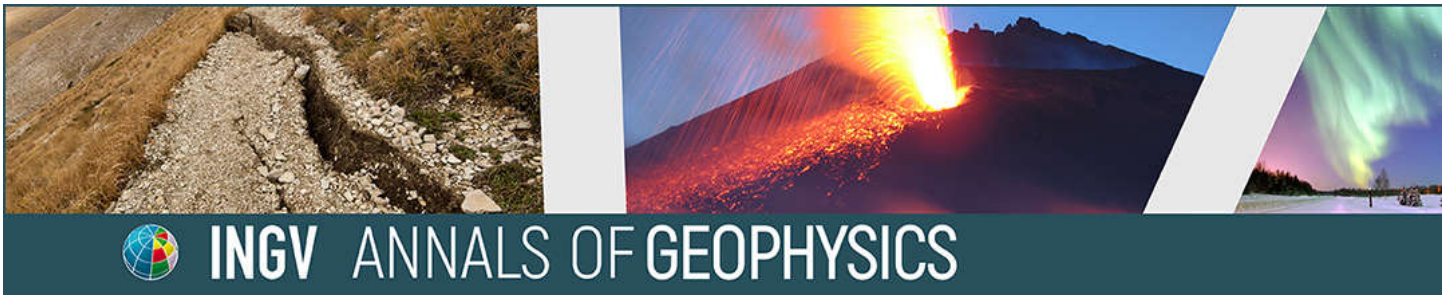

Pangea B: an artifact of incorrect paleomagnetic assumptions?

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Abstract

The detailed plate reconstruction within Pangea megacontinent has been an ongoing debate among the paleomagnetic community for decades. The Pangea B hypothesis, implying a 3500 km Triassic dextral megashear on the Gondwana-Laurussia limit, has been recently reinforced by new data, excluding Southern Alps sites. This configuration, at odds with geological evidence, does improve the coherency of paleomagnetic poles from Gondwana and Laurussia. However, the corresponding apparent latitudinal difference between the two supercontinents can be easily accounted for, without invoking this megashear, considering the effect of inclination error (or equivalent non-dipole field) on the site distribution used in the paleomagnetic study. Once northern hemisphere Southern Alps data are considered, Pangea B no longer holds. Large inclination errors (10°-30°) are to be expected in the Permo-Triassic continental sediments as demonstrated in the Esterel and possibly Argentina Permo-Triassic studies or in Neogene analogues such as the Siwalik or Catalan basin sequences. An overall discussion of the inclination error problem is given. Analysis of the database also suggests an age bias between the Gondwana and Laurussia reference poles at the Permo-Triassic boundary, partly responsible also for the latitudinal shift. Finally, Moroccan data are demonstrated to be irrelevant for computing a Gondwana early Triassic pole.

Keywords

paleomagnetism;trias;permian;pangea;inclination error

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References

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