Geophysical Research Abstracts,
Vol. 10, EGU2008-A-08714, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-08714
EGU General Assembly 2008


# DEPTH DEPENDENT INTRINSIC AND SCATTERING ATTENUATION IN THE LITHOSPHERIC STRUCTURE OF THE "NUEVO CUYO" REGION, ANDES, ARGENTINA.

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For a selected set of earthquakes occurred in the Ande region (in the zone of Cuyo between 26.5 S and 35.5 S - 63.5W and 74.0 W – depth range 0 – 300 km), we calculated the seismic energy envelopes for the application of the Multiple Lapse Time Window Analysis (MLTWA). The aim was to separate intrinsic and scattering attenuation parameters for two depth ranges (crustal and mantle earthquakes). We generated the theoretical curves both for a uniform crustal model (Vs = 4.16 km/s) and for a lithospheric model (Vs = 4.81 km/s ) which were fit to the data located in the two depth ranges. The experimental seismic energy, integrated in three successive time windows in hypocentral distance and frequency, is obtained by the trace envelopes. We filtered the seismic traces using a 10-pole Butterworth bandpass filter centered at the following frequencies: 1.5 (with a bandwith of $\pm 0.5$), 3, 6 , 12 Hz (all with a bandwith of $\pm 1$). The three energy windows for the analysis were calculated for duration of 15 seconds, and coda normalization factor was evaluated at 90-equivalent seconds from the origin time of each earthquake. We empirically obtained the trace envelope by taking the rms amplitude of the filtered traces. Comparing the retrieved experimental energies to the 2 models, we estimated the intrinsic and scattering Q-inverse for a uniform earth model.

The wide depth distribution of the seismic sources allowed us to separate in depth the contribution of the seismic attenuation. In particular we found that: i)the scattering inverse-Q prevails over the intrinsic attenuation at crustal scale; ii) for the entire lithosphere (crust + mantle), the scattering inverse-Q is close to the intrinsic inverse-Q estimate; iii) the crustal scattering inverse-Q prevails over the total attenuation at both scales.