HETEROGENEITY OF THE SHORT-PERIOD *S* WAVE ATTENUATION IN THE SOURCE ZONE OF THE MAULE EARTHQUAKE IN CHILE (27.02.2010, M_w=8.8) AND ITS RELATION TO SEISMICITY AND VOLCANISM OF THE REGION

Yu.F. Kopnichev[1], I.N. Sokolova[2]

[1] *Schmidt Institute of Physics of the Earth, Russian Academy of Sciences, Moscow, Russia*
[2] *Institute of Geophysical Research, NNC RK, Alma Ata, Kazakhstan*

Abstract. The characteristics of *S* wave attenuation in the source zone of the Maule earthquake of 27.02.2010 (Chile) are considered and analyzed in relation to the seismicity and volcanism of the region. A method based on analyzing the amplitude ratio of S_n and P_n waves is applied. More than 160 records of local earthquakes obtained at PLCA station at a distance of ~300 to 850 km were processed. It is established that two ring-shaped seismicity structures, the shallow and the deep ones, have been formed prior to the Maule earthquake in the studied region as well as in other subduction zones. The epicenter of the major event was located in the area of closest approach of the ring structures. It is established that the lower attenuation of *S* waves corresponds to the shallow ring, and the higher attenuation, to the deep one. In the volcanic area attenuation is lower than in the area of deep ring. The nature of the ring structures and their relation to the migration of deep-seated fluids is discussed.

Keywords: attenuation, shear waves, ring-shaped structures, deep-seated fluids.