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Supplemental Material

Figure S1. A comparison between the Euler Poles of Australia relative to Antarctica we used (Müller et al., 2008) with a more recent global model from Müller et al. (2016). In the recent global model from Müller et al. (2016), the Euler poles results of 2.6 Ma, 10.9 Ma, 20.1 Ma, 26.6 Ma, 28.7 Ma, 30.9 Ma, 33.5 Ma, and 38.1 Ma were from Cande and Stock (2004), 6.0 Ma was from Krijgsman et al. (1999), and 43.8 Ma, 46.3 Ma, and 53.3 Ma were from Whittaker et al. (2007).

Figure S2. Model results calculated by Zhang et al. (2018). (a) The N-S (north flank-south flank) asymmetry in models of a southward ridge jump of ~20 km occurring approximately at 23.6 Ma. (b) The N-S asymmetry in models of southward ridge migration as a function of mantle temperature. A horizontal velocity of 2 cm/yr to the north was applied. (c) The N-S asymmetry in models of asymmetric mantle temperature. (d) The N-S asymmetry in models of asymmetric degree of mantle depletion.

Table S1. The Euler Poles of Australia relative to Antarctica we used in this study (Müller et al., 2008).

Supplementary data set of the resulted crustal thickness.

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Figure S1

Figure S2

Table S1

Age (Ma)	Latitude (°N)	Longitude(°E)	Angle (deg)
0	0	0	0
5	11.521531	40.798498	-2.974245
10	12.287548	37.394681	-5.980062
15	12.812566	35.719460	-8.966835
20	13.360905	34.766547	-11.882428
25	13.633189	33.064678	-15.140390
30	13.379721	34.384642	-18.490543
35	14.273842	33.580795	-21.266270
40	14.733252	33.493650	-23.603462
45	15.128813	33.595902	-24.448460
50	11.934388	34.051670	-25.038246