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Paleomagnetic investigation of the Early Permian Panjal Traps of NW India; regional tectonic implications

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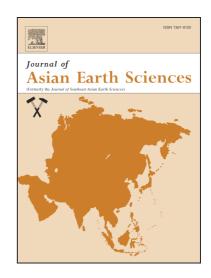
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## **ACCEPTED MANUSCRIPT**

Paleomagnetic investigation of the Early Permian Panjal Traps of NW India; regional

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#### tectonic implications 2 3 4 Denis Stojanovic<sup>1</sup>, \*Jonathan C. Aitchison<sup>1,2</sup>, Jason R. Ali<sup>3</sup>, Talat Ahmad<sup>4</sup>, Reyaz Ahmad Dar<sup>5</sup> 5 6 <sup>1</sup> School of Geosciences, University of Sydney, NSW 2008, Sydney, Australia 7 <sup>2</sup> School of Geography, Planning and Environmental Management, University of Queensland, Brisbane, QLD 4072, Australia 8 <sup>3</sup> Department of Earth Sciences, University of Hong Kong, Pokfulam Road, Hong Kong SAR, China 9 <sup>4</sup> Vice Chancellors Office, Jamia Millia Islamia, Delhi, India 10 <sup>5</sup> Department of Earth Sciences, University of Kashmir, Hazratbal, Srinagar-190 006 (J&K) India. 11 12 \* Corresponding author: Jonathan Aitchison School of Geography, Planning and Environmental Management, University of Queensland, 13 Brisbane, QLD 4072, Australia email: jona@uq.edu.au 14 15 **Abstract** The ~289 Ma Panjal Traps of NW India (Kashmir) are part of series of rift-related mafic suites 16 (Abor, Sikkim etc.) that were erupted onto northern India (present-day coordinates) around 17 the same time as separation of the Cimmerian blocks of Qiangtang and Sibumasu. We report 18 19 new data from only the second paleomagnetic investigation of this unit. Standard alternating field and thermal demagnetization methods were used to isolate characteristic 20 magnetizations from seven outcrops at three locations within the Kashmir Valley, NW India. 21 Analysis of four sections (14 individual cooling units) from close to Srinagar, that together 22 form a tectonically coherent sequence spanning ~3 km of stratigraphy, yield a single-23 component, primary magnetization with a mean direction of Dec: 134.8°, Inc: $55.3^{\circ}$ ( $\alpha 95 =$ 24 8.9°, k = 21.0). An inclination-only mean of 52.5° ( $\alpha$ 95 = 8.9°, k = 47.2) gives a paleolatitude of 25 $\sim$ 33°S (± 5°). A paleopole of 110.5°E 8.4°S (A95 = 10.7) is also calculated. Assuming the 26 magnetization records a portion of the reverse polarity Kiaman Superchron, the new result 27 indicates extrusion of the Panjal Traps basalts at mid-latitudes in the southern hemisphere. 28 29 By inference this constrains the location of central Gondwana, and informs debates related to Cimmeria's detachment from Gondwana. 30 31 32

33 **Keywords:** Panjal Traps, Permian, paleolatitude, Greater India, Cimmerian terranes

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