

PROCESSES INDICATION IN LOESS SOILS BY SEISMIC-ELECTROMAGNETIC METHODS

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Within Central Asia cover deposits are made mainly of loess soils which are sensitive to anthropogenic impact. For operative prediction of anthropogenic impact on loess seismic-electromagnetic methods are widely used permitting to get information about processes within the loess. It allows to define tendencies of structural links changes.

On the base of links between dispersed system deformation processes and structure changes taking into account adequacy of these processes in soils and electromagnetic fields clearly expressed and sustain seismic-electromagnetic parameters are revealed. Loess compaction processes are characterized by decreasing of anisotropy coefficient of specific electric resistance and elastic waves speed in vertical direction.

Rocks attached to sliding zone, where shear deformation is developed, are characterized by low values of specific electric resistance, i.e. «capillary over-conductivity». This zone in electromagnetic fields is reflected as a layer with high longitudinal conductivity.

Water flow within loess and filtration pressure due to local hydrodynamic gradients cause distortion of seismic-electromagnetic links and non-linearity of resistance and polarization parameters.

Fissures formation process due to tribo-electric phenomena within the zone of expansion is expressed as a powerful local electrostatic anomalies of negative character and within a zone of compression-positive character.

Angle of internal friction determining shear processes could be assessed through study of vibration sensitivity of elastic fluctuations, i.e. amplitude of elastic fluctuations depending on intensity of activating field.