

Accepted Manuscript

Full length article

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Khaista Rehman, Wajid Ali, Asghar Ali, Aamir Ali, Adnan Barkat

PII: S1367-9120(17)30482-0

DOI: <http://dx.doi.org/10.1016/j.jseaes.2017.09.005>

Reference: JAES 3237

To appear in: *Journal of Asian Earth Sciences*

Received Date: 10 March 2017

Revised Date: 5 September 2017

Accepted Date: 6 September 2017

Please cite this article as: Rehman, K., Ali, W., Ali, A., Ali, A., Barkat, A., Shallow and intermediate depth earthquakes in the Hindu Kush region across the Afghan-Pakistan border, *Journal of Asian Earth Sciences* (2017), doi: <http://dx.doi.org/10.1016/j.jseaes.2017.09.005>

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Shallow and intermediate depth earthquakes in the Hindu Kush region across the Afghan-Pakistan border

Khaista Rehman^{a,*}; Wajid Ali^a; Asghar Ali^b; Aamir Ali^c; Adnan Barkat^d

^a National Centre of Excellence in Geology, University of Peshawar, Khyber Pakhtunkhwa 25120, Pakistan

^b Department of Geology, University of Peshawar, Khyber Pakhtunkhwa 25120, Pakistan

^c Department of Earth Sciences, Quaid-e-Azam University Islamabad, Pakistan

^d Centre for Earthquake Studies, National Centre for Physics, Islamabad Pakistan

* Corresponding author. E-mail: rehmannceg@upesh.edu.pk

Abstract

We investigated the spatio-temporal seismicity parameters of shallow (0-70 km) and intermediate (70-300 km) depth earthquakes in the Hindu Kush region, which is characterized by the occurrence of large earthquakes in a small zone of intense activity. By way of comparison, intermediate depth earthquakes dominate the Hindu Kush seismicity. Using a catalogue of 3820 earthquakes, we determined the various earthquake histograms, time-series plots, variations of frequency-magnitude distribution (b-value) and seismicity rate changes (z-value). Both time periods, encompassing pre- and post-1964 subsets of earthquakes, differ significantly in terms of reporting earthquakes, b- and z-value for shallow and intermediate seismicity. The b-values appear to be lower (1.07 and 0.90) for intermediate depth earthquakes than do the b-values produced by shallow earthquakes (1.32 and 1.06) using the pre- and post-1964 data sets. The

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