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This document has supplementary information associated with the paper entitled

"Stratigraphic response and mammalian dispersal during initial India-Asia collision:

Evidence from the Ghazij Formation, Balochistan, Pakistan" by William C. Clyde, Intizar

H. Khan, and Philip D. Gingerich. Included are the following:

- Table DR1. Table of paleomagnetic results

- Figure DR1. Representative vector end point diagrams for Ghazij Formation

paleomagnetic samples.

- Figure DR2. A: Result of the fold test with parametric bootstrap. B: Equal area

projection of overprint directions.

Data Repository References Cited

Tauxe L., 1998, Paleomagnetic principles and practice: Netherlands, Kluwer. 299 p.

Table DR1 - Paleomagnetic results from Ghazij Formation

Site	Slat	Slon	Locality	DD	D	n/N	Dec_g	Inc_g	Dec_s	Inc_s	R	k	a_{95}	f_p	l_p
SRPM 0002	30.17537	67.19495	Shin Gwazha	224	60	3/3	149.3	42.0	177.4	9.5	2.97	70.9	14.8	71.7	-55.0
SRPM 0007	30.17505	67.19479	Shin Gwazha	224	60	3/4	145.2	1.9	141.3	-8.7	2.99	398.3	6.2	129.6	-45.3
SRPM 0008	30.17505	67.19479	Shin Gwazha	224	53	4/4	144.2	23.5	158.8	6.3	3.86	21.9	20.1	102.2	-51.0
SRPM 0029	30.17358	67.19483	Shin Gwazha	224	56	3/4	147.7	16.8	155.5	-1.5	2.98	106.1	12	110.1	-52.5
SRPM 0031	30.17280	67.19580	Shin Gwazha	224	56	3/3	314.0	-12.6	324.5	-7.0	2.84	12.8	36	298.7	42.2
SRPM 0032	30.17351	67.19449	Shin Gwazha	215	55	5/6	331.2	6.6	315.0	25.2	4.66	11.7	23.3	325.0	45.3
SRPM 0043	30.17276	67.19470	Shin Gwazha	215	55	5/5	329.1	-12.2	329.3	11.9	4.93	59.0	10	303.5	52.3
SRPM 0044	30.17343	67.19374	Shin Gwazha	215	55	3/5	146.7	23.5	156.4	-2.8	2.94	35.3	21.1	109.5	-53.6
SRPM 0056	30.17247	67.19432	Shin Gwazha	228	55	3/4	309.8	2.6	311.1	-5.2	2.83	12.0	37.3	311.0	33.0
SRPM 0063	30.17226	67.19279	Shin Gwazha	228	55	3/4	316.9	-10.4	325.9	-6.8	2.84	12.8	36.1	297.3	43.2
SRPM 0064	30.17243	67.19299	Shin Gwazha	228	55	5/5	321.6	-8.1	326.7	-1.7	4.93	55.7	10.3	298.9	45.6
SRPM 0034	30.05509	67.25425	Deghari	310	25	6/6	317.3	22.4	316.8	-2.4	5.9	49.4	9.6	308.0	38.3
SRPM 0036	30.05521	67.25422	Deghari	310	25	3/3	338.4	41.2	332.2	18.5	2.93	28.2	23.7	304.7	56.9
SRPM 0049	30.05572	67.25314	Deghari	313	38	3/5	9.7	31.6	358.8	7.2	2.96	56.4	16.6	249.8	63.5
SRPM 0052	30.05661	67.25288	Deghari	318	38	4/4	352.8	32.4	346.8	-0.3	3.68	9.3	31.9	272.2	57.3
SRPM 0053	30.05699	67.40059	PIZ	353	34	3/3	348.8	41.6	349.8	7.7	2.98	96.0	12.7	269.5	62.1
SRPM 0074	30.06055	67.43262	PIZ	54	53	5/5	331.9	31.7	354.2	12.9	4.95	83.6	8.4	261.7	65.8
SRPM 0075	30.06055	67.43262	PIZ	54	53	4/4	344.8	33.1	2.2	5.2	3.82	16.7	23.1	242.8	62.5
SRPM 0076	30.04298	67.37838	PIZ	305	40	4/4	333.3	37.9	327.0	1.4	3.98	157.4	7.3	300.5	47.0
KPM 98030	30.43585	67.79957	Kingri	116	42	4/4	143.1	27.6	140.2	-10.6	3.93	43.6	14.7	132.0	-45.0
KPM 98034	30.45367	67.80100	Kingri	132	65	3/3	169.3	56.1	151.8	-2.9	2.99	162.3	9.7	115.9	-50.6
KPM 98035	30.45367	67.80100	Kingri	132	65	4/4	173.3	47.6	158.8	-8.4	3.99	515.6	4.1	109.3	-57.0

Mean Direction (Reversed Polarity Sites Inverted)

Dec	Inc	N	R	k	a_{95}	plat
334.6	4.0	22	21.07	22.5	6.7	2 ± 3.4 N

Average Paleomagnetic Pole for Ghazij Formation (Reversed Polarity Sites Inverted)

f_p	l_p	N (sites)	h_{95}	Dec_h	Inc_h	z_{95}	Dec_z	Inc_z
292.8	52.9	22	4.02	69.62	28.83	8.45	171.93	21.19

Slat, Slon are GPS site coordinates (latitude, longitude) in decimal degrees and referenced to the World Geodetic System 1984 datum (WGS 1984); DD, D are dip direction and dip of bedding; n/N is number of specimens used in statistics/total number of samples analyzed from site; Dec_g, Inc_g (Dec_s, Inc_s) are declination and inclination of average characteristic component in geographic, in situ (stratigraphic, tilt corrected) coordinates; R is length of resultant vector; k is precision parameter; α_{95} is circle of 95% confidence; ϕp, λp are longitude and latitude of the site virtual geomagnetic pole (vgp); plat is paleolatitude estimated from mean inclination. Although the site directions are Fisher distributed, the resulting vgp positions are not, so the 95% confidence ellipse for the mean paleomagnetic pole was determined using the parametric bootstrap (Tauxe, 1998). Dec_η and Inc_η are the directions of the major semi-axes and Dec_ζ and Inc_ζ are the minor semi-axes, whose semi angles of 95% confidence are η_{95} and ζ_{95}.
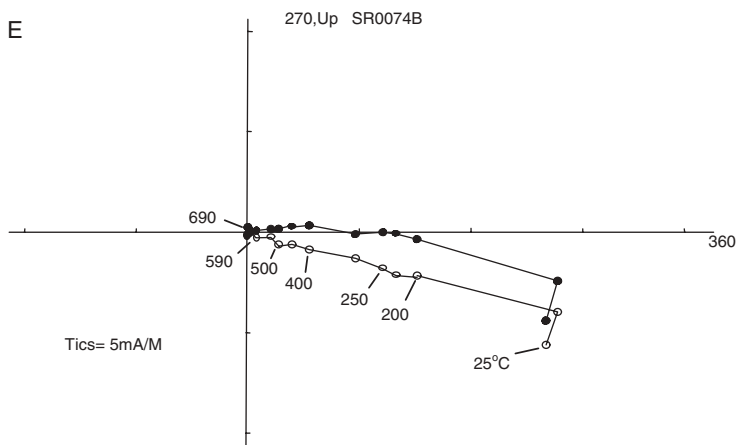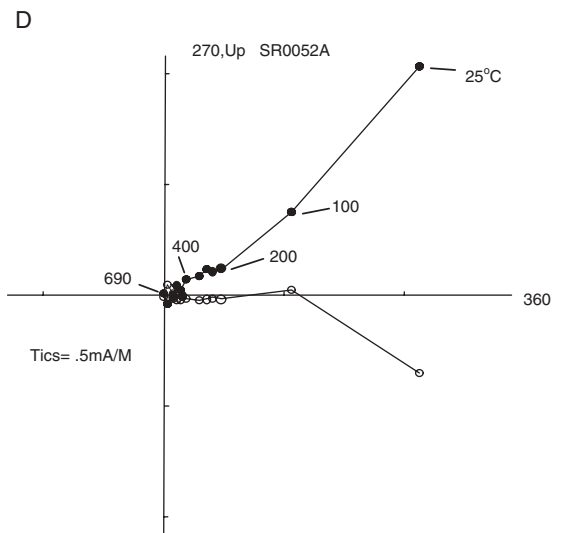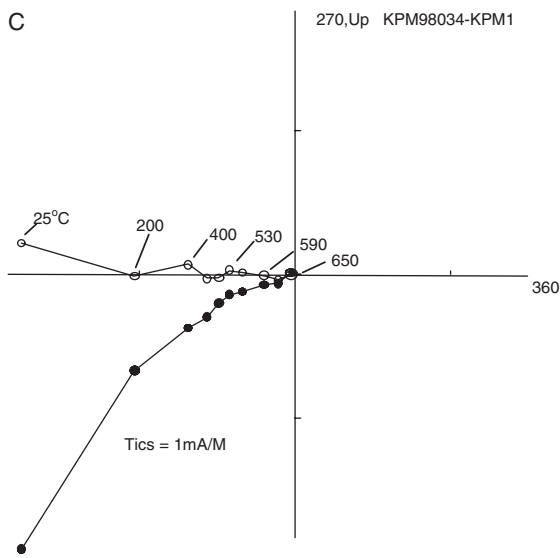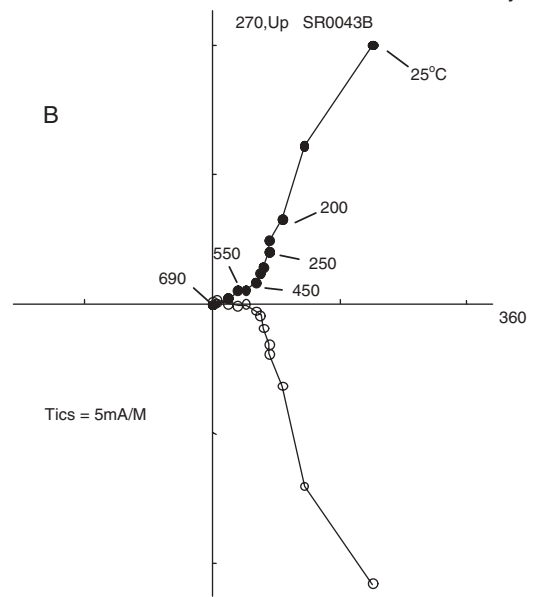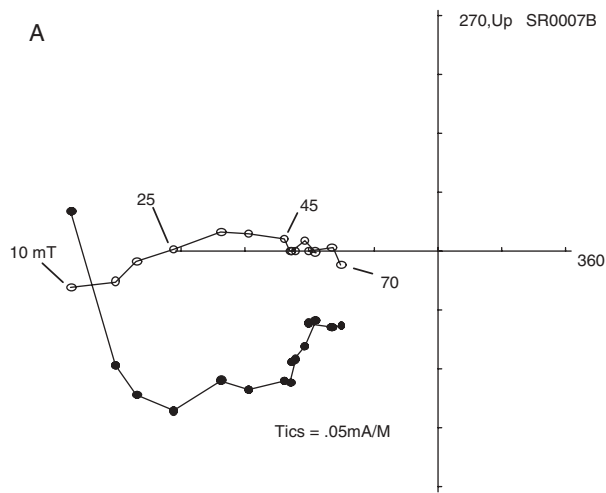
Figure DR1. Representative vector endpoint diagrams of Ghazij Formation paleomagnetic samples (tilt corrected coordinates). Open (closed) symbols show vector endpoints in the vertical (horizontal) plane. A - AF demagnetization of a sample from lower Ghazij grey shales at Shin Ghwaza. B - Thermal demagnetization of sample from upper Ghazij red mudstones at Shin Ghwaza. C - Thermal demagnetization of sample from upper Ghazij red mudstones at Kingri. D - Thermal demagnetization of sample from upper Ghazij red mudstones at Deghari. E - Thermal demagnetization of sample from upper Ghazij red mudstones at Pir Ismail Ziarat.
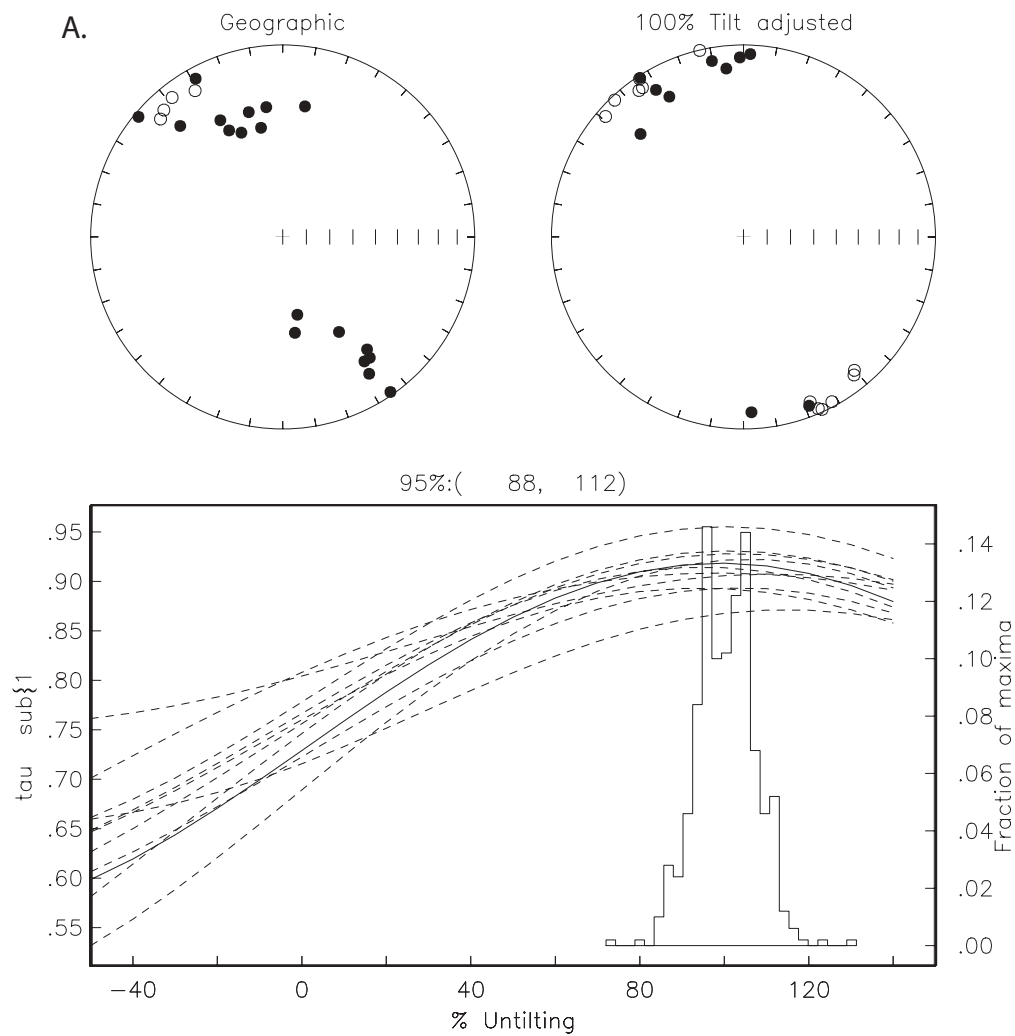
Figure DR2. (A) Results of the fold test using the parametric bootstrap (Tauxe, 1998) showing that maximum clustering of mean site characteristic directions occurs at 100% unfolding indicating a pre-folding magnetization. (B) Equal area projection of intermediate-temperature overprint component of magnetization in Ghazij red mudstones. These overprint directions are tightly clustered in geographic coordinates, indicating that this component of magnetization was acquired after folding. The mean overprint direction is close to the expected direction for the present-day field but shows a slight counterclockwise rotation, which means that some of the rotation in this area is probably quite recent. Open (closed) points are in the upper (lower) hemisphere.