K-Ar ages of Cenozoic dikes in Arizona and New Mexico

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K-Ar AGES OF CENOZOIC DIKES IN ARIZONA AND NEW MEXICO

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As has been reported previously (Laughlin and others, 1982), Los Alamos National Laboratory is producing a series of paleostress maps for the southwestern United States. We will continue to periodically release the K-Ar ages of igneous dikes used to generate these maps.

We report here analytical data and ages obtained for us by Geochron Laboratories, Cambridge, Mass. Ages were calculated using the method of Dalrymple (1979). Tectonic implications of the ages and orientations of these dikes are presented elsewhere (Aldrich and Laughlin, 1984; Aldrich, Chapin, and Laughlin, in press).

Although our data collection is nearing completion, we are still interested in locating large dikes or dike swarms in Arizona and New Mexico that have not been dated. We will obtain dates for such dikes and provide the results to the local investigators. Correspondence related to these results or to the dating of other dikes should be directed to A. W. Laughlin.

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SAMPLE DESCRIPTIONS

1. *AWL-2-82* K-Ar
Basalt dike (33°40.0'N,104°02.6'W; northernmost of "Railroad" dikes). *Analytical data:* K = 1.442%; $^{40}Ar^*$ = 0.002816 ppm; $^{40}Ar^*/\Sigma^{40}Ar$ = 0.472; $^{40}Ar^*/^{40}K$ = 0.001601.
(whole rock)27.9 ± 1.4 m.y.

2. *AWL-7-83* K-Ar
Felsic dike (33°49.1'N,113°44.2'W). *Analytical data:* K = 2.678%; $^{40}Ar^*$ = 0.010687 ppm; $^{40}Ar^*/\Sigma^{40}Ar$ = 0.644; $^{40}Ar^*/^{40}K$ = 0.003271.
(feldspar)56.5 ± 2.3 m.y.

3. *AWL-11-83* K-Ar
Andesite porphyry dike (31°21.8'N,109°48.8'W). *Analytical data:* K = 7.132%; $^{40}Ar^*$ = 0.01350 ppm; $^{40}Ar^*/\Sigma^{40}Ar$ = 0.404; $^{40}Ar^*/^{40}K$ = 0.001552.
(biotite)27.0 ± 1.1 m.y.

4. *VCK-83-NM-002* K-Ar
Biotite lamprophyre dike (35°03.7'N,106°28.8'W). *Analytical data:* K = 6.632%; $^{40}Ar^*$ = 0.01105 ppm; $^{40}Ar^*/\Sigma^{40}Ar$ = 0.491; $^{40}Ar^*/^{40}K$ = 0.001365.
(biotite)23.8 ± 1.0 m.y.

5. *VCK-82-NM-004* K-Ar
Basalt dike (35°24.5'N,105°56.9'W). *Analytical data:* K = 4.384%; $^{40}Ar^*$ = 0.008339 ppm; $^{40}Ar^*/\Sigma^{40}Ar$ = 0.652; $^{40}Ar^*/^{40}K$ 0.001559.
(whole rock)27.2 ± 1.1 m.y.

6. *VCK-82-NM-010* K-Ar
Basalt dike (35°19.4'N,106°19.5'W). *Analytical data:* K = 3.818%; $^{40}Ar^*$ = 0.007849 ppm; $^{40}Ar^*/\Sigma^{40}Ar$ = 0.552; $^{40}Ar^*/^{40}K$ = 0.00165.
(whole rock)29.3 ± 1.2 m.y.

7. *VCK-82-NM-024* K-Ar
Quartz monzonite porphyry dike (32°51.1'N, 108°04.8'W). *Analytical data:* K = 0.705%; $^{40}Ar^*$ = 0.001464 ppm; $^{40}Ar^*/\Sigma^{40}Ar$ = 0.179; $^{40}Ar^*/^{40}K$ = 0.001702.
(hornblende)29.7 ± 1.7 m.y.

8. *VCK-82-NM-048* K-Ar
Basaltic andesite dike (33°11.4'N,107°8.4'W). *Analytical data:* K = 1.518%; $^{40}Ar^*$ = 0.002536 ppm; $^{40}Ar^*/\Sigma^{40}Ar$ = 0.555; $^{40}Ar^*/^{40}K$ = 0.001370.
(whole rock)23.9 ± 1.2 m.y.

9. *VCK-82-NM-049* K-Ar
Basalt dike (33°05.0'N,107°08.8'W). *Analytical data:* K = 0.507%; $^{40}Ar^*$ = 0.001262 ppm; $^{40}Ar^*/\Sigma^{40}Ar$ = 0.233; $^{40}Ar^*/^{40}K$ = 0.002038.
(whole rock)35.4 ± 2.1 m.y.

10. *VCK-82-NM-050* K-Ar
Basalt dike (35°48.0'N,105°12.8'W). *Analytical data:* K = 1.269%; $^{40}Ar^*$ = 0.000833 ppm; $^{40}Ar^*/\Sigma^{40}Ar$ = 0.277; $^{40}Ar^*/^{40}K$ = 0.000539.
(whole rock)9.4 ± 0.7 m.y.

11. *VCK-82-NM-051* K-Ar
Basalt dike (35°54.2'N,104°31.8'W). *Analytical data:* K = 0.555%; $^{40}Ar^*$ = 0.000309 ppm; $^{40}Ar^*/\Sigma^{40}Ar$ = 0.138; $^{40}Ar^*/^{40}K$ = 0.000456.
(whole rock)8.0 ± 0.8 m.y.

12. *VCK-82-NM-056* K-Ar
Basalt dike (34°56.4'N,105°45.2'W). *Analytical data:* K = 1.274%; $^{40}Ar^*$ = 0.001290 ppm; $^{40}Ar^*/\Sigma^{40}Ar$ = 0.381; $^{40}Ar^*/^{40}K$ = 0.000830.
(whole rock)14.5 ± 0.9 m.y.

13. *VCK-82-NM-057* K-Ar
Lamprophyre dike (36°08.4'N,104°40.8'W). *Analytical data: K* = 0.556%; $^{40}Ar^*$ = 0.000929 ppm; $^{40}Ar^*/\Sigma^{40}Ar$ = 0.185; $^{40}Ar^*/^{40}K$ = 0.001369.
(hornblende)23.9 ± 1.6 m.y.

14. *GW-2*
Rhyolite dike (33°12.3'N,108°41.4'W). *Analytical data:* K = 3.771%; $^{40}Ar^*$ = 0.006087 ppm; $^{40}Ar^*/\Sigma^{40}Ar$ = 0.385; $^{40}Ar^*/^{40}K$ = 0.001323. K-Ar
(feldspar)23.1 ± 1.0 m.y.

15. *R-8*
Biotite lamprophyre dike (35°58.2'N,108°41.4'W). *Analytical data:* K = 5.996%; $^{40}Ar^*$ = 0.006544 ppm; $^{40}Ar^*/\Sigma^{40}Ar$ = 0.346; $^{40}Ar^*/^{40}K$ = 0.000895. K-Ar
(biotite)15.6 ± 0.7 m.y.

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