

Auxiliary material for

**Paired windward and leeward biogeochemical time series reveal consistent surface ocean
CO₂ trends across the Hawaiian Ridge**

John E. Dore, Department of Land Resources and Environmental Sciences, Montana State
University, Bozeman, Montana, USA.

Matthew J. Church, David M. Karl, and Daniel W. Sadler, Department of Oceanography,
University of Hawaii, Honolulu, Hawaii, USA.

Ricardo M. Letelier, College of Earth, Ocean, and Atmospheric Sciences, Oregon State
University, Corvallis, Oregon, USA.

Corresponding author: J. E. Dore, Department of Land Resources and Environmental Sciences,
Montana State University, Bozeman, MT 59717, USA. (jdore@montana.edu)

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Introduction

This auxiliary material includes one Table and two Figures. A complete list of all significant narrowband signals detected in the ALOHA and Kahe surface ocean data sets is given in Table S1 (“ts01.docx”); a map of the study locations is given in Figure S1 (“fs01.jpg”); deseasonalized and detrended residuals for selected variables are given in Figure S2 (“fs02.jpg”).

1. ts01.docx Table S1. Narrowband signals identified by MTM spectral analysis.
2. fs01.jpg Figure S1. Google Earth map of the Hawaiian Islands within the North Pacific subtropical gyre, showing study locations. Surface ocean data were collected at Stations ALOHA and Kahe from 1988-2012. Atmospheric CO₂ data were obtained from the Mauna Loa Observatory (MLO) on the Big Island of Hawaii. Prevailing trade winds blow from northeast to southwest across the Hawaiian Islands.
3. fs02.jpg Figure S2. Residuals analysis of selected surface ocean physical and biogeochemical variables at Stations ALOHA (left panels) and Kahe (right panels), 1988-2012. Variables displayed are: (a) temperature, (b) salinity, (c) partial pressure of CO₂, (d) hydrogen ion concentration, (e) aragonite saturation state, and (f) chlorophyll *a* concentration. Residual data (symbols) remain following removal of significant (>95% confidence) narrowband signals and means or linear trends, where detected (>90% confidence), from the interpolated data vectors in Figure 1. Magenta lines represent zero residual. The residuals shown are those calculated for the time periods where Kahe data are complete, to facilitate direct comparison between stations: (a, b) Nov 1988 – Oct 2012, (c, d, e) Mar 1991 – Oct 2012, (f) Nov 1989 – Oct 2012