Supplementary material to the paper:
Duque-Trujillo, J., Ferrari, L., Norini, G., López-Martínez, M., 2014, Miocene faulting in the southwestern Sierra Madre Occidental, Nayarit, Mexico: kinematics and segmentation of the initial rifting in the southern Gulf of California: Revista Mexicana de Ciencias Geológicas, v. 31, núm. 3, p. 283-302.

Supplemental File 1. Additional information on ^{40}Ar-^{39}Ar methodology and analytical data

Sample NAY 21 was prepared at Departamento de Geología del Centro de Investigación Científica y Educación Superior de Ensenada (CICESE). The sample preparation procedure consisted of crushing and sieving, then rinsing with distilled water followed by 98% acetone. The rock fragments were dried overnight at ~60° C. A groundmass concentrate was obtained by passing the sample through a Frantz isodynamic magnetic separator and final examination under the microscope to ensure purity greater than 99%. The sample was irradiated in position 8E of the U-enriched research reactor of McMaster University in Hamilton, Ont. Canada. During the irradiation the sample and monitor were covered with a Cd liner to block thermal neutrons. The sample was irradiated with sanidine FCT 2 (28.201 ± 0.046 Ma; Kuiper *et al.*, 2008). The ^{40}Ar-^{39}Ar analysis of sample NAY 21 was performed at CICESE's Laboratorio de Geocronología. A Coherent Innova 300 Ar-ion laser was used to heat the samples. The argon extraction chamber was connected in-line with the VG5400 mass spectrometer, where the argon isotopes were measured. The irradiation monitors were fused in one-step. Two step-heating experiments were performed with the groundmass concentrate. Each argon step measurement was preceded by a blank measurement of all argon masses. Upon blank subtraction, the argon isotopes were corrected for mass discrimination, and for calcium, potassium and chlorine neutron induced interference reactions. The parameters used to correct for neutron induced interference reactions were: $(^{39}Ar/^{37}Ar)_{Ca} = 6.50 \times 10^{-4}$; $(^{36}Ar/^{37}Ar)_{Ca} = 2.55 \times 10^{-4}$; $(^{40}Ar/^{39}Ar)_{K} = 0$. Mass 36 was also corrected for chlorine-derived ^{36}Ar (^{35}Cl (n, γ) $^{36}Cl \rightarrow {}^{36}Ar + \beta$ with $t½ = 3.1\times10^{5}$ a). Isotopes ^{37}Ar and ^{39}Ar were corrected for radioactive decay. The constants recommended by Steiger and Jäger (1977) were used in all the calculations, while all the straight line calculations were performed with the equations presented in York *et al.* (2004). All errors are reported at 1σ level. The errors in the integrated, plateau and isochron age include the uncertainty in the *J* parameter. Additionally, the error of the isochron age includes the goodness of fit since the mean square of weighted deviates (MSWD) exceeded 1. The integrated ages were calculated adding the fractions of the step-heating experiments. The plateau age is calculated with the weighted mean of five consecutive fractions, which are in agreement within 1σ errors excluding the uncertainty in *J*. The data were plotted in a $^{36}Ar/^{40}Ar$ versus $^{39}Ar/^{40}Ar$ correlation diagram to determine the isochron age and the initial $^{40}Ar/^{36}Ar$ composition. A table with the relevant ^{40}Ar-^{39}Ar data follows. The preferred age is highlighted in bold typeface.

NAY 21, Mafic dike west of Jesús María (22.24161°N; 104.57821°W).

Pwr	$^{39}Ar \times 10^{-6}$	F ^{39}Ar	$^{40}Ar^*/^{39}Ar_K$	1σ	Age in Ma	1σ			% $^{40}Ar^*$	$^{40}Ar/^{36}Ar$	$^{37}Ar_{Ca}/^{39}Ar_K$
0.2	3.908	0.72	37.72	8.63	184.70	40.14	a	‡	3.11	304.99	2.65
0.5	15.198	2.79	4.91	0.59	25.15	3.02	b	‡	9.14	325.23	2.43
1.0	123.801	22.74	5.23	0.11	26.75	0.58	c		44.80	535.29	2.83
1.5	135.103	24.84	4.60	0.06	23.58	0.31	d		80.37	1505.69	1.87
2.0	80.001	14.70	4.50	0.11	23.03	0.55	e		83.36	1776.32	2.06
2.8	76.356	14.02	4.53	0.13	23.19	0.65	f		73.74	1125.27	3.36
3.8	43.285	7.94	4.65	0.16	23.82	0.81	g		92.44	3909.55	4.37
6.8	66.691	12.24	4.57	0.15	23.43	0.74	h		70.63	1006.22	4.88
0.2	2.995	0.36	34.41	12.16	169.20	57.10	i	‡	1.99	301.50	2.49
0.5	10.845	1.32	8.81	1.76	44.86	8.85	j	‡	6.73	316.83	2.49
1.0	46.812	5.69	5.72	0.26	29.27	1.31	k		30.12	422.88	2.32
1.3	51.754	6.29	5.54	0.20	28.32	1.02	l		56.69	682.23	2.50
1.6	79.177	9.63	5.01	0.14	25.63	0.72	m		70.34	996.18	2.36
1.9	87.014	10.58	4.83	0.09	24.74	0.47	n		73.17	1101.33	2.36
2.3	119.285	14.50	4.64	0.08	23.75	0.39	o		82.14	1654.70	1.96
2.9	107.076	13.02	4.53	0.07	23.21	0.35	p		86.88	2252.91	1.40
4.0	138.744	16.87	4.62	0.05	23.64	0.23	q		90.15	3000.43	1.64
6.8	179.131	21.73	4.48	0.06	22.96	0.32	r		76.82	1274.56	5.67

Integrated results

$^{39}Ar \times 10^{-6}$	$^{40}Ar^*/^{39}Ar_K$	1σ	Age in Ma	1σ	% $^{40}Ar^*$	$^{40}Ar/^{36}Ar$	$^{37}Ar_{Ca}/^{39}Ar_K$
543.3	4.97	0.09	25.42	0.44	28.98	416.10	2.91
821.3	4.92	0.07	25.21	0.35	33.44	443.95	2.78

Pwr: laser power in Watts applied to heat the sample; $^{39}Ar \times 10^{-6}$ signal output for ^{39}Ar; % ^{39}Ar precentage of ^{39}Ar released; % $^{40}Ar^*$ percentage of radiogenic ^{40}Ar; $^{37}Ar_{Ca}/^{39}Ar_K$ ratio of calcium derived ^{37}Ar over potassium derived ^{39}Ar.

$J = 0.002858 \pm 0.000004$

Plateau age calculated with the weighted mean of fractions d to h

$t_p = 23.45 \pm 0.23$ Ma, 73.74 % of ^{39}Ar released in 5 consecutive fractions, MSWD = 0.24

Isochron age obtained with the combined data of the two experiments

$t_c = 23.01 \pm 0.24$ Ma, $(^{40}Ar/^{36}Ar)_i = 329 \pm 6$, MSWD = 2.0 for $n = 14$

‡ fractions ignored in the isochron age determination

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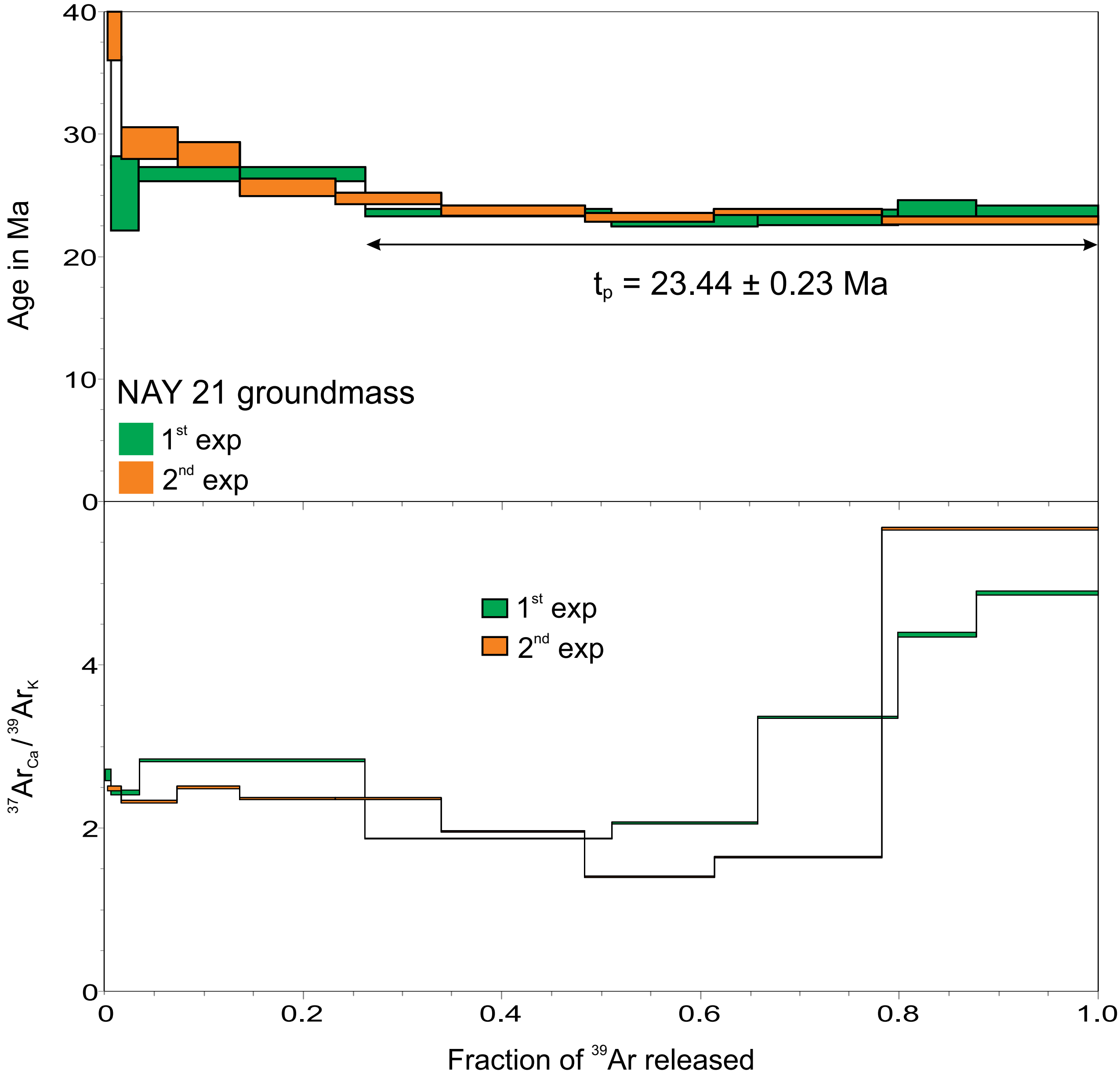
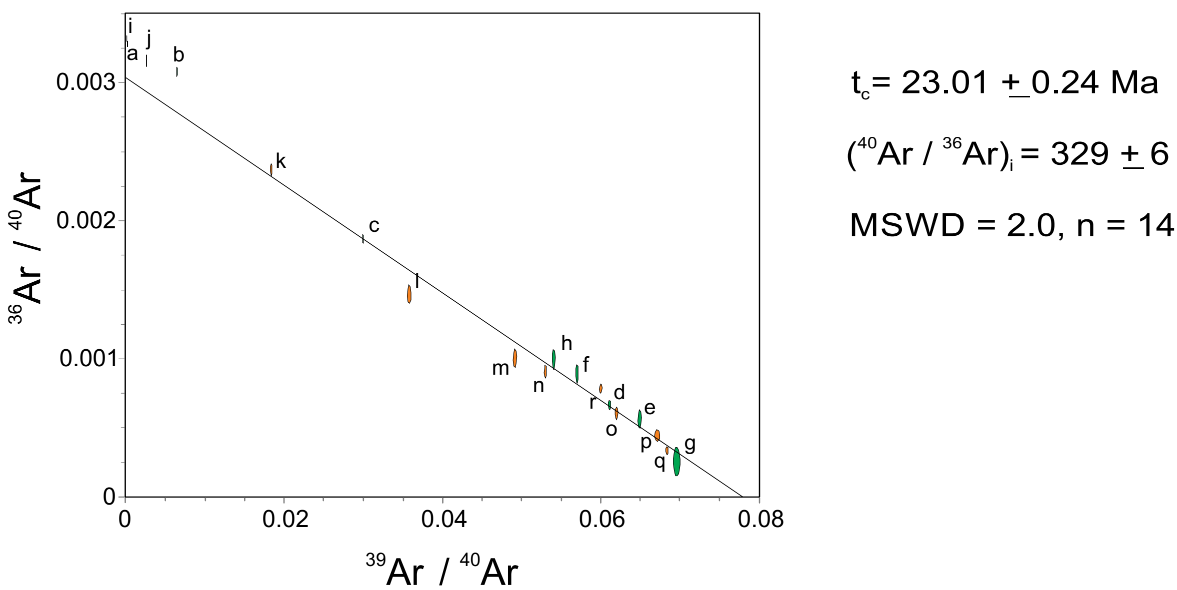

Age in Ma
t_p = 23.44 ± 0.23 Ma
NAY 21 groundmass
1st exp
2nd exp
$^{37}Ar_{Ca}$ / $^{39}Ar_K$
Fraction of ^{39}Ar released


^{36}Ar / ^{40}Ar
^{39}Ar / ^{40}Ar
t_c= 23.01 ± 0.24 Ma
(^{40}Ar / ^{36}Ar)$_i$ = 329 ± 6
MSWD = 2.0, n = 14