



*Geochemistry, Geophysics, Geosystems*

Supporting Information for

**Dating Clinopyroxene Phenocrysts in Submarine Basalts using  $^{40}\text{Ar}/^{39}\text{Ar}$  Geochronology**

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**Introduction**

Below are supplementary information for the age determinations present within Table 1. They include information for the age plateau, total fusion, normal isochron and inverse isochron. In addition, all production rates, decay constants and natural abundances used are displayed.

**EXP#17D02237 > NWO-1 > Clinopyroxene > KOPPERS (16-PIL-05)**  
**WPSP > NORTH-WOD EN**  
**16-OSU-10 (10B27-16) > Incremental Heating > Dan Miggins**

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

Project = KOPPERS (16-PIL-05)  
 Sample = NWO-1  
 Material = Clinopyroxene  
 Location = North-Wod En  
 Region = WPSP  
 Analyst = Dan Miggins  
 Irradiation = 16-OSU-10 (10B27-16)  
 Position = X: 0 | Y: 0 | Z/H: 39.83503 mm  
 FCT-NM Age = 28.201 ± 0.023 Ma  
 FCT-NM Reference = Kuiper et al (2008)  
 FCT-NM 40Ar/39Ar Ratio = 5.98291 ± 0.00532  
 FCT-NM J-value = 0.00262705 ± 0.00000234  
 Air Shot 40Ar/36Ar = 305.2280 ± 0.3571  
 Air Shot MDF = 0.99202189 ± 0.00064053 (LIN)  
 Experiment Type = Incremental Heating  
 Extraction Method = Bulk Laser Heating  
 Heating = 77 sec  
 Isolation = 3.00 min  
 Instrument = ARGUS-VI-D  
 Preferred Age = Plateau Age  
 Age Classification = Crystallization Age  
 IGSN = xxxxxxxxx  
 Rock Class = Undefined  
 Lithology = Basalt  
 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
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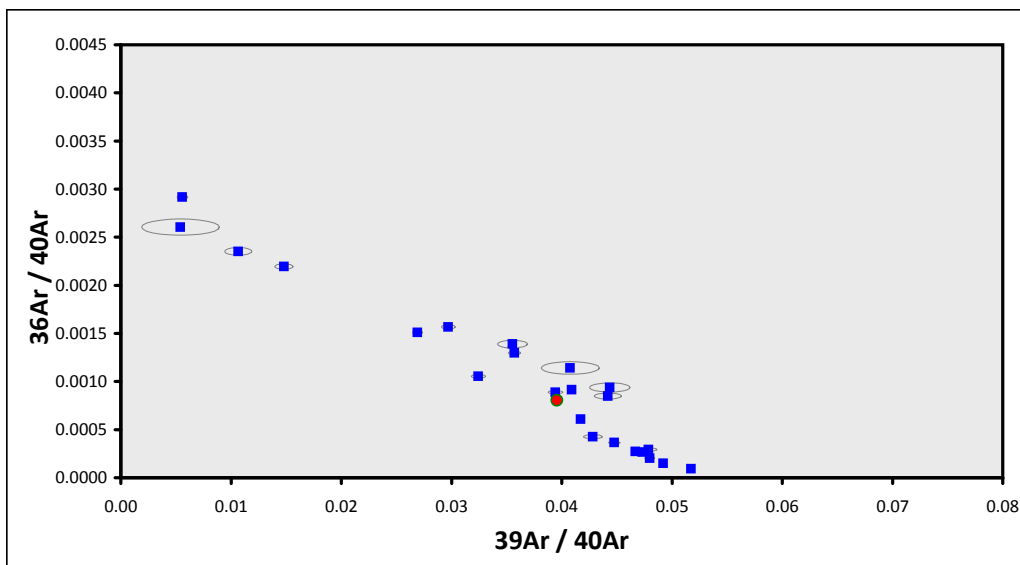
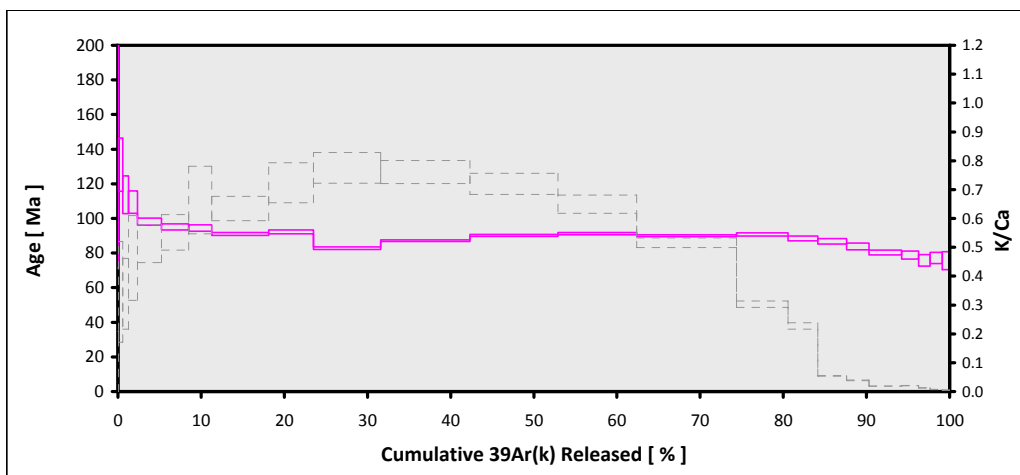
Age Plateau  
 Cannot Calculate

Total Fusion Age	19.25563 ± 0.05903 ± 0.31%	89.24 ± 0.31 ± 0.35%	23	0.093 ± 0.000
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Full External Error ± 2.01  
 Analytical Error ± 0.27

Normal Isochron  
 Cannot Calculate

Inverse Isochron  
 Cannot Calculate



**EXP#17D02129 > HIM-3 > Clinopyroxene > KOPPERS (16-PIL-05)**  
**WPSP > HIMU SEAMOUNT**  
**16-OSU-10 (10B23-16) > Incremental Heating > Dan Miggins**

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

Project = KOPPERS (16-PIL-05)  
 Sample = HIM-3  
 Material = Clinopyroxene  
 Location = Himu Seamount  
 Region = WPSP  
 Analyst = Dan Miggins  
 Irradiation = 16-OSU-10 (10B23-16)  
 Position = X: 0 | Y: 0 | Z/H: 34.57302 mm  
 FCT-NM Age = 28.201 ± 0.023 Ma  
 FCT-NM Reference = Kuiper et al (2008)  
 FCT-NM 40Ar/39Ar Ratio = 5.92151 ± 0.00533  
 FCT-NM J-value = 0.00265429 ± 0.00000239  
 Air Shot 40Ar/36Ar = 305.1420 ± 0.3662  
 Air Shot MDF = 0.99209019 ± 0.00064397 (LIN)  
 Experiment Type = Incremental Heating  
 Extraction Method = Bulk Laser Heating  
 Heating = 77 sec  
 Isolation = 3.00 min  
 Instrument = ARGUS-VI-D  
 Preferred Age = Plateau Age  
 Age Classification = Crystallization Age  
 IGSN = xxxxxxxxx  
 Rock Class = Undefined  
 Lithology = Basalt  
 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

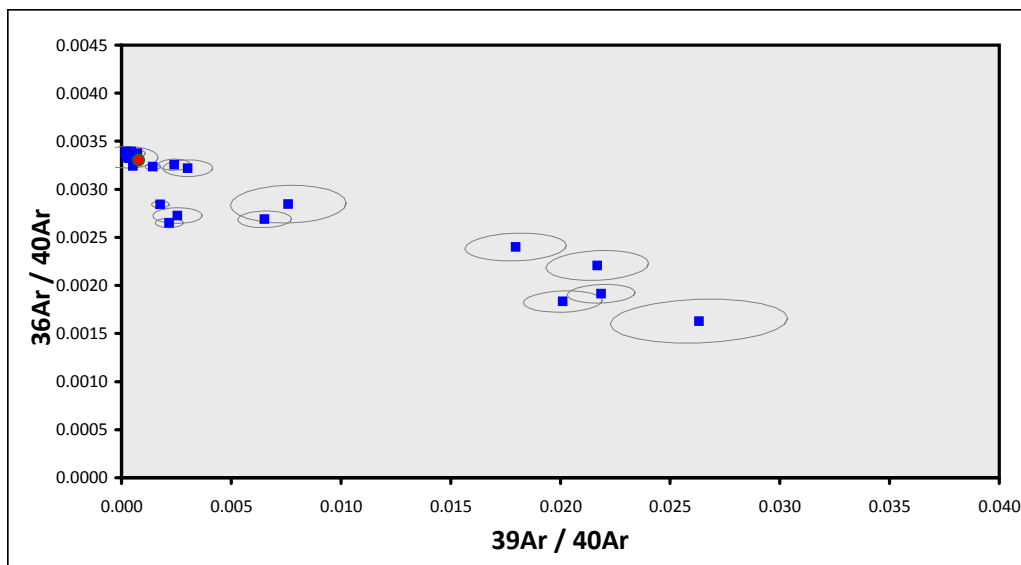
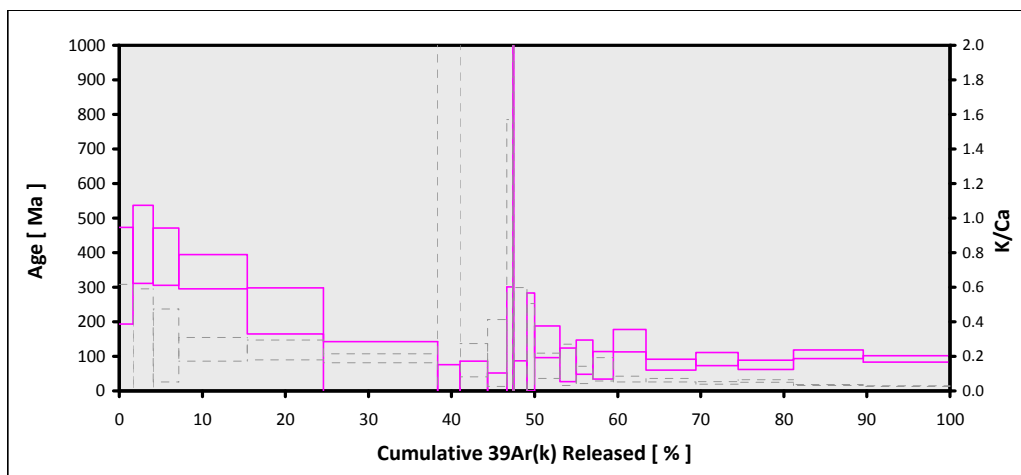
Results	40(a)/36(a) ± 2σ	40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD	39Ar(k) (%n)	K/Ca ± 2σ
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Age Plateau  
 Cannot Calculate

Total Fusion Age	30.28985 ± 3.17089 ± 10.47%	139.84 ± 14.09 ± 10.08%	23	0.078 ± 0.004
		Full External Error ± 14.43		
		Analytical Error ± 14.09		

Normal Isochron  
 Cannot Calculate

Inverse Isochron  
 Cannot Calculate



**EXP#17D13614 > HIM-3 > Clinopyroxene > KOPPERS (16-PIL-05)**  
**WPSP > HIMU SEAMOUNT**  
**16-OSU-10 (10B22-16) > Incremental Heating > Dan Miggins**

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

Project = **KOPPERS (16-PIL-05)**  
 Sample = **HIM-3**  
 Material = **Clinopyroxene**  
 Location = **Himu Seamount**  
 Region = **WPSP**  
 Analyst = **Dan Miggins**  
 Irradiation = **16-OSU-10 (10B22-16)**  
 Position = **X: 0 | Y: 0 | Z/H: 32.7694 mm**  
 FCT-NM Age = **28.201 ± 0.023 Ma**  
 FCT-NM Reference = **Kuiper et al (2008)**  
 FCT-NM 40Ar/39Ar Ratio = **5.90253 ± 0.00531**  
 FCT-NM J-value = **0.00266282 ± 0.00000240**  
 Air Shot 40Ar/36Ar = **302.1780 ± 0.4805**  
 Air Shot MDF = **0.99446797 ± 0.00069862 (LIN)**  
 Experiment Type = **Incremental Heating**  
 Extraction Method = **Bulk Laser Heating**  
 Heating = **77 sec**  
 Isolation = **3.00 min**  
 Instrument = **ARGUS-VI-D**  
 Preferred Age = **Plateau Age**  
 Age Classification = **Crystallization Age**  
 IGSN = **xxxxxxxx**  
 Rock Class = **Undefined**  
 Lithology = **Basalt**  
 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**

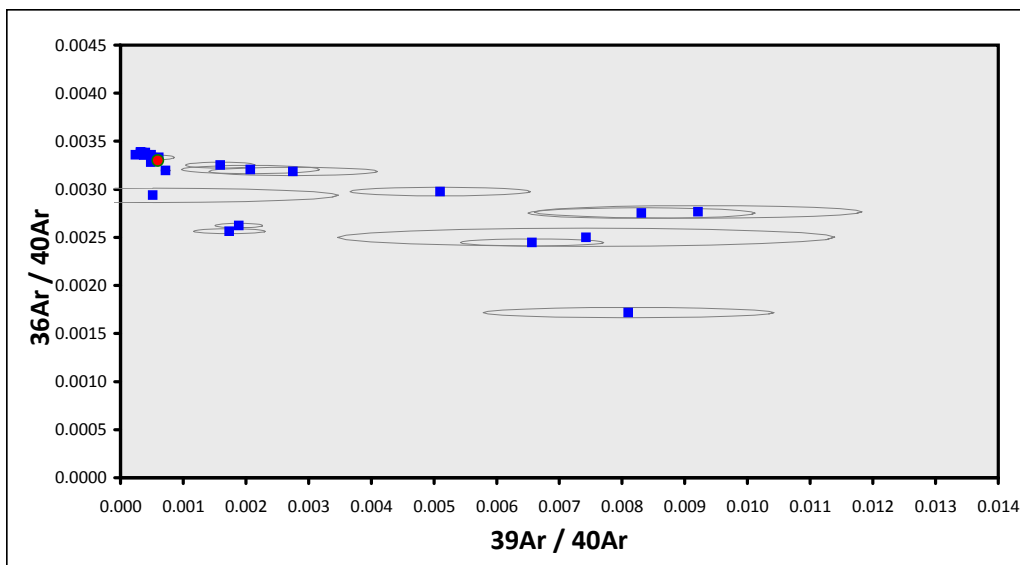
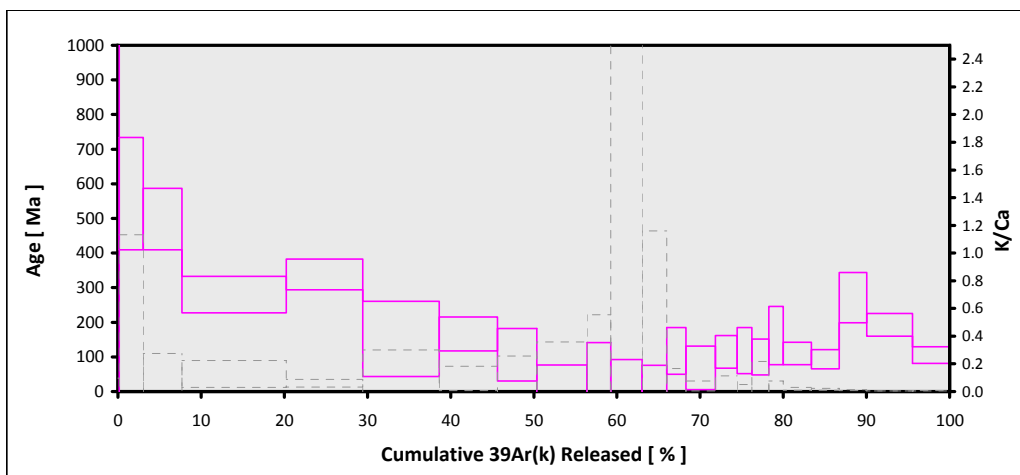
Results	40(a)/36(a) ± 2σ	40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD	39Ar(k) (%n)	K/Ca ± 2σ
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Age Plateau  
**Cannot Calculate**

Total Fusion Age	41.88363 ± 3.84326 ± 9.18%	<b>191.20 ± 16.65 ± 8.71%</b>	23	0.0281 ± 0.0030
		Full External Error ± 17.18		
		Analytical Error ± 16.65		

Normal Isochron  
**Cannot Calculate**

Inverse Isochron  
**Cannot Calculate**

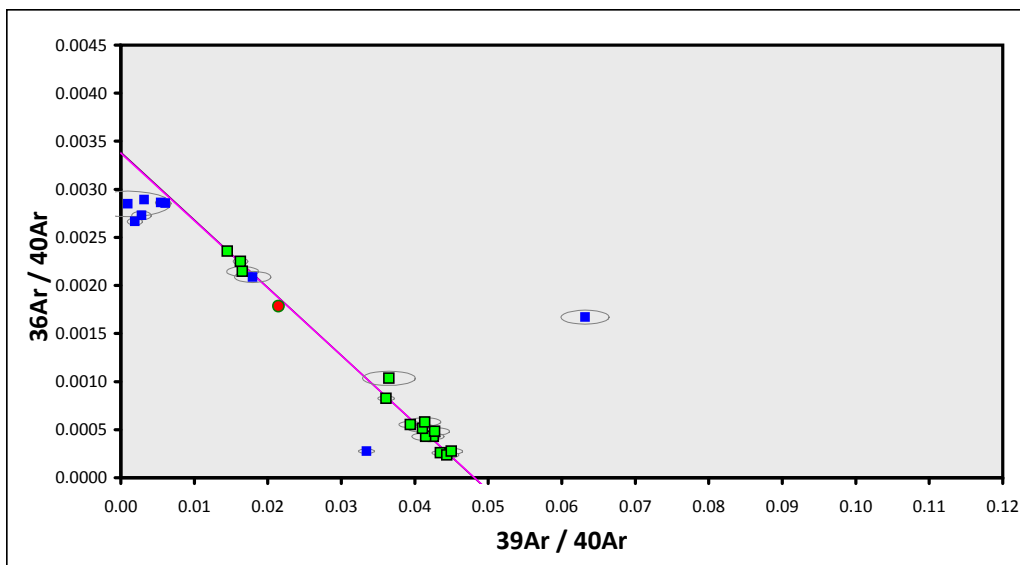
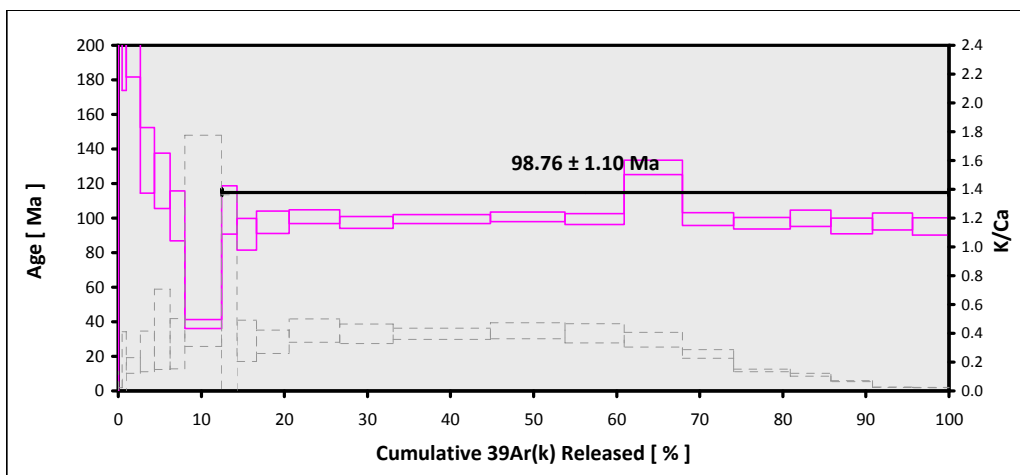


**EXP#17D02276 > MAL-2 BROWN > Clinopyroxene > KOPPERS (16-PIL-05)  
 WPSP > MALONEY  
 16-OSU-10 (10B16-16) > Incremental Heating > Dan Miggins**

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

Project = **KOPPERS (16-PIL-05)**  
 Sample = **MAL-2 BROWN**  
 Material = **Clinopyroxene**  
 Location = **Maloney**  
 Region = **WPSP**  
 Analyst = **Dan Miggins**  
 Irradiation = **16-OSU-10 (10B16-16)**  
 Position = **X: 0 | Y: 0 | Z/H: 23.91162 mm**  
 FCT-NM Age = **28.201 ± 0.023 Ma**  
 FCT-NM Reference = **Kuiper et al (2008)**  
 FCT-NM 40Ar/39Ar Ratio = **5.82384 ± 0.00530**  
 FCT-NM J-value = **0.00269880 ± 0.00000246**  
 Air Shot 40Ar/36Ar = **305.1990 ± 0.3632**  
 Air Shot MDF = **0.99204492 ± 0.00064276 (LIN)**  
 Experiment Type = **Incremental Heating**  
 Extraction Method = **Bulk Laser Heating**  
 Heating = **77 sec**  
 Isolation = **3.00 min**  
 Instrument = **ARGUS-VI-D**  
 Preferred Age = **Plateau Age**  
 Age Classification = **Crystallization Age**  
 IGSN = **xxxxxxxx**  
 Rock Class = **Undefined**  
 Lithology = **Basalt**  
 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<sup>+</sup>) = **0.580 ± 0.009 E-10 1/a**  
 Decay 40K(β<sup>-</sup>) = **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		20.79828 ± 0.23597 ± 1.13%	<b>98.76 ± 1.10</b> ± 1.12% Full External Error ± 2.46 Analytical Error ± 1.09	1.07 38% 1.78 1.0366	80.51 14 2σ Confidence Limit Error Magnification	0.030 ± 0.013
Total Fusion Age		22.00685 ± 0.26497 ± 1.20%	<b>104.33 ± 1.23</b> ± 1.18% Full External Error ± 2.63 Analytical Error ± 1.22		23	0.135 ± 0.003
Normal Isochron	<b>296.48 ± 4.03</b> ± 1.36%	20.77061 ± 0.29050 ± 1.40%	<b>98.63 ± 1.35</b> ± 1.37% Full External Error ± 2.58 Analytical Error ± 1.34	1.10 35% 1.82 1.0502	80.51 14 2σ Confidence Limit Error Magnification	
Inverse Isochron	<b>296.40 ± 4.01</b> ± 1.35%	20.78500 ± 0.28905 ± 1.39%	<b>98.69 ± 1.35</b> ± 1.36% Full External Error ± 2.58 Analytical Error ± 1.34	1.10 36% 1.82 1.0465	80.51 14 2σ Confidence Limit Error Magnification 63% Spreading Factor	

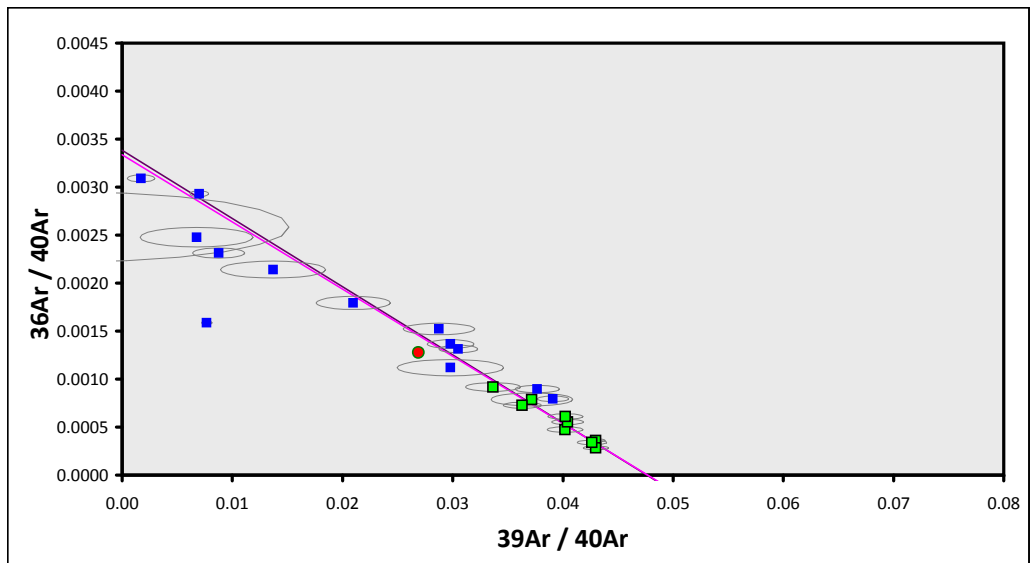
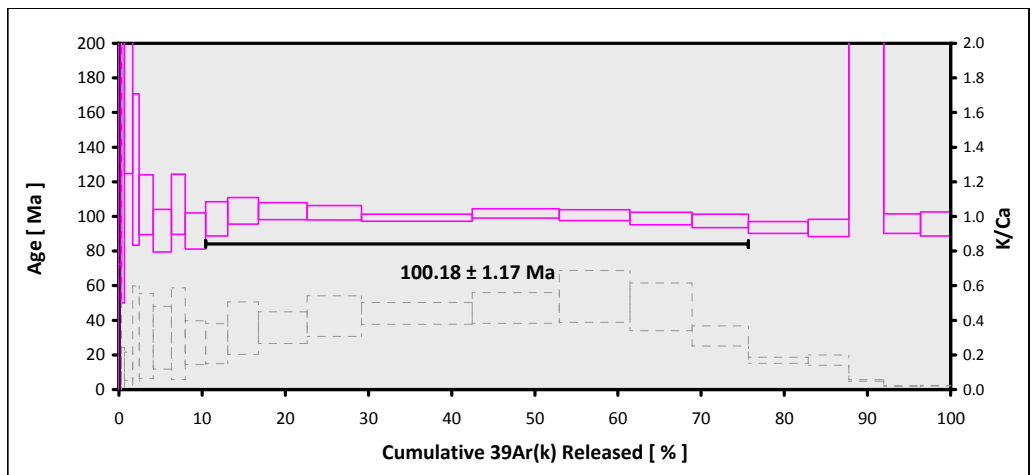


**EXP#17D03835 > MAL-2 GREEN > Clinopyroxene > KOPPERS (16-PIL-05)  
 WPSP > MALONEY  
 16-OSU-10 (10B13-16) > Incremental Heating > Dan Miggins**

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

Project = **KOPPERS (16-PIL-05)**  
 Sample = **MAL-2 GREEN**  
 Material = **Clinopyroxene**  
 Location = **Maloney**  
 Region = **WPSP**  
 Analyst = **Dan Miggins**  
 Irradiation = **16-OSU-10 (10B13-16)**  
 Position = **X: 0 | Y: 0 | Z/H: 19.06485 mm**  
 FCT-NM Age = **28.201 ± 0.023 Ma**  
 FCT-NM Reference = **Kuiper et al (2008)**  
 FCT-NM 40Ar/39Ar Ratio = **5.79115 ± 0.00533**  
 FCT-NM J-value = **0.00271404 ± 0.00000250**  
 Air Shot 40Ar/36Ar = **305.6650 ± 0.4004**  
 Air Shot MDF = **0.99167541 ± 0.00065532 (LIN)**  
 Experiment Type = **Incremental Heating**  
 Extraction Method = **Bulk Laser Heating**  
 Heating = **77 sec**  
 Isolation = **3.00 min**  
 Instrument = **ARGUS-VI-D**  
 Preferred Age = **Plateau Age**  
 Age Classification = **Crystallization Age**  
 IGSN = **xxxxxxxx**  
 Rock Class = **Undefined**  
 Lithology = **Basalt**  
 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) (% <sub>n</sub> )	K/Ca ± 2σ
Age Plateau		20.98717 ± 0.24801 ± 1.18%	<b>100.18 ± 1.17 ± 1.16%</b> Full External Error ± 2.52 Analytical Error ± 1.15	1.00 44%	65.25 9	0.389 ± 0.054
Total Fusion Age		23.15630 ± 0.30765 ± 1.33%	<b>110.22 ± 1.43 ± 1.30%</b> Full External Error ± 2.84 Analytical Error ± 1.42	2.00 1.0000	20 2σ Confidence Limit Error Magnification	
Normal Isochron	<b>299.24 ± 57.24 ± 19.13%</b>	20.95717 ± 0.66646 ± 3.18%	<b>100.04 ± 3.10 ± 3.10%</b> Full External Error ± 3.82 Analytical Error ± 3.09	1.14 34%	65.25 9	2.07 2σ Confidence Limit Error Magnification
Inverse Isochron	<b>299.67 ± 55.11 ± 18.39%</b>	20.95913 ± 0.66473 ± 3.17%	<b>100.04 ± 3.09 ± 3.09%</b> Full External Error ± 3.81 Analytical Error ± 3.09	1.14 34%	65.25 9	2.07 2σ Confidence Limit Error Magnification 20% Spreading Factor

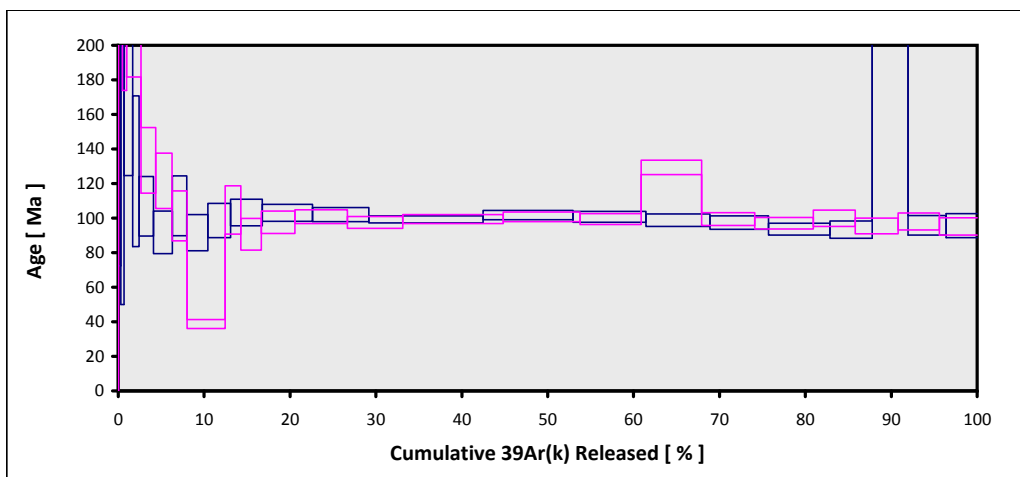


**STACK > 17D02276 > Clinopyroxene > KOPPERS (16-PIL-05)  
 WPSP > MALONEY  
 16-OSU-10 (10B16-16) > Incremental Heating > Dan Miggins**

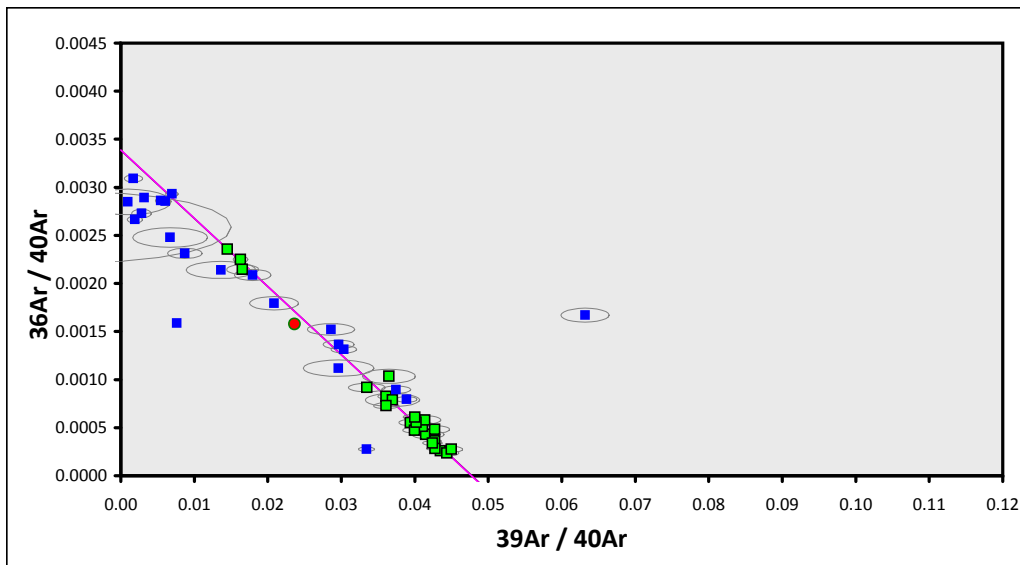
**Information on Analysis  
 and Constants Used in Calculations**

Project = **KOPPERS (16-PIL-05)**  
 Stack = **17D02276**  
 Material = **Clinopyroxene**  
 Location = **Maloney**  
 Region = **WPSP**  
 Analyst = **Dan Miggins**  
 Irradiation = **16-OSU-10 (10B16-16)**  
 Position = **X: 0 | Y: 0 | Z/H: 23.91162 mm**  
 FCT-NM Age = **28.201 ± 0.023 Ma**  
 FCT-NM Reference = **Kuiper et al (2008)**  
 FCT-NM 40Ar/39Ar Ratio = **5.82384 ± 0.00530**  
 FCT-NM J-value = **0.00269880 ± 0.00000246**  
 Air Shot 40Ar/36Ar = **305.1990 ± 0.3632**  
 Air Shot MDF = **0.99204492 ± 0.00064276 (LIN)**  
 Experiment Type = **Incremental Heating**  
 Extraction Method = **Bulk Laser Heating**  
 Heating = **77 sec**  
 Isolation = **3.00 min**  
 Instrument = **ARGUS-VI-D**  
 Preferred Age = **Plateau Age**  
 Age Classification = **Eruption Age**  
 IGSN = **xxxxxxxx**  
 Rock Class = **Undefined**  
 Lithology = **Basalt**  
 Lat-Lon = **Undefined - Undefined**  
 Age Equations = **Min et al. (2000)**  
 Negative Intensities = **Allowed**  
 Collector Calibrations = **40Ar 39Ar 38Ar 37Ar 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<sup>+</sup>) = **0.580 ± 0.009 E-10 1/a**  
 Decay 40K(β<sup>-</sup>) = **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) (% <sub>n</sub> )	K/Ca ± 2σ
Age Plateau		20.93796 ± 0.18012 ± 0.86%	99.40 ± 0.85 ± 0.86%	1.15	73.40	0.030 ± 0.011
			Full External Error ± 2.37	29%	23	
			Analytical Error ± 0.83	1.60	2σ Confidence Limit	
				1.0713	Error Magnification	
Total Fusion Age		22.60340 ± 0.20158 ± 0.89%	107.08 ± 0.95 ± 0.88%		46	0.136 ± 0.002
			Full External Error ± 2.56			
			Analytical Error ± 0.93			
Normal Isochron	295.31 ± 3.94 ± 1.33%	20.95713 ± 0.21143 ± 1.01%	99.49 ± 0.99 ± 1.00%	1.18	73.40	
			Full External Error ± 2.43	26%	23	
			Analytical Error ± 0.98	1.62	2σ Confidence Limit	
				1.0850	Error Magnification	
Inverse Isochron	295.25 ± 3.92 ± 1.33%	20.96803 ± 0.21049 ± 1.00%	99.54 ± 0.99 ± 0.99%	1.17	73.40	
			Full External Error ± 2.43	27%	23	
			Analytical Error ± 0.97	1.62	2σ Confidence Limit	
				1.0802	Error Magnification	
				64%	Spreading Factor	



Stack of the two successful age determinations

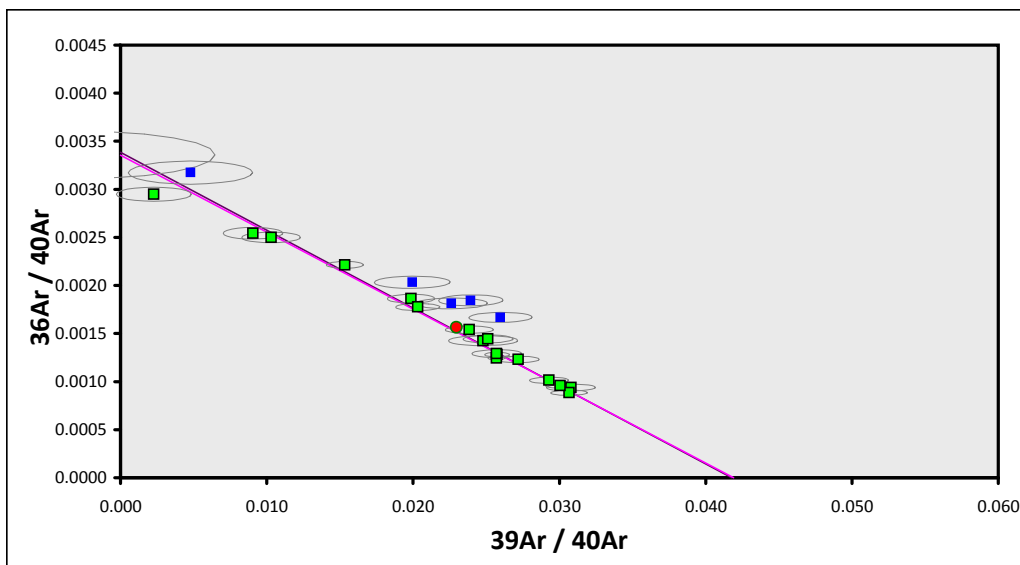
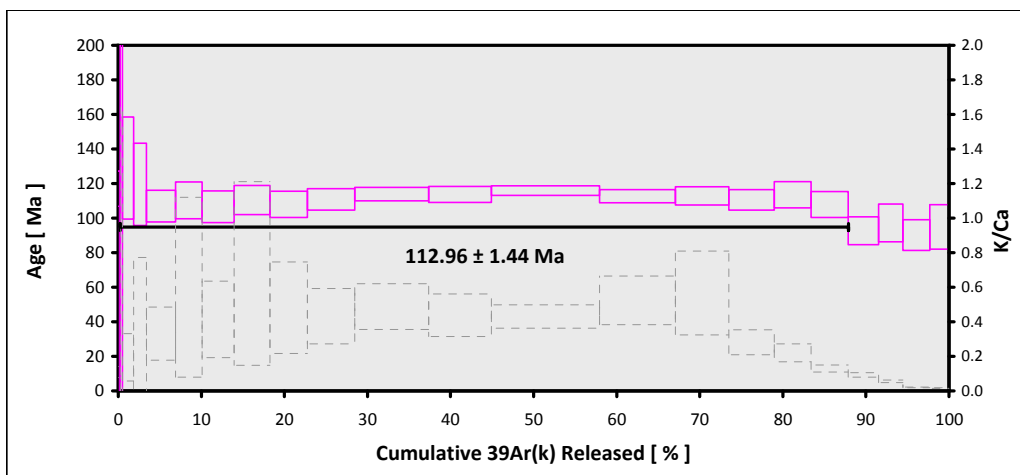


**EXP#17D03727 > JEN-4 > Clinopyroxene > KOPPERS (16-PIL-05)  
 WPSP > JENNINGS  
 16-OSU-10 (10B17-16) > Incremental Heating > Dan Miggins**

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

Project = KOPPERS (16-PIL-05)  
 Sample = JEN-4  
 Material = Clinopyroxene  
 Location = Jennings  
 Region = WPSP  
 Analyst = Dan Miggins  
 Irradiation = 16-OSU-10 (10B17-16)  
 Position = X: 0 | Y: 0 | Z/H: 25.55492 mm  
 FCT-NM Age = 28.201 ± 0.023 Ma  
 FCT-NM Reference = Kuiper et al (2008)  
 FCT-NM 40Ar/39Ar Ratio = 5.83655 ± 0.00531  
 FCT-NM J-value = 0.00269293 ± 0.00000245  
 Air Shot 40Ar/36Ar = 305.6250 ± 0.3973  
 Air Shot MDF = 0.99170709 ± 0.00065424 (LIN)  
 Experiment Type = Incremental Heating  
 Extraction Method = Bulk Laser Heating  
 Heating = 77 sec  
 Isolation = 3.00 min  
 Instrument = ARGUS-VI-D  
 Preferred Age = Plateau Age  
 Age Classification = Crystallization Age  
 IGSN = xxxxxxxxxx  
 Rock Class = Undefined  
 Lithology = Basalt  
 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		23.93583 ± 0.31171 ± 1.30%	112.96 ± 1.44 ± 1.27% Full External Error ± 2.89 Analytical Error ± 1.43	1.03 42% 1.71 1.0147	87.64 17 2σ Confidence Limit Error Magnification	0.199 ± 0.059
Total Fusion Age		23.38623 ± 0.35924 ± 1.54%	110.44 ± 1.66 ± 1.50% Full External Error ± 2.96 Analytical Error ± 1.65		23	0.160 ± 0.006
Normal Isochron	297.72 ± 12.03 ± 4.04%	23.86777 ± 0.69000 ± 2.89%	112.65 ± 3.16 ± 2.81% Full External Error ± 4.03 Analytical Error ± 3.16	1.34 17% 1.73 1.1576	87.64 17 2σ Confidence Limit Error Magnification	
Inverse Isochron	297.97 ± 11.96 ± 4.01%	23.86199 ± 0.68998 ± 2.89%	112.62 ± 3.16 ± 2.81% Full External Error ± 4.03 Analytical Error ± 3.16	1.34 17% 1.73 1.1588	87.64 17 2σ Confidence Limit Error Magnification Spreading Factor	



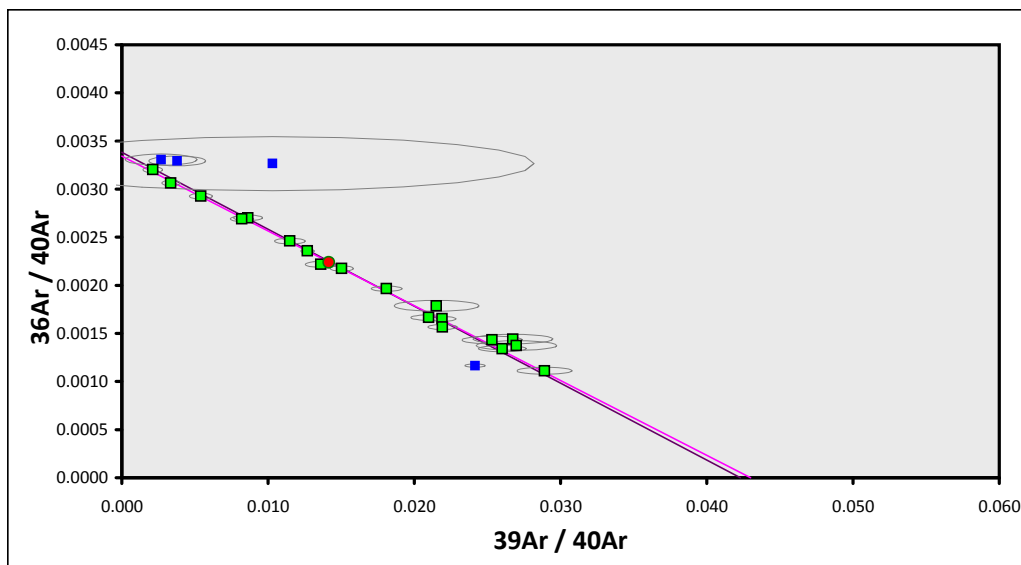
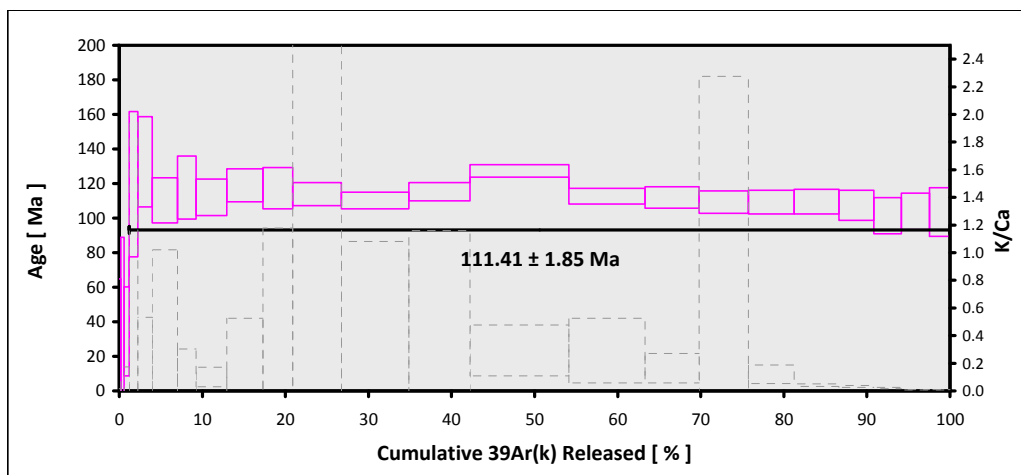


**EXP#17D13680 > JEN-4 > Clinopyroxene > KOPPERS (16-PIL-05)  
 WPSP > JENNINGS  
 16-OSU-10 (10B18-16) > Incremental Heating > Dan Miggins**

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

Project = KOPPERS (16-PIL-05)  
 Sample = JEN-4  
 Material = Clinopyroxene  
 Location = Jennings  
 Region = WPSP  
 Analyst = Dan Miggins  
 Irradiation = 16-OSU-10 (10B18-16)  
 Position = X: 0 | Y: 0 | Z/H: 27.04362 mm  
 FCT-NM Age = 28.201 ± 0.023 Ma  
 FCT-NM Reference = Kuiper et al (2008)  
 FCT-NM 40Ar/39Ar Ratio = 5.84884 ± 0.00532  
 FCT-NM J-value = 0.00268727 ± 0.00000245  
 Air Shot 40Ar/36Ar = 302.1720 ± 0.4714  
 Air Shot MDF = 0.99447283 ± 0.00069457 (LIN)  
 Experiment Type = Incremental Heating  
 Extraction Method = Bulk Laser Heating  
 Heating = 77 sec  
 Isolation = 3.00 min  
 Instrument = ARGUS-VI-D  
 Preferred Age = Plateau Age  
 Age Classification = Crystallization Age  
 IGSN = xxxxxxxx  
 Rock Class = Undefined  
 Lithology = Basalt  
 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<sup>+</sup>) = 0.580 ± 0.009 E-10 1/a  
 Decay 40K(β<sup>-</sup>) = 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		23.64751 ± 0.40215 ± 1.70%	111.41 ± 1.85 ± 1.66% Full External Error ± 3.09 Analytical Error ± 1.84	1.06 39% 1.67 1.0272	86.91 19 2σ Confidence Limit Error Magnification	0.009 ± 0.002
Total Fusion Age		23.93296 ± 0.41322 ± 1.73%	112.71 ± 1.90 ± 1.68% Full External Error ± 3.14 Analytical Error ± 1.89		23	0.067 ± 0.006
Normal Isochron	299.19 ± 3.25 ± 1.09%	23.25394 ± 0.56255 ± 2.42%	109.61 ± 2.58 ± 2.35% Full External Error ± 3.55 Analytical Error ± 2.57	0.84 65% 1.69 1.0000	86.91 19 2σ Confidence Limit Error Magnification	
Inverse Isochron	299.18 ± 3.25 ± 1.09%	23.25964 ± 0.56322 ± 2.42%	109.64 ± 2.58 ± 2.36% Full External Error ± 3.55 Analytical Error ± 2.58	0.84 65% 1.69 1.0000 62%	86.91 19 2σ Confidence Limit Error Magnification Spreading Factor	

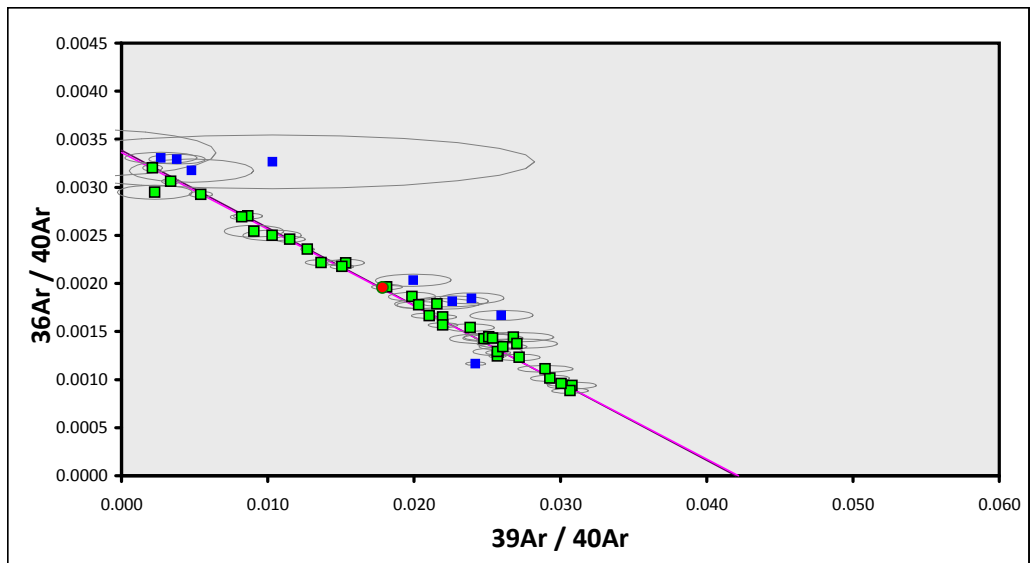
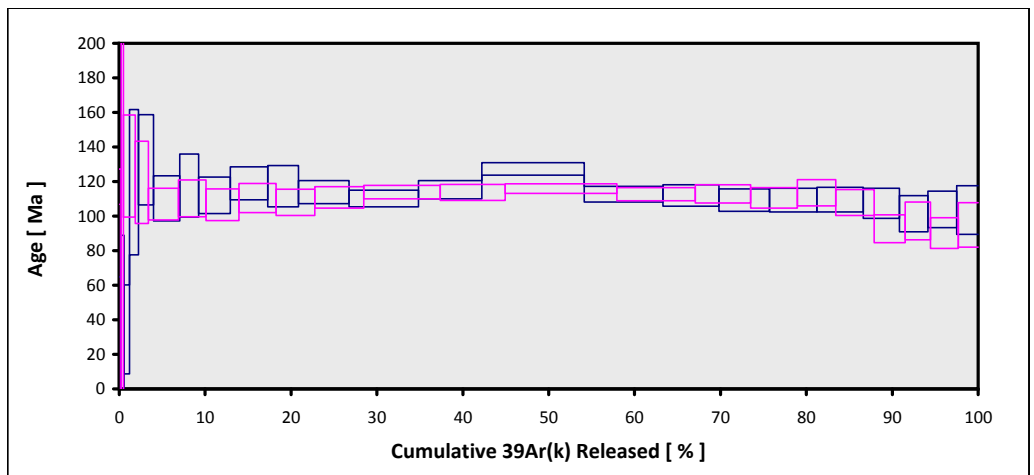


**STACK > JEN-4 CPX (N=2) > Clinopyroxene > KOPPERS (16-PIL-05)  
 WPSP > JENNINGS  
 16-OSU-10 (10B17-16) > Incremental Heating > Dan Miggins**

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

Project = **KOPPERS (16-PIL-05)**  
 Stack = **JEN-4 CPX (N=2)**  
 Material = **Clinopyroxene**  
 Location = **Jennings**  
 Region = **WPSP**  
 Analyst = **Dan Miggins**  
 Irradiation = **16-OSU-10 (10B17-16)**  
 Position = **X: 0 | Y: 0 | Z/H: 25.55492 mm**  
 FCT-NM Age = **28.201 ± 0.023 Ma**  
 FCT-NM Reference = **Kuiper et al (2008)**  
 FCT-NM 40Ar/39Ar Ratio = **5.83655 ± 0.00531**  
 FCT-NM J-value = **0.00269293 ± 0.00000245**  
 Air Shot 40Ar/36Ar = **305.6250 ± 0.3973**  
 Air Shot MDF = **0.99170709 ± 0.00065424 (LIN)**  
 Experiment Type = **Incremental Heating**  
 Extraction Method = **Bulk Laser Heating**  
 Heating = **77 sec**  
 Isolation = **3.00 min**  
 Instrument = **ARGUS-VI-D**  
 Preferred Age = **Plateau Age**  
 Age Classification = **Crystallization Age**  
 IGSN = **xxxxxxxx**  
 Rock Class = **Undefined**  
 Lithology = **Basalt**  
 Lat-Lon = **Undefined - Undefined**  
 Age Equations = **Min et al. (2000)**  
 Negative Intensities = **Allowed**  
 Collector Calibrations = **40Ar 39Ar 38Ar 37Ar 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		23.80669 ± 0.24935 ± 1.05%	<b>112.37 ± 1.16 ± 1.03%</b> Full External Error ± 2.75 Analytical Error ± 1.14	1.07 36%	87.30 36	0.009 ± 0.004
Total Fusion Age		23.61603 ± 0.27128 ± 1.15%	<b>111.49 ± 1.26 ± 1.13%</b> Full External Error ± 2.78 Analytical Error ± 1.24		46	0.097 ± 0.006
Normal Isochron	<b>297.59 ± 3.03 ± 1.02%</b>	23.69893 ± 0.34933 ± 1.47%	<b>111.87 ± 1.61 ± 1.44%</b> Full External Error ± 2.96 Analytical Error ± 1.60	1.14 26%	87.30 36	1.49 2σ Confidence Limit Error Magnification
Inverse Isochron	<b>297.59 ± 3.03 ± 1.02%</b>	23.70621 ± 0.34940 ± 1.47%	<b>111.91 ± 1.61 ± 1.44%</b> Full External Error ± 2.96 Analytical Error ± 1.60	1.14 26%	87.30 36	1.49 2σ Confidence Limit 68% Spreading Factor

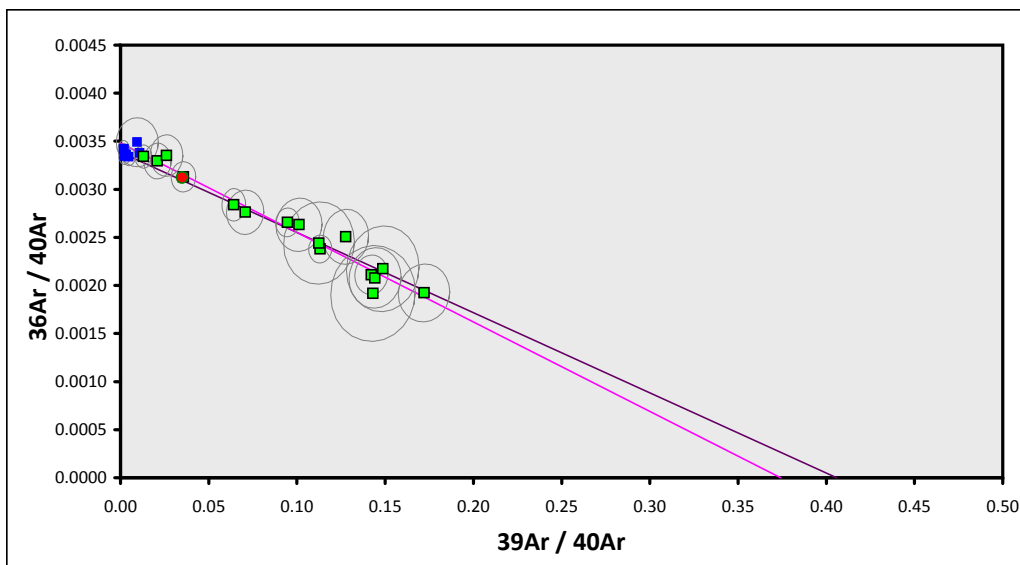
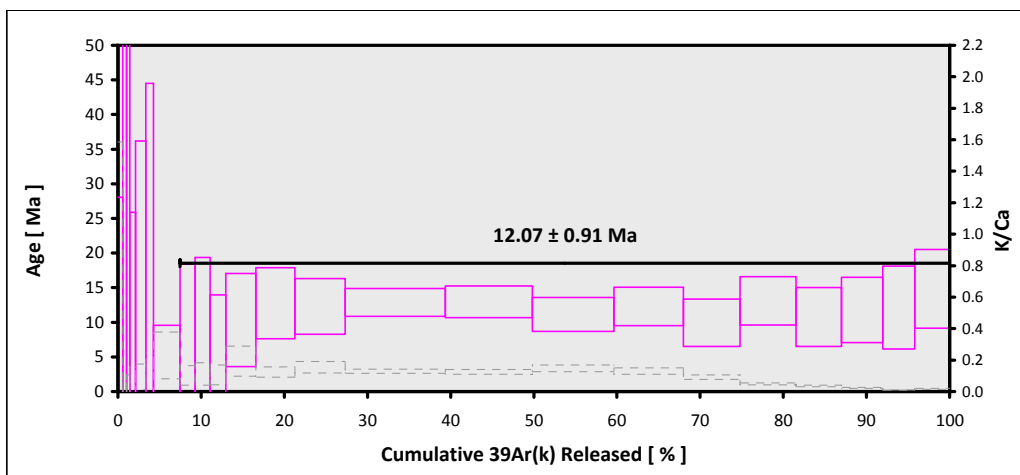


**EXP#17D02168 > RR1310-D21-04 > Clinopyroxene > KOPPERS (16-PIL-05)  
 TUALU > NUKULAEAE ATOLL  
 16-OSU-10 (10B12-16) > Incremental Heating > Dan Miggins**

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

Project = **KOPPERS (16-PIL-05)**  
 Sample = **RR1310-D21-04**  
 Material = **Clinopyroxene**  
 Location = **Nukulaelae Atoll**  
 Region = **Tuvalu**  
 Analyst = **Dan Miggins**  
 Irradiation = **16-OSU-10 (10B12-16)**  
 Position = **X: 0 | Y: 0 | Z/H: 17.38993 mm**  
 FCT-NM Age = **28.201 ± 0.023 Ma**  
 FCT-NM Reference = **Kuiper et al (2008)**  
 FCT-NM 40Ar/39Ar Ratio = **5.78159 ± 0.00532**  
 FCT-NM J-value = **0.00271852 ± 0.00000250**  
 Air Shot 40Ar/36Ar = **305.1860 ± 0.3601**  
 Air Shot MDF = **0.99205524 ± 0.00064170 (LIN)**  
 Experiment Type = **Incremental Heating**  
 Extraction Method = **Bulk Laser Heating**  
 Heating = **77 sec**  
 Isolation = **3.00 min**  
 Instrument = **ARGUS-VI-D**  
 Preferred Age = **Inverse Isochron**  
 Age Classification = **Crystallization Age**  
 IGSN = **xxxxxxxxxx**  
 Rock Class = **Undefined**  
 Lithology = **Basalt**  
 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		2.46357 ± 0.18678 ± 7.58%	12.07 ± 0.91 ± 7.56%	0.68 81%	92.54 16	0.0191 ± 0.0110
			Full External Error ± 0.95 Analytical Error ± 0.91	1.73 1.0000	2σ Confidence Limit Error Magnification	
Total Fusion Age		2.20405 ± 0.24766 ± 11.24%	10.80 ± 1.21 ± 11.20%		23	0.0562 ± 0.0022
			Full External Error ± 1.23 Analytical Error ± 1.21			
Normal Isochron	287.33 ± 8.15 ± 2.84%	2.65333 ± 0.27081 ± 10.21%	13.00 ± 1.32 ± 10.17%	0.42 97%	92.54 16	
			Full External Error ± 1.35 Analytical Error ± 1.32	1.76 1.0000	2σ Confidence Limit Error Magnification	
Inverse Isochron	287.30 ± 8.14 ± 2.83%	2.67277 ± 0.26827 ± 10.04%	13.09 ± 1.31 ± 10.00%	0.41 97%	92.54 16	
			Full External Error ± 1.34 Analytical Error ± 1.31	1.76 1.0000	2σ Confidence Limit Error Magnification	
				43%	Spreading Factor	

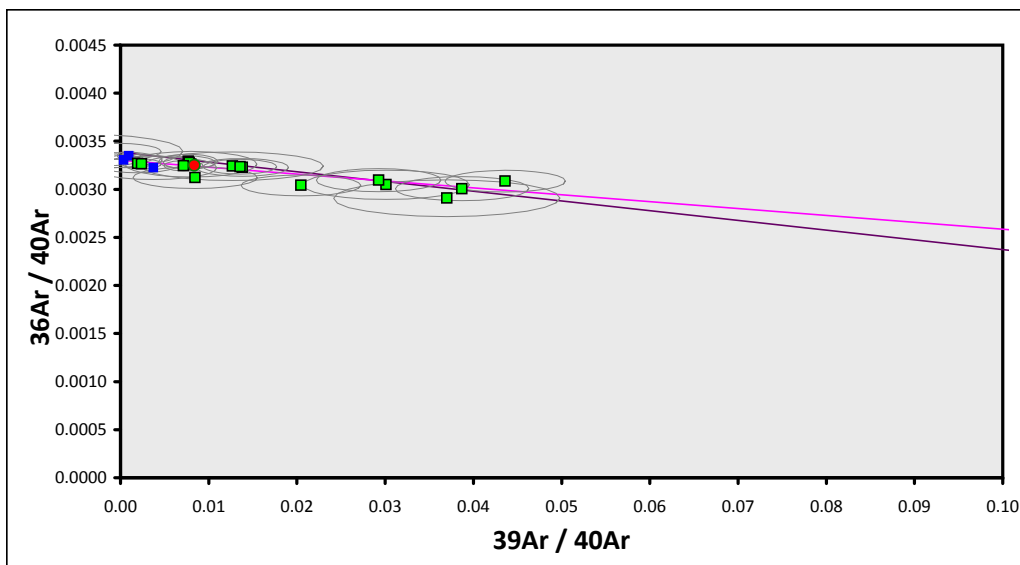
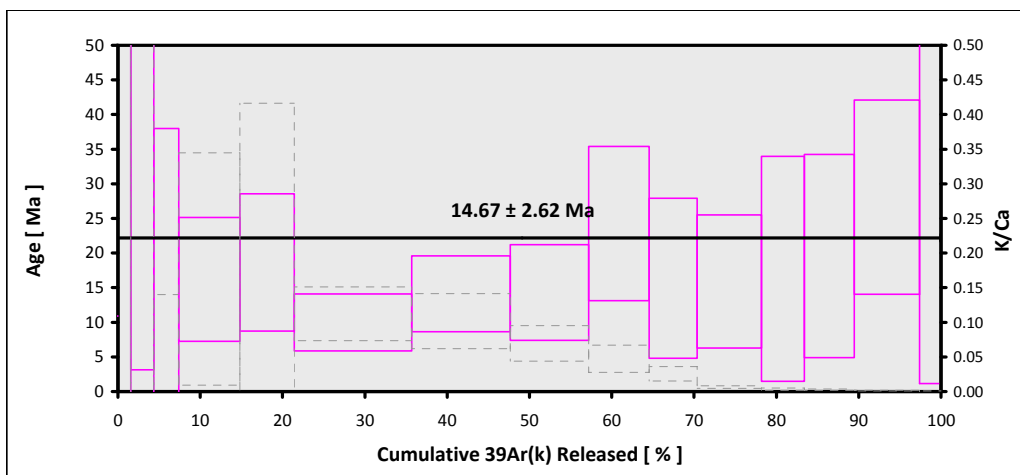


**EXP#17D03523 > RR1310-D21-04 > Clinopyroxene > KOPPERS (16-PIL-05)  
 TUALU > NUKULAEAE ATOLL  
 16-OSU-10 (10B11-16) > Incremental Heating > Dan Miggins**

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

Project = KOPPERS (16-PIL-05)  
 Sample = RR1310-D21-04  
 Material = Clinopyroxene  
 Location = Nukulaeae Atoll  
 Region = Tuvalu  
 Analyst = Dan Miggins  
 Irradiation = 16-OSU-10 (10B11-16)  
 Position = X: 0 | Y: 0 | Z/H: 15.58631 mm  
 FCT-NM Age = 28.201 ± 0.023 Ma  
 FCT-NM Reference = Kuiper et al (2008)  
 FCT-NM 40Ar/39Ar Ratio = 5.76905 ± 0.00531  
 FCT-NM J-value = 0.00272443 ± 0.00000251  
 Air Shot 40Ar/36Ar = 305.5670 ± 0.3881  
 Air Shot MDF = 0.99175303 ± 0.00065090 (LIN)  
 Experiment Type = Incremental Heating  
 Extraction Method = Bulk Laser Heating  
 Heating = 77 sec  
 Isolation = 2.12 min  
 Instrument = ARGUS-VI-D  
 Preferred Age = Inverse Isochron  
 Age Classification = Crystallization Age  
 IGSN = xxxxxxxx  
 Rock Class = Undefined  
 Lithology = Basalt  
 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(εC,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 ± 0.70  
 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		2.98909 ± 0.53681 ± 17.96%	14.67 ± 2.62 ± 17.89%	1.24 23%	101.82 16	0.0014 ± 0.0011
			Full External Error ± 2.64 Analytical Error ± 2.62	1.73 1.1128	2σ Confidence Limit Error Magnification	
Total Fusion Age		4.76711 ± 0.83713 ± 17.56%	23.33 ± 4.07 ± 17.45%		23	0.0062 ± 0.0007
			Full External Error ± 4.11 Analytical Error ± 4.07			
Normal Isochron	302.99 ± 3.26 ± 1.08%	2.12410 ± 0.66849 ± 31.47%	10.43 ± 3.27 ± 31.38%	1.07 38%	101.82 16	
			Full External Error ± 3.28 Analytical Error ± 3.27	1.76 1.0335	2σ Confidence Limit Error Magnification	
Inverse Isochron	302.98 ± 3.31 ± 1.09%	2.17028 ± 0.60770 ± 28.00%	10.66 ± 2.98 ± 27.92%	1.10 36%	101.82 16	
			Full External Error ± 2.99 Analytical Error ± 2.98	1.76 1.0466	2σ Confidence Limit Error Magnification	9% Spreading Factor

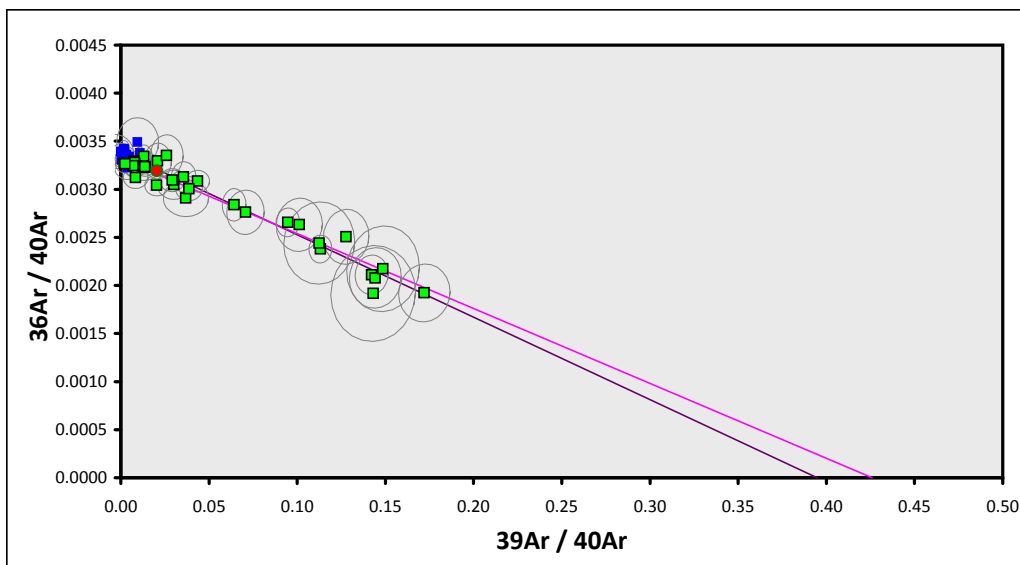
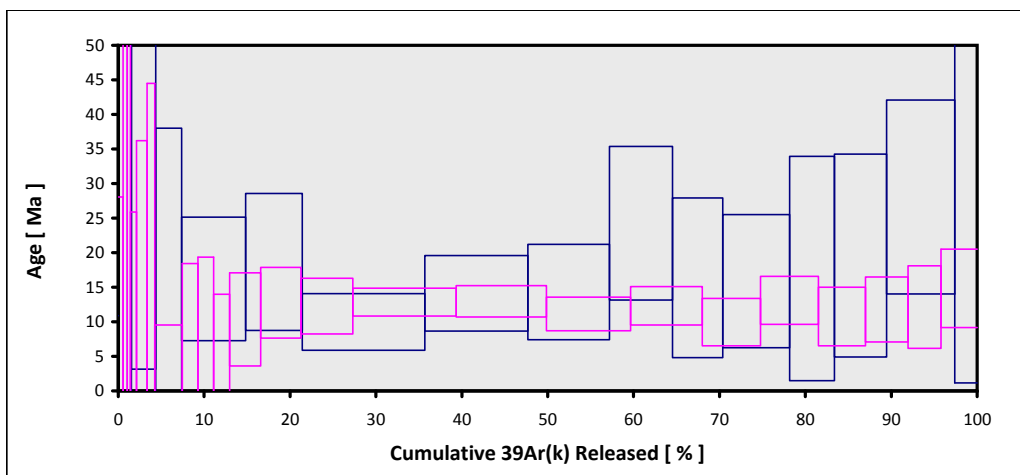


**STACK > RR1310-D21-04 CPX (N=2) > Clinopyroxene > KOPPERS (16-PIL-05)  
 TUALU > NUKULAEAE ATOLL  
 16-OSU-10 (10B12-16) > Incremental Heating > Dan Miggins**

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

Project = **KOPPERS (16-PIL-05)**  
 Stack = **RR1310-D21-04 CPX (N=2)**  
 Material = **Clinopyroxene**  
 Location = **Nukulaelae Atoll**  
 Region = **Tualu**  
 Analyst = **Dan Miggins**  
 Irradiation = **16-OSU-10 (10B12-16)**  
 Position = **X: 0 | Y: 0 | Z/H: 17.38993 mm**  
 FCT-NM Age = **28.201 ± 0.023 Ma**  
 FCT-NM Reference = **Kuiper et al (2008)**  
 FCT-NM 40Ar/39Ar Ratio = **5.78159 ± 0.00532**  
 FCT-NM J-value = **0.00271852 ± 0.00000250**  
 Air Shot 40Ar/36Ar = **305.1860 ± 0.3601**  
 Air Shot MDF = **0.99205524 ± 0.00064170 (LIN)**  
 Experiment Type = **Incremental Heating**  
 Extraction Method = **Bulk Laser Heating**  
 Heating = **77 sec**  
 Isolation = **3.00 min**  
 Instrument = **ARGUS-VI-D**  
 Preferred Age = **Plateau Age**  
 Age Classification = **Crystallization Age**  
 IGSN = **xxxxxxxx**  
 Rock Class = **Undefined**  
 Lithology = **Basalt**  
 Lat-Lon = **Undefined - Undefined**  
 Age Equations = **Min et al. (2000)**  
 Negative Intensities = **Allowed**  
 Collector Calibrations = **40Ar 39Ar 38Ar 37Ar 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<sup>+</sup>) = **0.580 ± 0.009 E-10 1/a**  
 Decay 40K(β<sup>-</sup>) = **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		2.53267 ± 0.17967 ± 7.09%	12.41 ± 0.88 ± 7.07%	1.06 37%	94.60 32	0.0025 ± 0.0025
			Full External Error ± 0.92 Analytical Error ± 0.88	1.51 1.0312	2σ Confidence Limit Error Magnification	
Total Fusion Age		2.77765 ± 0.25407 ± 9.15%	13.60 ± 1.24 ± 9.11%		46	0.0200 ± 0.0007
			Full External Error ± 1.28 Analytical Error ± 1.24			
Normal Isochron	301.24 ± 2.54 ± 0.84%	2.31943 ± 0.21651 ± 9.33%	11.37 ± 1.06 ± 9.31%	1.13 29%	94.60 32	
			Full External Error ± 1.09 Analytical Error ± 1.06	1.52 1.0624	2σ Confidence Limit Error Magnification	
Inverse Isochron	301.38 ± 2.52 ± 0.84%	2.34751 ± 0.20769 ± 8.85%	11.50 ± 1.01 ± 8.82%	1.12 30%	94.60 32	
			Full External Error ± 1.05 Analytical Error ± 1.01	1.0566 40%	2σ Confidence Limit Error Magnification Spreading Factor	

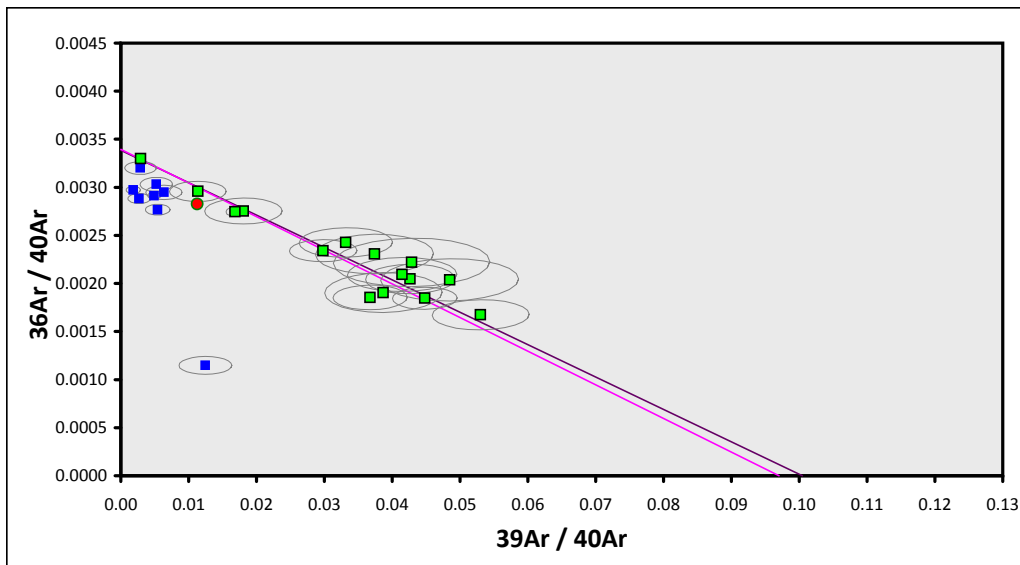
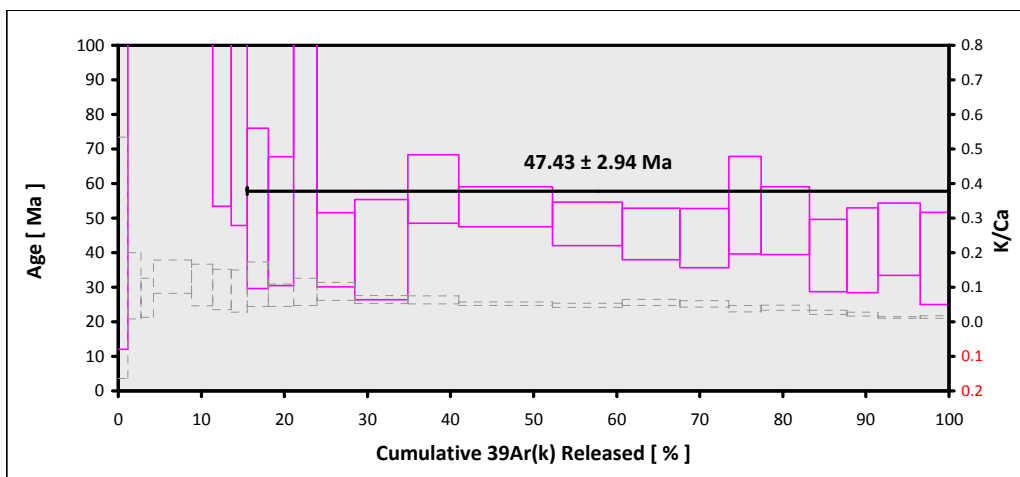


**EXP#17D01952 > RR1310-D13-01 > Clinopyroxene > KOPPERS (16-PIL-05)  
 TUALU > TAYASA SEAMOUNT  
 16-OSU-10 (10B21-16) > Incremental Heating > Dan Miggins**

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

Project = **KOPPERS (16-PIL-05)**  
 Sample = **RR1310-D13-01**  
 Material = **Clinopyroxene**  
 Location = **Tayasa Seamount**  
 Region = **Tualu**  
 Analyst = **Dan Miggins**  
 Irradiation = **16-OSU-10 (10B21-16)**  
 Position = **X: 0 | Y: 0 | Z/H: 31.06885 mm**  
 FCT-NM Age = **28.201 ± 0.023 Ma**  
 FCT-NM Reference = **Kuiper et al (2008)**  
 FCT-NM 40Ar/39Ar Ratio = **5.88553 ± 0.00530**  
 FCT-NM J-value = **0.00267051 ± 0.00000240**  
 Air Shot 40Ar/36Ar = **305.0400 ± 0.3691**  
 Air Shot MDF = **0.99217125 ± 0.00064528 (LIN)**  
 Experiment Type = **Incremental Heating**  
 Extraction Method = **Bulk Laser Heating**  
 Heating = **77 sec**  
 Isolation = **3.00 min**  
 Instrument = **ARGUS-VI-D**  
 Preferred Age = **Plateau Age**  
 Age Classification = **Crystallization Age**  
 IGSN = **xxxxxxxxxx**  
 Rock Class = **Undefined**  
 Lithology = **Basalt**  
 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<sup>+</sup>) = **0.580 ± 0.009 E-10 1/a**  
 Decay 40K(β<sup>-</sup>) = **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		9.95210 ± 0.62556 ± 6.29%	47.43 ± 2.94 ± 6.21%	1.39	81.67	0.0265 ± 0.0095
			Full External Error ± 3.13	15%	15	
			Analytical Error ± 2.94	1.76	2σ Confidence Limit	
				1.1810	Error Magnification	
Total Fusion Age		14.64554 ± 0.75304 ± 5.14%	69.38 ± 3.50 ± 5.05%		23	0.0424 ± 0.0021
			Full External Error ± 3.83			
			Analytical Error ± 3.50			
Normal Isochron	294.76 ± 3.53 ± 1.20%	10.21867 ± 0.75491 ± 7.39%	48.69 ± 3.55 ± 7.29%	1.47	81.67	
			Full External Error ± 3.71	12%	15	
			Analytical Error ± 3.55	1.78	2σ Confidence Limit	
				1.2141	Error Magnification	
Inverse Isochron	294.65 ± 3.53 ± 1.20%	10.30692 ± 0.76199 ± 7.39%	49.10 ± 3.58 ± 7.30%	1.47	81.67	
			Full External Error ± 3.75	12%	15	
			Analytical Error ± 3.58	1.78	2σ Confidence Limit	
				1.2106	Error Magnification	
				52%	Spreading Factor	



**EXP#17D03796 > RR1310-D13-01 > Clinopyroxene > KOPPERS (16-PIL-05)  
 TUVALU > TAYASA SEAMOUNT  
 16-OSU-10 (10B20-16) > Incremental Heating > Dan Miggins**

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

Project = KOPPERS (16-PIL-05)  
 Sample = RR1310-D13-01  
 Material = Clinopyroxene  
 Location = Tayasa Seamount  
 Region = Tuvalu  
 Analyst = Dan Miggins  
 Irradiation = 16-OSU-10 (10B20-16)  
 Position = X: 0 | Y: 0 | Z/H: 29.55152 mm  
 FCT-NM Age = 28.201 ± 0.023 Ma  
 FCT-NM Reference = Kuiper et al (2008)  
 FCT-NM 40Ar/39Ar Ratio = 5.87109 ± 0.00528  
 FCT-NM J-value = 0.00267708 ± 0.00000241  
 Air Shot 40Ar/36Ar = 305.6470 ± 0.4004  
 Air Shot MDF = 0.99168967 ± 0.00065536 (LIN)  
 Experiment Type = Incremental Heating  
 Extraction Method = Bulk Laser Heating  
 Heating = 77 sec  
 Isolation = 3.00 min  
 Instrument = ARGUS-VI-D  
 Preferred Age = Plateau Age  
 Age Classification = Crystallization Age  
 IGSN = xxxxxxxxx  
 Rock Class = Undefined  
 Lithology = Basalt  
 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
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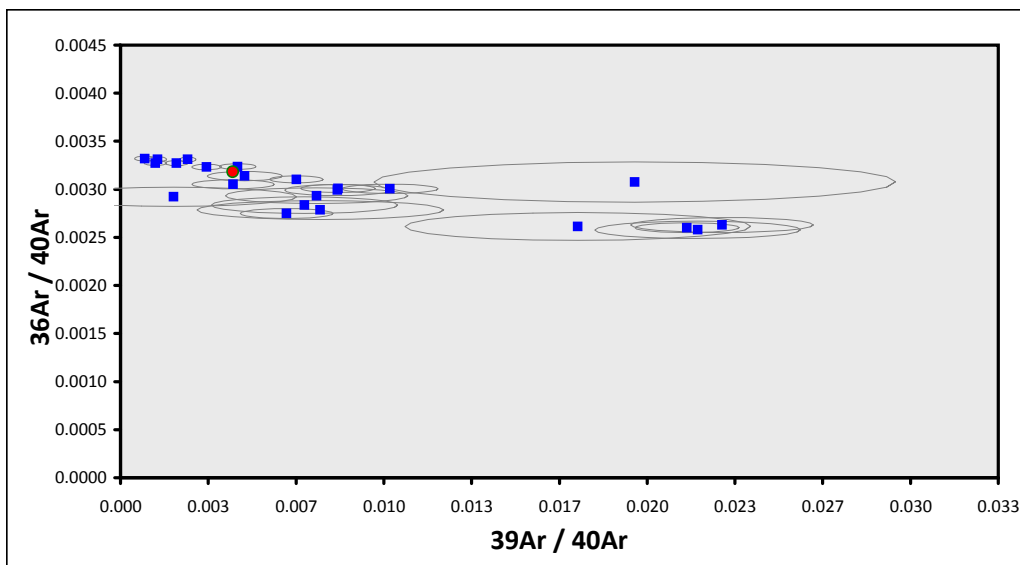
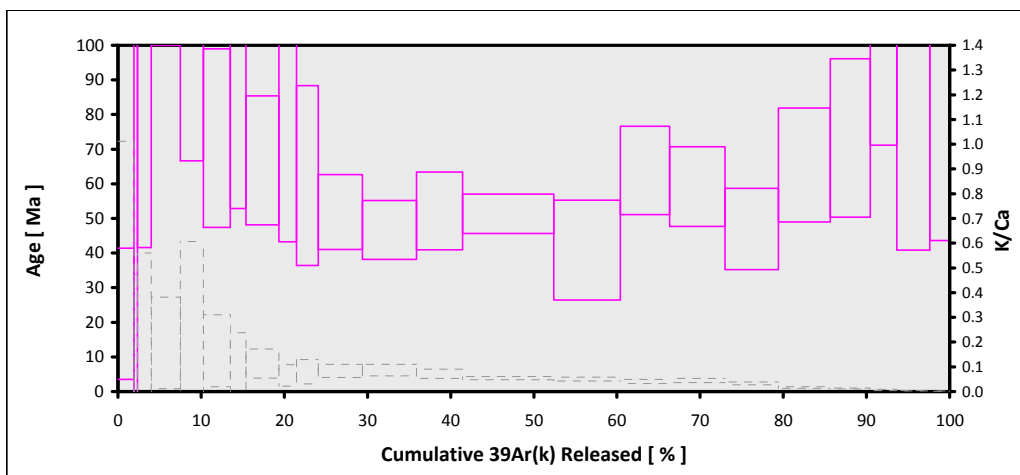
Age Plateau  
 Cannot Calculate

Total Fusion Age	14.06324 ± 0.88724 ± 6.31%	66.83 ± 4.14 ± 6.20%	23	0.0193 ± 0.0010
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Full External Error ± 4.40  
 Analytical Error ± 4.14

Normal Isochron  
 Cannot Calculate

Inverse Isochron  
 Cannot Calculate



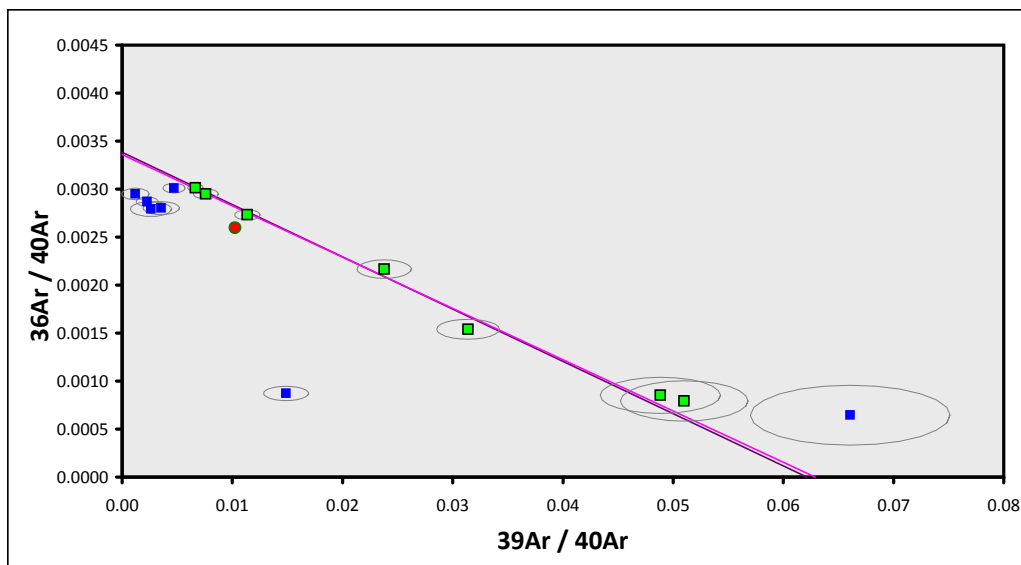
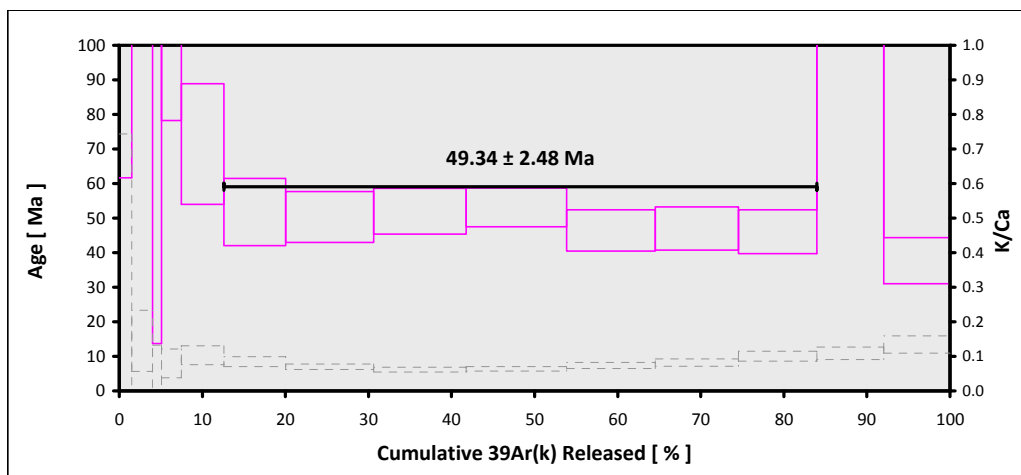
**EXP#14D34802 > RR1310-D07-09 > Clinopyroxene > RURUTU (13-INT-08)  
 TUVALU > RURUTU HOTSPOT  
 14-OSU-06 (6A34-14) > Incremental Heating > Kevin Konrad**

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

Project = **RURUTU (13-INT-08)**  
 Sample = **RR1310-D07-09**  
 Material = **Clinopyroxene**  
 Location = **Rurutu Hotspot**  
 Region = **Tuvalu**  
 Analyst = **Kevin Konrad**  
 Irradiation = **14-OSU-06 (6A34-14)**  
 Position = **X: 0 | Y: 0 | Z/H: 53.24 mm**  
 FCT-NM Age = **28.201 ± 0.023 Ma**  
 FCT-NM Reference = **Kuiper et al (2008)**  
 FCT-NM 40Ar/39Ar Ratio = **9.14509 ± 0.00969**  
 FCT-NM J-value = **0.00171867 ± 0.00000182**  
 Air Shot 40Ar/36Ar = **303.3230 ± 0.5035**  
 Air Shot MDF = **0.99354392 ± 0.00070564 (LIN)**  
 Experiment Type = **Incremental Heating**  
 Extraction Method = **Bulk Laser Heating**  
 Heating = **77 sec**  
 Isolation = **6.00 min**  
 Instrument = **ARGUS-VI-D**  
 Preferred Age = **Plateau Age**  
 Age Classification = **Eruption Age**  
 IGSN = **Undefined**  
 Rock Class = **Undefined**  
 Lithology = **Basalt**  
 Lat-Lon = **Undefined - Undefined**  
 Age Equations = **Min et al. (2000)**  
 Negative Intensities = **Allowed**  
 Collector Calibrations = **40Ar 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<sup>+</sup>) = **0.580 ± 0.009 E-10 1/a**  
 Decay 40K(β<sup>-</sup>) = **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**

This clinopyroxene separate had an atmospheric intercept and fairly long (albite large error) plateau. The ages is within error of the plagioclase separate from this lava flow and is deemed reliable.

Results	40(a)/36(a) ± 2σ	40(r)/39(k) ± 2σ	Age ± 2σ (Ma)	MSWD	39Ar(k) (% <sub>n</sub> )	K/Ca ± 2σ
Age Plateau		16.09541 ± 0.82024 ± 5.10%	49.34 ± 2.48 ± 5.03% Full External Error ± 2.72 Analytical Error ± 2.48	0.90 50% 2.15 1.0000	71.38 7 2σ Confidence Limit Error Magnification	0.070 ± 0.008
Total Fusion Age		22.73336 ± 1.06934 ± 4.70%	69.31 ± 3.20 ± 4.62% Full External Error ± 3.56 Analytical Error ± 3.20		14	0.082 ± 0.004
Normal Isochron	297.88 ± 5.25 ± 1.76%	15.79476 ± 1.10209 ± 6.98%	48.43 ± 3.34 ± 6.89% Full External Error ± 3.51 Analytical Error ± 3.33	0.94 45% 2.26 1.0000	71.38 7 2σ Confidence Limit Error Magnification	
Inverse Isochron	297.61 ± 5.30 ± 1.78%	15.89766 ± 1.12239 ± 7.06%	48.75 ± 3.40 ± 6.97% Full External Error ± 3.57 Analytical Error ± 3.40	0.95 45% 2.26 1.0000	71.38 7 2σ Confidence Limit Error Magnification 70% Spreading Factor	



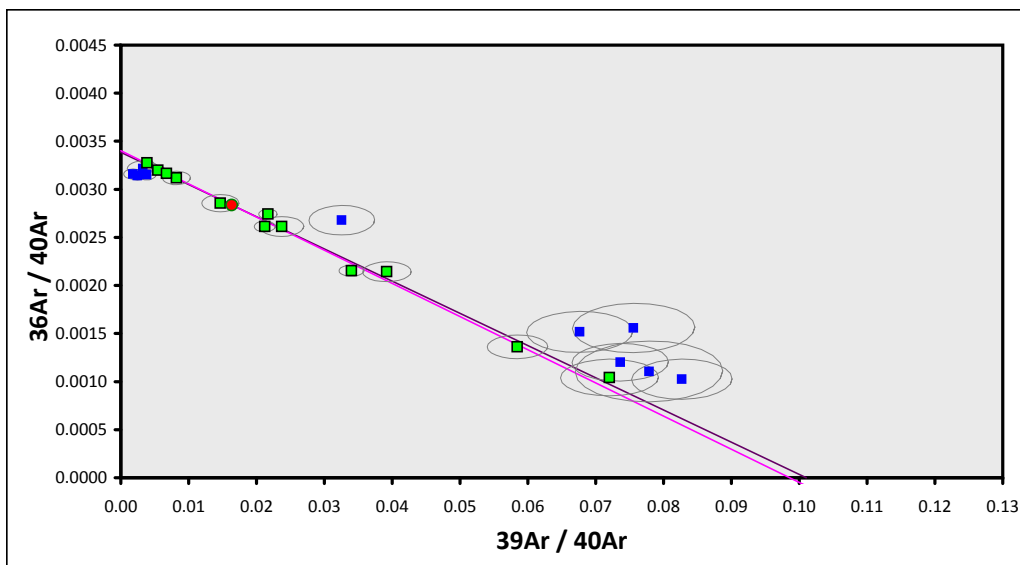
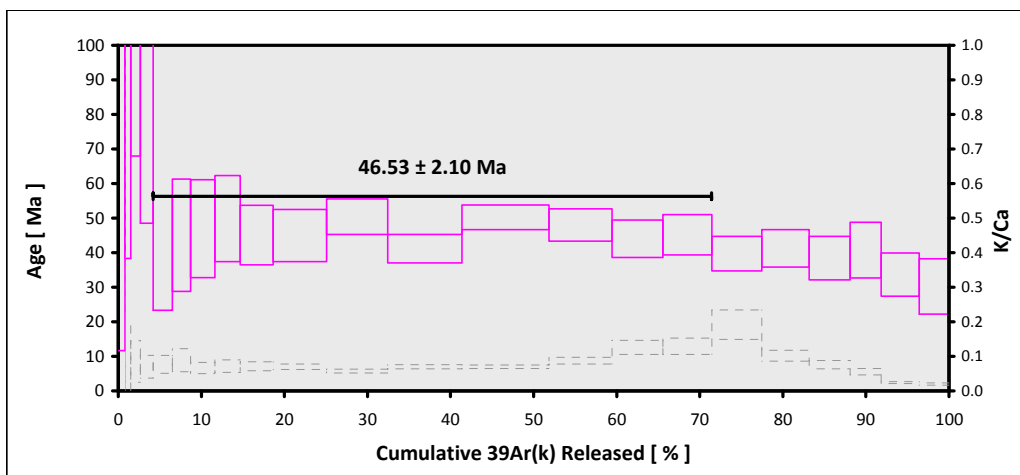


**EXP#17D02315 > RR1310-D07-09 > Clinopyroxene > KOPPERS (16-PIL-05)  
 TUVALU SEAMOUNTS > TEFOLAHA  
 16-OSU-10 (10B26-16) > Incremental Heating > Dan Miggins**

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

Project = **KOPPERS (16-PIL-05)**  
 Sample = **RR1310-D07-09**  
 Material = **Clinopyroxene**  
 Location = **Tefolaha**  
 Region = **Tuvalu Seamounts**  
 Analyst = **Dan Miggins**  
 Irradiation = **16-OSU-10 (10B26-16)**  
 Position = **X: 0 | Y: 0 | Z/H: 38.58681 mm**  
 FCT-NM Age = **28.201 ± 0.023 Ma**  
 FCT-NM Reference = **Kuiper et al (2008)**  
 FCT-NM 40Ar/39Ar Ratio = **5.96756 ± 0.00531**  
 FCT-NM J-value = **0.00263381 ± 0.00000234**  
 Air Shot 40Ar/36Ar = **305.0230 ± 0.3752**  
 Air Shot MDF = **0.99218476 ± 0.00064754 (LIN)**  
 Experiment Type = **Incremental Heating**  
 Extraction Method = **Bulk Laser Heating**  
 Heating = **77 sec**  
 Isolation = **3.00 min**  
 Instrument = **ARGUS-VI-D**  
 Preferred Age = **Plateau Age**  
 Age Classification = **Crystallization Age**  
 IGSN = **xxxxxxxxxx**  
 Rock Class = **Undefined**  
 Lithology = **Basalt**  
 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<sup>+</sup>) = **0.580 ± 0.009 E-10 1/a**  
 Decay 40K(β<sup>-</sup>) = **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		9.89713 ± 0.45231 ± 4.57%	46.53 ± 2.10 ± 4.52%	1.48	67.24	0.070 ± 0.007
			Full External Error ± 2.35	13%	12	
			Analytical Error ± 2.10	1.85	2σ Confidence Limit	
				1.2163	Error Magnification	
Total Fusion Age		9.89924 ± 0.37116 ± 3.75%	46.54 ± 1.72 ± 3.71%		22	0.067 ± 0.002
			Full External Error ± 2.02			
			Analytical Error ± 1.72			
Normal Isochron	294.07 ± 3.29 ± 1.12%	10.10857 ± 0.59098 ± 5.85%	47.51 ± 2.74 ± 5.77%	1.49	67.24	
			Full External Error ± 2.94	14%	12	
			Analytical Error ± 2.74	1.89	2σ Confidence Limit	
				1.2188	Error Magnification	
Inverse Isochron	294.02 ± 3.28 ± 1.12%	10.14525 ± 0.58941 ± 5.81%	47.69 ± 2.74 ± 5.74%	1.47	67.24	
			Full External Error ± 2.94	14%	12	
			Analytical Error ± 2.73	1.89	2σ Confidence Limit	
				1.2110	Error Magnification	
				69%	Spreading Factor	

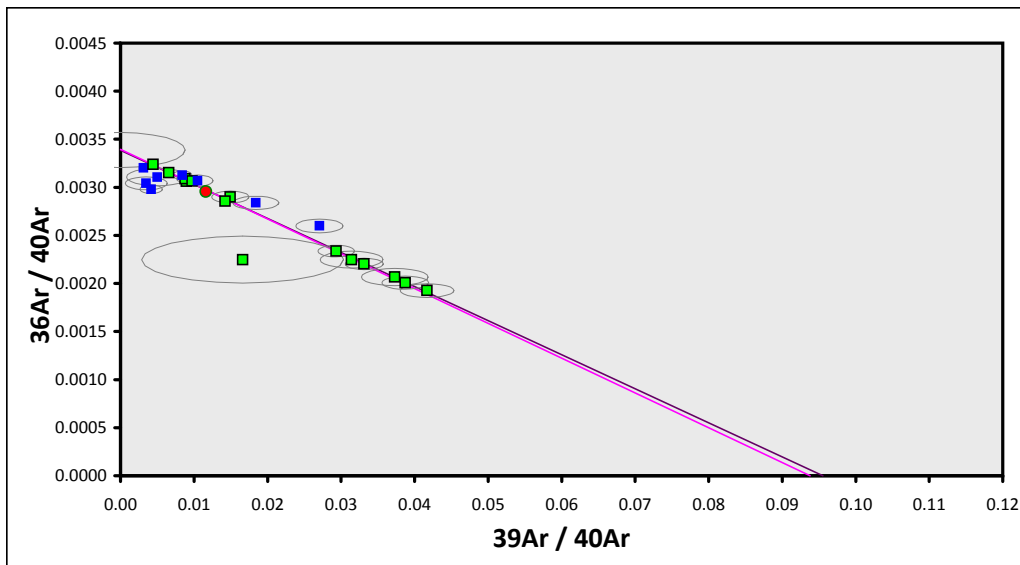
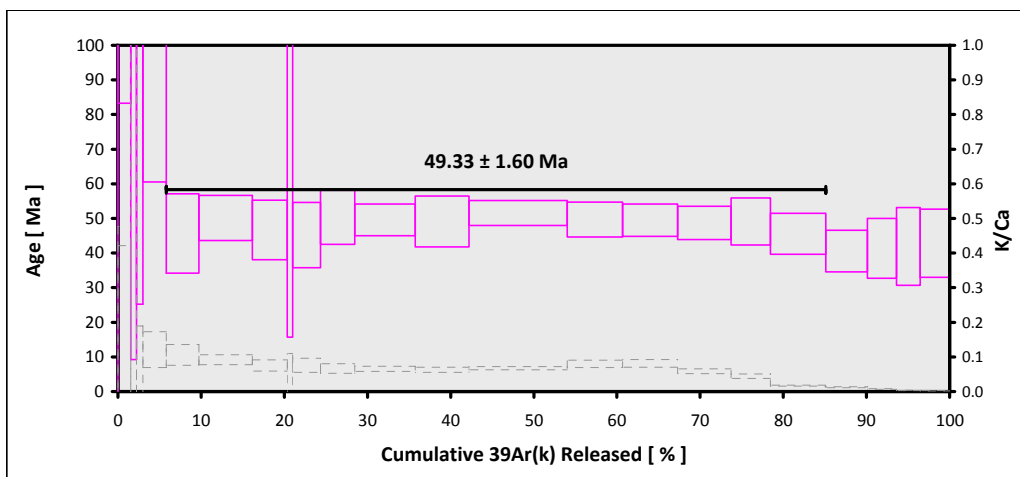


**EXP#17D03641 > RR1310-D07-09 > Clinopyroxene > KOPPERS (16-PIL-05)  
 TUVALU > TEFOLAHA  
 16-OSU-10 (10B25-16) > Incremental Heating > Dan Miggins**

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

Project = **KOPPERS (16-PIL-05)**  
 Sample = **RR1310-D07-09**  
 Material = **Clinopyroxene**  
 Location = **Tefolaha**  
 Region = **Tuvalu**  
 Analyst = **Dan Miggins**  
 Irradiation = **16-OSU-10 (10B25-16)**  
 Position = **X: 0 | Y: 0 | Z/H: 37.09938 mm**  
 FCT-NM Age = **28.201 ± 0.023 Ma**  
 FCT-NM Reference = **Kuiper et al (2008)**  
 FCT-NM 40Ar/39Ar Ratio = **5.94990 ± 0.00530**  
 FCT-NM J-value = **0.00264162 ± 0.00000235**  
 Air Shot 40Ar/36Ar = **305.5890 ± 0.3942**  
 Air Shot MDF = **0.99173560 ± 0.00065315 (LIN)**  
 Experiment Type = **Incremental Heating**  
 Extraction Method = **Bulk Laser Heating**  
 Heating = **77 sec**  
 Isolation = **3.00 min**  
 Instrument = **ARGUS-VI-D**  
 Preferred Age = **Plateau Age**  
 Age Classification = **Crystallization Age**  
 IGSN = **xxxxxxxxxx**  
 Rock Class = **Undefined**  
 Lithology = **Basalt**  
 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<sup>-</sup>) = **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		10.46792 ± 0.34271 ± 3.27%	49.33 ± 1.60 ± 3.23% Full External Error ± 1.94 Analytical Error ± 1.59	0.48 94% 1.78 1.0000	79.29 14 2σ Confidence Limit Error Magnification	0.0307 ± 0.0124
Total Fusion Age		10.87824 ± 0.38606 ± 3.55%	51.23 ± 1.79 ± 3.50% Full External Error ± 2.13 Analytical Error ± 1.79		23	0.0221 ± 0.0006
Normal Isochron	294.60 ± 2.37 ± 0.80%	10.65183 ± 0.52905 ± 4.97%	50.18 ± 2.46 ± 4.90% Full External Error ± 2.70 Analytical Error ± 2.46	0.65 80% 1.82 1.0000	79.29 14 2σ Confidence Limit Error Magnification	
Inverse Isochron	294.58 ± 2.37 ± 0.80%	10.66004 ± 0.53029 ± 4.97%	50.22 ± 2.47 ± 4.91% Full External Error ± 2.71 Analytical Error ± 2.46	0.68 77% 1.82 1.0000	79.29 14 2σ Confidence Limit Error Magnification 40% Spreading Factor	

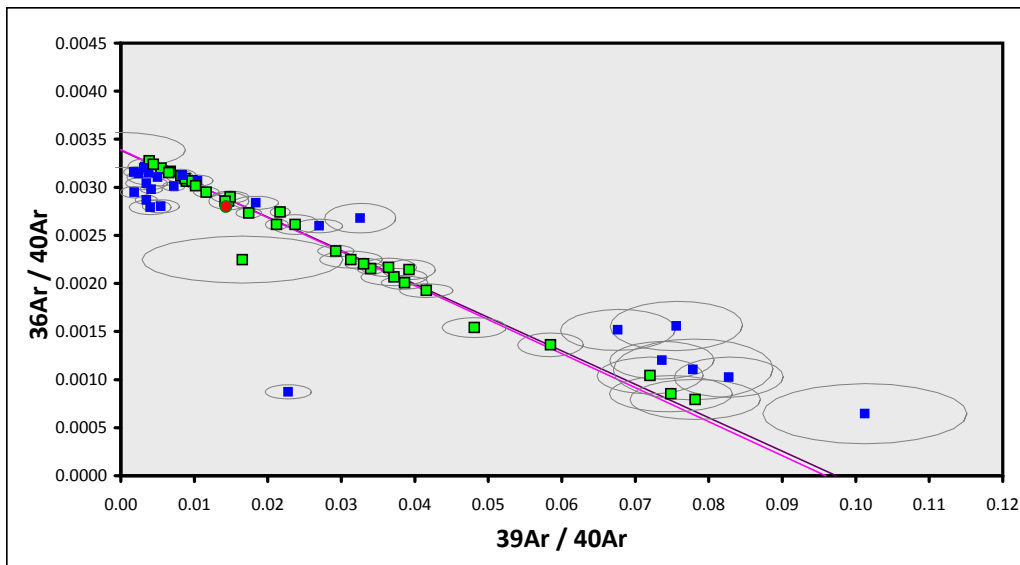
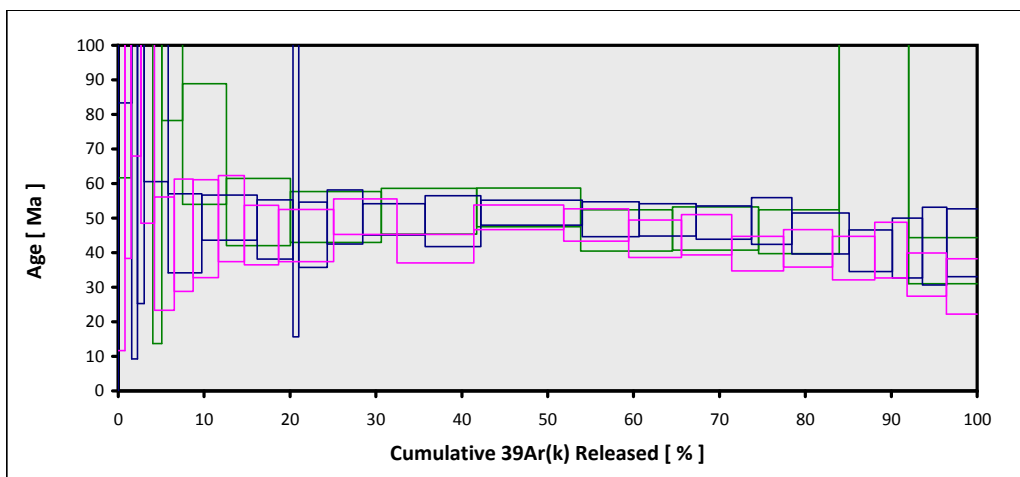


**STACK > RR1310-D07-09 CPX (N=2) > Clinopyroxene > KOPPERS (16-PIL-05)  
 TUVALU SEAMOUNTS > TEFOLAHA  
 16-OSU-10 (10B26-16) > Incremental Heating > Dan Miggins**

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

Project = **KOPPERS (16-PIL-05)**  
 Stack = **RR1310-D07-09 CPX (N=2)**  
 Material = **Clinopyroxene**  
 Location = **Tefolaha**  
 Region = **Tuvalu Seamounts**  
 Analyst = **Dan Miggins**  
 Irradiation = **16-OSU-10 (10B26-16)**  
 Position = **X: 0 | Y: 0 | Z/H: 38.58681 mm**  
 FCT-NM Age = **28.201 ± 0.023 Ma**  
 FCT-NM Reference = **Kuiper et al (2008)**  
 FCT-NM 40Ar/39Ar Ratio = **5.96756 ± 0.00531**  
 FCT-NM J-value = **0.00263381 ± 0.00000234**  
 Air Shot 40Ar/36Ar = **305.0230 ± 0.3752**  
 Air Shot MDF = **0.99218476 ± 0.00064754 (LIN)**  
 Experiment Type = **Incremental Heating**  
 Extraction Method = **Bulk Laser Heating**  
 Heating = **77 sec**  
 Isolation = **3.00 min**  
 Instrument = **ARGUS-VI-D**  
 Preferred Age = **Plateau Age**  
 Age Classification = **Crystallization Age**  
 IGSN = **xxxxxxxx**  
 Rock Class = **Undefined**  
 Lithology = **Basalt**  
 Lat-Lon = **Undefined - Undefined**  
 Age Equations = **Min et al. (2000)**  
 Negative Intensities = **Allowed**  
 Collector Calibrations = **40Ar 39Ar 38Ar 37Ar 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<sup>+</sup>) = **0.580 ± 0.009 E-10 1/a**  
 Decay 40K(β<sup>-</sup>) = **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		10.27287 ± 0.23698 ± 2.31%	48.28 ± 1.10 ± 2.28%	1.08	72.48	0.0426 ± 0.0094
			Full External Error ± 1.54	35%	33	
			Analytical Error ± 1.10	1.50	2σ Confidence Limit	
				1.0380	Error Magnification	
Total Fusion Age		12.09168 ± 0.29211 ± 2.42%	56.69 ± 1.35 ± 2.38%		59	0.0432 ± 0.0009
			Full External Error ± 1.85			
			Analytical Error ± 1.35			
Normal Isochron	294.98 ± 1.76 ± 0.60%	10.38724 ± 0.33992 ± 3.27%	48.81 ± 1.58 ± 3.23%	1.15	72.48	
			Full External Error ± 1.92	26%	33	
			Analytical Error ± 1.58	1.51	2σ Confidence Limit	
				1.0718	Error Magnification	
Inverse Isochron	294.89 ± 1.76 ± 0.60%	10.42559 ± 0.34161 ± 3.28%	48.99 ± 1.59 ± 3.24%	1.14	72.48	
			Full External Error ± 1.93	27%	33	
			Analytical Error ± 1.58	1.51	2σ Confidence Limit	
				1.0666	Error Magnification	
				77%	Spreading Factor	

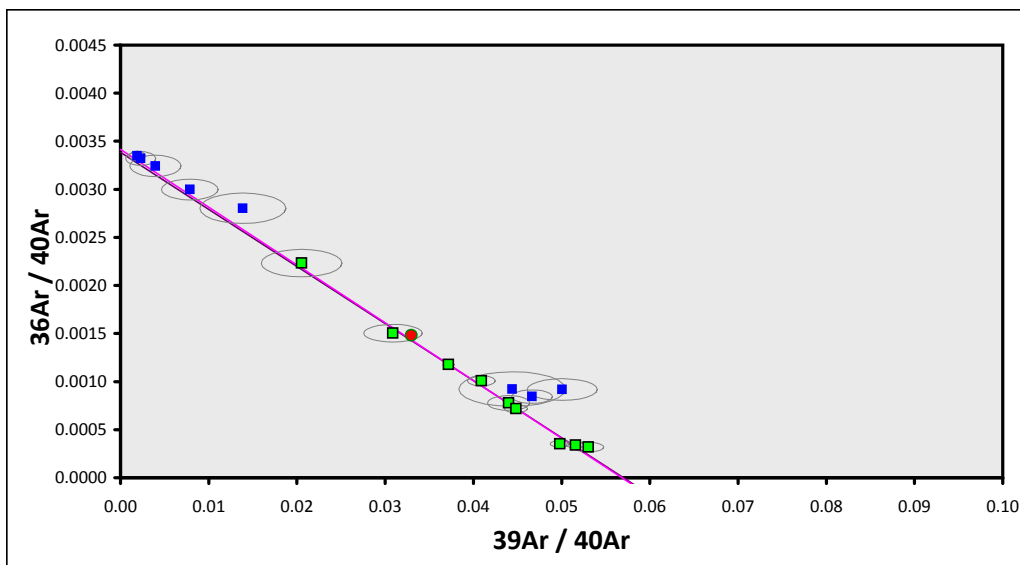
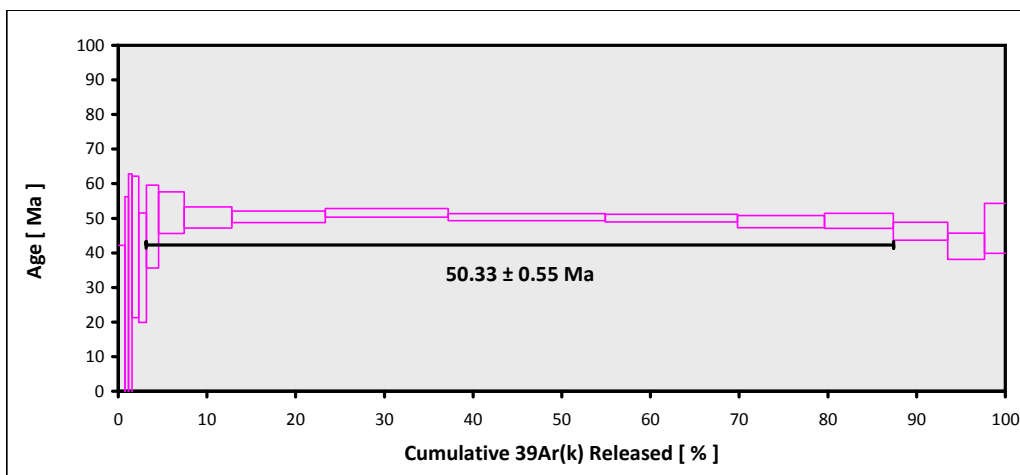


**EXP#18E00945 > 352-U1439C-02R-3-W 29-32 > Clinopyroxene > IODP 352 (14-INT-03)**  
**IBM FOREARC > 352-U1439C**  
**17-OSU-09 (9F29-17) > Incremental Heating > Daniel Heaton**

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

Project = IODP 352 (14-INT-03)  
 Sample = 352-U1439C-02R-3-W 29-32  
 Material = Clinopyroxene  
 Location = 352-U1439C  
 Region = IBM Forearc  
 Analyst = Daniel Heaton  
 Irradiation = 17-OSU-09 (9F29-17)  
 Position = X: 0 | Y: 0 | Z/H: 32.41507 mm  
 FCT-NM Age = 28.201 ± 0.023 Ma  
 FCT-NM Reference = Kuiper et al (2008)  
 FCT-NM 40Ar/39Ar Ratio = 9.76661 ± 0.00762  
 FCT-NM J-value = 0.00160930 ± 0.00000126  
 Air Shot 40Ar/36Ar = 305.6480 ± 0.3026  
 Air Shot MDF = 0.99168887 ± 0.00062160 (LIN)  
 Experiment Type = Incremental Heating  
 Extraction Method = Bulk Laser Heating  
 Heating = 66 sec  
 Isolation = 2.10 min  
 Instrument = ARGUS-VI-E  
 Preferred Age = Plateau Age  
 Age Classification = Eruption Age  
 IGSN = Undefined  
 Rock Class = Igneous>Volcanic>Mafic  
 Lithology = Basalt  
 Lat-Lon = 28°24.4'N - 142°36.5'E  
 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 ± 0.70  
 Atmospheric 38/36(a) = 0.1869  
 Production 39/37(ca) = 0.0006425 ± 0.0000059  
 Production 38/37(ca) = 0.0001800 ± 0.0000173  
 Production 36/37(ca) = 0.0002703 ± 0.0000005  
 Production 40/39(k) = 0.000607 ± 0.000059  
 Production 38/39(k) = 0.012077 ± 0.000011  
 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		17.53674 ± 0.19133 ± 1.09%	50.33 ± 0.55 ± 1.09%	1.00 43%	84.23 9	0.097 ± 0.019
			Full External Error ± 1.25 Analytical Error ± 0.54	2.00 1.0000	2σ Confidence Limit Error Magnification	
Total Fusion Age		17.05485 ± 0.25594 ± 1.50%	48.96 ± 0.73 ± 1.49%		17	0.063 ± 0.001
			Full External Error ± 1.32 Analytical Error ± 0.72			
Normal Isochron	294.14 ± 16.94 ± 5.76%	17.54719 ± 0.34539 ± 1.97%	50.36 ± 0.98 ± 1.95%	1.11 35%	84.23 9	
			Full External Error ± 1.50 Analytical Error ± 0.98	2.07 1.0542	2σ Confidence Limit Error Magnification	
Inverse Isochron	292.72 ± 17.03 ± 5.82%	17.59239 ± 0.34738 ± 1.97%	50.48 ± 0.99 ± 1.95%	1.13 34%	84.23 9	
			Full External Error ± 1.50 Analytical Error ± 0.98	2.07 1.0630	2σ Confidence Limit Error Magnification	57% Spreading Factor



**EXP#18E00991 > 352-U1442A-15R-1-W 61-64 > Clinopyroxene > IODP 352 (14-INT-03)**  
**IBM FOREARC > 352-U1442A**  
**17-OSU-09 (9F35-17) > Incremental Heating > Daniel Heaton**

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

Project = IODP 352 (14-INT-03)  
 Sample = 352-U1442A-15R-1-W 61-64  
 Material = Clinopyroxene  
 Location = 352-U1442A  
 Region = IBM Forearc  
 Analyst = Daniel Heaton  
 Irradiation = 17-OSU-09 (9F35-17)  
 Position = X: 0 | Y: 0 | Z/H: 40.67764 mm  
 FCT-NM Age = 28.201 ± 0.023 Ma  
 FCT-NM Reference = Kuiper et al (2008)  
 FCT-NM 40Ar/39Ar Ratio = 9.86741 ± 0.00760  
 FCT-NM J-value = 0.00159286 ± 0.00000123  
 Air Shot 40Ar/36Ar = 305.6690 ± 0.3026  
 Air Shot MDF = 0.99167225 ± 0.00062156 (LIN)  
 Experiment Type = Incremental Heating  
 Extraction Method = Bulk Laser Heating  
 Heating = 66 sec  
 Isolation = 2.10 min  
 Instrument = ARGUS-VI-E  
 Preferred Age = Plateau Age  
 Age Classification = Eruption Age  
 IGSN = Undefined  
 Rock Class = Igneous>Volcanic>Mafic  
 Lithology = Basalt  
 Lat-Lon = 28°24.6'N - 142°37.3'E  
 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 ± 0.70  
 Atmospheric 38/36(a) = 0.1869  
 Production 39/37(ca) = 0.0006425 ± 0.0000059  
 Production 38/37(ca) = 0.0001800 ± 0.0000173  
 Production 36/37(ca) = 0.0002703 ± 0.0000005  
 Production 40/39(k) = 0.000607 ± 0.000059  
 Production 38/39(k) = 0.012077 ± 0.000011  
 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		17.96451 ± 0.13503 ± 0.75%	51.02 ± 0.39 ± 0.76%	0.55 80%	82.05 8	0.0806 ± 0.0035
			Full External Error ± 1.21 Analytical Error ± 0.38	2.07 1.0000	2σ Confidence Limit Error Magnification	
Total Fusion Age		17.52038 ± 0.17766 ± 1.01%	49.77 ± 0.50 ± 1.01%		15	0.0499 ± 0.0005
			Full External Error ± 1.22 Analytical Error ± 0.50			
Normal Isochron	294.84 ± 5.36 ± 1.82%	17.97577 ± 0.17350 ± 0.97%	51.05 ± 0.49 ± 0.96%	0.63 71%	82.05 8	
			Full External Error ± 1.25 Analytical Error ± 0.49	2.15 1.0000	2σ Confidence Limit Error Magnification	
Inverse Isochron	294.78 ± 5.36 ± 1.82%	17.98134 ± 0.17339 ± 0.96%	51.07 ± 0.49 ± 0.96%	0.64 70%	82.05 8	
			Full External Error ± 1.25 Analytical Error ± 0.49	2.15 1.0000	2σ Confidence Limit Error Magnification	51% Spreading Factor

