Lei Wu, J. Brendan Murphy, Cecilio Quesada, Zheng-Xiang Li, John W.F. Waldron, Simon Williams, Sergei Pisarevsky, and William J. Collins, 2020, The amalgamation of Pangea: Paleomagnetic and geological observations revisited: GSA Bulletin, <https://doi.org/10.1130/B35633.1>.

Supplemental Material

Table S1: Relative rotation parameters for Gondwanan landmasses.

Figure S1: Comparison of weighted mean and Fisherian mean Gondwanan poles.

Figure S2: Comparison of 460–300 Ma Gondwanan apparent polar wander paths.

Figure S3: Comparison of 460–300 Ma Baltican apparent polar wander paths.

Figure S4: Comparison of 460–300 Ma Laurentian apparent polar wander paths.

Figure S5: Comparison of 430–300 Ma Laurussian apparent polar wander paths.

Table S1: Relative rotation parameters for Gondwanan and Laurussian landmasses.

Rotation pair	Rotation parameters			Reference
	Lat (°N)	Long (°E)	Angle (°)	
Gondwana				
India - Australia	-14.8	15.4	-64.8	Powell and Li (1994)
Antartica - Australia	8.3	35.4	30.8	Powell and Li (1994)
Australia - South Africa	29.9	119.8	-52.8	Powell and Li (1994)
Madagascar - South Africa	-3.3	-78.8	19.4	Powell and Li (1994)
Arabia - South Africa	226.5	21.5	-7.6	Powell and Li (1994)
South America - South Africa	45.5	-32.2	58.2	Powell and Li (1994)
Sri Lanka - South Africa	19.2	49.5	-85.3	Powell and Li (1994)
Parana Basin - South Africa	49.0	-31.2	55.8	Torsvik et al. (2012)
North Patagonian Massif - South Africa	35.2	-30.1	58.2	Torsvik et al. (2012)
Pampean Terrane - South Africa	40.1	-30.5	57.0	Torsvik et al. (2012)
Lake Victoria block - South Africa	90.0	0.0	0.0	Torsvik et al. (2012)
North Mozambique - South Africa	90.0	0.0	0.0	Torsvik et al. (2012)
Northwest Africa - South Africa	17.9	16.1	4.3	Torsvik et al. (2012)
Northeast Africa - South Africa	4.0	34.0	1.6	Torsvik et al. (2012)
Marie Byrd Land - South Africa	17.0	152.1	-60.1	Torsvik et al. (2012)
Laurussia				
North America - Baltica	80.5	131.4	32.4	This study
Greenland - North America	61.8	-133.0	-11.0	Matthews et al. (2016)

Figure S1: Comparison of Gondwanan weighted mean (M_W , purple squares) and Fisherian mean (M_F , green squares) poles for the 410-360 Ma windows. Paleopoles (blue circles) are shown in South African coordinates and size-coded to their weight (larger symbols indicate higher reliability) that is a function of age error, A95 and Q-factor. Annotations show Resultno, Q-factor, age span and A95 of each of the paleopoles (see Table 1).

Figure S2: Comparison of 460-300 Ma Gondwanan running mean apparent polar wander (APW) paths in South African coordinates. (a) The purple line and squares indicate the weighted running mean path from this study (ages are annotated), whereas the blue line and circles indicate the regular running mean path from Torsvik et al. (2012). (b) Great circle distances between coeval running mean poles (black line) along with combined errors (green bars). (c) Number of paleopoles included for calculating the mean poles: purple bars - this study; blue bars - Torsvik et al. (2012). (d) Errors associated with the mean poles: purple bars - this study; blue bars - Torsvik et al. (2012).

Figure S3: Comparison of 460-300 Ma running mean APW paths of Baltica. (a) The purple line and squares indicate the weighted running mean path from this study, whereas the blue line and circles indicate the regular running mean path from Torsvik et al. (2012). (b) Great circle distances between coeval running mean poles (black line) along with combined errors (green bars). (c) Number of paleopoles included for calculating the mean poles: purple bars - this study; blue bars - Torsvik et al. (2012). (d) Errors associated with the mean poles: purple bars - this study; blue bars - Torsvik et al. (2012).

Figure S4: Comparison of 460-300 Ma Laurentian running mean APW paths in North American coordinates. (a) The purple line and squares indicate the weighted running mean path from this study, whereas the blue line and circles indicate the regular running mean path from Torsvik et al. (2012). (b) Great circle distances between coeval running mean poles (black line) along with combined errors (green bars). (c) Number of paleopoles included for calculating the mean poles: purple bars - this study; blue bars - Torsvik et al. (2012). (d) Errors associated with the mean poles: purple bars - this study; blue bars - Torsvik et al. (2012).

Figure S5: Comparison of 430-300 Ma Laurussian running mean APW paths in Baltican coordinates. (a) The purple line and squares indicate the weighted running mean path from this study, whereas the blue line and circles indicate the regular running mean path from Torsvik et al. (2012). (b) Great circle distances between coeval running mean poles (black line) along with combined errors (green bars). (c) Number of paleopoles included for calculating the mean poles: purple bars - this study; blue bars - Torsvik et al. (2012). (d) Errors associated with the mean poles: purple bars - this study; blue bars - Torsvik et al. (2012).

References

- Matthews, K. J., Maloney, K. T., Zahirovic, S., Williams, S. E., Seton, M., and Müller, R. D. (2016). Global plate boundary evolution and kinematics since the late Paleozoic. *Global and Planetary Change*, 146:226–250.
- Powell, C. and Li, Z. X. (1994). Reconstruction of the Panthalassan margin of Gondwanaland. *Permian-Triassic pangean basins and foldbelts along the Panthalassan margin of Gondwanaland*, 184:5–9.
- Torsvik, T. H., Van der Voo, R., Preeden, U., Niocaill, C. M., Steinberger, B., Doubrovine, P. V., van Hinsbergen, D. J., Domeier, M., Gaina, C., Tohver, E., Meert, J. G., McCausland, P. J., and Cocks, L. R. M. (2012). Phanerozoic polar wander, palaeogeography and dynamics. *Earth-Science Reviews*, 114(3–4):325–368.