



POTASSIUM-ARGON AGE DETERMINATIONS FROM BIOTITE AND HORNBLLENDE
IN TOODOGGONE VOLCANIC ROCKS
(94E)

By L. J. Diakow

Five new K/Ar determinations have been obtained from two volcanic flow units underlying the area between Toodoggone and Chukachida Rivers. The sample locations and ages are tabulated in Table 1 and their relative stratigraphic position within the Toodoggone succession are shown on Figure 110. These data supplement field mapping conducted in the area by the writer in 1983.

The older of the two flow units, designated as map unit 1B (Diakow, 1984), comprises biotite-hornblende-plagioclase phyric ash flow sheets containing 1 to 3 per cent modal quartz. K/Ar ages for unit 1B are 202 ± 7 Ma from biotite and concordant ages of 199 ± 7 and 200 ± 7 Ma from coexisting biotite and hornblende respectively. Flows of map unit 4 conformably overlie unit 1B west of Tuff Peak. Characteristically these flow rocks contain sparse, coarse-grained orthoclase phenocrysts but lack significant quartz phenocrysts. Two samples of biotite from unit 4 yielded K/Ar dates of 197 ± 7 and 200 ± 7 Ma.

In addition to the existing K/Ar dates from volcanic rocks summarized on Figure 110, five new determinations are in progress and will be reported later. These samples include: a hornblende porphyritic basaltic intrusive rock, a rhyolite flow, and three samples of adularia alteration associated with mineralization.

REFERENCES

- Carter, N. C. (1972): Toodoggone River Area, B.C. Ministry of Energy, Mines & Pet. Res., GEM, 1971, pp. 63-70.
- Diakow, L. J. (1984): Geology between Toodoggone and Chukachida Rivers, B.C. Ministry of Energy, Mines & Pet. Res., Geological Fieldwork, 1983, Paper 1984-1, pp. 139-145.
- Gabrielse, H., Wanless, R. K., Armstrong, R. L., and Erdman, L. R. (1980): Isotopic Dating of Early Jurassic Volcanism and Plutonism in North-central British Columbia, in Current Research, Part A, Geol. Surv., Canada, Paper 80-1A, pp. 27-32.
- Panteleyev, A. (1983): Geology between Toodoggone and Sturdee Rivers, B.C. Ministry of Energy, Mines & Pet. Res., Geological Fieldwork, 1982, Paper 1983-1, pp. 142-148.
- Schroeter, T. G. (1982): Toodoggone River, B.C. Ministry of Energy, Mines & Pet. Res., Geological Fieldwork, 1981, Paper 1982-1, pp. 122-133.

TABLE 1
 POTASSIUM-ARGON DETERMINATIONS FROM BIOTITE, HORNBLENDE, AND NATROALUNITE
 IN TOODOGGONE VOLCANIC ROCKS

Sample	Location		Mineral	K ₂ O %	40Ar* 10 ⁻¹⁰ moles/gm	40Ar* Age (Ma) ±10	Lithology	Reference
	Longitude	Latitude						
292-1	127°20'18"	57°26'58"	Biotite	6.19	22.76	200±7	Unit 4	
268-3A	127°30'12"	57°31'58"	Biotite	5.57	20.09	197±7	Unit 4	
266-5	127°32'24"	57°32'24"	Biotite	6.34	23.09	199±7	Unit 1B	
266-5	127°32'24"	57°32'24"	Hornblende	0.81	2.97	200±7	Unit 1B	
274-4	127°20'24"	57°32'45"	Biotite	6.83	25.33	202±7	Unit 1B	
81AP-T28	126°39'30"	57°05'38"	Biotite	6.87	25.74	204±7		Panteleyev (1983)
NC-71-1	126°43'00"	57°07'36"	Hornblende	0.873	3.02	189±6		Carter (1972)
T81-191	127°24'54"	57°28'34"	Whole Rock	2.79	9.71	190±7		Schroeter (1982)

*radiogenic Ar

Constants: $\lambda^{40}\text{K}_e = 0.581 \times 10^{-10} \text{ yr}^{-1}$; $\lambda^{40}\text{K}_g = 4.96 \times 10^{-10} \text{ yr}^{-1}$; $^{40}\text{K}/\text{K} = 1.167 \times 10^{-4}$

%K determined by the Analytical Laboratory, British Columbia Ministry of Energy, Mines and Petroleum Resources, Victoria

Ar determination and age calculation by J. E. Harakal, University of British Columbia