

**STUDY OF THE LATERAL AMPLITUDE VARIATIONS
OF REGIONAL PHASES ACROSS THE ANDEAN CHAIN,
AT 20°S.**

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In 1994, an earthquake survey organised by ORSTOM and INSU-CNRS, was carried out in Northern Chile and Bolivia (Dorbath et al., 1996), (Dorbath et al., this volume). Across an East-West section of the Andes at the latitude of 20°S along 700 km, 56 short period seismic stations of the Lithoscope network were installed during 6 months between June and November. The temporary network ran across the main structural features of the Andes: the coastal range, the Western cordillera, the Altiplano, the Eastern cordillera and the subandean zone. It was composed of 41 one component seismometers ($T_0=1\text{sec}$) and of 15 three component ones ($T_0=5\text{sec}$). The three component seismometers were installed at every third site.

To infer characteristics of the structure of the crust and of the upper mantle, we study the lateral variations of the amplitudes of the P and S waves along our almost linear network. We focus on regional phases such as Lg waves (Campillo, 1990), which are very sensitive to the variations of the structure of the crust (Chazalon, 1993), thus, very valuable for our studies. In order to study the regional phases, we have selected 17 regional or local events which occurred at depth lower than 60 km and for which the hypocentral location is well constrained (Masson et al., this volume). The azimuthal repartition of these crustal earthquakes should allow us to point out if the anomaly of propagation of Lg waves along paths perpendicular to the trend of the Andes (Chinn, 1980), really exists. A detailed examination of the seismograms shows strong variations of the amplitudes of the waves. Using simulations, we build synthetic seismograms to better understand interactions of these waves with possible models of crustal structures.

Using deeper local or regional events, we purpose to study the propagation of the direct wave through the upper mantle, for instance beneath the Altiplano.

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