

Dataset	$S_{ 30 median}$ (°)	$S_{ 30 iqr}$ (°)	$N_{locations} (-30^{\circ} \leq \lambda_m \leq 30^{\circ})$	Reference
0-5Ma*	11.3	4.4	21	de Oliveira, W. P. et al. <i>Geochemistry, Geophysics, Geosystems</i> 22, e2021GC010063 (2021).
5-265 Ma	14.7	6.3	28	See below
5-23 Ma*	15.4	6.2	12	Engbers Y.A. et al. <i>Geophysical Journal International</i> 23, e2022GC010480 (2022).
24-84 Ma	13.9	7.5	5	Engbers, Y. A. et al. <i>Geochemistry, Geophysics, Geosystems</i> 25, e2023GC011203 (2024).
80-118 Ma	10.3	6.8	3	Dobrovine, P. V. et al. <i>Geochemistry, Geophysics, Geosystems</i> 20, 1240-1279 (2019)
126-183 Ma	11.0	4.3	4	
200-264 Ma	14.4	6.6	4	Handford, B. T. et al. <i>Geochemistry, Geophysics, Geosystems</i> 22, e2021GC009930 (2021).
271-321 Ma	9.1	2.3	4	
0.5-1.5 Ga	12.3	2.7	7	Veikkolainen, T. & Pesonen, L. J. <i>Geophysical Journal International</i> 199, 1515-1526 (2014).
1.5-2.9 Ga	7.9	2.7	3	

Table S2: Palaeomagnetic datasets summarised in Figure 5. Dataset names correspond to the age range of the estimates of S from each of the references given. $S_{|30|median}$ and $S_{|30|iqr}$ are defined in the text. $N_{locations}$ refers to the number of localities associated with a absolute magnetic latitude of less than 30° . Each locality contributes an estimate of S from a minimum of 20 palaeomagnetic sampling sites. See Supplementary Dataset 1 for details of all localities. Individual localities are plotted for datasets marked with * in figure 1.