

TABLE 1. ISOTOPIC DATA FOR THE BASALTIC ROCKS FROM NORTHEASTERN EURASIAN MARGIN

Sample number	Age* (Ma)	SiO ₂ (wt%)	MgO (wt%)	²⁰⁸ Pb/ ²⁰⁴ Pb	²⁰⁷ Pb/ ²⁰⁴ Pb	²⁰⁶ Pb/ ²⁰⁴ Pb	⁸⁷ Sr/ ⁸⁶ Sr	¹⁴³ Nd/ ¹⁴⁴ Nd
<i>Late Neogene (12-5 Ma) basalts</i>								
<i>group 4</i>								
SO-36	5.0	49.65	7.10			0.704085	0.512743	
YuM1787	5.4	49.94	7.04			0.704243	0.512727	
Yu97	6					0.703814	0.512765	
Yu84	7	50.95	3.93			0.703840	0.512714	
Yu68	6.8	51.12	4.39			0.703803	0.512734	
YuS108/6	8.1	49.36	7.95	37.734	15.497	17.687	0.704126	0.512647
P369/13	8.7	51.06	6.14			0.704488	0.512684	
YuM1381	9.9	47.82	8.48			0.703710	0.512677	
YuM1328	11.9					0.704362	0.512804	
P369/11	10.8	51.69	6.12	38.166	15.547	18.056	0.704289	0.512692
<i>group 3</i>								
SO-29	6.4	52.57	6.72			0.703853	0.512815	
YuM1120	6.4	53.62	4.90	38.005	15.560	17.880	0.703859	0.512705
YuS108/10	8	51.93	6.83			0.703926	0.512574	
YuS120/9	8	53.97	5.54	37.288	15.490	17.299	0.704325	0.512496
YuS108/7	8					0.704182	0.512517	
YuS108/14	8	50.29	7.70			0.703989	0.512625	
P369/11b	8.9	49.29	7.29	38.435	15.556	18.324	0.704480	0.512791
P369/2	11.8	54.46	6.59	38.087	15.558	17.970	0.704693	0.512649
VS-1	10	55.56	6.56	37.109	15.481	17.266	0.704152	0.512716
VS-3	10	53.25	4.59	37.353	15.514	17.308	0.704757	0.512623
<i>Early Neogene (23-15 Ma) basalts - group 2</i>								
S-11	16.9	47.70	5.60			0.703634	0.512942	
SA-04	17	50.49	4.42			0.703650	0.512922	
Yu17	21	49.65	5.90			0.703434	0.512918	
Yu19	21.1	48.87	6.25	38.185	15.520	18.218	0.703359	0.512905
<i>Paleogene (55-24 Ma) basalts - group 1</i>								
YuS122/8	24					0.703733	0.512902	
YuS122/7	24.4	52.05	4.96			0.703955	0.512827	
YuM-770	24.8	49.60	6.57			0.703896	0.512886	
Yu7	25	52.25	4.62			0.703699	0.512900	
YuS122/13	29			38.262	15.533	18.293	0.703874	0.512846
YuS122/14	29.0	52.48	6.30	38.245	15.538	18.259	0.703771	0.512881
S-17	30.7	55.32	3.74			0.703906	0.512845	
Yu155/1B	31.5	52.21	5.41			0.703892	0.512836	
SO-9	33.6	51.42	5.39			0.704467	0.512683	
SO-23	33.6	51.52	5.59	38.395	15.545	18.370	0.704438	0.512732
SO-13	34.7	48.37	4.67	38.435	15.523	18.384	0.704563	0.512669
YuM-1119	34.9	52.92	4.49	38.749	15.645	18.478	0.704806	0.512738
SO-17	36.1	52.53	4.69			0.704378	0.512755	
YuM537	36.7	48.66	6.76			0.703945	0.512787	
YuM609	36.8	54.01	5.09	38.550	15.605	18.472	0.704030	0.512844
S-12A	38.7	54.64	6.17			0.704155	0.512861	
K-01	47.3	52.01	4.39	38.508	15.573	18.398	0.705097	0.512647
SO-62	54.8	53.75	3.72			0.705157	0.512662	
FS-1†	37.0	52.08	5.35			0.703936	0.512795	
OK91206C1‡	35	53.41	10.73	38.083	15.517	18.104	0.703510	0.512869
OK100309‡	35	54.43	7.32			0.703575	0.512852	
OK100310‡	35					0.703472	0.512841	
OK91101‡	35	52.28	5.30	38.155	15.528	18.178	0.703924	0.512855
OK1003011‡	35	53.70	3.99	38.299	15.554	18.261	0.704201	0.512863
OK100311‡	35	56.91	2.63			0.704450	0.512795	
OK100313‡	35	55.85	6.11			0.704514	0.512804	

Note : The Pb analyses are normalized to U.S. National Bureau of Standards standard 981(NBS981) values. Reproducibilities for Pb are $\leq 0.05\%$ per amu. Blanks for Pb are < 500 pg, and are negligible for these analyses. The $^{87}\text{Sr}/^{86}\text{Sr}$ and $^{143}\text{Nd}/^{144}\text{Nd}$ ratios are normalized to $^{88}\text{Sr}/^{86}\text{Sr} = 8.375209$ and $^{146}\text{Nd}/^{144}\text{Nd} = 0.7219$, respectively. The measured $^{87}\text{Sr}/^{86}\text{Sr}$ ratio for NBS987 during this study is 0.710248 ± 0.000008 ($N = 3$). Mean analytical uncertainty for sample during this study is ± 0.00002 (2σ). The $^{143}\text{Nd}/^{144}\text{Nd}$ ratios are reported relative to $^{143}\text{Nd}/^{144}\text{Nd} = 0.512640$ for BCR-1 (Wasserburg et al., 1981). Mean analytical uncertainty for sample during this study is ± 0.00002 (2σ).

*Okamura et al. (1998).

†Futago Knoll (Okamura et al., 1989).

‡Okushiri Island (Okamura et al., 1993).

Additional description of the analyzed samples

The samples analyzed from eastern Sikhote-Alin and Sakhalin are alkalic basalts, tholeiitic basalts, and calc-alkalic basaltic andesites, which all have <54 wt% SiO₂ and >3.7 wt% MgO (Table 1). In addition, one dolerite dredged from the Futago Knoll off southwest Hokkaido and seven samples from the Okushiri Island located along the Japan Sea coast of southwest Hokkaido were also analyzed.

Additional References for Supporting Data

- Okamura, S., Yoshida, T., and Kagami, H., 1993, Petrology of the Oligocene volcanic rocks from the Okushiri Island, southwest Hokkaido, Japan: Oligocene frontal volcanism of the Eurasian margin: *Journal of Mineralogy, Petrology, and Economic Geology*, v. 88, p. 83-99 (in Japanese).
- Okamura, S., Ishii, J., and Watanabe, Y., 1989, K-Ar age of the volcanic fragment dredged from the Futago Knoll, northeastern margin of the Japan Sea: *Journal of Mineralogy, Petrology, and Economic Geology*, v. 83, p. 32-36 (in Japanese).
- Okamura, S., Martynov, Y., Furuyama, K., and Nagao, K., 1998, K-Ar ages of the basaltic rocks from Far East Russia: Constraints on the tectono-magmaism associated with the Japan Sea opening: *Island Arc*, v. 7 (in press).
- Wasserburg, G. J., Jacobsen, S. B., DePaolo, D. J., McCulloch, M. T., and Wen, T., 1981, Precise determination of Sm/Nd ratios, Sm and Nd isotopic abundances in standard solutions: *Geochimica et Cosmochimica Acta*, v. 45, p. 2311-2323.