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Magnetostratigraphic determination of the age of ancient Lake Qinghai, and record of the East Asian monsoon since 4.63 Ma

Chaofeng Fu^{1,2}, Zhisheng An¹, Xiaoke Qiang¹, Jan Bloemendaal³, Yougui Song¹, and Hong Chang¹

¹ State Key Laboratory of Loess and Quaternary Geology, Institute of Earth and Environment, CAS, Xi'an, Shaanxi, 710075, China;

² Key Laboratory of Western Mineral Resources and Geological Engineering, Ministry of Education of China & Chang'an university, Xi'an, Shaanxi, 710054, China;

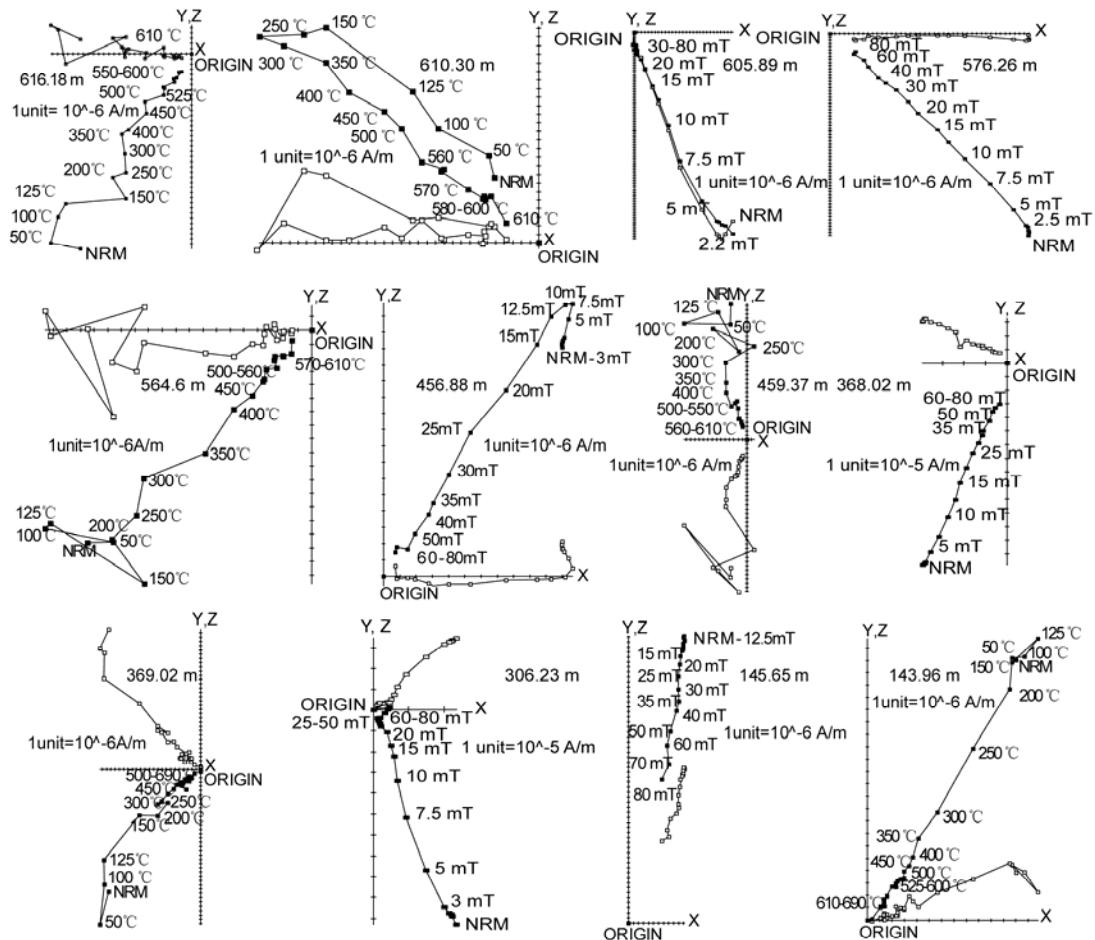
³ School of Environmental Sciences, University of Liverpool, Roxby Building, Liverpool L69 3BX, UK;

⁴ 2011 Cooperative Innovation Center for Arid Environment and Climate Changes, Lanzhou University, China.

Table DR1. Paleomagnetic ages of the Yilangjian core from Lake Qinghai

Magnetic Reversal (Chron)	Core Depth (m)	Age (Ma) (Singer et al., 2002)	Age (Ma) (Cande & Kent., 1995)	Age (Ma) (Gradstein et al., 2012)
Blake	10.23- 11.90	0.123±0.014 (?)		
Jamaica	26.27- 27.75	~ 0.210(?)		
Biglost	40.35- 42.10	0.580±0.008 (?)		
B/M(C1n)	~84.01		0.780	0.781
Jaramillo(C1r.1n)	102.72- 106.64		0.990- 1.070	0.988- 1.072
Olduvai(C2n)	225.19- 262.54		1.770- 1.950	1.778- 1.945
Reunion(C2r.1n)	275.14- 276.86		2.140- 2.150	2.128- 2.148
M/G(C2An.1n)	305.36- 321.35		2.581- 3.040	2.581- 3.032
C2An.2n	336.18- 350.87		3.110- 3.220	3.116- 3.207
Gau/Gil(C2An.3n)	366.10- 394.45		3.330- 3.580	3.330- 3.596
Cochiti(C3n.1n)	496.12- 517.60		4.180- 4.290	4.187- 4.300
Nunivak(C3n.2n)	547.32- 586.22		4.480- 4.620	4.493- 4.631
Sidufjall(C3n.3n)	595.94- 608.94		4.800- 4.890	4.799- 4.896
Thvera(C3n.4n)	614.83		4.980	4.997
Core base	~ 626.39		~ 5.1(Extrapolation)	~ 5.1(Extrapolation)

a. Orthogonal demagnetization diagrams



b. Thermal magnetization curves

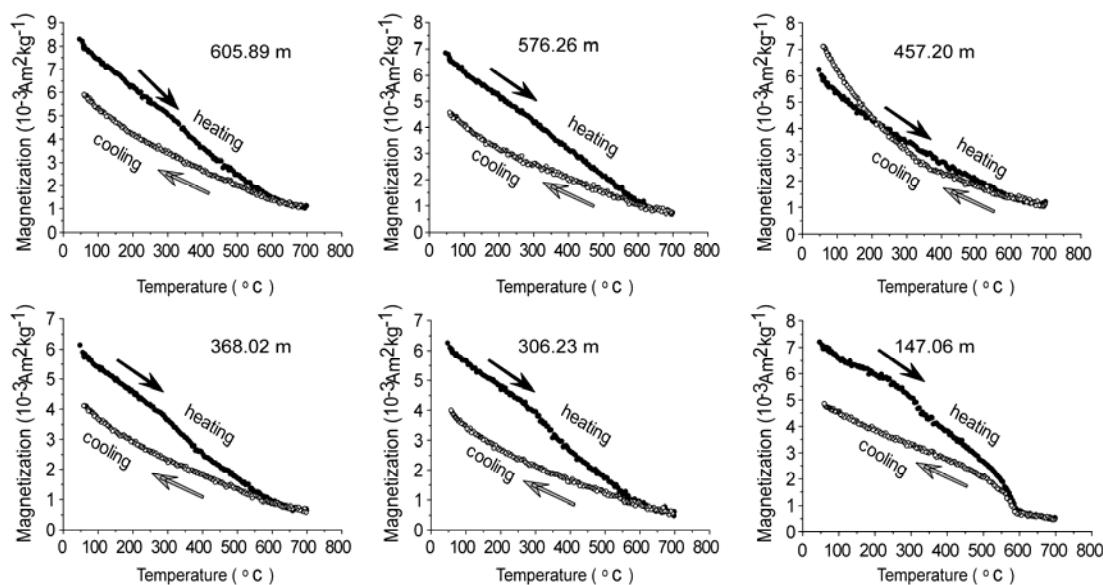


Figure DR1 a. Orthogonal projections of the results of AF and thermal demagnetization of representative samples from various depths of the Yilangjian drill core. The solid (open) circles refer to the vertical (horizontal) plane. b. Thermal magnetization curves of representative samples from various depths of the

Yilangjian drill core. Solid and open circles represent heating and cooling runs, respectively. The curves indicate a varied magnetic mineralogy, including maghemite (inflections at 300-350°C – samples 605.89, 576.26, 368.02 m, 147.06 m; magnetite (147.06) and oxidized magnetite and/or hematite. Sample 457.20 shows a significant paramagnetic component.

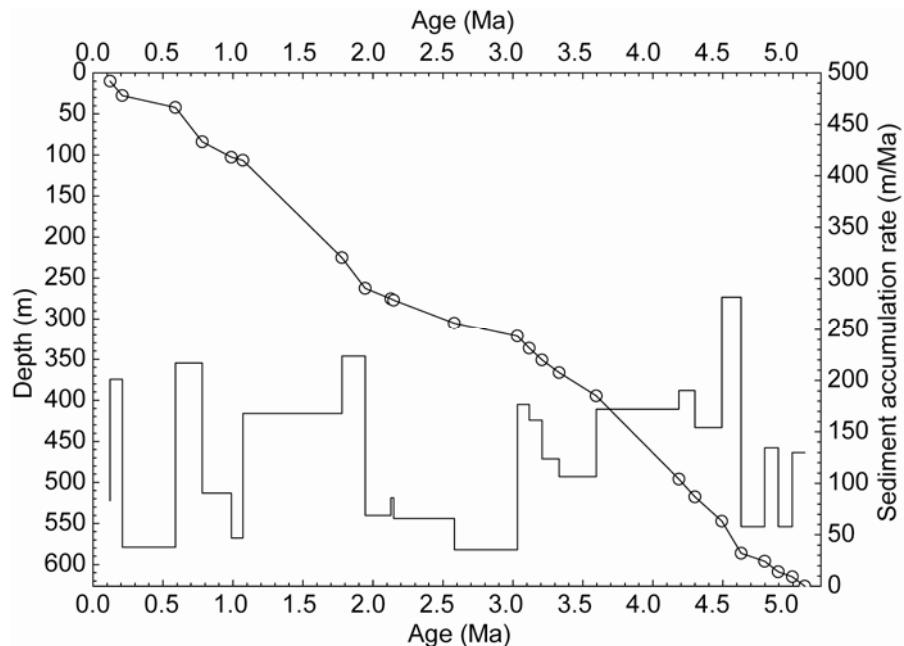


Figure DR2 Depth-vs.-age plots of the magnetic polarity chronos for the Yilangjian core (with ages taken from the GPTS of Gradstein et al., 2012. Sediment accumulation rate are plotted as well.

REFERENCES CITED

- Singer, B. S., M. K. Relle, K. A. Hoffman, A. Battle, C. Laj, H. Guillou, and J. C. Carracedo, Ar/Ar ages from transitionally magnetized lavas on La Palma, Canary Islands, and the geomagnetic instability timescale, *J. Geophys. Res.*, 107(B11), 2307, doi:10.1029/2001JB001613, 2002.
- Cande, S., and Kent, D., 1995, Revised calibration of the geomagnetic polarity timescale for the Late Cretaceous and Cenozoic: *Journal of Geophysical Research* v. 100, p. 6093-6095.
- Gradstein, F., Ogg, J. G., Schmitz, M., and Ogg, G., 2012, *The Geologic Time Scale 2012 2-Volume Set*, Elsevier.