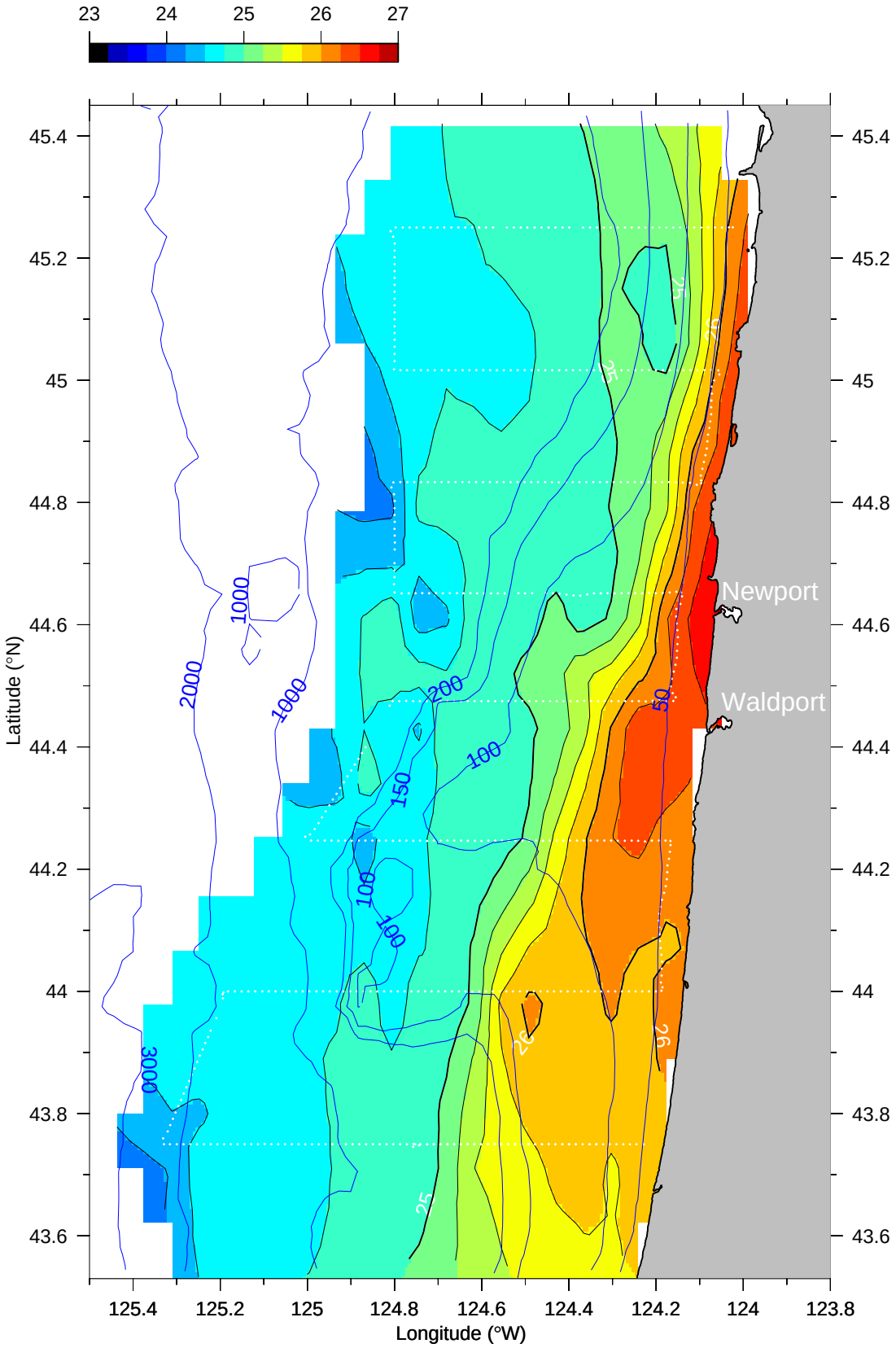
07-Jun-2001 14:08 - 09-Jun-2001 20:52

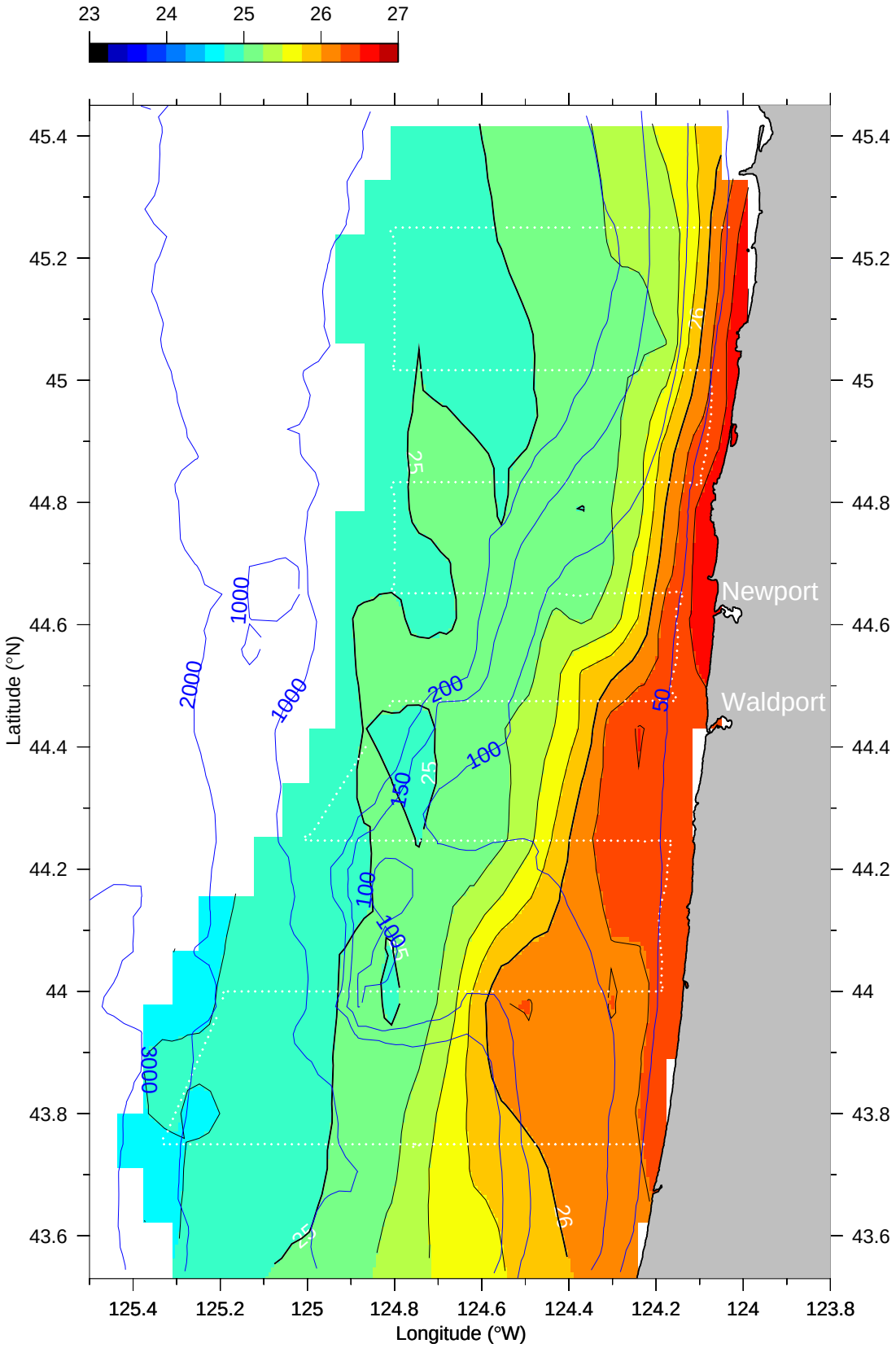
Salinity (PSS) at 95 dbar

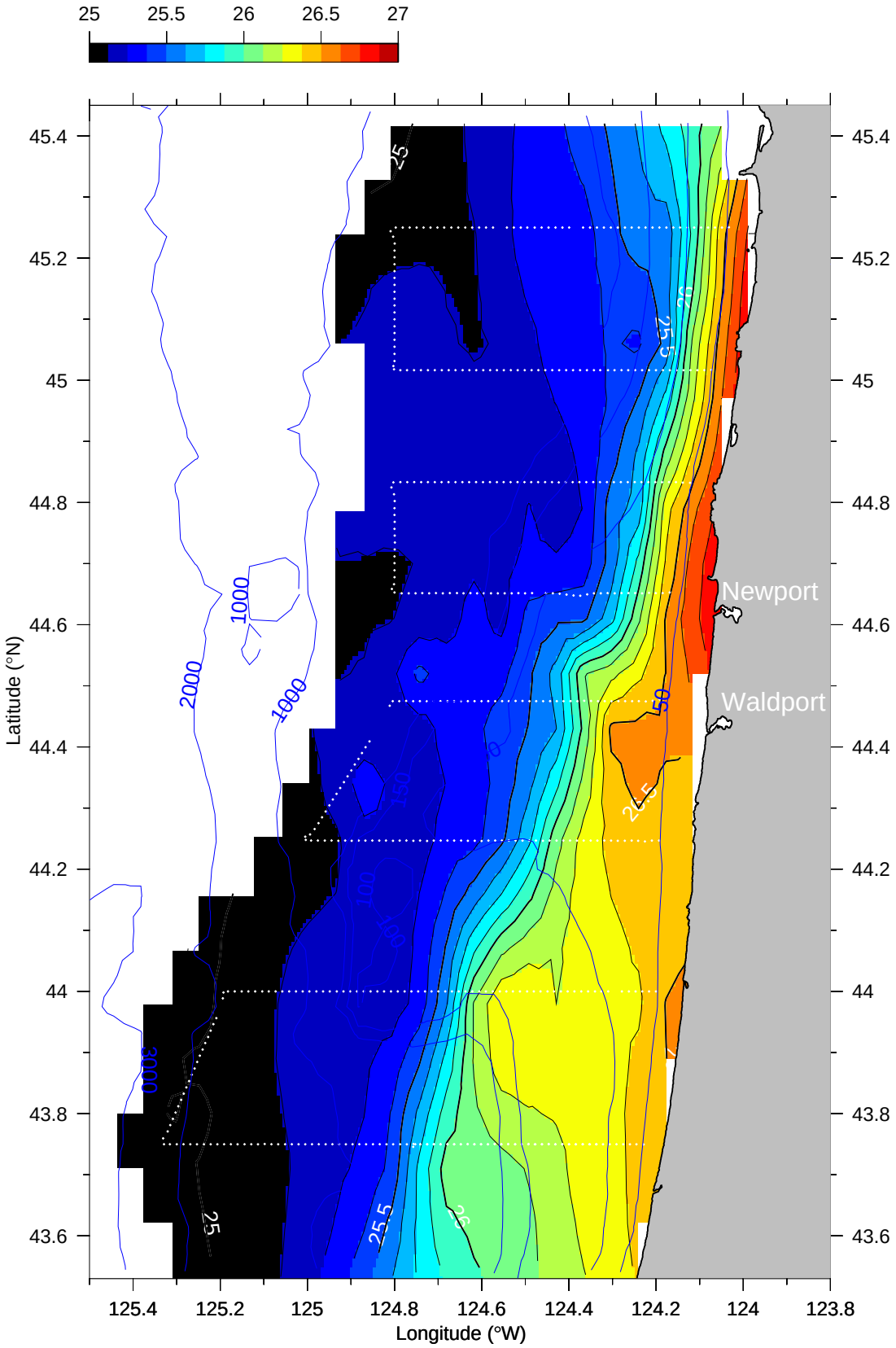


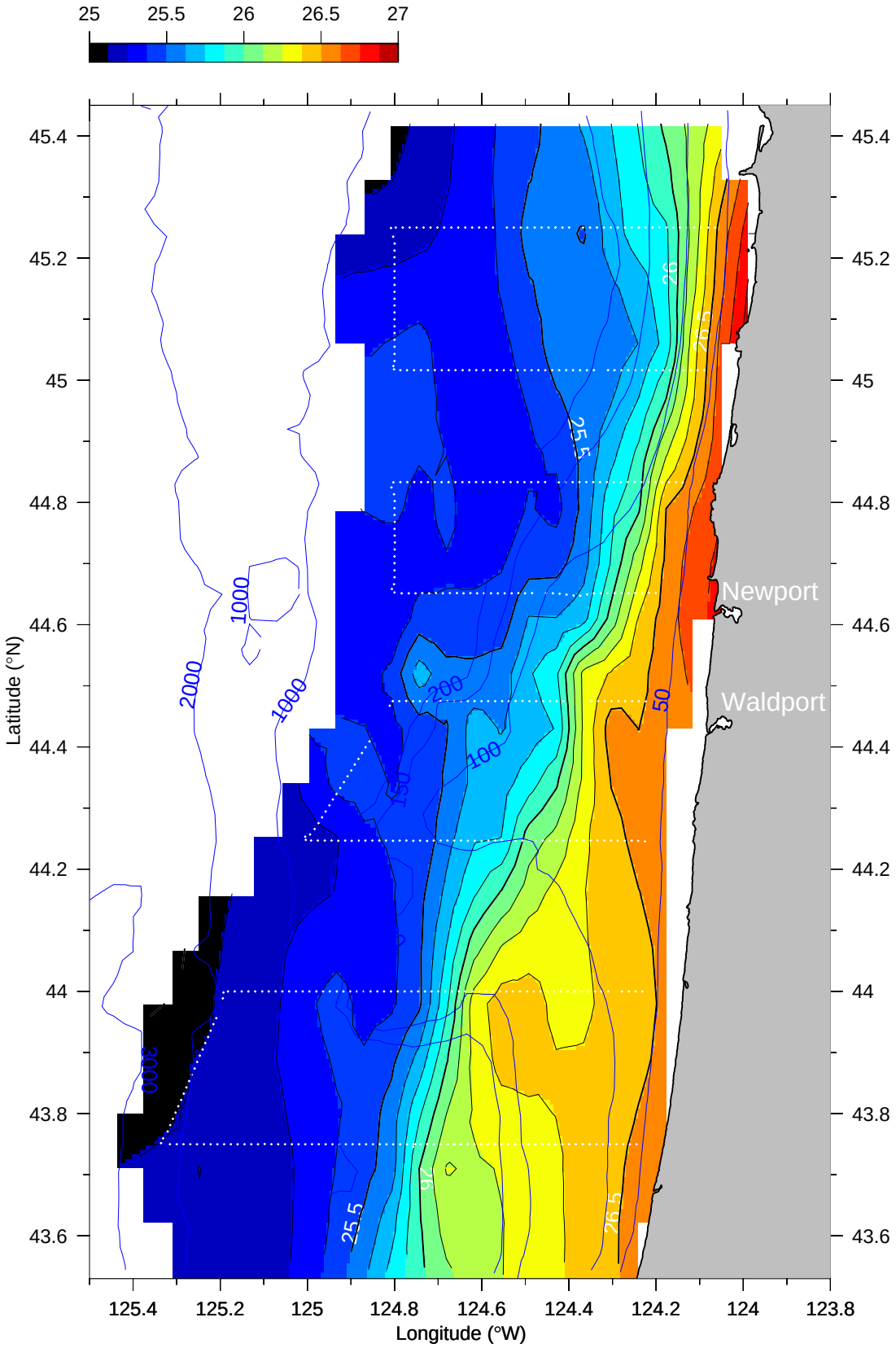

W0105 Big Box 4
07-Jun-2001 14:08 - 09-Jun-2001 20:52
σt (kg m−3) at 5 dbar
22
23
24
25
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8

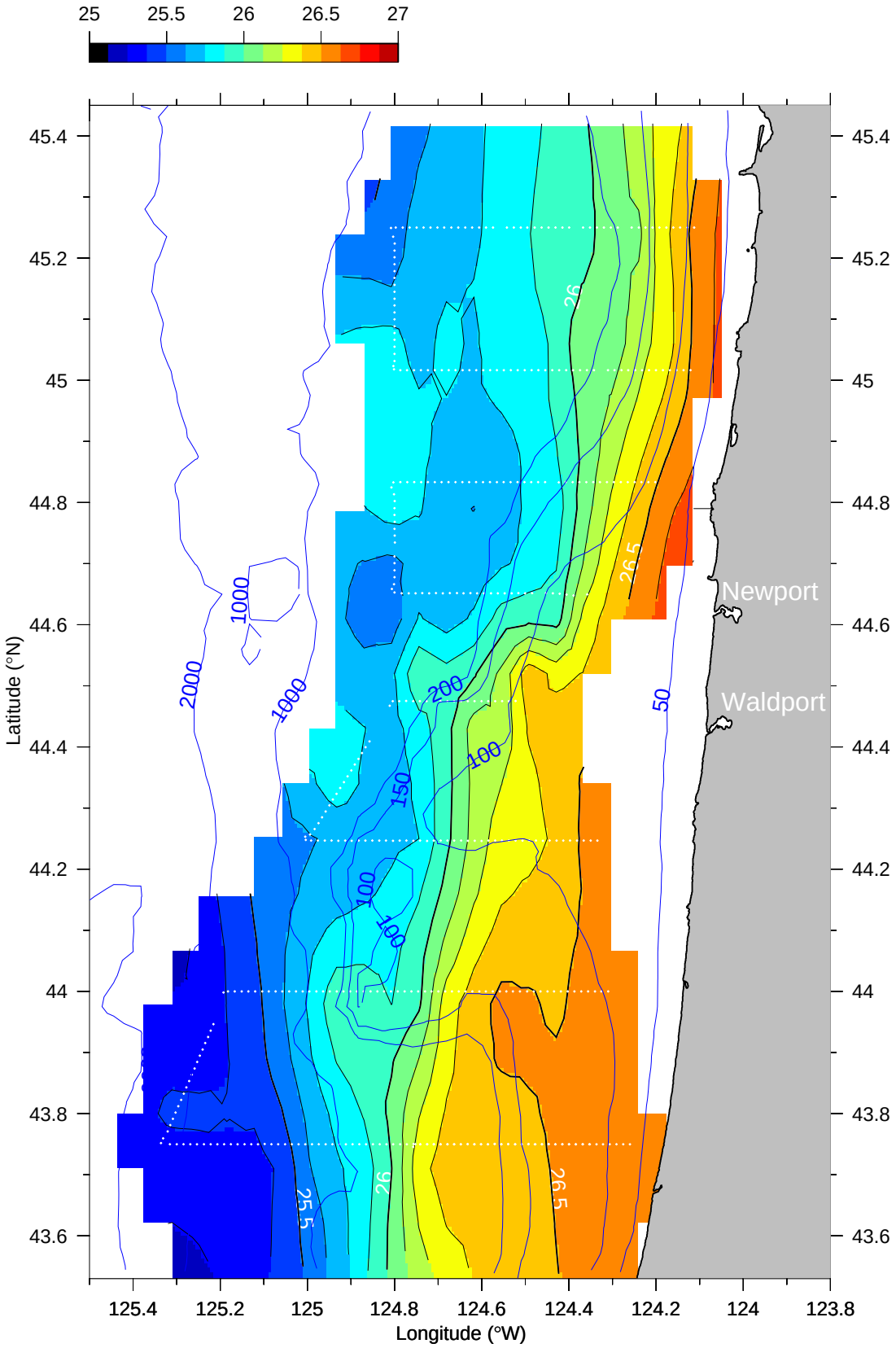

W0105 Big Box 4
07-Jun-2001 14:08 - 09-Jun-2001 20:52
σt (kg m−3) at 15 dbar
22
23
24
25
26
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8

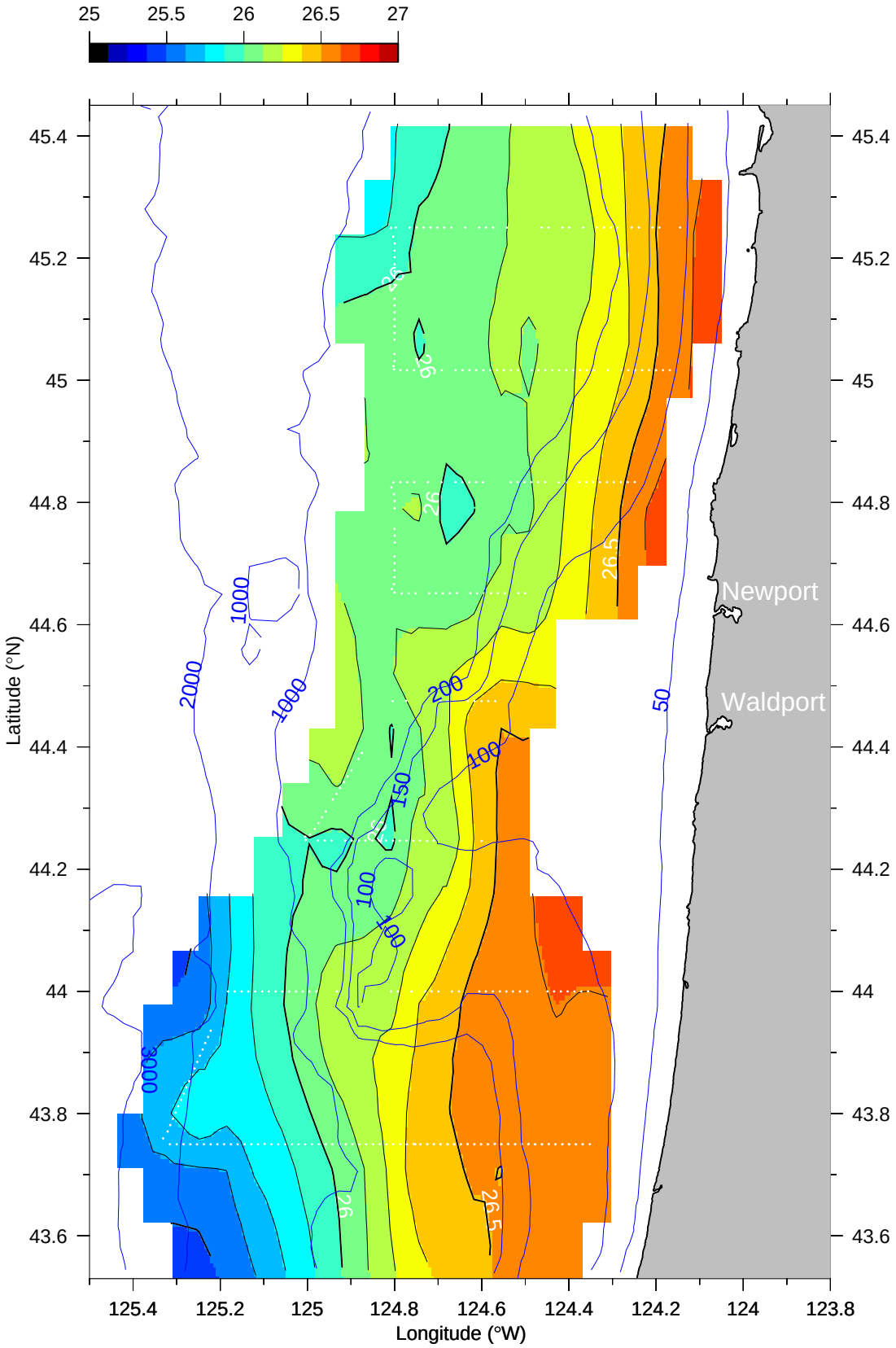

W0105 Big Box 4
07-Jun-2001 14:08 - 09-Jun-2001 20:52
σt (kg m−3) at 25 dbar
23
24
25
26
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
200
100
150
50
3000

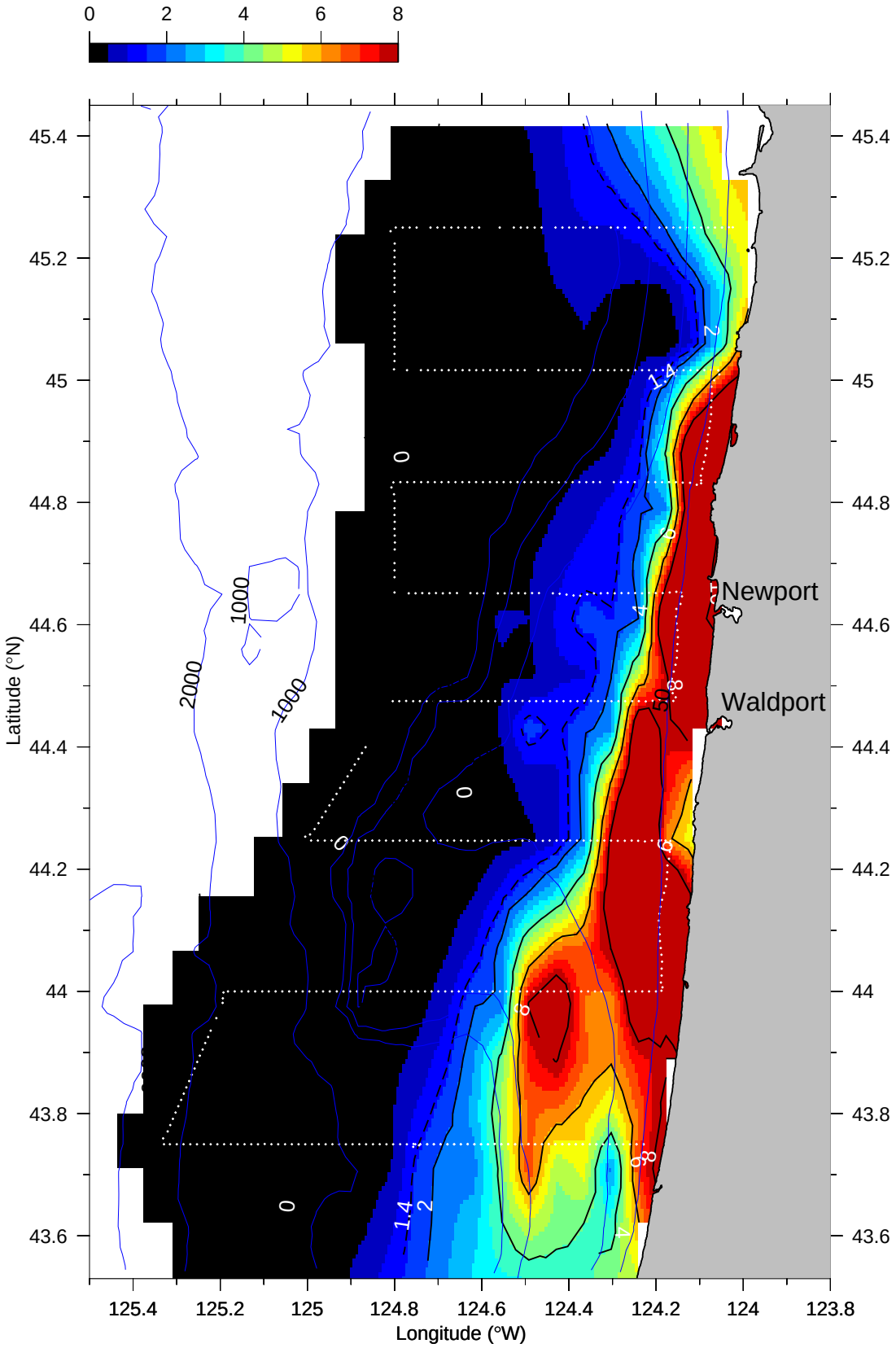

W0105 Big Box 4
07-Jun-2001 14:08 - 09-Jun-2001 20:52
σt (kg m−3) at 35 dbar
23
24
25
26
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
200
100
150
50
25
3000
26


W0105 Big Box 4
07-Jun-2001 14:08 - 09-Jun-2001 20:52
σt (kg m−3) at 45 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
3000
150
100


W0105 Big Box 4
07-Jun-2001 14:08 - 09-Jun-2001 20:52
σt (kg m−3) at 55 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
200
100
50
150
3000
25.5
26
26.5


W0105 Big Box 4
07-Jun-2001 14:08 - 09-Jun-2001 20:52
σt (kg m−3) at 75 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
2000
1000
1000
200
100
150
100
100
50
26
26.5
25.5
26
26.5


W0105 Big Box 4
07-Jun-2001 14:08 - 09-Jun-2001 20:52
σt (kg m−3) at 95 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
200
100
150
50
3000
26
26.5


W0105 Big Box 4
07-Jun-2001 14:08 - 09-Jun-2001 20:52
Chlorophyll (µg L−1) at 5 dbar
0
2
4
6
8
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000

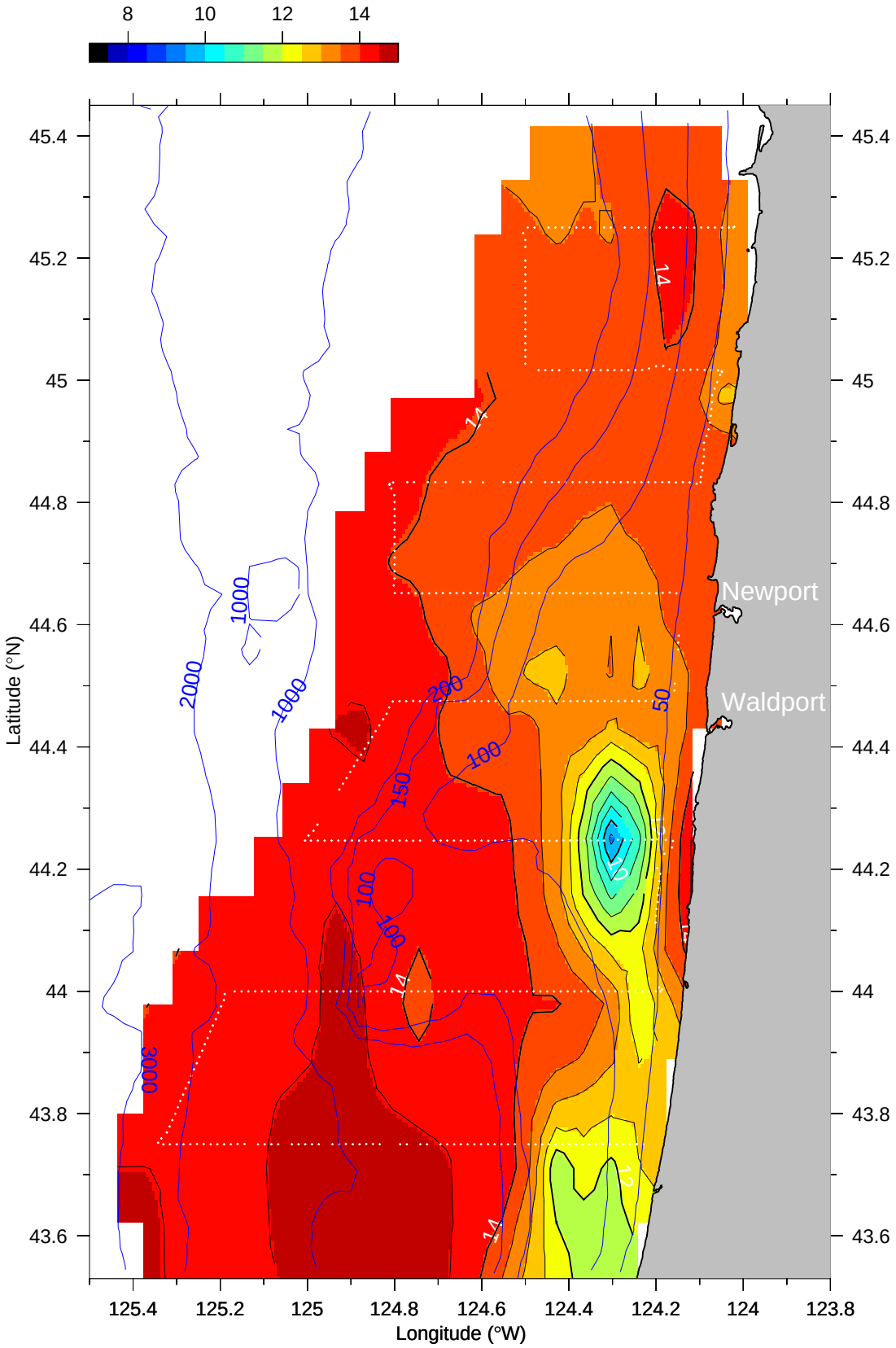
BigBox 5 Maps

Maps of Temperature, Salinity, σ_t, and Chlorophyll at Specified Depths

W0105 Big Box 5

11-Jun-2001 04:12 - 13-Jun-2001 06:32

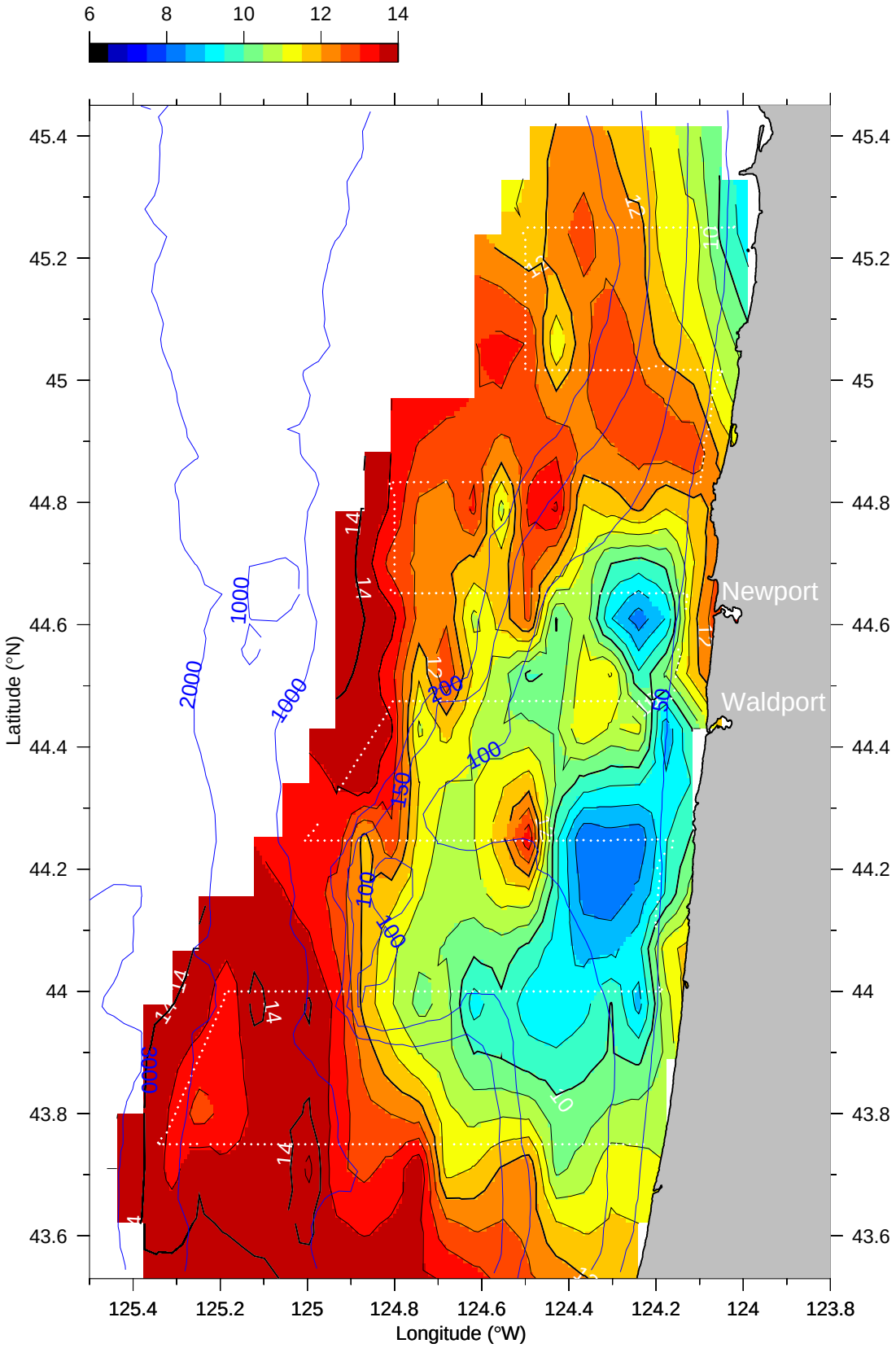
Temperature (°C) at 5 dbar



W0105 Big Box 5

11-Jun-2001 04:12 - 13-Jun-2001 06:32

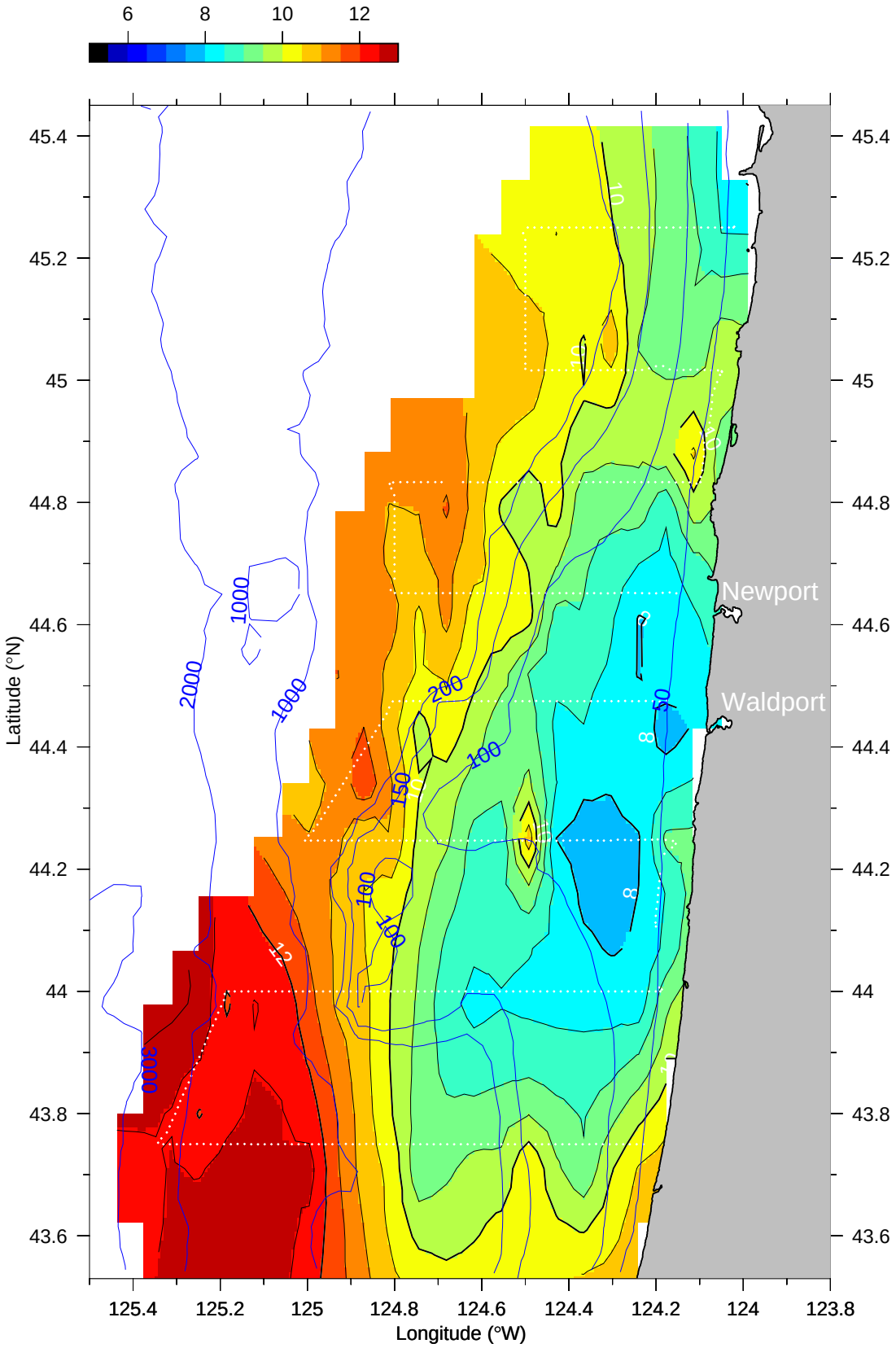
Temperature (°C) at 15 dbar



W0105 Big Box 5

11-Jun-2001 04:12 - 13-Jun-2001 06:32

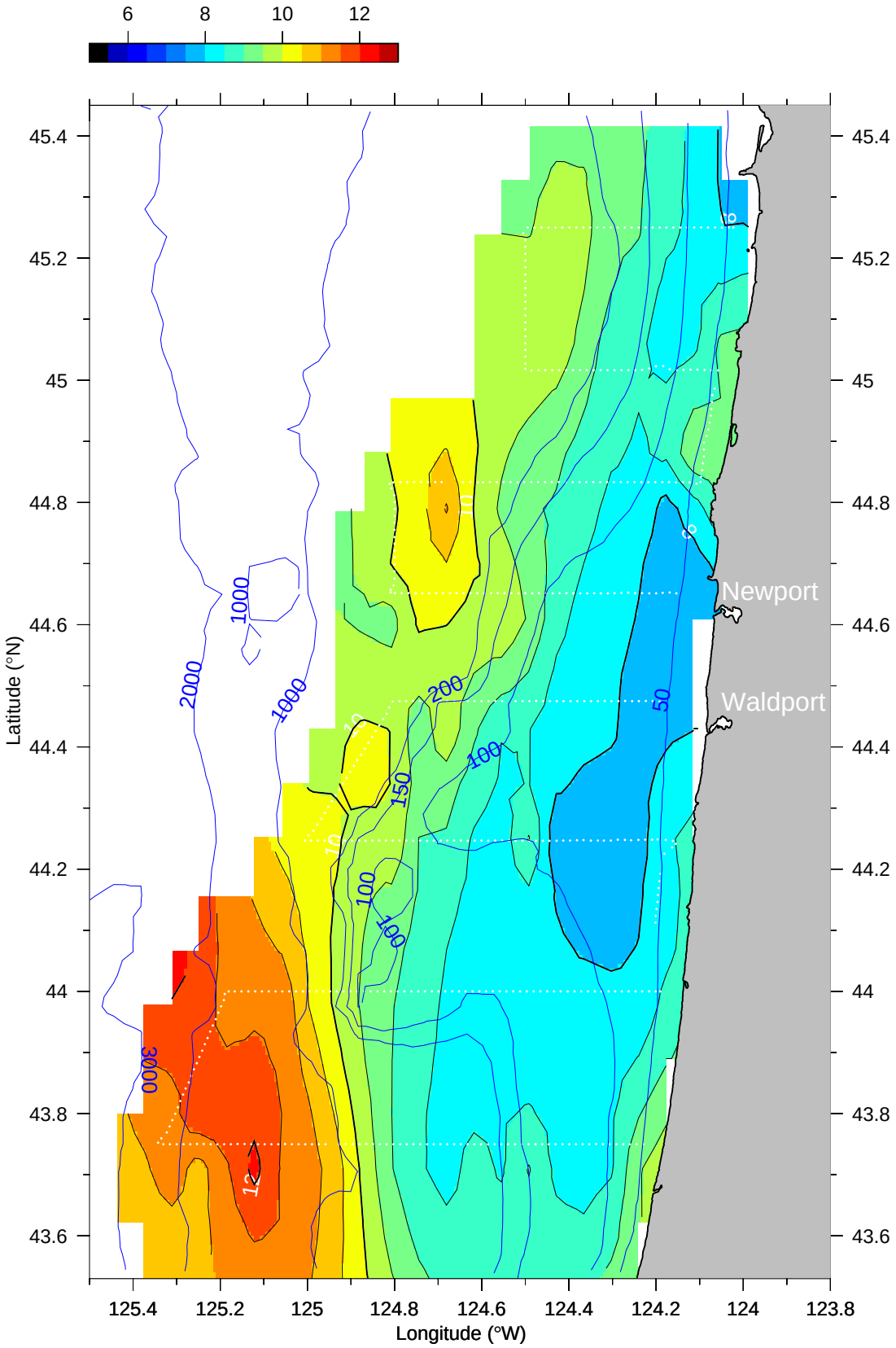
Temperature (°C) at 25 dbar



W0105 Big Box 5

11-Jun-2001 04:12 - 13-Jun-2001 06:32

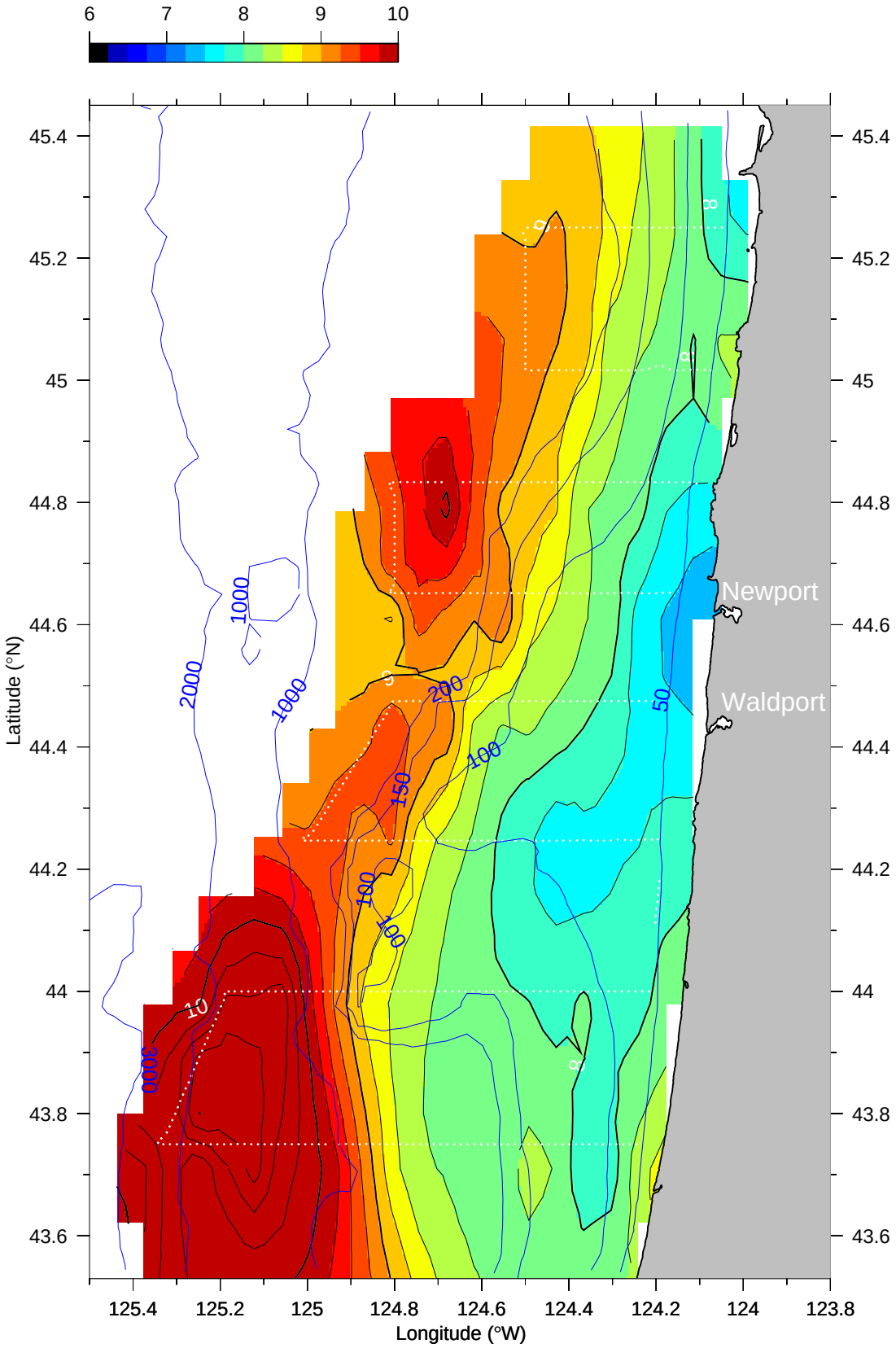
Temperature (°C) at 35 dbar



W0105 Big Box 5

11-Jun-2001 04:12 - 13-Jun-2001 06:32

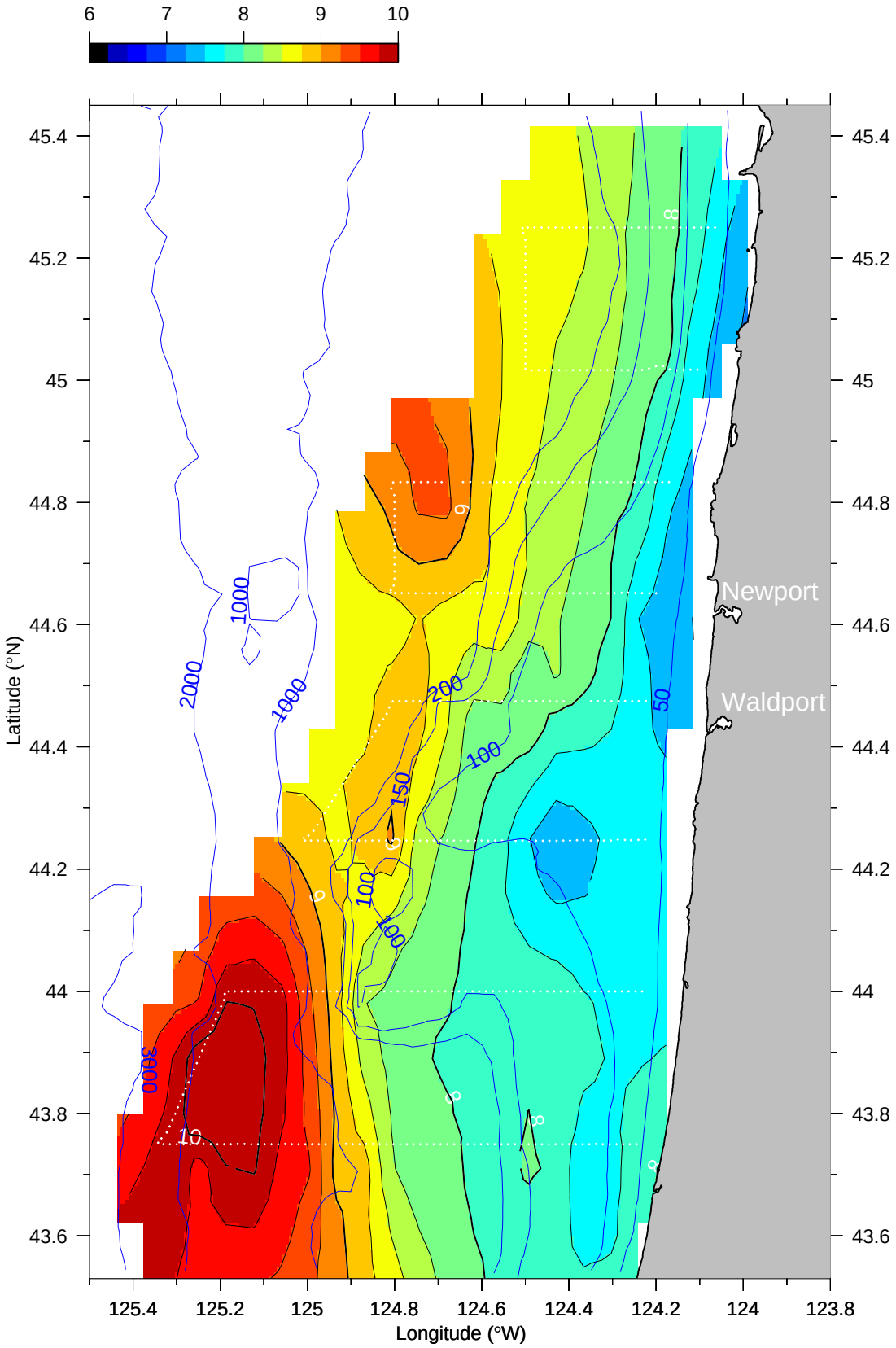
Temperature (°C) at 45 dbar



W0105 Big Box 5

11-Jun-2001 04:12 - 13-Jun-2001 06:32

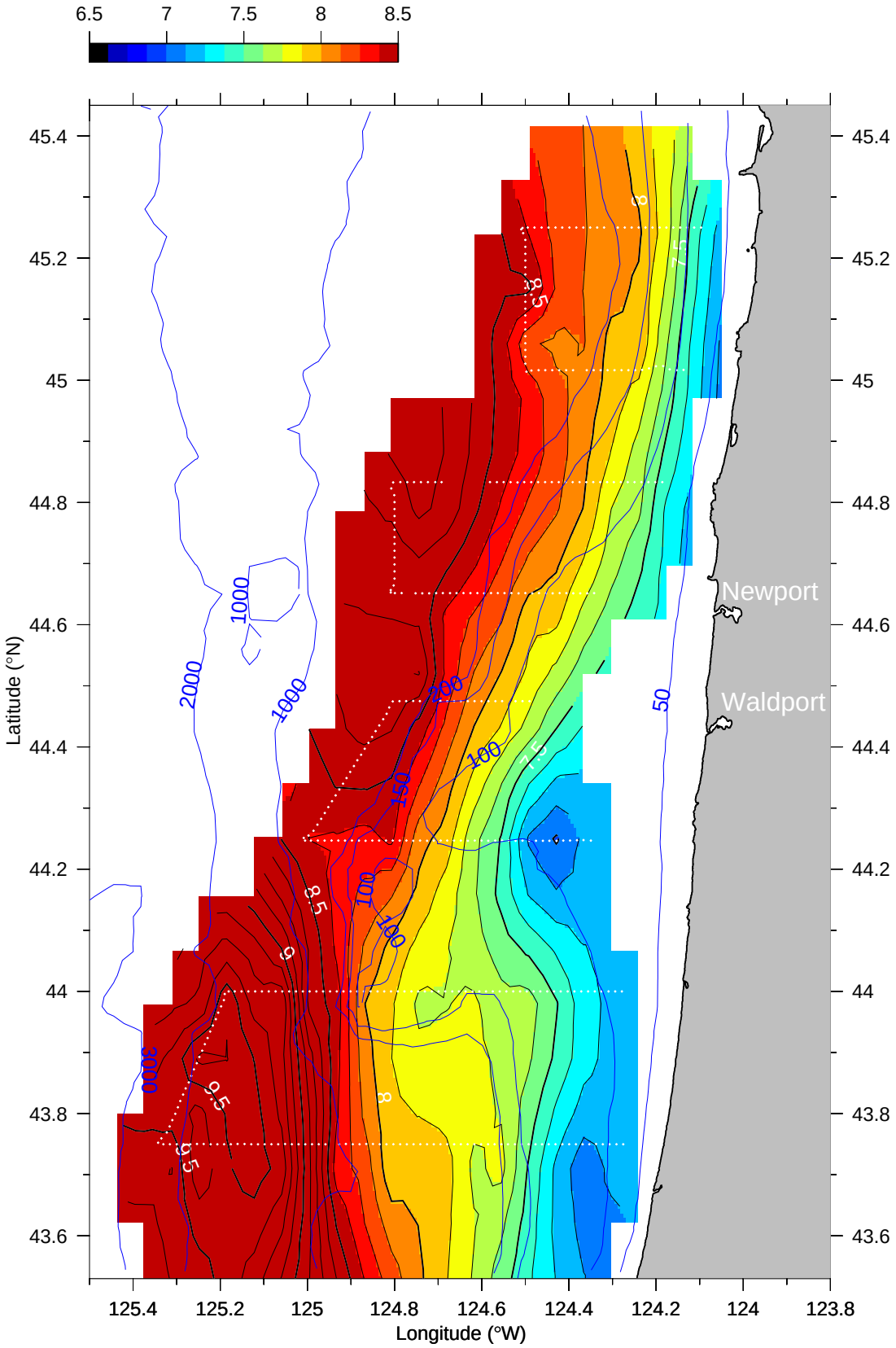
Temperature (°C) at 55 dbar



W0105 Big Box 5

11-Jun-2001 04:12 - 13-Jun-2001 06:32

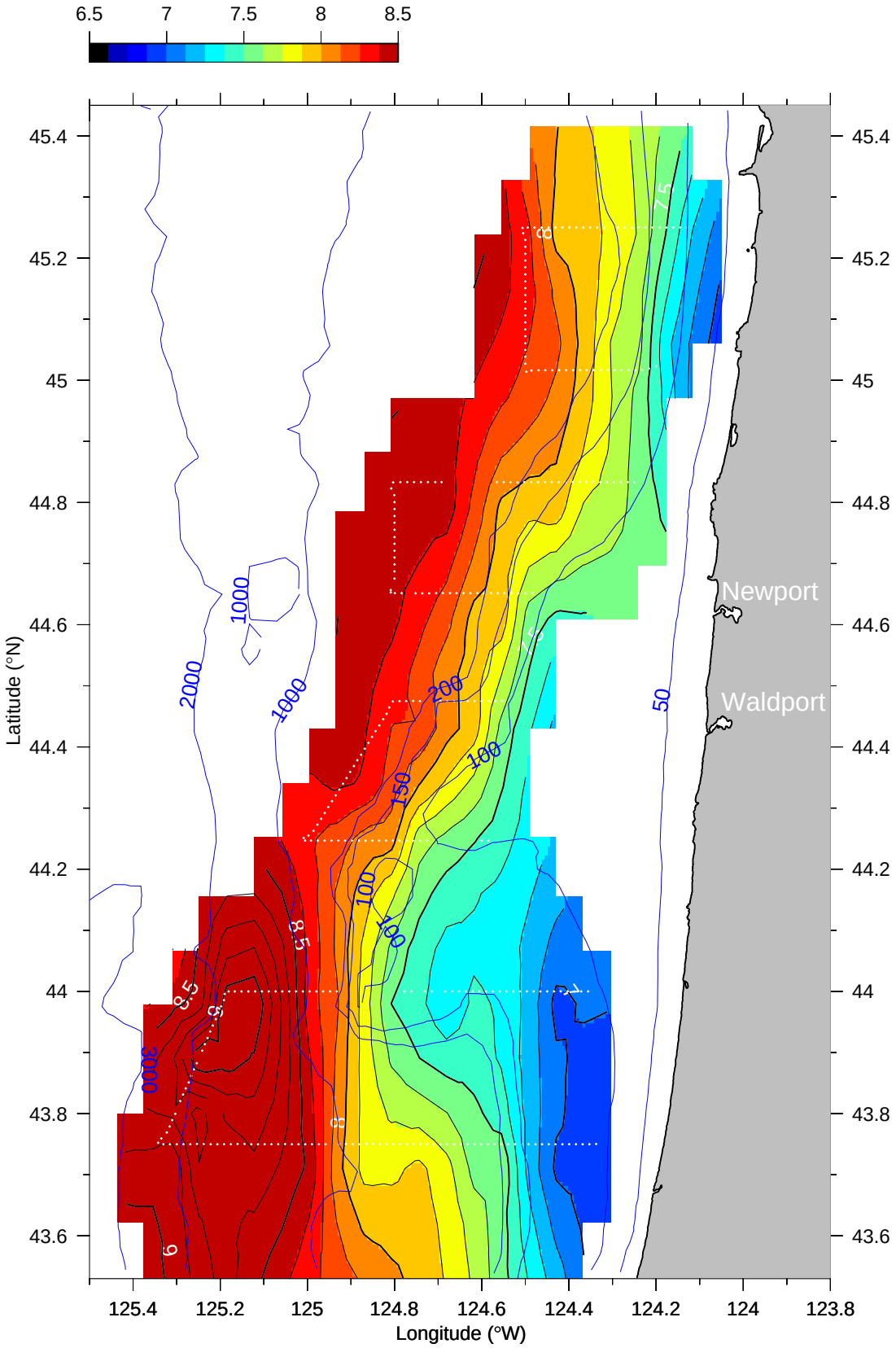
Temperature (°C) at 75 dbar



W0105 Big Box 5

11-Jun-2001 04:12 - 13-Jun-2001 06:32

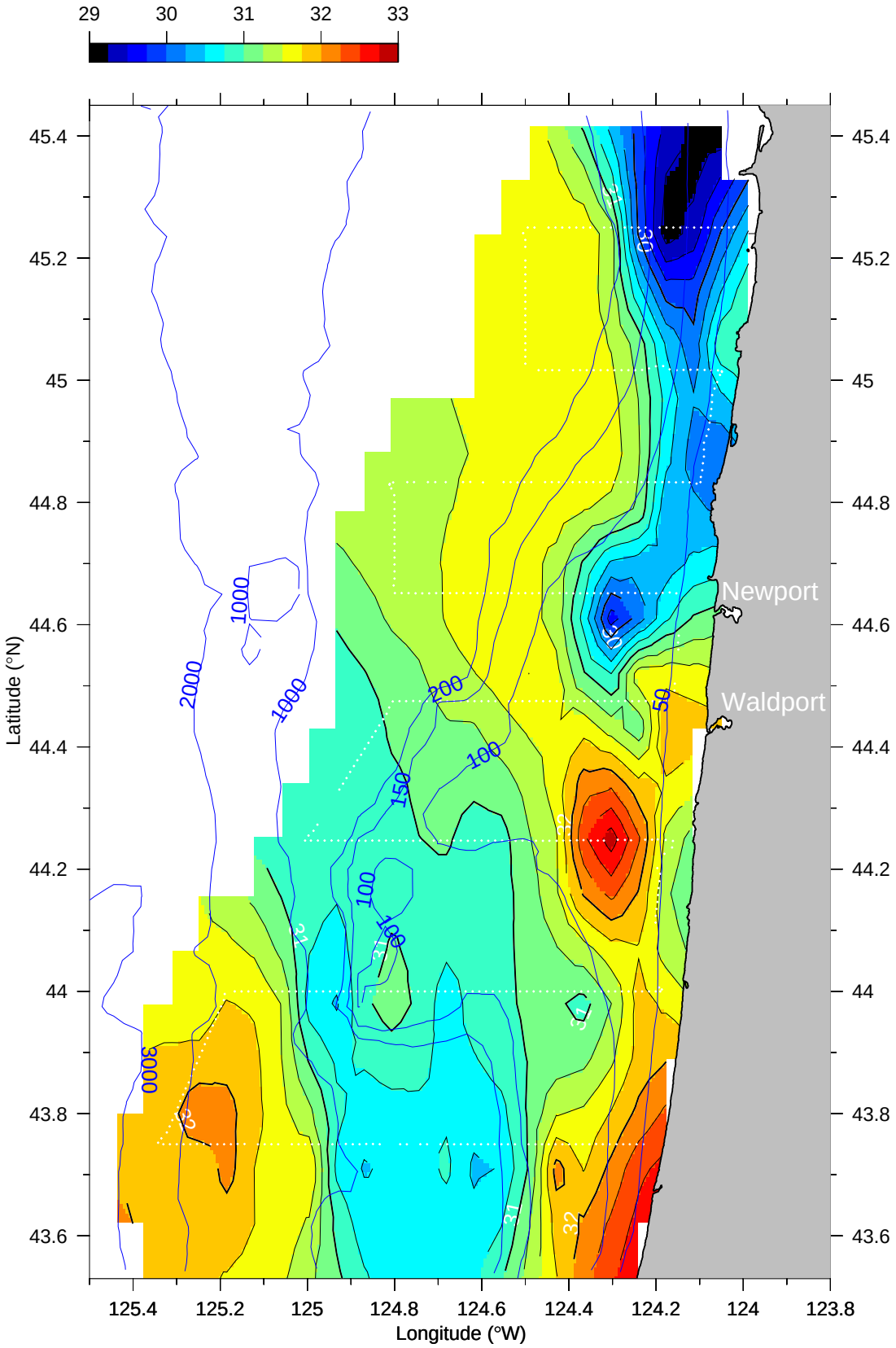
Temperature (°C) at 95 dbar



W0105 Big Box 5

11-Jun-2001 04:12 - 13-Jun-2001 06:32

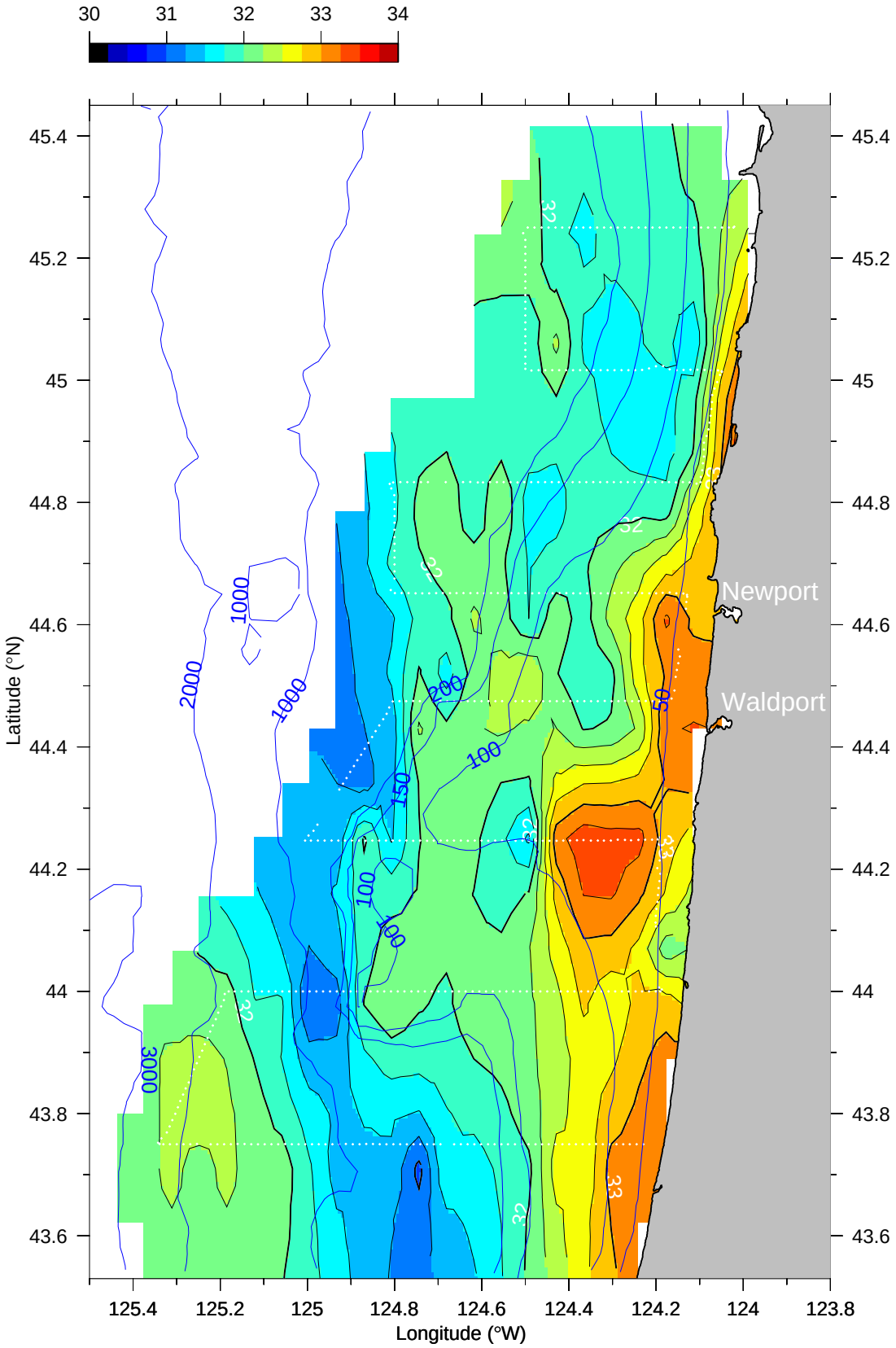
Salinity (PSS) at 5 dbar



W0105 Big Box 5

11-Jun-2001 04:12 - 13-Jun-2001 06:32

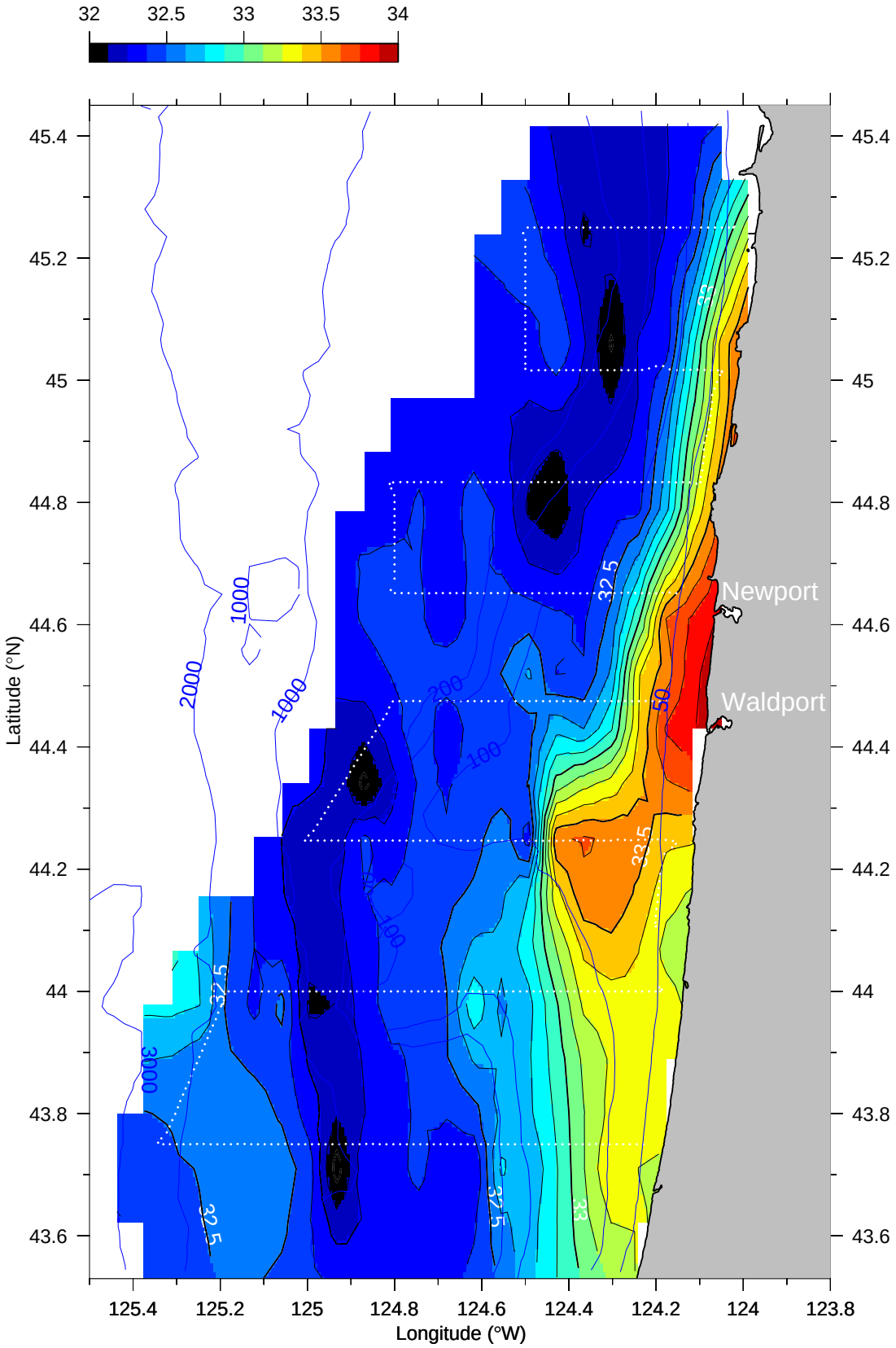
Salinity (PSS) at 15 dbar



W0105 Big Box 5

11-Jun-2001 04:12 - 13-Jun-2001 06:32

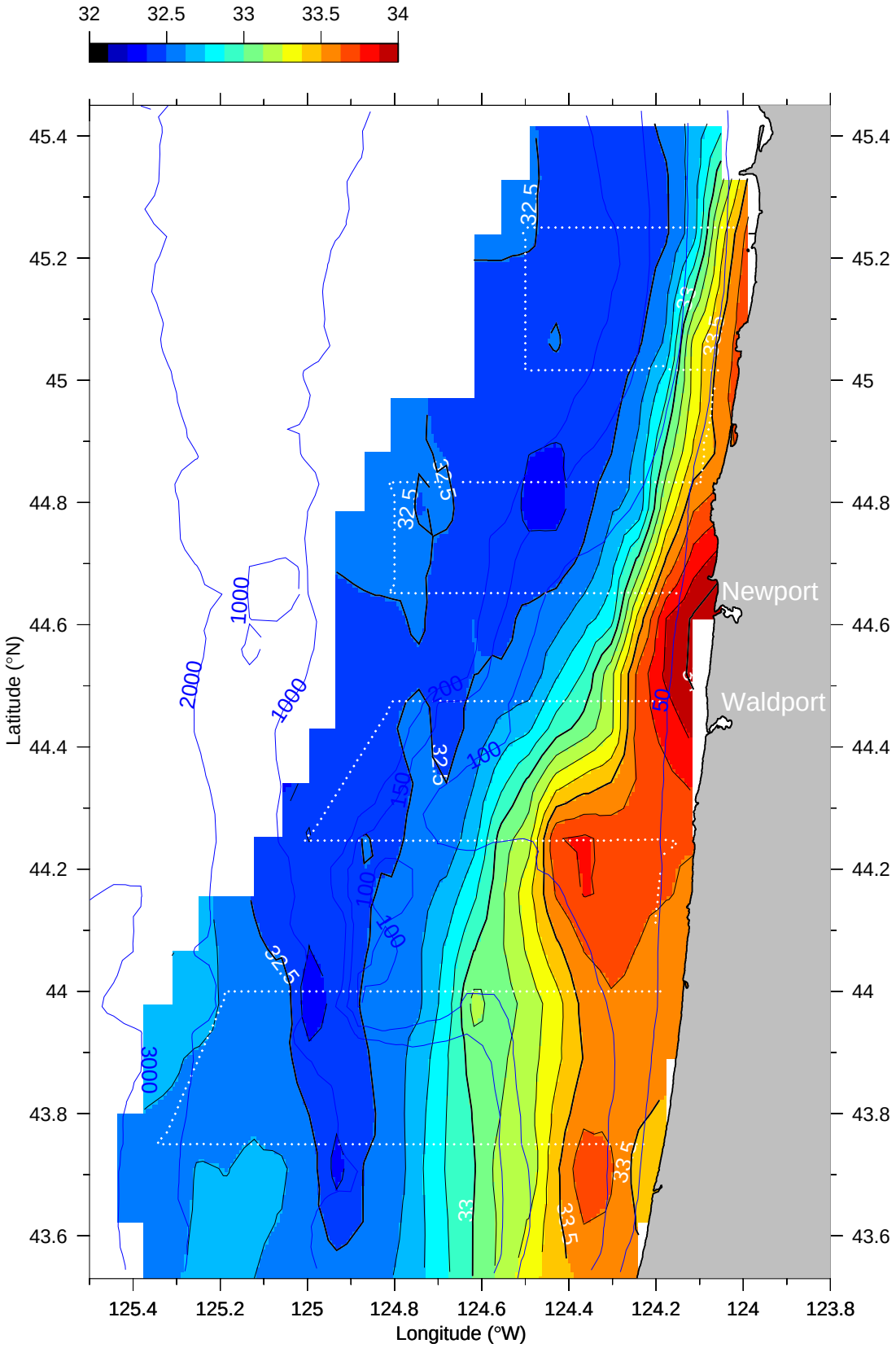
Salinity (PSS) at 25 dbar



W0105 Big Box 5

11-Jun-2001 04:12 - 13-Jun-2001 06:32

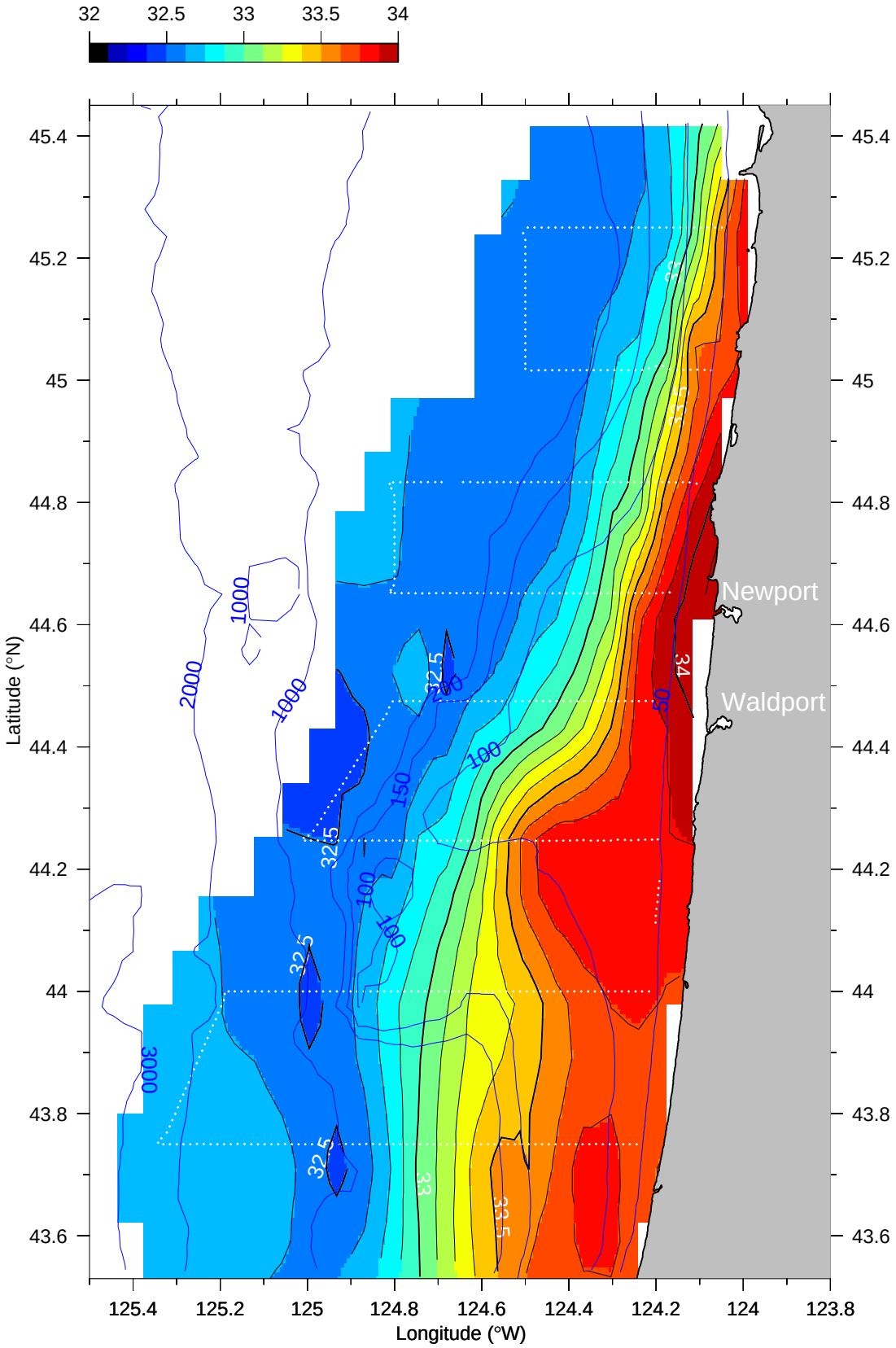
Salinity (PSS) at 35 dbar



W0105 Big Box 5

11-Jun-2001 04:12 - 13-Jun-2001 06:32

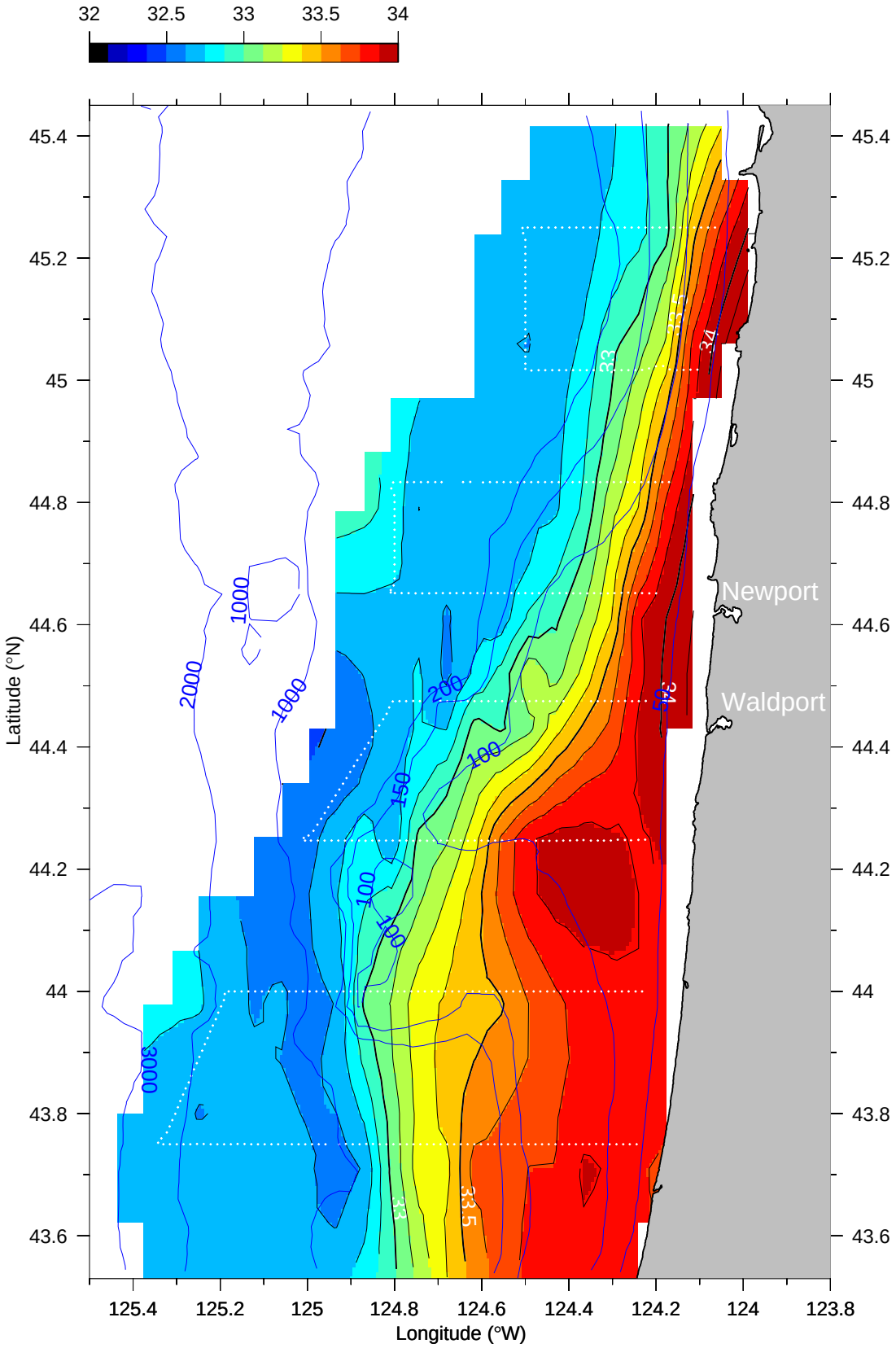
Salinity (PSS) at 45 dbar



W0105 Big Box 5

11-Jun-2001 04:12 - 13-Jun-2001 06:32

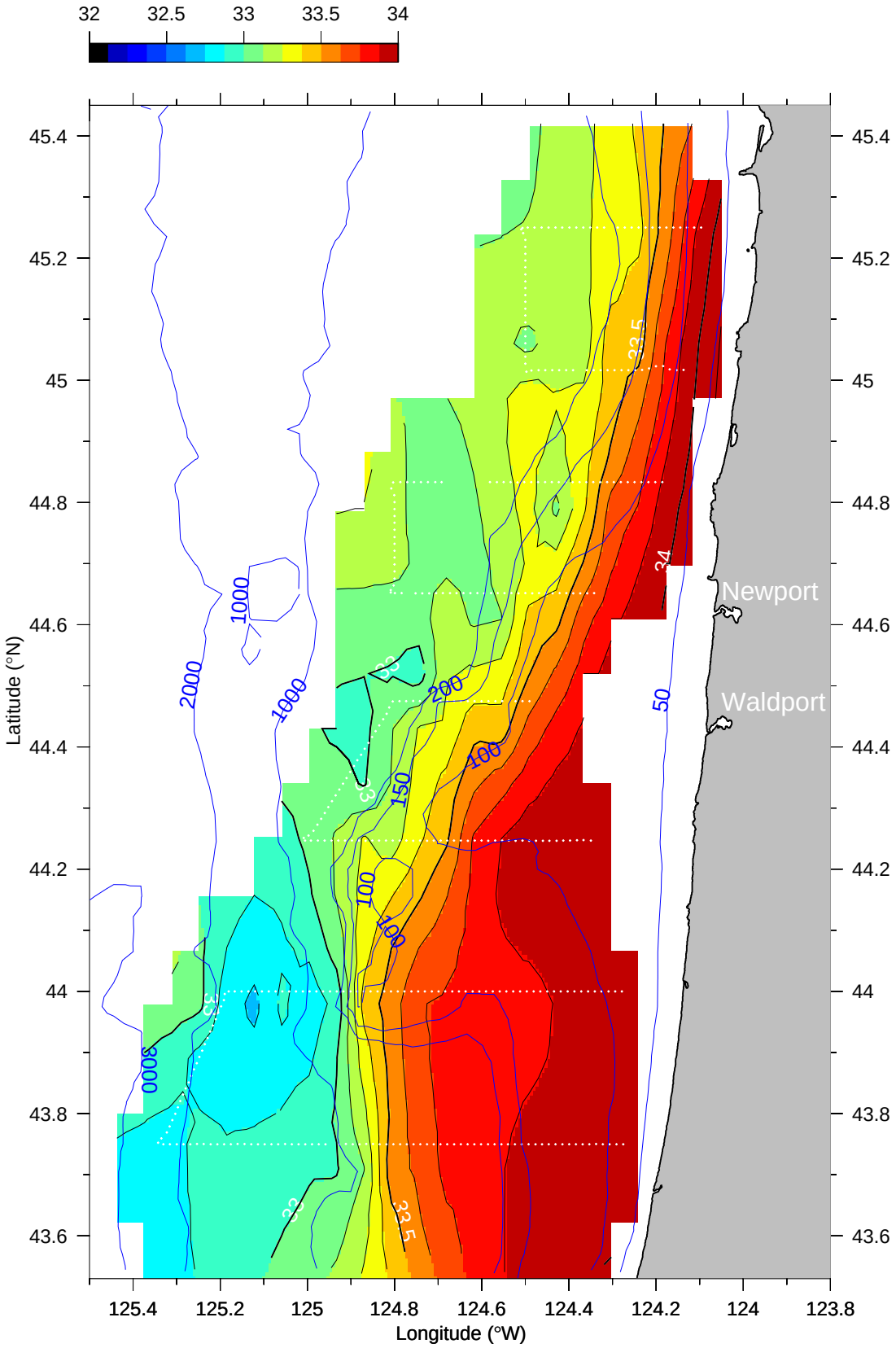
Salinity (PSS) at 55 dbar



W0105 Big Box 5

11-Jun-2001 04:12 - 13-Jun-2001 06:32

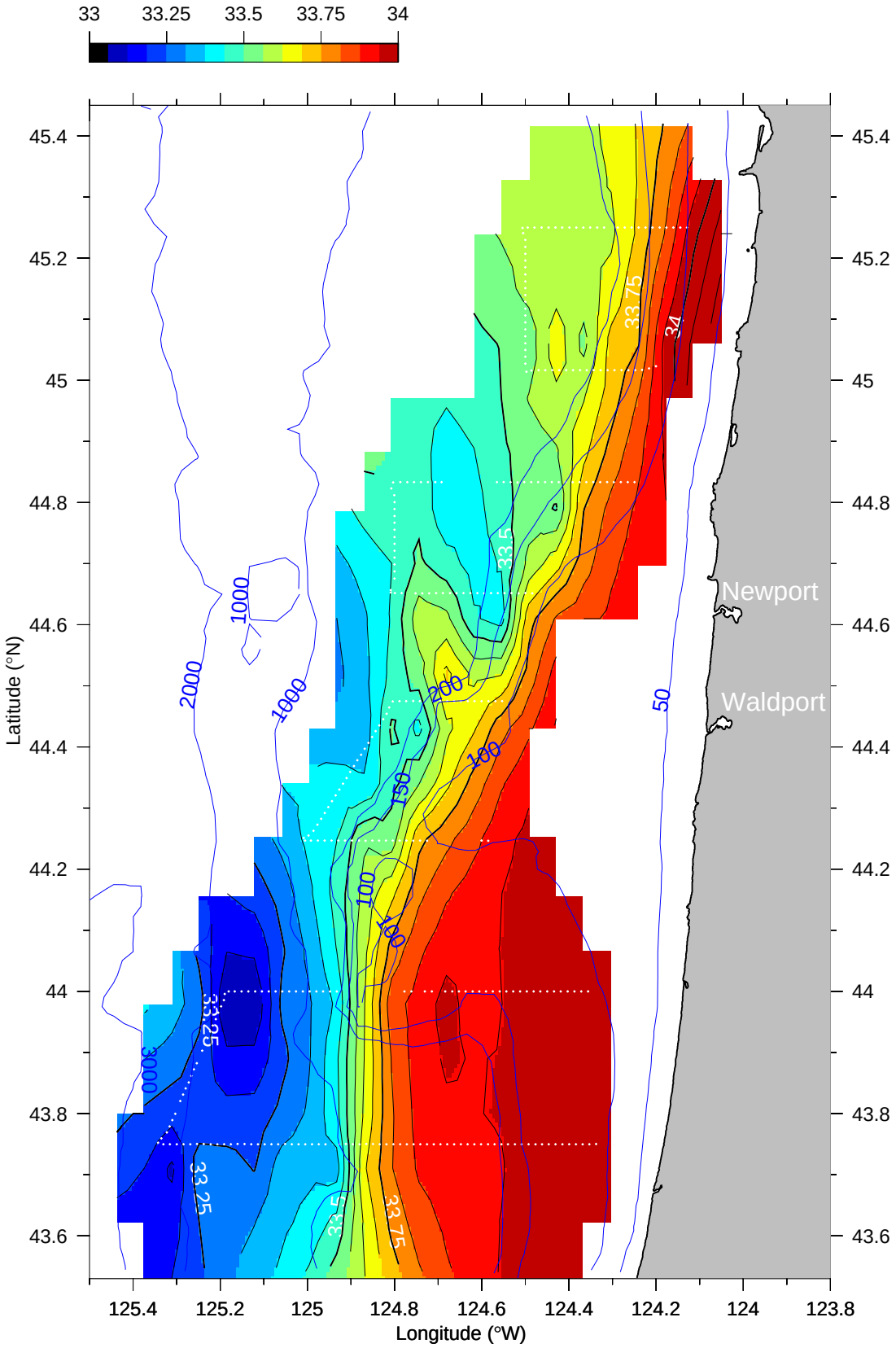
Salinity (PSS) at 75 dbar

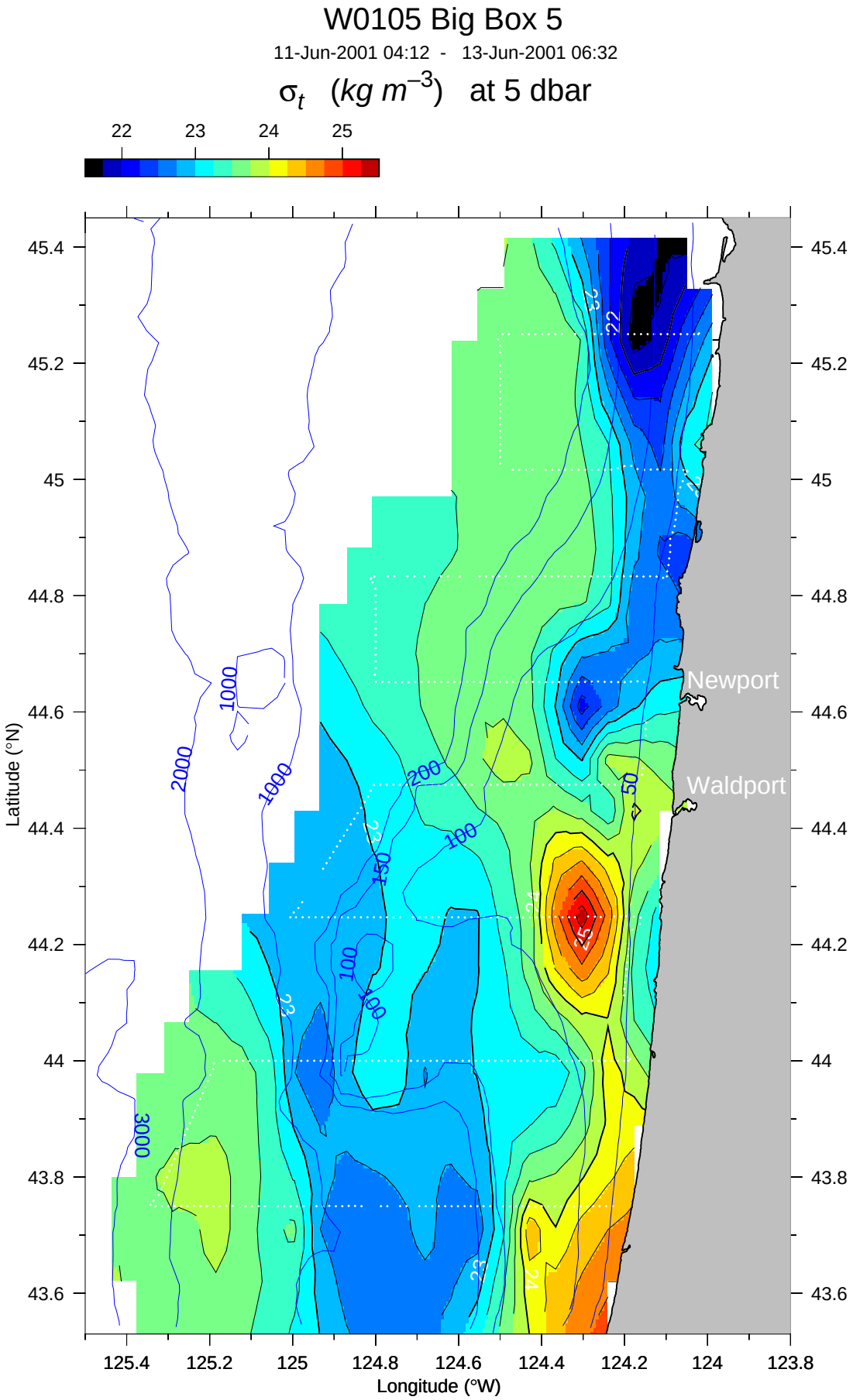


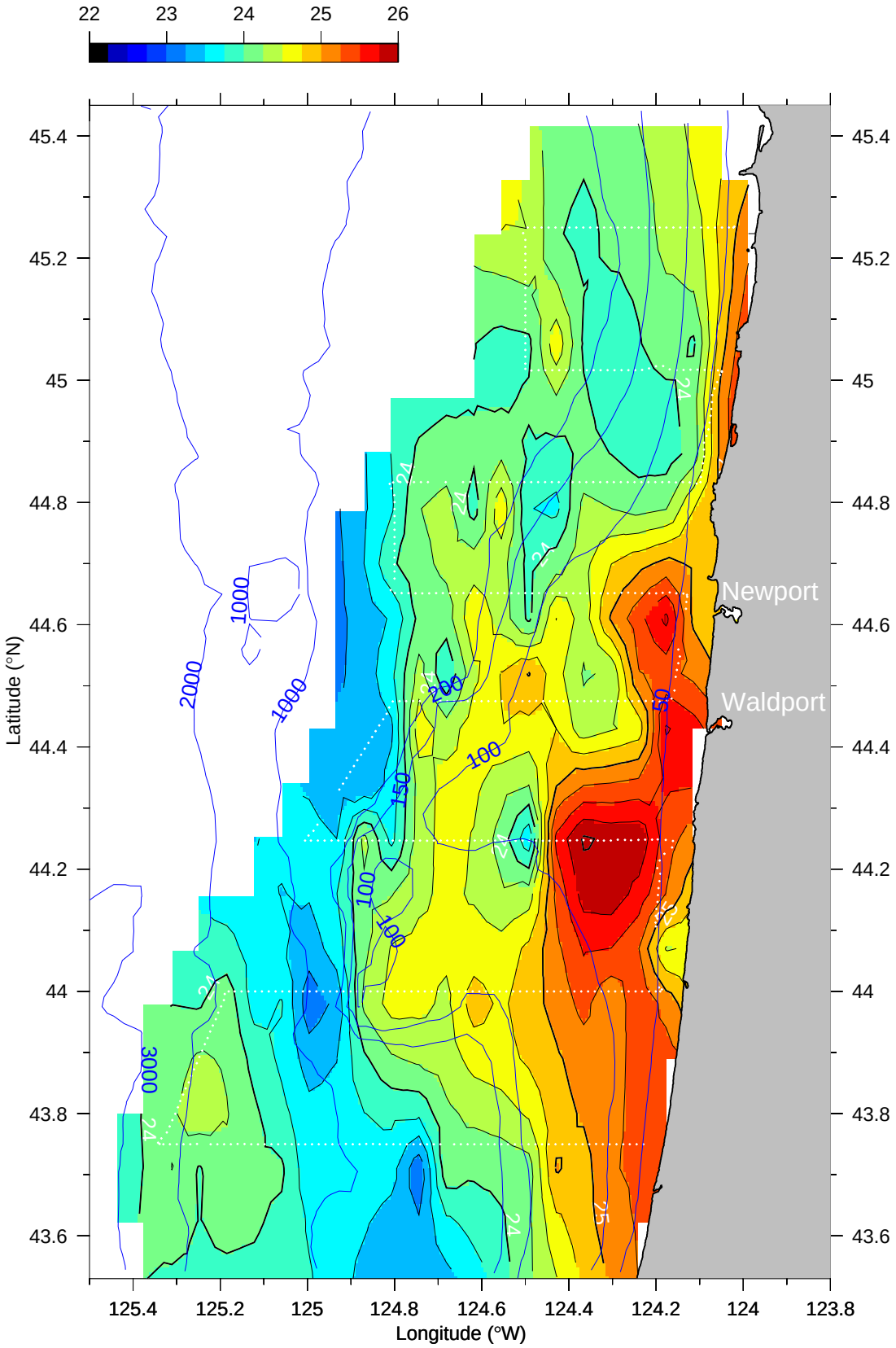
W0105 Big Box 5

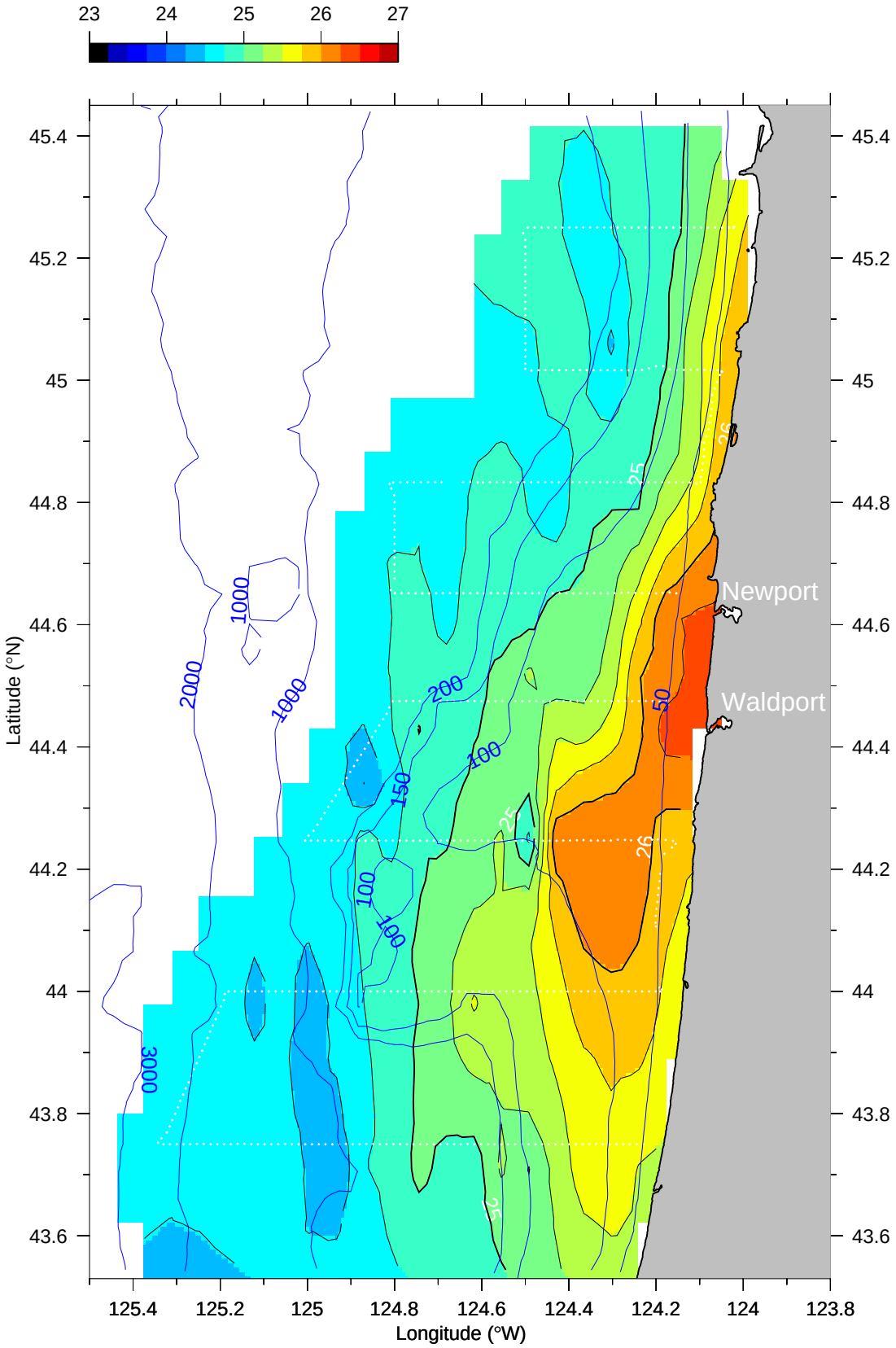
11-Jun-2001 04:12 - 13-Jun-2001 06:32

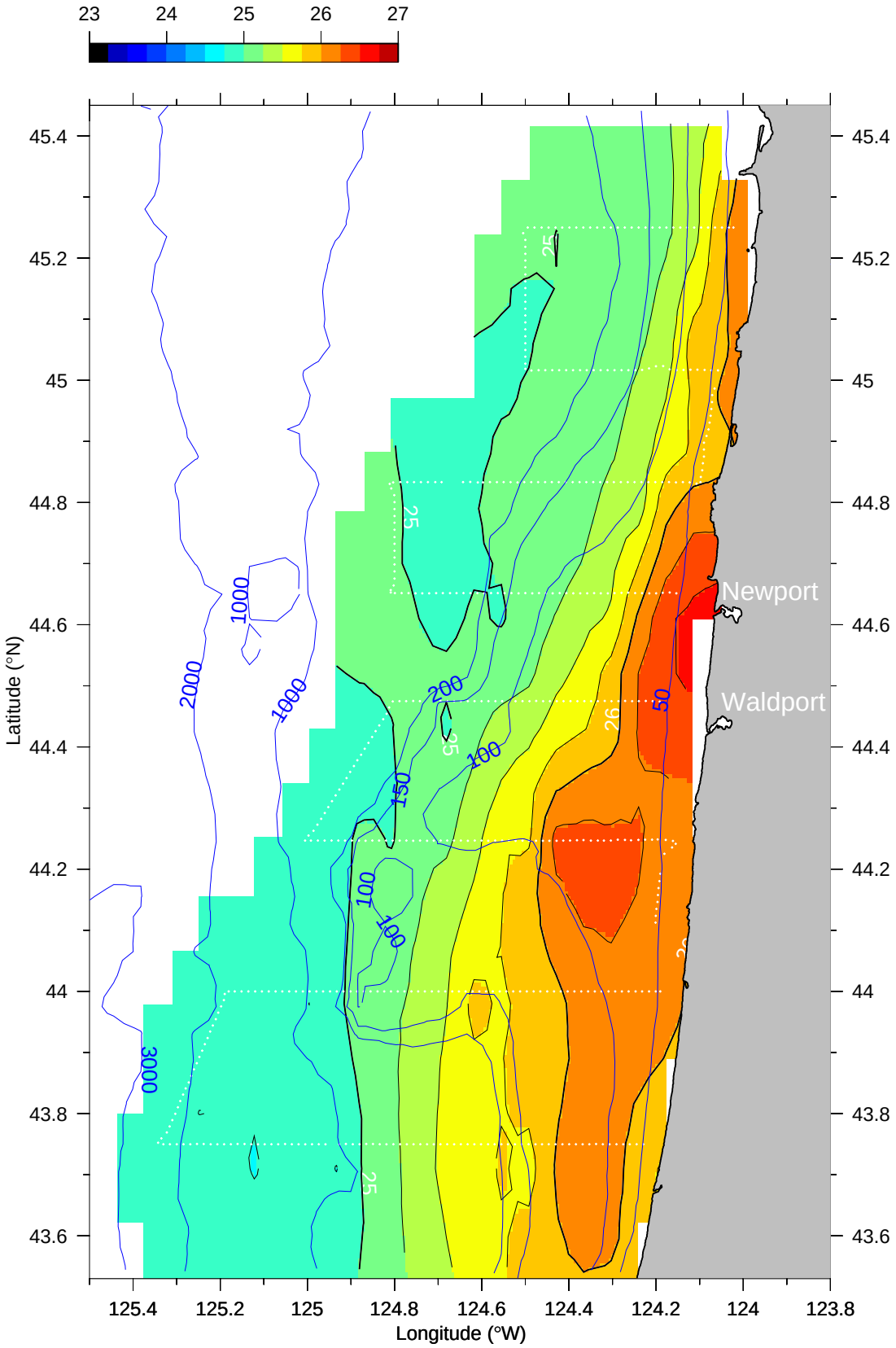
Salinity (PSS) at 95 dbar

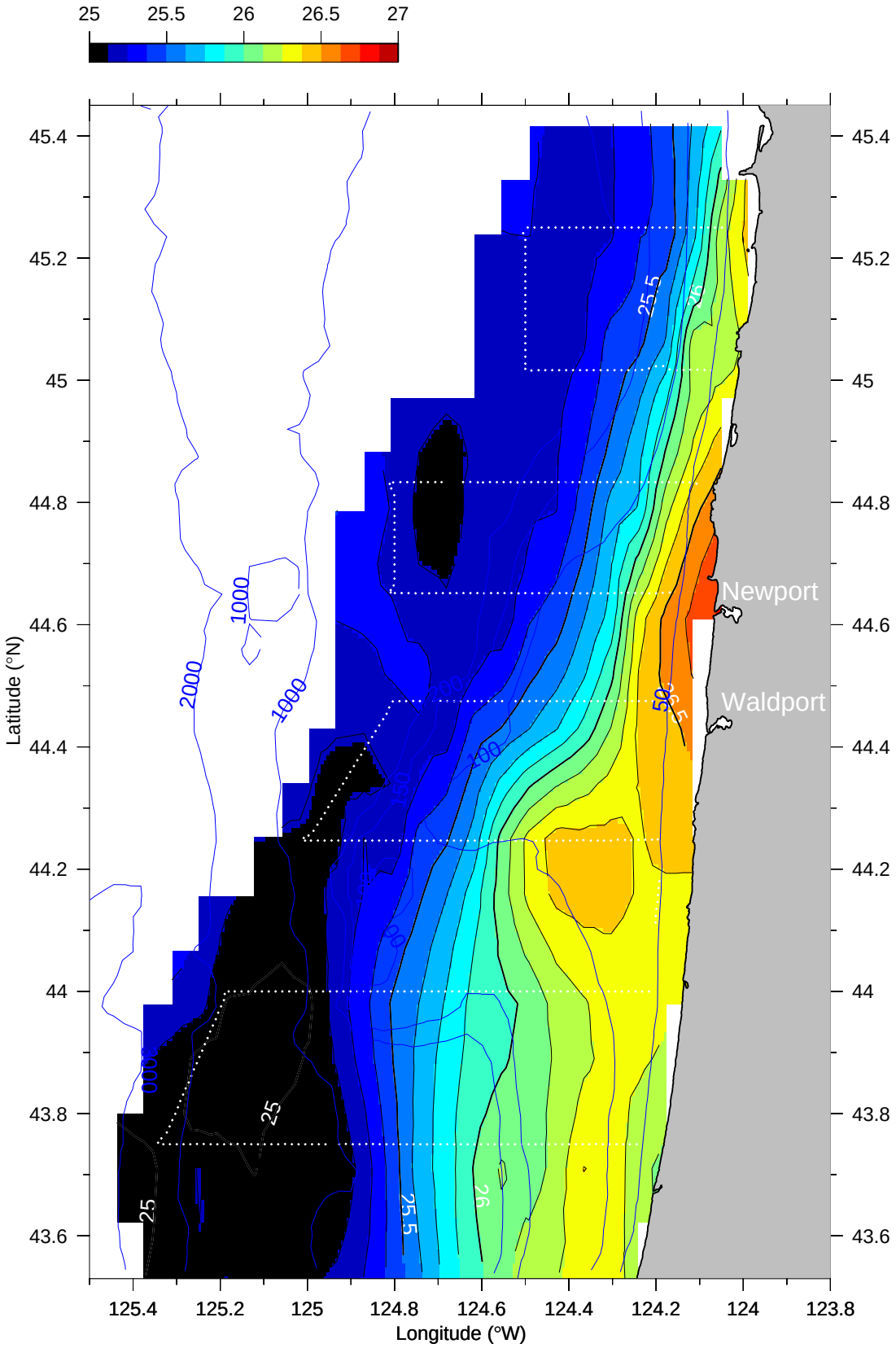


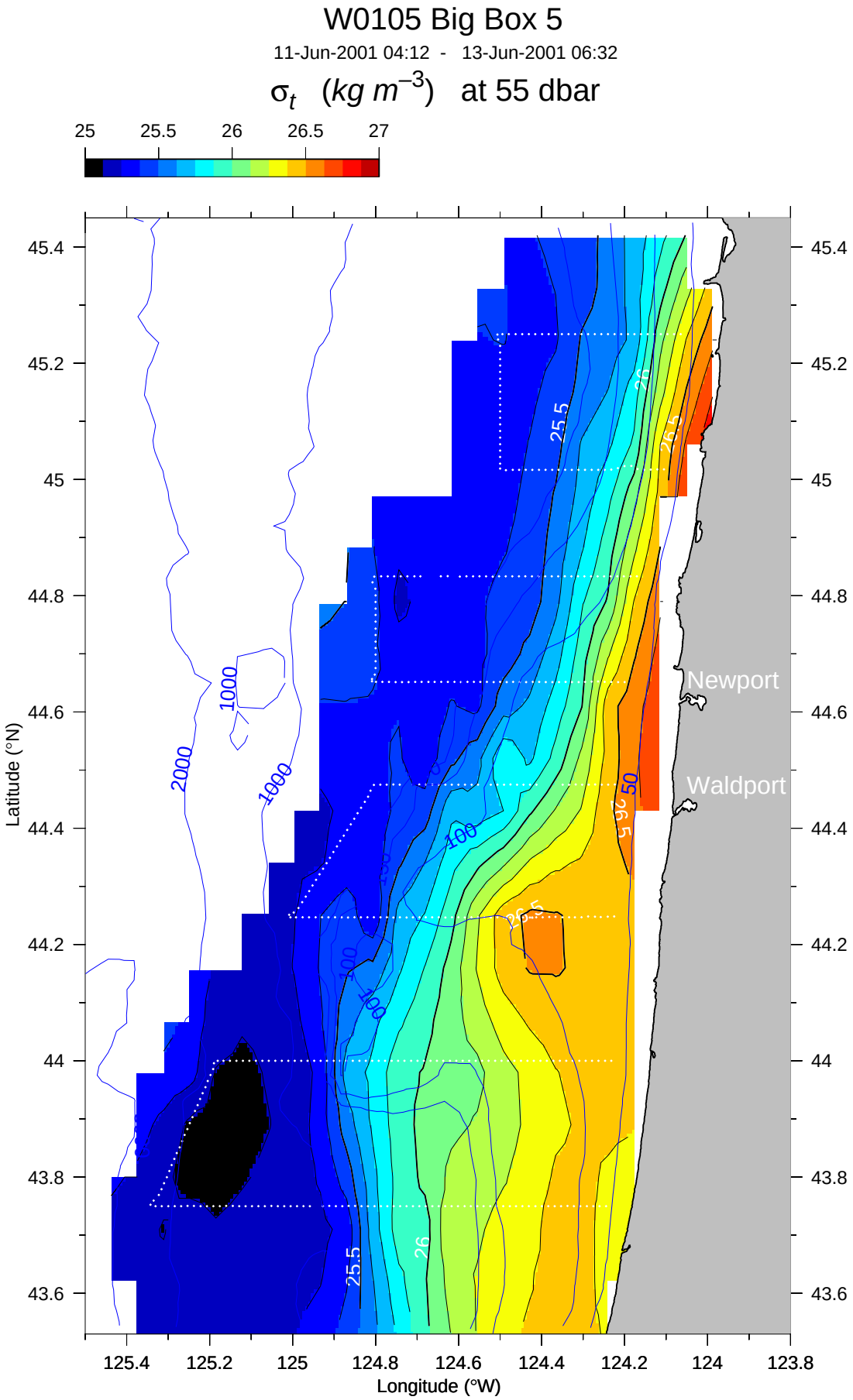

W0105 Big Box 5
11-Jun-2001 04:12 - 13-Jun-2001 06:32
σt (kg m−3) at 5 dbar
22
23
24
25
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8

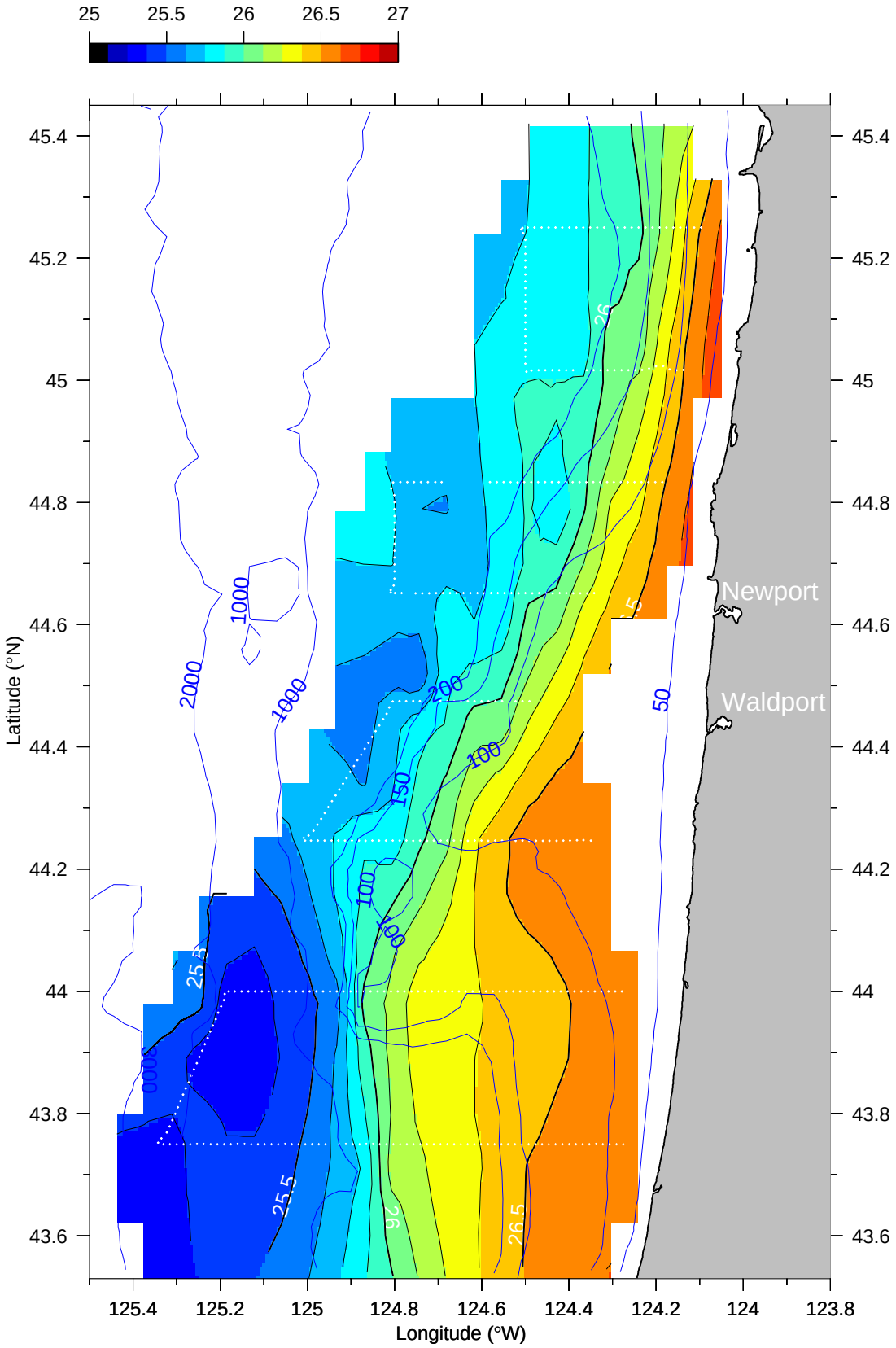

W0105 Big Box 5
11-Jun-2001 04:12 - 13-Jun-2001 06:32
σt (kg m−3) at 15 dbar
22
23
24
25
26
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
3000
200
150
100
50


W0105 Big Box 5
11-Jun-2001 04:12 - 13-Jun-2001 06:32
σt (kg m−3) at 25 dbar
23
24
25
26
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
200
100
150
50
25
26
3000


W0105 Big Box 5
11-Jun-2001 04:12 - 13-Jun-2001 06:32
σt (kg m−3) at 35 dbar
23
24
25
26
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
200
100
150
3000
50


W0105 Big Box 5
11-Jun-2001 04:12 - 13-Jun-2001 06:32
σt (kg m−3) at 45 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8

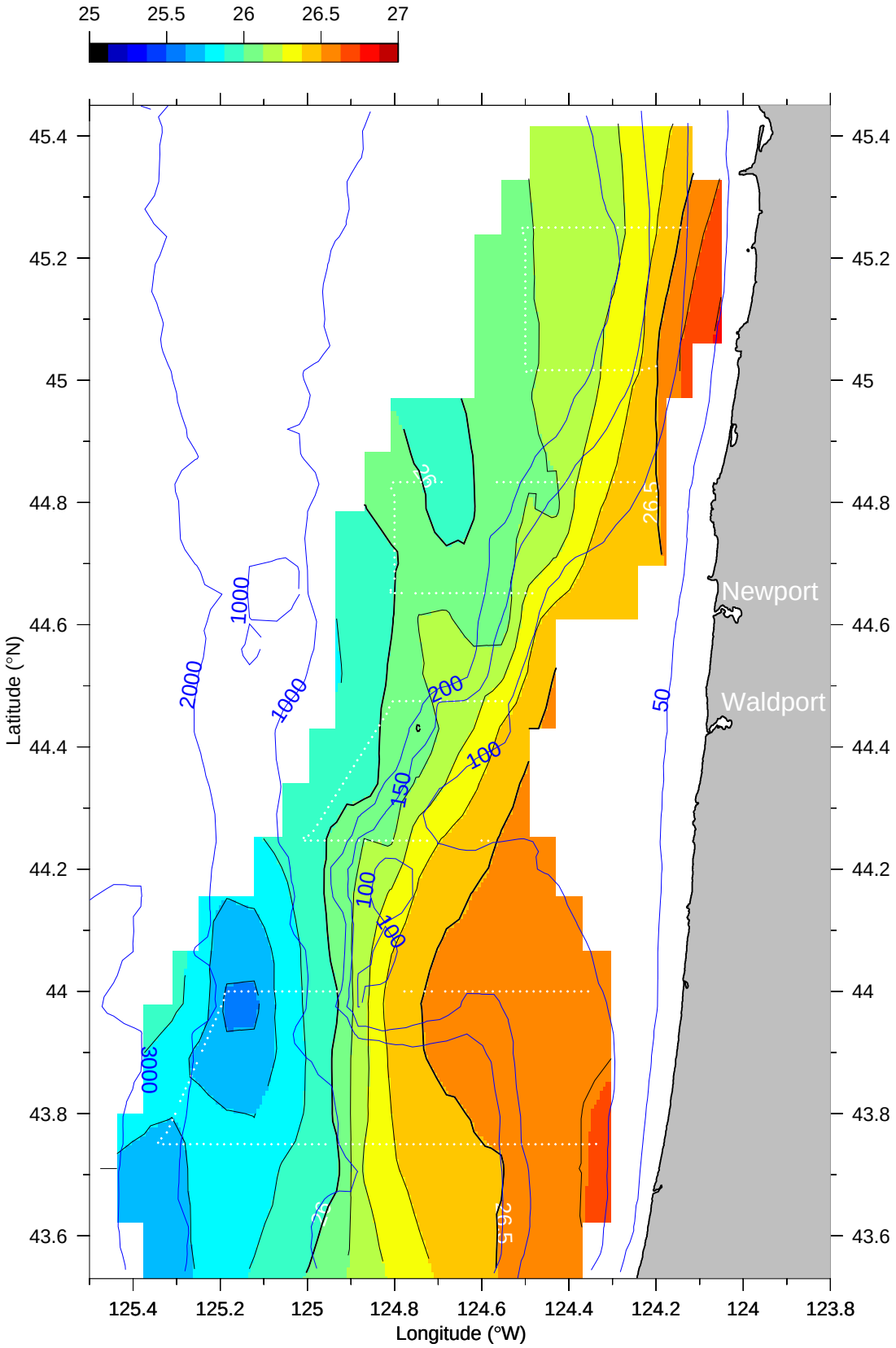

W0105 Big Box 5
11-Jun-2001 04:12 - 13-Jun-2001 06:32
σt (kg m−3) at 55 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
100


W0105 Big Box 5
11-Jun-2001 04:12 - 13-Jun-2001 06:32
σt (kg m−3) at 75 dbar
25
25.5
26
26.5
27
Newport
Waldport
Latitude (°N)
Longitude (°W)
45.4
45.2
45
44.8
44.6
44.4
44.2
44
43.8
43.6
125.4
125.2
125
124.8
124.6
124.4
124.2
124
123.8
1000
2000
200
150
100
50
25.5
26
26.5

W0105 Big Box 5

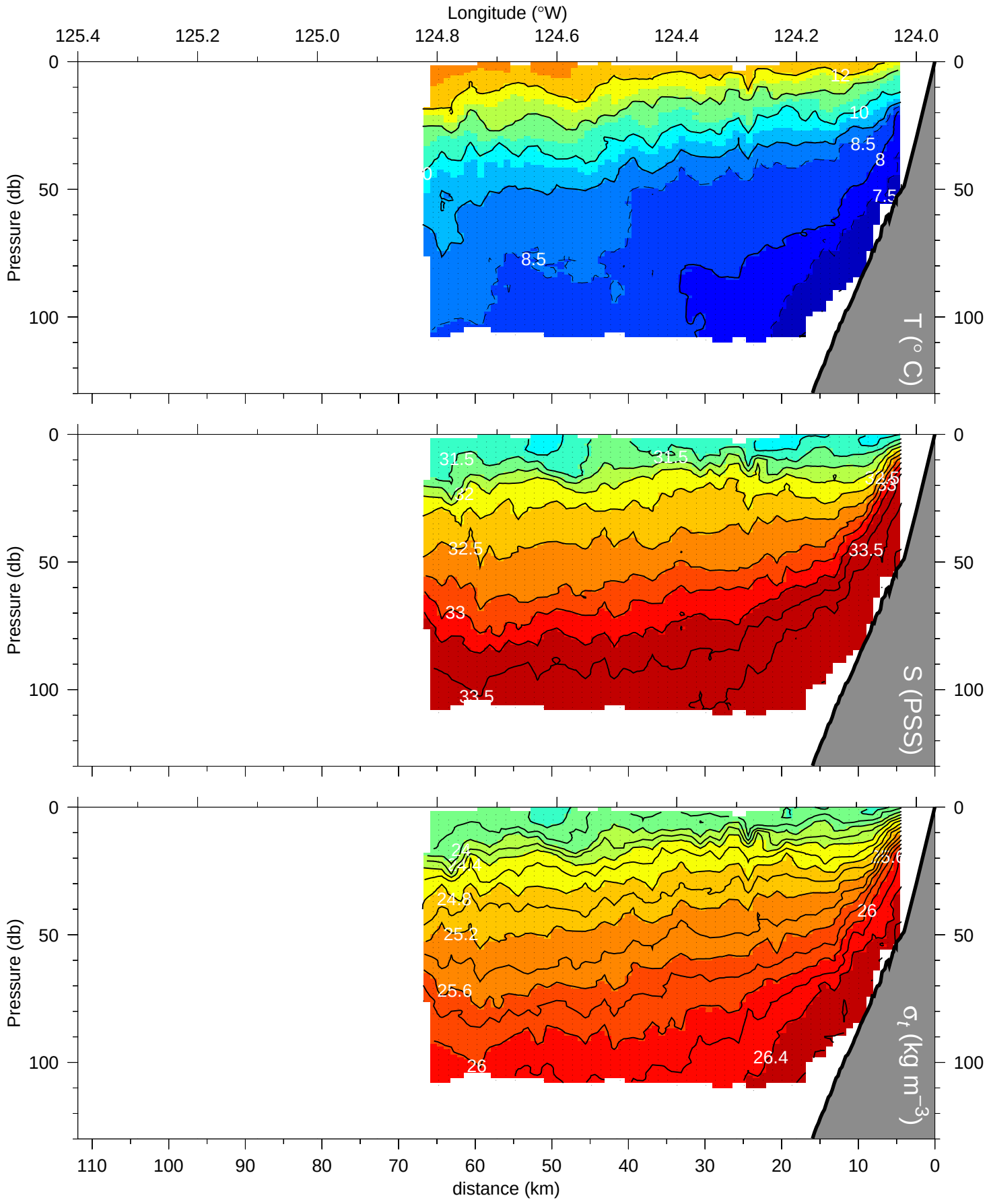
11-Jun-2001 04:12 - 13-Jun-2001 06:32

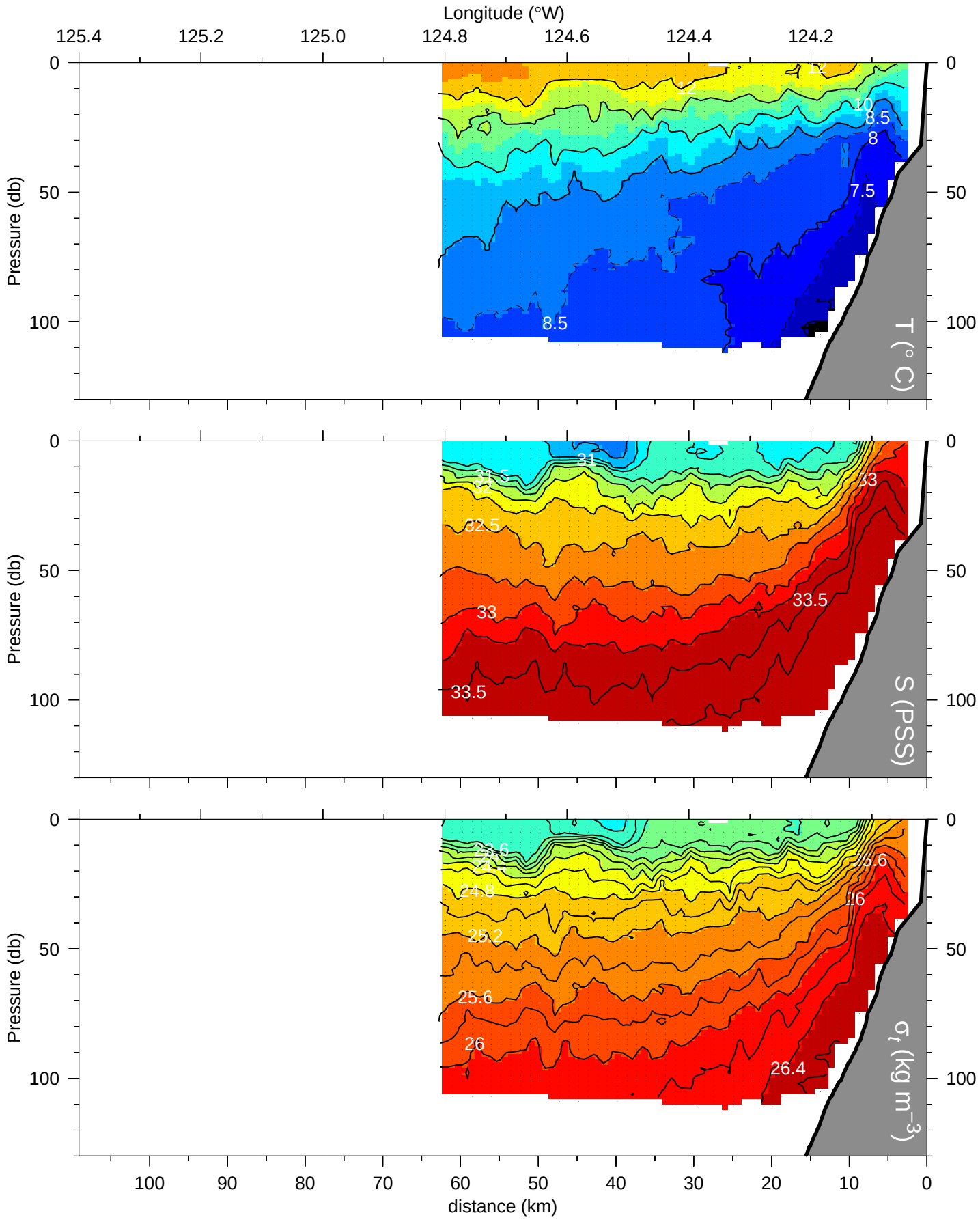
σ_t ($kg\ m^{-3}$) at 95 dbar



Vertical Sections

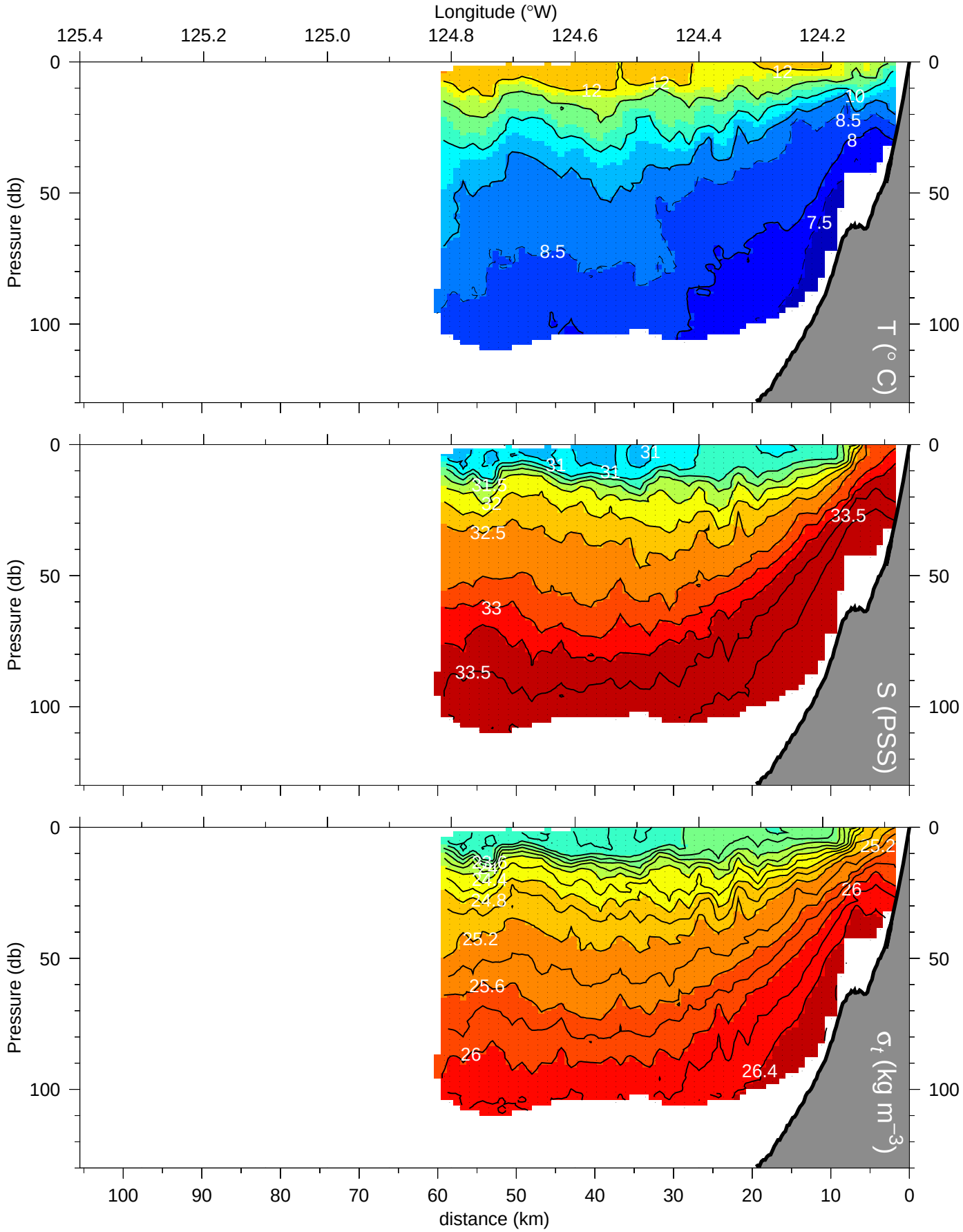
Vertical Distributions of Temperature, Salinity, and σ_t
Vertical Distributions of Chlorophyll


W0105C: BB1 line 1
line 1 at 45.250 °N (24-May-2001 02:35 - 24-May-2001 06:55)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
124.0
Pressure (db)
0
50
100
12
10
8.5
8
7.5
8.5
T (° C)
31.5
32
32.5
33
33.5
S (PSS)
24
24.4
24.8
25.2
25.6
26
26.4
σt (kg m−3)
110
100
90
80
70
60
50
40
30
20
10
0
distance (km)


W0105C: BB1 line 2
line 2 at 45.017 °N (24-May-2001 08:52 - 24-May-2001 13:07)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
T (° C)
12
10
8.5
8
7.5
S (PSS)
31
32
32.5
33
33.5
σt (kg m−3)
24.8
25.2
25.6
26
26.4
distance (km)
100
90
80
70
60
50
40
30
20
10
0

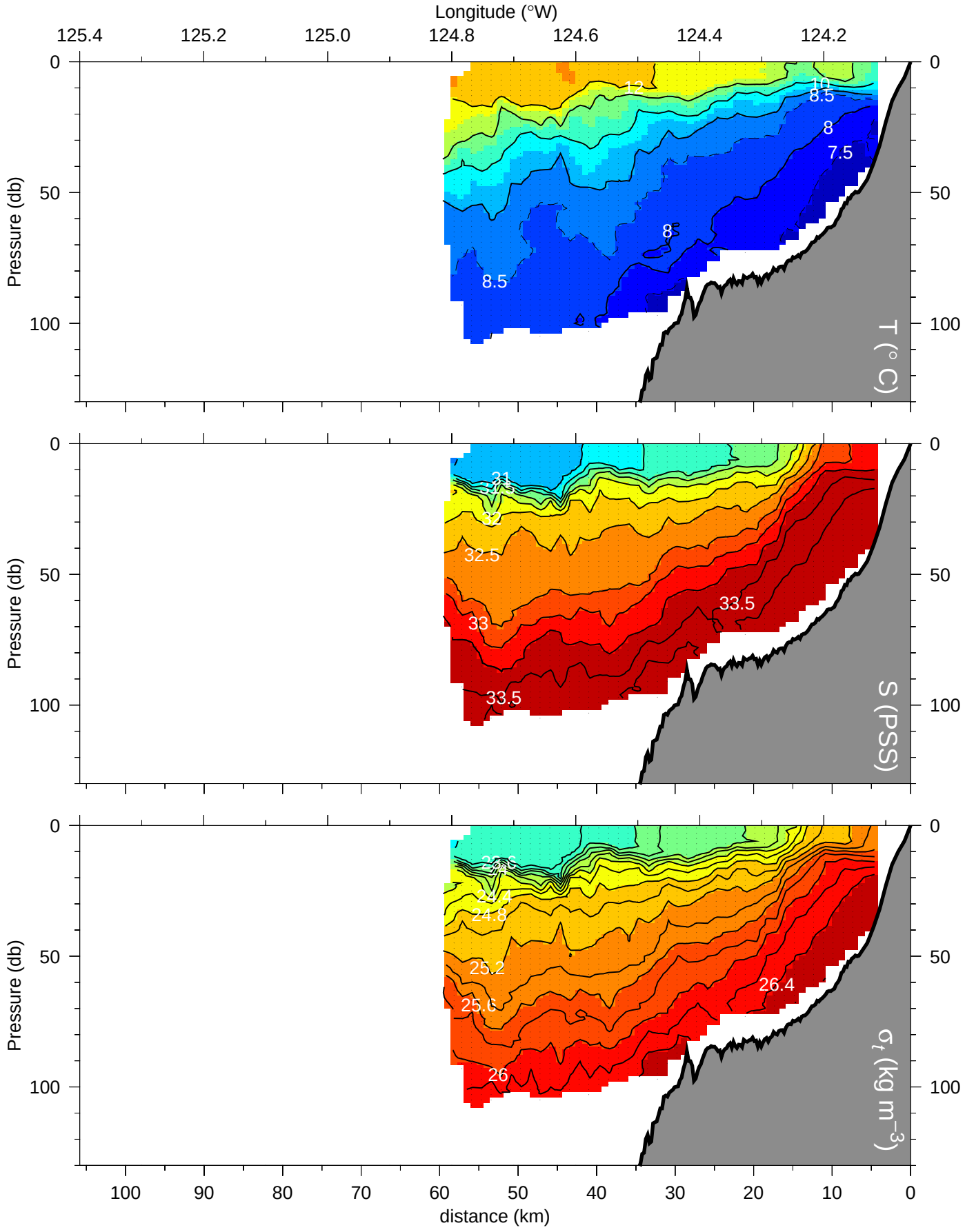
W0105C: BB1 line 3

line 3 at 44.833 °N (24-May-2001 14:46 - 24-May-2001 18:54)



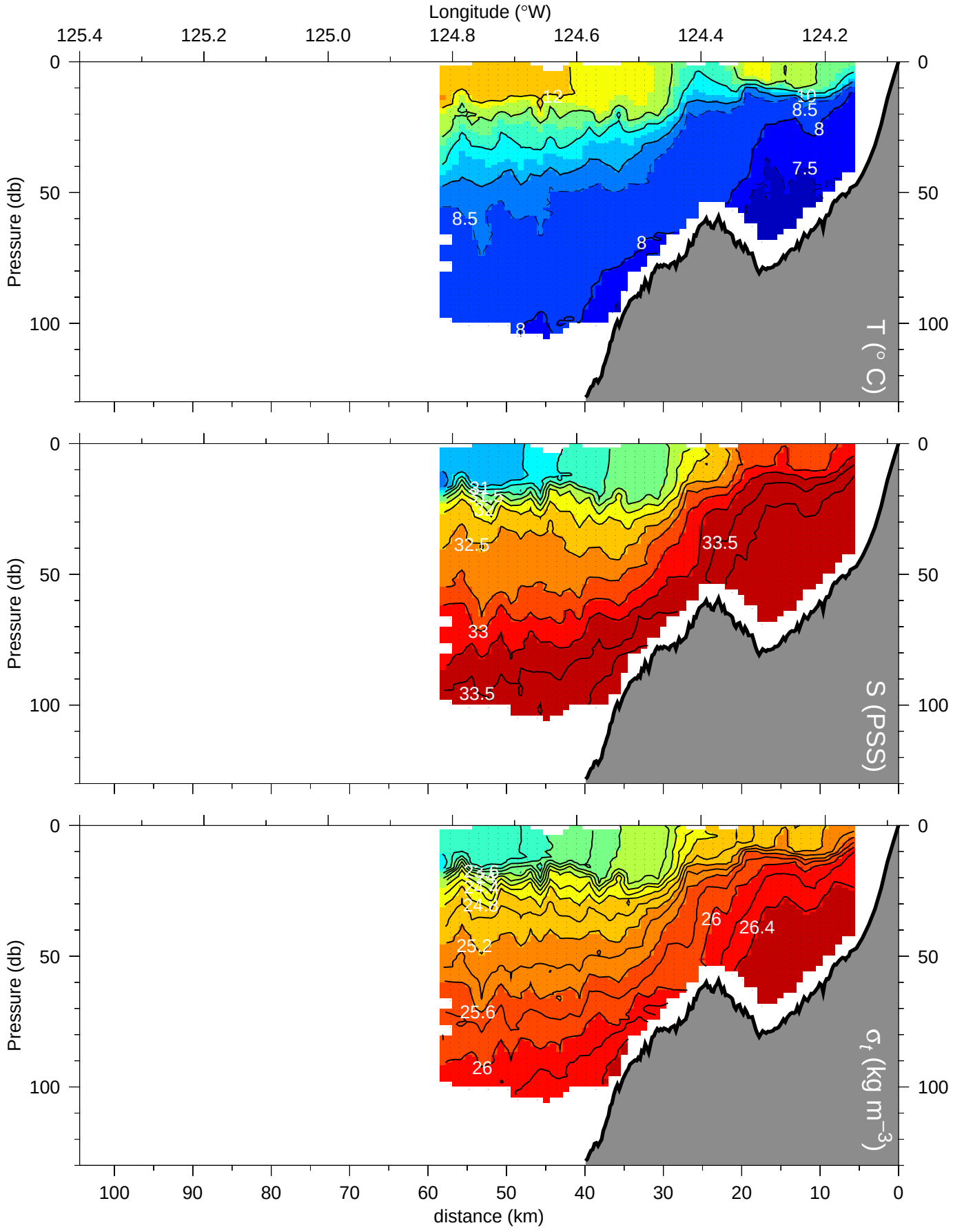
W0105C: BB1 line 4

line 4 at 44.651 °N (24-May-2001 22:45 - 25-May-2001 02:40)



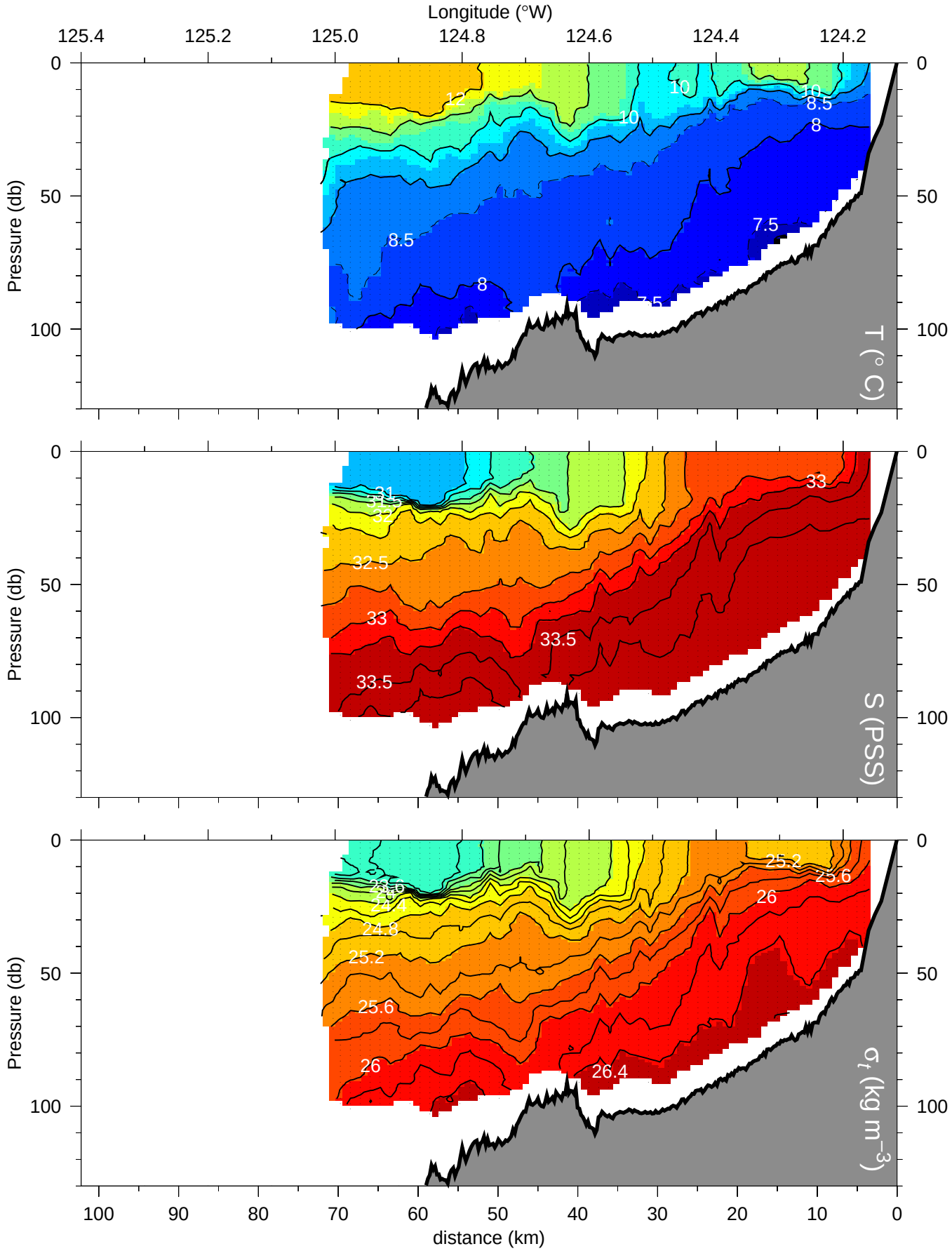
W0105C: BB1 line 5

line 5 at 44.475 °N (25-May-2001 04:21 - 25-May-2001 08:11)



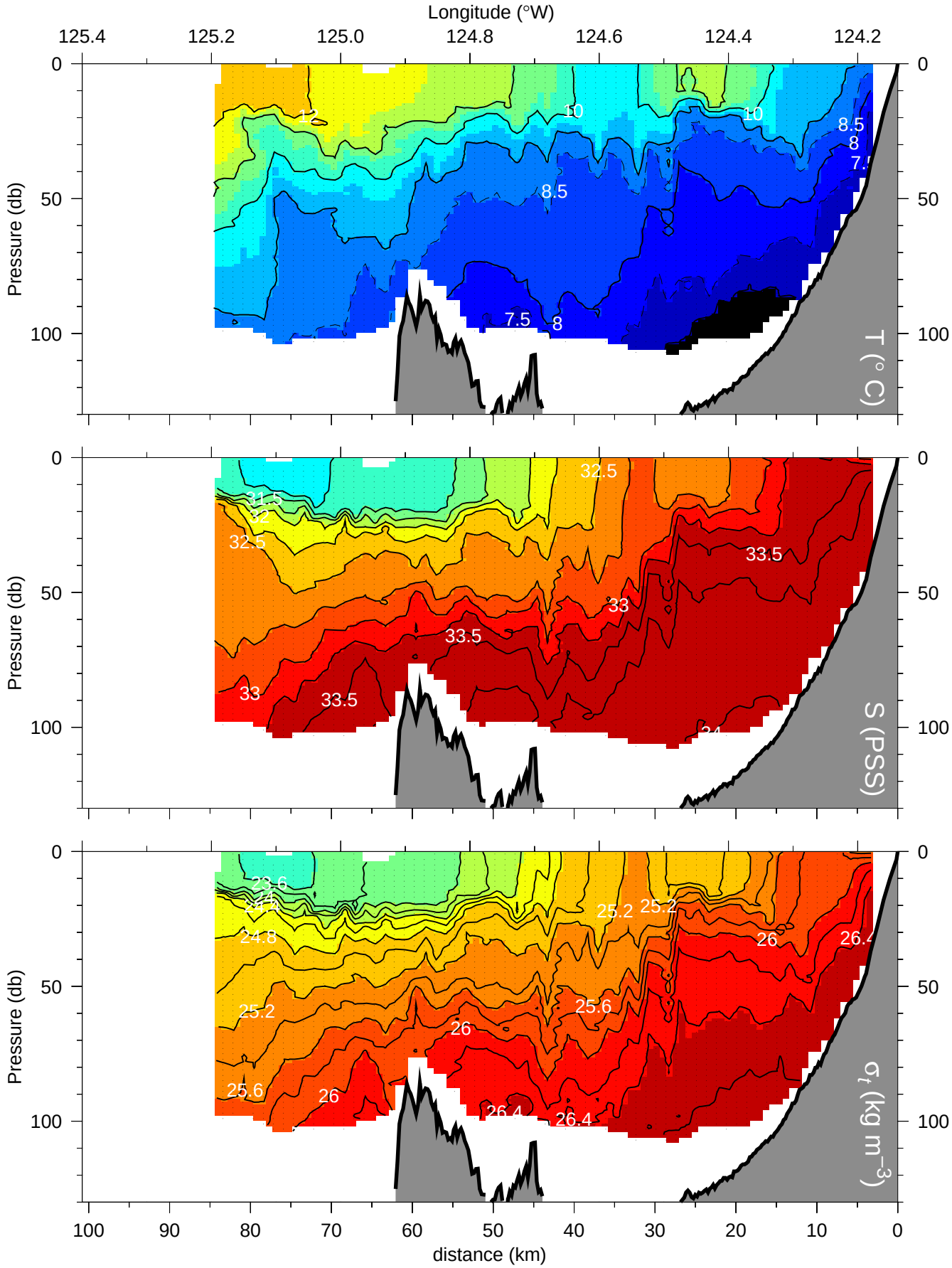
W0105C: BB1 line 6

line 6 at 44.246 °N (25-May-2001 10:18 - 25-May-2001 15:22)



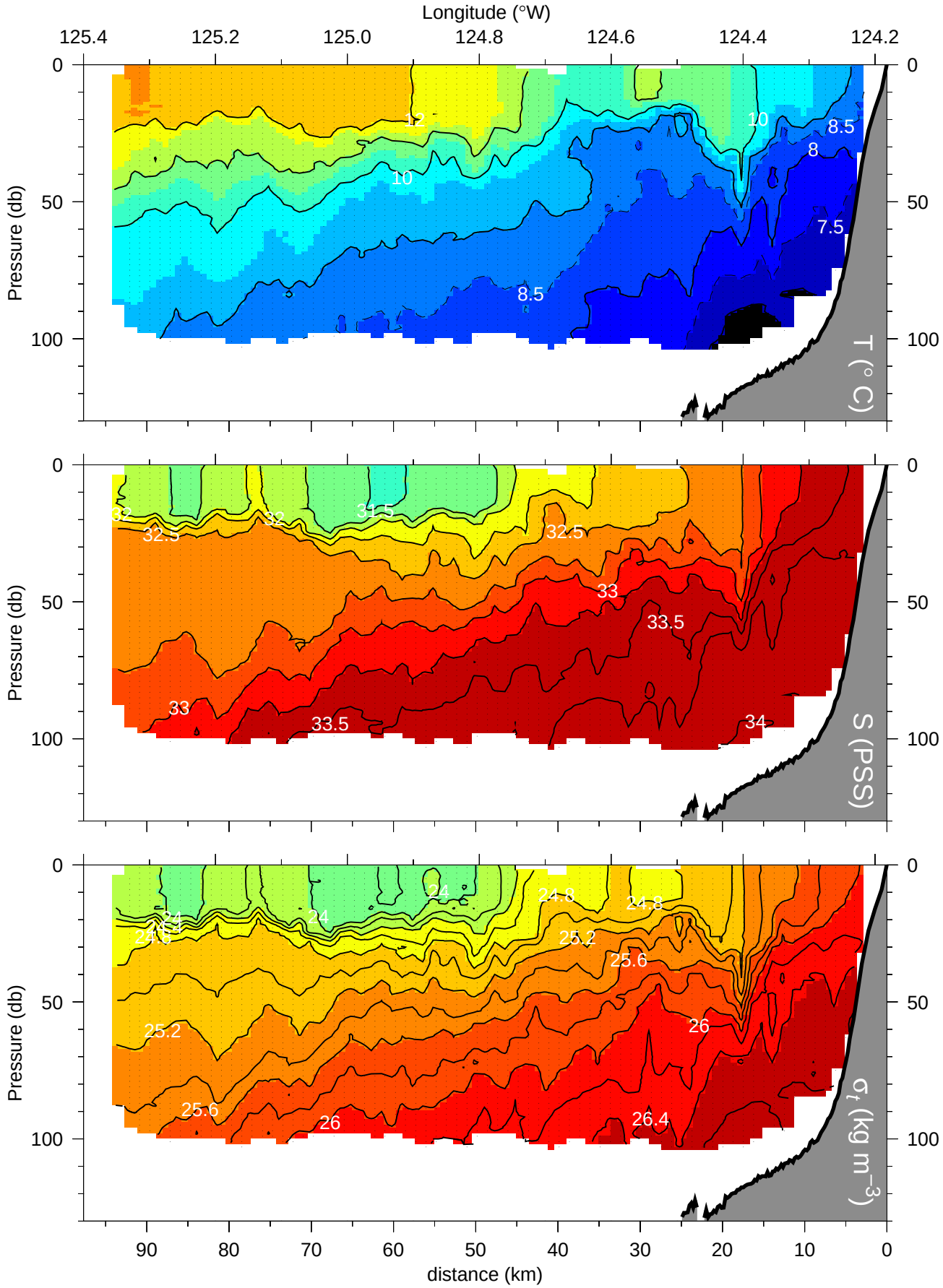
W0105C: BB1 line 7

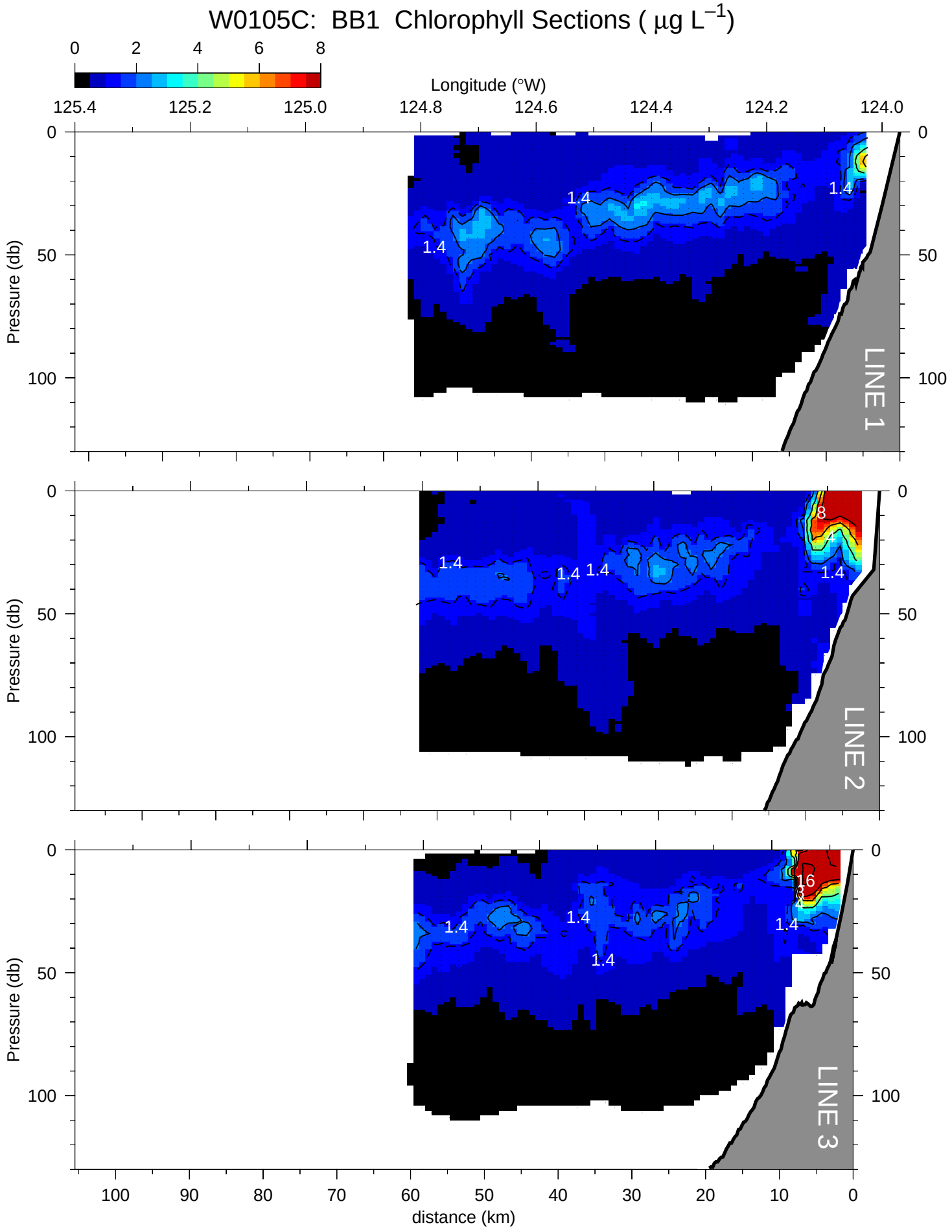
line 7 at 44.000 °N (25-May-2001 17:34 - 25-May-2001 23:30)

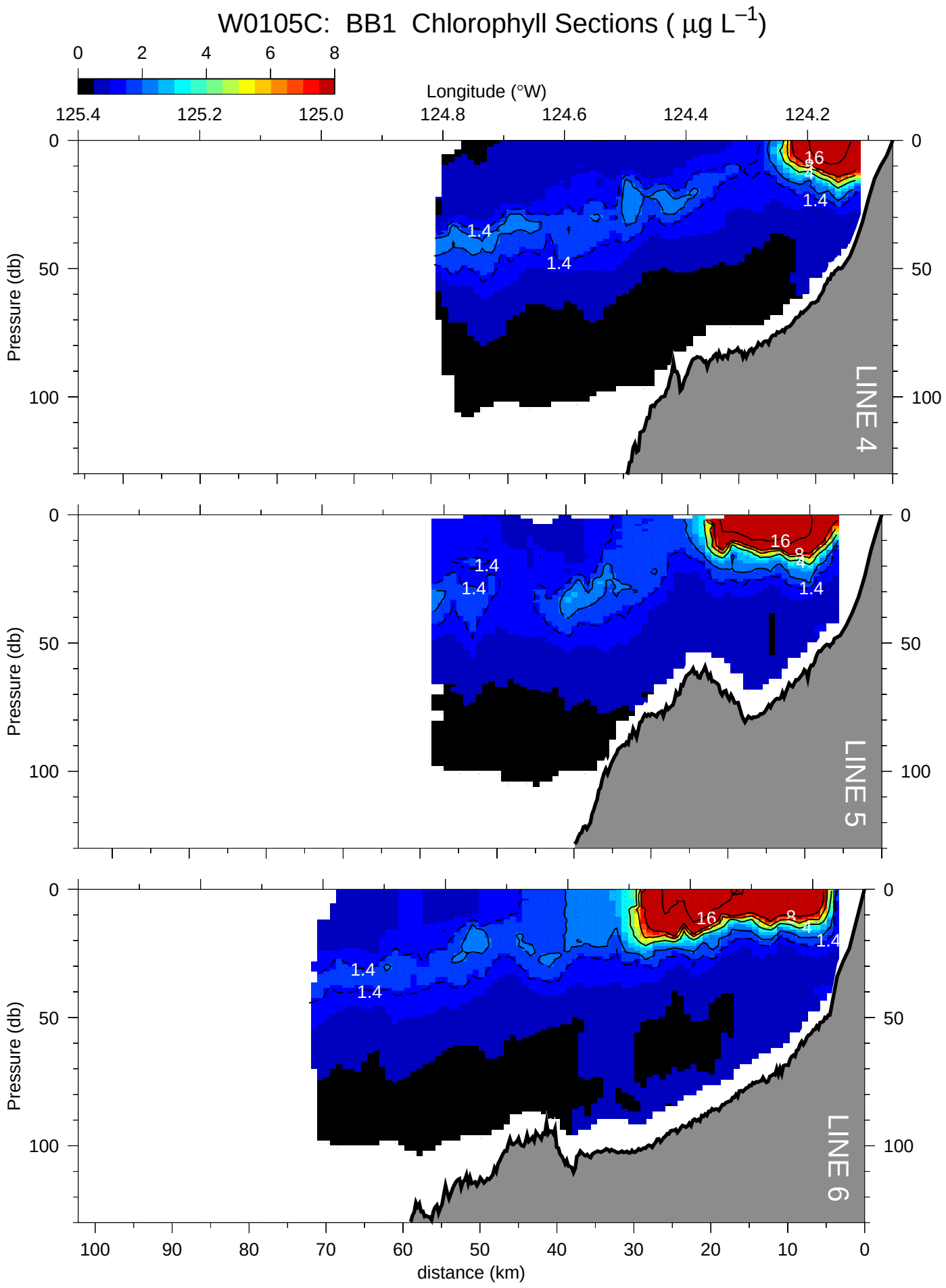


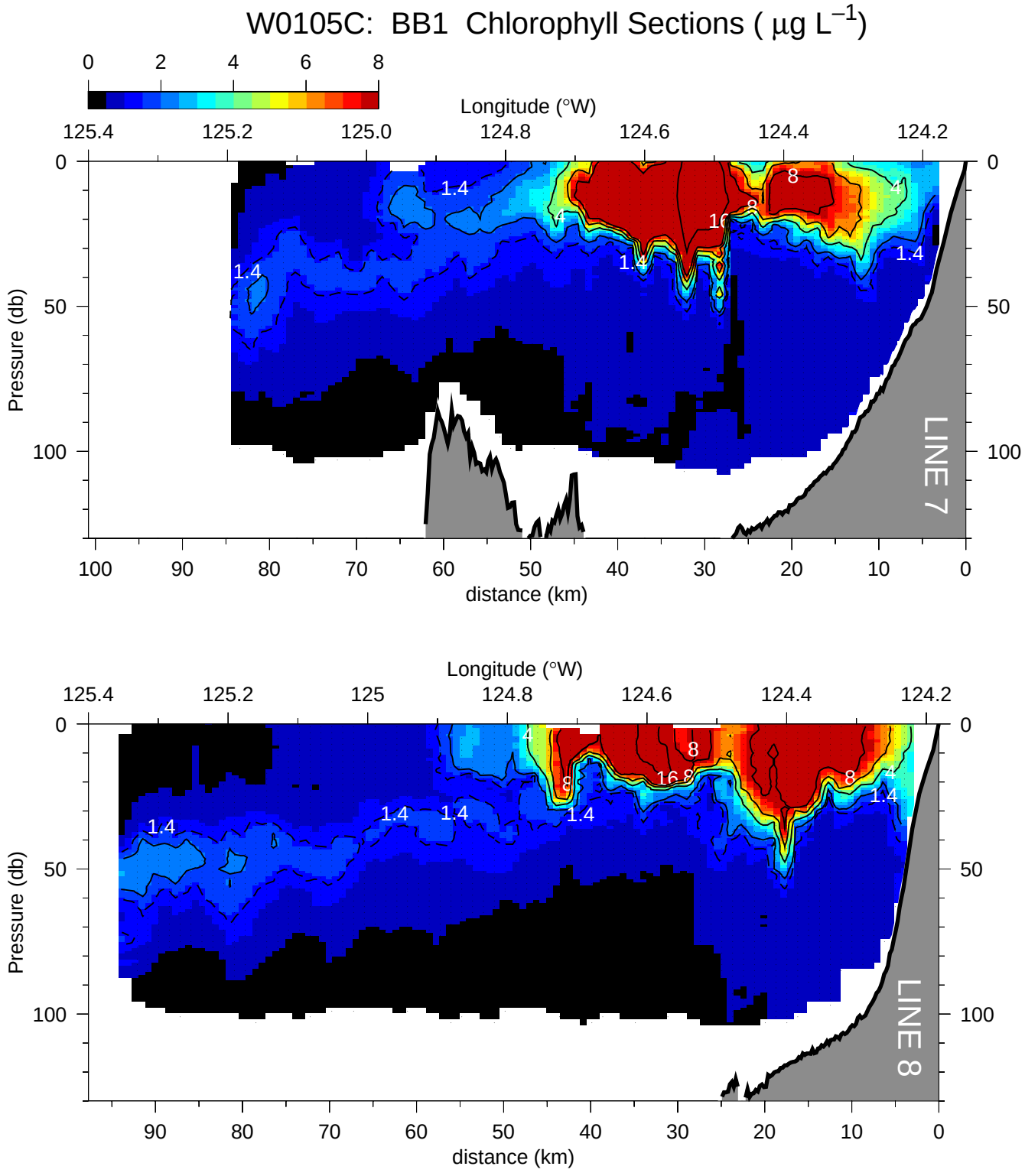
W0105C: BB1 line 8

line 8 at 43.750 °N (26-May-2001 01:44 - 26-May-2001 08:16)



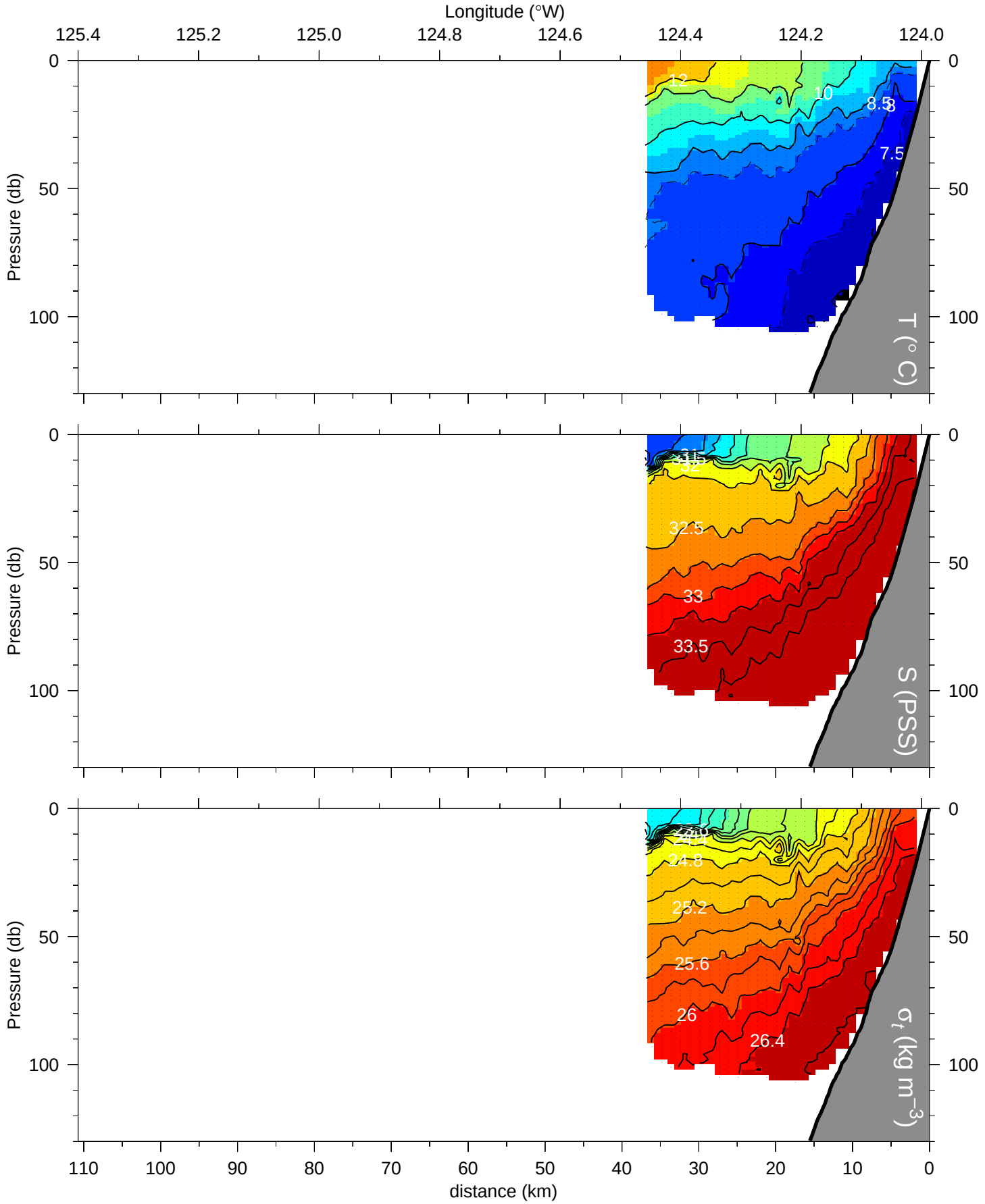

W0105C: BB1 Chlorophyll Sections (µg L−1)
0 2 4 6 8
Longitude (°W)
125.4 125.2 125.0 124.8 124.6 124.4 124.2 124.0
Pressure (db)
0
50
100
1.4
LINE 1
8
16
3
4
LINE 2
LINE 3
100 90 80 70 60 50 40 30 20 10 0
distance (km)

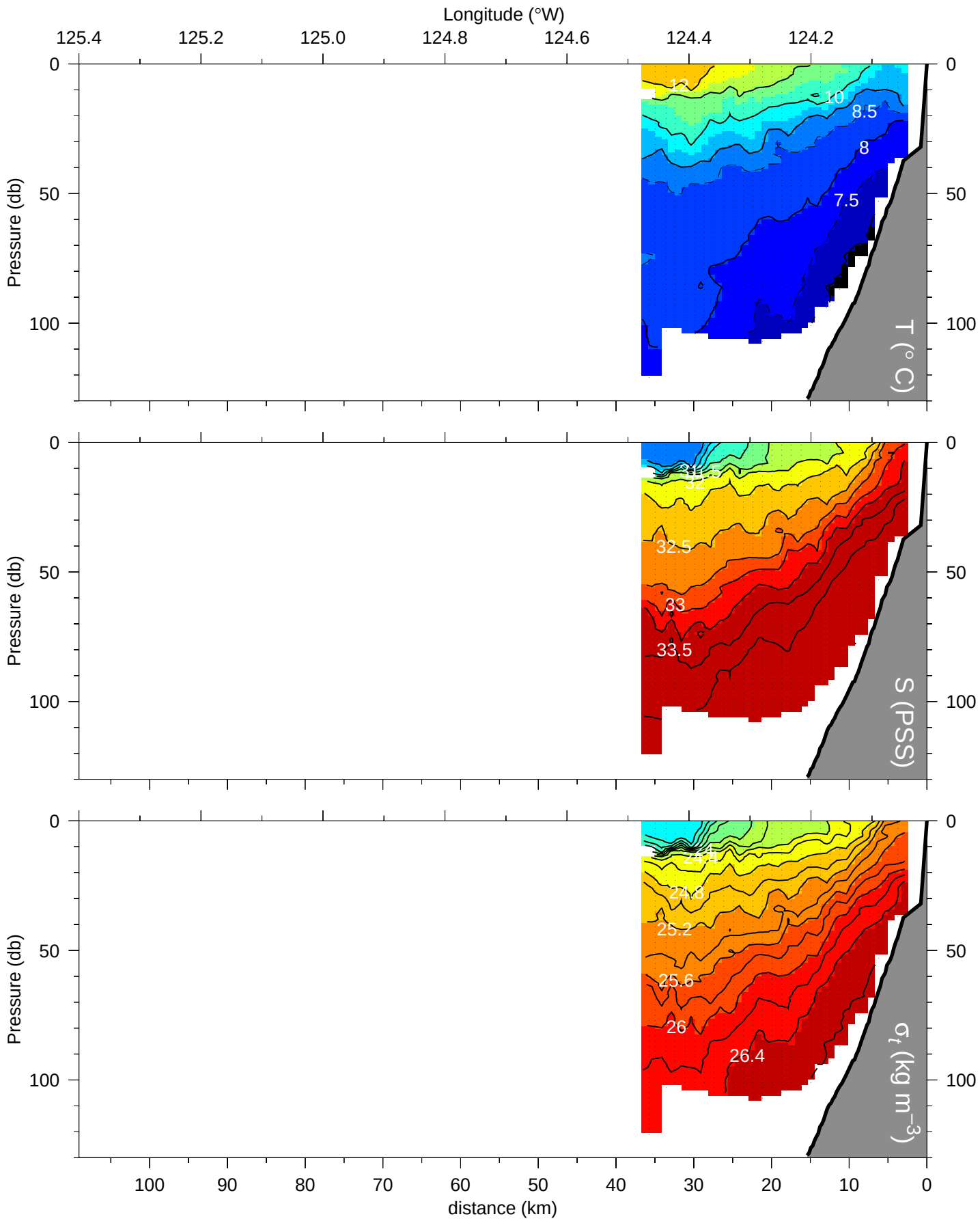

W0105C: BB1 Chlorophyll Sections (µg L−1)
0
2
4
6
8
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
16
8
4
1.4
LINE 4
LINE 5
LINE 6
100
90
80
70
60
50
40
30
20
10
0
distance (km)

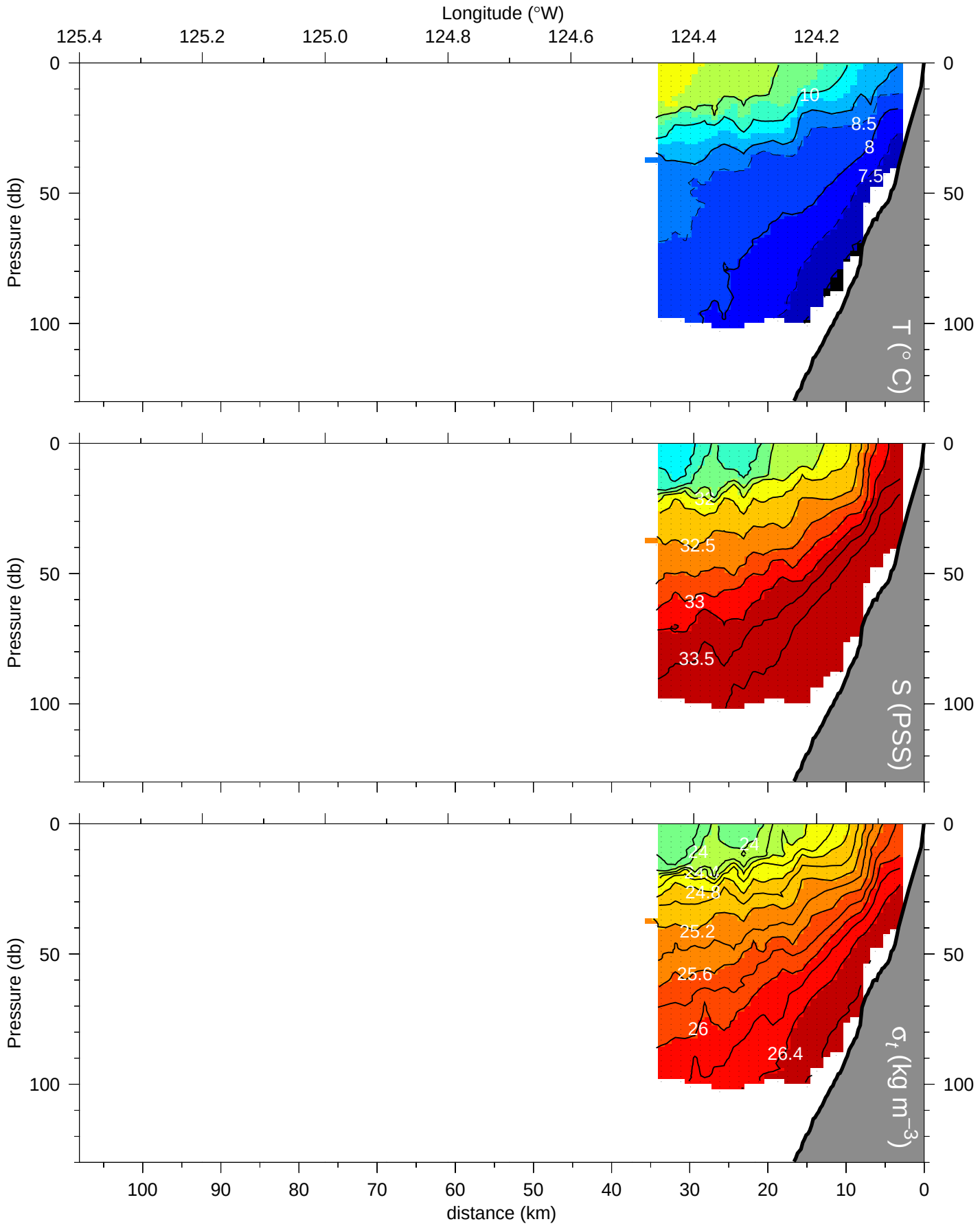

W0105C: BB1 Chlorophyll Sections (µg L−1)
0 2 4 6 8
Longitude (°W)
125.4 125.2 125.0 124.8 124.6 124.4 124.2
Pressure (db)
0 50 100
1.4
8
4
LINE 7
100 90 80 70 60 50 40 30 20 10 0
distance (km)
Longitude (°W)
125.4 125.2 125 124.8 124.6 124.4 124.2
Pressure (db)
0 50 100
1.4
8
4
LINE 8
90 80 70 60 50 40 30 20 10 0
distance (km)

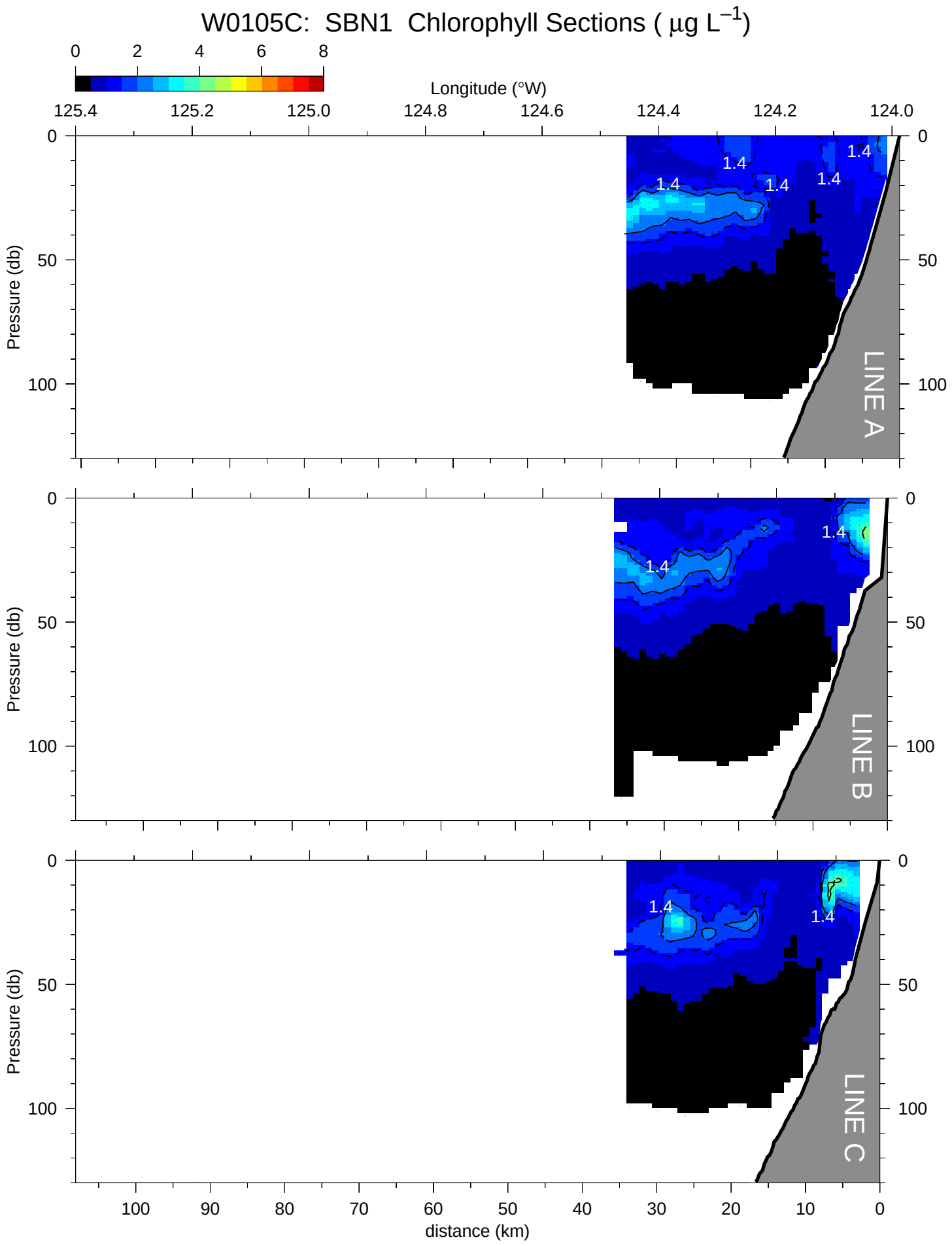
W0105C: SBN1 line A

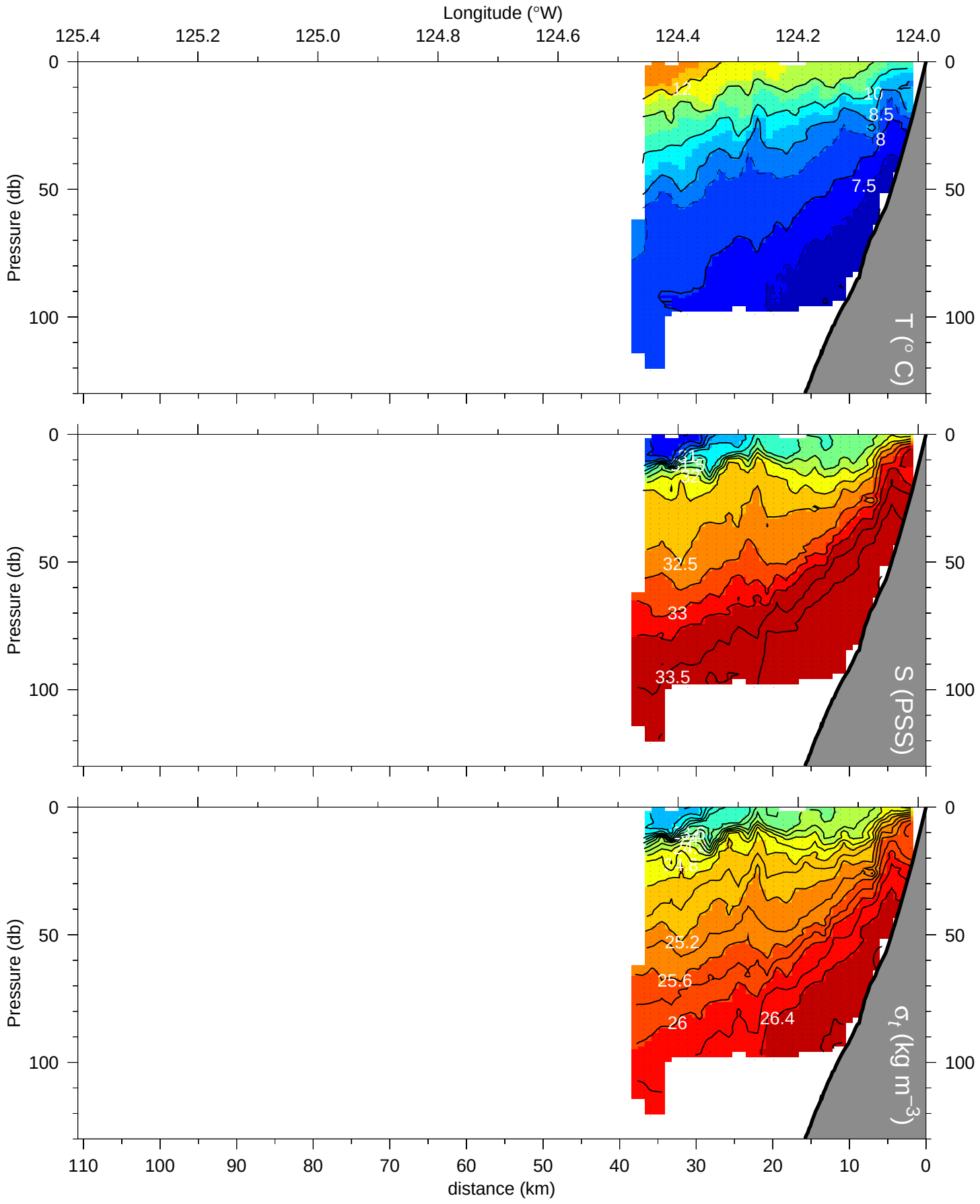
line A at 45.107 °N (27-May-2001 02:12 - 27-May-2001 04:38)

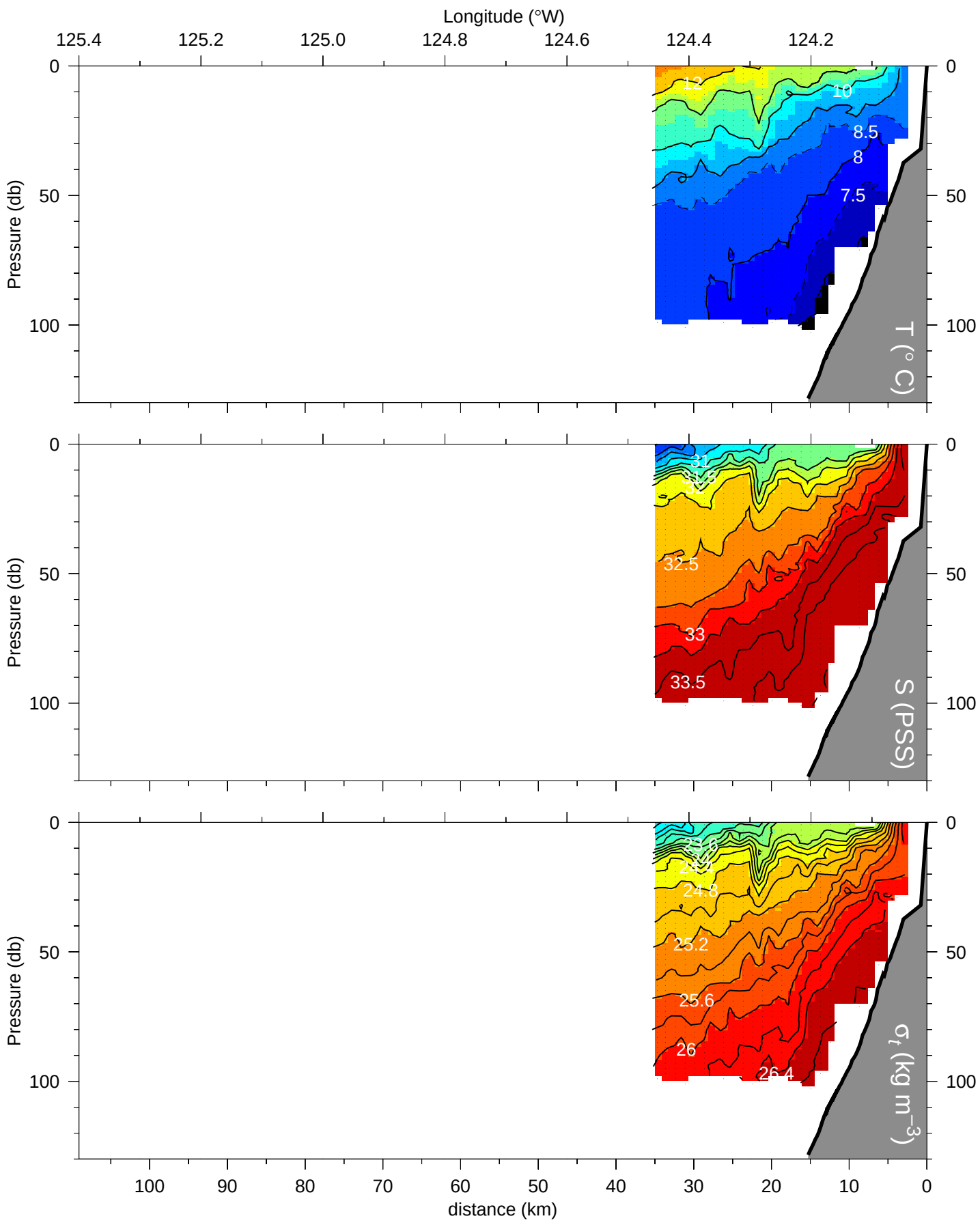



W0105C: SBN1 line B
line B at 45.016 °N (26-May-2001 22:11 - 27-May-2001 01:20)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
12
10
8.5
8
7.5
T (° C)
32.5
33
33.5
S (PSS)
24.4
24.8
25.2
25.6
26
26.4
σt (kg m−3)
distance (km)
100
90
80
70
60
50
40
30
20
10
0


W0105C: SBN1 line C
line C at 44.927 °N (26-May-2001 19:00 - 26-May-2001 21:13)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
10
8.5
8
7.5
T (° C)
32.5
33
33.5
S (PSS)
24
24.8
25.2
25.6
26
26.4
σt (kg m−3)
distance (km)
100
90
80
70
60
50
40
30
20
10
0

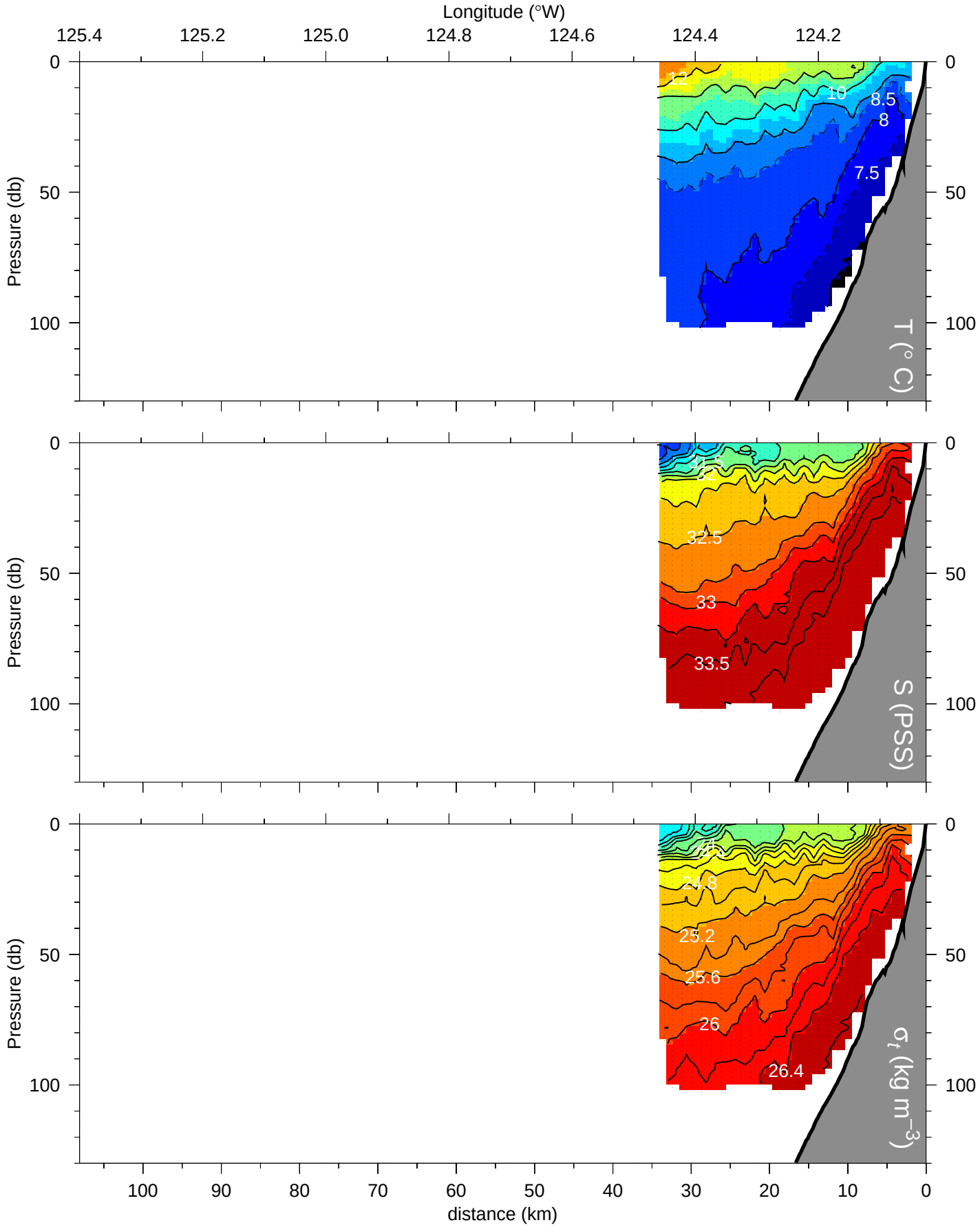

W0105C: SBN1 Chlorophyll Sections (µg L−1)
0
2
4
6
8
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
124.0
Pressure (db)
0
50
100
1.4
LINE A
LINE B
LINE C
100
90
80
70
60
50
40
30
20
10
0
distance (km)

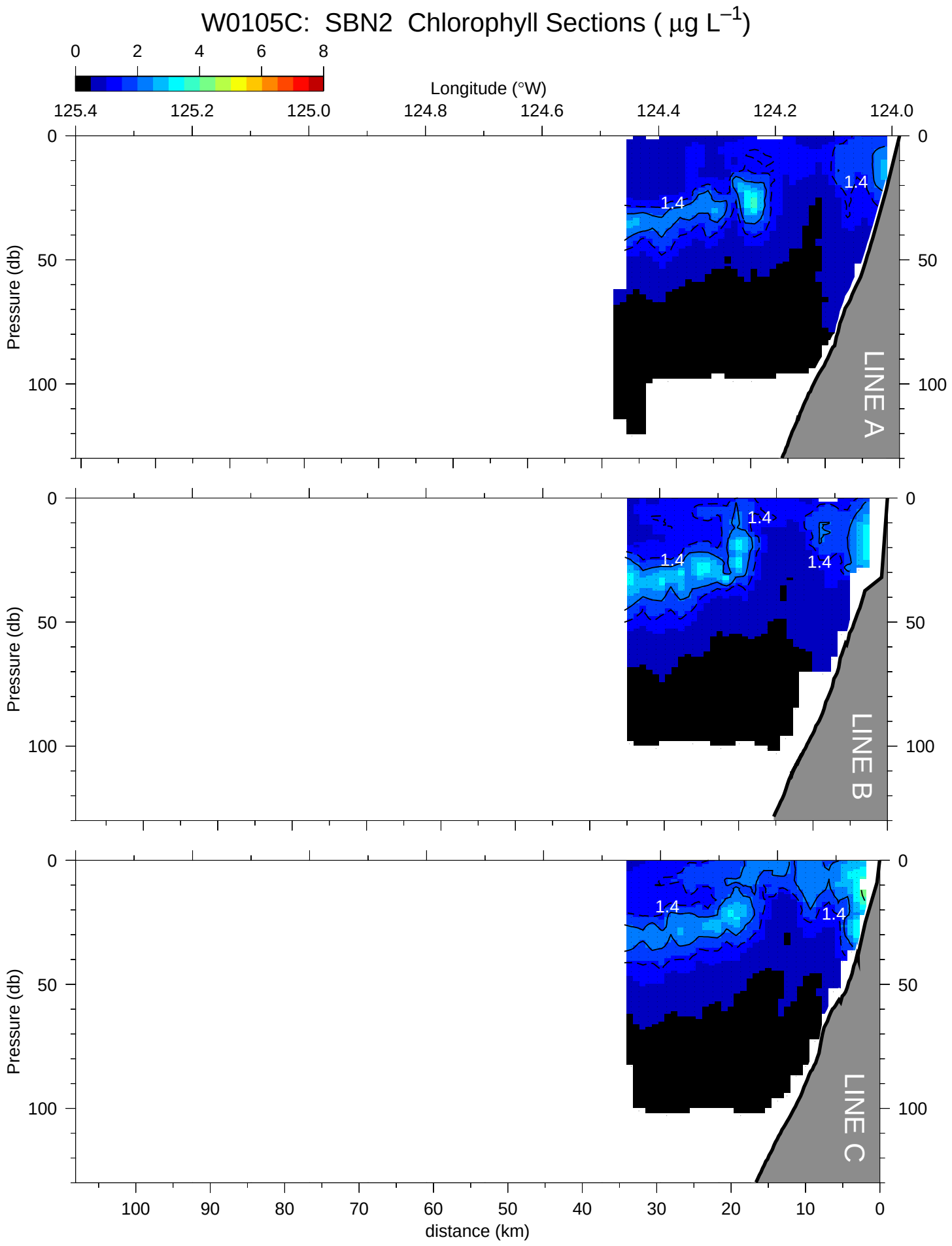

W0105C: SBN2 line A
line A at 45.107 °N (27-May-2001 16:12 - 27-May-2001 20:09)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
124.0
Pressure (db)
0
50
100
12
10
8.5
8
7.5
T (° C)
32.5
33
33.5
S (PSS)
25.2
25.6
26
26.4
σt (kg m−3)
110
100
90
80
70
60
50
40
30
20
10
0
distance (km)


W0105C: SBN2 line B
line B at 45.017 °N (27-May-2001 21:02 - 27-May-2001 23:55)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
12
10
8.5
8
7.5
T (° C)
31
32.5
33
33.5
S (PSS)
24.8
25.2
25.6
26
26.4
σt (kg m−3)
distance (km)
100
90
80
70
60
50
40
30
20
10
0

W0105C: SBN2 line C

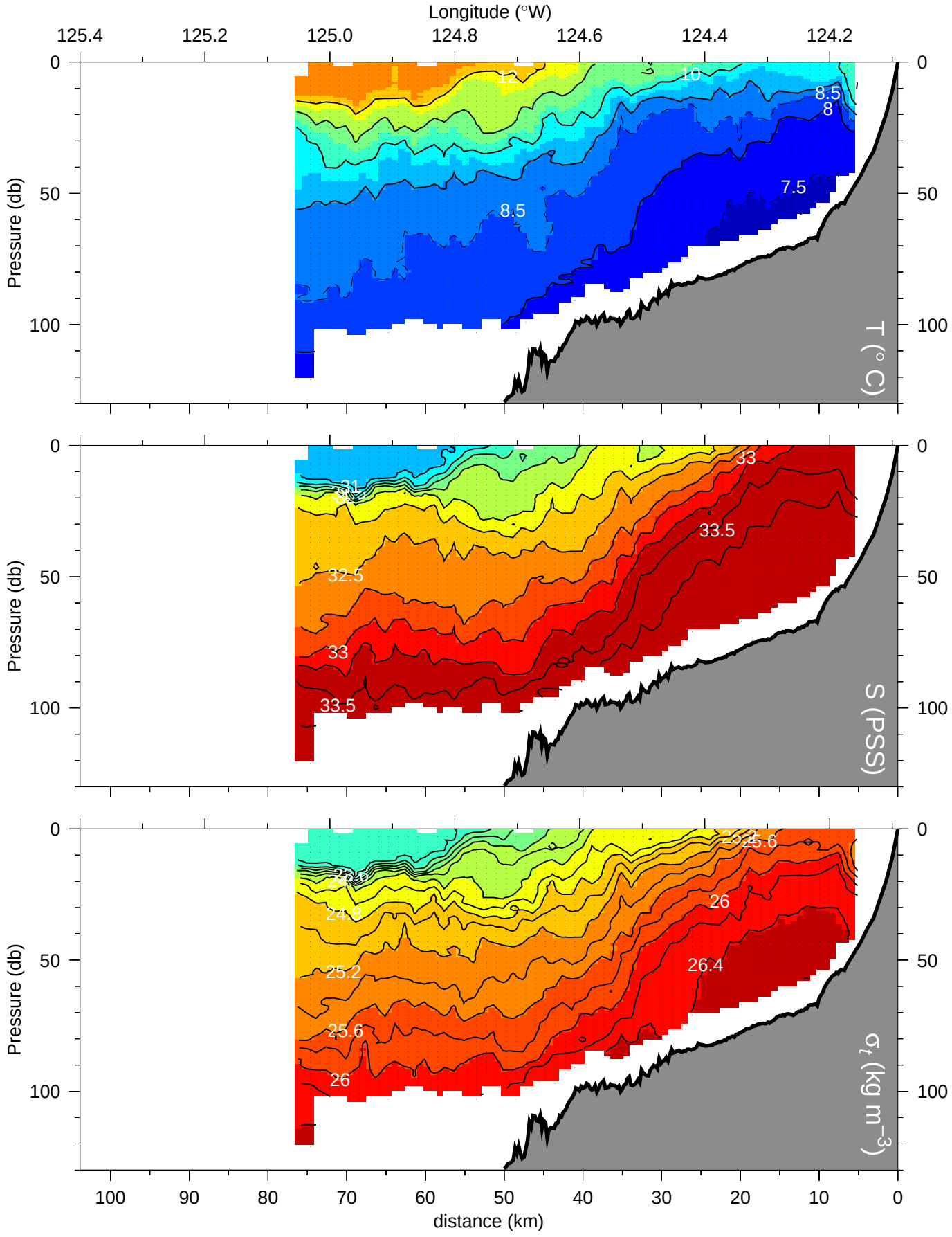
line C at 44.927 °N (28-May-2001 00:44 - 28-May-2001 03:00)




W0105C: SBN2 Chlorophyll Sections (µg L−1)
0 2 4 6 8
Longitude (°W)
125.4 125.2 125.0 124.8 124.6 124.4 124.2 124.0
Pressure (db)
0
50
100
1.4
LINE A
LINE B
LINE C
100 90 80 70 60 50 40 30 20 10 0
distance (km)

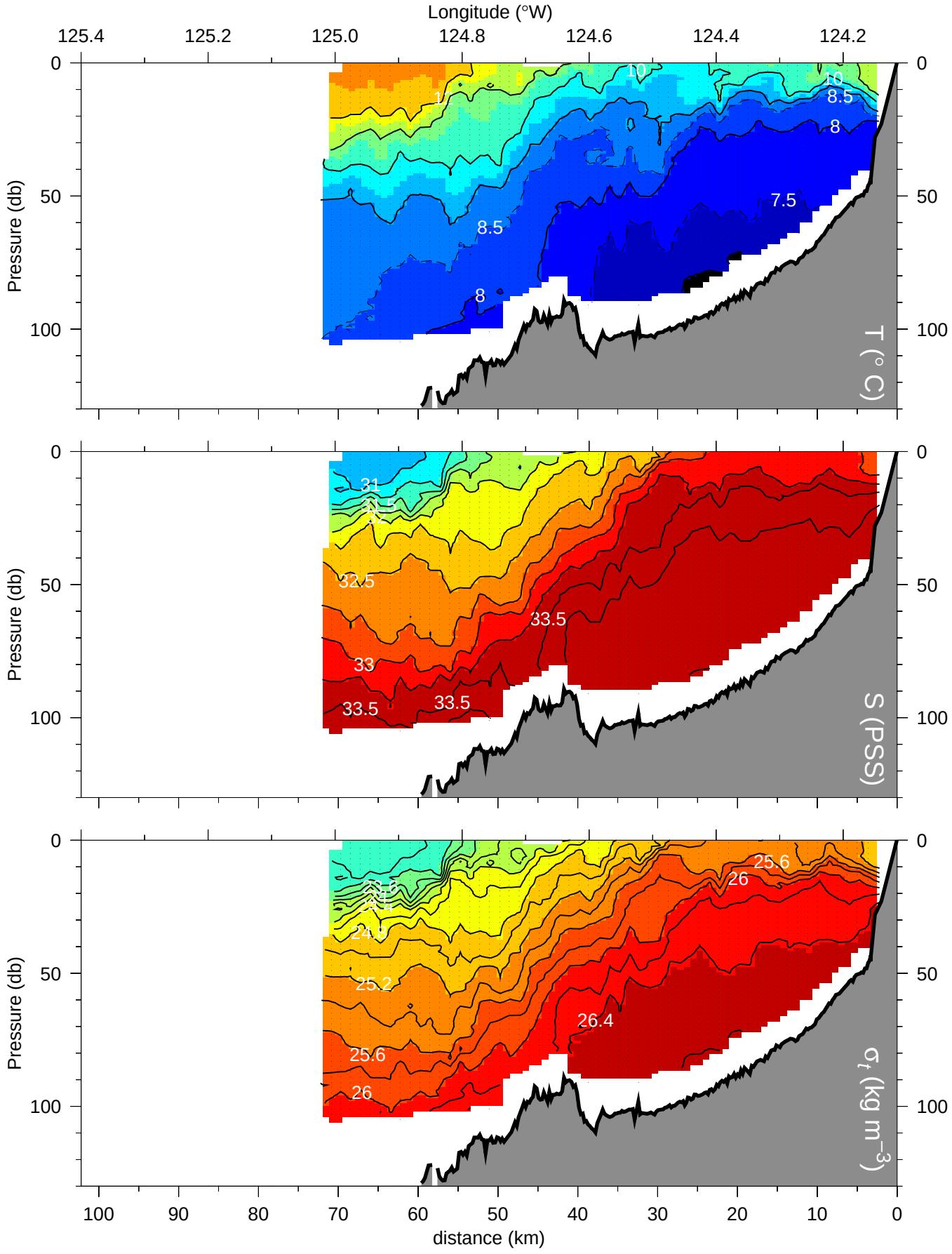
W0105C: SBS1 line D

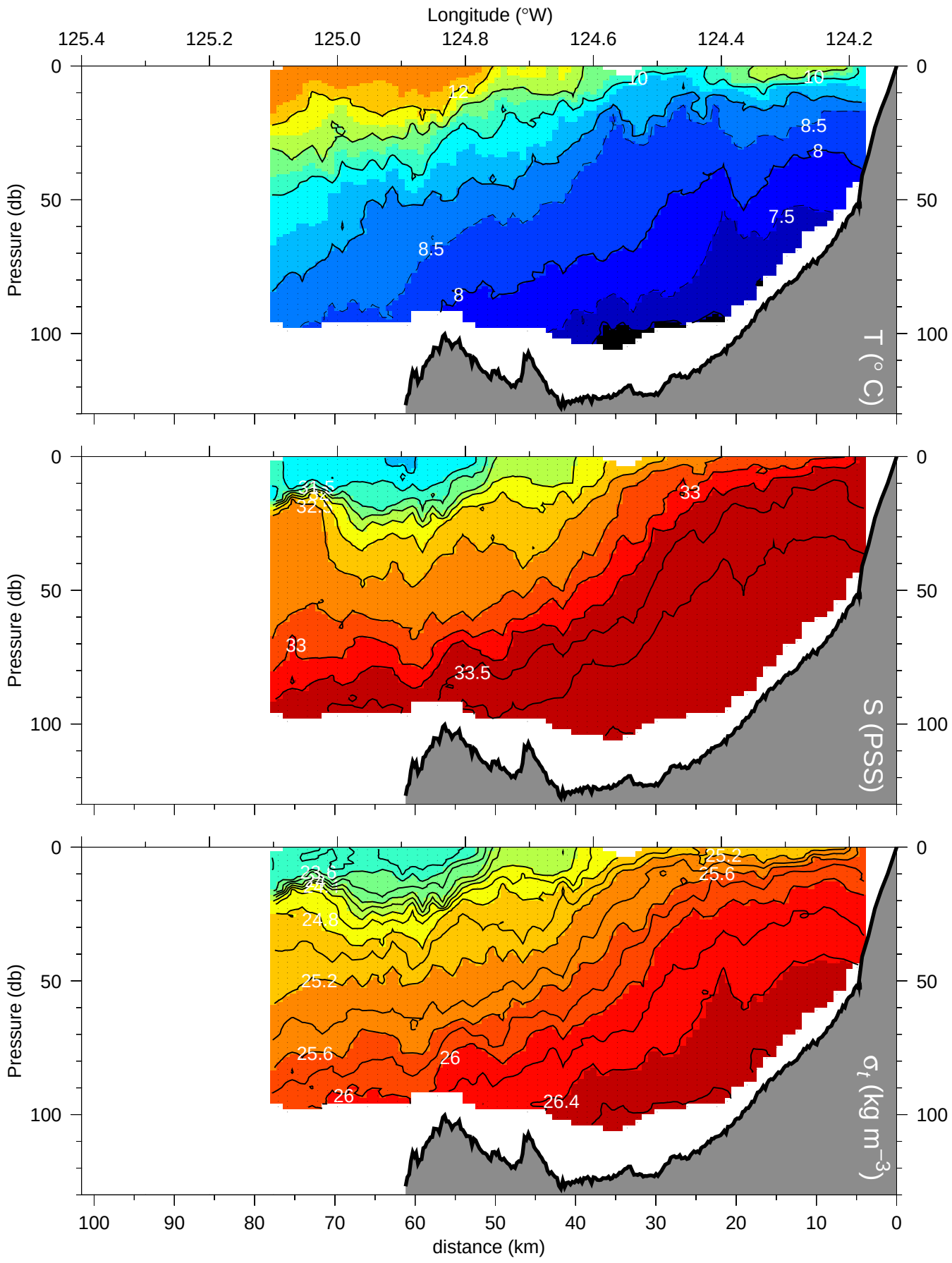
line D at 44.382 °N (28-May-2001 08:30 - 28-May-2001 13:54)

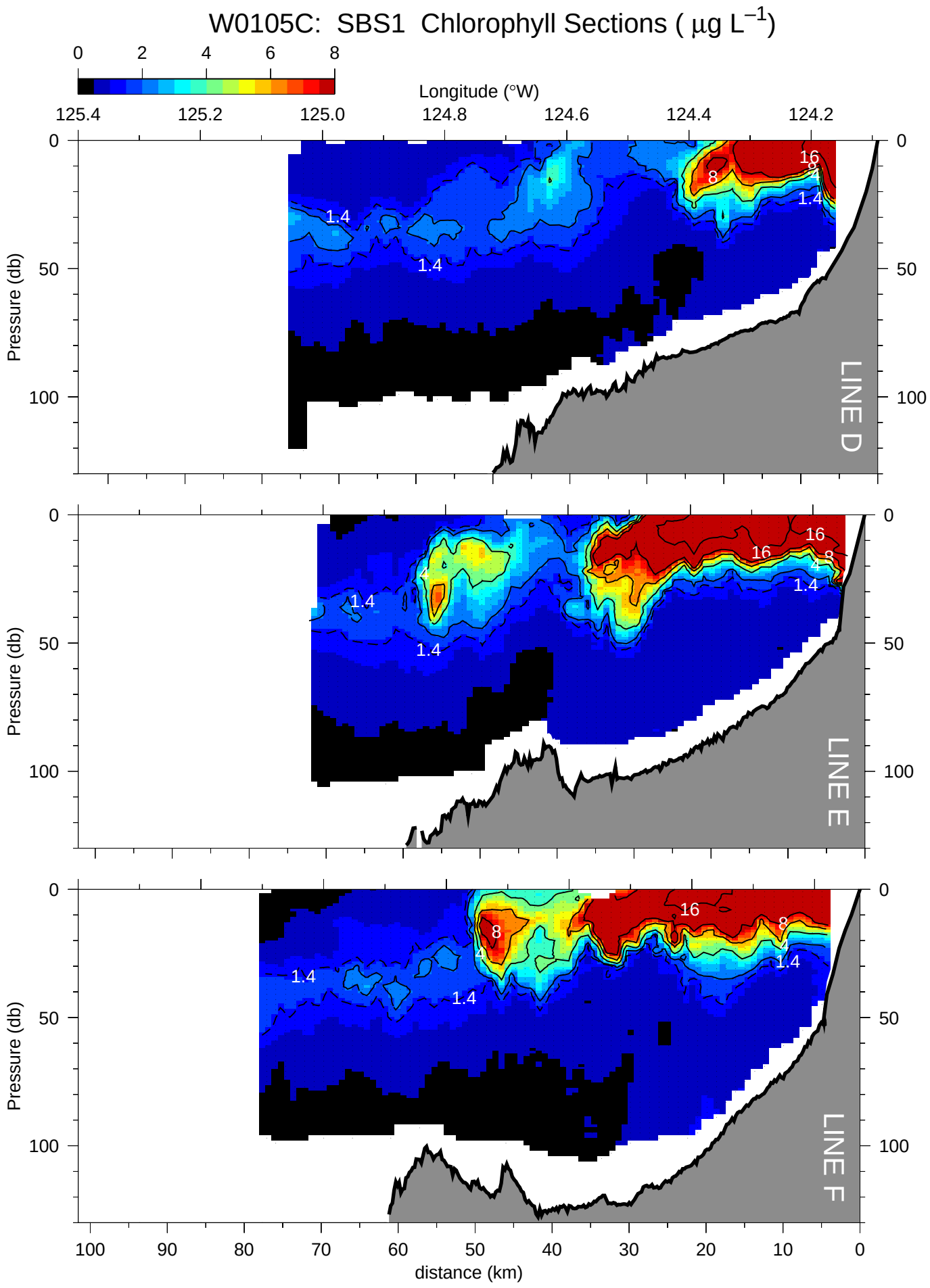


W0105C: SBS1 line E

line E at 44.244 °N (28-May-2001 15:59 - 28-May-2001 21:05)

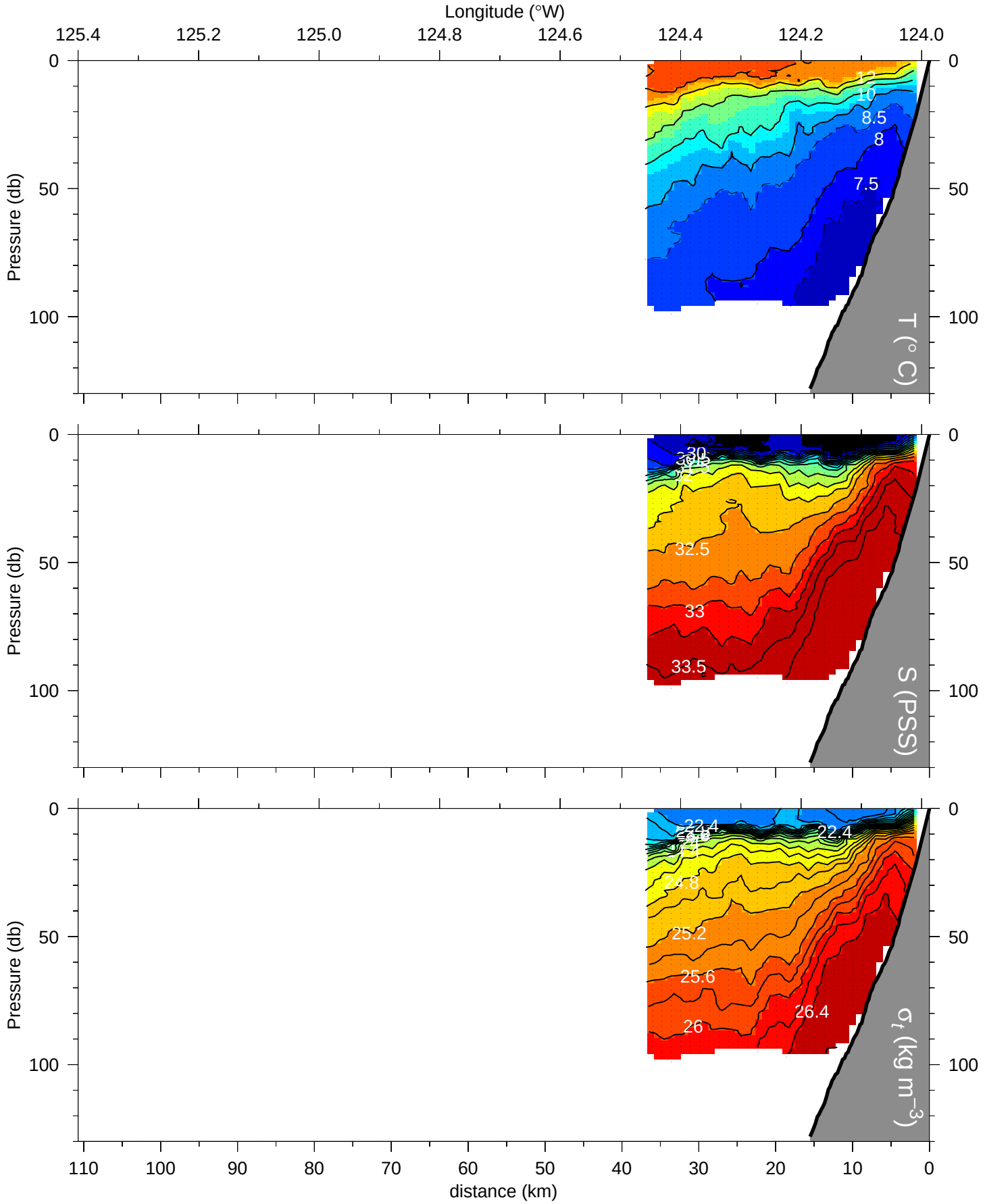


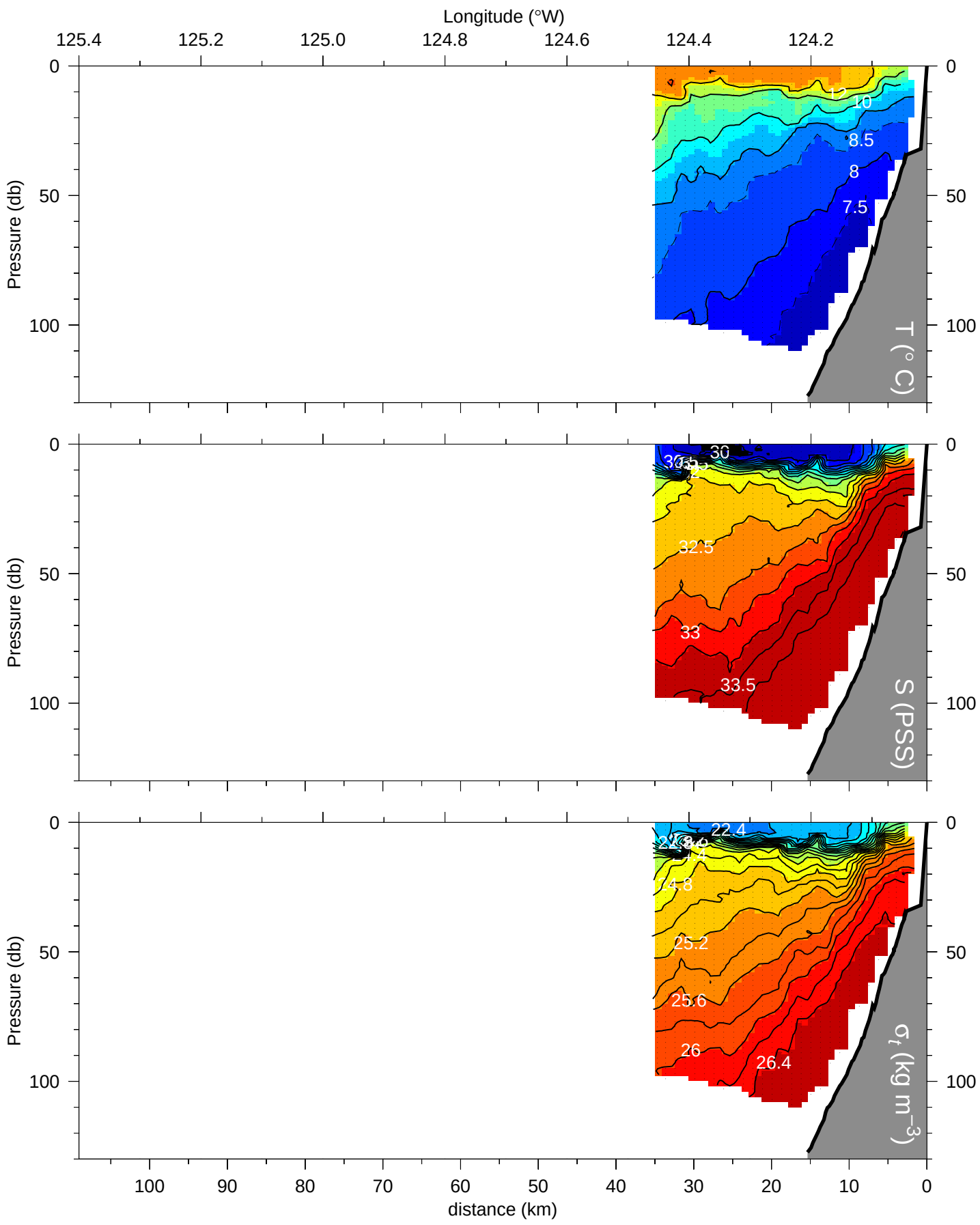

W0105C: SBS1 line F
line F at 44.110 °N (28-May-2001 23:36 - 29-May-2001 04:55)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
12
10
8.5
8
7.5
T (° C)
33
33.5
S (PSS)
25.2
25.6
24.8
26
26.4
σt (kg m−3)
distance (km)
100
90
80
70
60
50
40
30
20
10
0

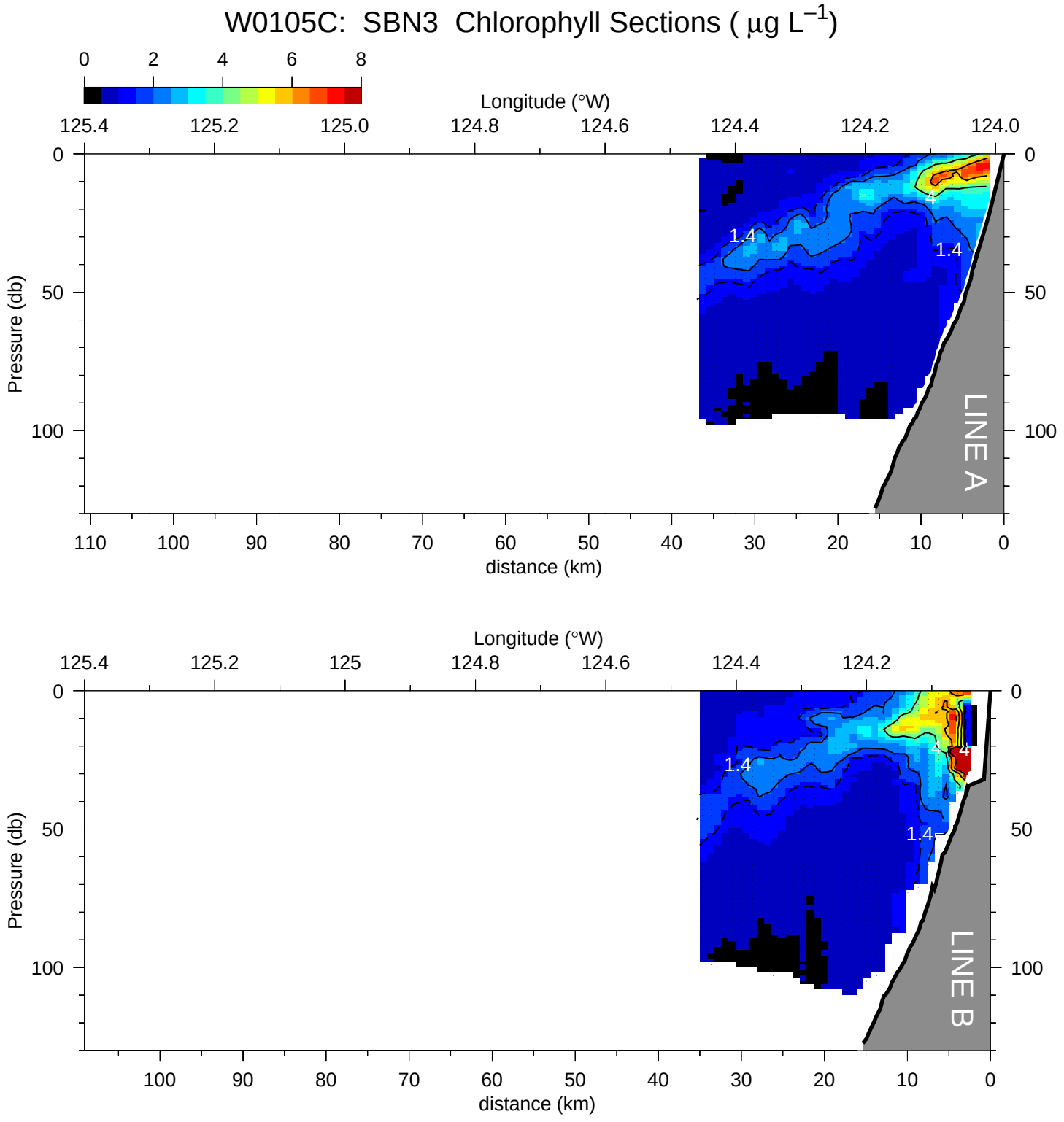

W0105C: SBS1 Chlorophyll Sections (µg L−1)
0
2
4
6
8
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
16
8
4
1.4
LINE D
LINE E
LINE F
100
90
80
70
60
50
40
30
20
10
0
distance (km)

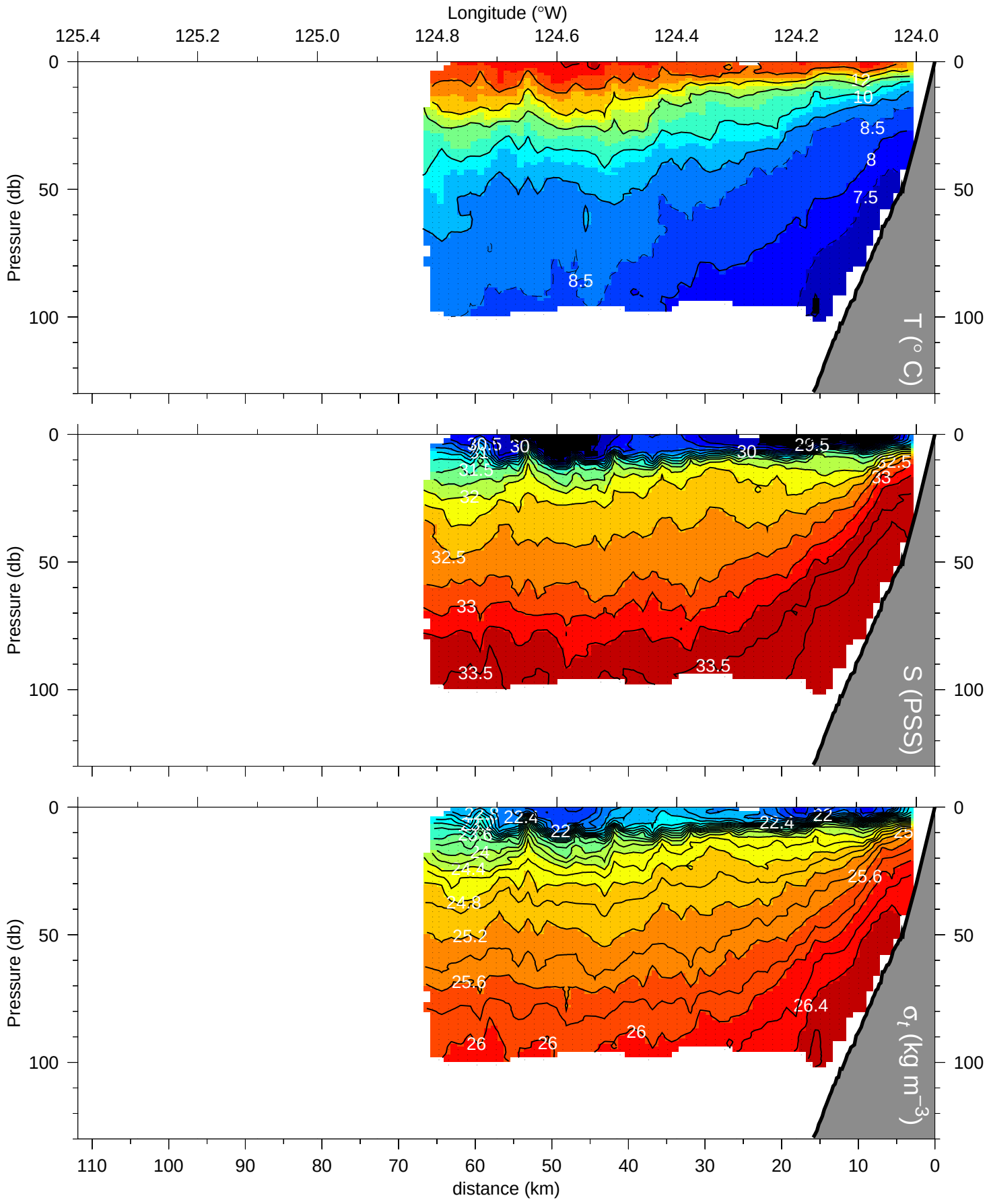
W0105C: SBN3 line A

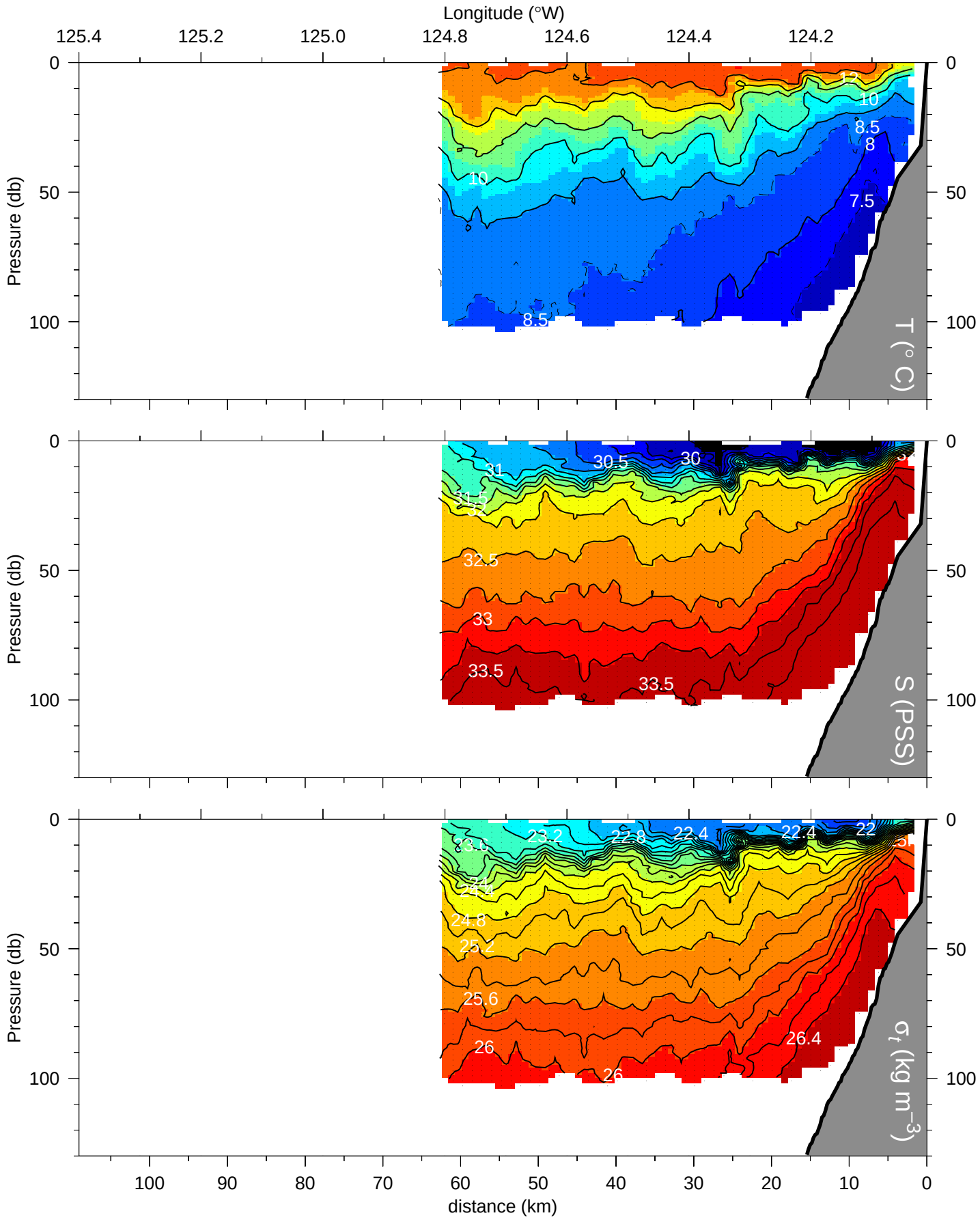
line A at 45.107 °N (29-May-2001 16:37 - 29-May-2001 18:59)




W0105C: SBN3 line B
line B at 45.017 °N (29-May-2001 13:13 - 29-May-2001 15:46)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
T (° C)
8.5
8
7.5
S (PSS)
32.5
33
33.5
σt (kg m−3)
25.2
25.6
26
26.4
distance (km)
100
90
80
70
60
50
40
30
20
10
0

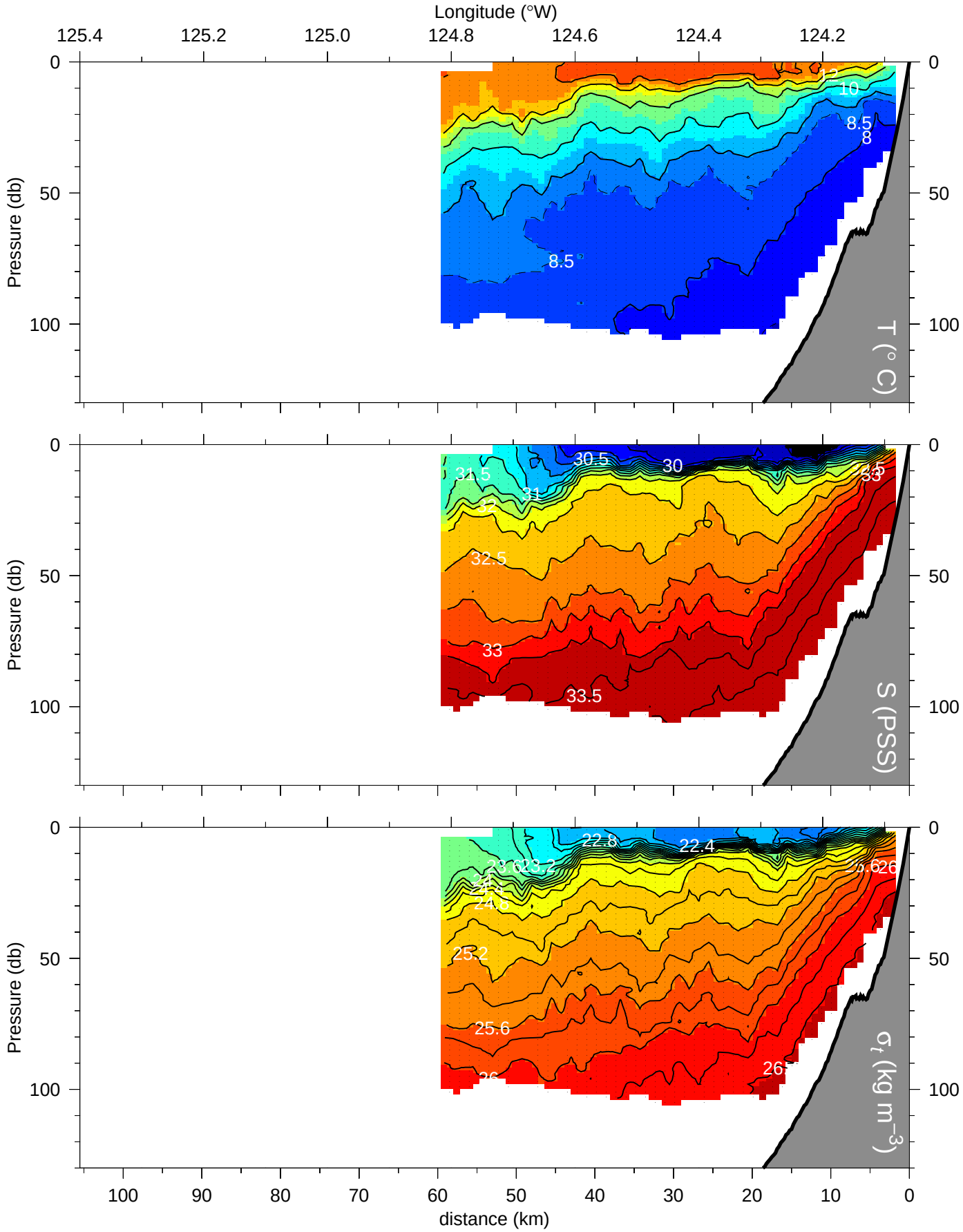

W0105C: SBN3 Chlorophyll Sections (µg L−1)
0 2 4 6 8
Longitude (°W)
125.4 125.2 125.0 124.8 124.6 124.4 124.2 124.0
Pressure (db)
0 50 100
1.4
4
LINE A
110 100 90 80 70 60 50 40 30 20 10 0
distance (km)
Longitude (°W)
125.4 125.2 125 124.8 124.6 124.4 124.2
Pressure (db)
0 50 100
1.4
4
LINE B
100 90 80 70 60 50 40 30 20 10 0
distance (km)


W0105C: BB2 line 1
line 1 at 45.250 °N (29-May-2001 23:07 - 30-May-2001 03:40)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
124.0
Pressure (db)
0
50
100
T (° C)
10
8.5
8
7.5
S (PSS)
30
32
32.5
33
33.5
σt (kg m−3)
22.4
22
24
24.4
24.8
25.2
25.6
26
26.4
110
100
90
80
70
60
50
40
30
20
10
0
distance (km)


W0105C: BB2 line 2
line 2 at 45.017 °N (30-May-2001 05:38 - 30-May-2001 10:03)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
T (° C)
12
10
8.5
8
7.5
S (PSS)
30.5
30
31
32.5
33
33.5
σt (kg m−3)
23.2
22.8
22.4
22
24.8
25.2
25.6
26
26.4
distance (km)
100
90
80
70
60
50
40
30
20
10
0

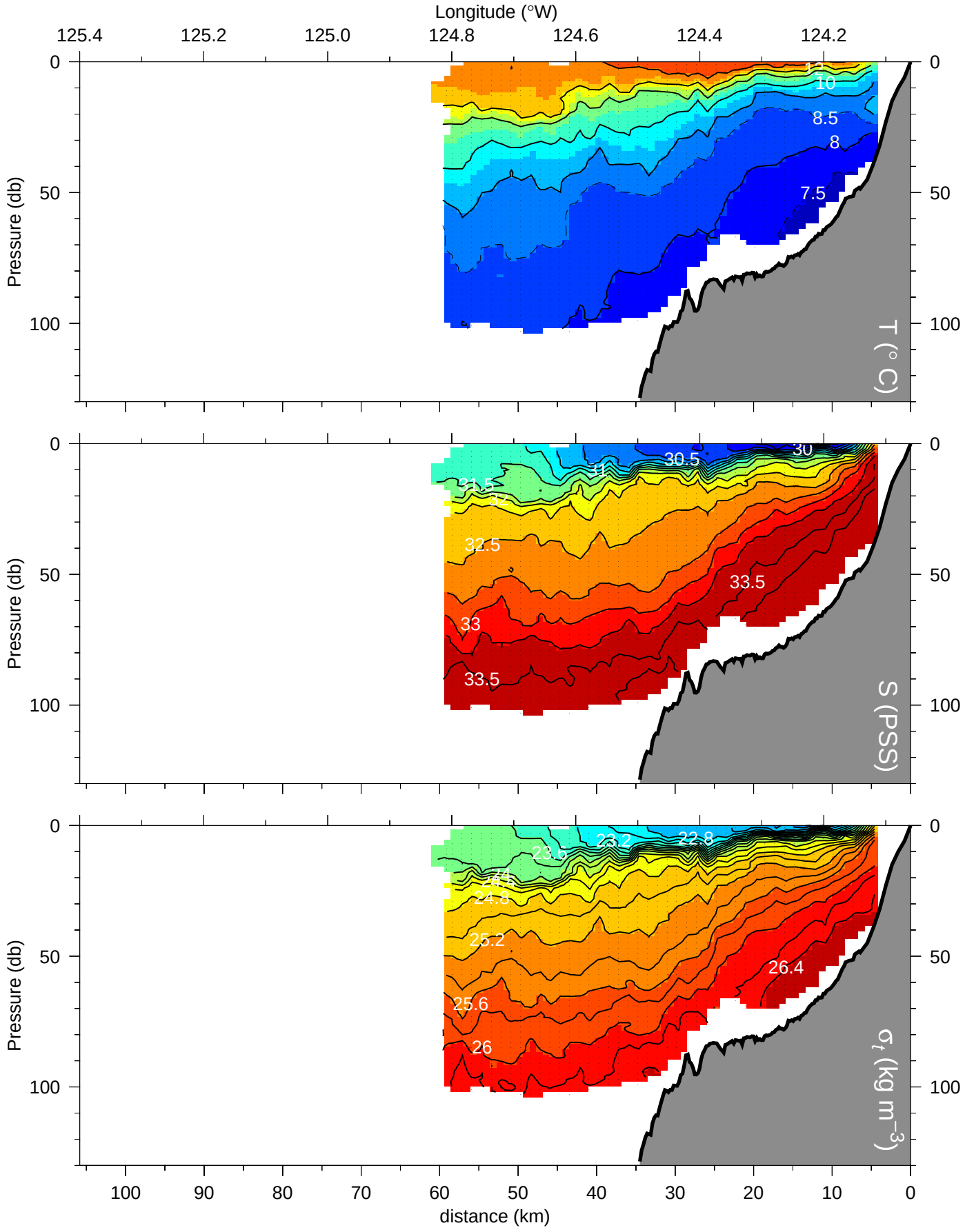
W0105C: BB2 line 3

line 3 at 44.833 °N (30-May-2001 11:34 - 30-May-2001 16:08)



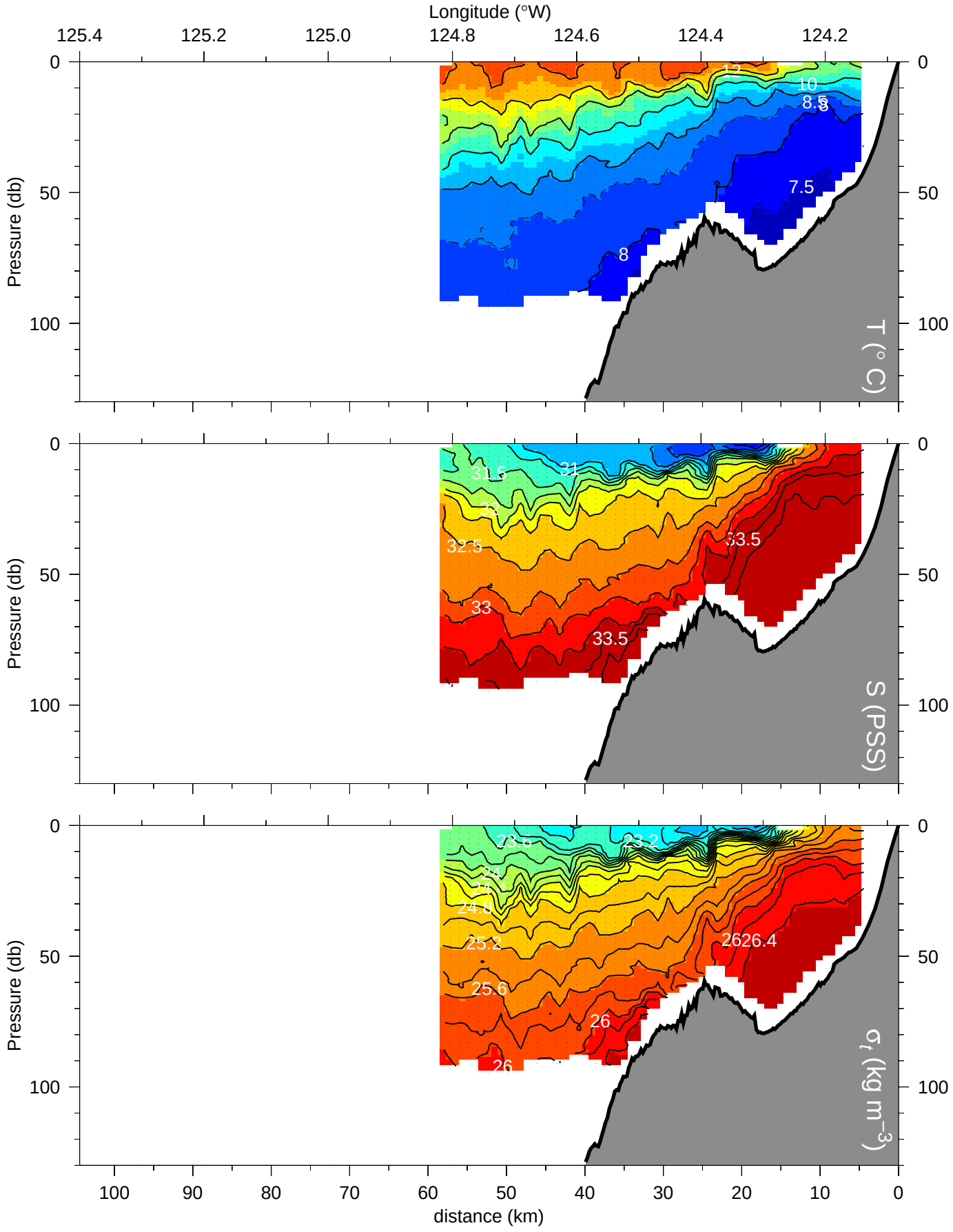
W0105C: BB2 line 4

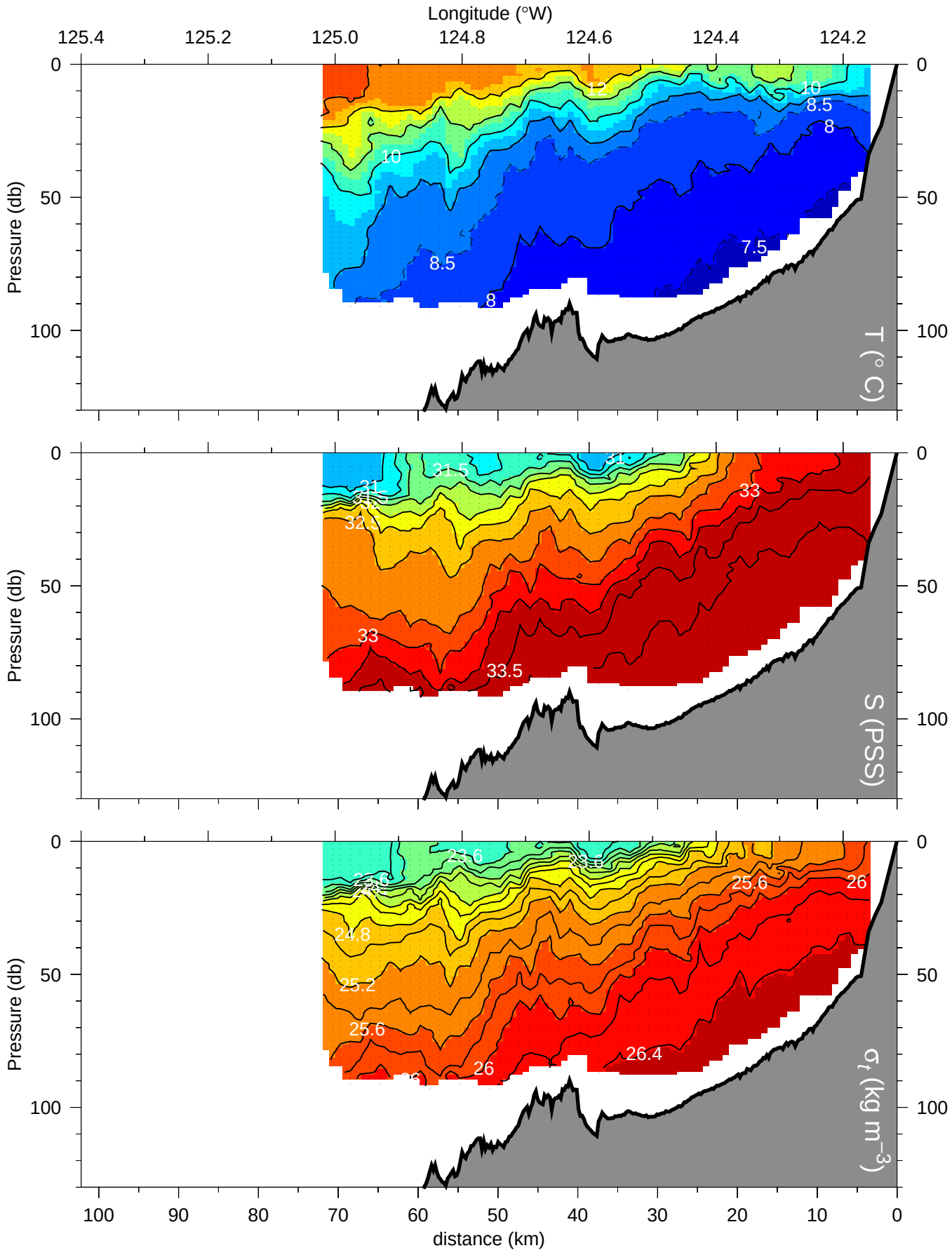
line 4 at 44.651 °N (30-May-2001 17:41 - 30-May-2001 21:47)

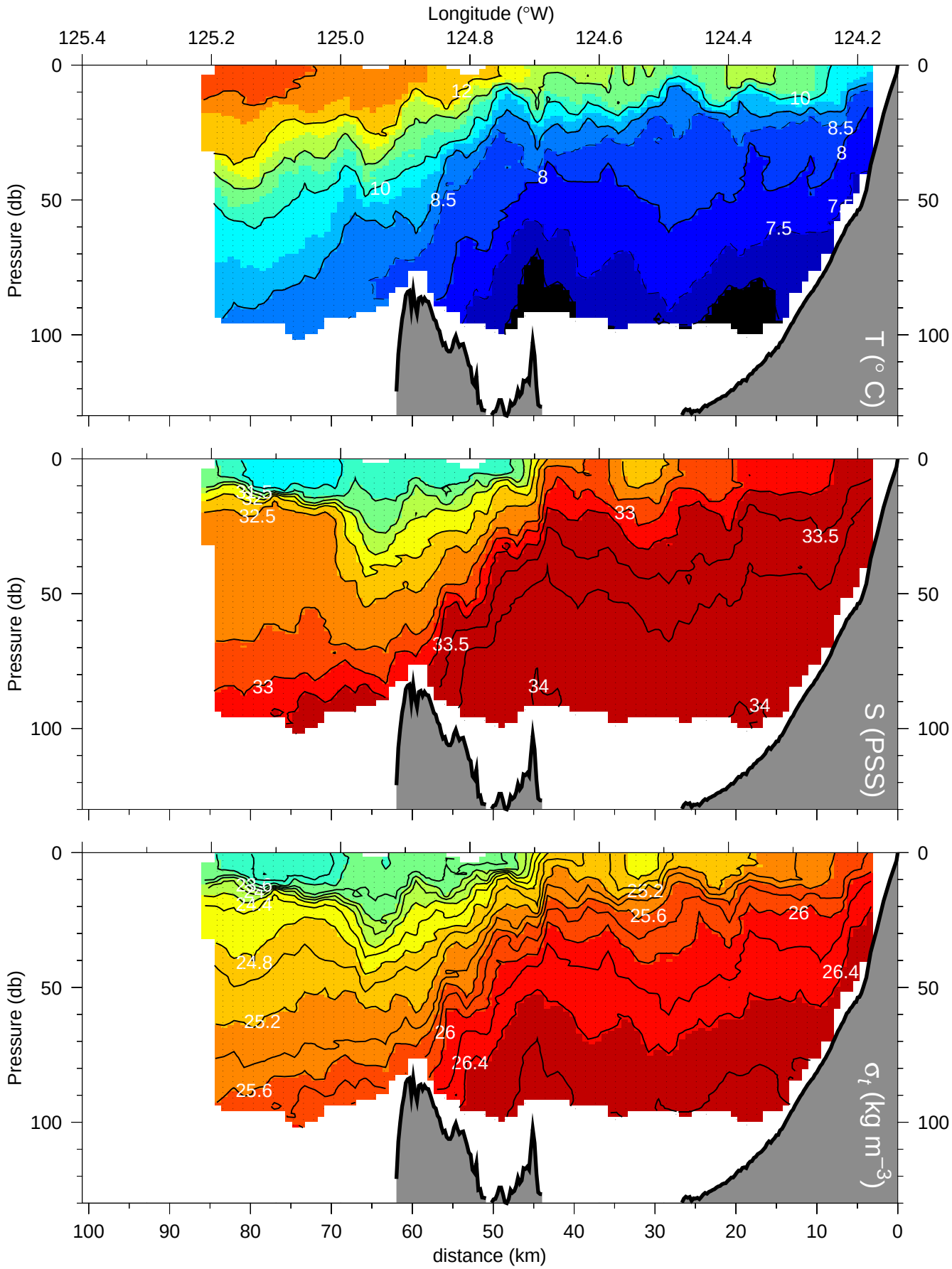


W0105C: BB2 line 5

line 5 at 44.475 °N (30-May-2001 23:28 - 31-May-2001 03:11)

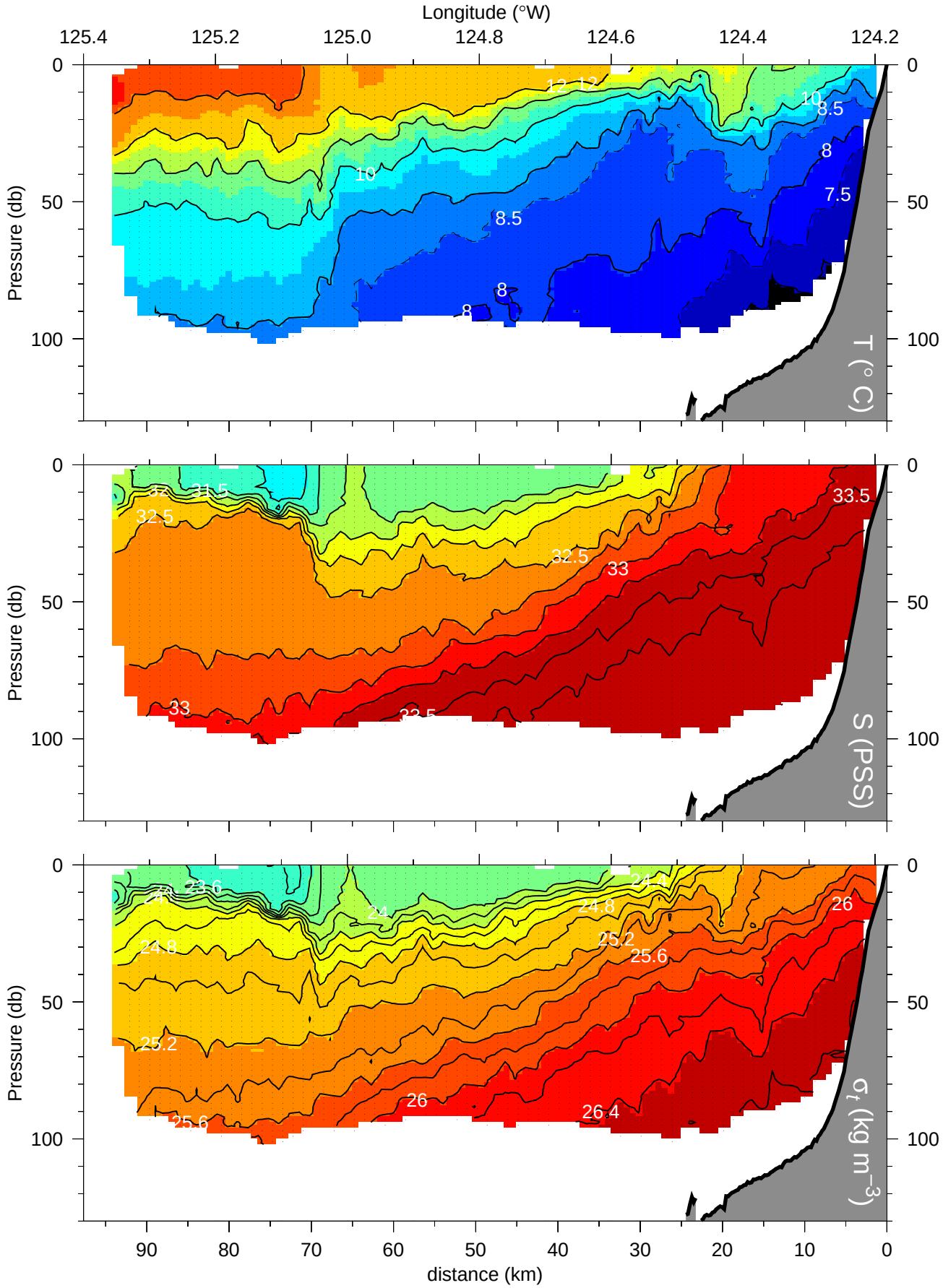



W0105C: BB2 line 6
line 6 at 44.247 °N (31-May-2001 05:40 - 31-May-2001 10:37)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
T (° C)
12
10
8.5
8
7.5
S (PSS)
31.5
33
33.5
σt (kg m−3)
23.6
25.6
26
24.8
25.2
26.4
distance (km)
100
90
80
70
60
50
40
30
20
10
0


W0105C: BB2 line 7
line 7 at 44.000 °N (31-May-2001 13:00 - 31-May-2001 18:51)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
T (° C)
12
10
8.5
8
7.5
7
S (PSS)
32.5
33
33.5
34
σt (kg m−3)
24.8
25.2
25.6
26
26.4
100
90
80
70
60
50
40
30
20
10
0
distance (km)

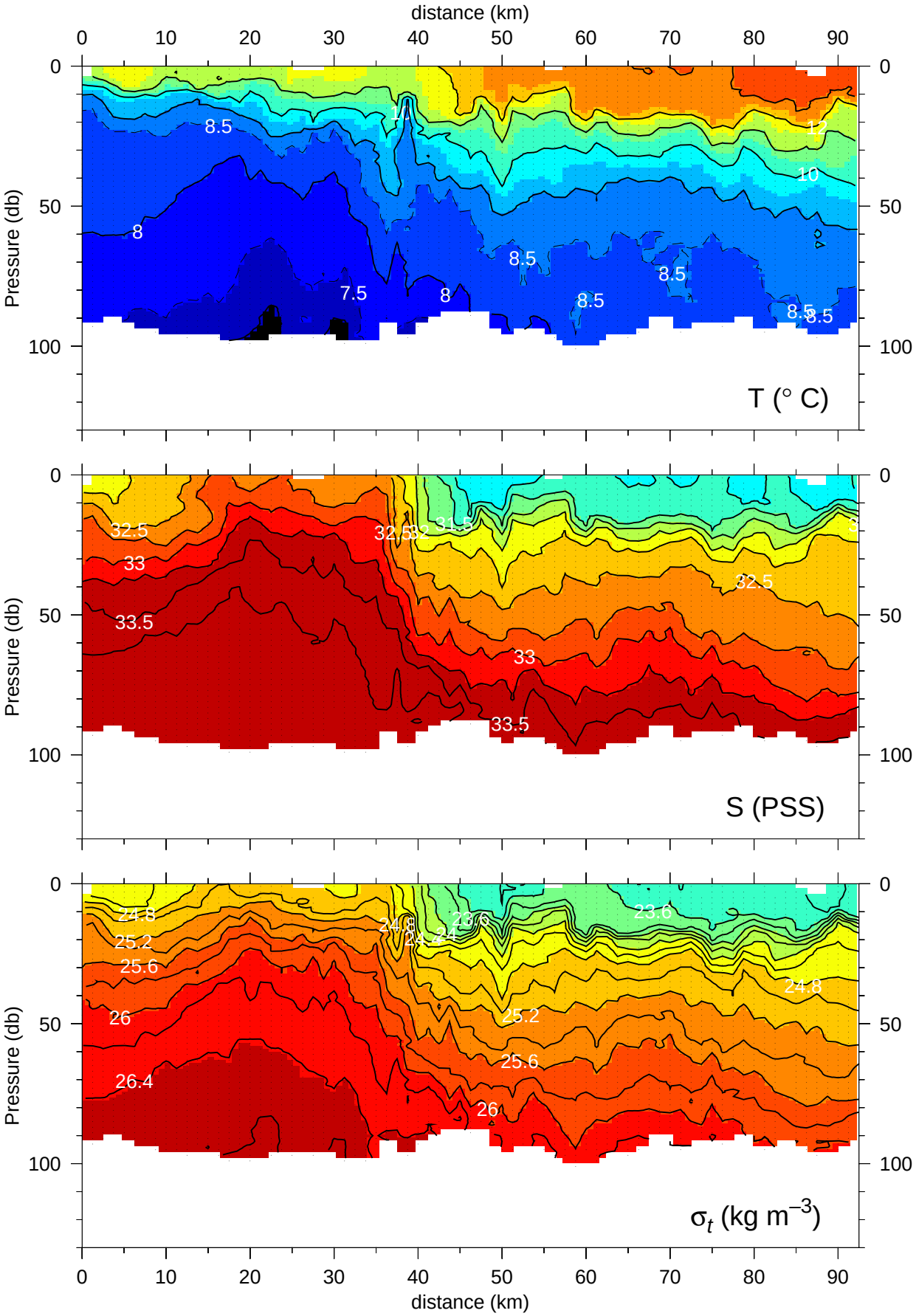
W0105C: BB2 line 8

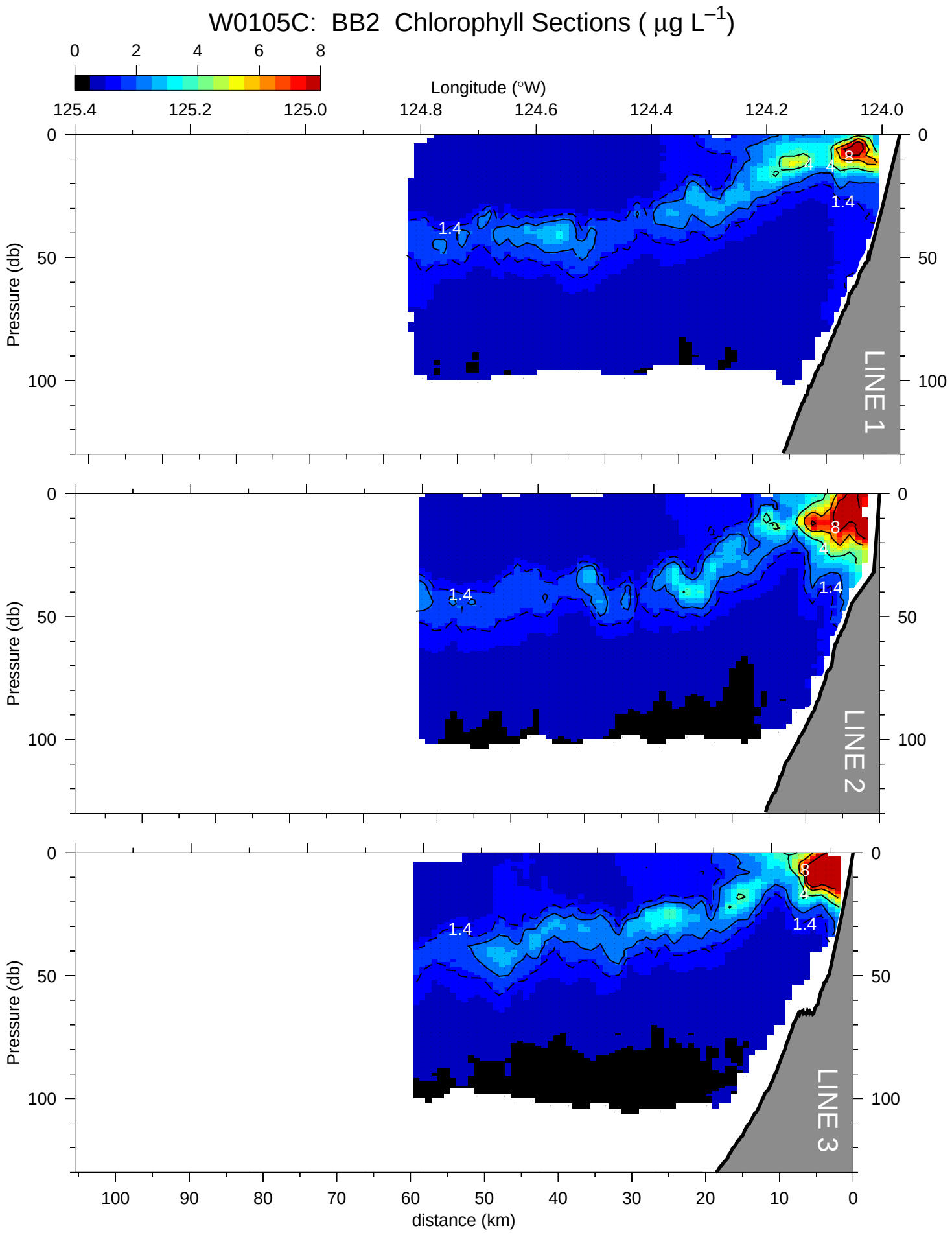
line 8 at 43.750 °N (31-May-2001 21:04 - 01-Jun-2001 03:35)

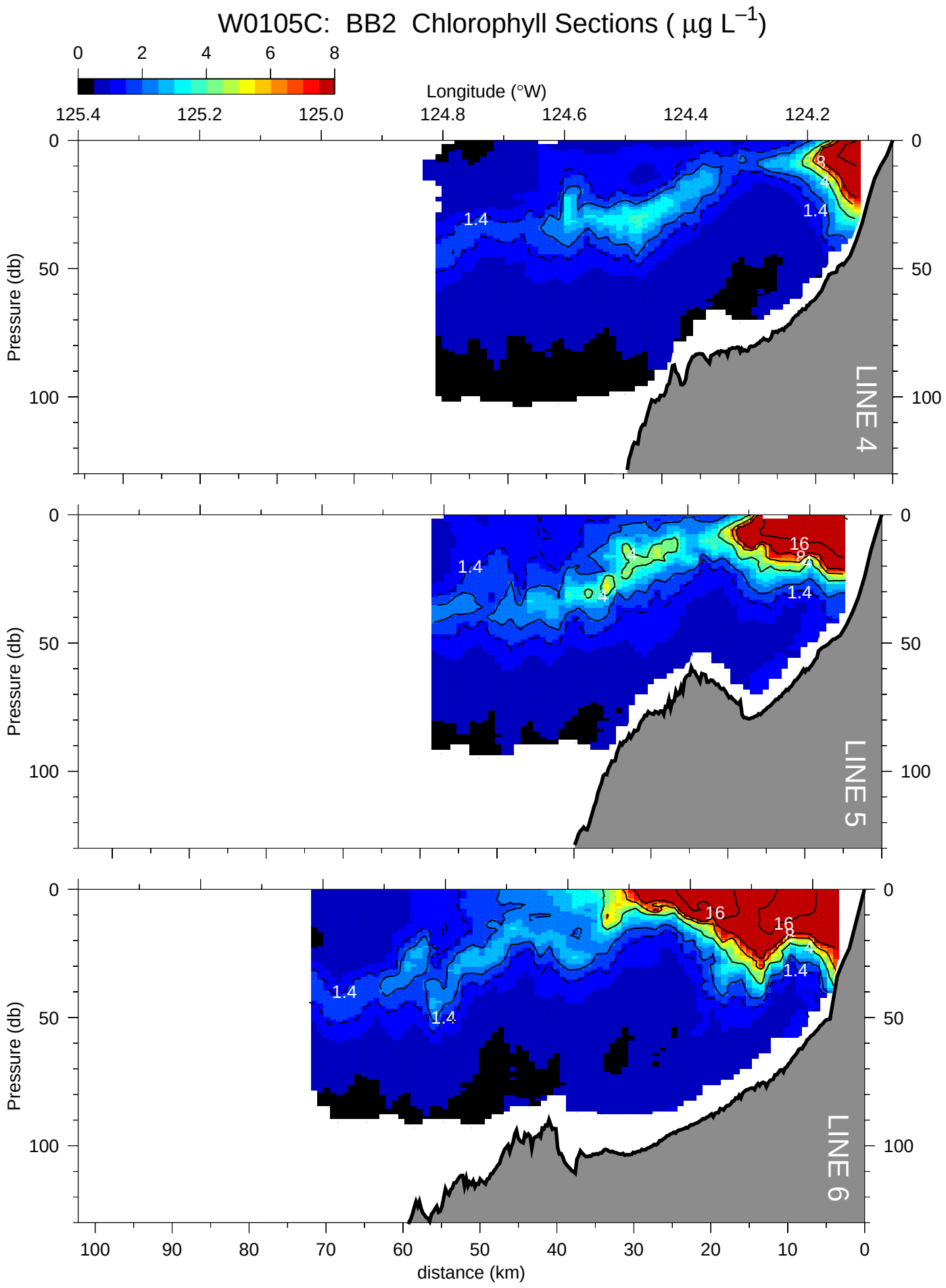


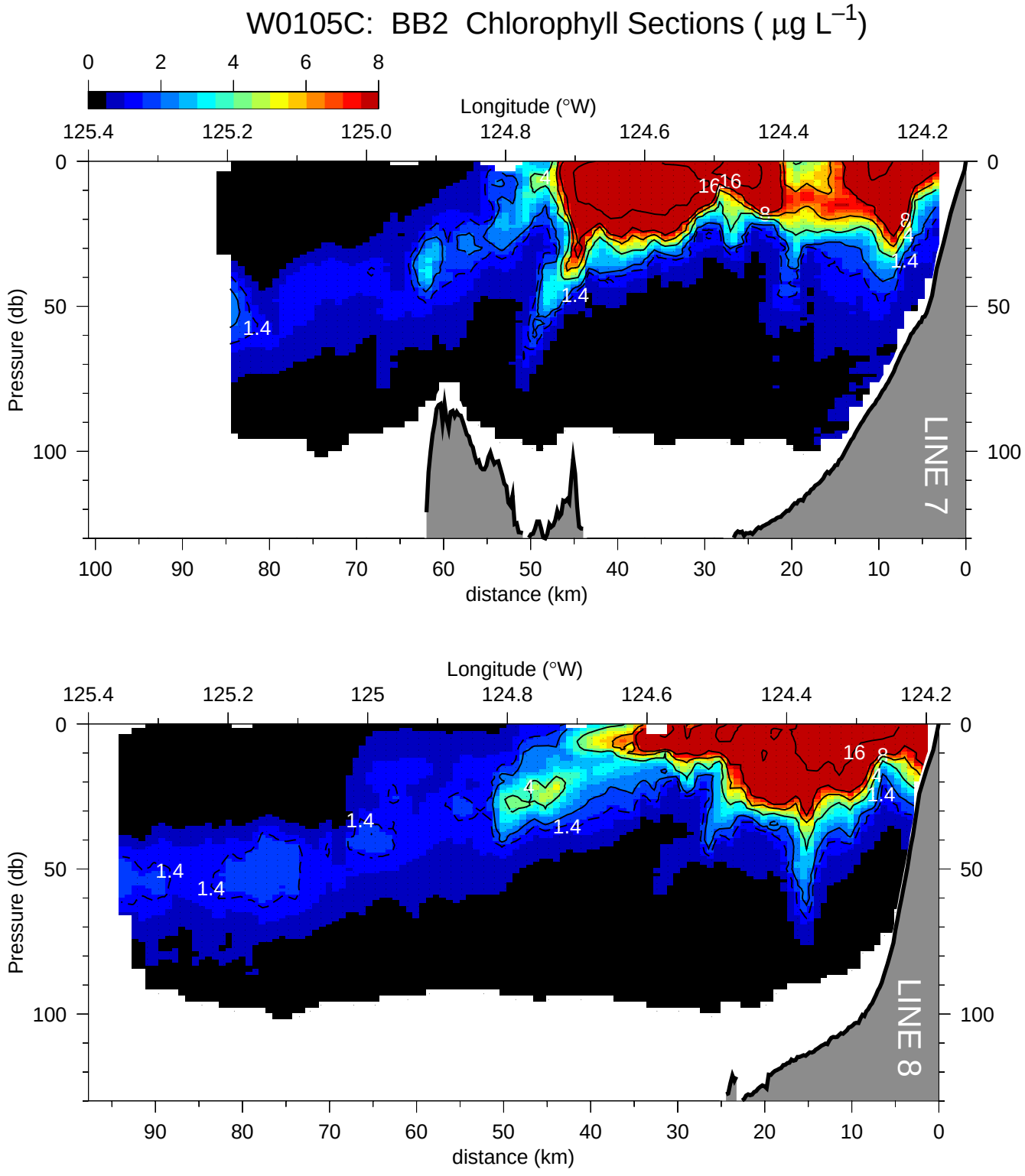
W0105C: BB2 line i200

(01-Jun-2001 05:27 - 01-Jun-2001 11:57)

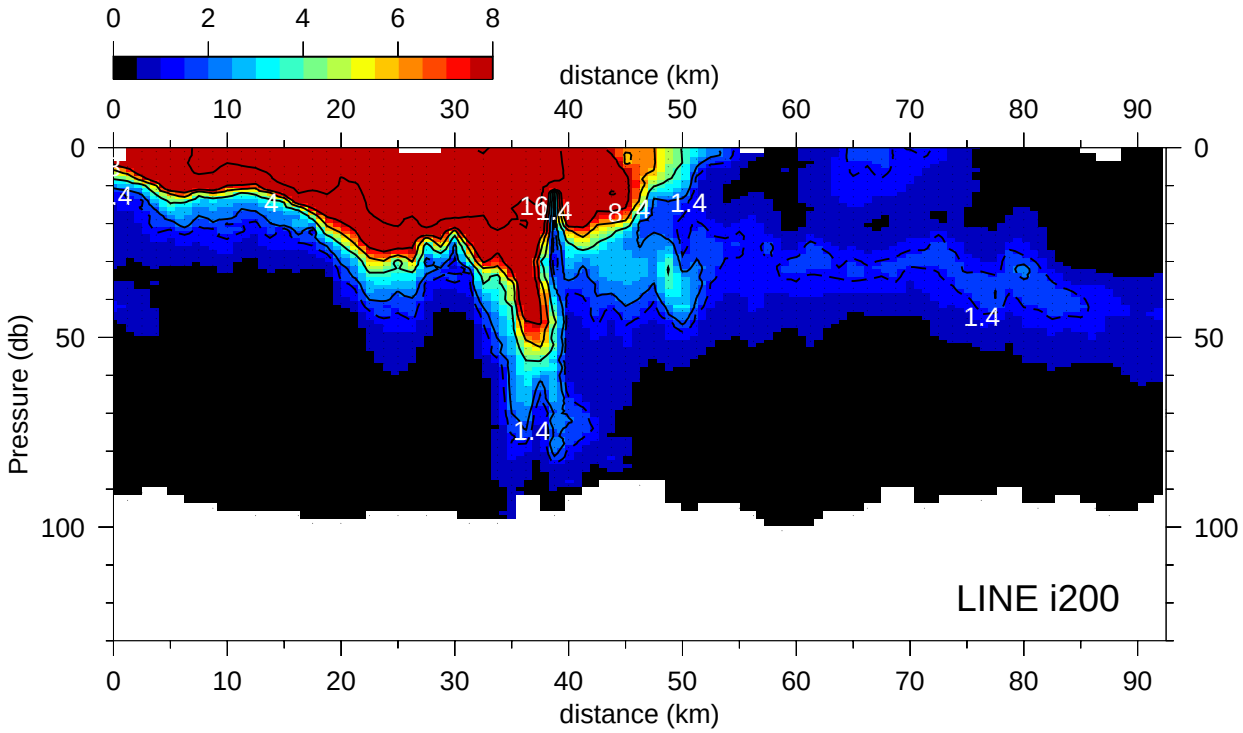


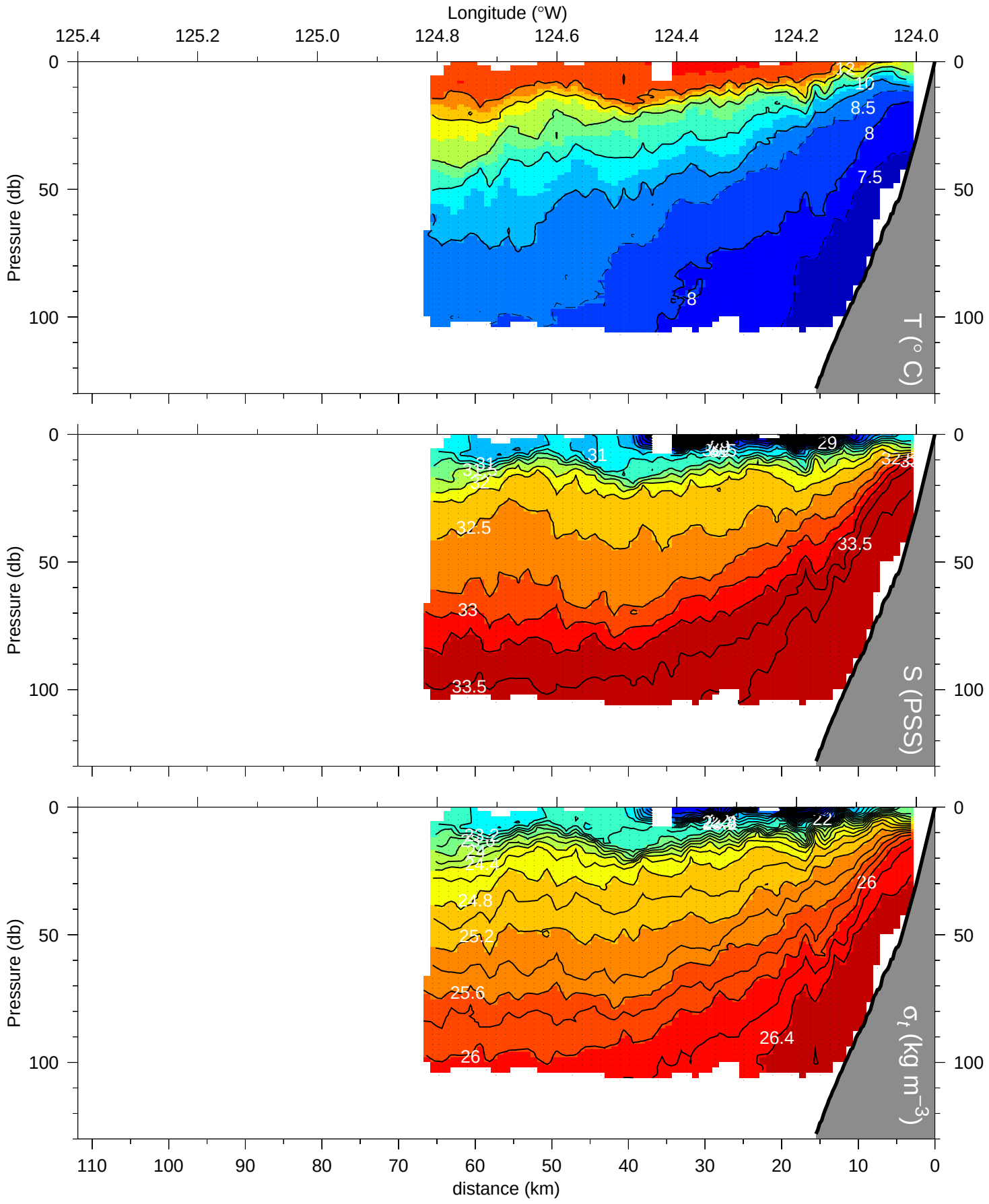

W0105C: BB2 Chlorophyll Sections (µg L−1)
0 2 4 6 8
Longitude (°W)
125.4 125.2 125.0 124.8 124.6 124.4 124.2 124.0
Pressure (db)
0
50
100
1.4
4
8
LINE 1
LINE 2
LINE 3
100 90 80 70 60 50 40 30 20 10 0
distance (km)


W0105C: BB2 Chlorophyll Sections (µg L−1)
0
2
4
6
8
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
1.4
4
8
LINE 4
LINE 5
16
LINE 6
distance (km)
100
90
80
70
60
50
40
30
20
10
0


W0105C: BB2 Chlorophyll Sections (µg L−1)
0 2 4 6 8
Longitude (°W)
125.4 125.2 125.0 124.8 124.6 124.4 124.2
Pressure (db)
0 50 100
16 16 8 4 1.4 1.4 1.4
LINE 7
100 90 80 70 60 50 40 30 20 10 0
distance (km)
Longitude (°W)
125.4 125.2 125 124.8 124.6 124.4 124.2
Pressure (db)
0 50 100
16 8 4 1.4 1.4 1.4 1.4
LINE 8
90 80 70 60 50 40 30 20 10 0
distance (km)

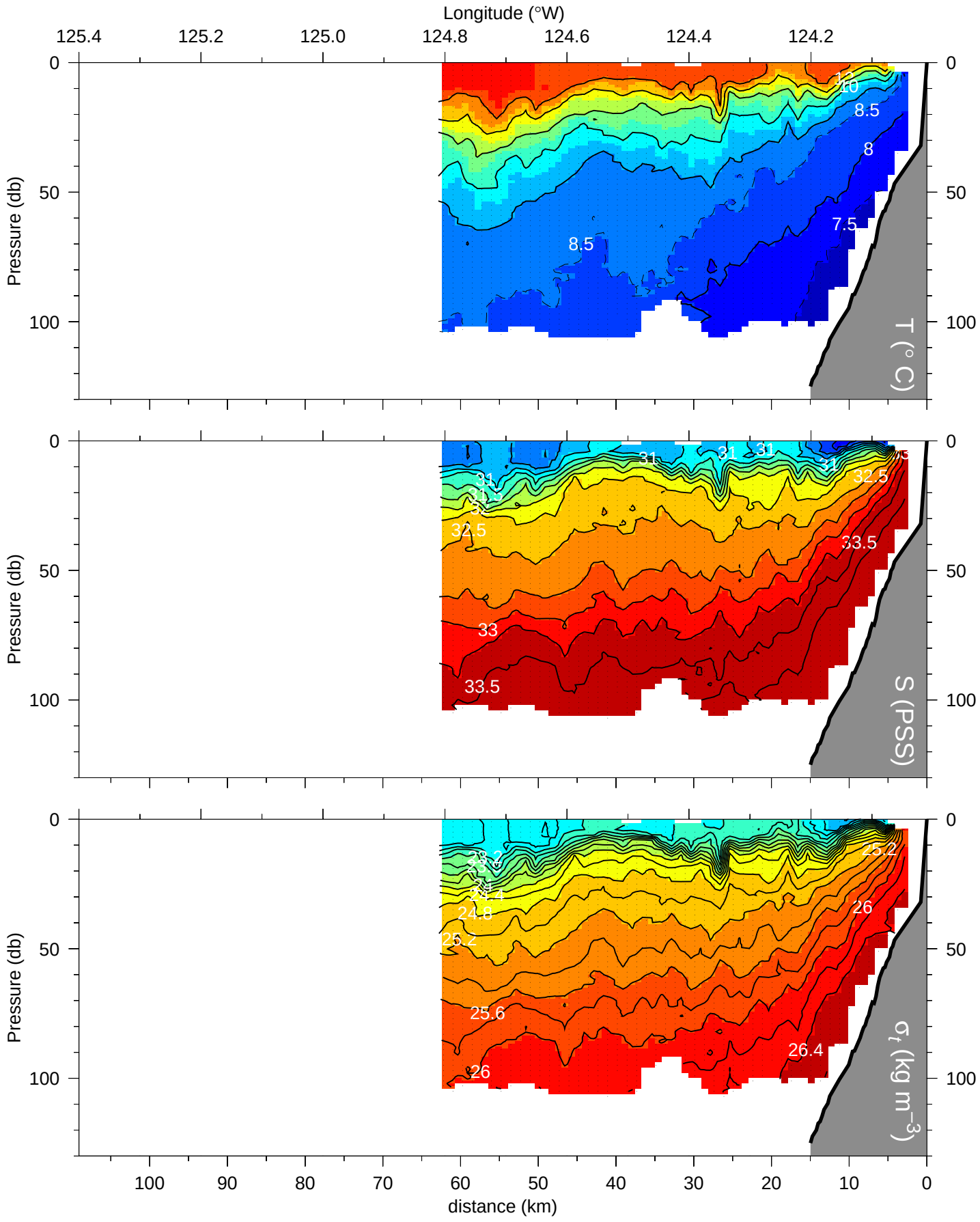
W0105C: BB2 Chlorophyll Sections (µg L^{-1})




W0105C: BB3 line 1
line 1 at 45.250 °N (03-Jun-2001 15:55 - 03-Jun-2001 20:15)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
124.0
Pressure (db)
0
50
100
T (° C)
10
8.5
8
7.5
S (PSS)
31
32
32.5
33
33.5
29
σt (kg m−3)
26
26.4
25.6
25.2
24.8
distance (km)
110
100
90
80
70
60
50
40
30
20
10
0

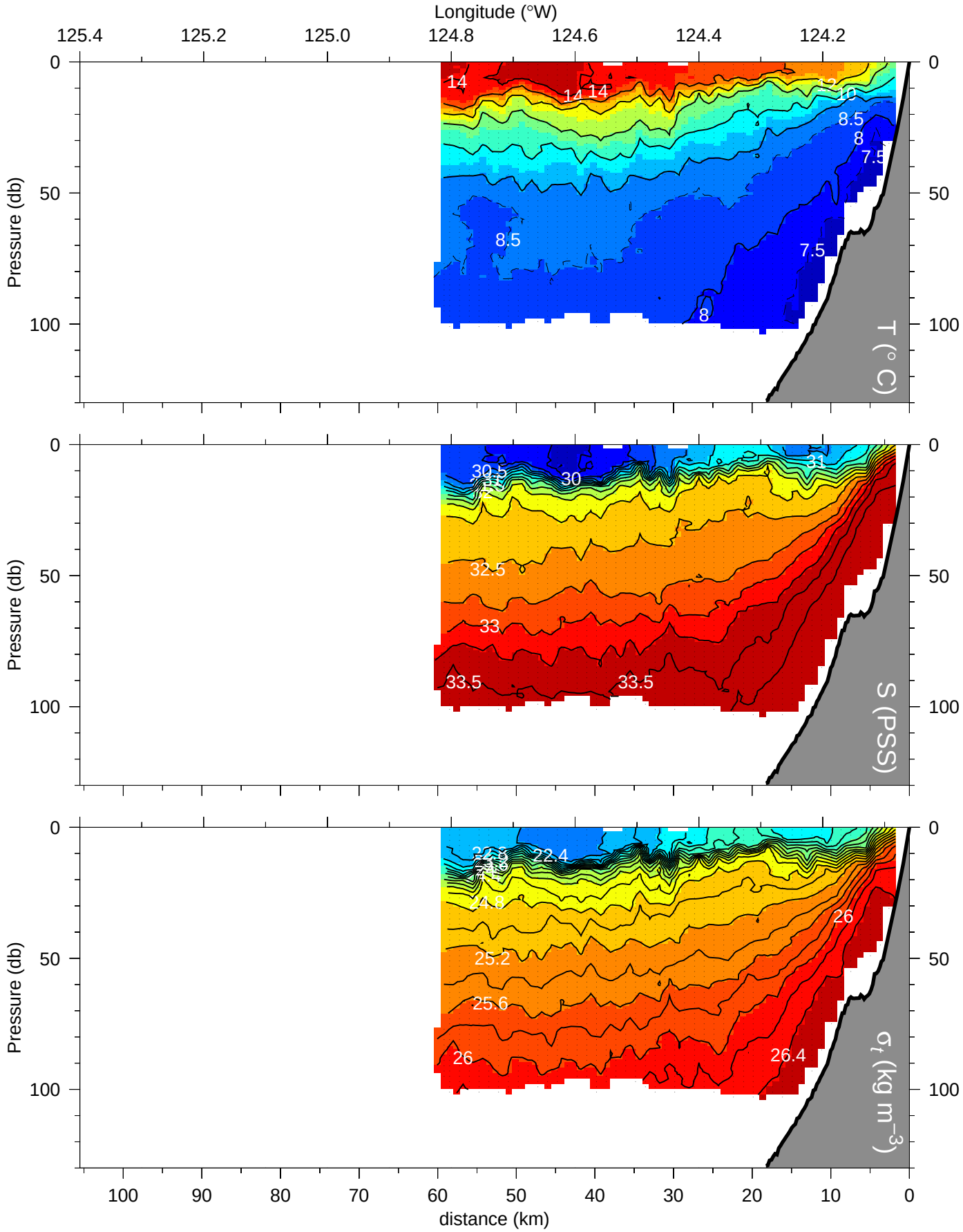
W0105C: BB3 line 2

line 2 at 45.017 °N (03-Jun-2001 09:55 - 03-Jun-2001 14:02)



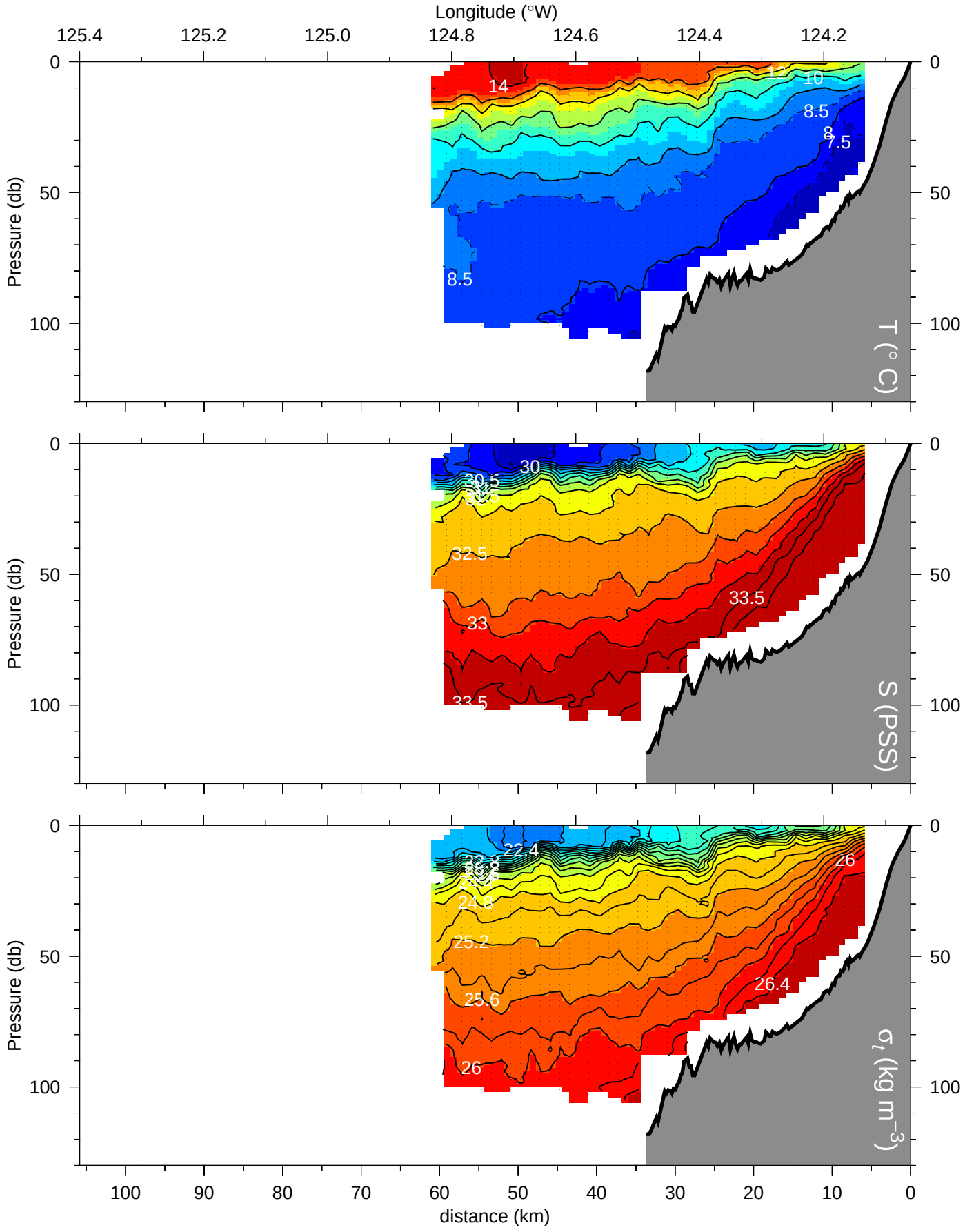
W0105C: BB3 line 3

line 3 at 44.833 °N (03-Jun-2001 04:00 - 03-Jun-2001 08:03)



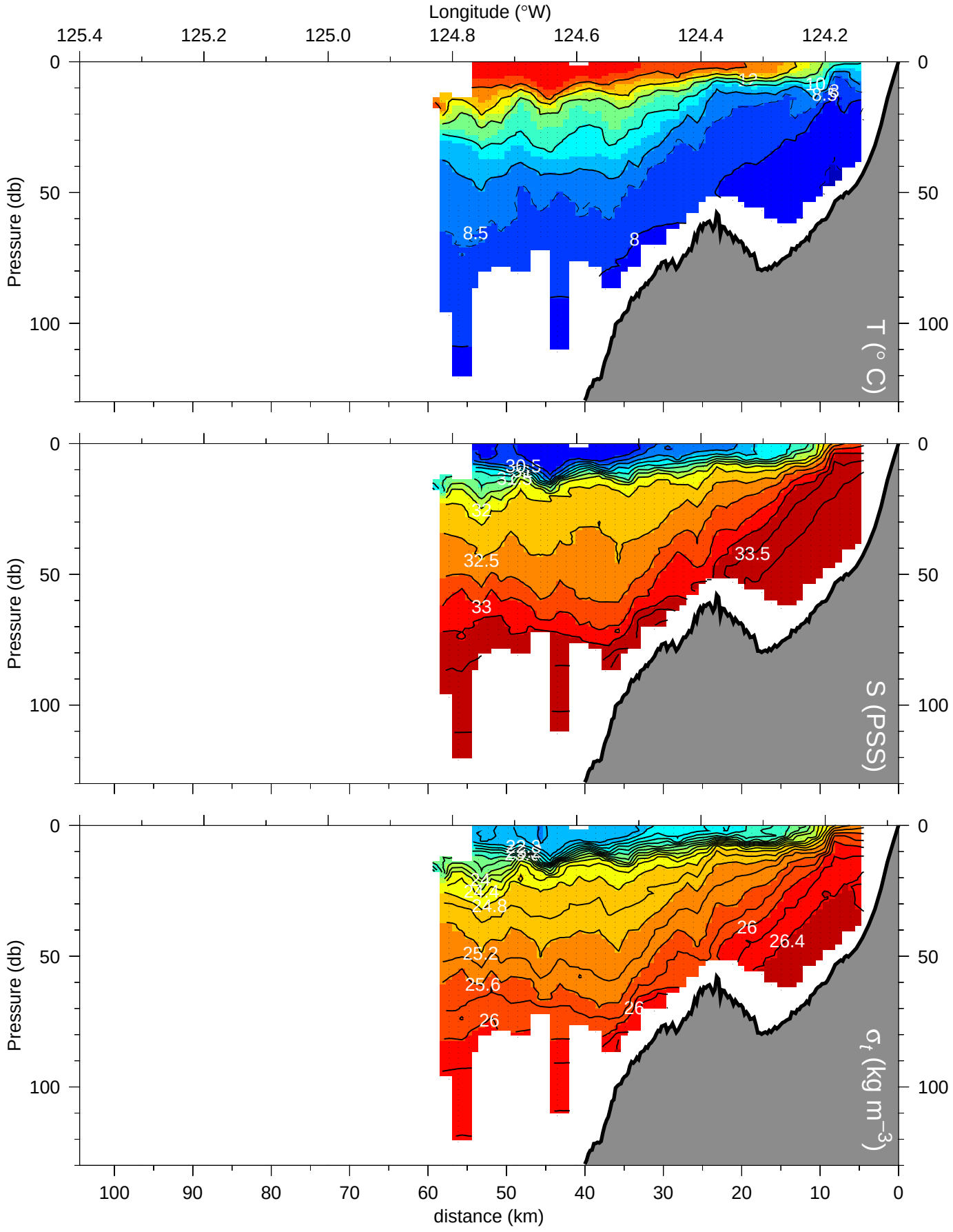
W0105C: BB3 line 4

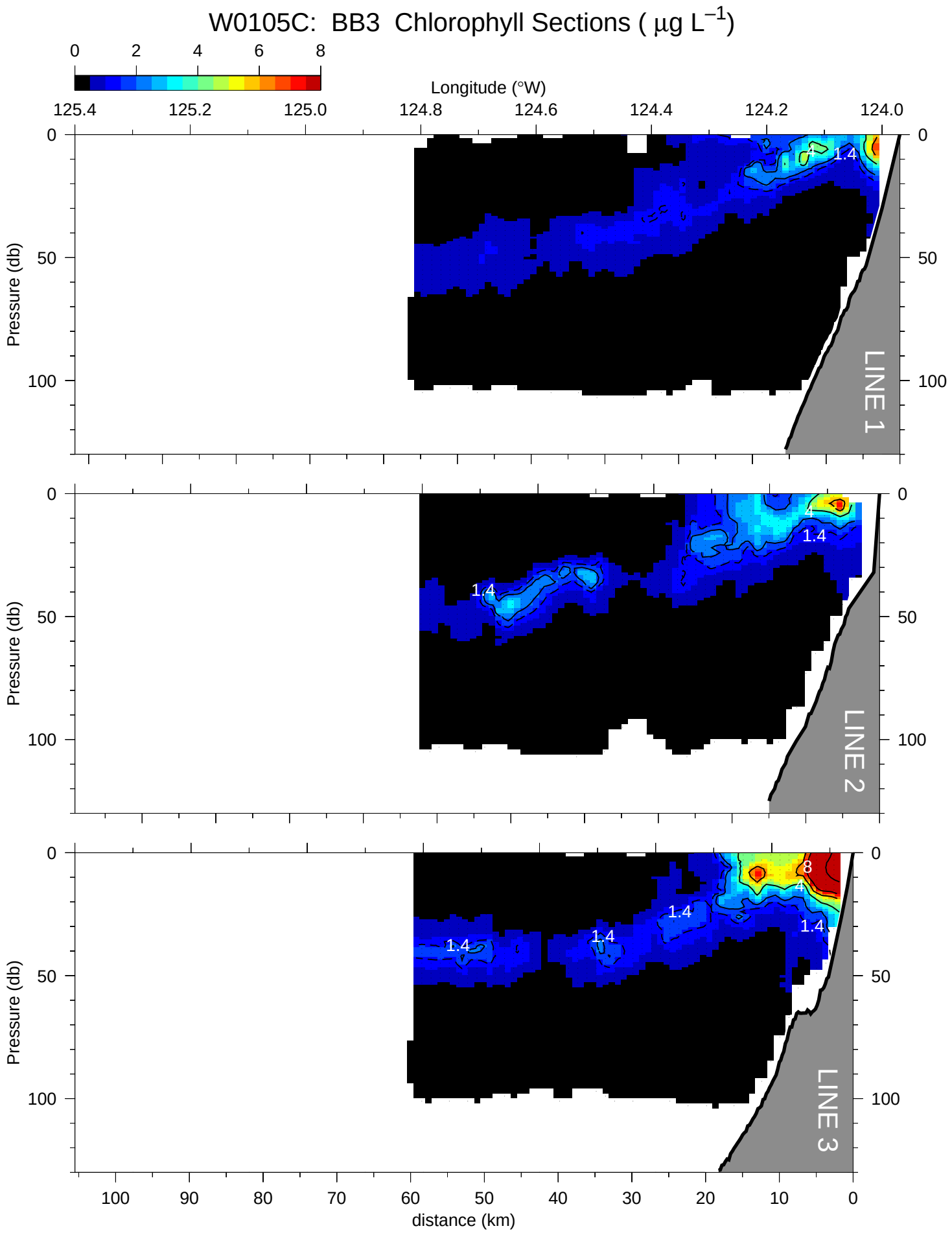
line 4 at 44.652 °N (02-Jun-2001 22:45 - 03-Jun-2001 02:35)

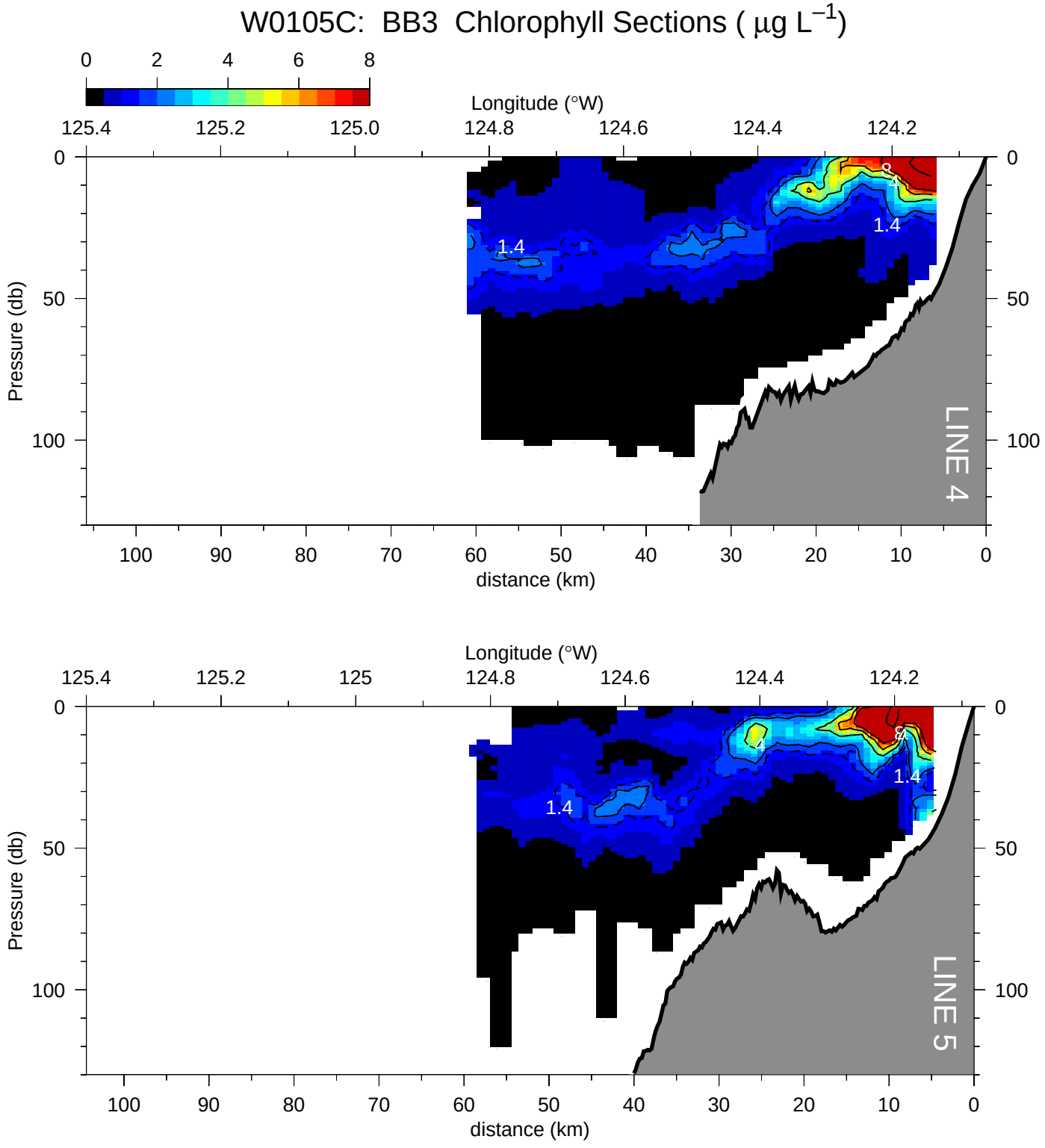


W0105C: BB3 line 5

line 5 at 44.475 °N (02-Jun-2001 15:28 - 02-Jun-2001 19:50)

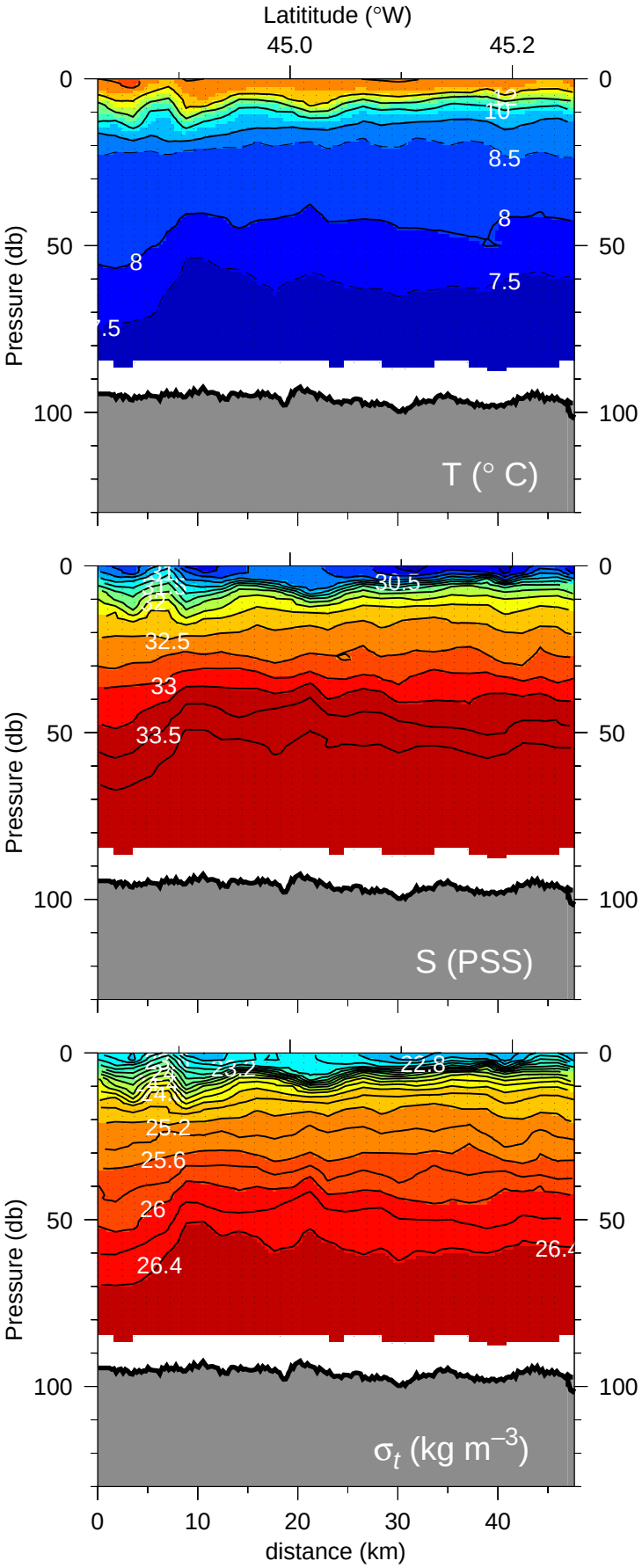


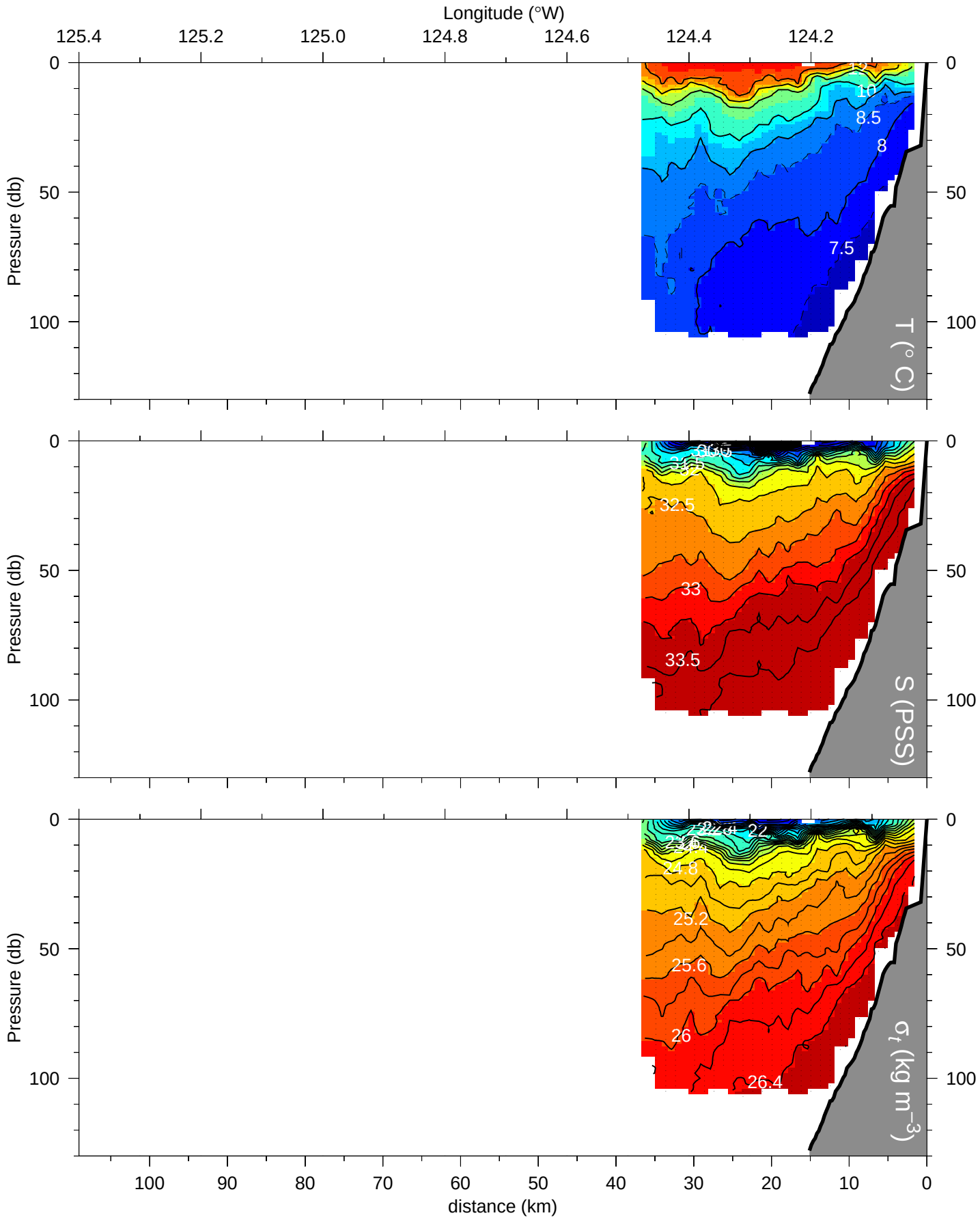

W0105C: BB3 Chlorophyll Sections (µg L−1)
0 2 4 6 8
Longitude (°W)
125.4 125.2 125.0 124.8 124.6 124.4 124.2 124.0
Pressure (db)
0
50
100
1.4
4
LINE 1
LINE 2
LINE 3
8
distance (km)
100 90 80 70 60 50 40 30 20 10 0

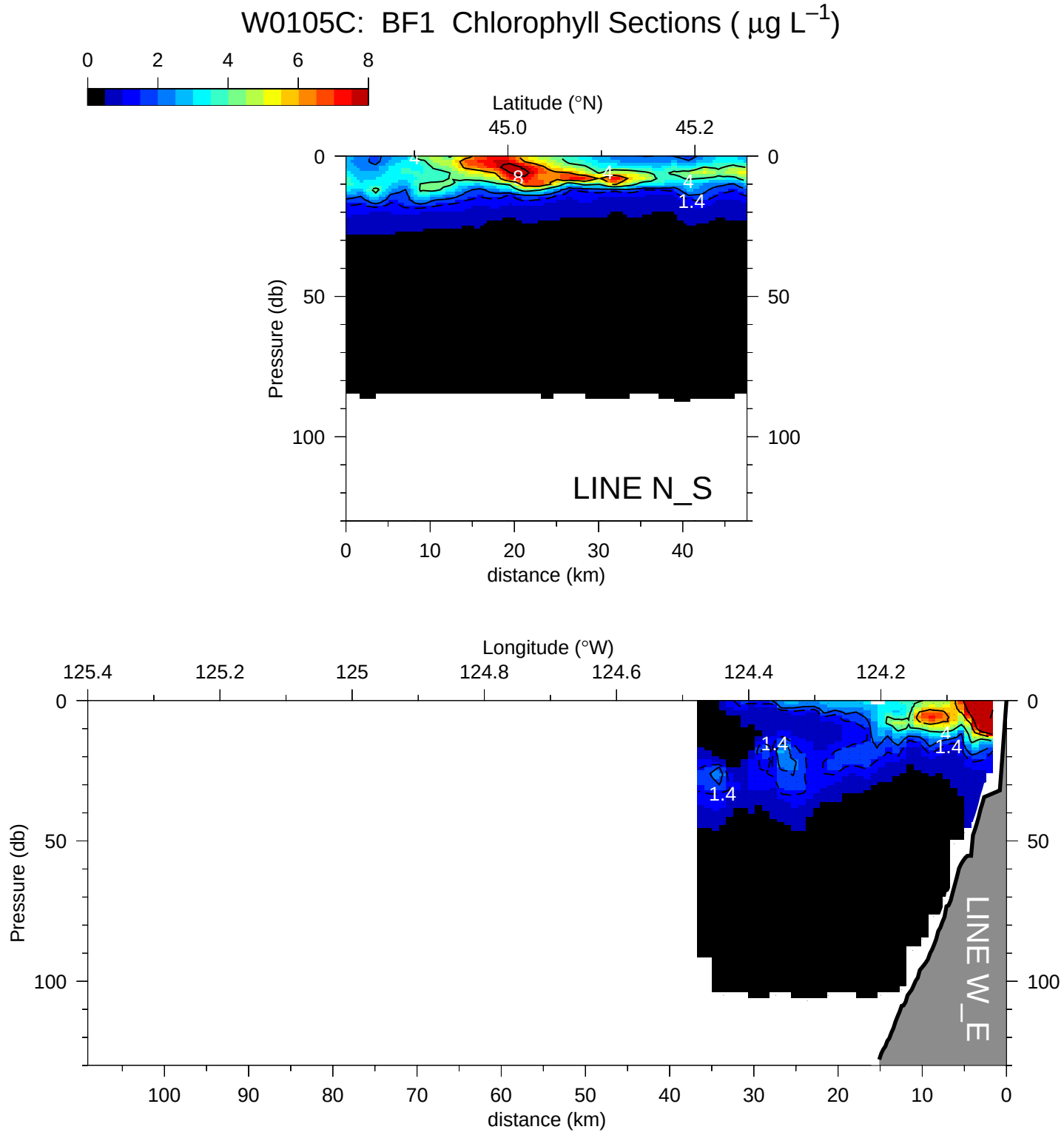

W0105C: BB3 Chlorophyll Sections (µg L−1)
0 2 4 6 8
Longitude (°W)
125.4 125.2 125.0 124.8 124.6 124.4 124.2
Pressure (db)
0 50 100
1.4
1.4
LINE 4
100 90 80 70 60 50 40 30 20 10 0
distance (km)
Longitude (°W)
125.4 125.2 125 124.8 124.6 124.4 124.2
Pressure (db)
0 50 100
1.4
1.4
LINE 5
100 90 80 70 60 50 40 30 20 10 0
distance (km)

W0105C: BF1 line N_S

line N_S at 124.145 °W (03-Jun-2001 20:53 - 04-Jun-2001 00:19)

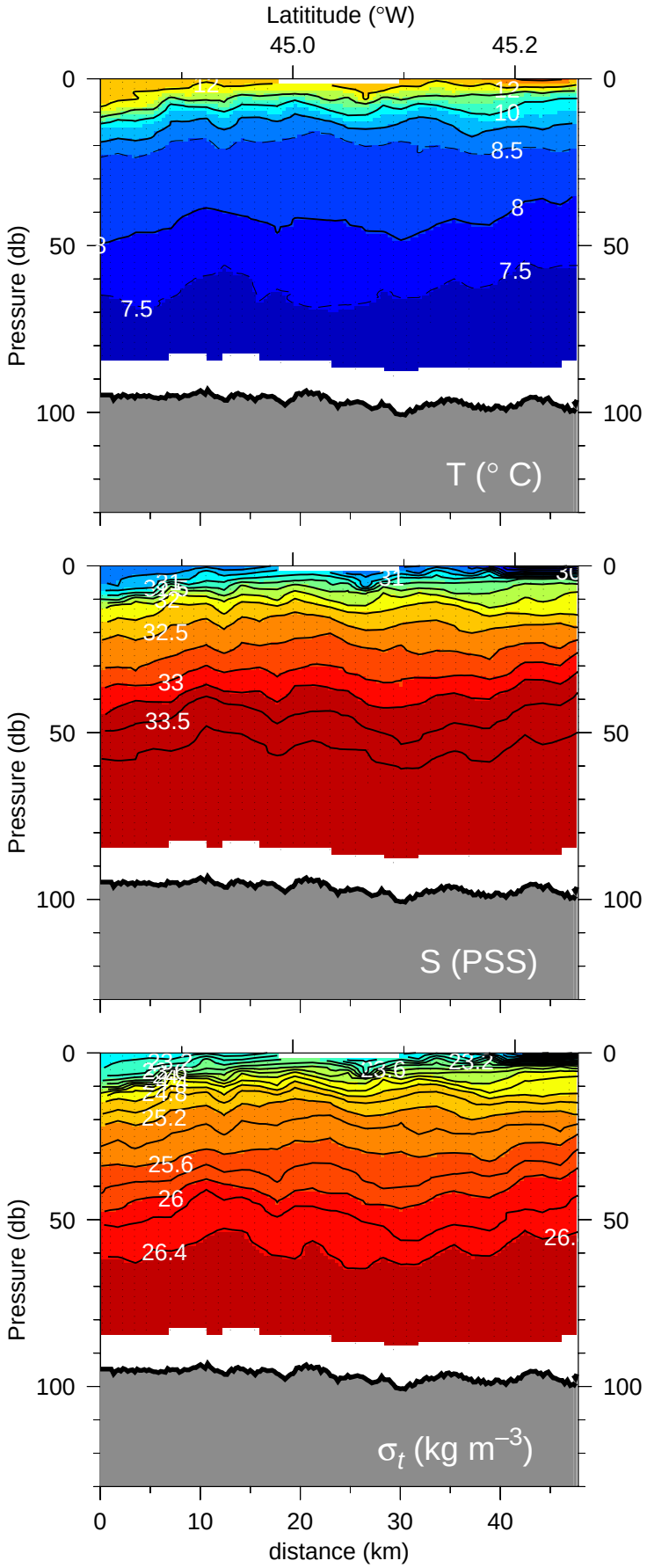



W0105C: BF1 line W_E
line W_E at 45.017 °N (04-Jun-2001 02:31 - 04-Jun-2001 04:46)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
10
8.5
8
7.5
T (° C)
32.5
33
33.5
S (PSS)
22
24.8
25.2
25.6
26
26.4
σt (kg m−3)
distance (km)
100
90
80
70
60
50
40
30
20
10
0


W0105C: BF1 Chlorophyll Sections (µg L−1)
0
2
4
6
8
Latitude (°N)
45.0
45.2
Pressure (db)
0
50
100
8
4
4
4
1.4
LINE N_S
0
10
20
30
40
distance (km)
Longitude (°W)
125.4
125.2
125
124.8
124.6
124.4
124.2
1.4
1.4
4
1.4
LINE W_E
100
90
80
70
60
50
40
30
20
10
0
distance (km)

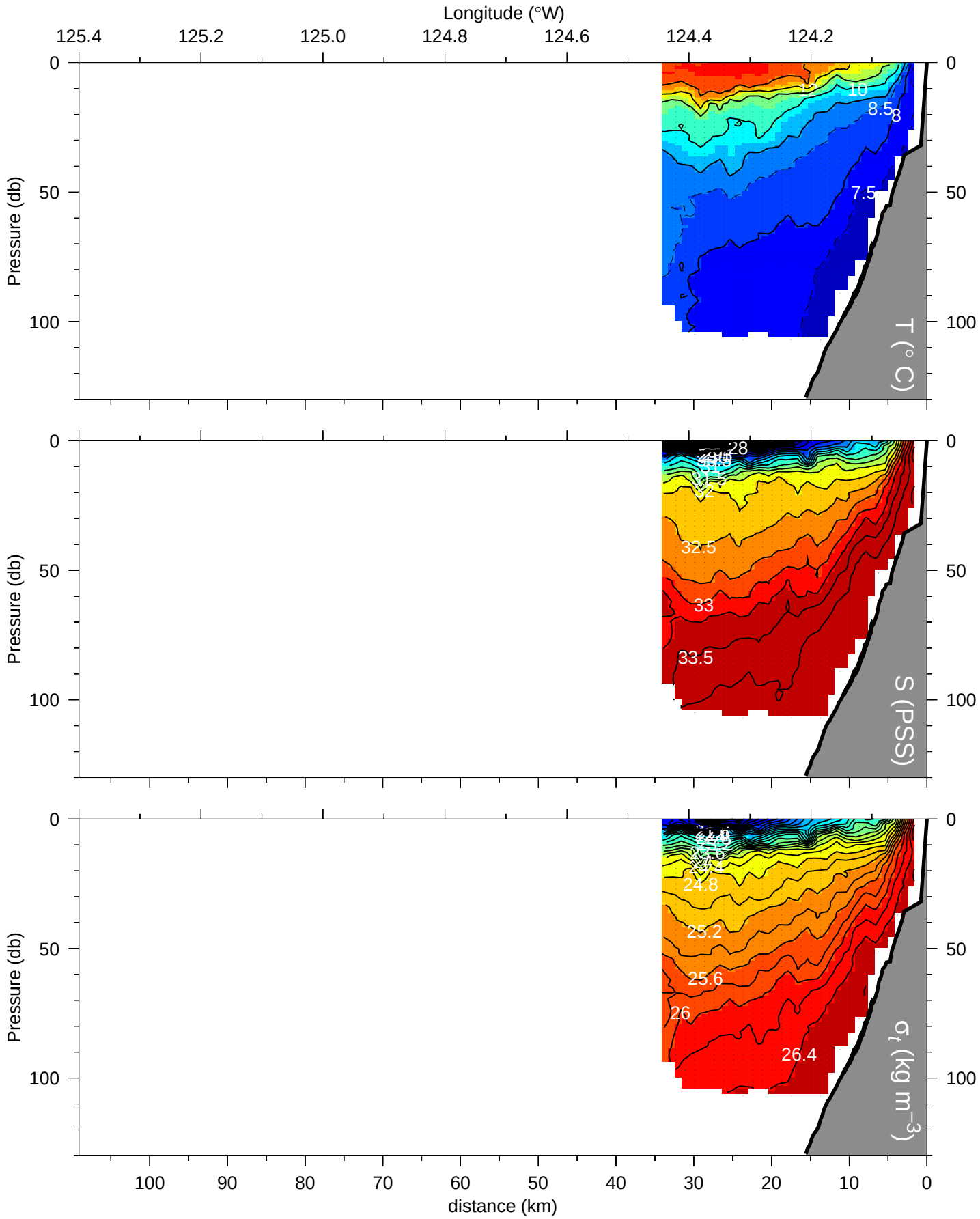
W0105C: BF2 line N_S

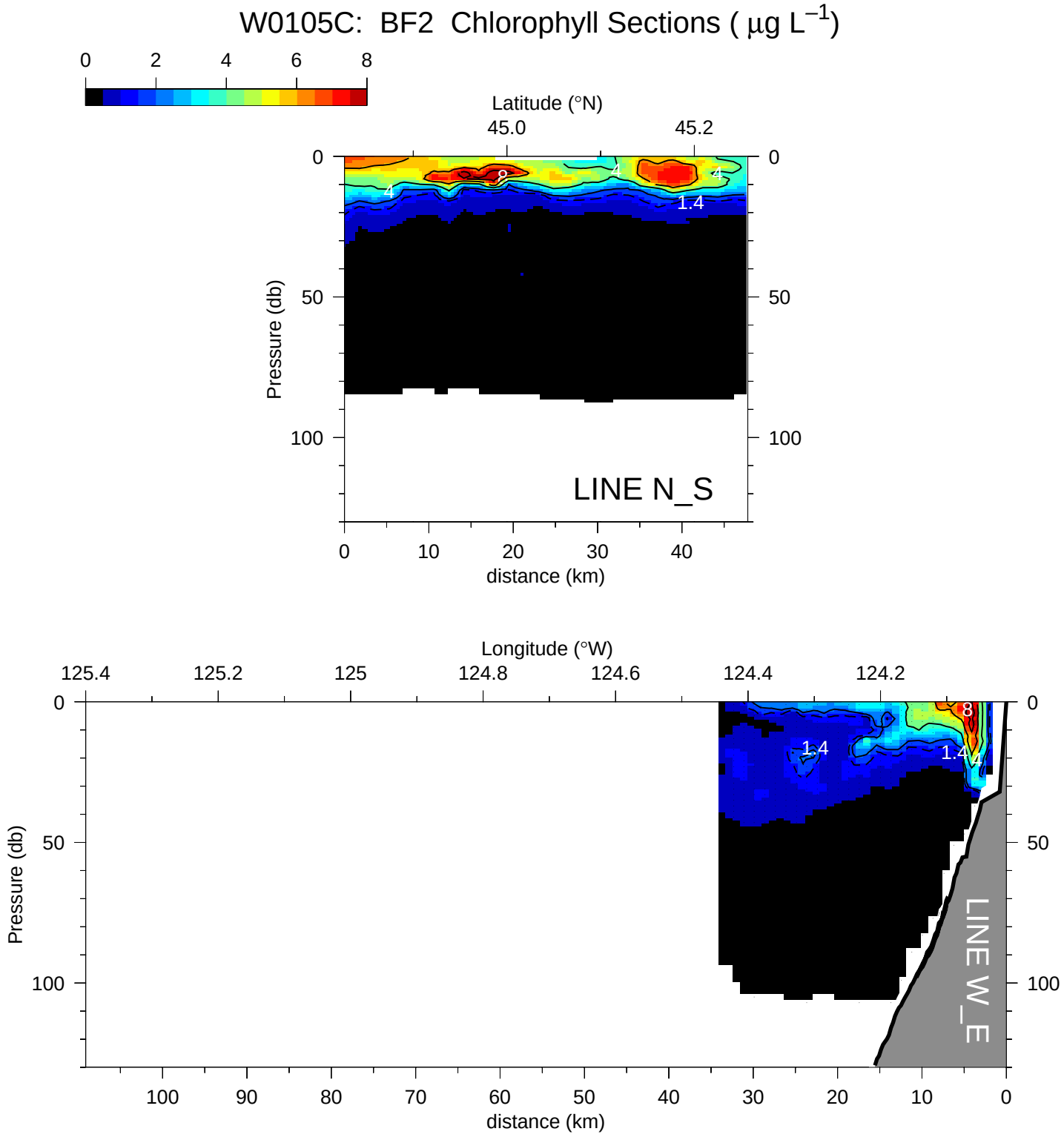
line N_S at 124.145 °W (04-Jun-2001 07:25 - 04-Jun-2001 10:47)



W0105C: BF2 line W_E

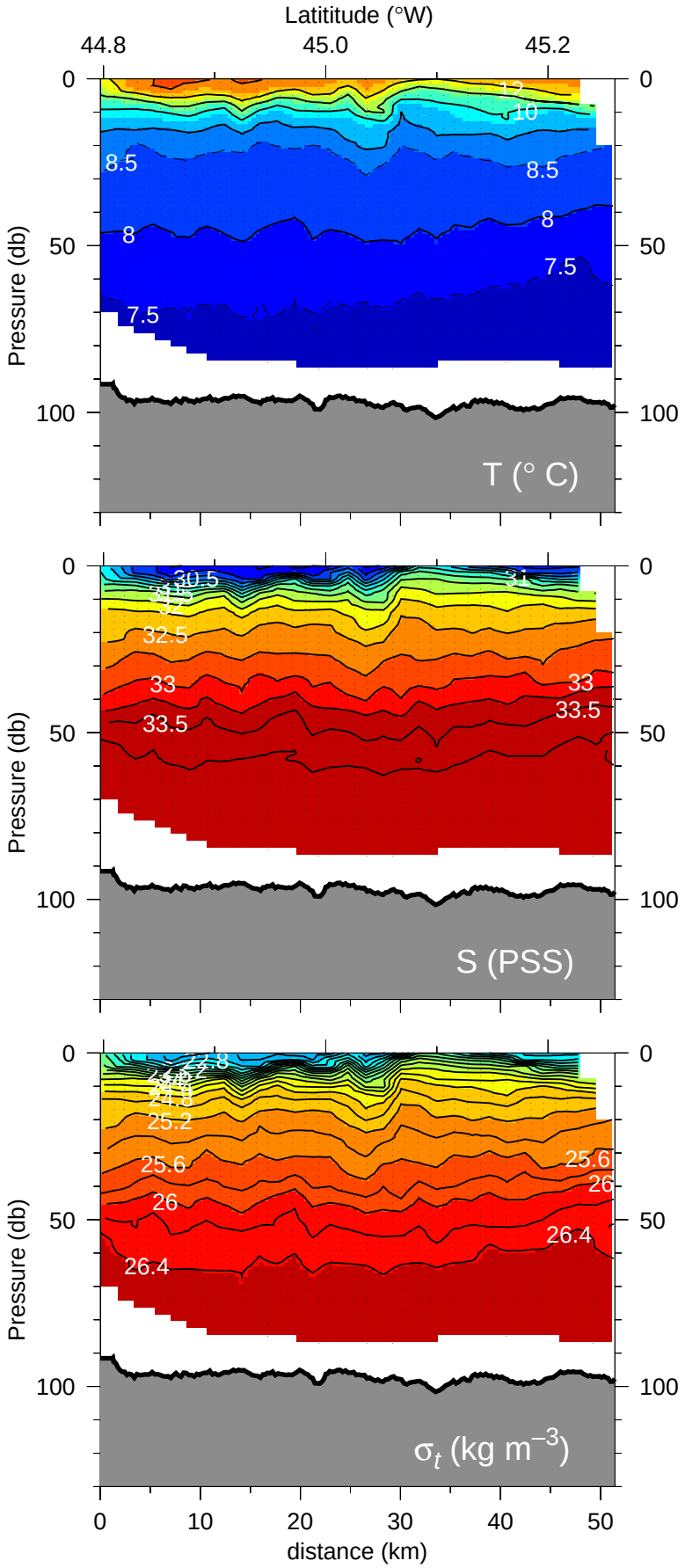
line W_E at 45.016 °N (04-Jun-2001 12:44 - 04-Jun-2001 15:35)

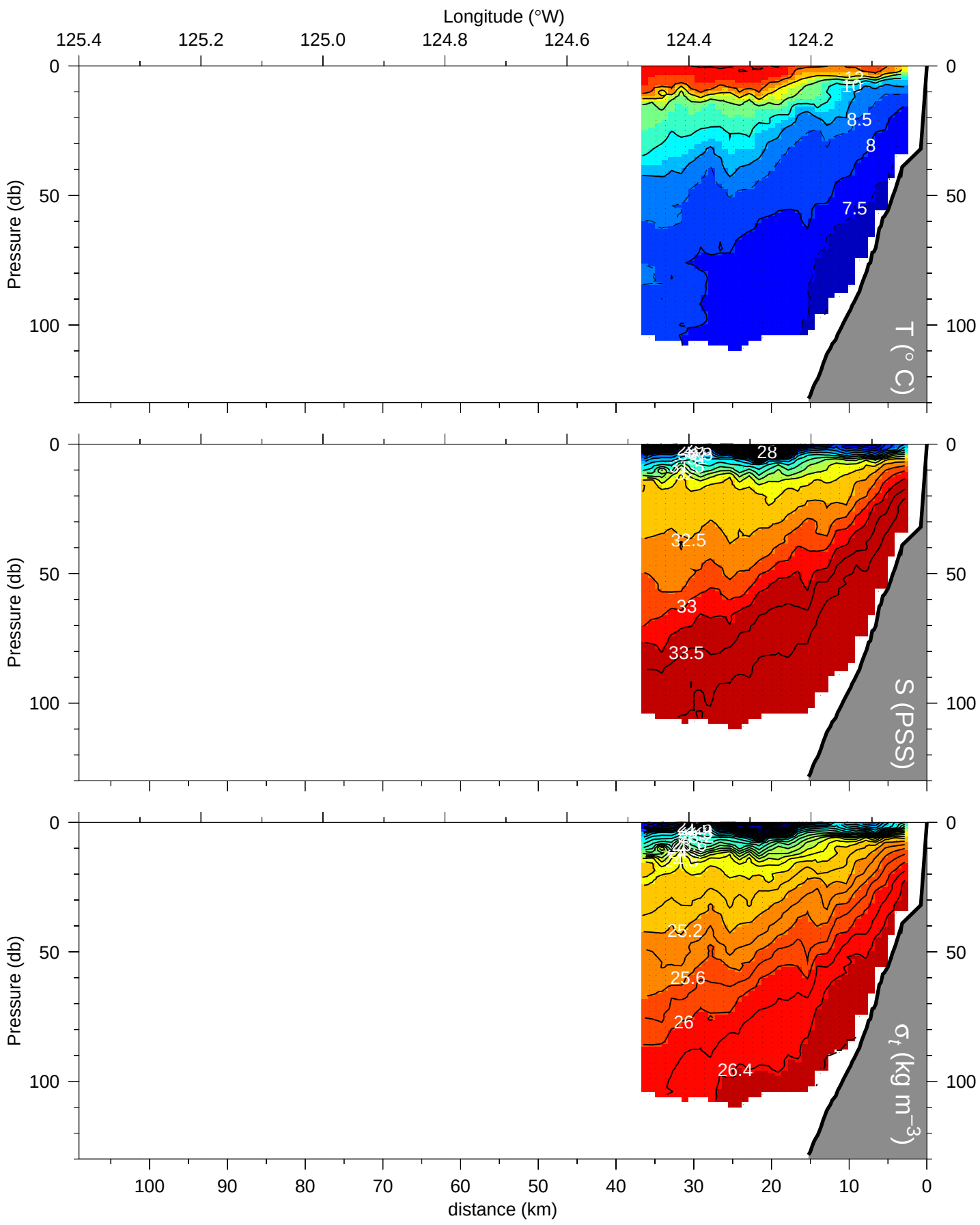


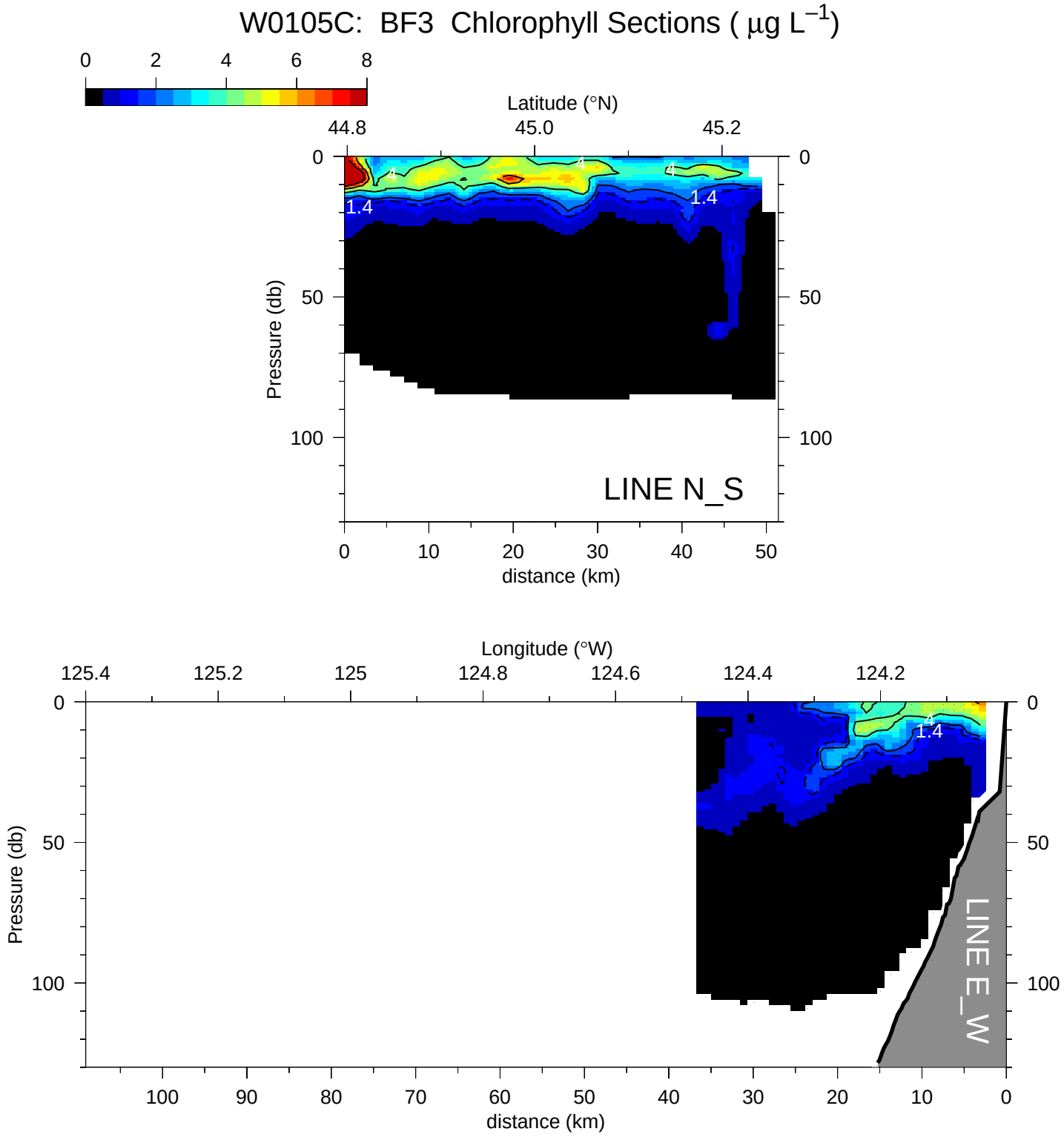

W0105C: BF2 Chlorophyll Sections (µg L−1)
0
2
4
6
8
Latitude (°N)
45.0
45.2
Pressure (db)
0
50
100
LINE N_S
0
10
20
30
40
distance (km)
Longitude (°W)
125.4
125.2
125
124.8
124.6
124.4
124.2
LINE W_E
100
90
80
70
60
50
40
30
20
10
0

W0105C: BF3 line N_S

line N_S at 124.147 °W (04-Jun-2001 18:20 - 04-Jun-2001 21:37)

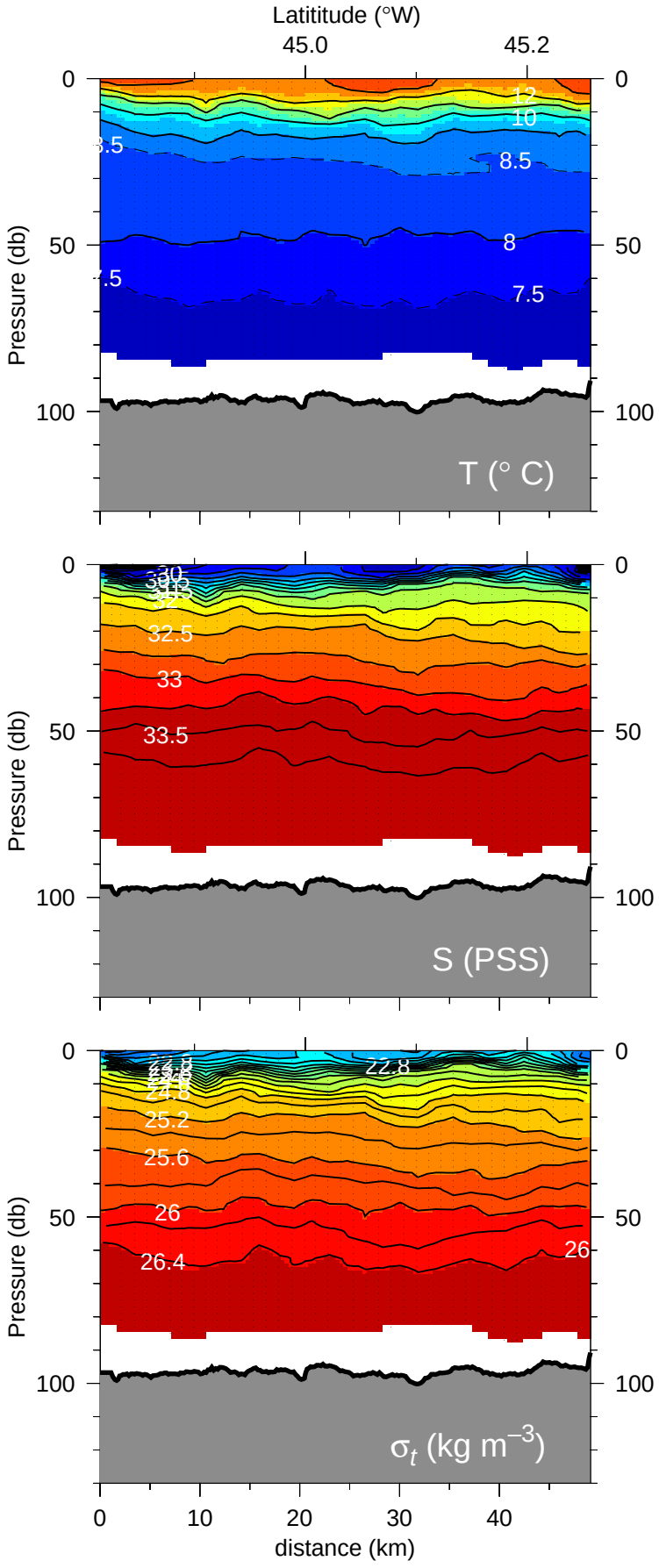


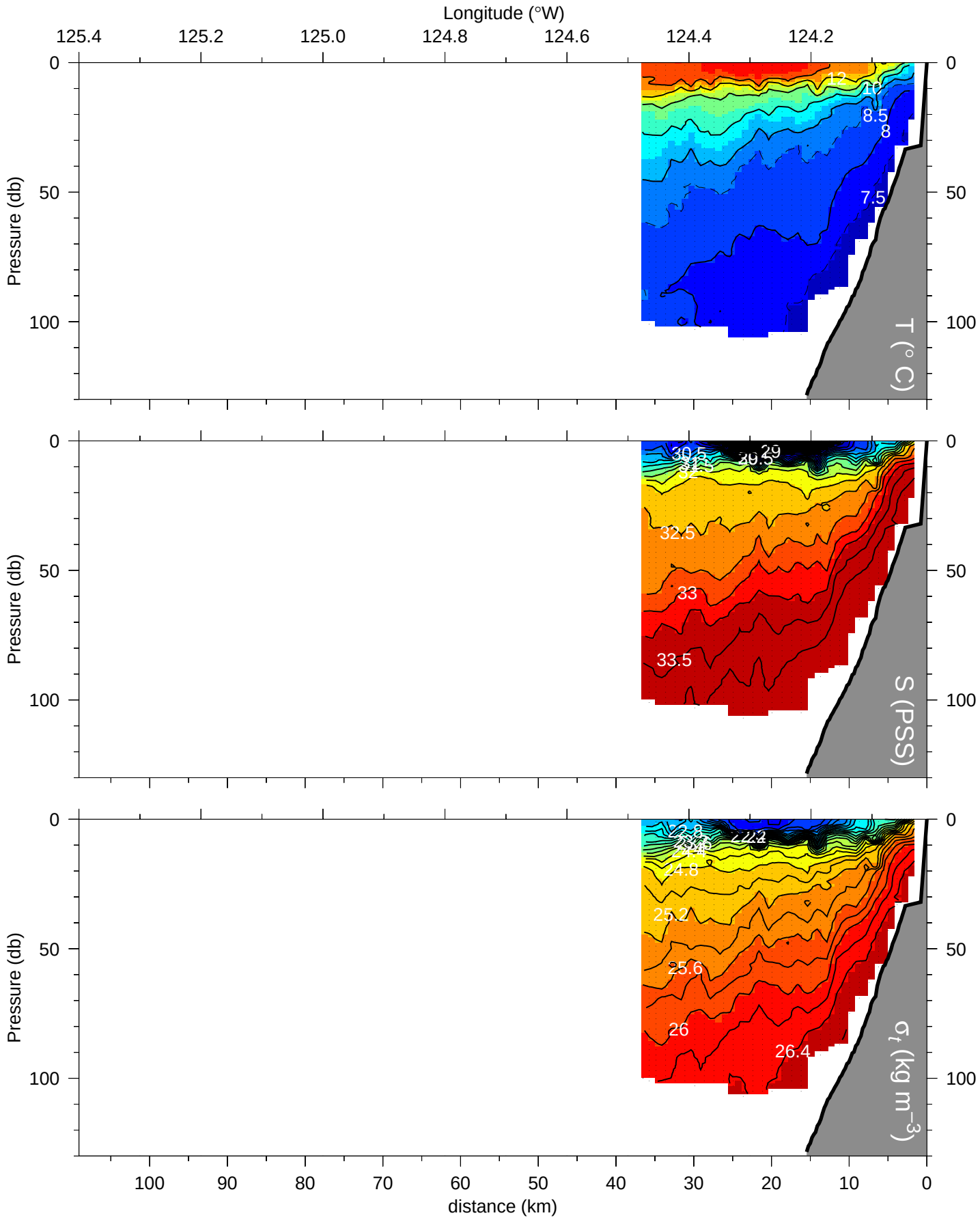

W0105C: BF3 line E_W
line E_W at 45.017 °N (05-Jun-2001 03:26 - 05-Jun-2001 05:41)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
10
8.5
8
7.5
T (° C)
28
32.5
33
33.5
S (PSS)
25.2
25.6
26
26.4
σt (kg m−3)
distance (km)
100
90
80
70
60
50
40
30
20
10
0

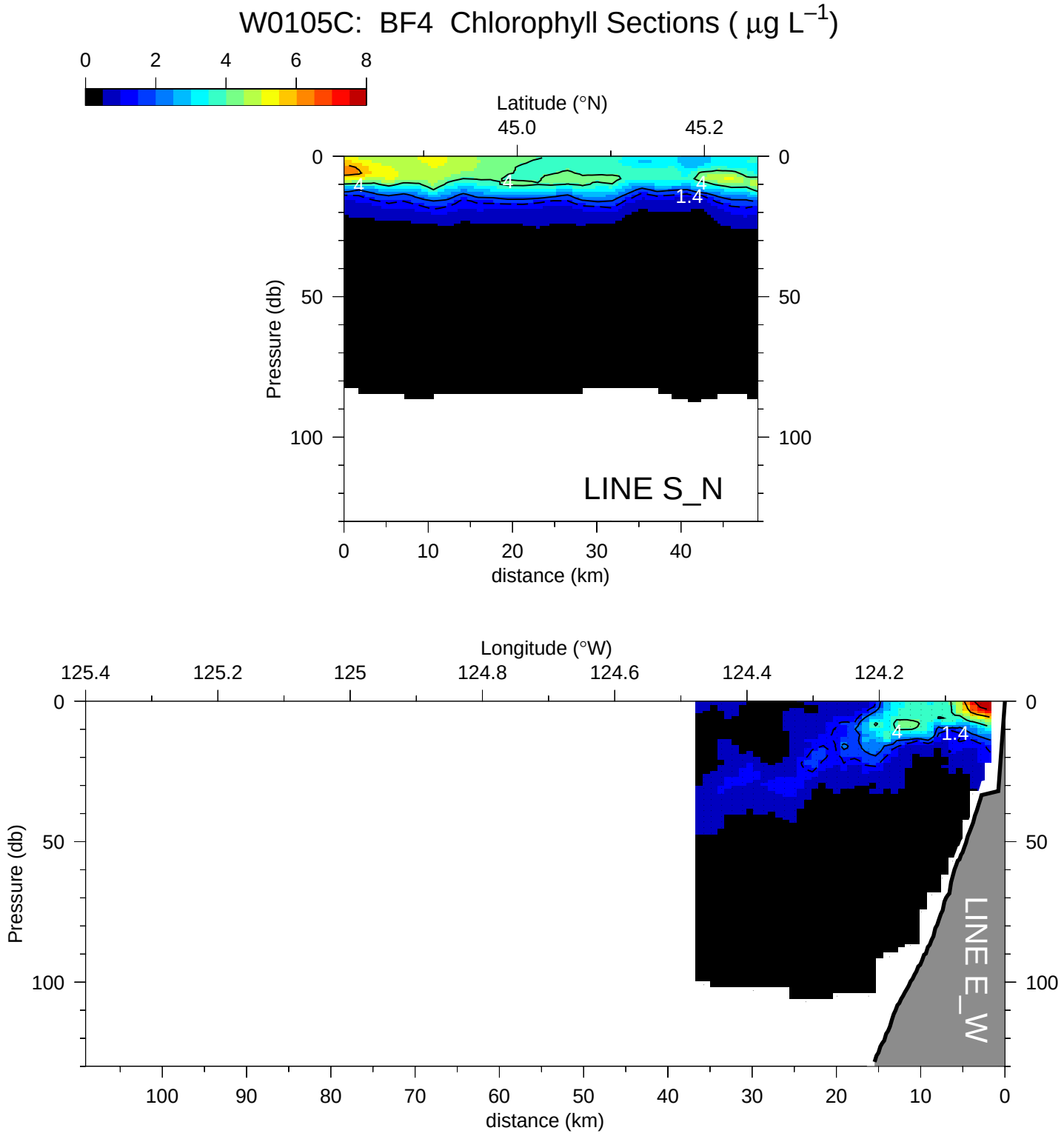

W0105C: BF3 Chlorophyll Sections (µg L−1)
0
2
4
6
8
Latitude (°N)
44.8
45.0
45.2
Pressure (db)
0
50
100
4
1.4
LINE N_S
0
10
20
30
40
50
distance (km)
Longitude (°W)
125.4
125.2
125
124.8
124.6
124.4
124.2
LINE E_W
100
90
80
70
60
50
40
30
20
10
0
distance (km)

W0105C: BF4 line S_N

line S_N at 124.145 °W (05-Jun-2001 07:52 - 05-Jun-2001 11:47)

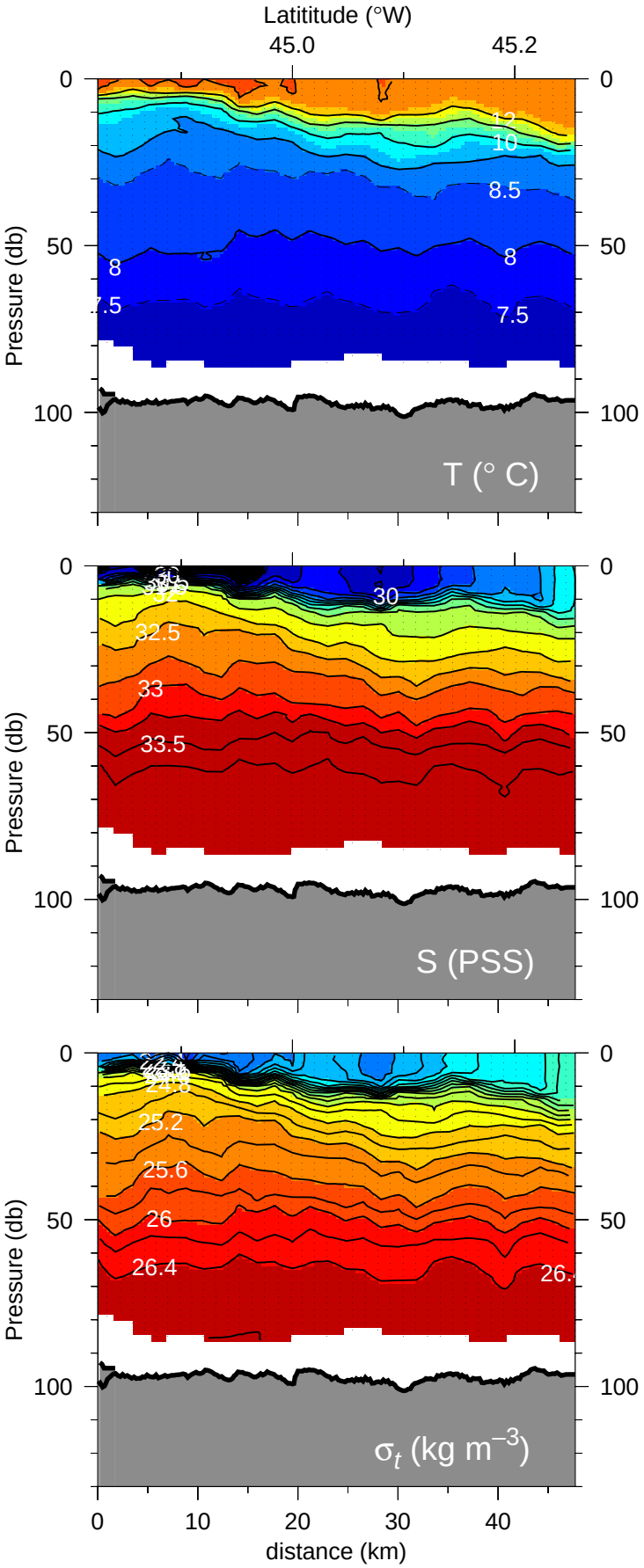


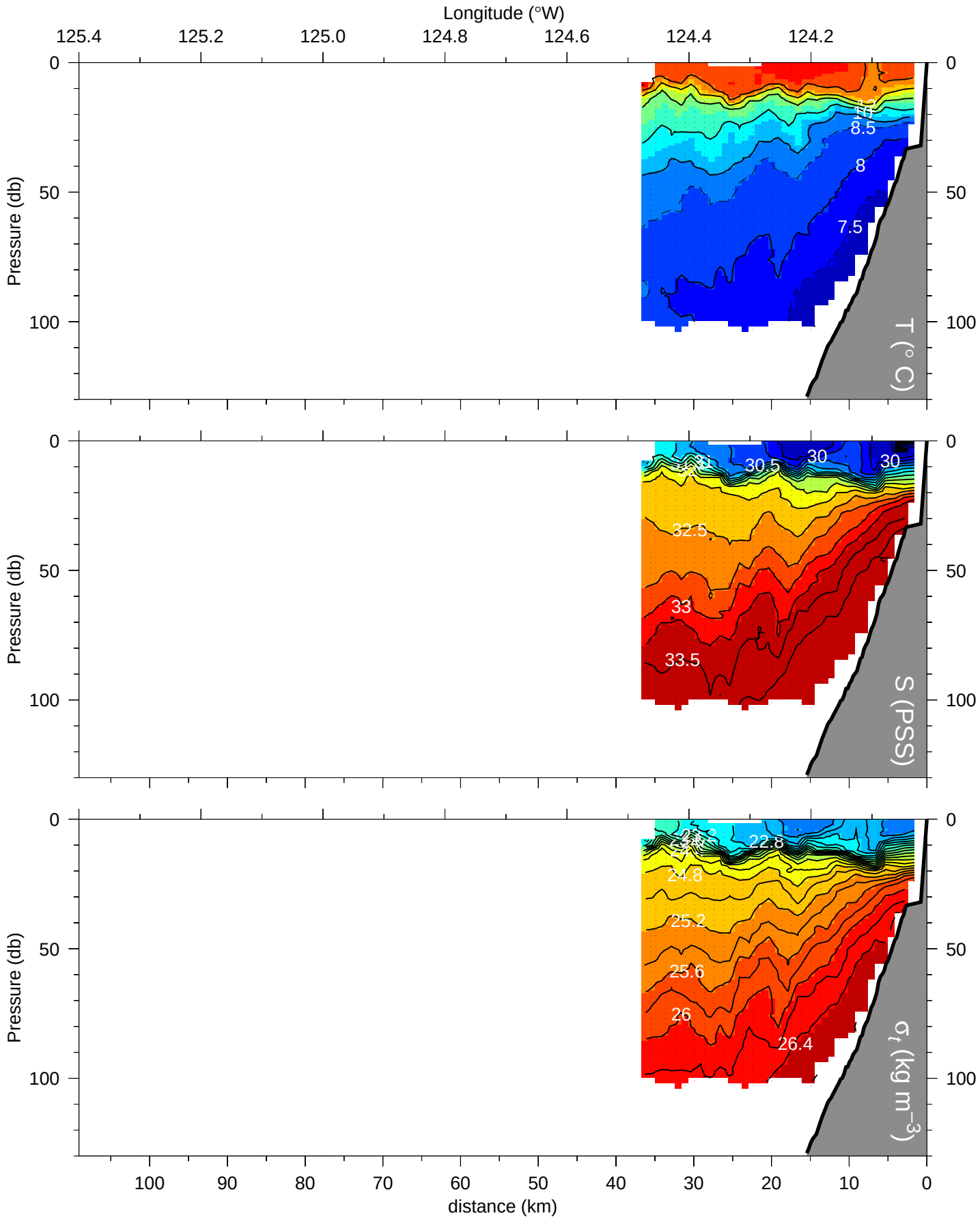

W0105C: BF4 line E_W
line E_W at 45.017 °N (05-Jun-2001 14:19 - 05-Jun-2001 16:44)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
12
10
8.5
8
7.5
T (° C)
29
32.5
33
33.5
S (PSS)
24.8
25.2
25.6
26
26.4
σt (kg m−3)
distance (km)
100
90
80
70
60
50
40
30
20
10
0

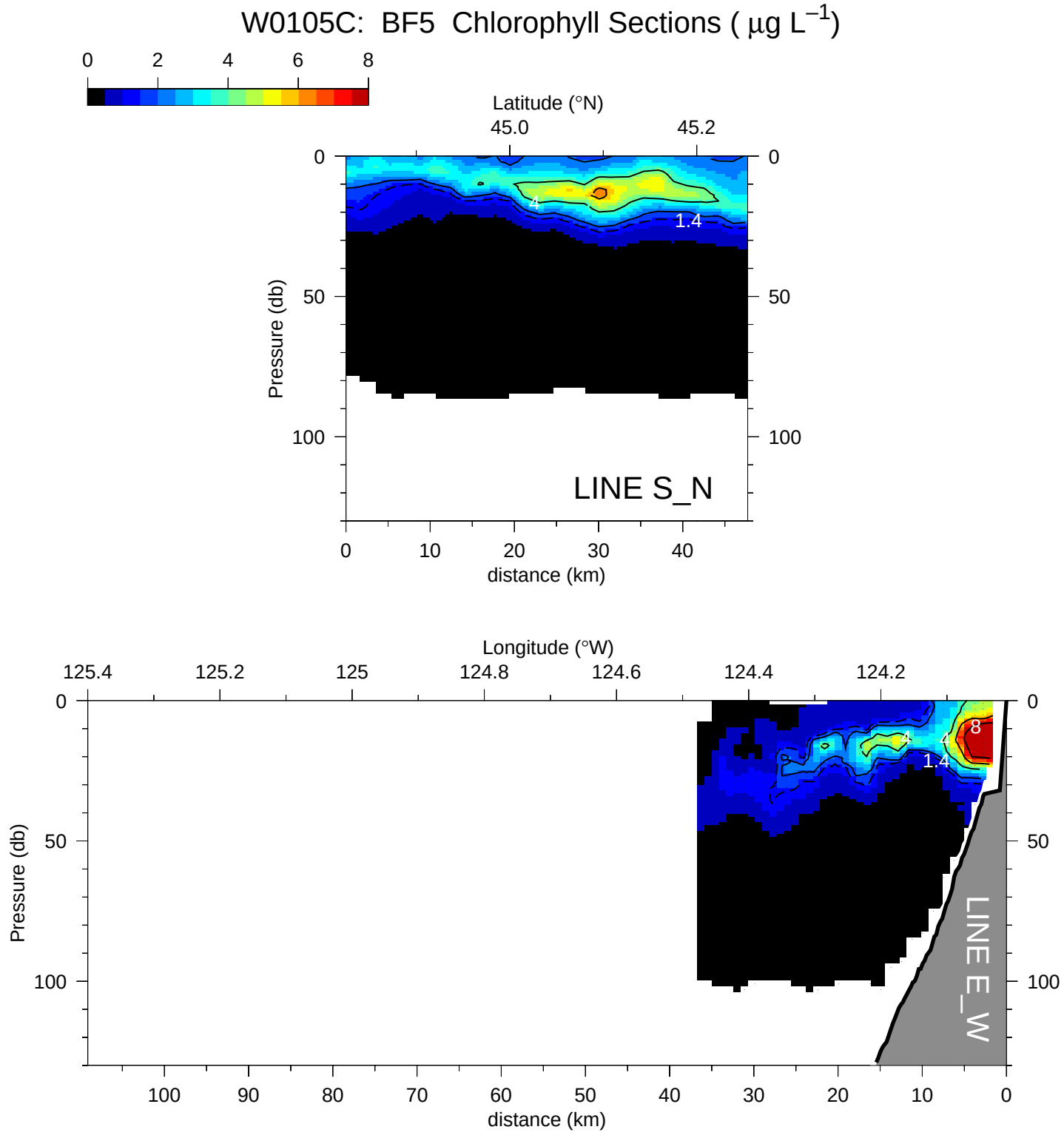

W0105C: BF4 Chlorophyll Sections (µg L−1)
0
2
4
6
8
Latitude (°N)
45.0
45.2
Pressure (db)
0
50
100
4
1.4
LINE S_N
0
10
20
30
40
distance (km)
Longitude (°W)
125.4
125.2
125
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
4
1.4
LINE E_W
100
90
80
70
60
50
40
30
20
10
0
distance (km)

W0105C: BF5 line S_N

line S_N at 124.145 °W (05-Jun-2001 18:58 - 05-Jun-2001 22:39)

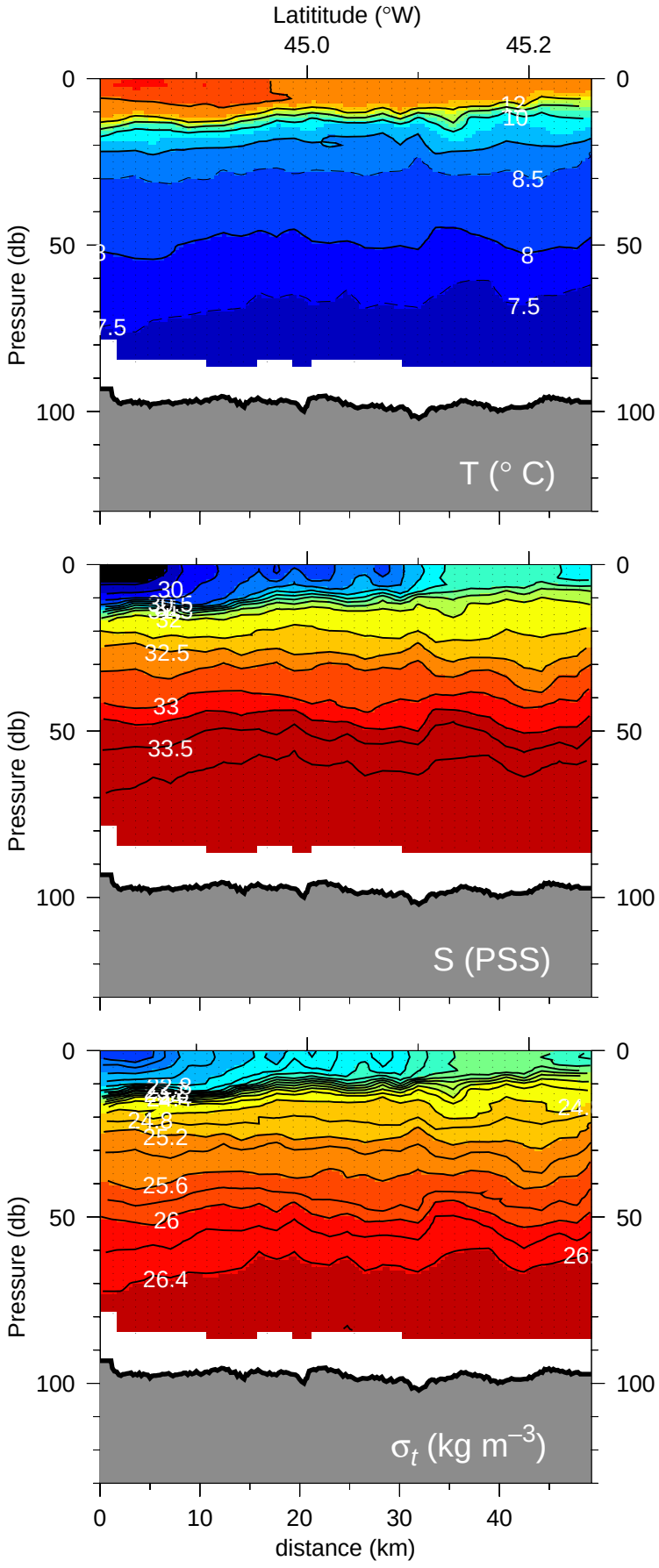


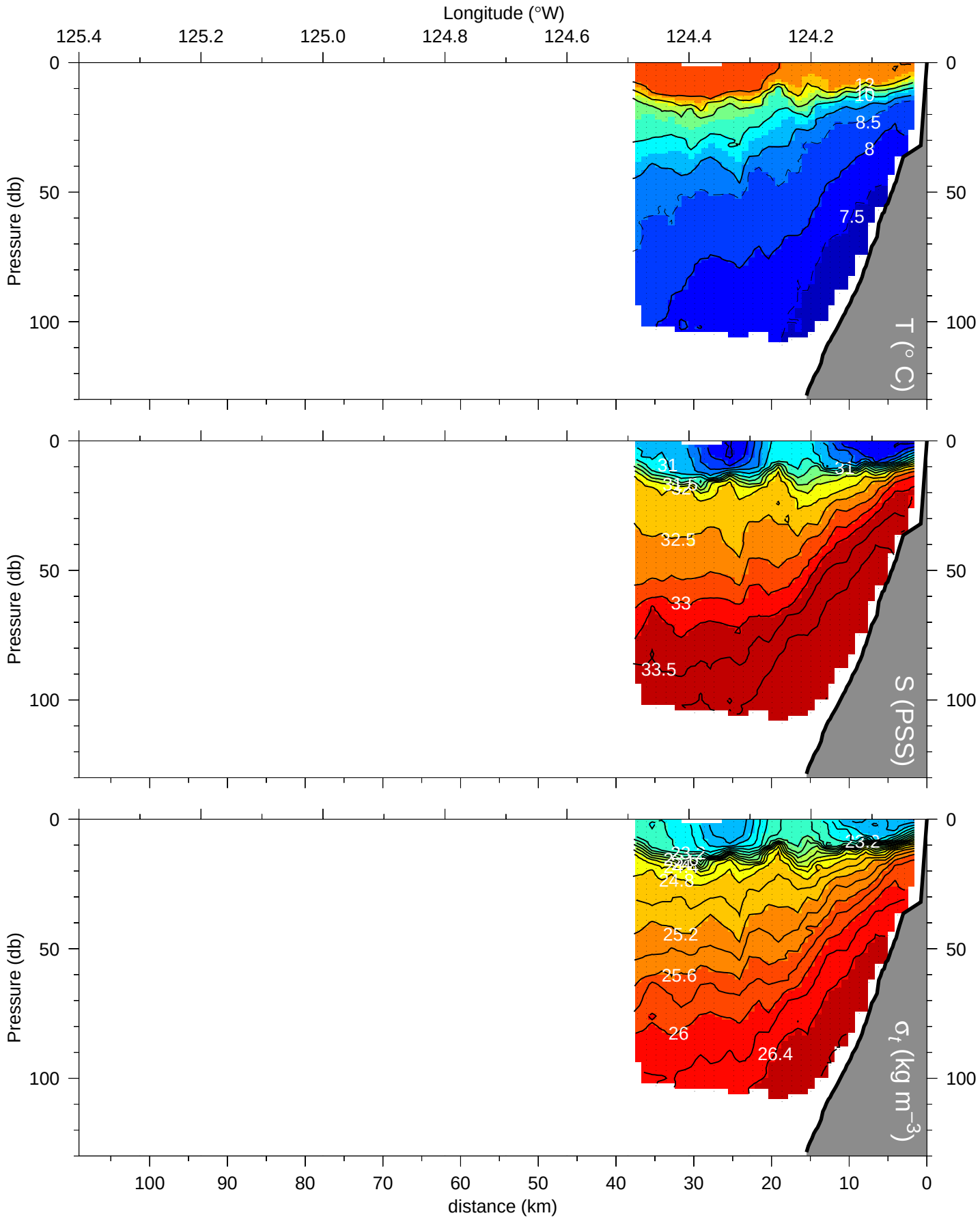

W0105C: BF5 line E_W
line E_W at 45.017 °N (06-Jun-2001 01:11 - 06-Jun-2001 03:28)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
8.5
8
7.5
T (° C)
30.5
30
32.5
33
33.5
S (PSS)
22.8
24.8
25.2
25.6
26
26.4
σt (kg m−3)
distance (km)
100
90
80
70
60
50
40
30
20
10
0

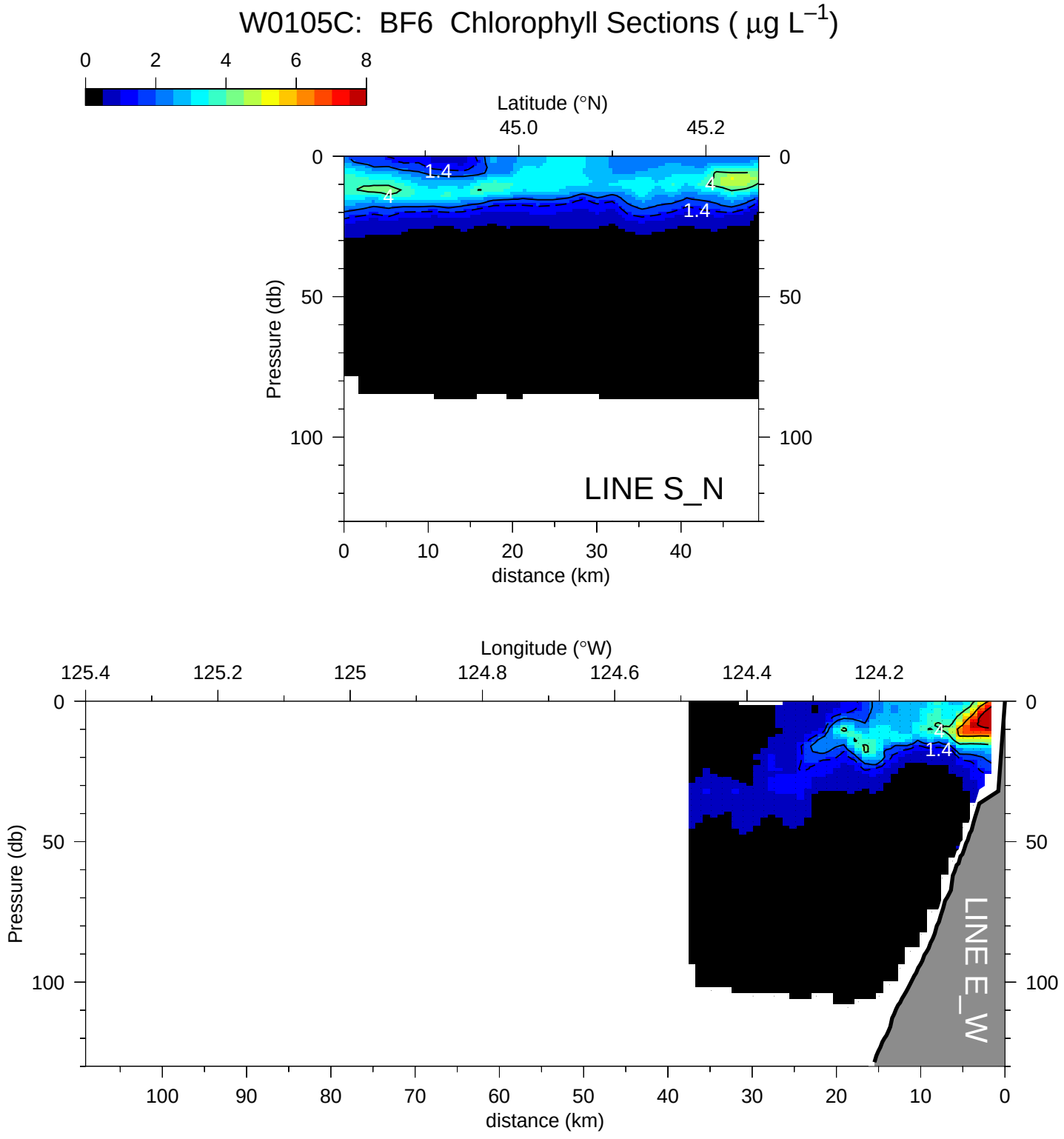

W0105C: BF5 Chlorophyll Sections (µg L−1)
0
2
4
6
8
Latitude (°N)
45.0
45.2
Pressure (db)
0
50
100
4
1.4
LINE S_N
0
10
20
30
40
distance (km)
Longitude (°W)
125.4
125.2
125
124.8
124.6
124.4
124.2
8
4
4
1.4
LINE E_W
100
90
80
70
60
50
40
30
20
10
0
distance (km)

W0105C: BF6 line S_N

line S_N at 124.145 °W (06-Jun-2001 05:38 - 06-Jun-2001 09:16)

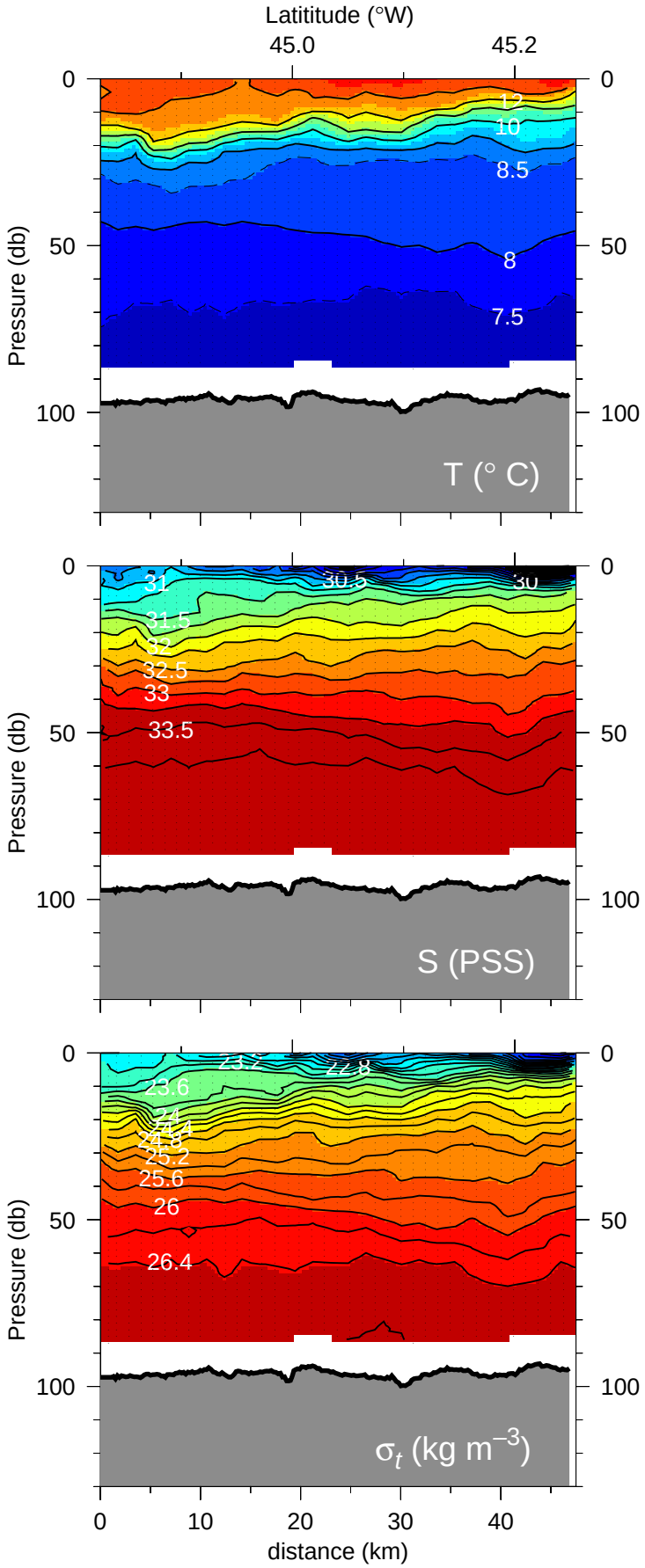


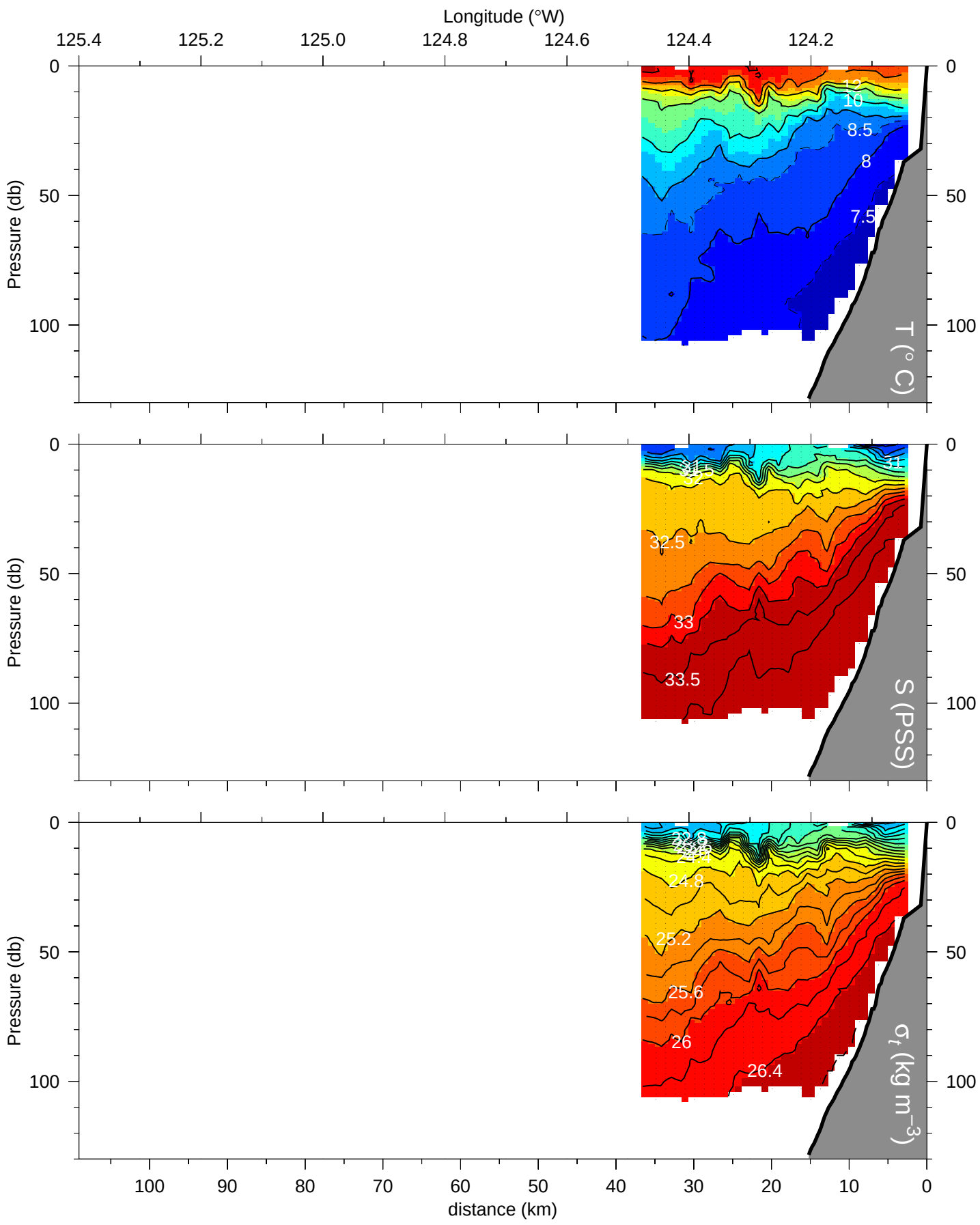

W0105C: BF6 line E_W
line E_W at 45.016 °N (06-Jun-2001 11:46 - 06-Jun-2001 14:20)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
10
8.5
8
7.5
T (° C)
31
32.5
33
33.5
S (PSS)
24.8
25.2
25.6
26
26.4
σt (kg m−3)
distance (km)
100
90
80
70
60
50
40
30
20
10
0

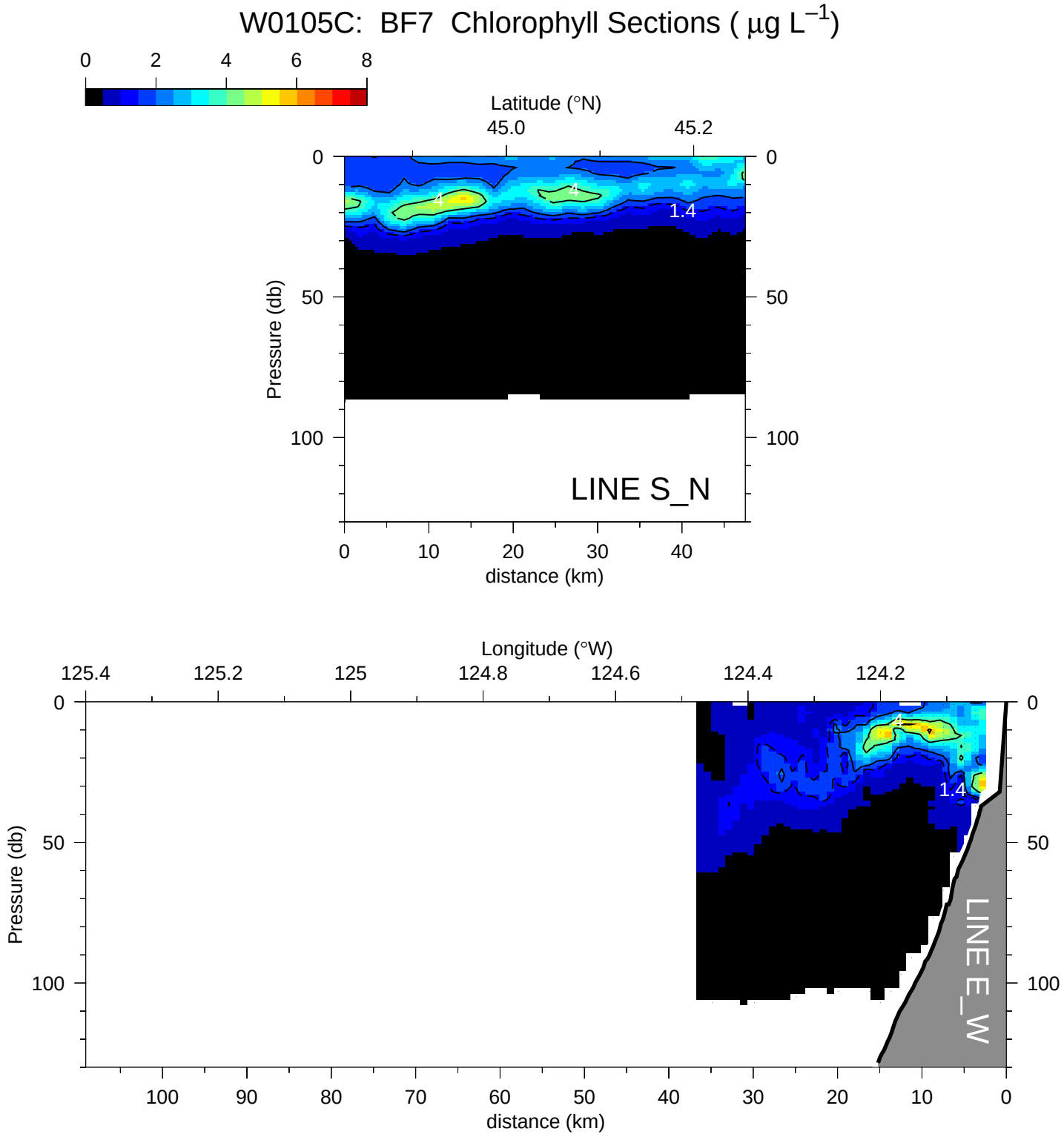

W0105C: BF6 Chlorophyll Sections (µg L−1)
0
2
4
6
8
Latitude (°N)
45.0
45.2
Pressure (db)
1.4
LINE S_N
distance (km)
Longitude (°W)
125.4
125.2
125
124.8
124.6
124.4
124.2
LINE E_W
distance (km)

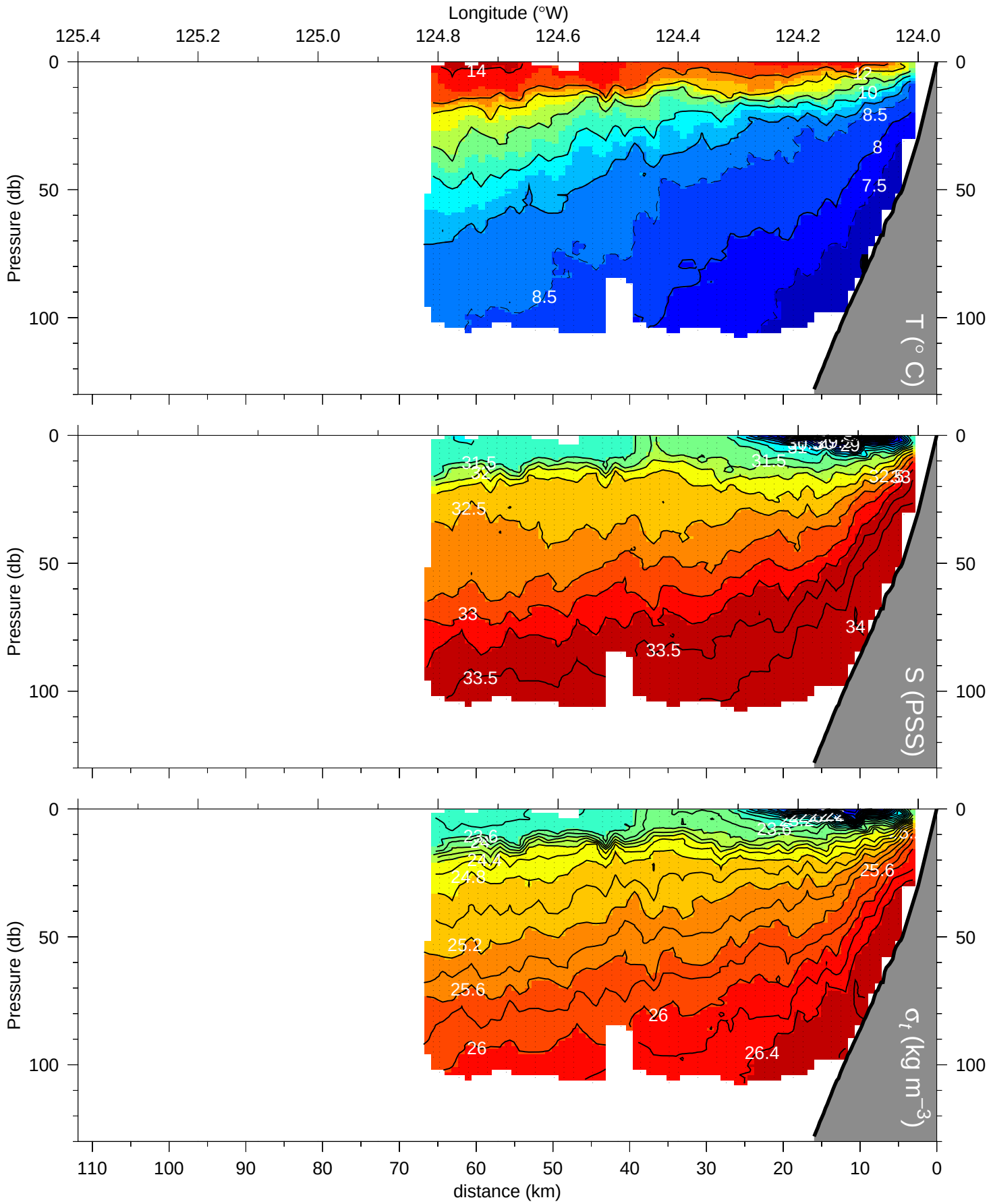
W0105C: BF7 line S_N

line S_N at 124.144 °W (07-Jun-2001 09:44 - 07-Jun-2001 13:23)



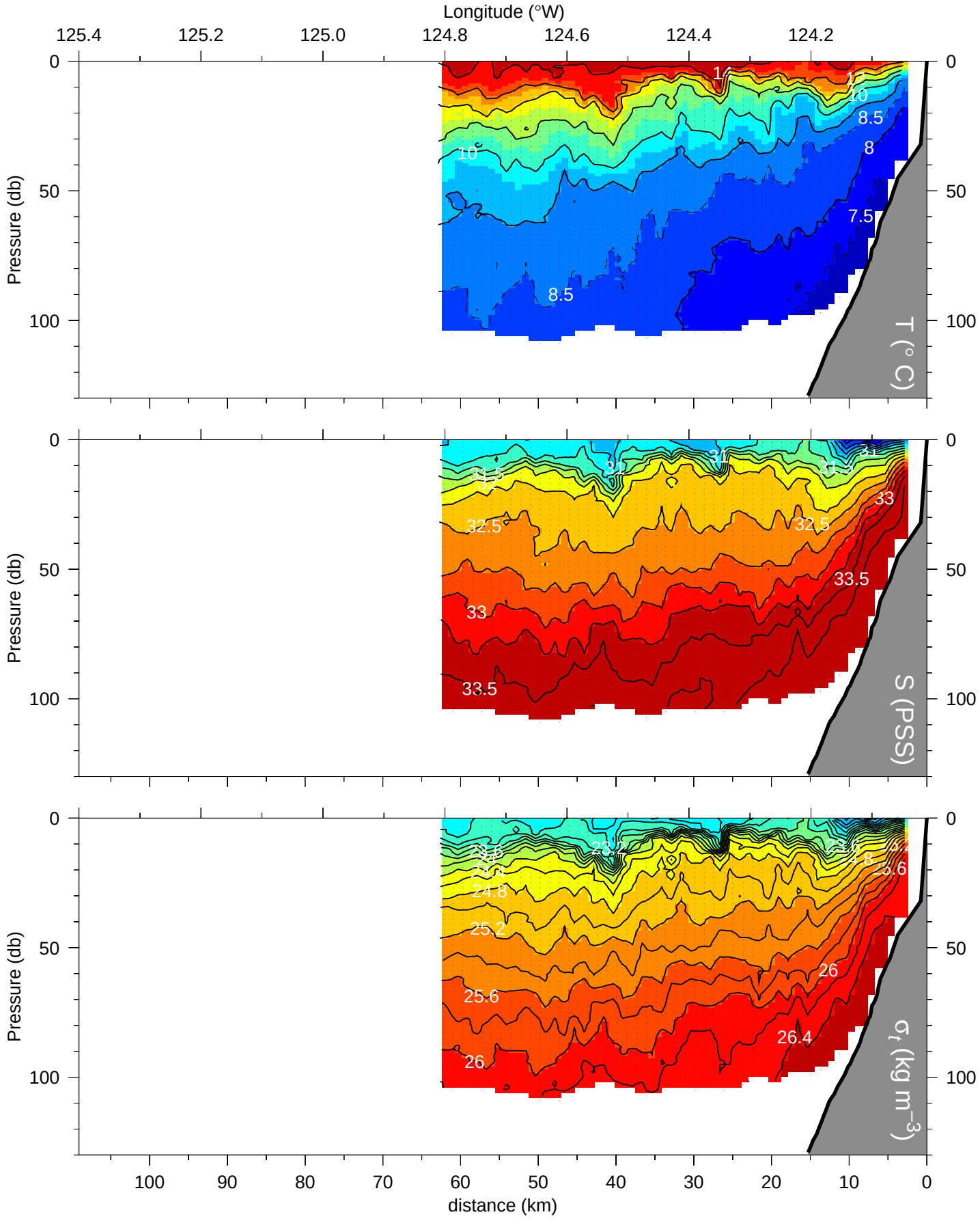

W0105C: BF7 line E_W
line E_W at 45.017 °N (07-Jun-2001 05:26 - 07-Jun-2001 07:42)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
12
10
8.5
8
7.5
T (° C)
32.5
33
33.5
S (PSS)
24.8
25.2
25.6
26
26.4
σt (kg m−3)
distance (km)
100
90
80
70
60
50
40
30
20
10
0

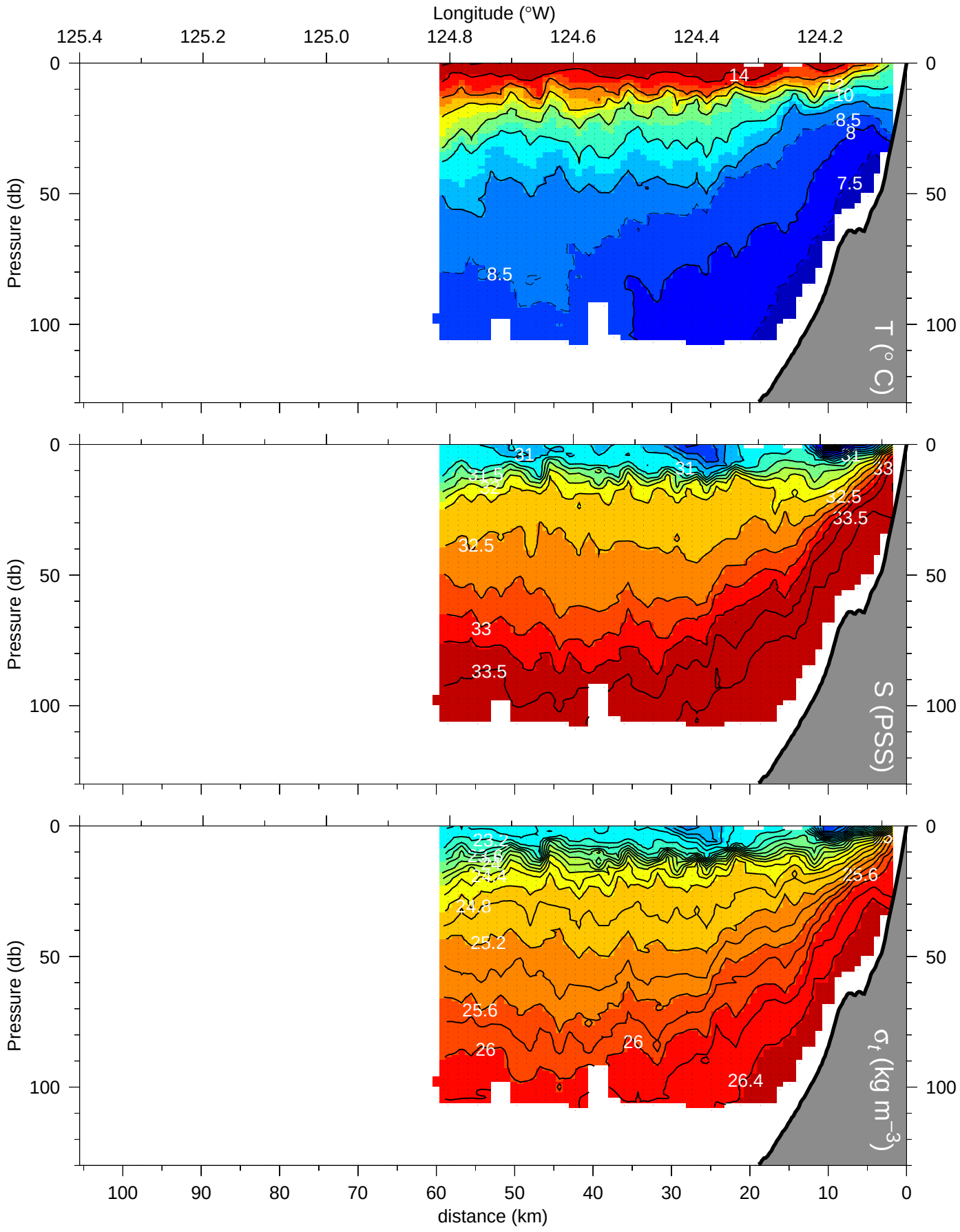

W0105C: BF7 Chlorophyll Sections (µg L−1)
0
2
4
6
8
Latitude (°N)
45.0
45.2
Pressure (db)
0
50
100
4
4
1.4
LINE S_N
0
10
20
30
40
distance (km)
Longitude (°W)
125.4
125.2
125
124.8
124.6
124.4
124.2
Pressure (db)
4
1.4
LINE E_W
100
90
80
70
60
50
40
30
20
10
0
distance (km)

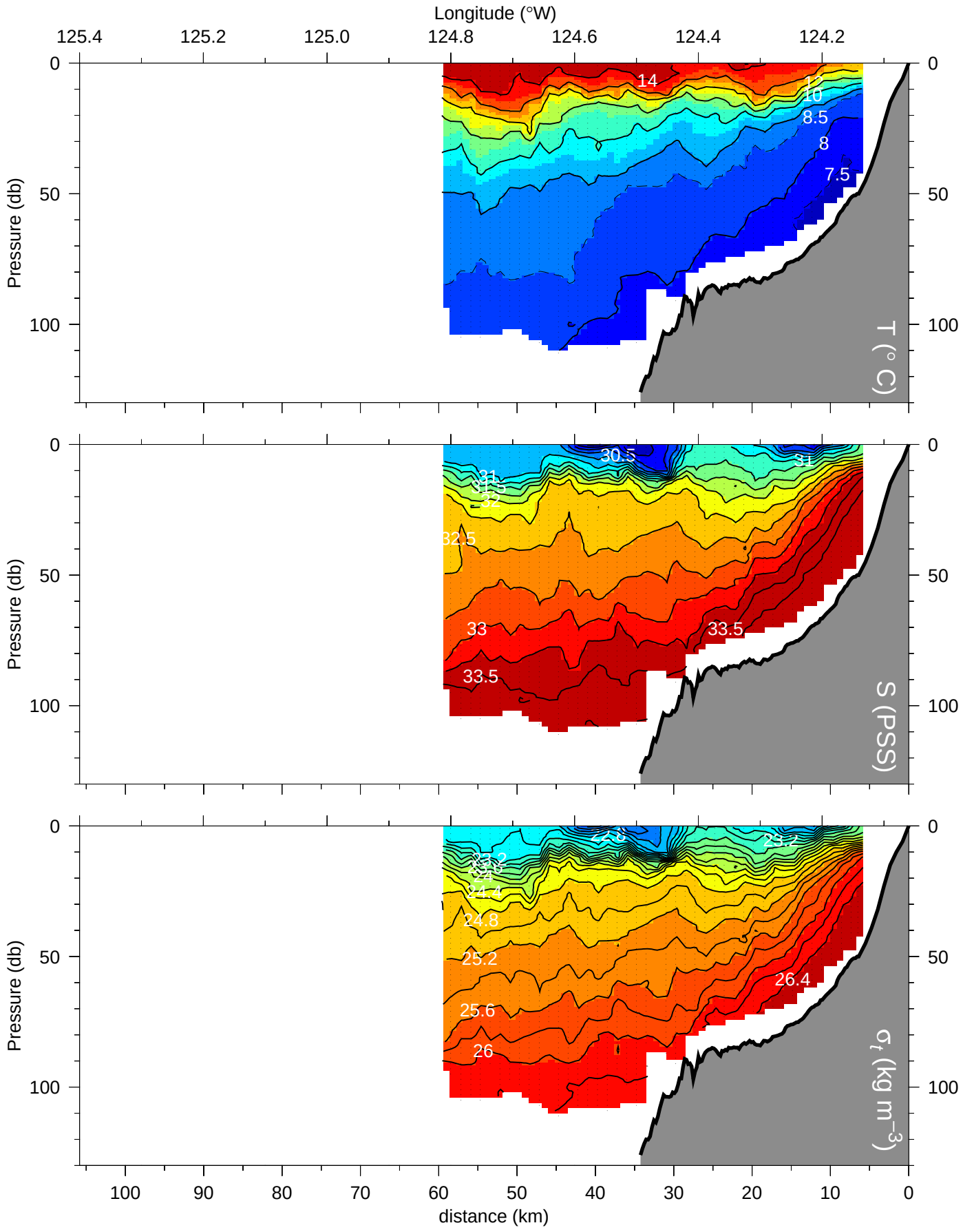

W0105C: BB4 line 1
line 1 at 45.250 °N (07-Jun-2001 14:08 - 07-Jun-2001 18:25)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
124.0
Pressure (db)
0
50
100
14
12
10
8.5
8
7.5
8.5
T (° C)
31.5
32
32.5
33
33.5
34
S (PSS)
23.6
24.4
25.2
25.6
26
26.4
σt (kg m−3)
110
100
90
80
70
60
50
40
30
20
10
0
distance (km)

W0105C: BB4 line 2

line 2 at 45.017 °N (07-Jun-2001 20:16 - 08-Jun-2001 00:32)

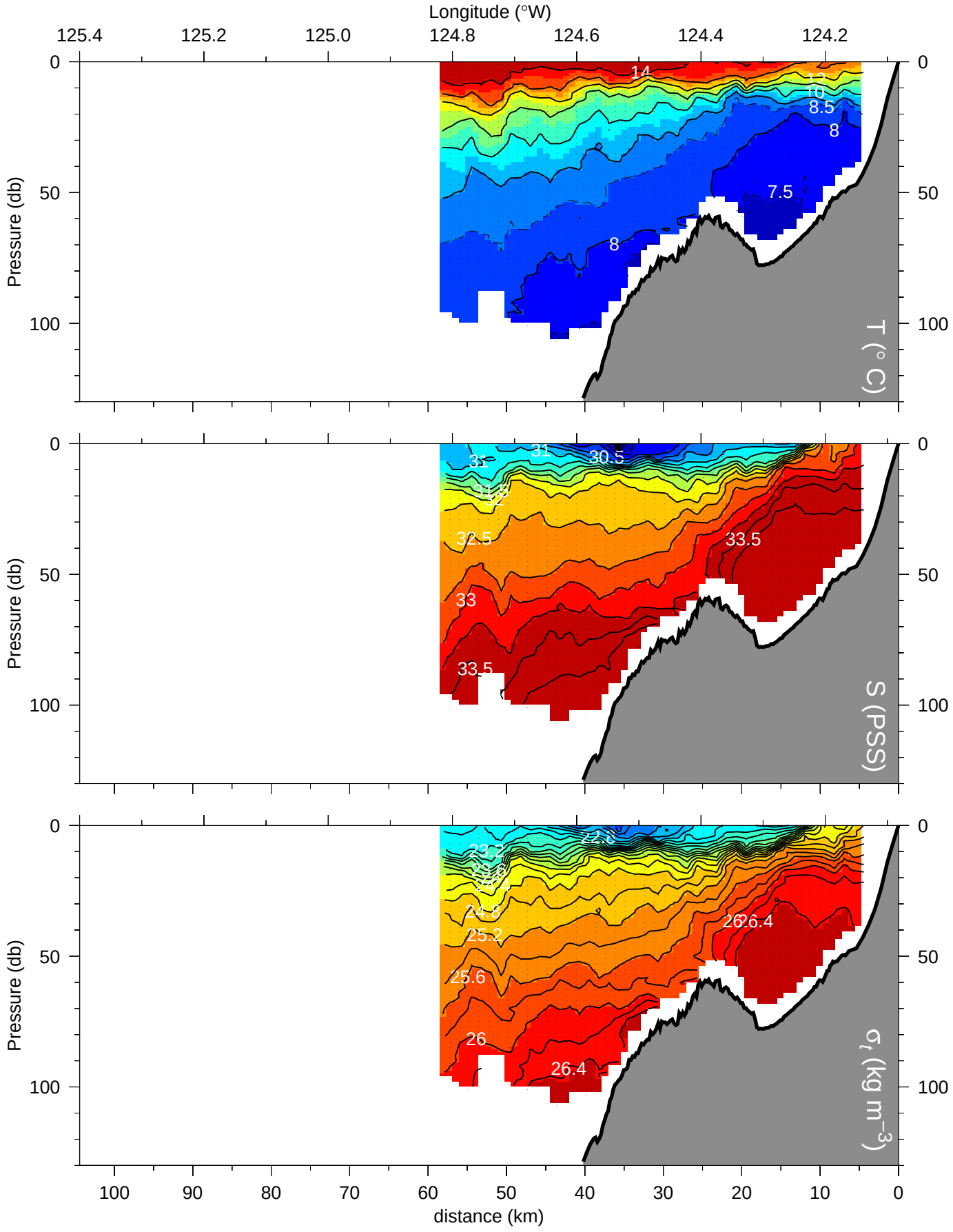



W0105C: BB4 line 3
line 3 at 44.833 °N (08-Jun-2001 02:19 - 08-Jun-2001 06:22)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
14
12
10
8.5
8
7.5
8.5
T (° C)
31
31.5
32
31
32.5
33
33.5
32.5
33
33.5
S (PSS)
23.2
23.6
24.4
24.8
25.2
25.6
26
25.6
26
26.4
σt (kg m−3)
100
90
80
70
60
50
40
30
20
10
0
distance (km)


W0105C: BB4 line 4
line 4 at 44.651 °N (08-Jun-2001 07:47 - 08-Jun-2001 11:42)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
14
10
8.5
8
7.5
T (° C)
30.5
31
32
32.5
33
33.5
S (PSS)
25.2
24.8
25.6
26
26.4
σt (kg m−3)
distance (km)
100
90
80
70
60
50
40
30
20
10
0

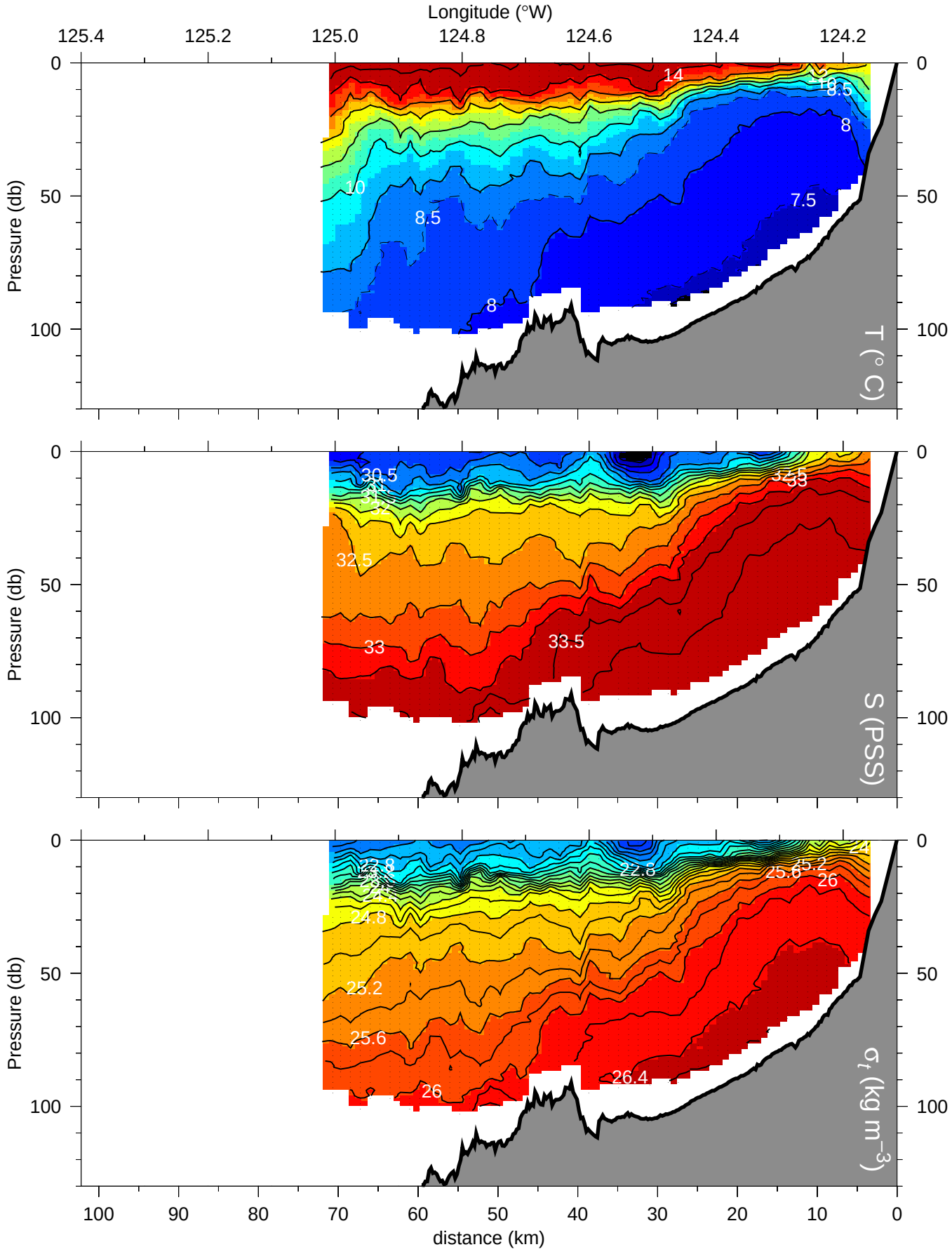
W0105C: BB4 line 5

line 5 at 44.475 °N (08-Jun-2001 13:25 - 08-Jun-2001 17:16)



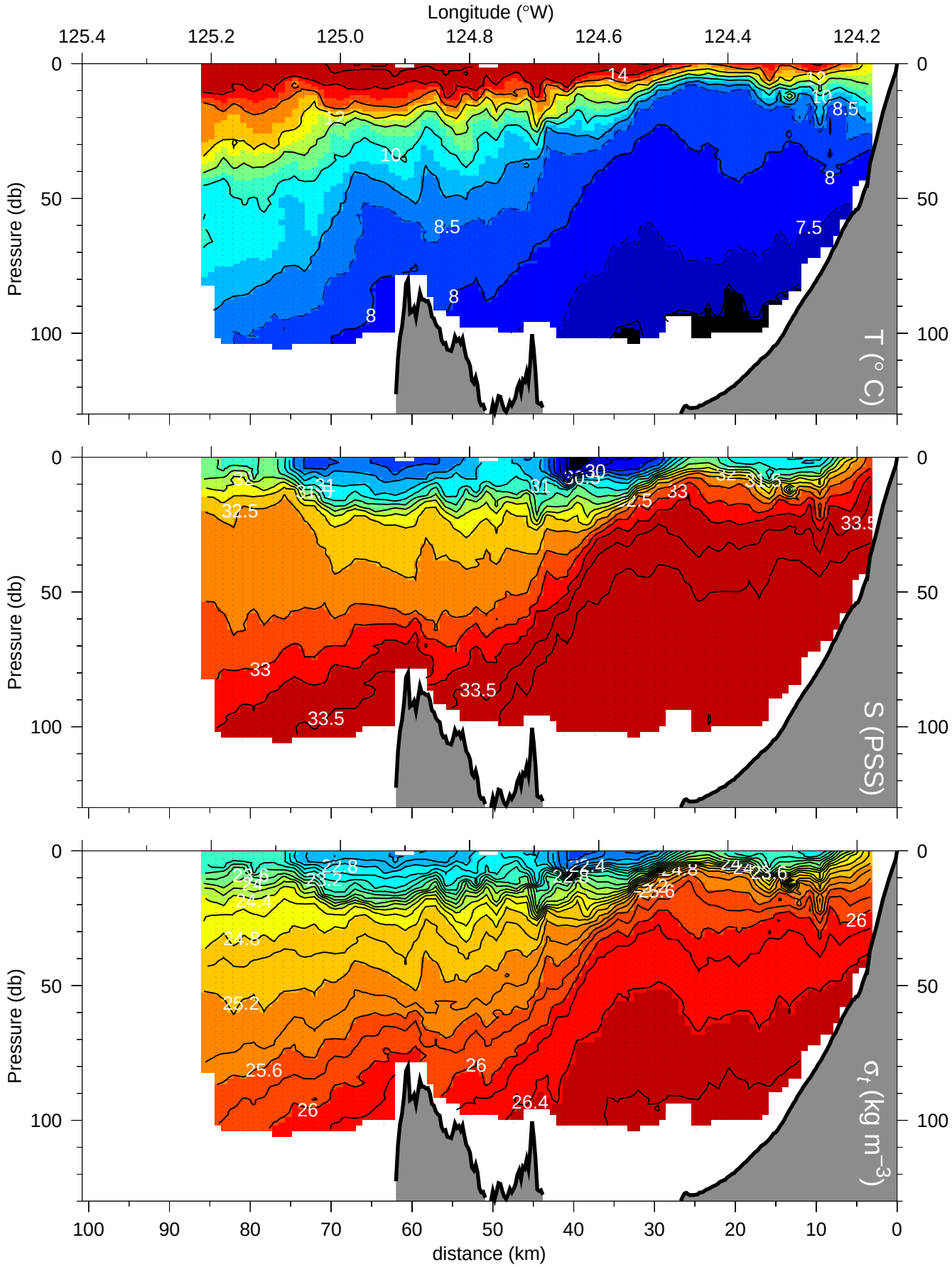
W0105C: BB4 line 6

line 6 at 44.247 °N (08-Jun-2001 19:29 - 09-Jun-2001 00:24)



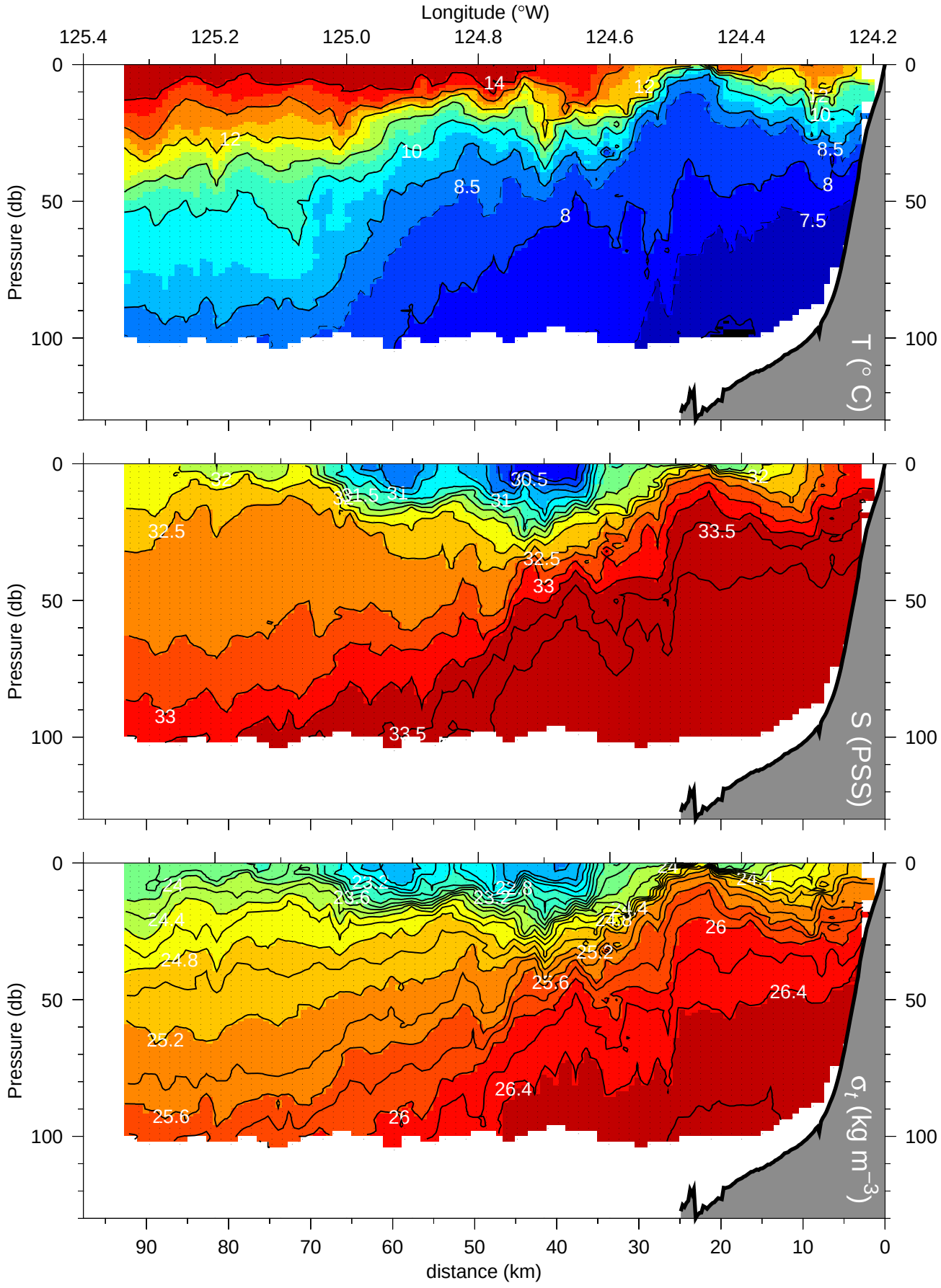
W0105C: BB4 line 7

line 7 at 44.000 °N (09-Jun-2001 02:37 - 09-Jun-2001 08:27)



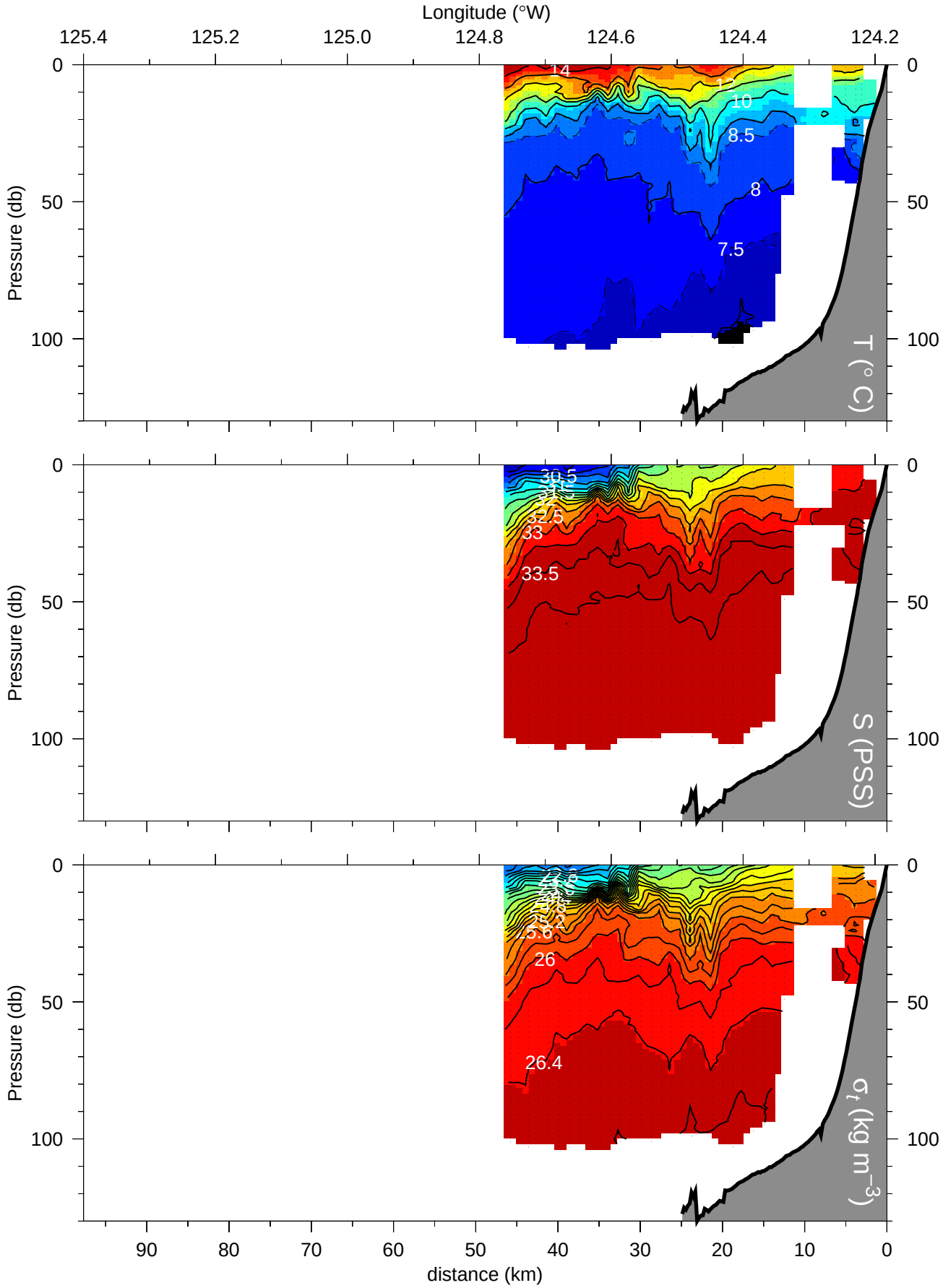
W0105C: BB4 line 8.1

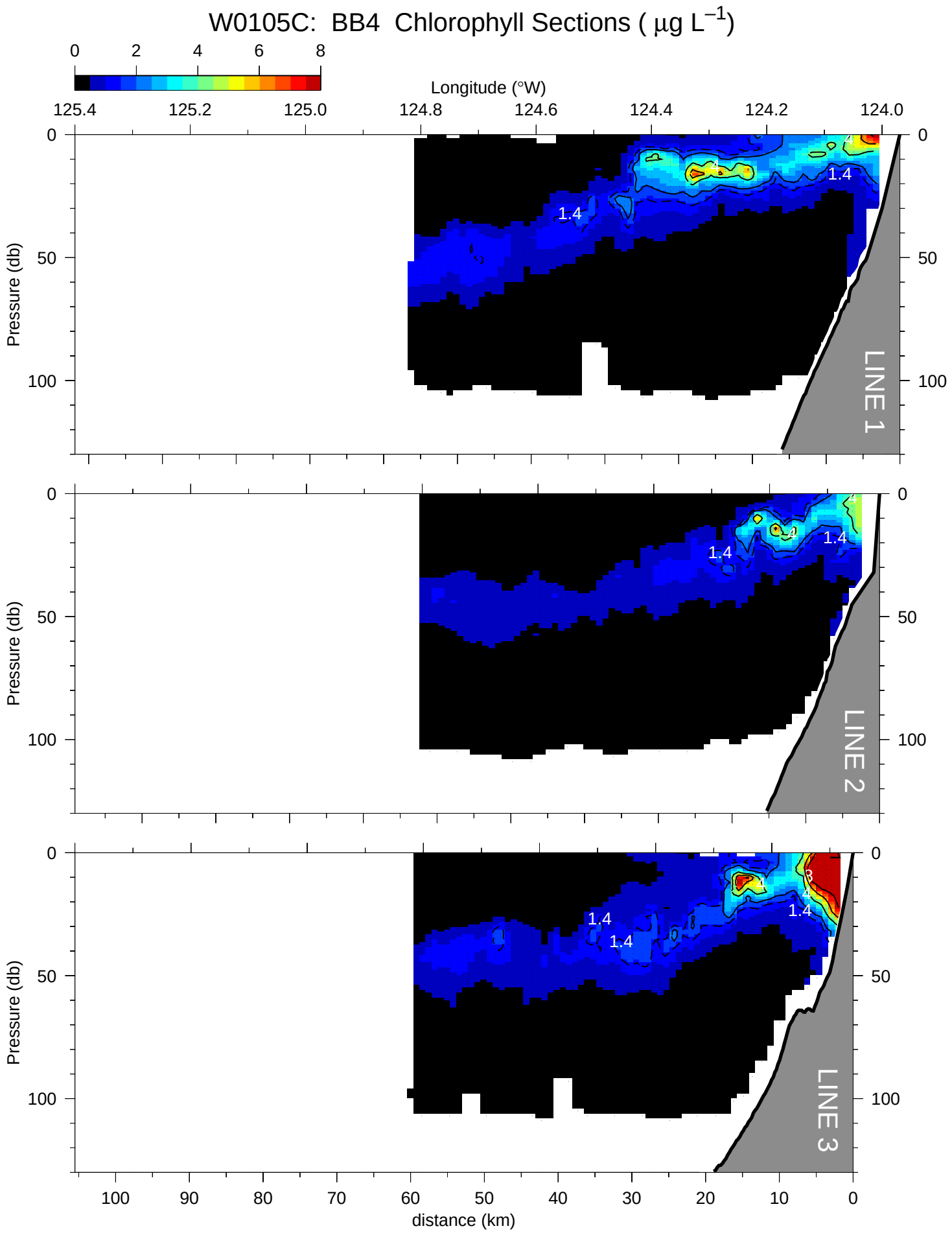
line 8.1 at 43.750 °N (09-Jun-2001 11:05 - 09-Jun-2001 17:35)

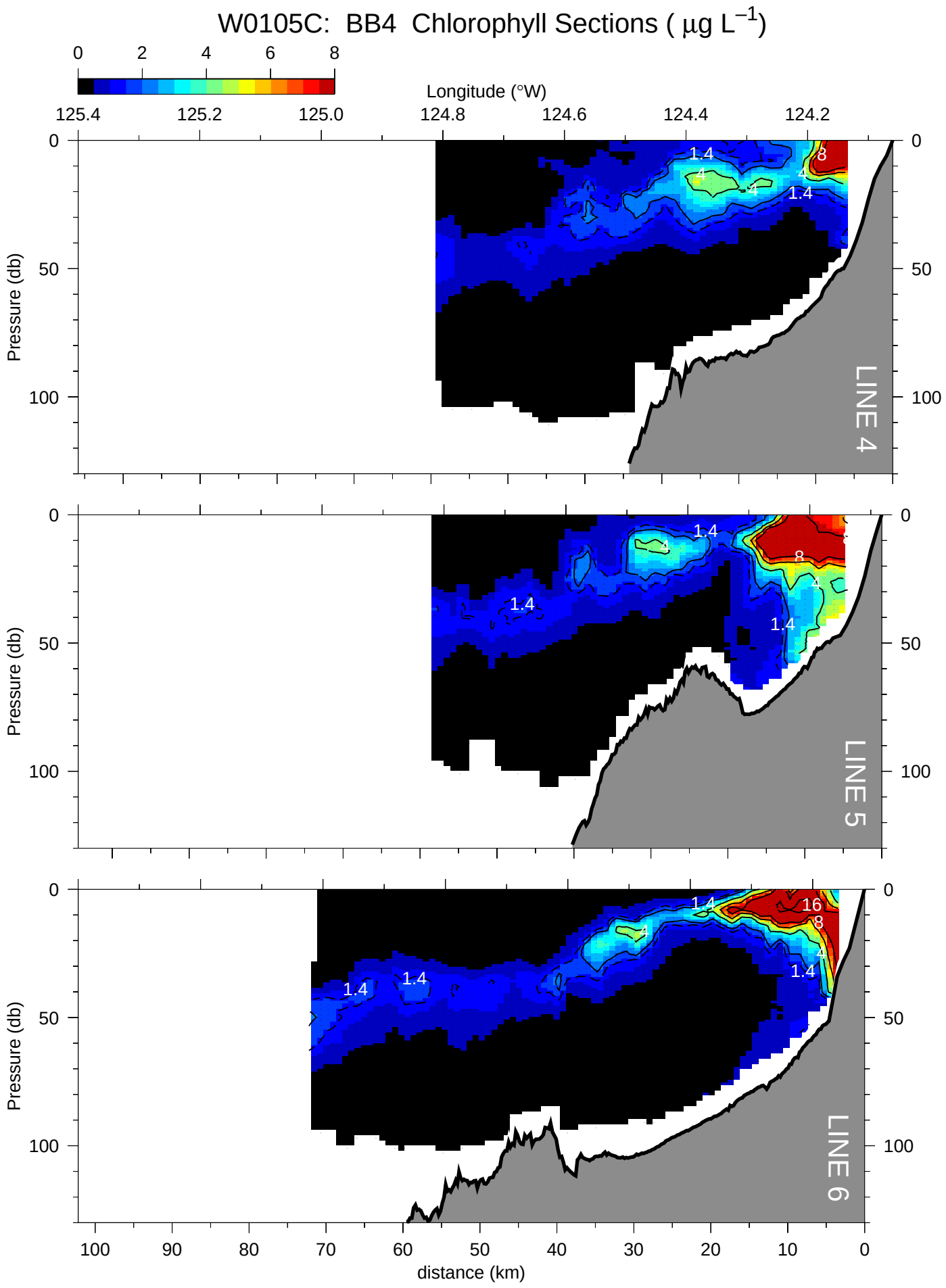


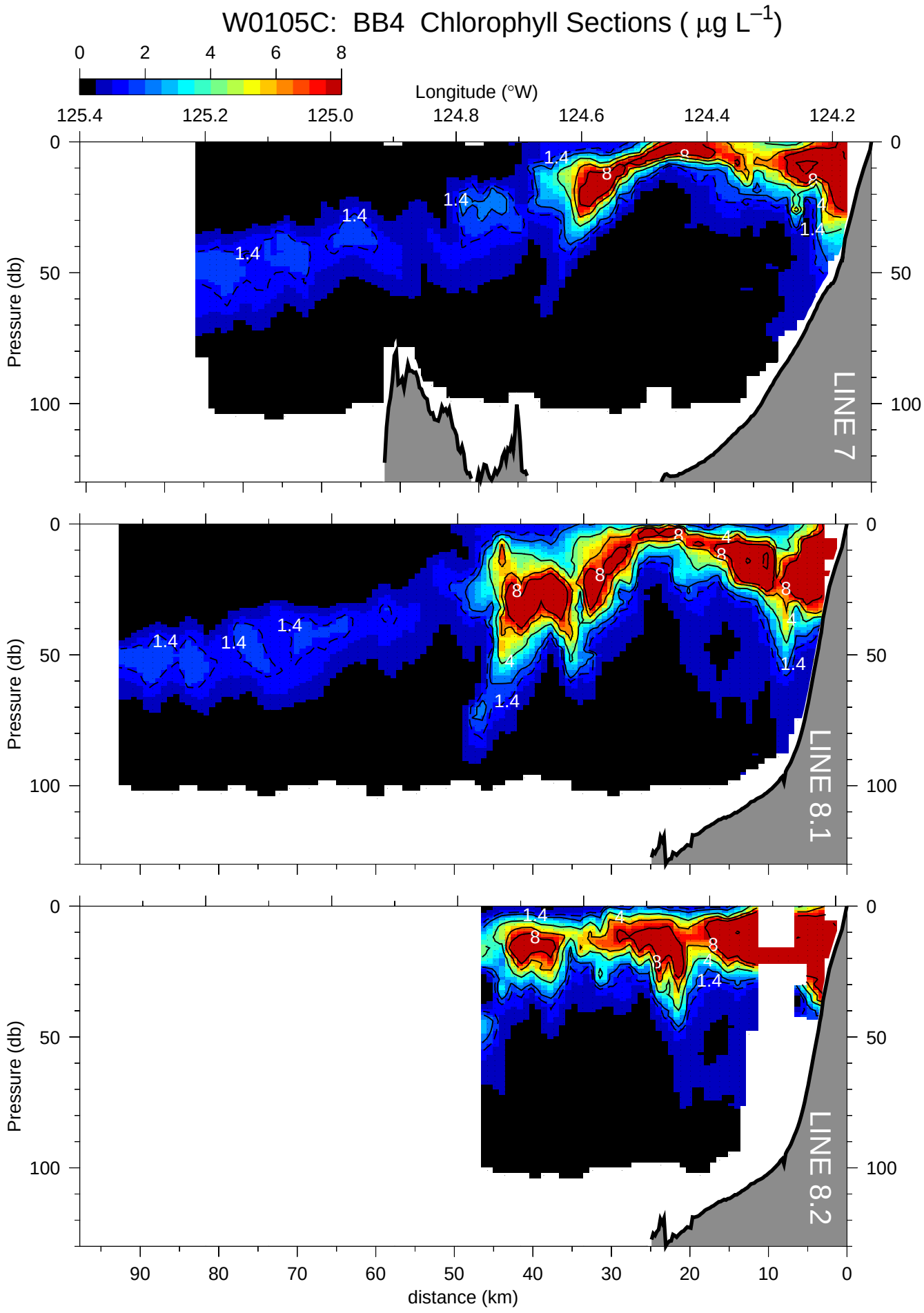
W0105C: BB4 line 8.2

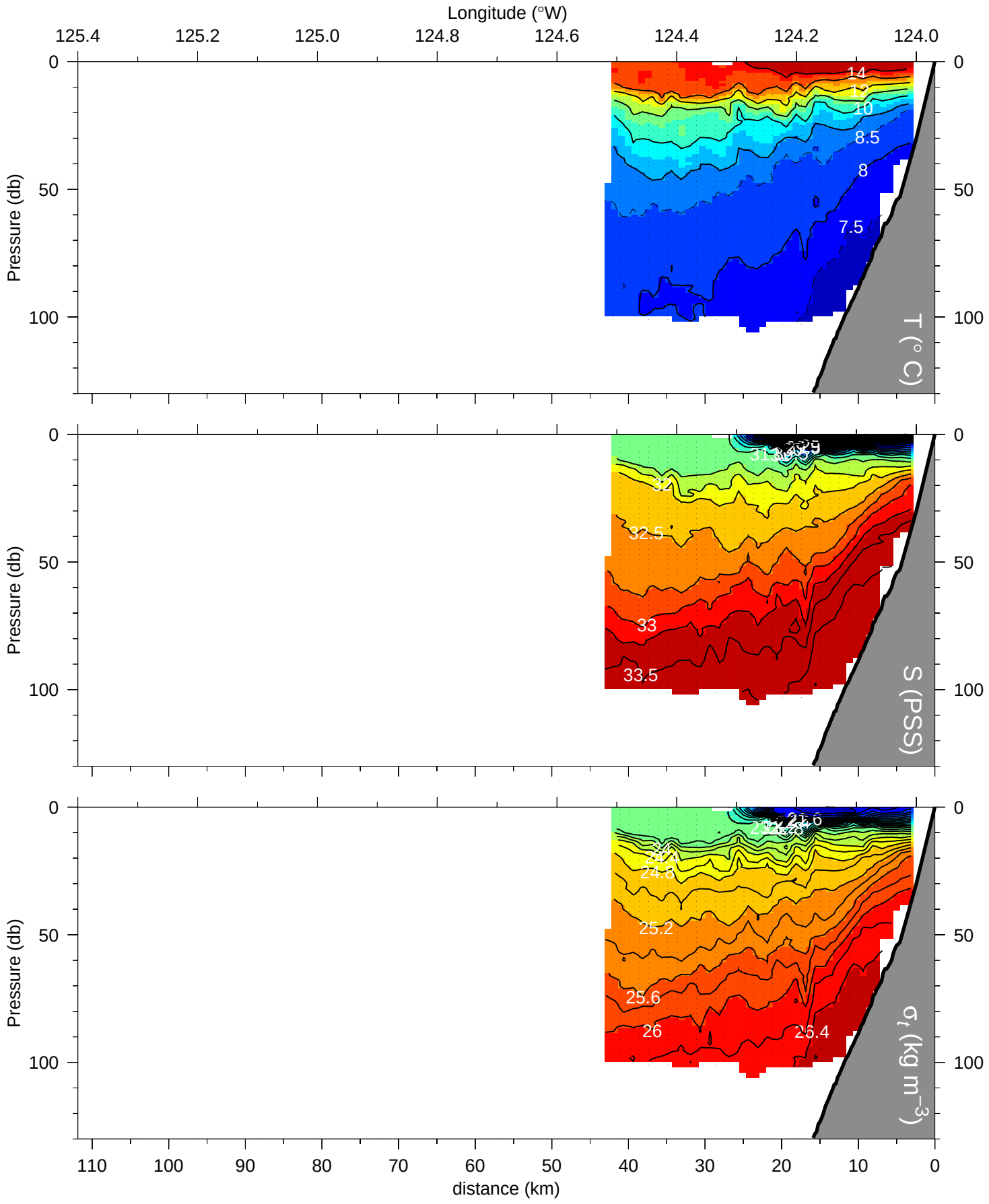
line 8.2 at 43.750 °N (09-Jun-2001 17:35 - 09-Jun-2001 20:39)

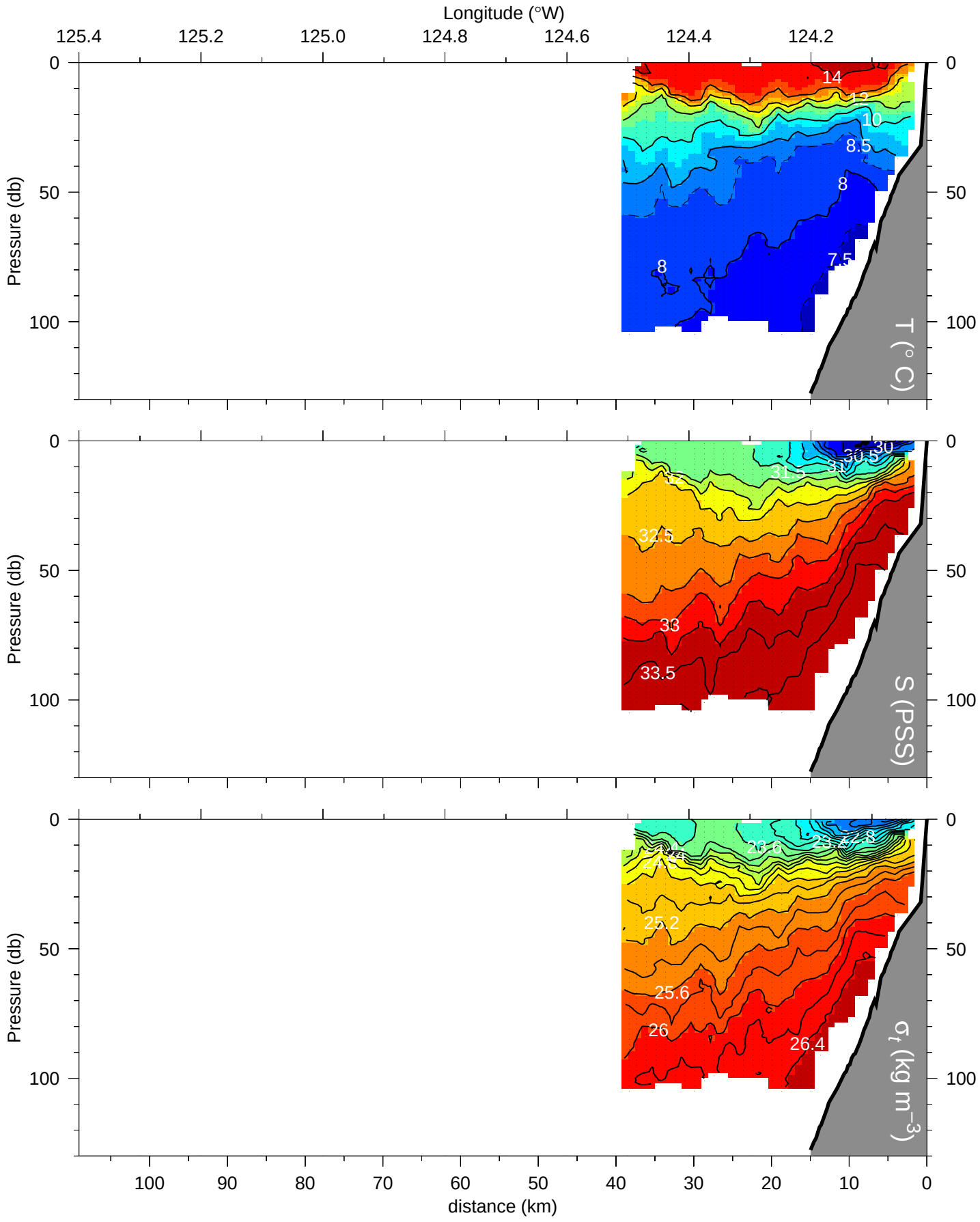



W0105C: BB4 Chlorophyll Sections (µg L−1)
0 2 4 6 8
Longitude (°W)
125.4 125.2 125.0 124.8 124.6 124.4 124.2 124.0
Pressure (db)
0
50
100
1.4
LINE 1
LINE 2
LINE 3
100 90 80 70 60 50 40 30 20 10 0
distance (km)


W0105C: BB4 Chlorophyll Sections (µg L−1)
0 2 4 6 8
Longitude (°W)
125.4 125.2 125.0 124.8 124.6 124.4 124.2
Pressure (db)
0 50 100
1.4
4
8
16
LINE 4
LINE 5
LINE 6
100 90 80 70 60 50 40 30 20 10 0
distance (km)

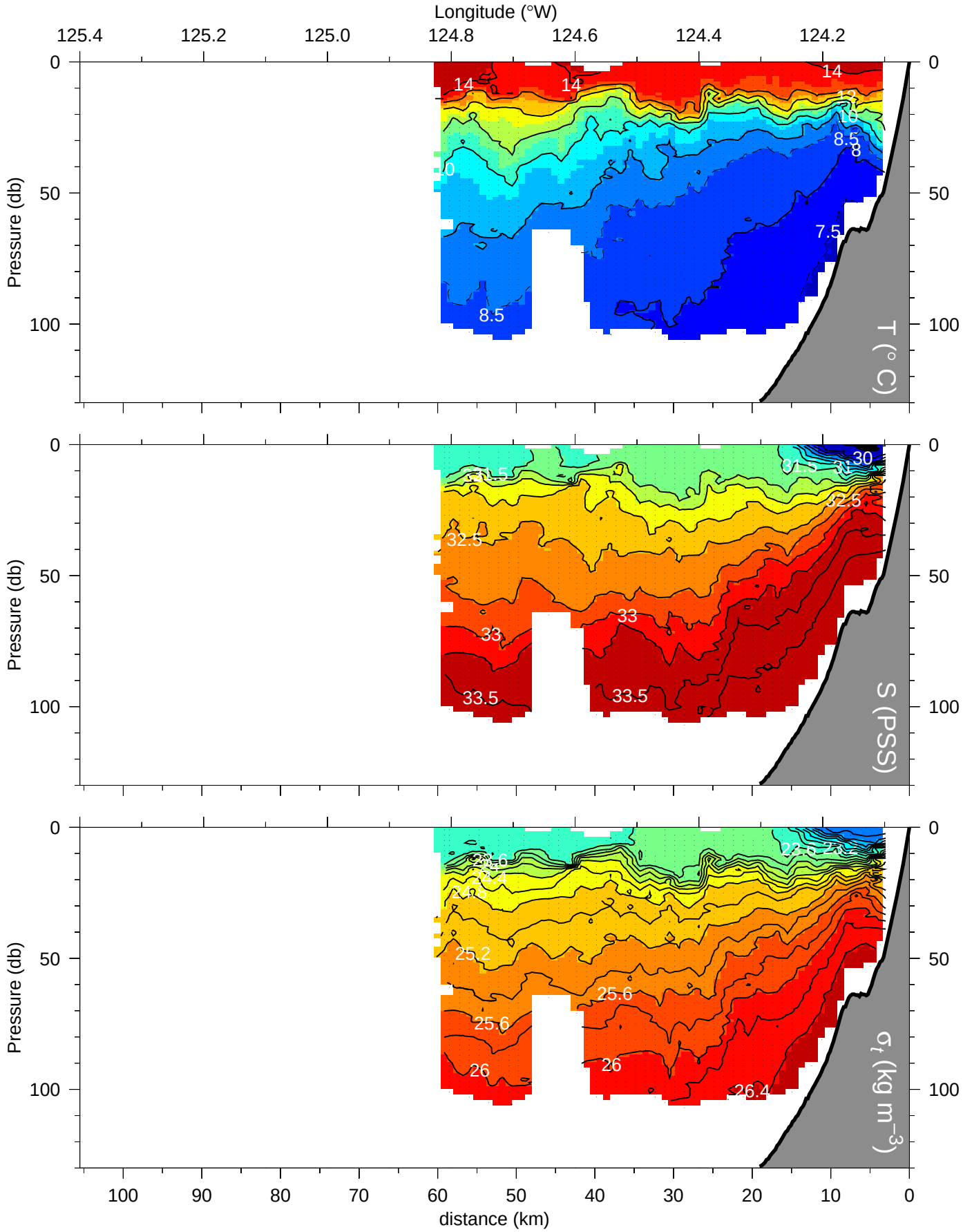

W0105C: BB4 Chlorophyll Sections (µg L−1)
0 2 4 6 8
Longitude (°W)
125.4 125.2 125.0 124.8 124.6 124.4 124.2
Pressure (db)
0
50
100
1.4
4
8
LINE 7
LINE 8.1
LINE 8.2
90 80 70 60 50 40 30 20 10 0
distance (km)

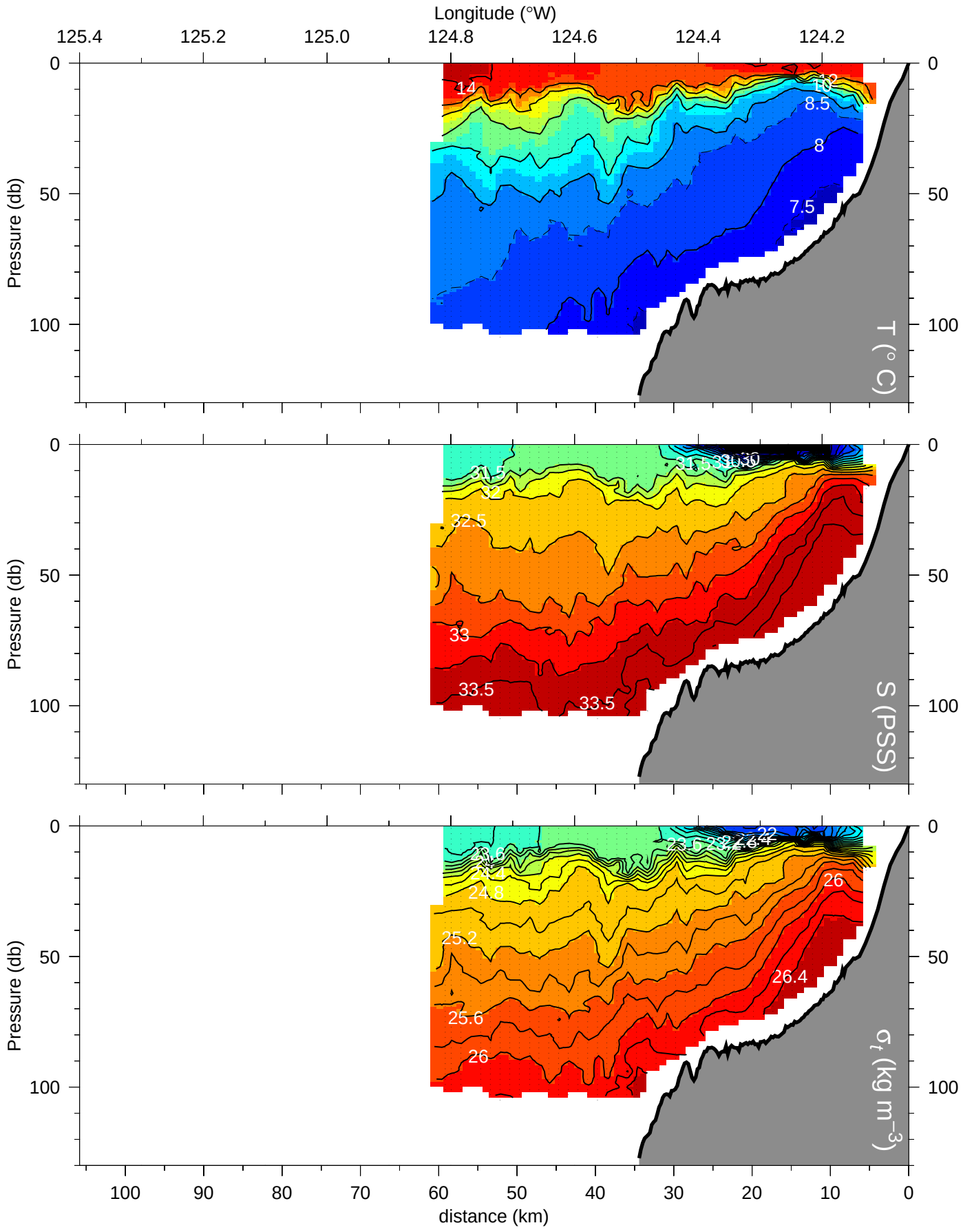

W0105C: BB5 line 1
line 1 at 45.250 °N (13-Jun-2001 03:41 - 13-Jun-2001 06:30)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
124.0
Pressure (db)
0
50
100
14
12
10
8.5
8
7.5
T (° C)
32
32.5
33
33.5
S (PSS)
24.8
25.2
25.6
26
26.4
σt (kg m−3)
110
100
90
80
70
60
50
40
30
20
10
0
distance (km)


W0105C: BB5 line 2
line 2 at 45.017 °N (12-Jun-2001 23:14 - 13-Jun-2001 01:49)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
14
12
10
8.5
8
7.5
8
T (° C)
30
30.5
31
31.5
32
32.5
33
33.5
S (PSS)
23.6
24
24.4
24.8
25.2
25.6
26
26.4
σt (kg m−3)
100
90
80
70
60
50
40
30
20
10
0
distance (km)

W0105C: BB5 line 3

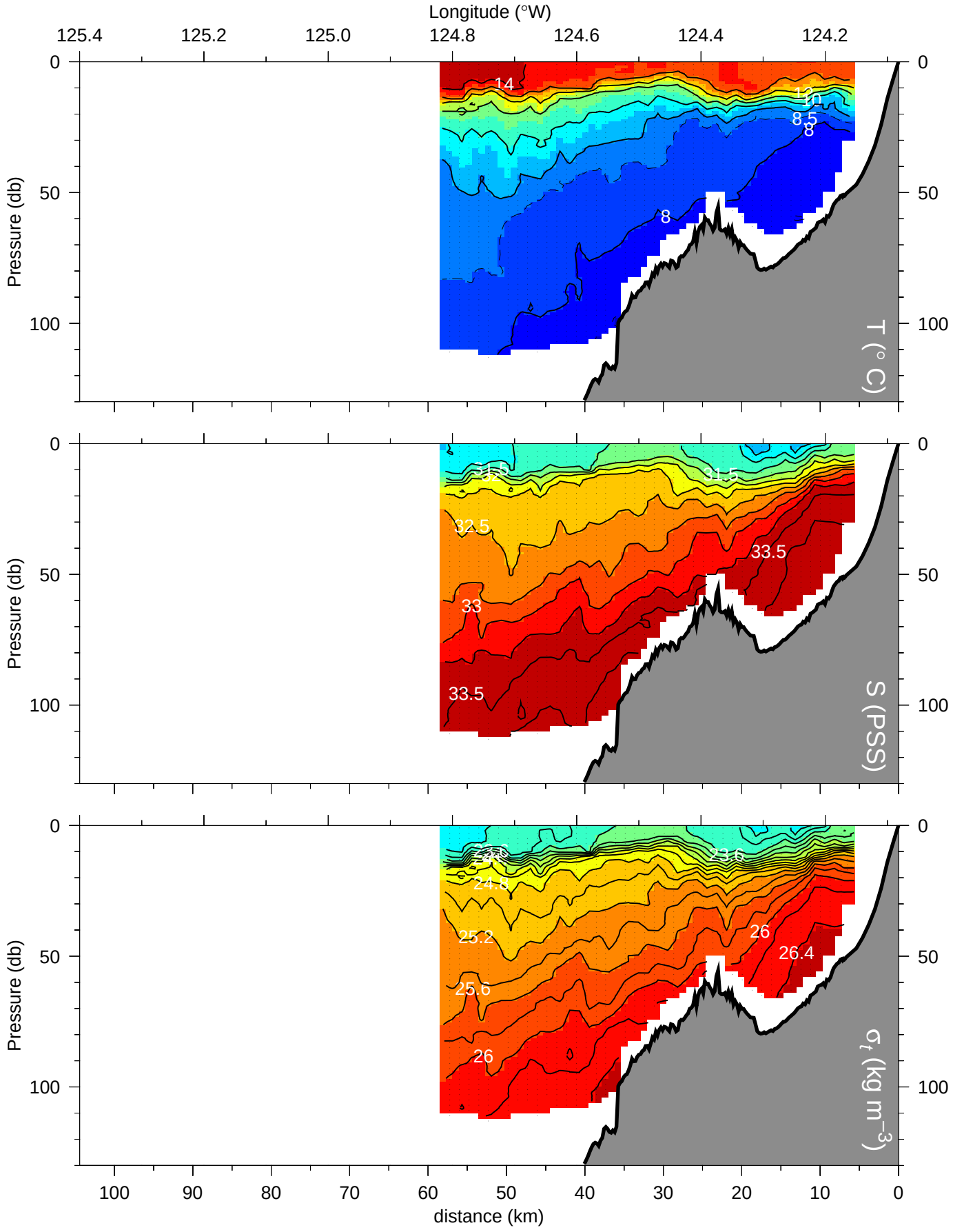
line 3 at 44.833 °N (12-Jun-2001 16:34 - 12-Jun-2001 21:25)

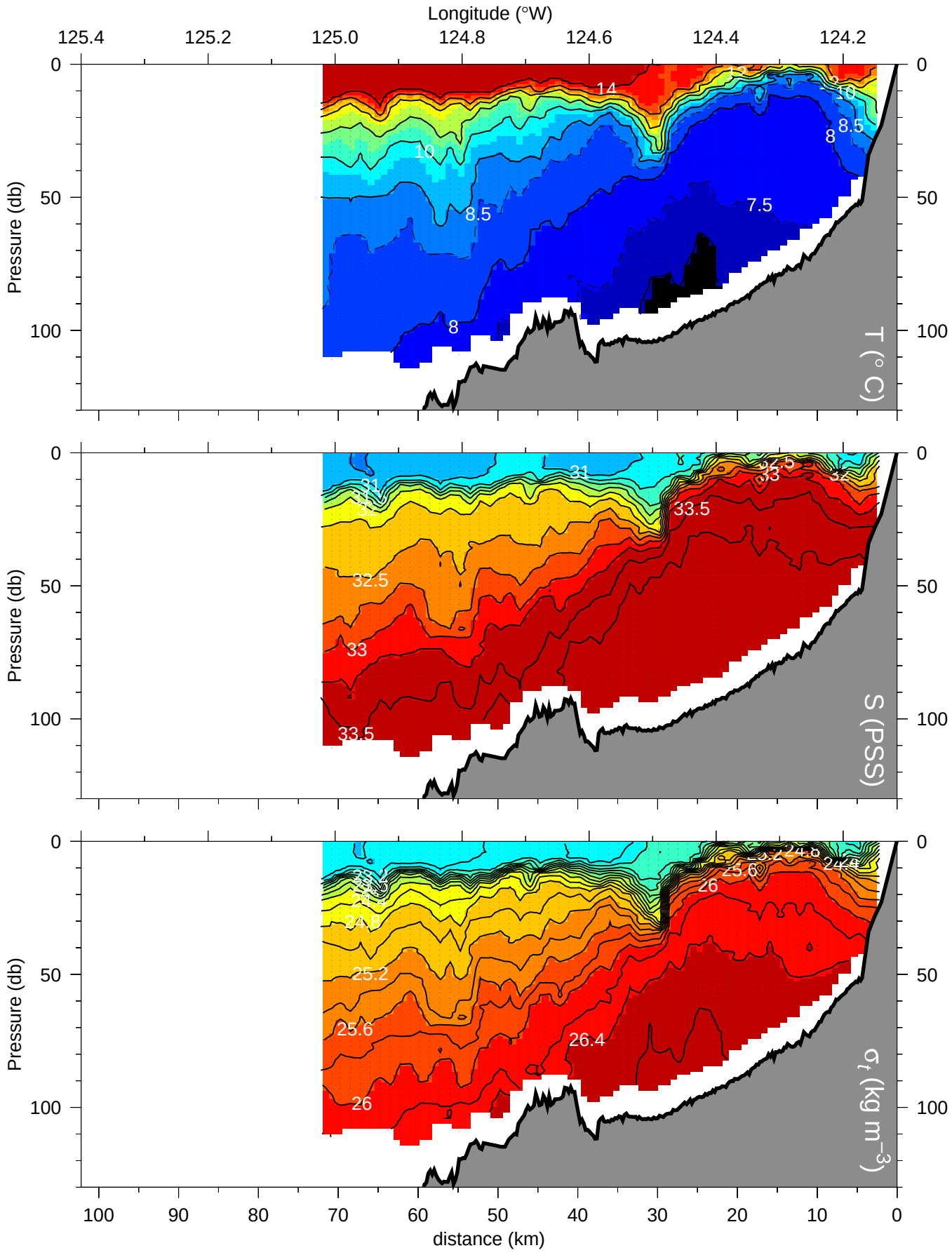


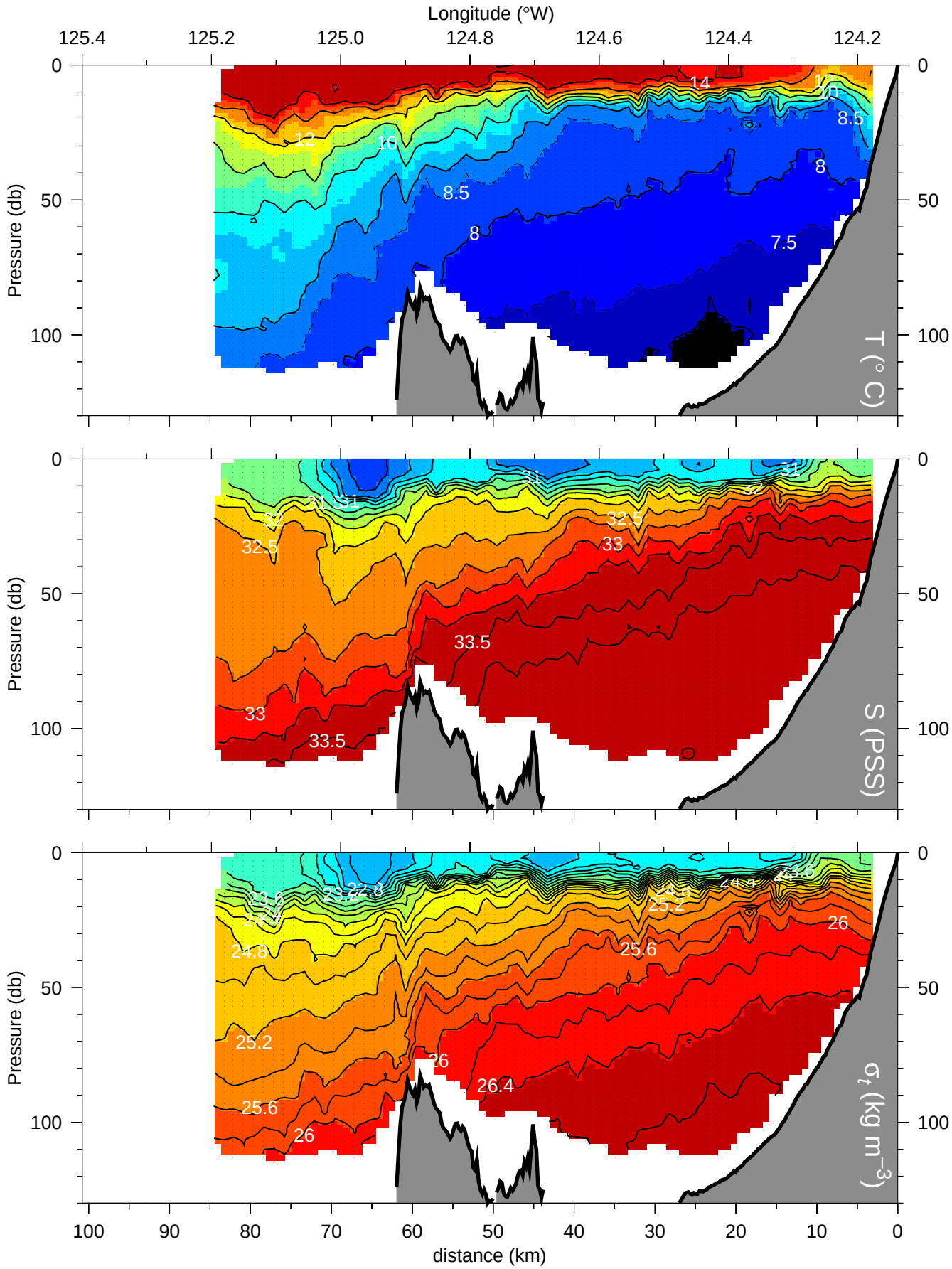

W0105C: BB5 line 4
line 4 at 44.652 °N (12-Jun-2001 11:10 - 12-Jun-2001 15:06)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
14
10
8.5
8
7.5
T (° C)
31.5
32
32.5
33
33.5
S (PSS)
22
24.8
25.2
25.6
26
26.4
σt (kg m−3)
distance (km)
100
90
80
70
60
50
40
30
20
10
0

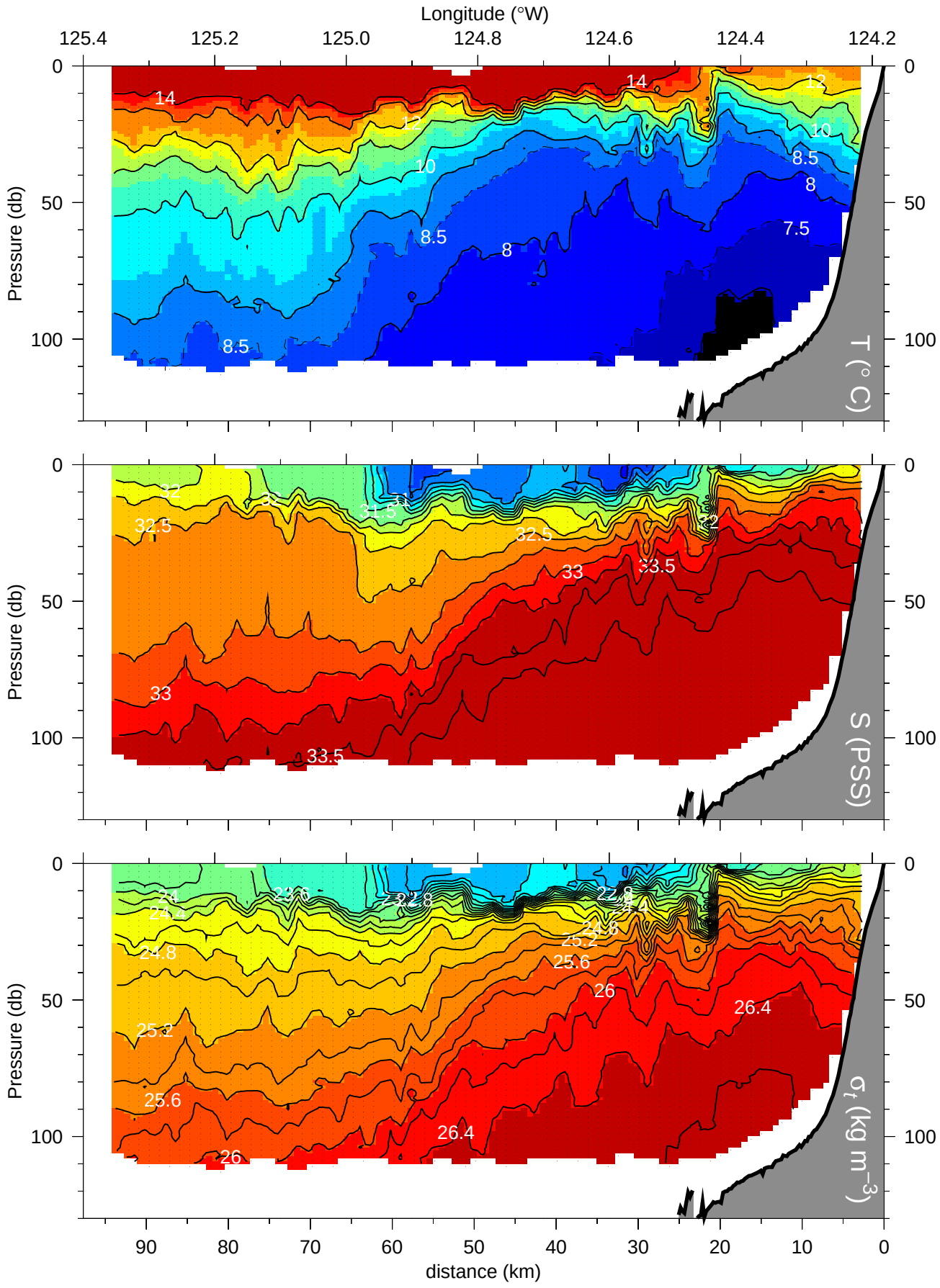
W0105C: BB5 line 5

line 5 at 44.475 °N (12-Jun-2001 05:49 - 12-Jun-2001 09:44)



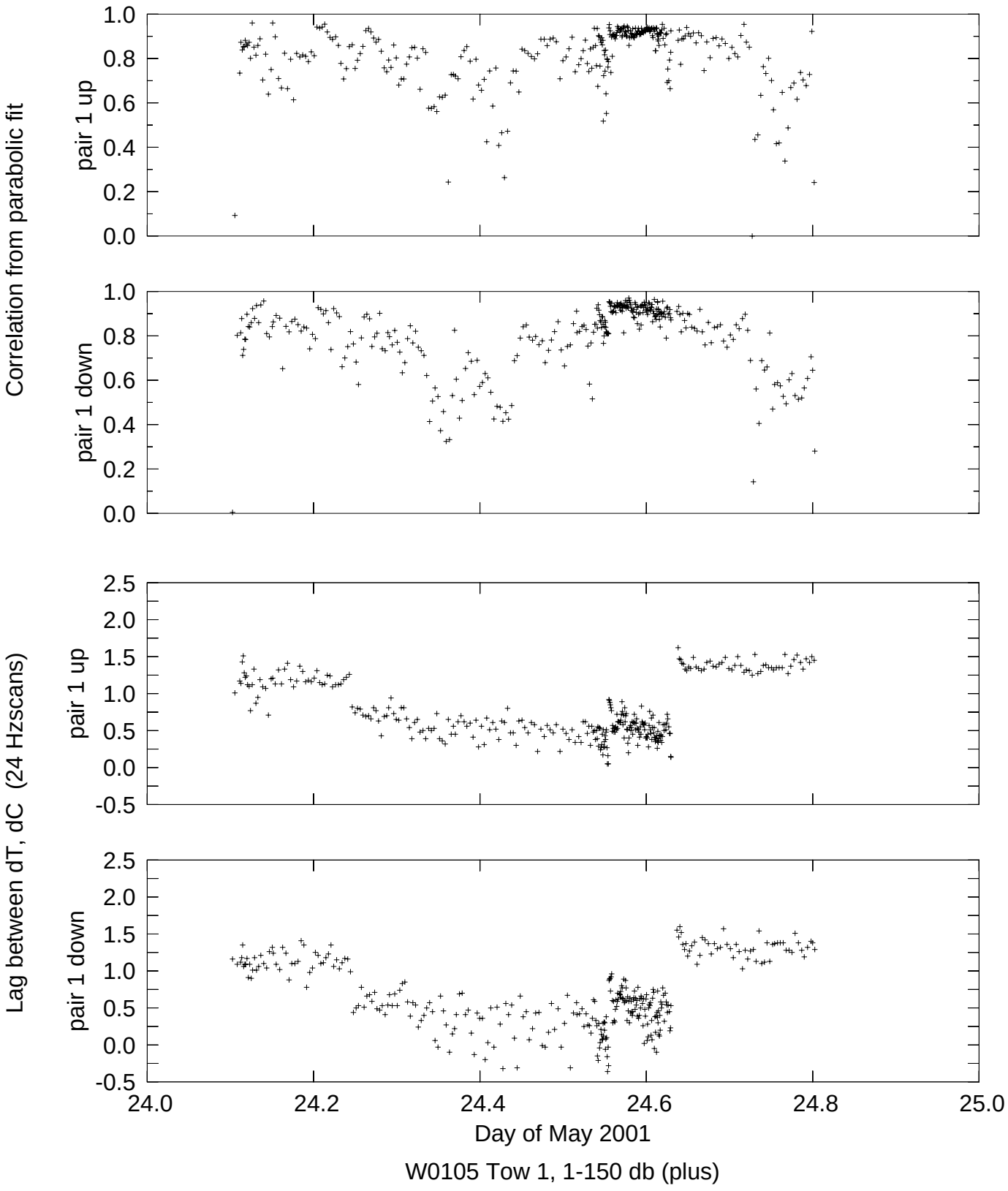

W0105C: BB5 line 6
line 6 at 44.247 °N (11-Jun-2001 22:37 - 12-Jun-2001 03:31)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
T (° C)
14
10
8.5
8
7.5
S (PSS)
31
32
33
33.5
32.5
σt (kg m−3)
24.8
25.2
25.6
26
26.4
100
90
80
70
60
50
40
30
20
10
0
distance (km)

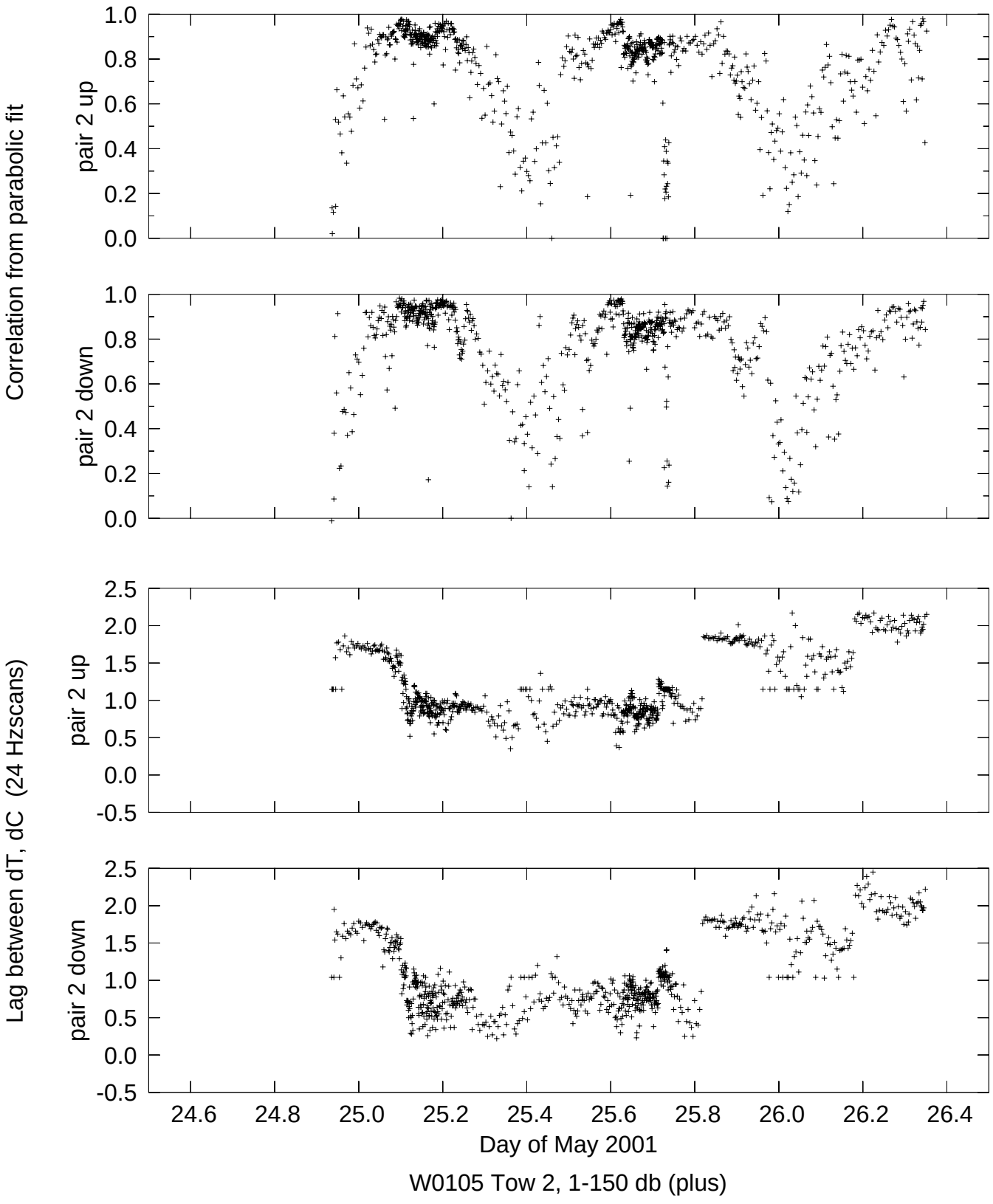

W0105C: BB5 line 7
line 7 at 44.000 °N (11-Jun-2001 13:03 - 11-Jun-2001 19:02)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
T (° C)
14
12
10
8.5
8
7.5
S (PSS)
31
31.5
32
32.5
33
33.5
σt (kg m−3)
24.8
25.2
25.6
26
26.4
distance (km)
100
90
80
70
60
50
40
30
20
10
0

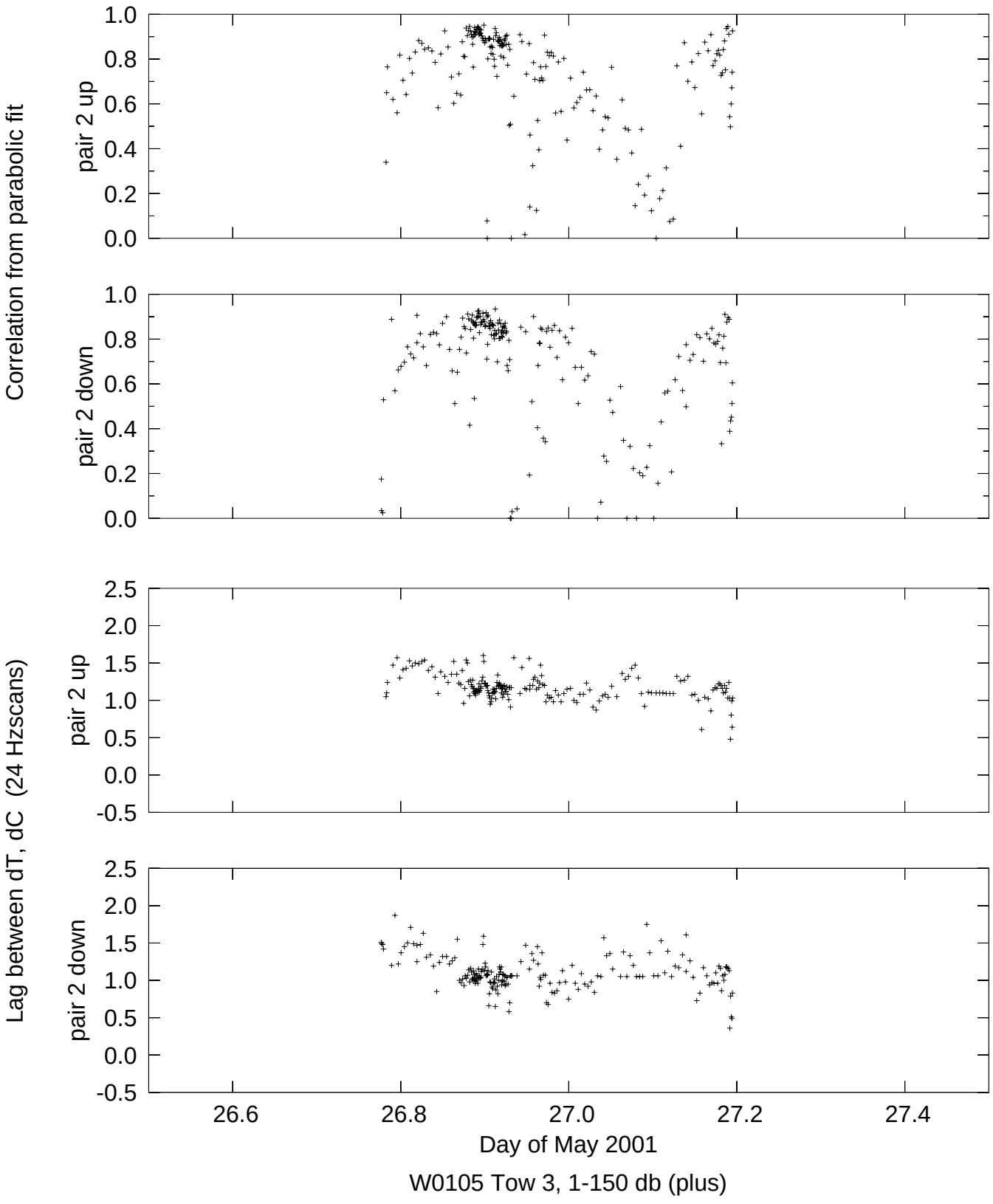

W0105C: BB5 line 8
line 8 at 43.750 °N (11-Jun-2001 04:12 - 11-Jun-2001 10:47)
Longitude (°W)
125.4
125.2
125.0
124.8
124.6
124.4
124.2
Pressure (db)
0
50
100
T (° C)
S (PSS)
σt (kg m−3)
90
80
70
60
50
40
30
20
10
0
distance (km)

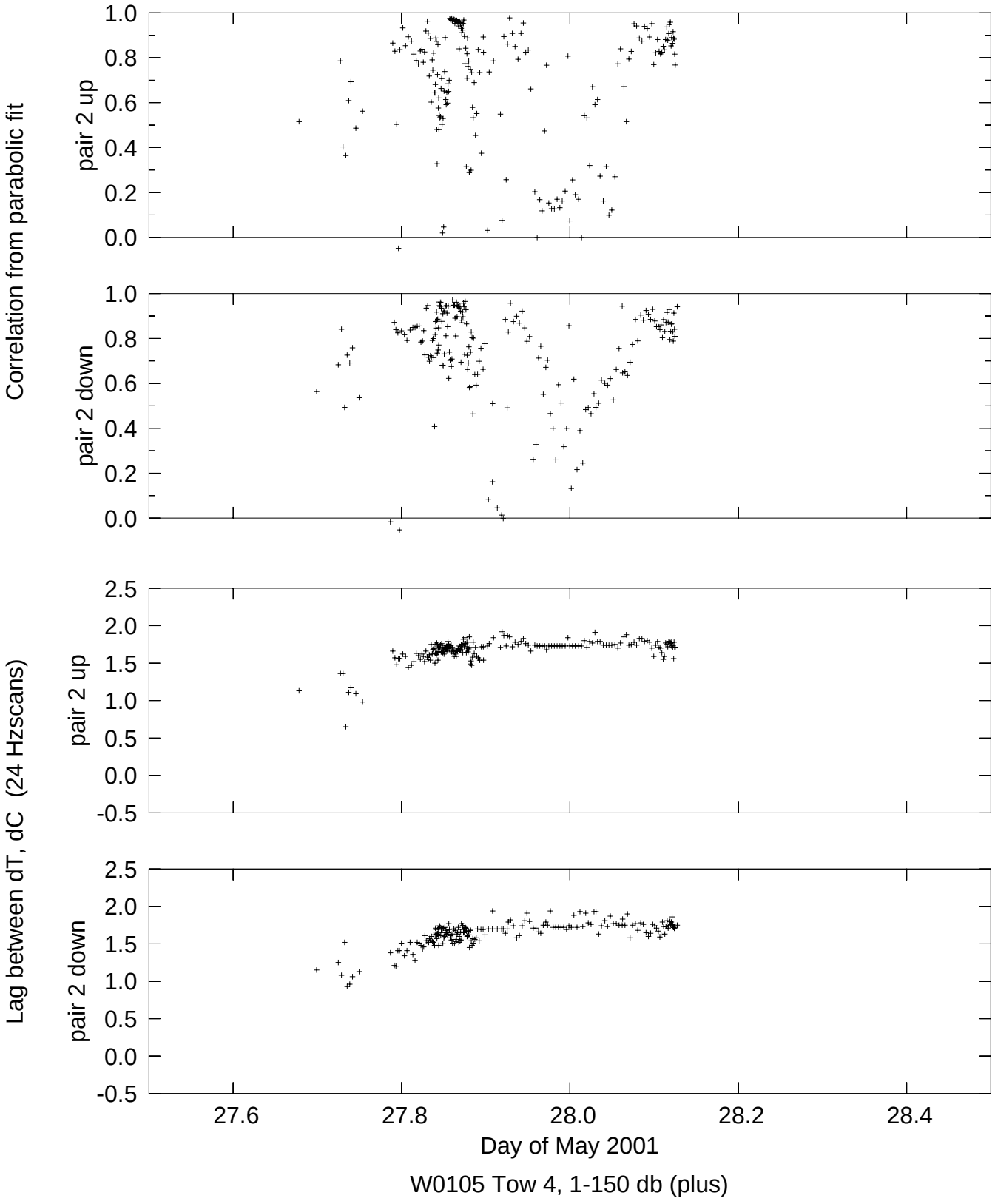
Appendix I

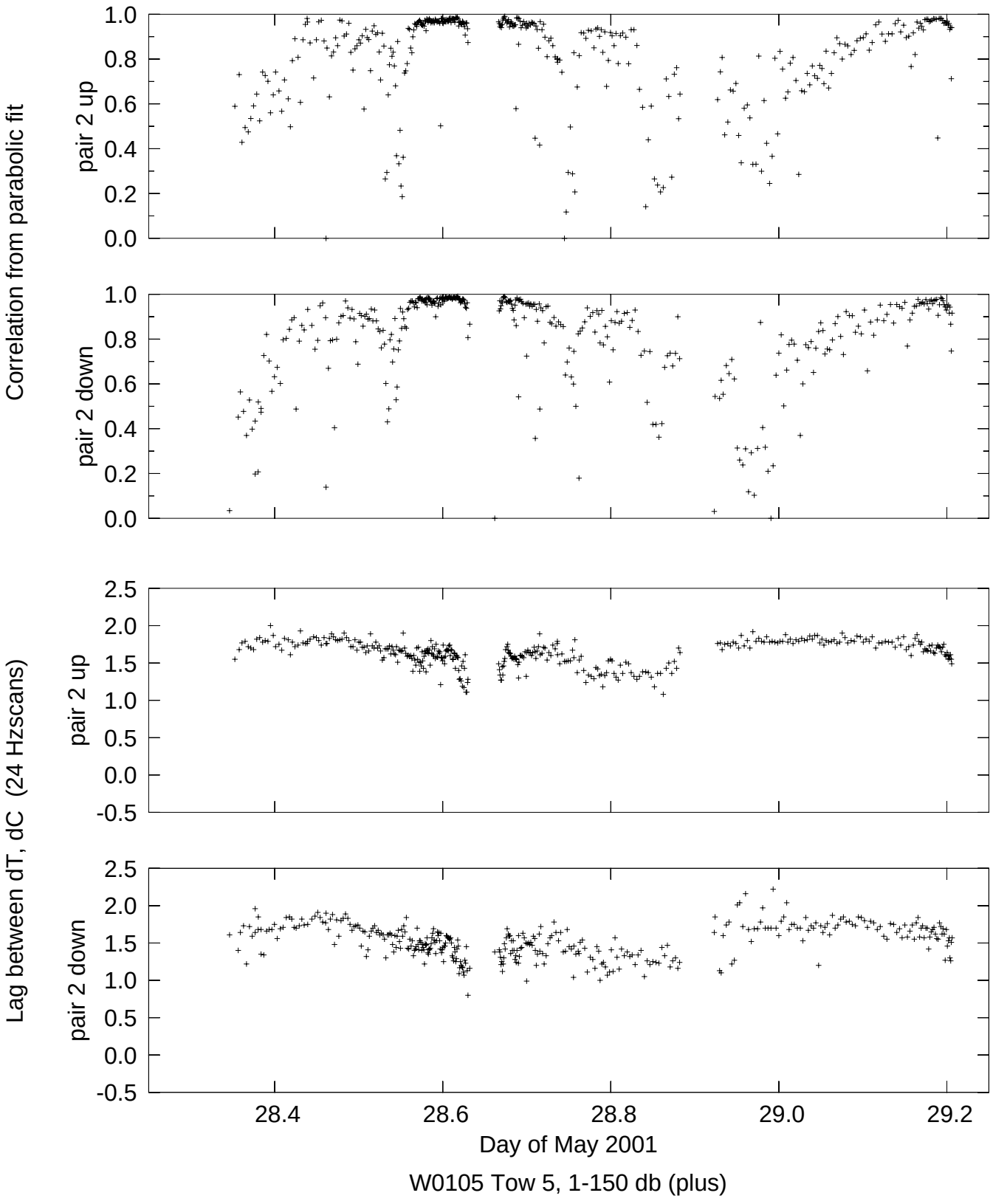
Time Series of Maximum T/C Correlations and Lags

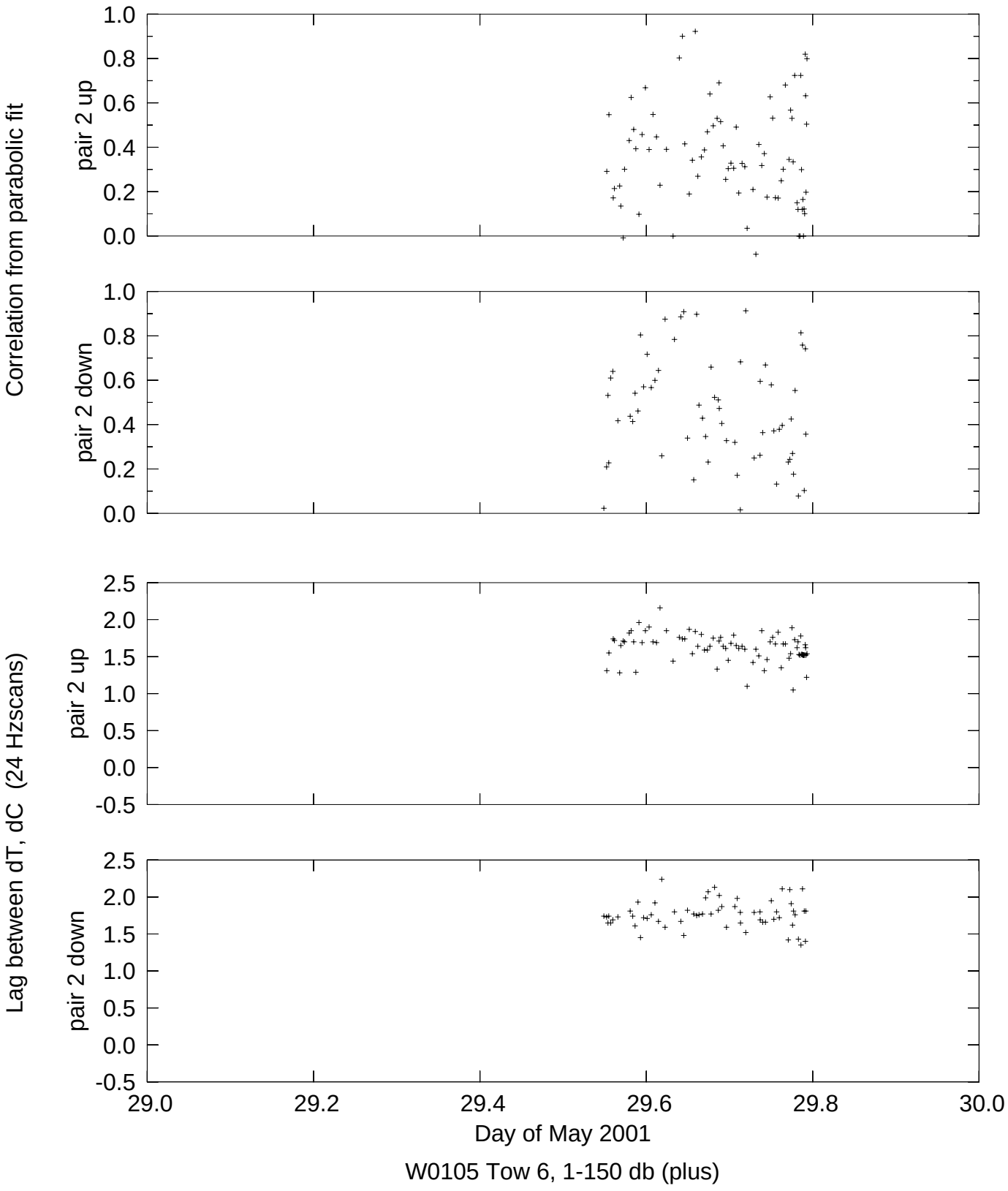

W0105 Tow 1 pair 1
Correlation from parabolic fit
pair 1 up
pair 1 down
Lag between dT, dC (24 Hzscans)
pair 1 up
pair 1 down
1.0
0.8
0.6
0.4
0.2
0.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
24.0
24.2
24.4
24.6
24.8
25.0
Day of May 2001
W0105 Tow 1, 1-150 db (plus)

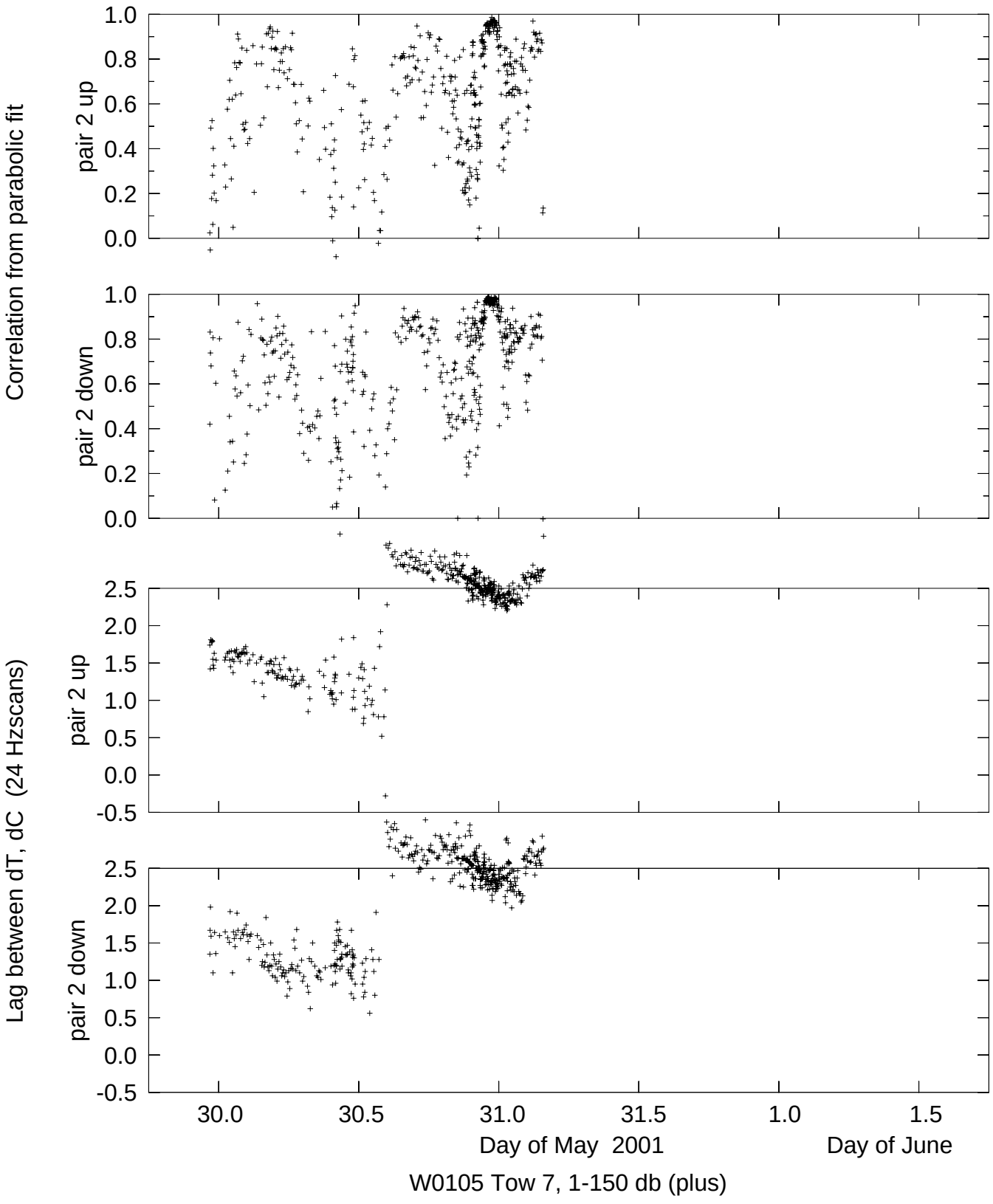

W0105 Tow 2 pair 2
Correlation from parabolic fit
pair 2 up
pair 2 down
Lag between dT, dC (24 Hzscans)
pair 2 up
pair 2 down
Day of May 2001
W0105 Tow 2, 1-150 db (plus)

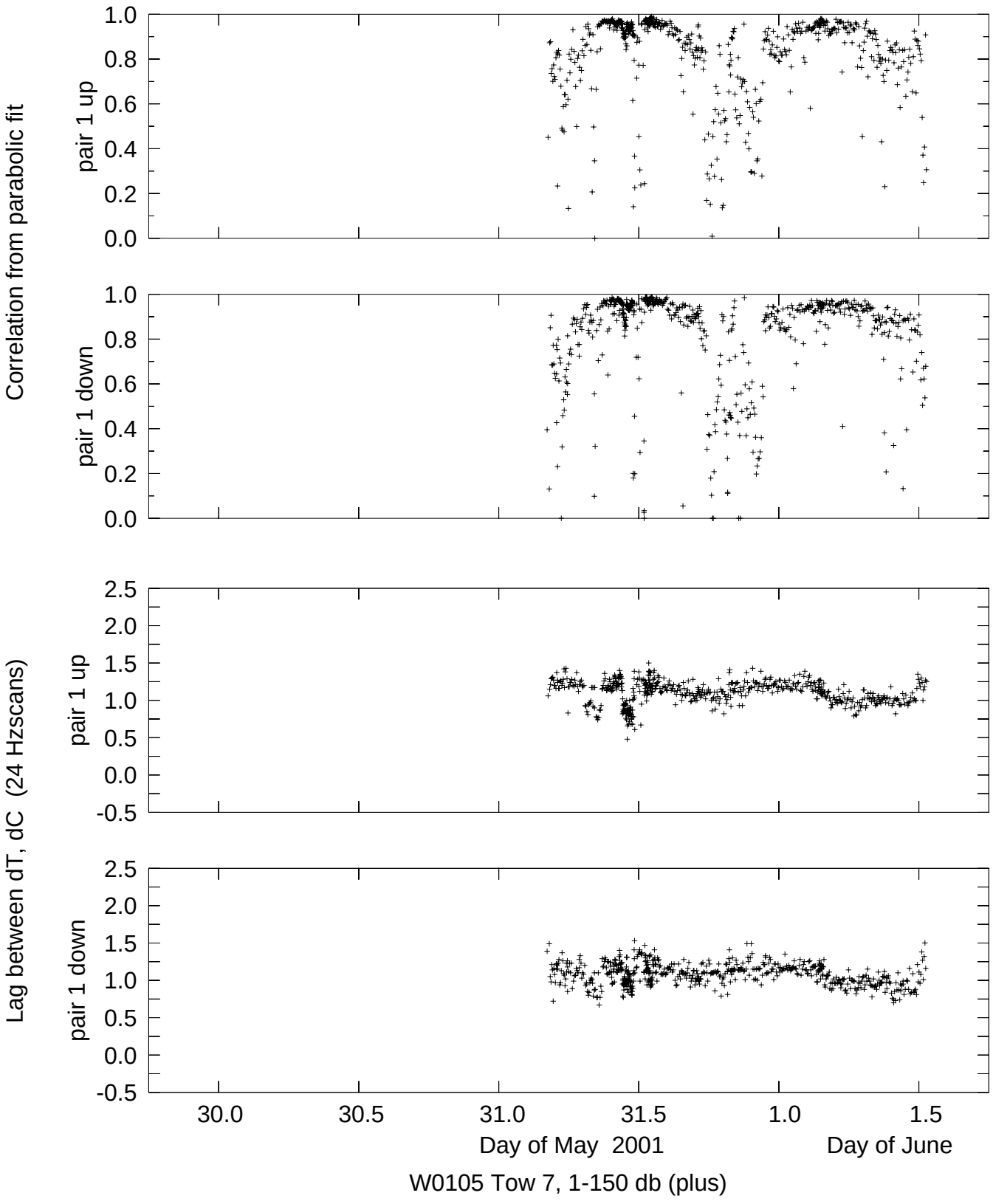

W0105 Tow 3 pair 2
Correlation from parabolic fit
pair 2 up
pair 2 down
Lag between dT, dC (24 Hzscans)
pair 2 up
pair 2 down
Day of May 2001
W0105 Tow 3, 1-150 db (plus)

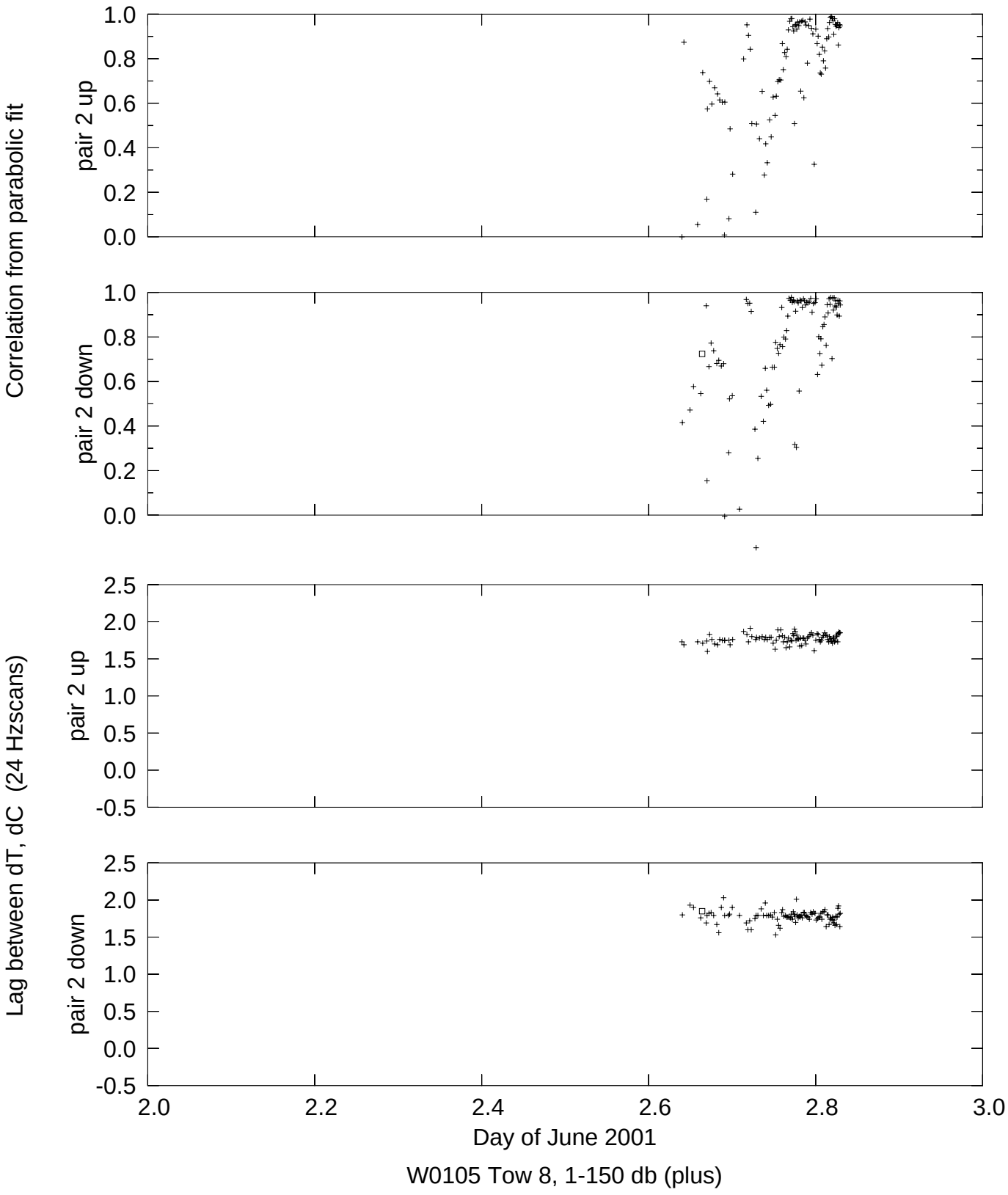

W0105 Tow 4 pair 2
Correlation from parabolic fit
pair 2 up
pair 2 down
Lag between dT, dC (24 Hzscans)
pair 2 up
pair 2 down
Day of May 2001
W0105 Tow 4, 1-150 db (plus)

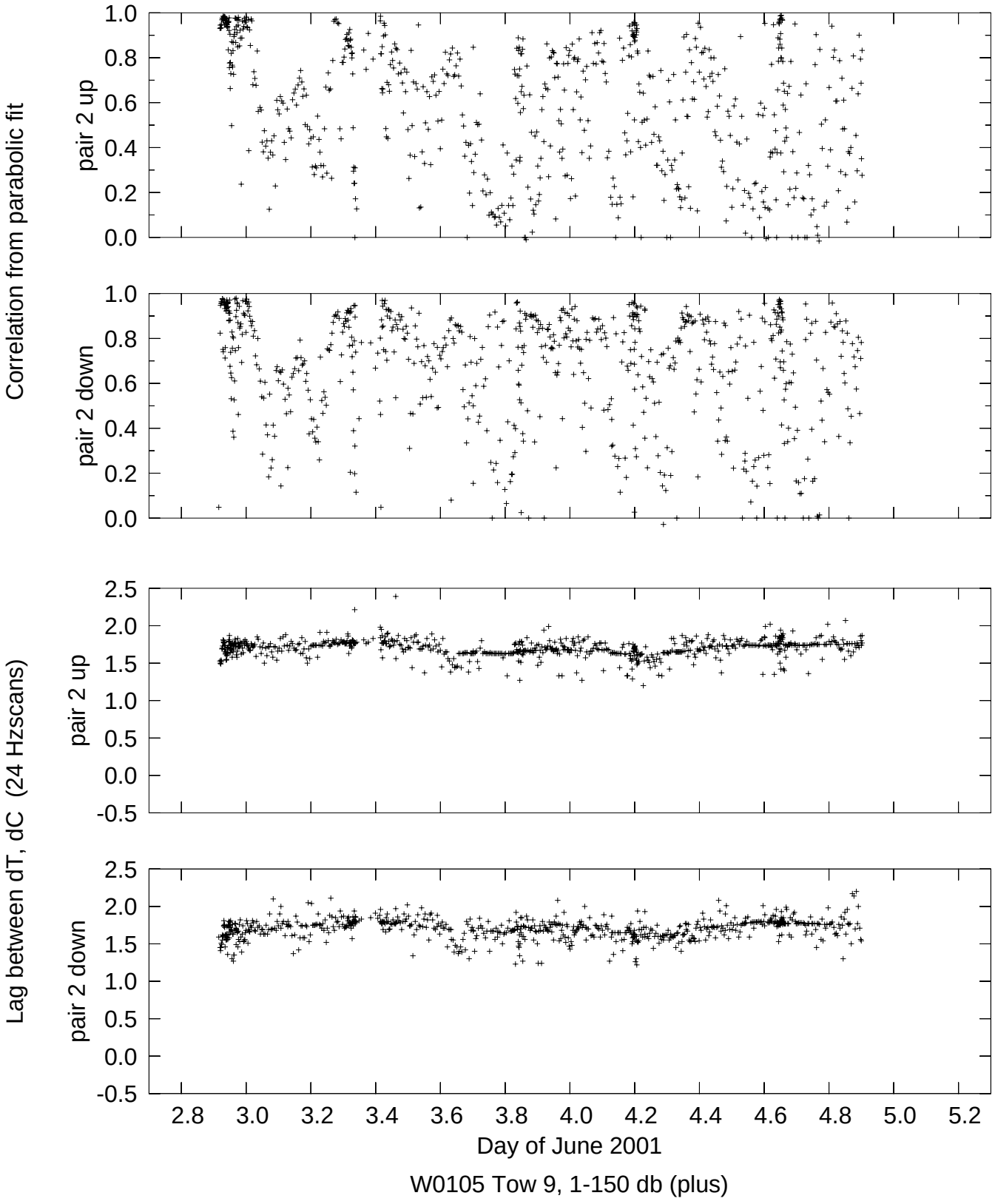

W0105 Tow 5 pair 2
Correlation from parabolic fit
pair 2 up
pair 2 down
Lag between dT, dC (24 Hzscans)
pair 2 up
pair 2 down
Day of May 2001
W0105 Tow 5, 1-150 db (plus)

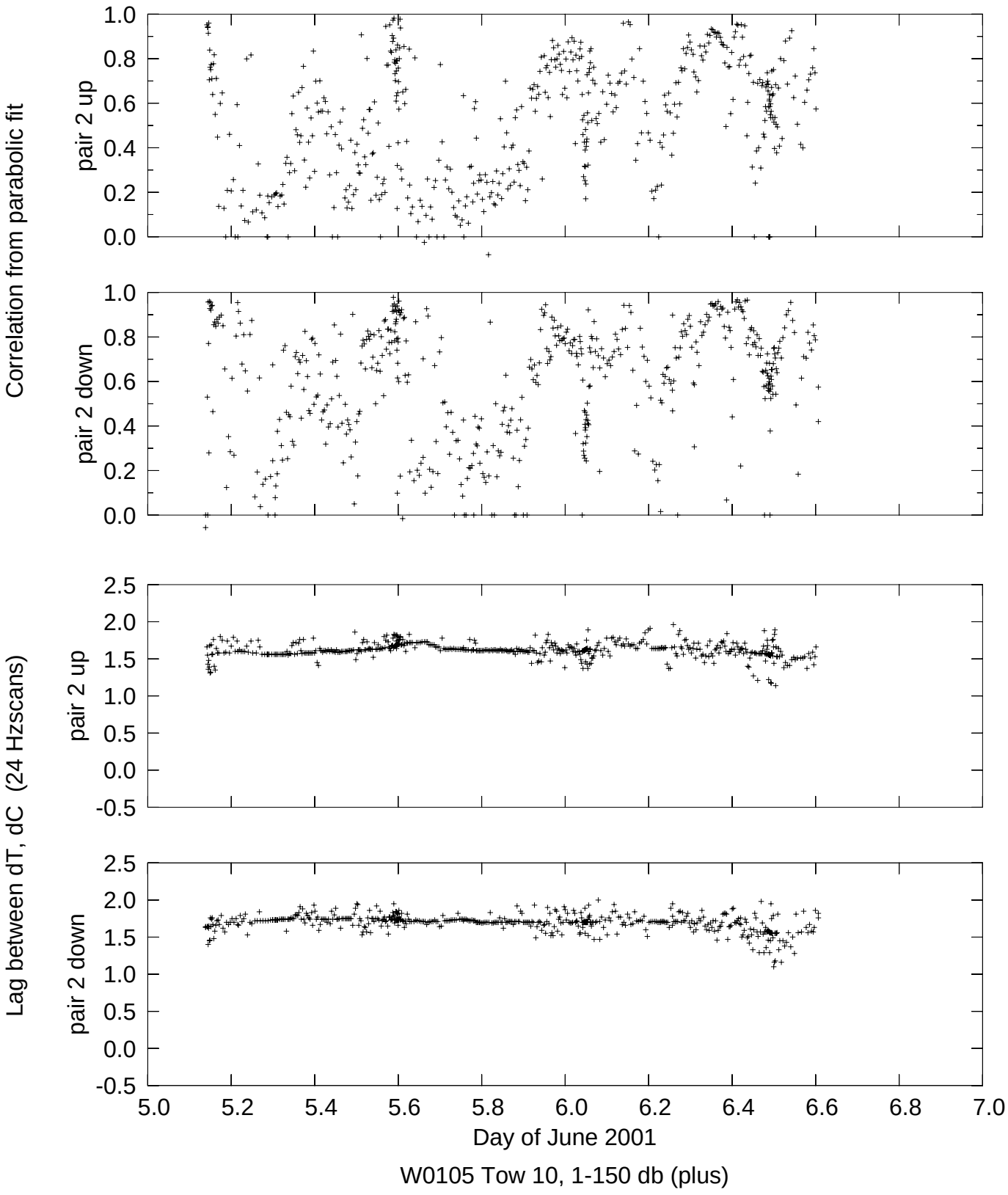

W0105 Tow 6 pair 2
Correlation from parabolic fit
pair 2 up
pair 2 down
Lag between dT, dC (24 Hzscans)
pair 2 up
pair 2 down
1.0
0.8
0.6
0.4
0.2
0.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
29.0
29.2
29.4
29.6
29.8
30.0
Day of May 2001
W0105 Tow 6, 1-150 db (plus)

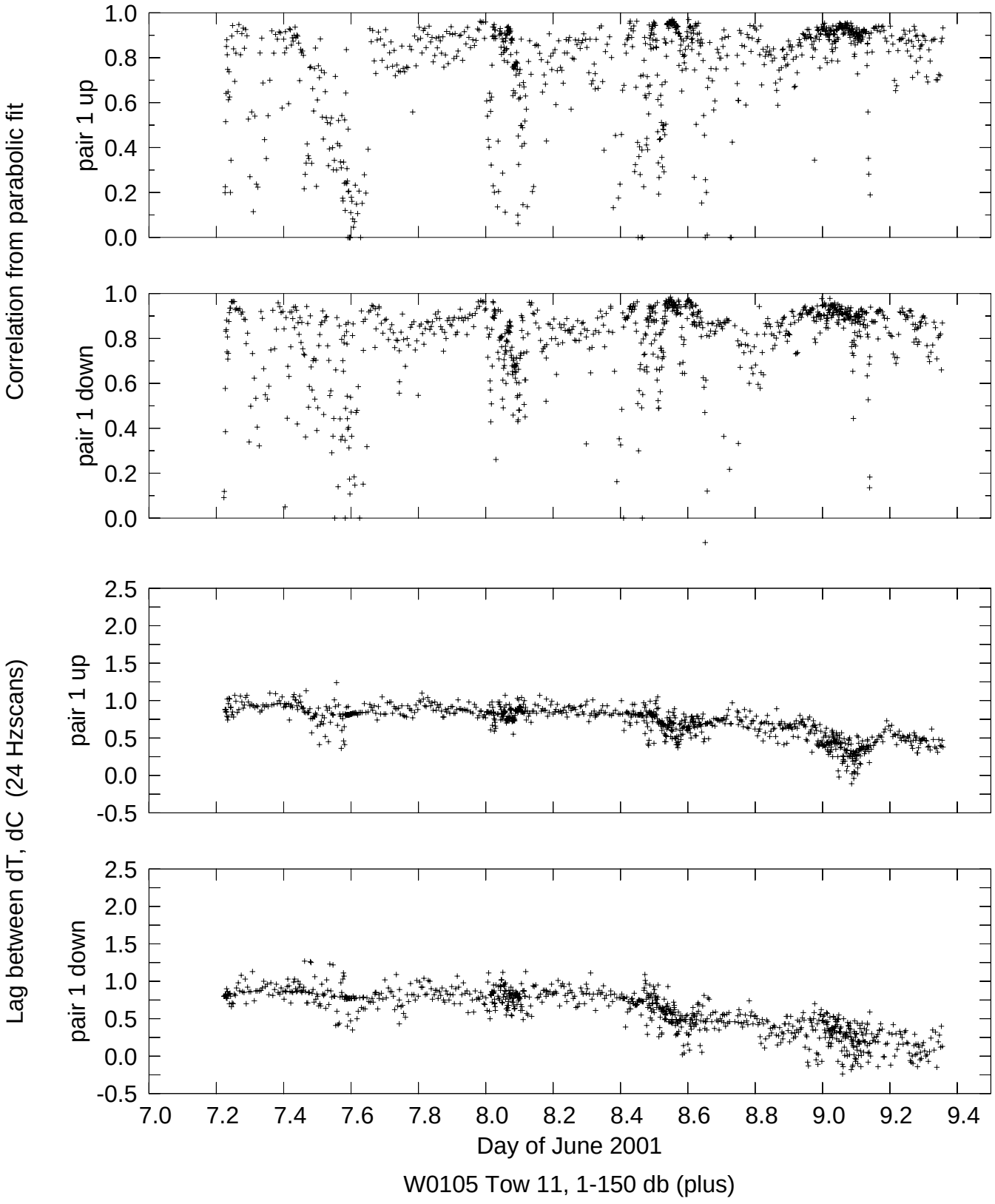

W0105 Tow 7 pair 2
Correlation from parabolic fit
pair 2 up
pair 2 down
Lag between dT, dC (24 Hzscans)
pair 2 up
pair 2 down
30.0
30.5
31.0
31.5
1.0
1.5
Day of May 2001
Day of June
W0105 Tow 7, 1-150 db (plus)

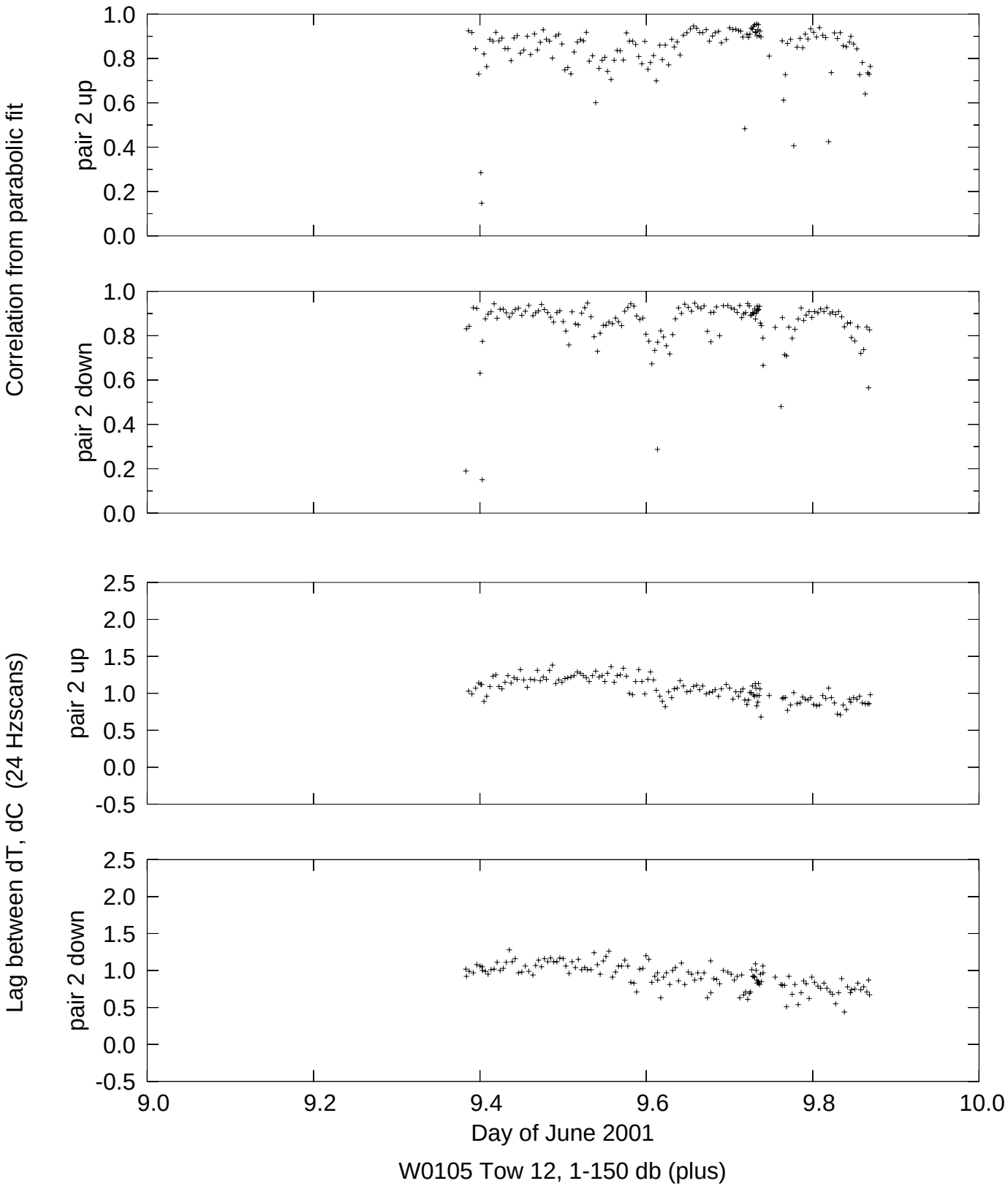

W0105 Tow 7 pair 1
Correlation from parabolic fit
pair 1 up
pair 1 down
Lag between dT, dC (24 Hzscans)
pair 1 up
pair 1 down
30.0
30.5
31.0
31.5
1.0
1.5
Day of May 2001
Day of June
W0105 Tow 7, 1-150 db (plus)

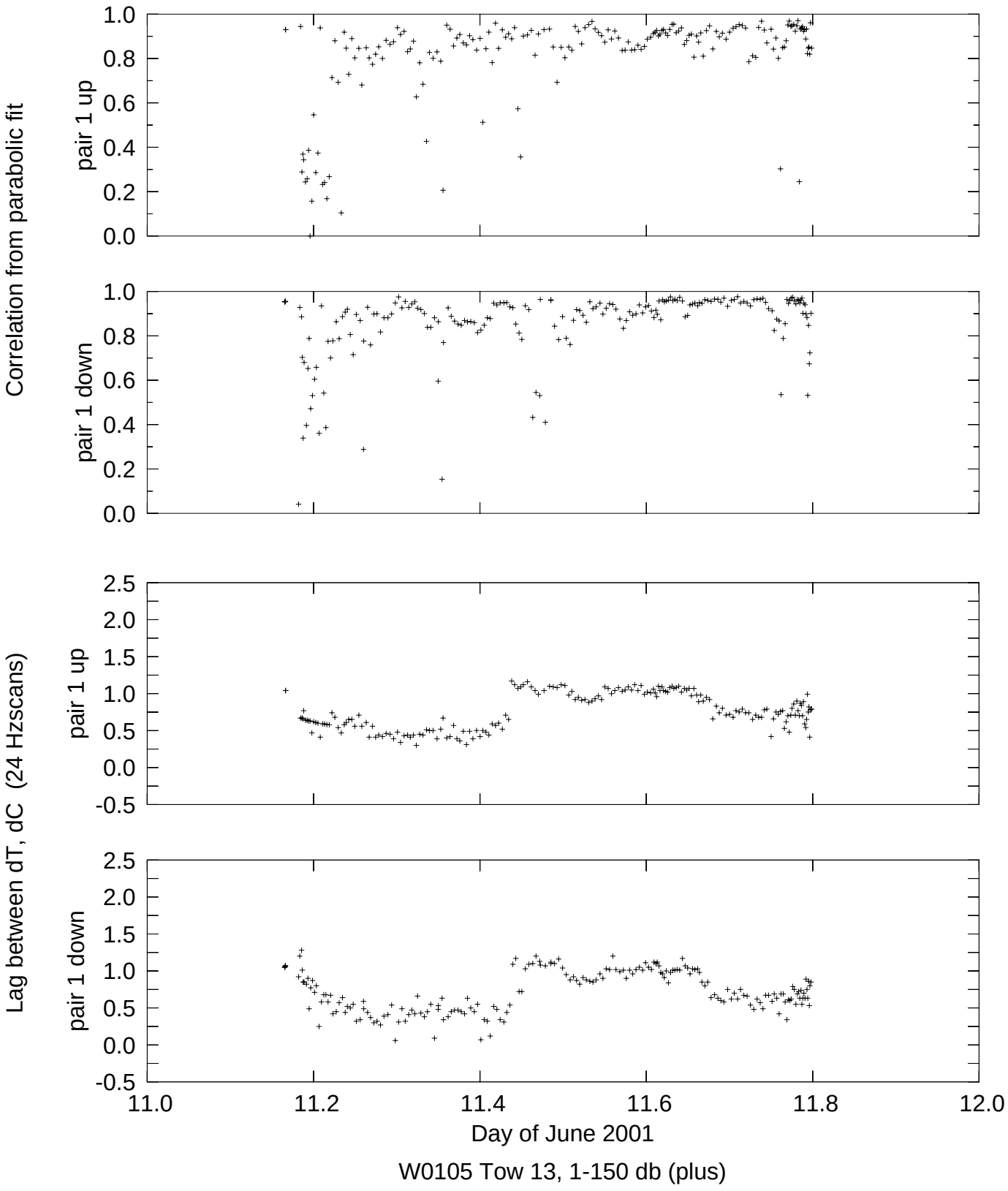

W0105 Tow 8 pair 2
Correlation from parabolic fit
pair 2 up
pair 2 down
Lag between dT, dC (24 Hzscans)
pair 2 up
pair 2 down
Day of June 2001
W0105 Tow 8, 1-150 db (plus)

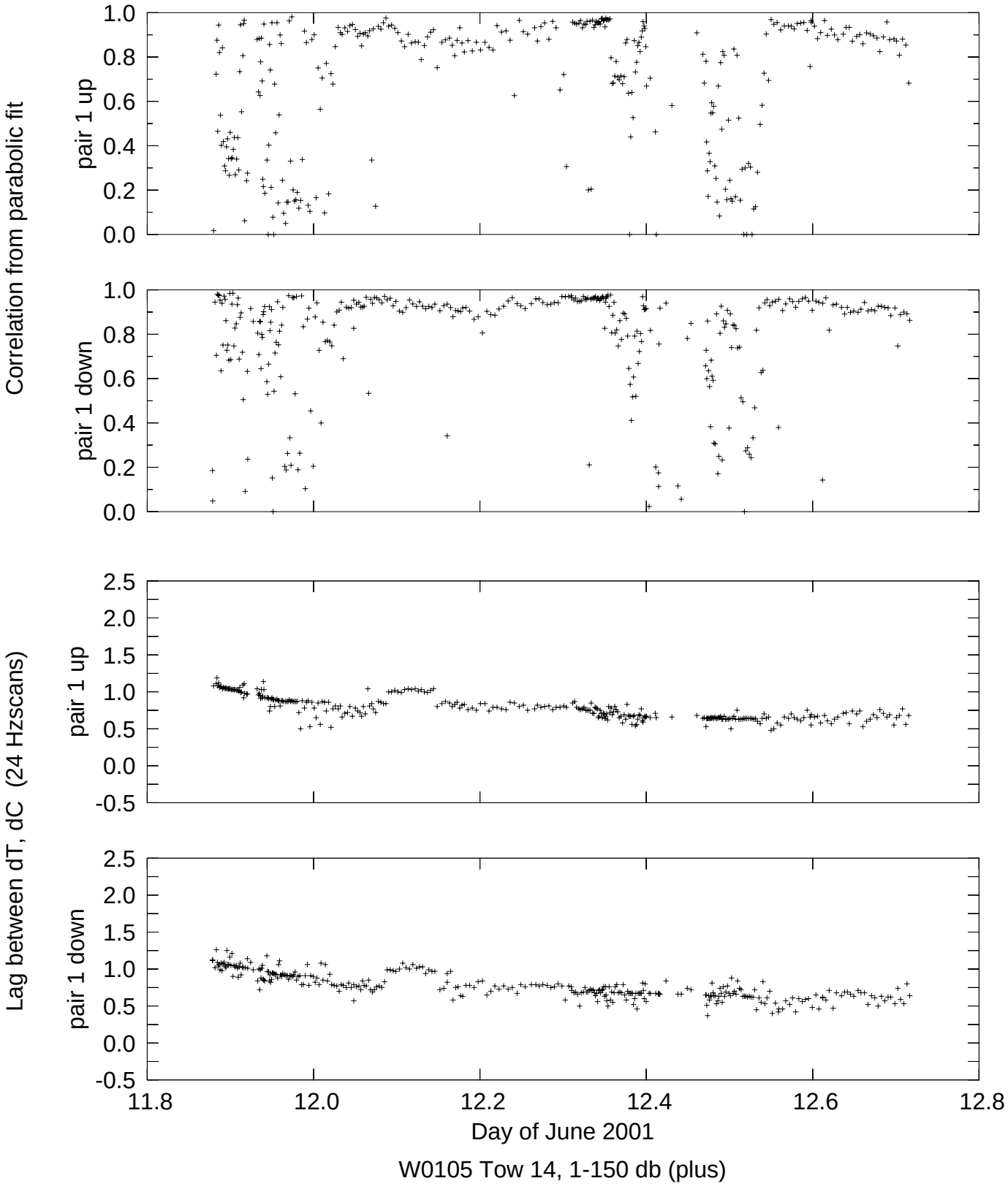

W0105 Tow 9 pair 2
Correlation from parabolic fit
pair 2 up
pair 2 down
Lag between dT, dC (24 Hzscans)
pair 2 up
pair 2 down
Day of June 2001
W0105 Tow 9, 1-150 db (plus)

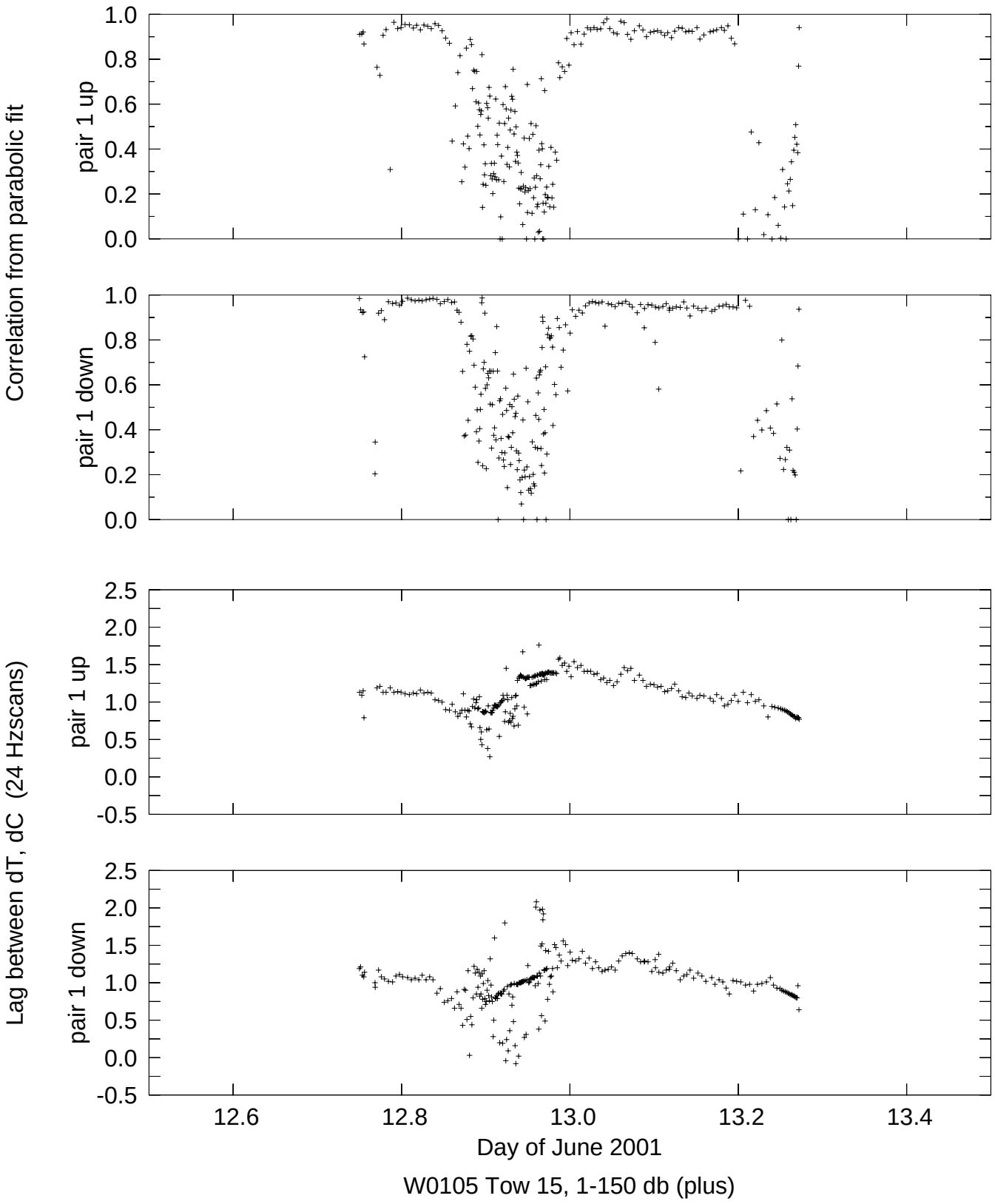

W0105 Tow 10 pair 2
Correlation from parabolic fit
pair 2 up
pair 2 down
Lag between dT, dC (24 Hzscans)
pair 2 up
pair 2 down
Day of June 2001
W0105 Tow 10, 1-150 db (plus)


W0105 Tow 11 pair 1
Correlation from parabolic fit
pair 1 up
pair 1 down
Lag between dT, dC (24 Hzscans)
pair 1 up
pair 1 down
Day of June 2001
W0105 Tow 11, 1-150 db (plus)


W0105 Tow 12 pair 2
Correlation from parabolic fit
pair 2 up
pair 2 down
Lag between dT, dC (24 Hzscans)
pair 2 up
pair 2 down
Day of June 2001
W0105 Tow 12, 1-150 db (plus)


W0105 Tow 13 pair 1
Correlation from parabolic fit
pair 1 up
pair 1 down
Lag between dT, dC (24 Hzscans)
pair 1 up
pair 1 down
Day of June 2001
W0105 Tow 13, 1-150 db (plus)

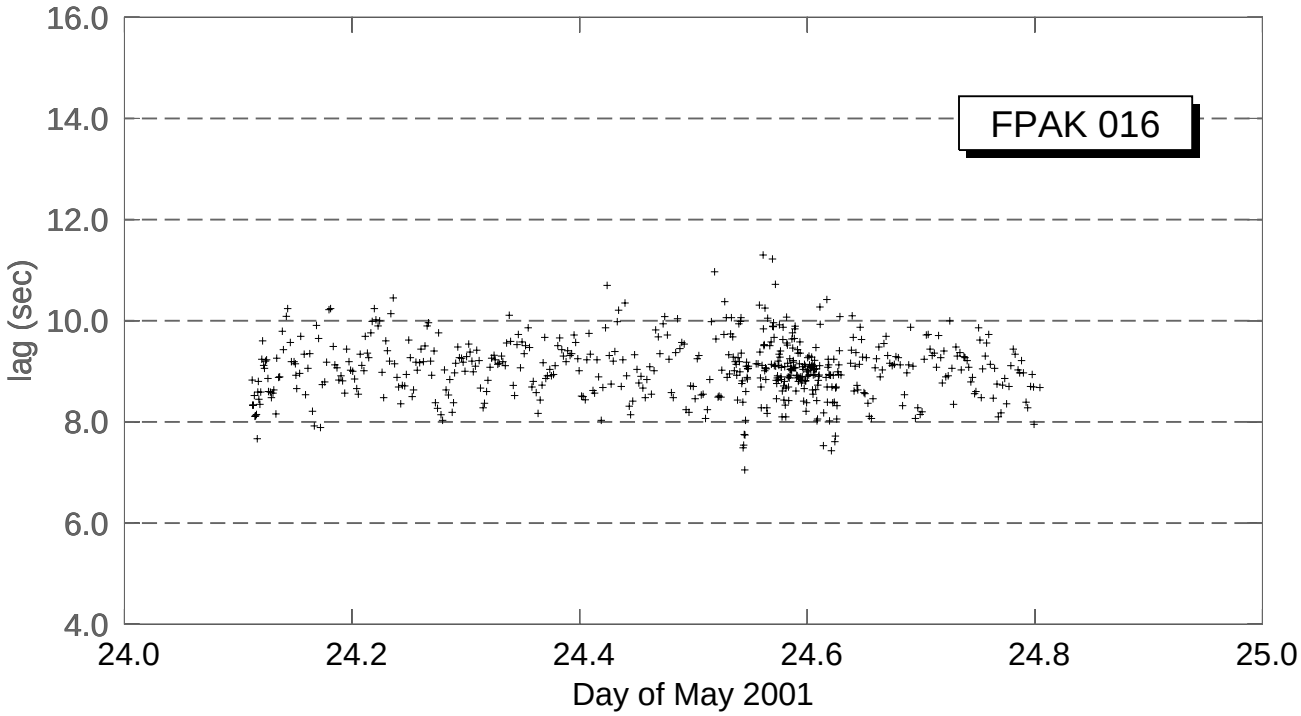

W0105 Tow 14 pair 1
Correlation from parabolic fit
pair 1 up
pair 1 down
Lag between dT, dC (24 Hzscans)
pair 1 up
pair 1 down
Day of June 2001
W0105 Tow 14, 1-150 db (plus)

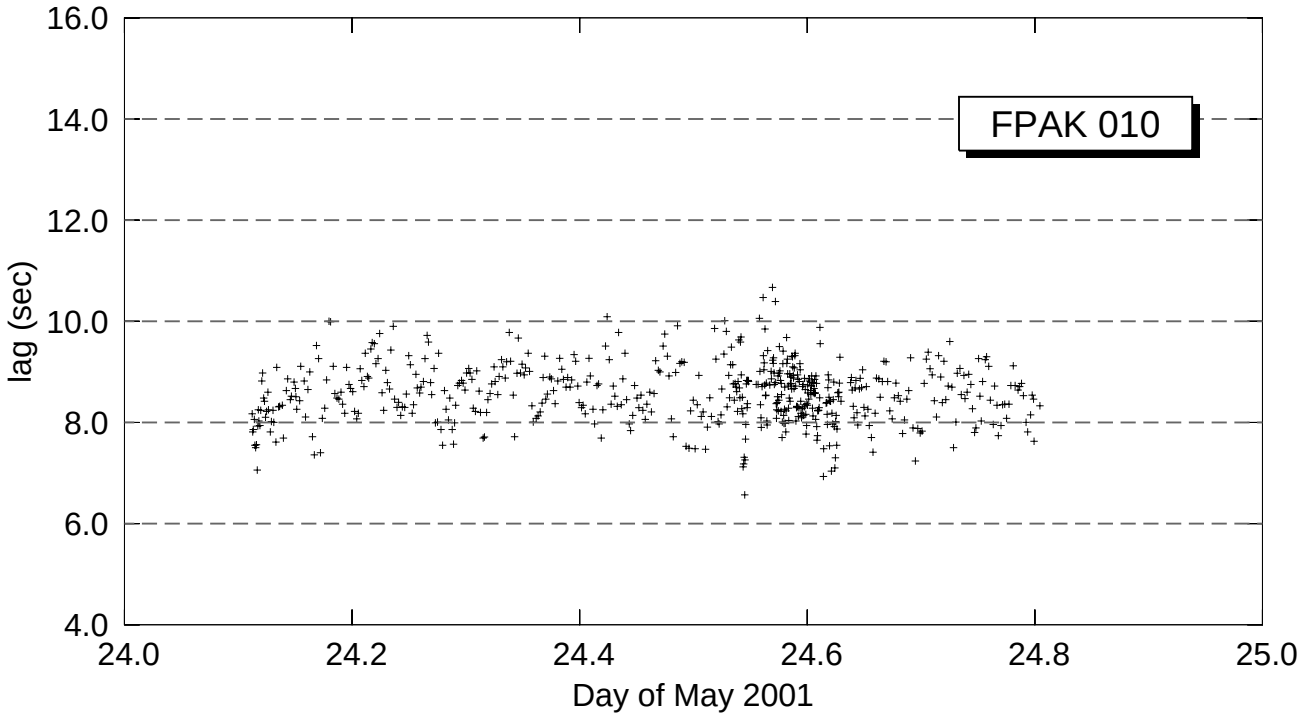

W0105 Tow 15 pair 1
Correlation from parabolic fit
pair 1 up
pair 1 down
Lag between dT, dC (24 Hzscans)
pair 1 up
pair 1 down
Day of June 2001
W0105 Tow 15, 1-150 db (plus)

Appendix II

Time Series of Final FPAK Lag Corrections

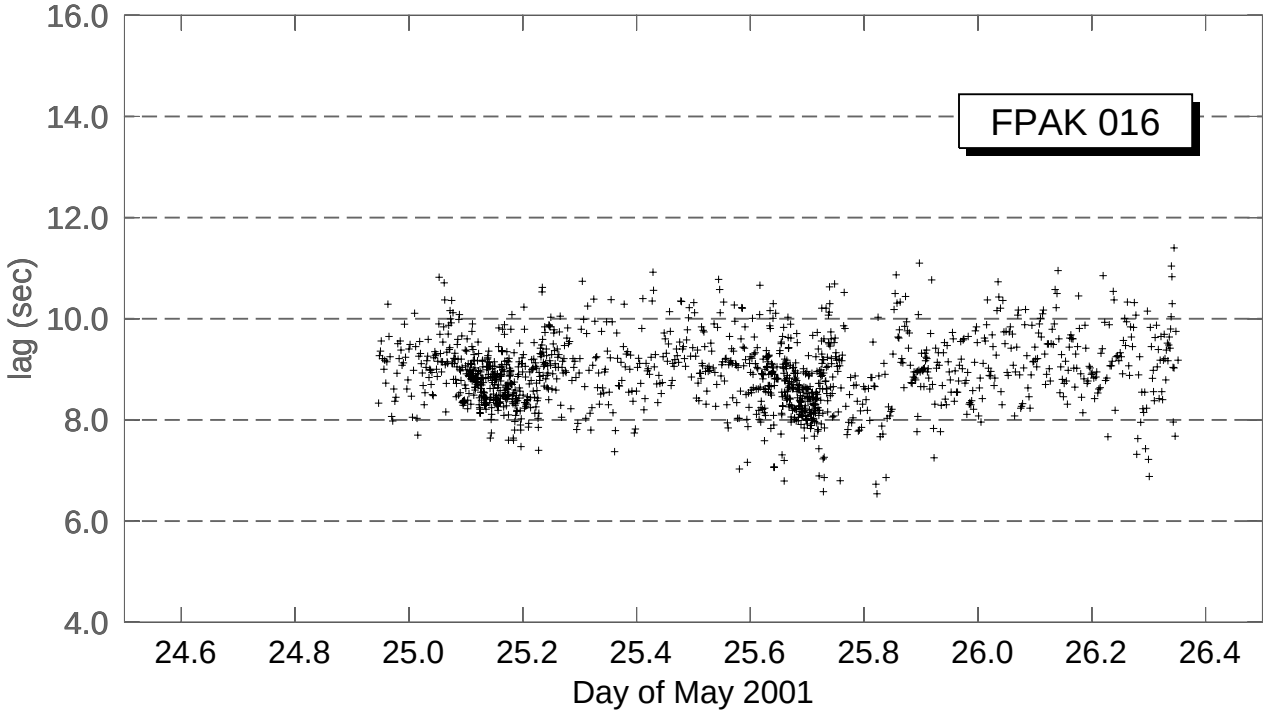
W0105 Tow 1 FPAK Lags

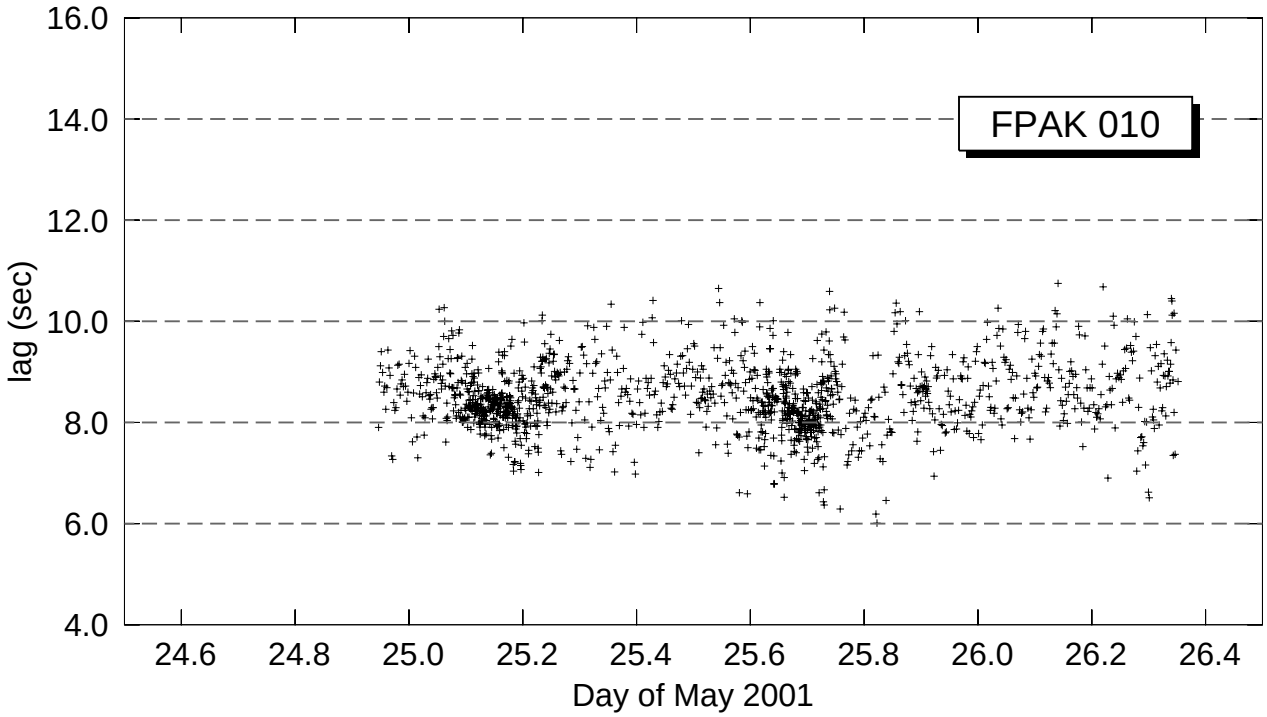




Time series of lags between the FlashPAKs and the SeaSoar pressure sensor

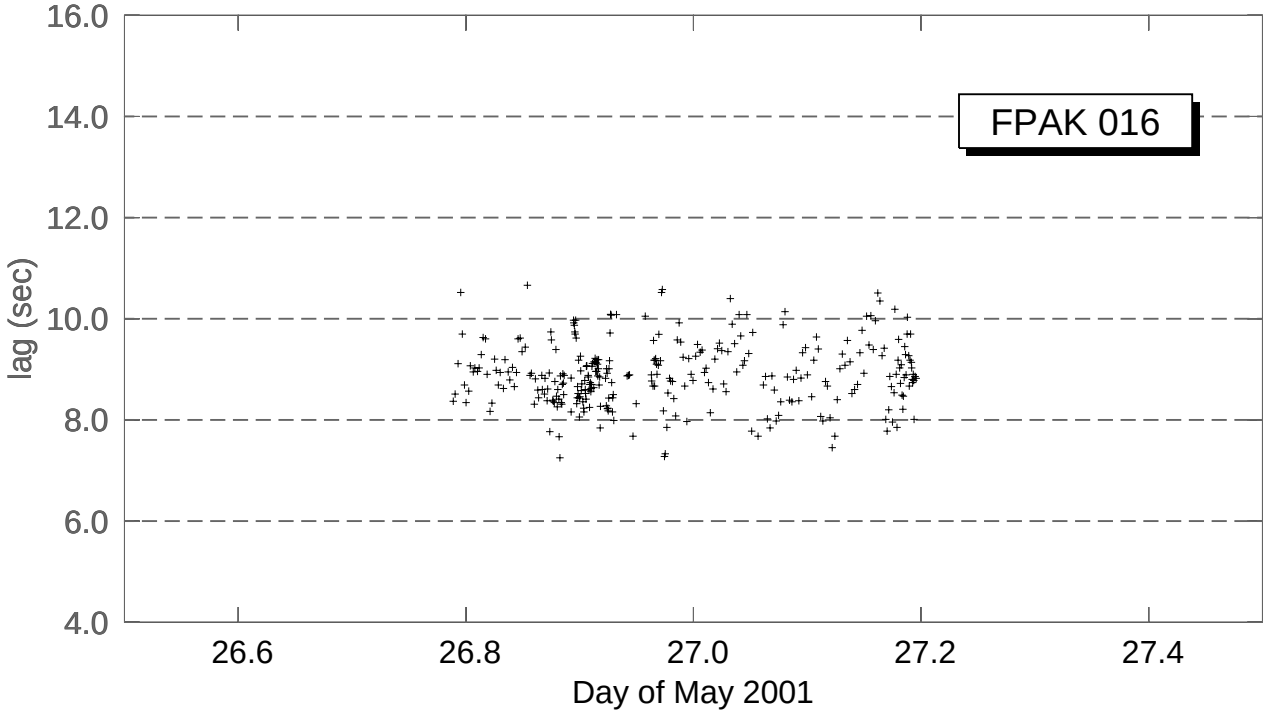
W0105 Tow 2 FPAK Lags

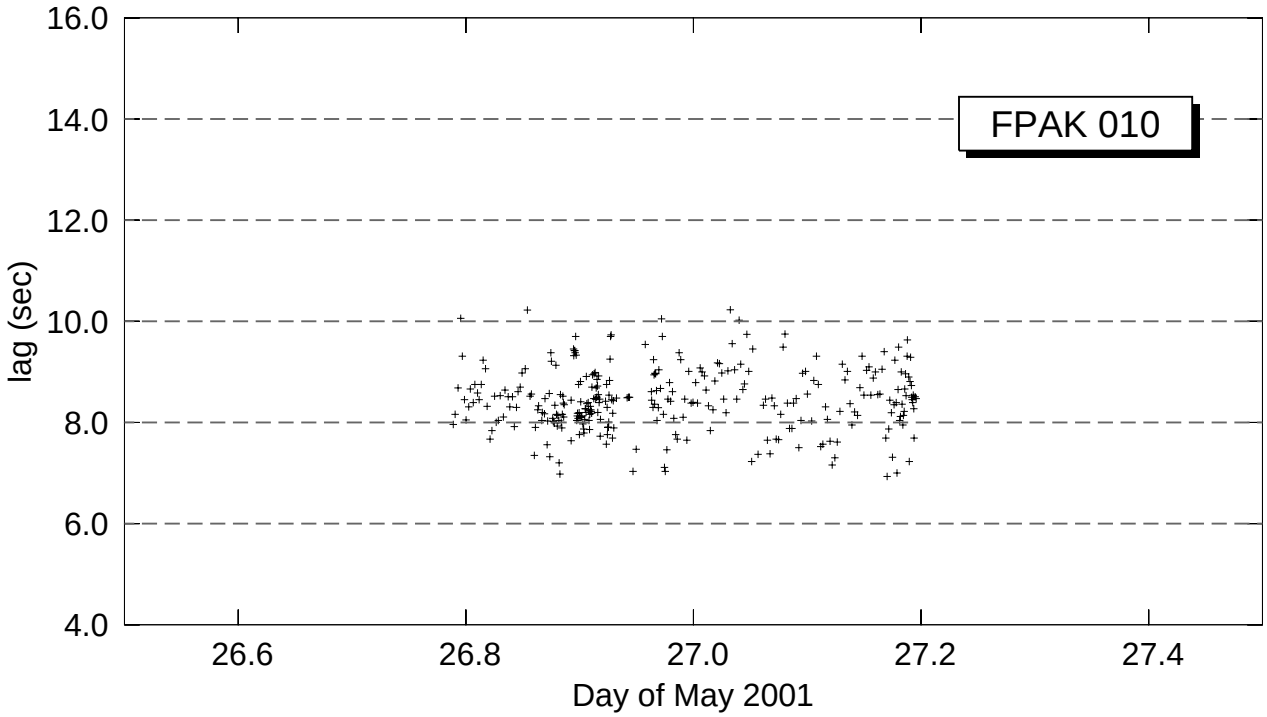




Time series of lags between the FlashPAKs and the SeaSoar pressure sensor

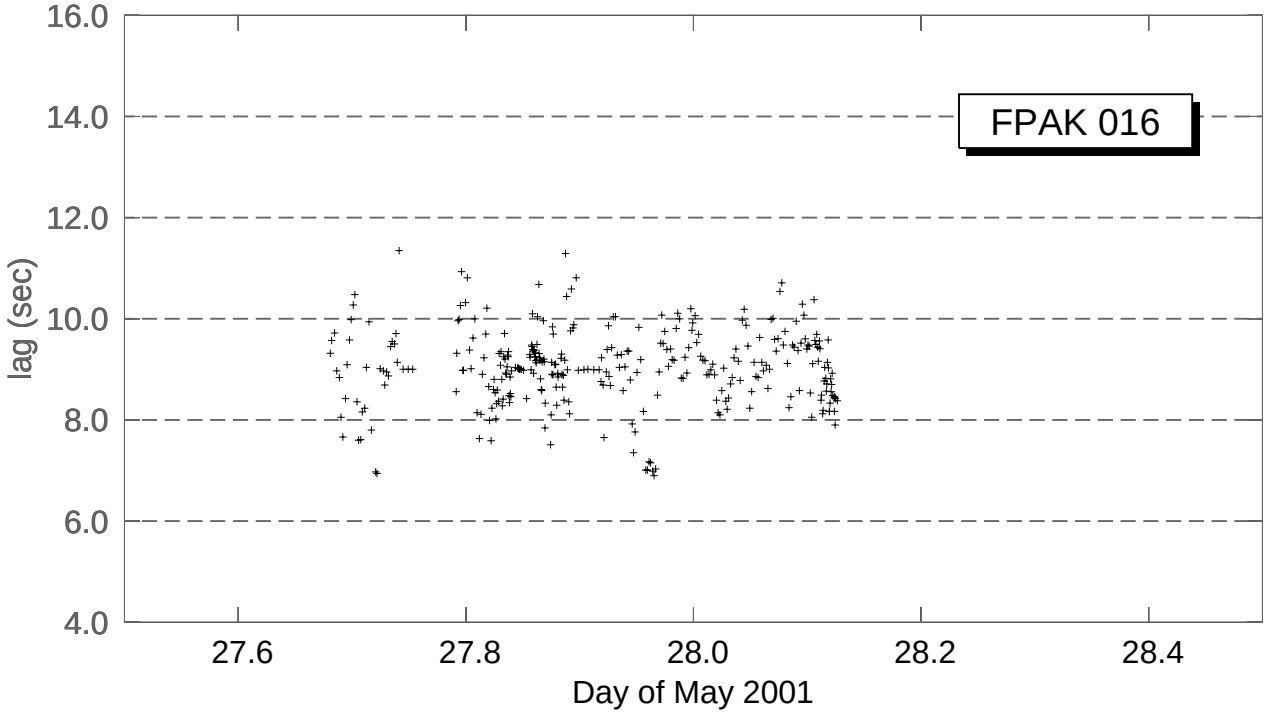
W0105 Tow 3 FPAK Lags

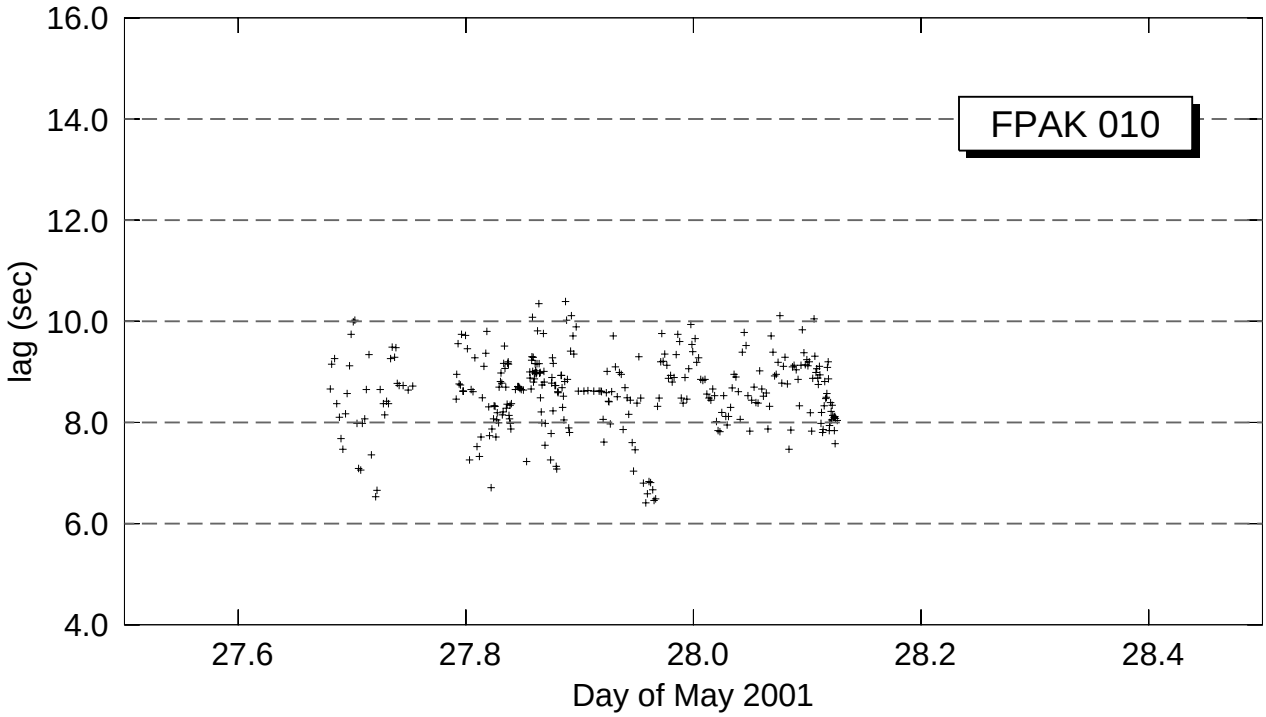




Time series of lags between the FlashPAKs and the SeaSoar pressure sensor

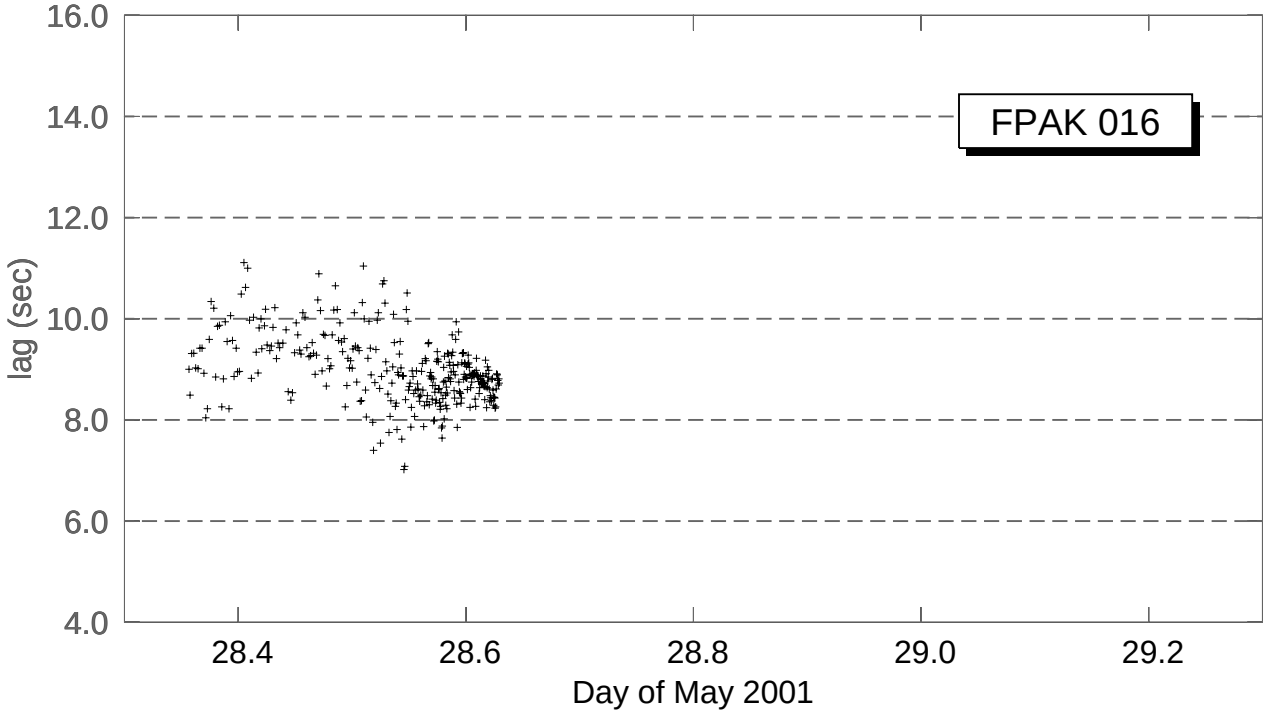
W0105 Tow 4 FPAK Lags

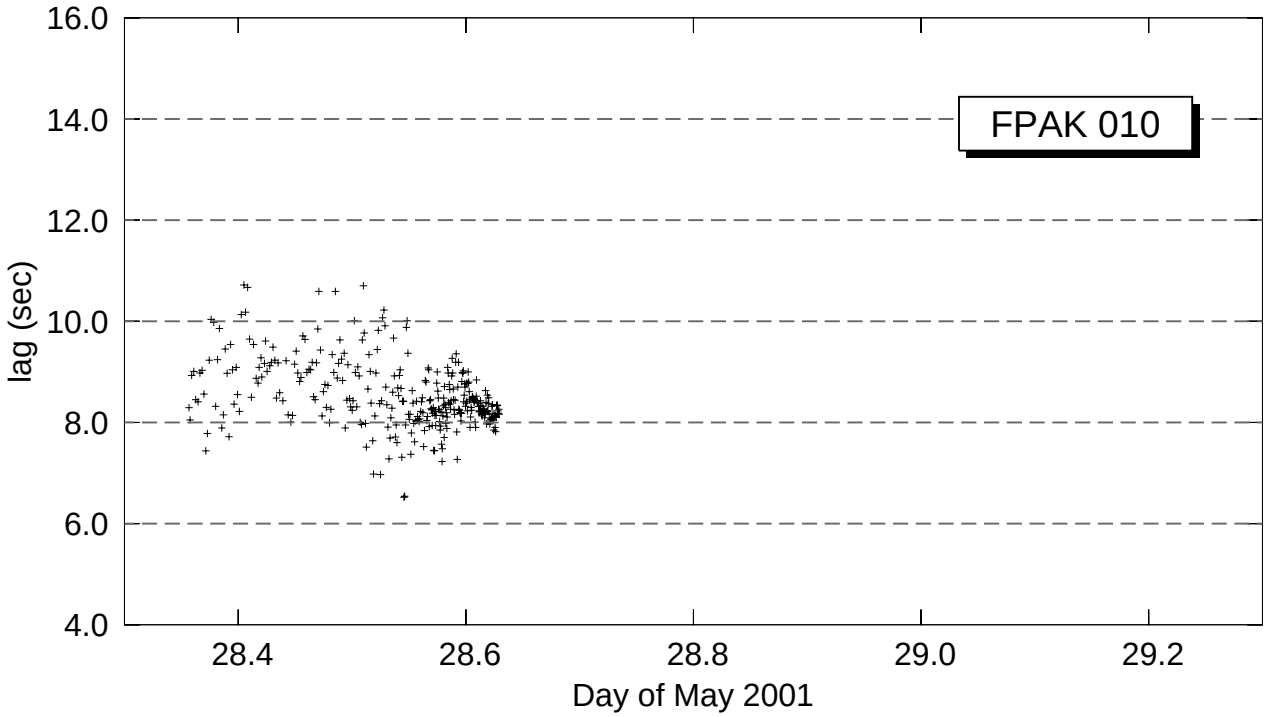




Time series of lags between the FlashPAKs and the SeaSoar pressure sensor

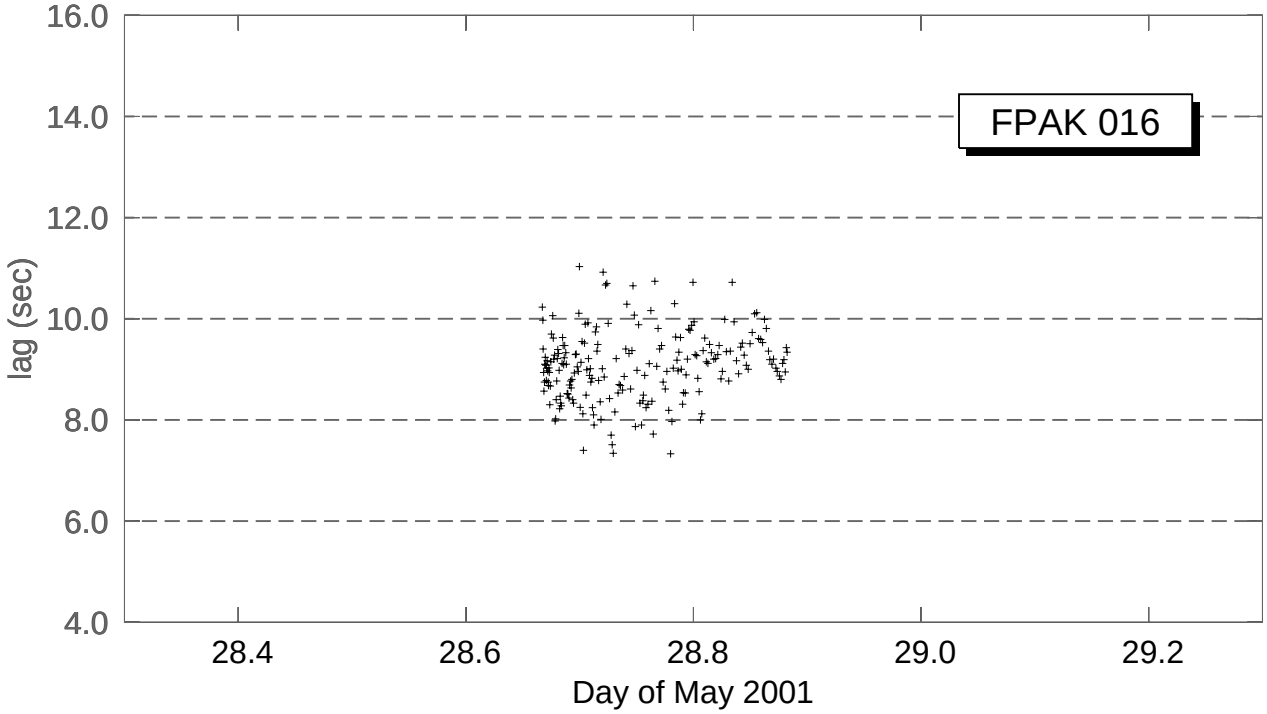
W0105 Tow 5 FPAK Lags

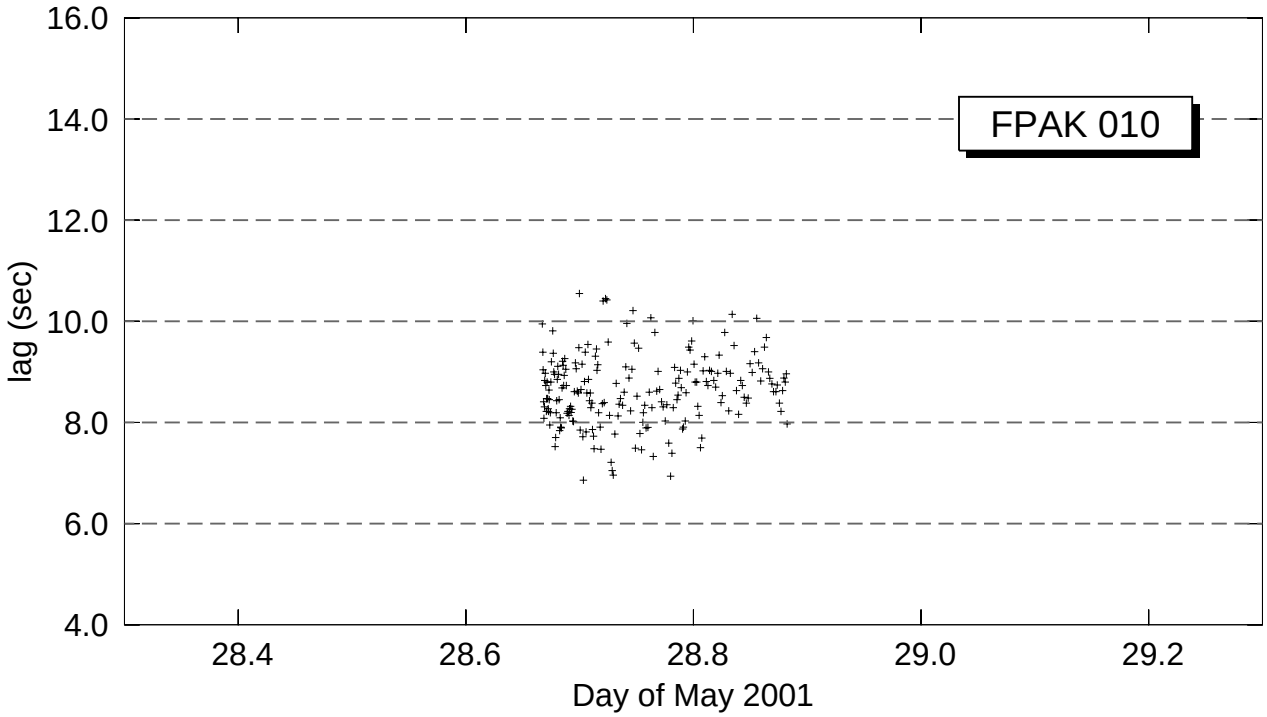




Time series of lags between the FlashPAKs and the SeaSoar pressure sensor

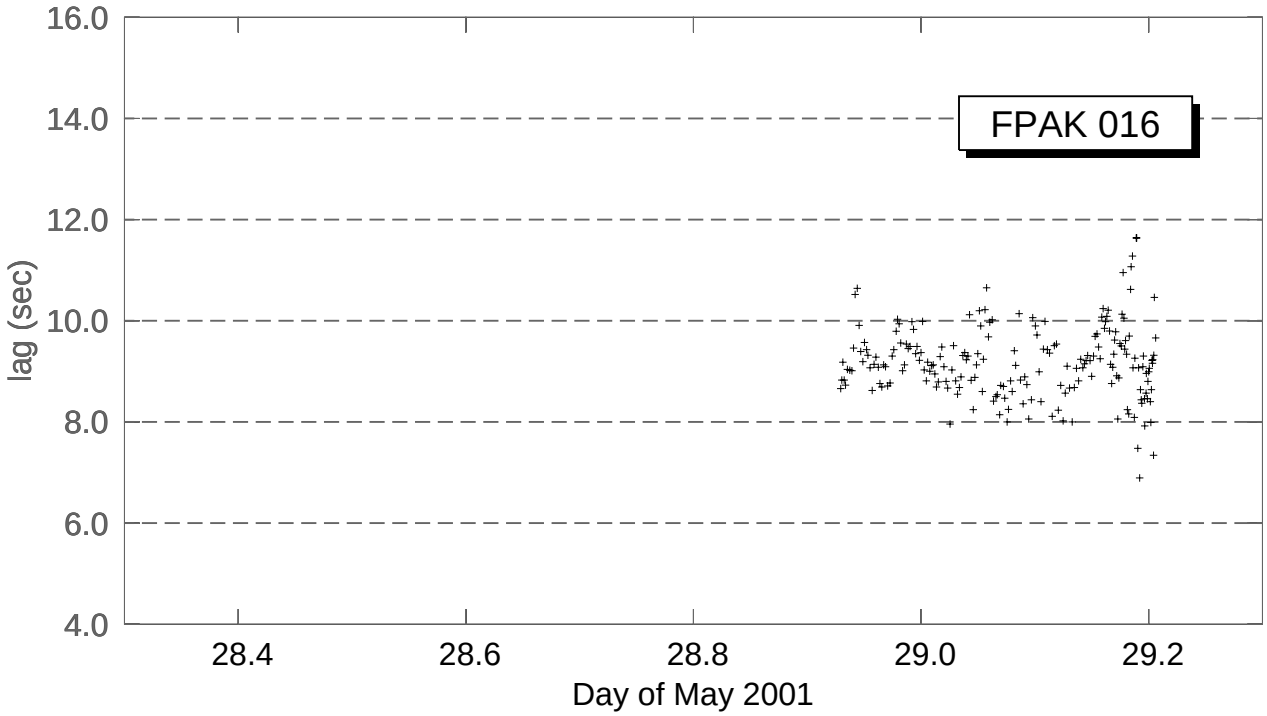
W0105 Tow 5a FPAK Lags

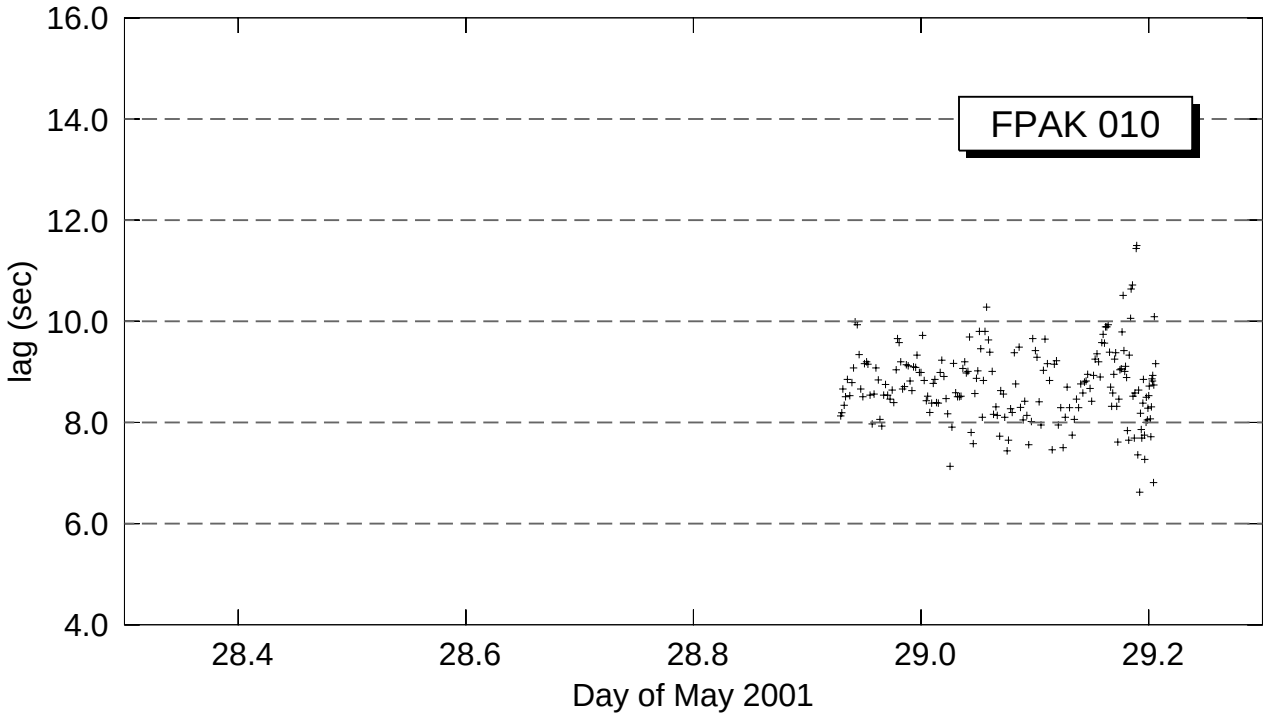




Time series of lags between the FlashPAKs and the SeaSoar pressure sensor

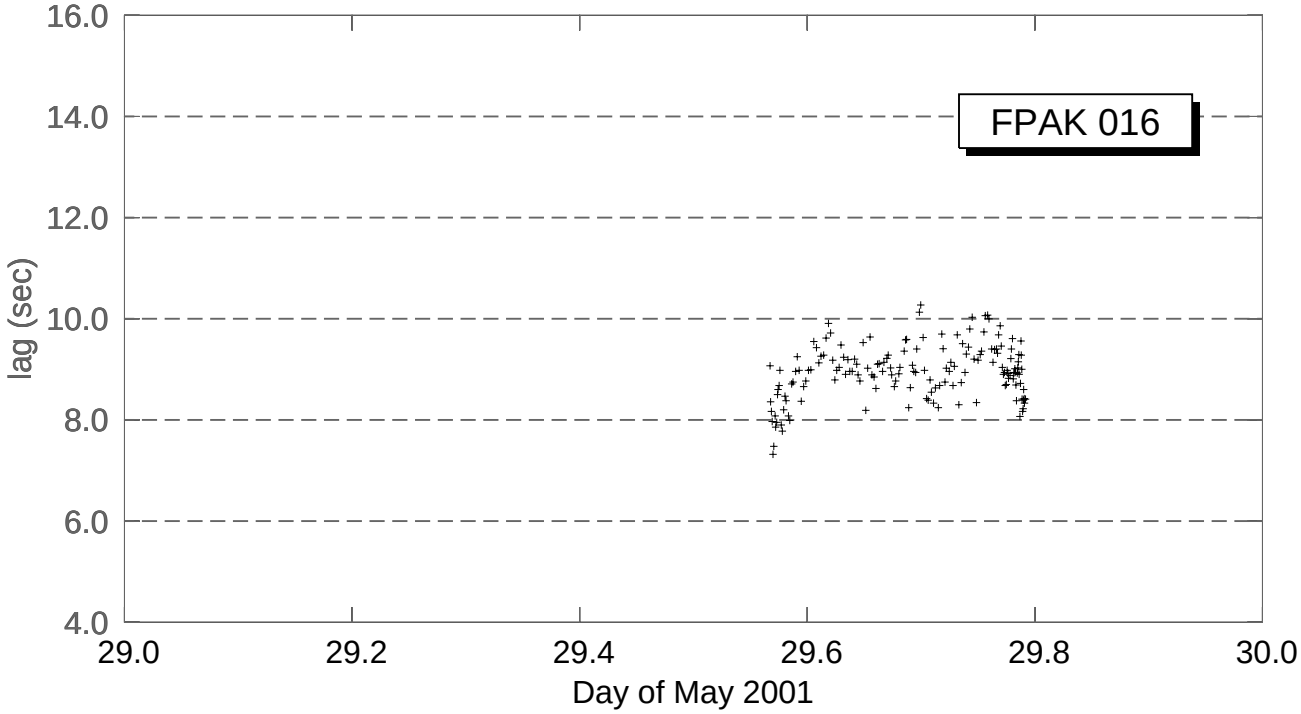
W0105 Tow 5b FPAK Lags

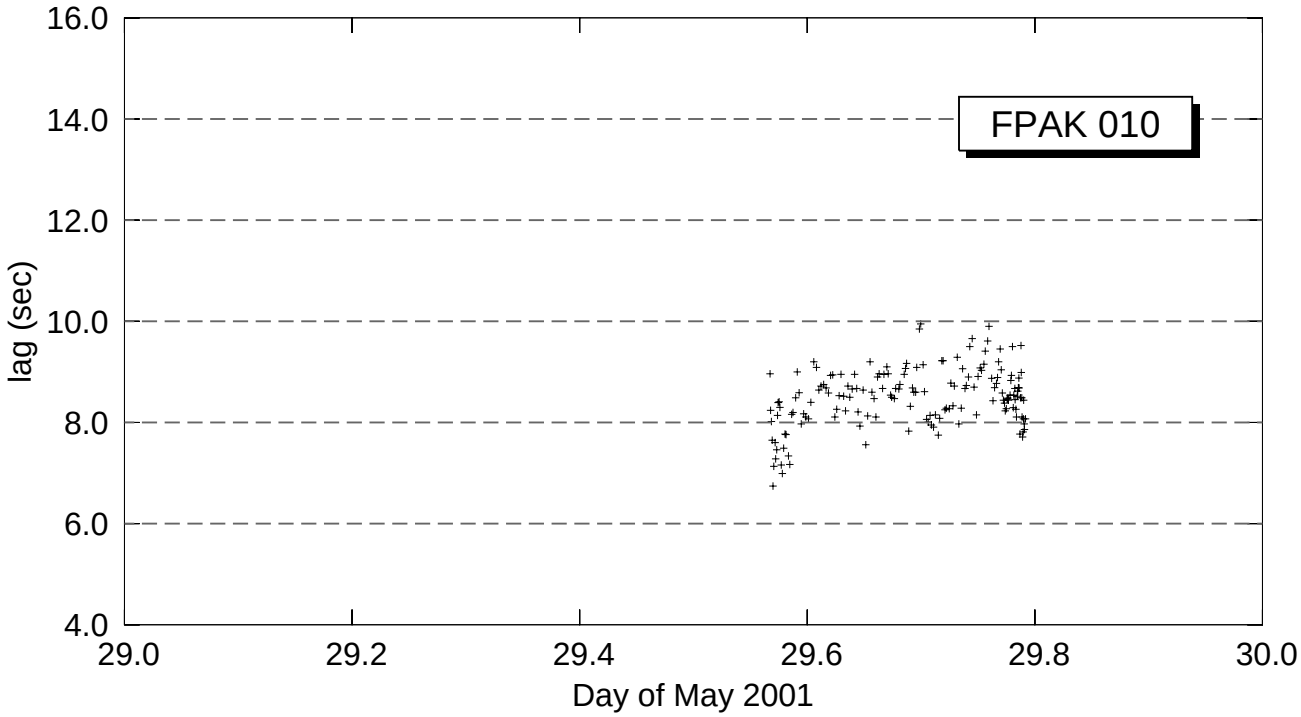




Time series of lags between the FlashPAKs and the SeaSoar pressure sensor

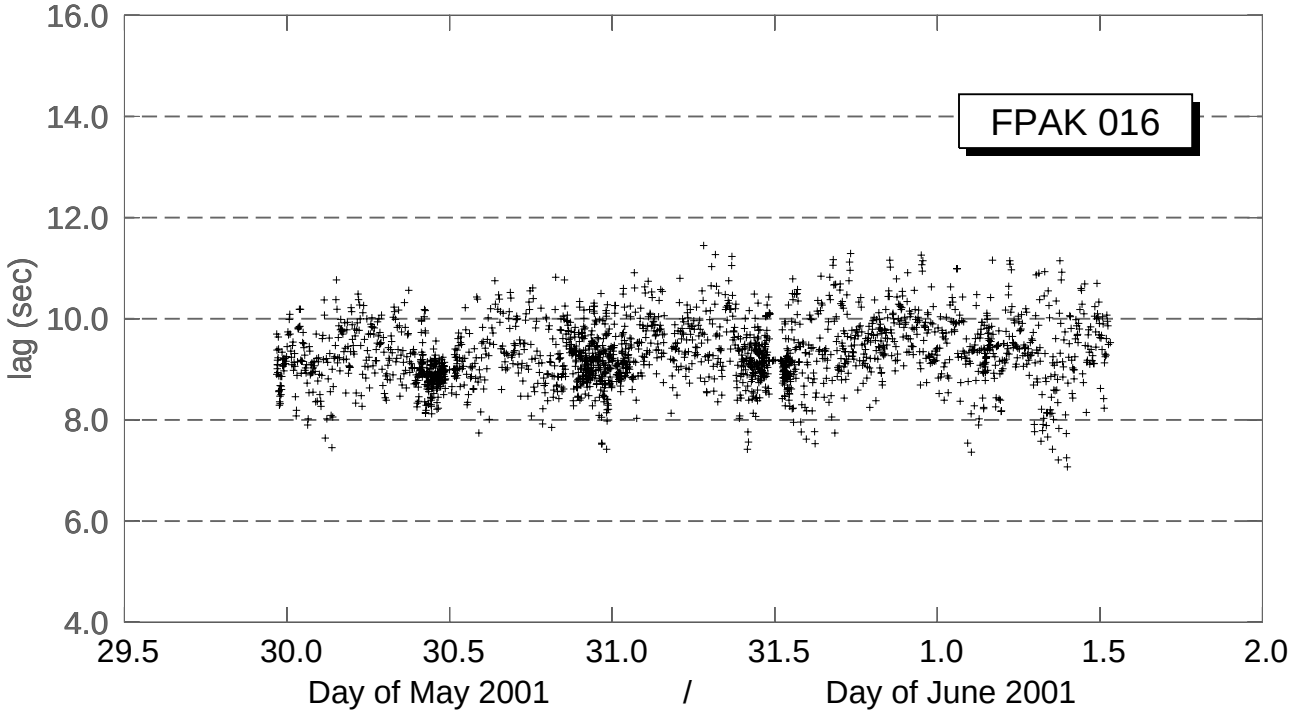
W0105 Tow 6 FPAK Lags

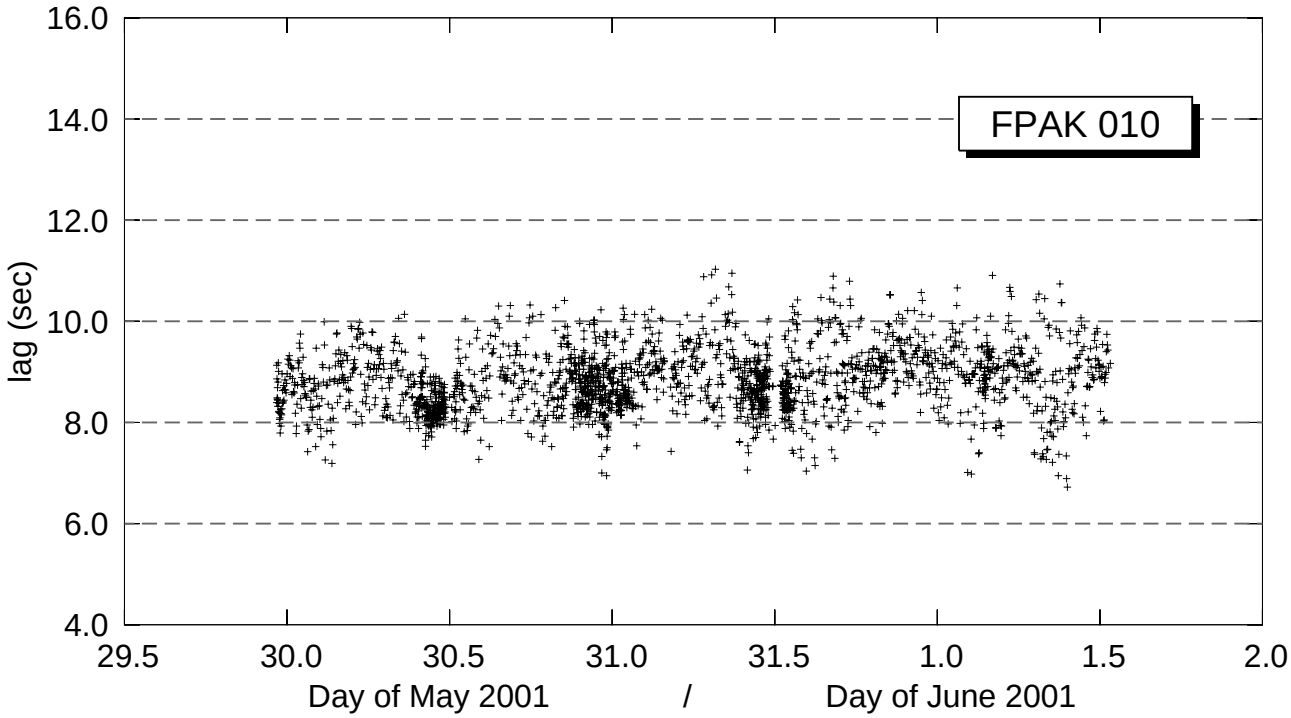




Time series of lags between the FlashPAKs and the SeaSoar pressure sensor

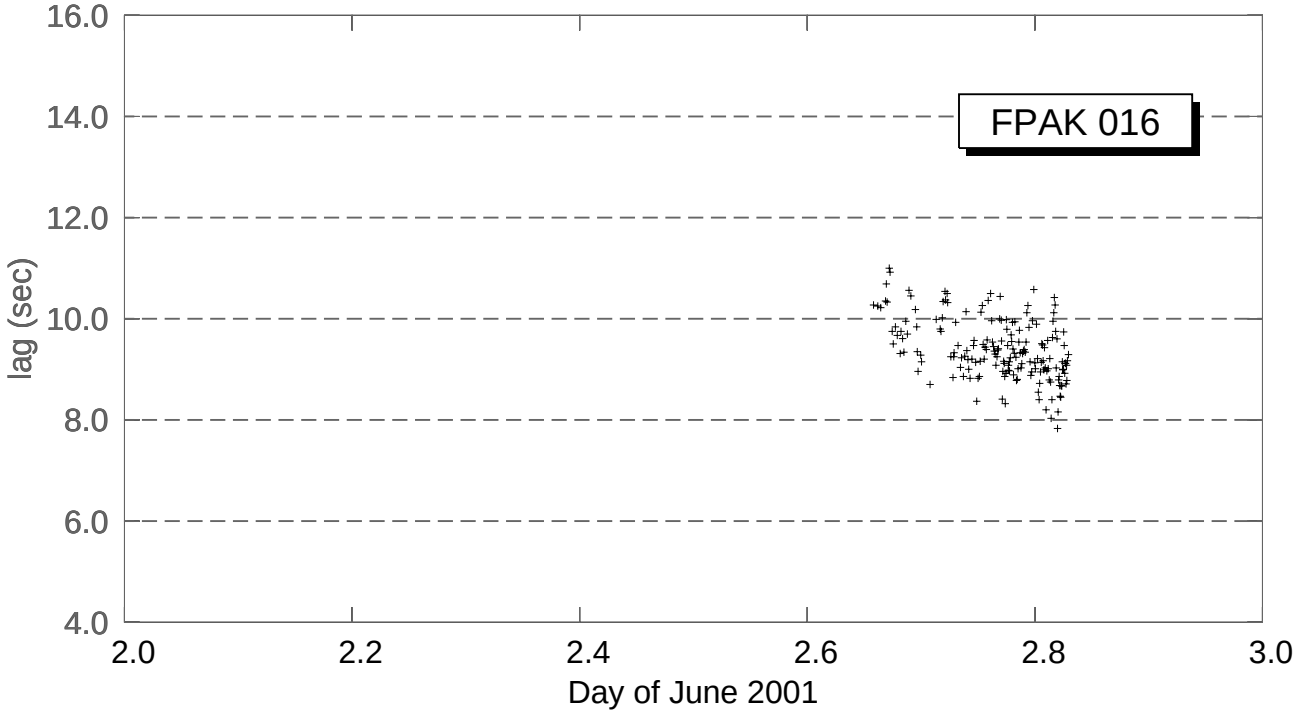
W0105 Tow 7 FPAK Lags

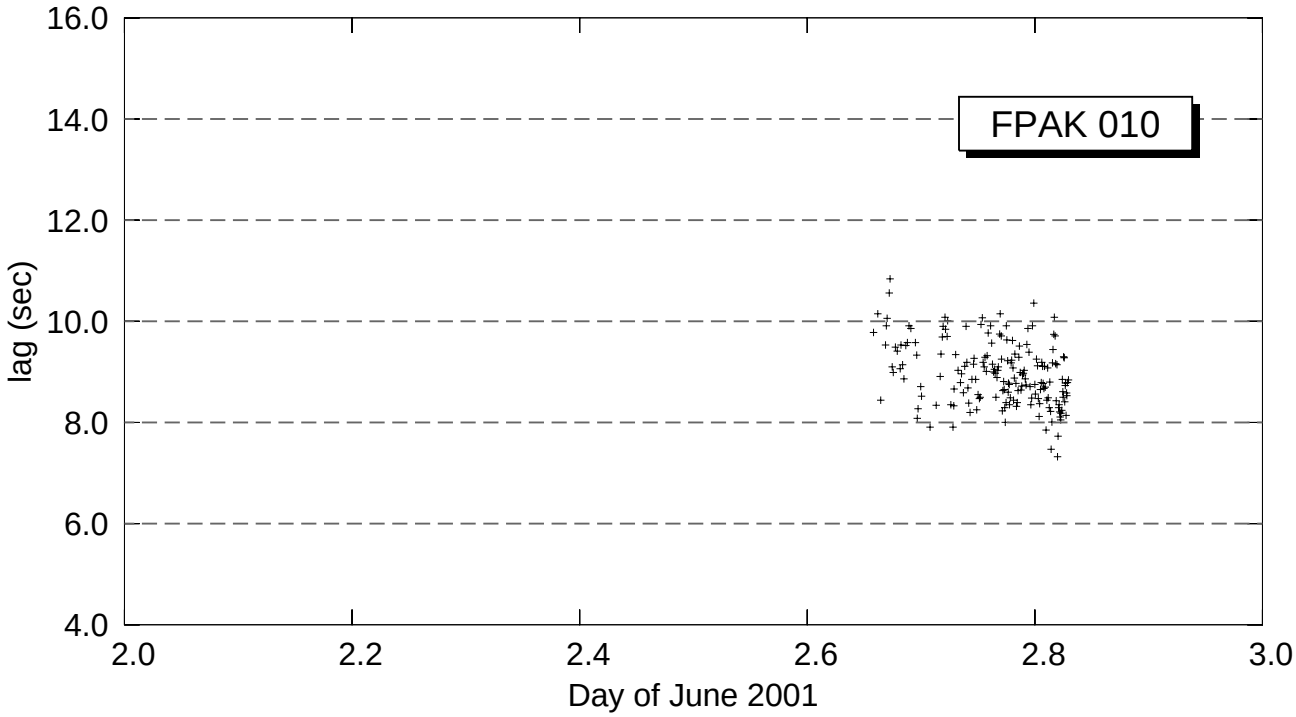




Time series of lags between the FlashPAKs and the SeaSoar pressure sensor

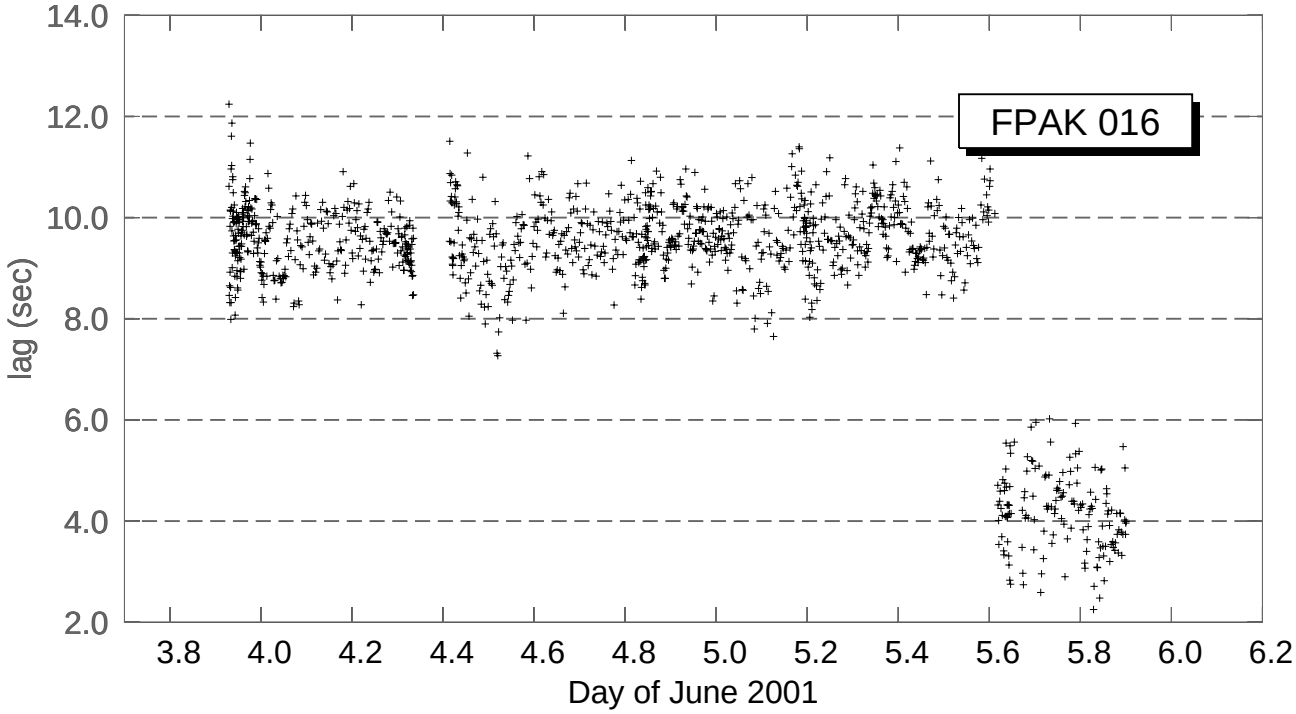
W0105 Tow 8 FPAK Lags

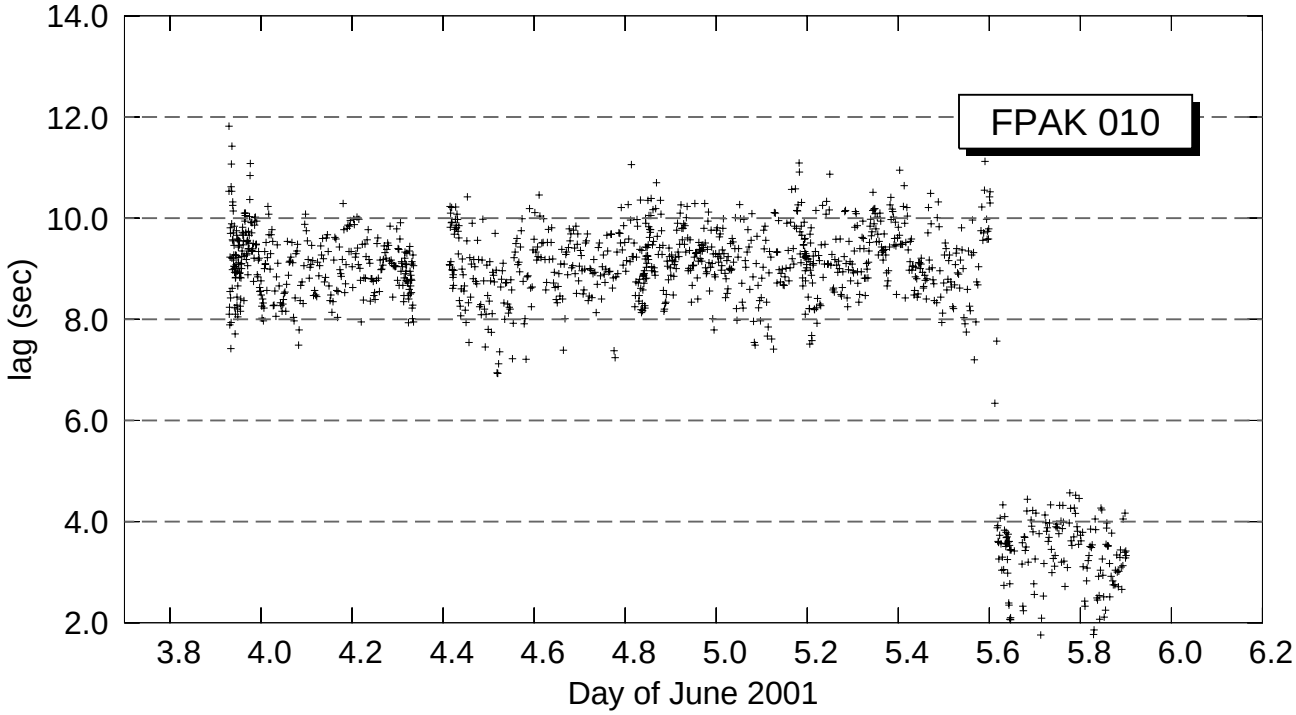




Time series of lags between the FlashPAKs and the SeaSoar pressure sensor

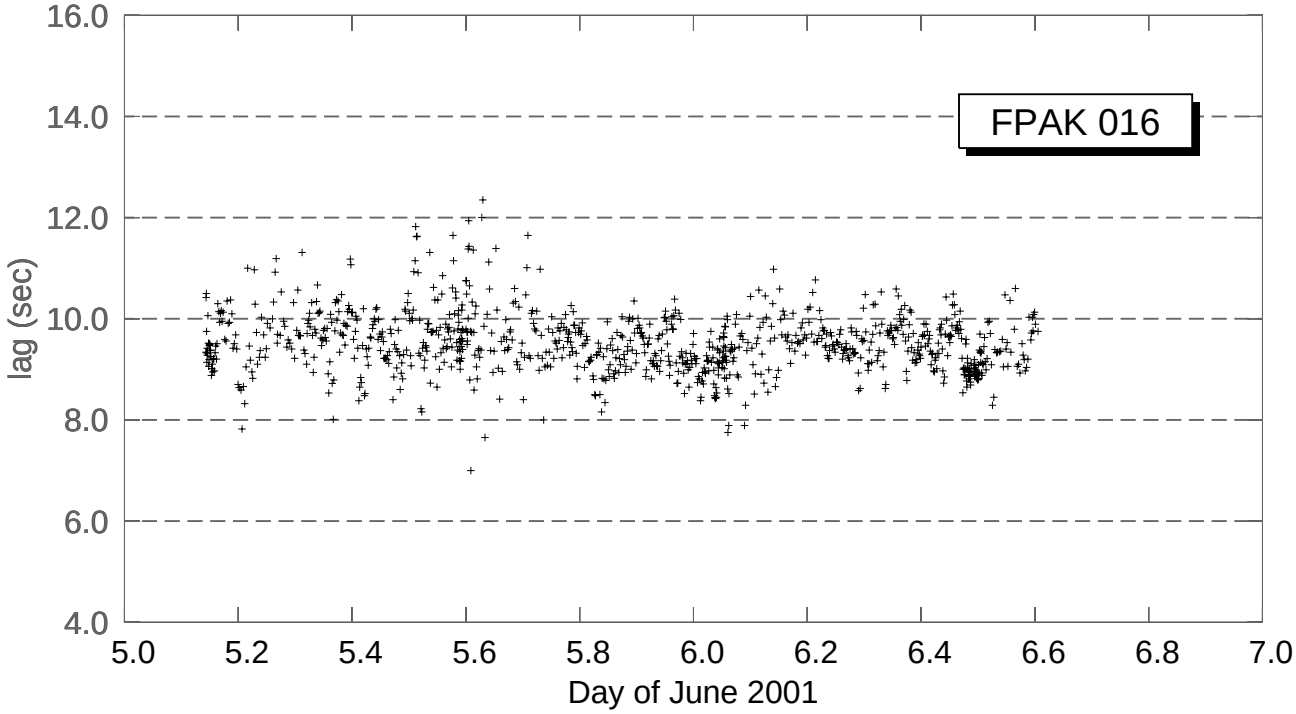
W0105 Tow 9 FPAK Lags

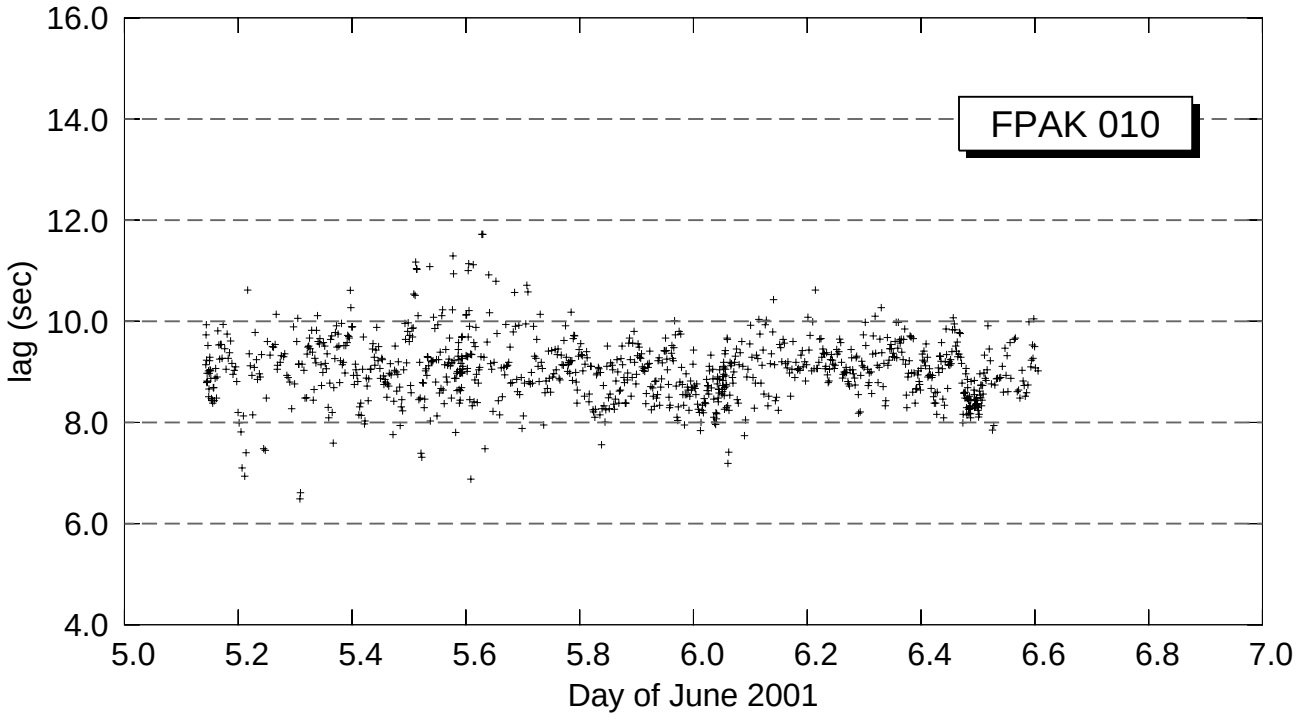




Time series of lags between the FlashPAKs and the SeaSoar pressure sensor

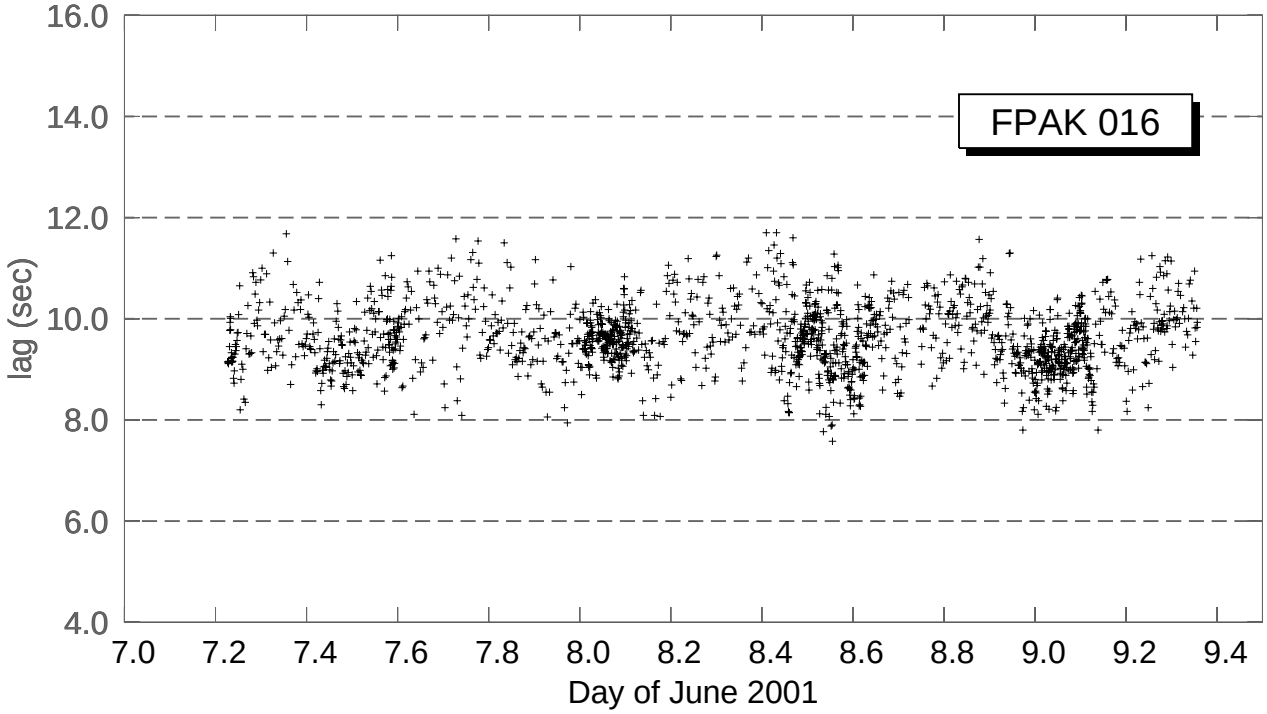
W0105 Tow 10 FPAK Lags

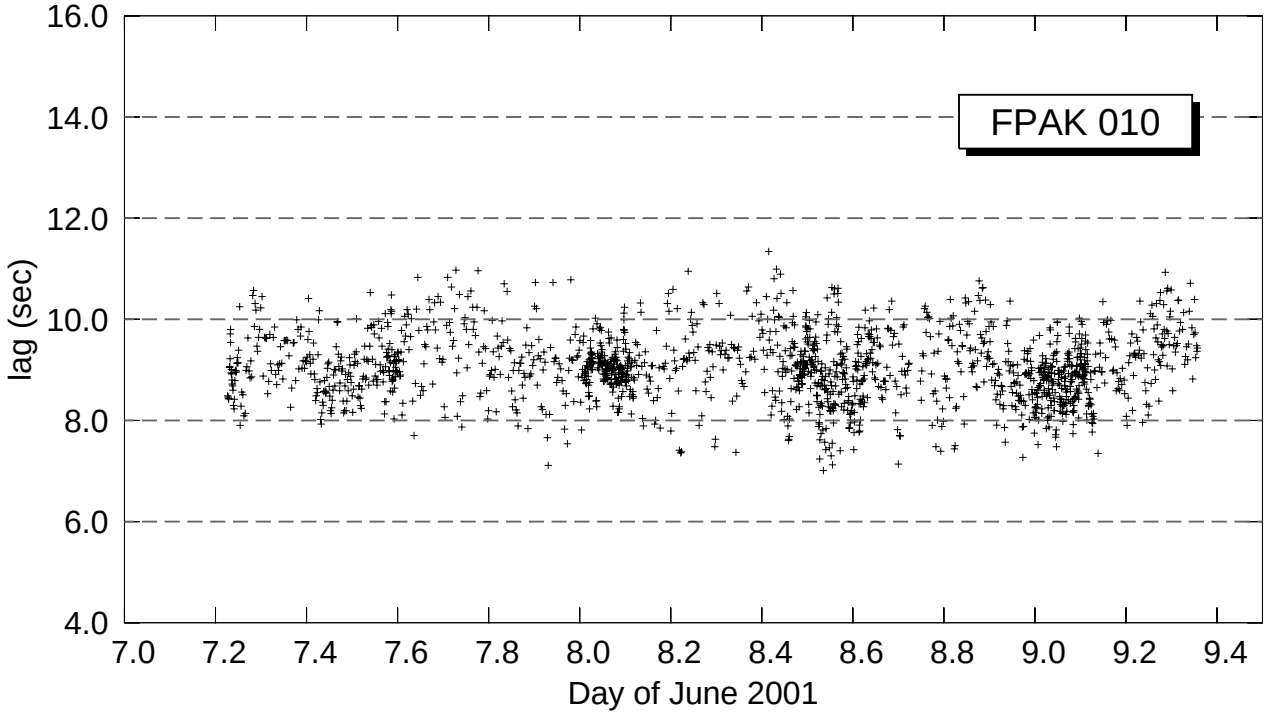




Time series of lags between the FlashPAKs and the SeaSoar pressure sensor

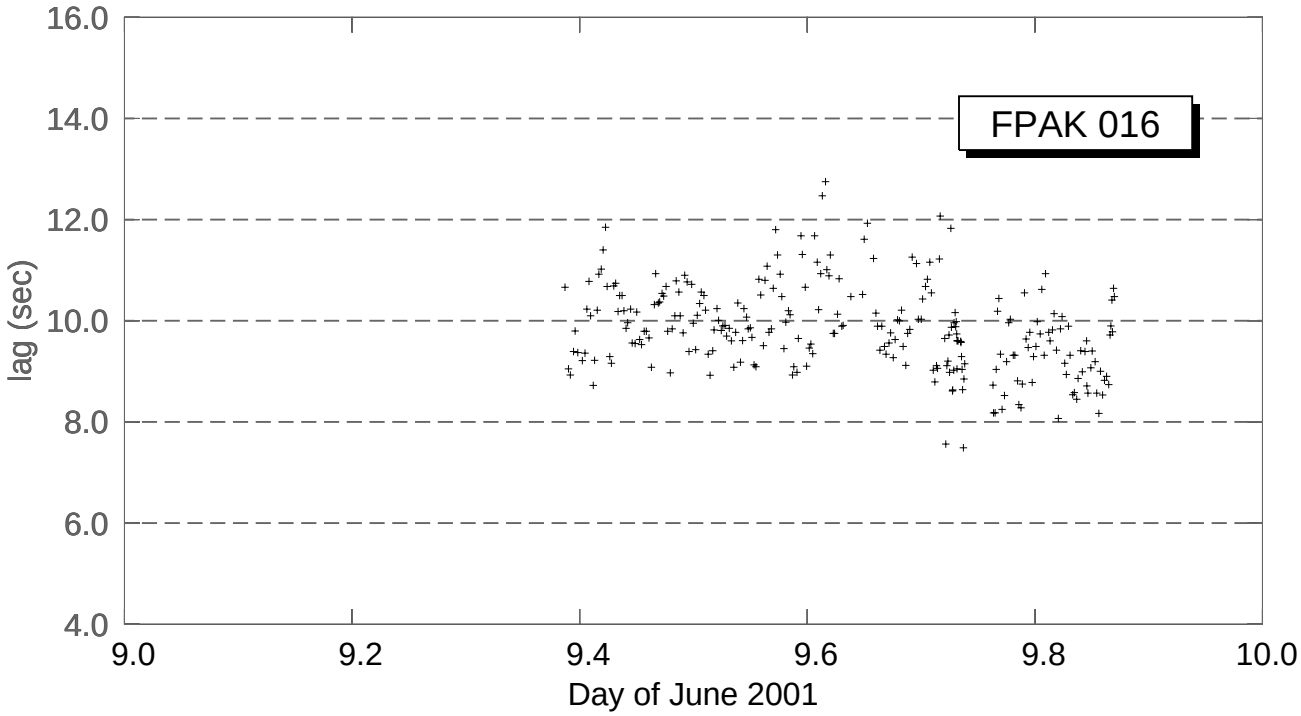
W0105 Tow 11 FPAK Lags

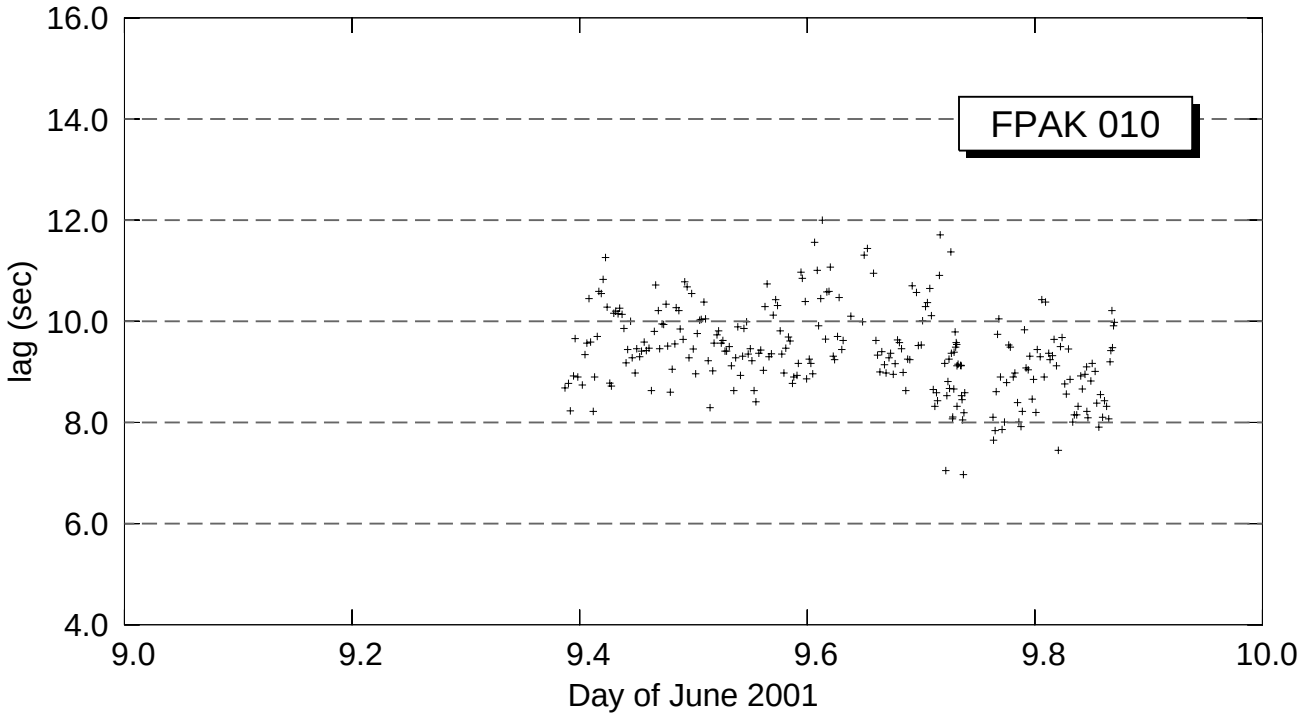




Time series of lags between the FlashPAKs and the SeaSoar pressure sensor

W0105 Tow 12 FPAK Lags





Time series of lags between the FlashPAKs and the SeaSoar pressure sensor

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