

SEISMICITY AND FAULT-PROPAGATION IN THE SALT RANGE/POTWAR PLATEAU, NORTH PAKISTAN

Ishtiaq A. K. Jadoon, Department of Environmental Sciences, CIIT, Abbottabad,
Pakistan, jadooniak@yahoo.com

The Salt Range/Potwar Plateau represents foreland part of the active Himalayan mountain system in Pakistan. Ongoing crustal deformation due to the converging Indian and Eurasian plates causes seismicity. Generally, the deformation in the Salt Range/Potwar Plateau is distributed over a broader (>130km across strike) zone in Pakistan as compared to a narrower zone (30 km across strike) in India. This is attributed to the presence of a weak detachment in evaporates above the crystalline basement in the Salt Range/Potwar Plateau. The main fault propagates southwards along this weak detachment and cuts up-section. As a result, a complete stratigraphic section from EoCambrian Salt Range Formation to Neogene clastic sediments is exposed along an emergent thrust at the mountain front. The industry seismic data is used to resolve the geological structures (faults and folds) here. Whereas, sedimentary analyses and magnetostratigraphic studies, over the time, has provided constraints on the timing of deformation and fault propagation since 8 Ma. It shows prograde deformation with out-of-sequence events. The present-day distribution of seismicity at the mountain front and inwards allows to predict ongoing out-of-sequence deformation. Whereas, generally lower degree of seismicity in the Salt Range/Potwar Plateau is related to the presence of evaporates along the decollement. Seismicity combined with structural studies may be used for better understanding of crustal deformation in the Salt Range and North Pakistan.