

## **Structure and Seismic Volume Activity in the Southern Peru (13° S – 18.5° S) Subduction Zone**

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The area considered in this study is located in Southern Peru between 13° – 18.5° S and 69° - 80° W, in the Central Andean region, that is considered one of the most seismic and tectonic active convergent zones. The subduction process causes tectonic features in the acting plates that accumulate elastic energy that is realised suddenly as large magnitude earthquakes. Some of these large events occurred in 1958 and 1960

In this study we shall discuss the spatial distribution of earthquakes with magnitude  $M > 3.5$ , occurred in 1964-1999, in the subduction zone in Southern Peru. 2963 events were selected from the relocated earthquakes catalogue of Engdahl et al. (1998) and from the CalTech seismic files. All these events are related only to the Wadati-Benioff zone up to 300 km of depth.

The objective of this work is to determine a structural model of the active seismic volume, based on the space-time distribution of the earthquakes, in which the seismic activity in the volume will show the interaction of the two plates, Nazca and South American, The difference on the type of deformation of the two plates will command the different type of seismic activity. The strain release among the two plates, form a structure of two layers of the seismic volume at intermediate depths. The upper layer will command the energy release in the continental plate, the other in the oceanic plate. The seismic volume also commands the occurrence of great magnitude earthquakes.