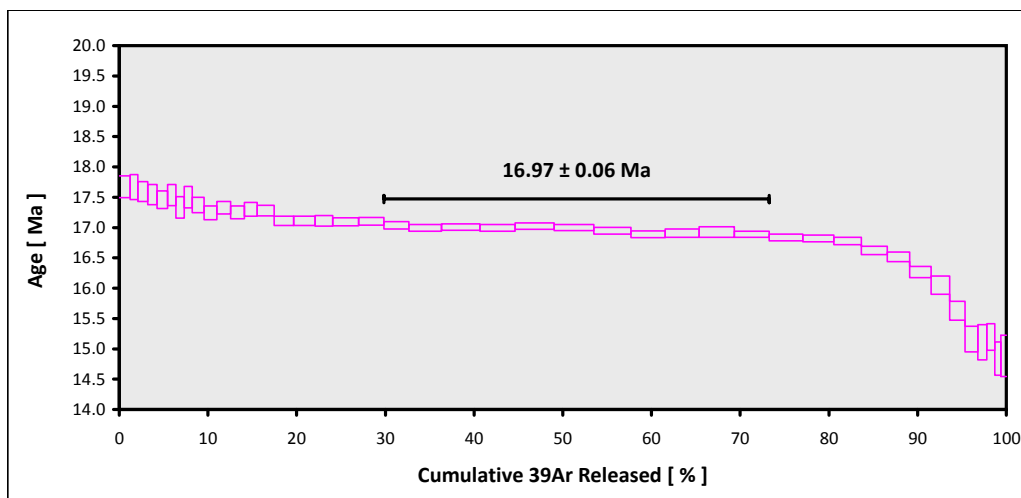


EXP#16D03488 > NMSB55 > Groundmass > MOORE (15-45)
OREGON > STEENS MOUNTAIN
15-OSU-06 (6B20-15) > Incremental Heating > Dan Miggins

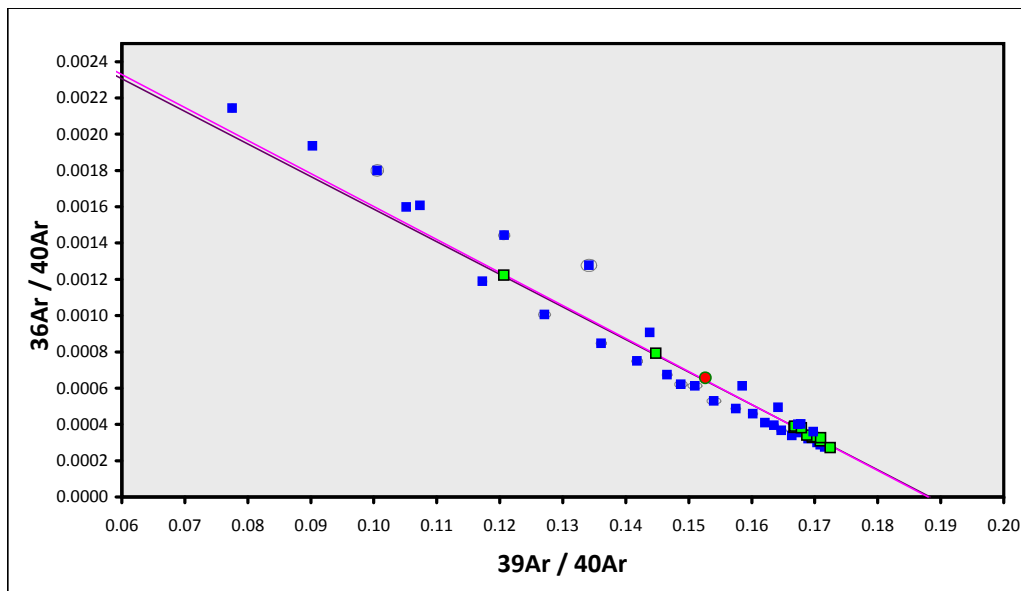
**Information on Analysis
 and Constants Used in Calculations**

Project = **MOORE (15-45)**
 Sample = **NMSB55**
 Material = **Groundmass**
 Location = **Steens Mountain**
 Region = **Oregon**
 Analyst = **Dan Miggins**
 Irradiation = **15-OSU-06 (6B20-15)**
 Position = **X: 0 | Y: 0 | Z/H: 23.38 mm**
 FCT-NM Age = **28.201 ± 0.023 Ma**
 FCT-NM Reference = **Kuiper et al (2008)**
 FCT-NM 40Ar/39Ar Ratio = **8.85262 ± 0.01169**
 FCT-NM J-value = **0.00177545 ± 0.00000234**
 Air Shot 40Ar/36Ar = **304.0500 ± 0.4135**
 Air Shot MDF = **0.99296082 ± 0.00066477 (LIN)**
 Experiment Type = **Incremental Heating**
 Extraction Method = **Bulk Laser Heating**
 Heating = **77 sec**
 Isolation = **3.00 min**
 Instrument = **ARGUS-VI-D**
 Preferred Age = **Undefined**
 Age Classification = **Undefined**
 IGSN = **Undefined**
 Rock Class = **Igneous>Volcanic>Mafic**
 Lithology = **Basaltic Lava**
 Lat-Lon = **Undefined - Undefined**
 Age Equations = **Min et al. (2000)**
 Negative Intensities = **Allowed**
 Collector Calibrations = **36Ar**
 Decay 40K = **5.530 ± 0.048 E-10 1/a**
 Decay 39Ar = **2.940 ± 0.016 E-07 1/h**
 Decay 37Ar = **8.230 ± 0.012 E-04 1/h**
 Decay 36Cl = **2.257 ± 0.015 E-06 1/a**
 Decay 40K(EC,β⁺) = **0.580 ± 0.009 E-10 1/a**
 Decay 40K(β⁻) = **4.950 ± 0.043 E-10 1/a**
 Atmospheric 40/36(a) = **295.50**
 Atmospheric 38/36(a) = **0.1869**
 Production 39/37(ca) = **0.0006756 ± 0.0000089**
 Production 38/37(ca) = **0.0000718 ± 0.0000092**
 Production 36/37(ca) = **0.0002663 ± 0.0000004**
 Production 40/39(k) = **0.003823 ± 0.000102**
 Production 38/39(k) = **0.012031 ± 0.000019**
 Production 36/38(cl) = **262.80 ± 1.71**
 Scaling Ratio K/Ca = **0.430**
 Abundance Ratio 40K/K = **1.1700 ± 0.0100 E-04**
 Atomic Weight K = **39.0983 ± 0.0001 g**

Results	40(a)/36(a) ± 2σ	40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD	39Ar(k) (% ,n)	K/Ca ± 2σ
Age Plateau						
Error Mean		5.31025 ± 0.01053 ± 0.20%	16.97 ± 0.06 ± 0.33%	3.86	43.44	0.119 ± 0.008
			Full External Error ± 0.39	0%	11	
			Analytical Error ± 0.03	1.89	2σ Confidence Limit	
				1.9658	Error Magnification	
Total Fusion Age		5.28096 ± 0.00433 ± 0.08%	16.88 ± 0.05 ± 0.28%		43	0.092 ± 0.000
			Full External Error ± 0.38			
			Analytical Error ± 0.01			
Normal Isochron	292.02 ± 6.09 ± 2.09%	5.31902 ± 0.01877 ± 0.35%	17.00 ± 0.07 ± 0.44%	3.92	43.44	
Error Chron			Full External Error ± 0.39	0%	11	
			Analytical Error ± 0.06	1.94	2σ Confidence Limit	
				1.9799	Error Magnification	
Inverse Isochron	292.39 ± 6.02 ± 2.06%	5.31822 ± 0.01854 ± 0.35%	16.99 ± 0.07 ± 0.44%	3.84	43.44	
Error Chron			Full External Error ± 0.39	0%	11	
			Analytical Error ± 0.06	1.94	2σ Confidence Limit	
				1.9595	Error Magnification	
				28%	Spreading Factor	



Clear plateau slightly sloping downwards



⁴⁰Ar-³⁹Ar Dating Preparation, Irradiation and Analytical Protocol

A groundmass separate of sample NMSB55 for ⁴⁰Ar-³⁹Ar was prepared as follows. Hand selected chips were crushed in a disk mill or mortar and pestle then sieved to 150-212 μm. A non-magnetic fraction was separated, which was then leached consecutively in 1N HCl (60 min), 6N HCl (60 min), 1N HNO₃ (60 min), 3N HNO₃ (60 min) and 18M Ω water (60 min). Each leaching step was conducted in an ultrasonic bath heated to 50-60°C, and following each acid step the samples were washed three times with 18M Ω water to remove any acid remaining on the samples. About 20 mg of the least altered grains were handpicked for analysis. Select groundmass grains were placed in a 9 mm quartz vial with Fish Canyon Tuff sanidine (FCT-NM) flux monitors. The sample was irradiated for 6 hours in the Cadmium-Lined In-Core Irradiation Tube (CLICIT) TRIGA nuclear reactor at Oregon State University. After irradiation, the sample was loaded in a copper tray, placed under vacuum, baked and pumped overnight at 150°C, and pre-cleaned using two low (<300°C) temperature heating steps.

Incremental age determinations were performed on a Thermo Scientific Model ARGUS-VI mass spectrometer in the Argon Geochronology Lab at Oregon State University. The ARGUS-VI has four Faraday collectors, each fitted with 10¹² Ohm resistors, and one ion-counting CuBE electron multiplier. The arrangement allows for the simultaneous measurement of ³⁶Ar on the multiplier and ³⁷Ar through ⁴⁰Ar on the adjacent Faraday collectors. J-values were calculated using a parabolic fit with interpolation between measured age standards. Age calculation and correction was performed using the decay constants of Min et al., 2000, the FCT-NM sanidine standard age of 28.201 ± 0.023 Ma (1σ; Kuiper et al. 2008), and ArArCALC v2.6.2 software (Koppers, 2002). All analytical results including total fusion age, normal and inverse isochrons, MSWD, operating conditions, constant values and other metadata are reported in Supplement 2.