

Terrestrial space technology studying the dynamics of the earth's crust and the development of methods for predicting earthquakes

Zhantayev Z.

Institute of Ionosphere of National Center of Space Research and Technologies, Almaty, Kazakhstan

e-mail: admion1@mail.ru

An overview of fundamental, exploratory and applied research in the field of solar-terrestrial physics: the ionosphere and geomagnetic field, space weather, radiation monitoring of near-Earth space, as well as ground-space geodynamic and geophysical monitoring of the Earth's crust of Kazakhstan, performed at the Institute of Ionosphere is given. The results of the use of satellite geodesy and remote sensing of the earth for the geomechanical model of the Northern Tien Shan earth crust are discussed. Comparative analysis of geodynamic and geothermal constructions with seismic regime parameters provides additional information for predictive conclusions about the physical parameters of the environment and possible reasons for the formation of conditions for strong earthquakes. Using the example of the Tengiz and Karachaganak fields, the possibilities of assessing the geodynamic state of the earth's crust in areas of intensive hydrocarbon exploration are considered in order to predict the spatial position of oil prospecting horizons and to estimate the direction of fluid flow according to radar satellite survey and modeling. The nature of variations in the intensity of thermal neutrons, their origin and the release of thermal neutron flux of lithospheric origin during the activation of seismic processes at the Tien Shan high-altitude station are discussed.