



Memorandum of Understanding September 2007

between

Department of Geological Sciences, University of Colorado USA

and the

Department of Geology and Geophysics, University of Kashmir, India

Neotectonic studies in the Kashmir Valley and Pir Panjal

Recognizing the catastrophic consequences of the recurrence of a large earthquake beneath the Pir Panjal to the people of Kashmir and contiguous states, scientists from the above two departments have agreed to combine their intellectual resources in a collaborative undertaking to study the historical, archaeological, geological, structural, seismic and geodetic consequences of earthquake processes in the Kashmir Valley. The objective of the collaborative study is to characterize the physics of the earthquake process and if possible to mitigate its effects through education and awareness.

The regular occurrence of moderate earthquakes in Kashmir is well known, but of considerable importance are consistent reports from the region, of a major earthquake that destroyed numerous towns at the time of Mughal administration of the province in 1555. The precise location of this rupture is not at present known although several lines of evidence suggest it was associated with slip in a great earthquake ($M \approx 8$) on a megathrust beneath the Pir Panjal. Theoretical studies indicate that the typical renewal time of Himalayan earthquakes is approximately 500 years suggesting that stresses to drive a recurrence of the event may be relatively mature. Of concern to seismologists is the finding that Coulomb failure stresses resulting from the 2005 Mw 7.6 Kashmir earthquake have incremented the Pir Panjal toward failure in a thrust type earthquake, and this will have advanced already high stresses in the region toward failure.

This Memorandum of Understanding indicates that scientists from the above two organizations will pool their collective intellectual and observational resources to further our knowledge of the physics of the earthquake process in the region. The University of Colorado will extend to the University of Kashmir the loan of GPS tools necessary for the monitoring of the deformation process, and will assist in the training of the use of these tools and the processing of data to characterize the deformation process. The University of Kashmir will facilitate field studies and undertake to use these tools to supplement their ongoing neotectonic studies in the region. All data resulting from the collaboration will be freely available for analysis to scientists and students from the two Universities and important results will be made publicly available through the reporting of these findings in international journals with mutual authorship.

Dr. Roger Bilham
Associate Director, Cooperative Institute
for Research in the Environmental Sciences
and Professor of Geological Sciences,
University of Colorado

Dr. M.I. Bhat
Professor of Geology,
Dept of Geology and Geophysics
University of Kashmir, India