

## **Seismological and Tectonic Deformation Studies in the Central Andes and Seismic Hazard Evaluation in the Peru-Chile Border Region**

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The Central Andes region presents the highest seismicity level in western South America and includes the Peru-Chile seismic border region, which has been shaken by three earthquakes with  $M_W$  near 9.0, among many other smaller magnitude earthquakes that provoked serious damage in several places of the Central Andes. The large events occurred near the Arica elbow in 1604, 1868 and 1877, destroying most of the populated areas in Northern Chile and Southern Peru. Several authors believe that recent large earthquakes that have occurred in the Central Andes between 1994 and 1996, are premonitory events of a large catastrophic earthquake that may occur in the Peru-Chile border region in the next few years or during the next few decades. Recent studies show a complex tectonic setting beneath the Central Andes, where several processes associated to the subduction of the Nazca plate, may be acting to accumulate and to release the tectonic energy in that region.

We present in this document a research proposal to carry out comprehensive seismological and tectonic deformation studies in the region 13°S - 26°S and 60°W - 80°W. In those studies will be determined the seismotectonic structure and the seismicity regime to create conditions for future earthquake prediction research in the Central Andes, mainly in the Peru-Chile border region. The proposed study region comprises the southern region of Peru, the northern region of Chile, the central and western regions of Bolivia and the north-western region of Argentina. We shall discuss in this paper some details of this project.