

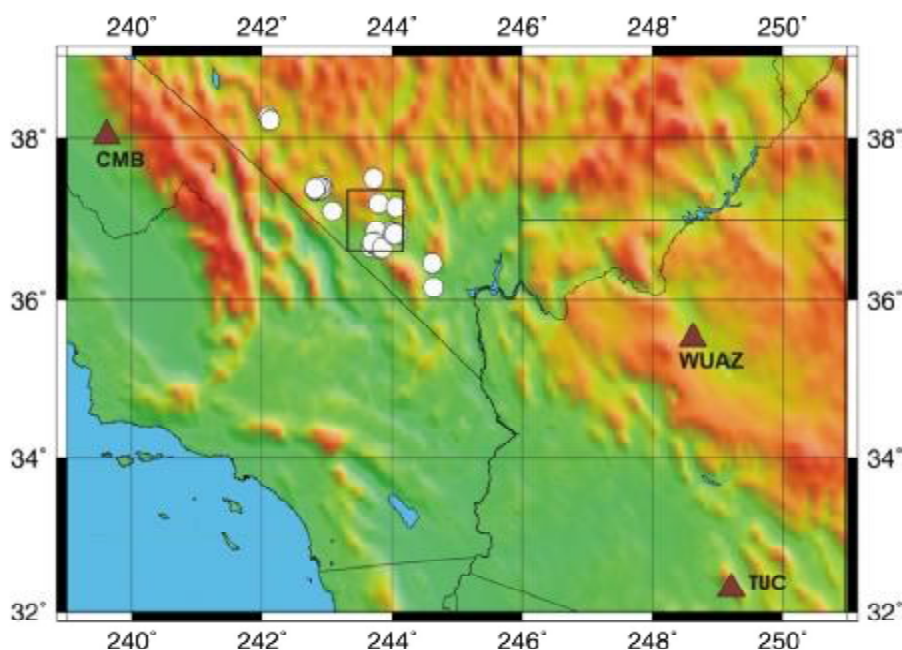
FEATURES OF S-WAVE ABSORPTION FIELD IN THE REGIONS OF SEMIPALATINSK AND NEVADA TEST SITES

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We have been studying spatio-temporal variations of S wave attenuation field in the regions of Semipalatinsk (STS) and Nevada (NTS) test sites. We have been analyzing recordings of underground nuclear explosions (UNE) and chemical explosions, and also earthquakes, obtained by 18 digital and analog seismic stations at distances up to 700-800 km. We were considering characteristics of S coda and Lg coda, and also amplitude ratio of Lg and Pg waves (Lg/Pg). It has been shown, that in the area of Balapan site (STS), where two large regional fault zones pass, abnormally high S wave attenuation is observed at depths of ~10-120 km. In the area of Degelen site attenuation is much lower at such depths. We were investigating temporal variations of Lg/Pg parameter using recordings of more than 260 UNEs at STS, obtained by stations TLG and BRVK. It has been established, that this parameter changes in time differently for Murzhik, Degelen and Balapan sites. As a whole, Lg/Pg values are considerably lower for paths to the station BRVK, which go in parallel to a system of largest regional deep fault zones in the North-Eastern Kazakhstan, and also along large thermal anomaly, existing in the region of the STS. For the region of the NTS an abrupt drop of Lg/Pg parameter (Figs 1,2) and also relatively lower shear wave attenuation in the uppermost mantle are observed.



Rectangle – NTS, triangle – seismic station, circle – earthquake epicenter or UNE.

Figure 1. Research area of Nevada Test Site

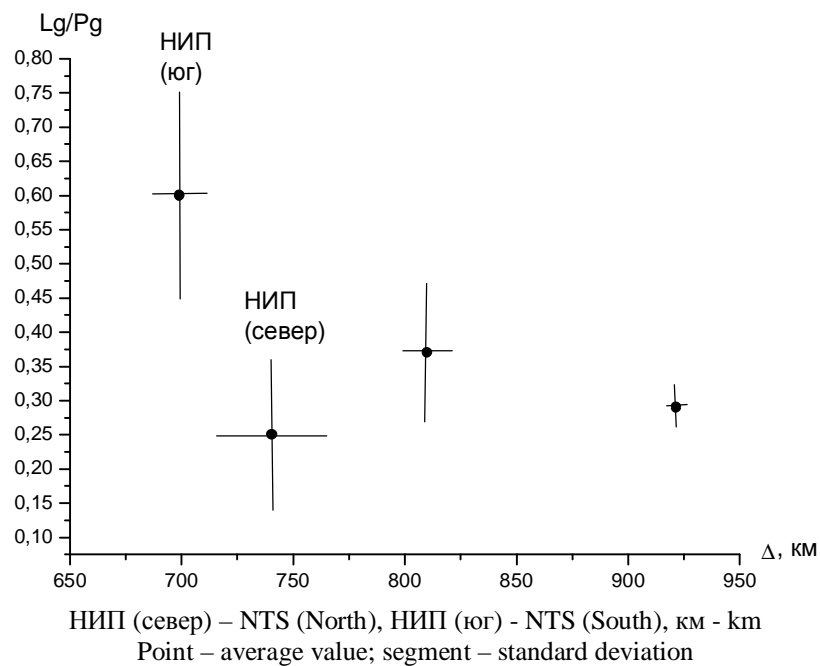


Figure 2. Dependence of Lg/Pg parameter on distance to earthquakes from NTS region and its close bounds based on TUC station records

The data obtained testify to an ascent of mantle fluids into the earth's crust in the regions of the STS and NTS, possibly connected with long-term intensive influence of large UNEs.