A new ⁴⁰Ar/³⁹Ar eruption age for the Mount Widderin volcano, Newer Volcanic Province, Australia, with implications for eruption frequency in the region.

E. L. MATCHAN, E. B. JOYCE, AND D. PHILLIPS

School of Earth Sciences, The University of Melbourne, VIC 3010, Australia. *Corresponding author: ematchan@unimelb.edu.au

SUPPLEMENTARY PAPERS

Australian Journal of Earth Sciences (2016) **63**, http://dx.doi.org/10.1080/08120099.2016.1156576

Copies of Supplementary Papers may be obtained from the Geological Society of Australia's website (www.gsa.org.au), the Australian Journal of Earth Sciences website (www.ajes.com.au) or from the National Library of Australia's Pandora archive (http://nla.gov.au/nla.arc-25194).

SUPPLEMENTARY PAPERS

- Table A1. ARGUSVI ⁴⁰Ar/³⁹Ar laser step-heating analytical results for NVP26 groundmass.
- Table A2. ⁴⁰Ar/³⁹Ar ARGUSVI data and blank values for laser step-heating analysis of sample NVP26 excluding interference corrections.
- Figure A1. ⁴⁰Ar/³⁹Ar age spectra and inverse isochron diagrams for individual NVP26 groundmass aliquants. Errors symbols are 1σ. Grey symbols are excluded from age calculation results. In inverse isochron diagrams, solid lines represent preferred isochron results and dashed lines indicate position of inverse isochrons constructed from all data points. Step numbers are indicated.
- Appendix B Supplementary information related to the contact between lava flows from Mount Widderin and Mount Elephant.

Sample	Step	Laser	⁴⁰ Ar	±1σ	³⁹ Ar	±1σ	³⁸ Ar	±1σ	^{3′} Ar	±1σ	³⁶ Ar	±1σ	³⁹ Ar	Ca/K	±1σ	% ⁴⁰ ∆r*	⁻ Ar*/ ³⁹	±1σ	Cum.%	Apparent	±1σ	±1σ		
ID	No	Power	(fA	A)	(fA) ^b		(fA	A)	(fA)	b	(f/	A)	(x10 ⁻¹⁴	Curre		/0 A	Ar		³⁹ Ar	Age (ka)		(%)		
				•	, i		,		. /			•	mol) ^d							• • • •				
NVP26-1		101.3 ma																						
NVP26-1a	1	4%	345.50	0.08	63.788	0.045	0.1344	0.0006	99.1	2.9	0.7128	0.0031	0.2264	2.719	0.081	38.41	2.080	0.015	17.98	401.604	2.8	0.7		
NVP26-1b	2	6%	501.14	0.22	105.177	0.043	0.1812	0.0008	132.7	3.0	0.9615	0.0043	0.3734	2.208	0.050	42.72	2.035	0.012	47.63	392.884	2.4	0.6		
NVP26-1c	3	9%	530.49	0.13	104.603	0.076	0.2008	0.0006	138.7	4.1	1.0655	0.0029	0.3713	2.320	0.068	40.03	2.030	0.009	77.12	391.926	1.7	0.4		
NVP26-1d	4	12%	316.81	0.07	52.986	0.037	0.1329	0.0004	88.9	3.1	0.7050	0.0022	0.1881	2.937	0.104	33.56	2.007	0.013	92.06	387.339	2.4	0.6		
NVP26-1e	5	18%	279.59	0.07	28.168	0.046	0.1422	0.0003	110.9	1.8	0.7542	0.0016	0.1000	6.888	0.110	19.46	1.932	0.017	100.00	372.937	3.4	0.9		
															Total gas age: 391.8 ± 4.7 (2σ)									
NVP26-2		71.5 mg	045.00	0.04	400.004	0.070	0.0070	0 0000	470.0	0.5	4 4407	0.0004	0.0705	0.050	0.044	04.00	0.000	0 000	40.70	400.000	4.0	0.5		
NVP26-2a	1	4%	645.08	0.34	106.061	0.078	0.2676	0.0006	1/3.3	2.5	1.4197	0.0031	0.3765	2.859	0.041	34.29	2.086	0.009	18.78	402.608	1.8	0.5		
NVP26-2D	2	6% 0%	702.98	0.29	144.297	0.108	0.2572	0.0004	191.8	2.0	1.3645	0.0023	0.5123	2.327	0.025	42.05	2.049	0.005	44.33	395.444	1.0	0.3		
NVP26-2C	3	8%	563.02	0.16	117.904	0.060	0.2037	0.0006	142.5	2.3	1.0804	0.0031	0.4186	2.115	0.034	42.71	2.039	0.008	65.20	393.696	1.6	0.4		
NVP26-20	4	10%	450.09	0.10	80.882	0.030	0.1731	0.0006	113.1	4.0	1.0570	0.0032	0.3084	2.278	0.081	39.09	2.025	0.011	80.59	390.944	2.2	0.6		
NVP20-20	5	14%	447.10	0.12	00.404	0.035	0.1992	0.0004	133.7	2.3	0.0210	0.0021	0.2324	3.575	0.001	29.43	2.010	0.010	92.10	300.032	1.9	0.5		
NVP20-21	7	20%	100.01	0.09	13 555	0.042	0.1757	0.0005	00.1	2.0	0.9319	0.0027	0.1000	12 704	0.140	15.49	2.000	0.020	100.00	397.000	0.1	1.3		
NVF20=29	1	50 /6	199.01	0.00	13.333	0.032	0.1000	0.0004	33.1	2.5	0.3025	0.0019	0.0401	12.734	0.302	15.01	Total	gas age:	396.1 ± 4.0	(2σ)	0.5	1.5		
NVP26-3		76.0 mg																						
NVP26-3a	1	4%	399.93	0.13	68.267	0.040	0.1644	0.0004	101.9	2.4	0.8724	0.0021	0.2423	2.613	0.063	34.87	2.043	0.009	16.45	394.387	1.8	0.5		
NVP26-3b	2	6%	516.57	0.33	103.661	0.042	0.1942	0.0005	136.2	2.1	1.0303	0.0025	0.3680	2.299	0.036	40.45	2.016	0.008	41.42	389.151	1.5	0.4		
NVP26-3c	3	8%	430.47	0.18	89.732	0.060	0.1588	0.0005	109.2	2.2	0.8426	0.0027	0.3185	2.130	0.044	41.56	1.994	0.009	63.04	384.867	1.8	0.5		
NVP26-3d	4	10%	325.98	0.08	64.475	0.052	0.1243	0.0004	85.5	2.0	0.6592	0.0019	0.2289	2.322	0.054	39.62	2.003	0.009	78.57	386.710	1.7	0.4		
NVP26-3e	5	14%	340.29	0.08	52.219	0.043	0.1488	0.0005	100.8	3.2	0.7895	0.0028	0.1854	3.377	0.108	30.73	2.002	0.016	91.15	386.548	3.1	0.8		
NVP26-3f	6	30%	445.42	0.07	36.739	0.068	0.2361	0.0005	185.6	2.7	1.2523	0.0028	0.1304	8.842	0.128	16.06	1.947	0.023	100.00	375.808	4.5	1.2		
		404.4															Total g	gas age:	387.2 ± 4.3	(2σ)				
NVP26-4	4	101.1 mg	622.44	0.24	100 707	0.046	0.0500	0 0000	170.1	25	1 2720	0.0042	0 2050	0 774	0.040	25.22	2.050	0.010	10.70	205 627	2.2	0.0		
NVP26-4a	1	4%	532.41	0.24	108.707	0.046	0.2586	0.0008	1/2.1	2.5	1.3720	0.0043	0.3859	2.771	0.040	35.23	2.050	0.012	19.72	395.637	2.3	0.0		
NVF20-4D	2	0 %	723.03 571.52	0.30	102.009	0.092	0.2007	0.0005	142.0	1.0	1.3020	0.0020	0.0417	2.200	0.019	42.90	2.033	0.000	47.40	392.419	1.1	0.3		
NVP20-4C	3	10%	200 11	0.17	76 565	0.005	0.2004	0.0006	143.0	2.1	0.0090	0.0031	0.4357	2.001	0.030	43.09	2.007	0.000	09.07	201.349	1.0	0.4		
NVP20-40	4	1/10%	427.80	0.12	70.000 58.687	0.041	0.1009	0.0003	92.0 120.7	3.0	1 0/197	0.0025	0.2/10	2.110	0.070	26.82	1.974	0.010	03.00	301.120	1.9	0.0		
NVP20-46	6	30%	427.00	0.03	31 027	0.030	0.1977	0.0004	215.2	2.0	1 4270	0.0021	0.2003	11 708	0.004	12 /2	1 802	0.011	100.00	365 248	2.1	2.0		
NVF 20=41	0	30 /8	400.47	0.15	51.527	0.050	0.2030	0.0000	213.2	2.5	1.4270	0.0041	0.1155	11.750	0.120	12.42	Total		387 2 + 4 1	(2a)	1.5	2.0		
NVP26-5		101.0 mg															i otar g	gas age.	507.2 ± 4.1	(20)				
NVP26-5a	1	4%	740.37	0.26	128.485	0.073	0.3001	0.0007	208.2	3.1	1.5920	0.0037	0.4561	2.836	0.042	35.80	2.063	0.009	22.89	398.219	1.7	0.4		
NVP26-5b	2	6%	783.34	0.27	168.031	0.077	0.2798	0.0007	206.6	1.3	1.4843	0.0035	0.5965	2.152	0.013	43.43	2.025	0.007	52.83	390.826	1.3	0.3		
NVP26-5c	3	8%	575.39	0.10	121.589	0.051	0.2090	0.0005	141.9	2.6	1.1088	0.0025	0.4316	2.043	0.037	42.47	2.010	0.006	74.50	387.942	1.2	0.3		
NVP26-5d	4	10%	391.34	0.08	71.175	0.049	0.1575	0.0006	102.9	4.8	0.8358	0.0029	0.2527	2.529	0.118	36.24	1.992	0.012	87.18	384.597	2.4	0.6		
NVP26-5e	5	14%	408.08	0.10	47.829	0.035	0.1968	0.0006	135.1	2.7	1.0439	0.0031	0.1698	4.944	0.098	23.63	2.016	0.019	95.70	389.134	3.7	1.0		
NVP26-5f	6	30%	414.33	0.13	24.106	0.043	0.2322	0.0004	187.5	3.7	1.2321	0.0024	0.0856	13.612	0.270	11.22	1.928	0.030	100.00	372.221	5.8	1.6		
																	Total g	gas age:	390.2 ± 3.8	(2σ)				

Table A1. ARGUSVI ⁴⁰Ar/³⁹Ar laser step-heating analytical results for NVP26 groundmass.^{a,b,c,d}

* Data are corrected for mass spectrometer backgrounds, discrimination, radioactive decay and interference corrections (see Table A.2 for values excluding the interference correction). Errors are one sigma uncertainties and exclude uncertainty in the J-value.

^b Interference corrections: $({}^{36}Ar)^{37}Ar)_{Ca} = (2.5713 \pm 0.0023) \times 10^{-4}; ({}^{29}Ar)^{37}Ar)_{Ca} = (6.6200 \pm 0.0801) \times 10^{-4}; ({}^{40}Ar)^{39}Ar)_{K} = (1.00 \pm 0.05) \times 10^{-1}; ({}^{38}Ar)^{39}Ar)_{K} = (1.2136 \pm 0.0016) \times 10^{-2}; ({}^{38}Ar)^{39}Ar)_{K} = (1.2136 \pm$

^c J-value is 0.0001070135 ± 0.0000000648 (0.061%;1σ), based on an age of 1.1811 ± 0.0006 Ma (1σ) for AC sanidine (Phillips et al., submitted)

^d Sensitivity = 3.55 x 10⁻¹⁷ mol/fA

Table A1	. ARG	i											
		Background	correction	n									
Sample	Sten	Blank no	⁴⁰ ∆r	+1σ	³⁹ ∆r	+1σ	³⁸ ∆r	+1σ	³⁷ Δr	+1σ	³⁶ ∆r	+1σ	
	No	Blank no.	(fA)			<u>, 10</u>	(fA	1.0	(fA	10	(fA)		
	No		(17-	.y	(17	-y	(14)		(17-	•)	(1A)		
NVP26-1													
NVP26-1a	1	EXB#74	7.276	0.011	0.085	0.019	-0.121	0.043	0.020	0.027	0.03095	0.00053	
NVP26-1b	2	EXB#75	7.787	0.024	0.056	0.017	-0.055	0.030	-0.002	0.032	0.03330	0.00021	
NVP26-1c	3	EXB#75	7.787	0.024	0.056	0.017	-0.055	0.030	-0.002	0.032	0.03330	0.00021	
NVP26-1d	4	EXB#76	7.792	0.013	0.086	0.022	-0.062	0.020	0.025	0.011	0.03381	0.00035	
NVP26-1e	5	EXB#76	7.792	0.013	0.086	0.022	-0.062	0.020	0.025	0.011	0.03381	0.00035	
NVP26-2													
NVP26-2a	1	EXB#82	3.336	0.016	0.060	0.018	-0.008	0.021	-0.014	0.015	0.01726	0.00011	
NVP26-2b	2	EXB#82	3.336	0.016	0.060	0.018	-0.008	0.021	-0.014	0.015	0.01726	0.00011	
NVP26-2c	3	EXB#83	3.393	0.019	0.092	0.017	-0.003	0.020	-0.009	0.015	0.01881	0.00014	
NVP26-2d	4	EXB#83	3.393	0.019	0.092	0.017	-0.003	0.020	-0.009	0.015	0.01881	0.00014	
NVP26-2e	5	EXB#83	3.393	0.019	0.092	0.017	-0.003	0.020	-0.009	0.015	0.01881	0.00014	
NVP26-2f	6	EXB#84	3.429	0.010	0.102	0.022	-0.044	0.022	0.020	0.014	0.01812	0.00036	
NVP26-2g	7	EXB#84	3.429	0.010	0.102	0.022	-0.044	0.022	0.020	0.014	0.01812	0.00036	
NVP26-3													
NVP26-3a	1	EXB#89	2.515	0.025	0.081	0.008	-0.083	0.017	0.035	0.014	0.01532	0.00035	
NVP26-3b	2	EXB#89	2.515	0.025	0.081	0.008	-0.083	0.017	0.035	0.014	0.01532	0.00035	
NVP26-3c	3	EXB#89	2.515	0.025	0.081	0.008	-0.083	0.017	0.035	0.014	0.01532	0.00035	
NVP26-3d	4	EXB#90	2.707	0.029	0.092	0.023	-0.093	0.012	0.012	0.012	0.01736	0.00047	
NVP26-3e	5	EXB#90	2.707	0.029	0.092	0.023	-0.093	0.012	0.012	0.012	0.01736	0.00047	
NVP26-3f	6	EXB#90	2.707	0.029	0.092	0.023	-0.093	0.012	0.012	0.012	0.01736	0.00047	
NVP26-4													
NVP26-4a	1	EXB#91	3.219	0.017	0.088	0.022	-0.079	0.036	-0.012	0.013	0.01936	0.00012	
NVP26-4b	2	EXB#91	3.219	0.017	0.088	0.022	-0.079	0.036	-0.012	0.013	0.01936	0.00012	
NVP26-4c	3	EXB#91	3.219	0.017	0.088	0.022	-0.079	0.036	-0.012	0.013	0.01936	0.00012	
NVP26-4d	4	EXB#92	3.523	0.014	0.081	0.004	-0.067	0.026	0.051	0.019	0.02015	0.00044	
NVP26-4e	5	EXB#92	3.523	0.014	0.081	0.004	-0.067	0.026	0.051	0.019	0.02015	0.00044	
NVP26-4f	6	EXB#92	3.523	0.014	0.081	0.004	-0.067	0.026	0.051	0.019	0.02015	0.00044	
NVP26-5													
NVP26-5a	1	EXB#94	2.449	0.015	0.036	0.017	-0.051	0.013	-0.023	0.007	0.01431	0.00031	
NVP26-5b	2	EXB#94	2.449	0.015	0.036	0.017	-0.051	0.013	-0.023	0.007	0.01431	0.00031	
NVP26-5c	3	EXB#94	2,449	0.015	0.036	0.017	-0.051	0.013	-0.023	0.007	0.01431	0.00031	
NVP26-5d	4	EXB#95	2.554	0.027	0.081	0.010	-0.040	0.011	0.018	0.020	0.01585	0.00021	
NVP26-5e	5	EXB#95	2.554	0.027	0.081	0.010	-0.040	0.011	0.018	0.020	0.01585	0.00021	
NVP26-5f	6	EXB#95	2.554	0.027	0.081	0.010	-0.040	0.011	0.018	0.020	0.01585	0.00021	

	Background correction																													
																							Argus Sensitivity and Discrimination Corrections							
Sample	Step	Laser	⁴⁰Ar	±1σ	³⁹ Ar	±1σ	³⁸ Ar	±1σ	³⁷ Ar ±1	σ ³⁶ Α	±1σ	lank n	⁴⁰Ar	±1σ	³⁹ Ar	±1σ	³⁸ Ar	±1σ	³⁷ Ar	±1σ	³⁶ Ar	±1σ	H1/Ax	H1/L1	H1/L2	AX	L1	L2	H1/CDD	±1σ
ID	No	Power	(fA))	(fA))	(fA	A)	(fA)		(fA)		(fA)	(fA)	(fA	.)	(fA	A)	(fA	.)	[40]	[40]	[40]	(1amu)	(1amu)	(1amu)		(%)
NVP26-1	1	101.3 mg	245 50	0.09	62 052	0.045	0.070	0.052	00.1	20 0 72	2 0 0020		7 276	0.011	0.095	0.010	0 121	0.042	0.020	0.027	0.02005	0.00052	1 001217	0 009005	0 002795	0.002704	0 000702	0.002521	220 402046	0.005042
NVP26-1h	2	4 % 6%	501 14	0.08	105 265	0.043	1 435	0.032	132 7	2.9 0.730	7 0.0030	EXB#75	7 787	0.011	0.085	0.019	-0.055	0.043	-0.020	0.027	0.03095	0.000000	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.402846	0.095942
NVP26-1c	3	9%	530.49	0.13	104.695	0.076	1.491	0.035	138.7	4.1 1.10	2 0.0027	EXB#75	7.787	0.024	0.056	0.017	-0.055	0.030	-0.002	0.032	0.03330	0.00021	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.402846	0.095942
NVP26-1d	4	12%	316.81	0.07	53.045	0.037	0.776	0.025	88.9	3.1 0.72	9 0.0021	EXB#76	7.792	0.013	0.086	0.022	-0.062	0.020	0.025	0.011	0.03381	0.00035	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.402846	0.095942
NVP26-1e	5	18%	279.59	0.07	28.241	0.046	0.511	0.027	110.9	1.8 0.782	7 0.0015	EXB#76	7.792	0.013	0.086	0.022	-0.062	0.020	0.025	0.011	0.03381	0.00035	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.402846	0.095942
NVP26-2		71.5 ma																												
NVP26-2a	1	4%	645.08	0.34	106.176	0.078	1.561	0.029	173.3	2.5 1.464	3 0.0030	EXB#82	3.336	0.016	0.060	0.018	-0.008	0.021	-0.014	0.015	0.01726	0.00011	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.505939	0.150435
NVP26-2b	2	6%	702.98	0.29	144.424	0.108	2.006	0.032	191.8	2.0 1.413	8 0.0022	EXB#82	3.336	0.016	0.060	0.018	-0.008	0.021	-0.014	0.015	0.01726	0.00011	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.505939	0.150435
NVP26-2c	3	8%	563.02	0.16	117.998	0.060	1.653	0.030	142.5	2.3 1.11	0 0.0031	EXB#83	3.393	0.019	0.092	0.017	-0.003	0.020	-0.009	0.015	0.01881	0.00014	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.505939	0.150435
NVP26-2d	4	10%	450.09	0.10	86.957	0.030	1.186	0.023	113.1	4.0 0.94	2 0.0031	EXB#83	3.393	0.019	0.092	0.017	-0.003	0.020	-0.009	0.015	0.01881	0.00014	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.505939	0.150435
NVP26-26 NVP26-2f	5	14%	447.18	0.12	30 720	0.035	0.989	0.028	133.7	2.3 1.09	4 0.0020 7 0.0026	EXB#83	3.393	0.019	0.092	0.017	-0.003	0.020	-0.009	0.015	0.01881	0.00014	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.505939	0.150435
NVP26-20	7	30%	199.01	0.05	13 620	0.042	0.337	0.024	99.1	2.0 0.50	0 0.0020	EXB#84	3 4 2 9	0.010	0.102	0.022	-0.044	0.022	0.020	0.014	0.01812	0.00036	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.505939	0.150435
	·	0070	100.01	0.00	10.020	0.002	0.200	0.027	00.1	2.0 0.000	0 0.0010	2/12/101	0.120	0.010	0.102	0.022	0.011	0.022	0.020	0.011	0.01012	0.00000	1.001211	0.000000	0.0007.00	0.002701	0.0007.00	0.000021	020.000000	0.100100
NVP26-3		76.0 mg	000.00	0.40	00.004	0.040	4 000	0.007	404.0			EVD#00	0.545	0.005	0.004	0.000	0.000	0.047	0.005	0.044	0.04500	0.00005	4 004047	0.000005	0.000705	0.000704	0.000700	0.000504	000 505000	0 450 405
NVP26-38	1	4%	399.93	0.13	102 752	0.040	1.009	0.037	101.9	2.4 0.898	0.0020	EXB#89	2.515	0.025	0.081	0.008	-0.083	0.017	0.035	0.014	0.01532	0.00035	1.001217	0.998905	0.002705	0.992794	0.990793	0.002521	320.505939	0.150435
NVP26-3c	3	8%	430 47	0.33	89 804	0.042	1.000	0.024	109.2	2.1 1.00	7 0.0024	EXB#89	2.515	0.025	0.081	0.008	-0.083	0.017	0.035	0.014	0.01532	0.00035	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.505939	0.150435
NVP26-3d	4	10%	325.98	0.08	64.531	0.052	1.037	0.016	85.5	2.0 0.68	3 0.0018	EXB#90	2.707	0.029	0.092	0.023	-0.093	0.012	0.012	0.012	0.01736	0.00047	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.505939	0.150435
NVP26-3e	5	14%	340.29	0.08	52.286	0.043	0.840	0.032	100.8	3.2 0.81	5 0.0027	EXB#90	2.707	0.029	0.092	0.023	-0.093	0.012	0.012	0.012	0.01736	0.00047	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.505939	0.150435
NVP26-3f	6	30%	445.42	0.07	36.862	0.068	0.778	0.028	185.6	2.7 1.300	1 0.0027	EXB#90	2.707	0.029	0.092	0.023	-0.093	0.012	0.012	0.012	0.01736	0.00047	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.505939	0.150435
NVP26-4		101.1 mc	1																											
NVP26-4a	1	4%	632.41	0.24	108.820	0.046	1.572	0.039	172.1	2.5 1.416	2 0.0043	EXB#91	3.219	0.017	0.088	0.022	-0.079	0.036	-0.012	0.013	0.01936	0.00012	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.505939	0.150435
NVP26-4b	2	6%	723.03	0.30	152.719	0.092	2.127	0.040	197.1	1.6 1.43	5 0.0027	EXB#91	3.219	0.017	0.088	0.022	-0.079	0.036	-0.012	0.013	0.01936	0.00012	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.505939	0.150435
NVP26-4c	3	8%	571.53	0.17	122.821	0.065	1.721	0.043	143.8	2.1 1.126	5 0.0031	EXB#91	3.219	0.017	0.088	0.022	-0.079	0.036	-0.012	0.013	0.01936	0.00012	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.505939	0.150435
NVP26-4d	4	10%	398.11	0.12	76.626	0.041	1.129	0.037	92.6	3.0 0.85	0 0.0023	EXB#92	3.523	0.014	0.081	0.004	-0.067	0.026	0.051	0.019	0.02015	0.00044	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.505939	0.150435
NVP26-4f	6	30%	486.47	0.09	32.069	0.036	0.672	0.020	215.2	2.3 1.482	4 0.0020	EXB#92	3.523	0.014	0.081	0.004	-0.067	0.026	0.051	0.019	0.02015	0.00044	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.505939	0.150435
NIV 1999 5																														
NVP26-5a	1	4%	740.37	0.26	128.622	0.073	1,943	0.075	208.2	3.1 1.64	6 0.0036	EXB#94	2.449	0.015	0.036	0.017	-0.051	0.013	-0.023	0.007	0.01431	0.00031	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320,505939	0.150435
NVP26-5b	2	6%	783.34	0.27	168.168	0.077	2.360	0.016	206.6	1.3 1.53	4 0.0035	EXB#94	2.449	0.015	0.036	0.017	-0.051	0.013	-0.023	0.007	0.01431	0.00031	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.505939	0.150435
NVP26-5c	3	8%	575.39	0.10	121.683	0.051	1.692	0.021	141.9	2.6 1.14	3 0.0024	EXB#94	2.449	0.015	0.036	0.017	-0.051	0.013	-0.023	0.007	0.01431	0.00031	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.505939	0.150435
NVP26-5d	4	10%	391.34	0.08	71.243	0.049	0.999	0.043	102.9	4.8 0.862	2 0.0027	EXB#95	2.554	0.027	0.081	0.010	-0.040	0.011	0.018	0.020	0.01585	0.00021	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.505939	0.150435
NVP26-5e	5	14%	408.08	0.10	47.918	0.035	0.849	0.032	135.1	2.7 1.078	7 0.0030	EXB#95	2.554	0.027	0.081	0.010	-0.040	0.011	0.018	0.020	0.01585	0.00021	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.505939	0.150435
NVP26-5f	6	30%	414.33	0.13	24.230	0.043	0.566	0.024	187.5	3.7 1.280	3 0.0022	EXB#95	2.554	0.027	0.081	0.010	-0.040	0.011	0.018	0.020	0.01585	0.00021	1.001217	0.998905	0.993785	0.992794	0.990793	0.993521	320.505939	0.150435

Table A2. 40 Ar/39 Ar ARGUSVI data and blank values for laser step-heating analysis of sample NVP26 excluding interference corrections^a

^aData are corrected for mass spectrometer backgrounds, discrimination and radioactive decay.



Figure A1. 40 Ar/ 39 Ar age spectra and inverse isochron diagrams for individual NVP26 groundmass aliquants. Errors symbols are 1 σ . Grey symbols are excluded from age calculation results. In inverse isochron diagrams, solid lines represent preferred isochron results and dashed lines indicate position of inverse isochrons constructed from all data points. Step numbers are indicated.



Figure A1 (cont.). 40 Ar/ 39 Ar age spectra and inverse isochron diagrams for individual NVP26 groundmass aliquants. Errors symbols are 1 σ . Grey symbols are excluded from age calculation results. In inverse isochron diagrams, solid lines represent preferred isochron results and dashed lines indicate position of inverse isochrons constructed from all data points. Step numbers are indicated.

APPENDIX B

Supplementary information related to the contact between lava flows from Mount Widderin and Mount Elephant.

Matchan et al. 2016 Australian Journal of Earth Sciences 63/2 Supplementary Papers http://dx.doi.org/10.1080/08120099.2016.1156576



Figure B1. Satellite image (GoogleEarth) of area containing the southernmost extent of the main Widderin basalt flow and the northernmost extent of stony rises from Mt Elephant. Red line indicates location of topographic section. The topographic section is taken from the summit of Mt Widderin to Mt Elephant, tracing the path of the main Widderin flow. Vertical exaggeration is 50x. The location of the observed termination of the Widderin basalt is indicated by blue arrow (north of Vite Vite Rd, see Fig B2).

Matchan et al. 2016 Australian Journal of Earth Sciences 63/2 Supplementary Papers http://dx.doi.org/10.1080/08120099.2016.1156576



Figure B2. Contact between Widderin and Elephant lava flows, Vite Vite Rd (main image: GoogleEarth). Inset image: (a) End of Widderin stony rises (looking NE), basalt visibly extends along plain past end of stony rise for ~50m before being obscured by soil/swamp sediments; (b) Widderin stony rises (looking NNE) exhibiting rounded lava blocks; (c) Elephant stony rises (looking NW). 9