

HYDROGEOLOGIC PHENOMENA IN THE CRYOLITHOZONE AS A RESULT OF SUN - LUNAR TIDES

V.YE.GLOTOV, YU.YA.VASHCHILLOV (North-East Interdisciplinary Science Research institute Russian academy of sciences Far-East division)

The matter of the Earth's crust undergoes to periodic extension and compression under the influence of the sun-lunar tides and ebbs. It results in the series of geologic effects including hydrogeologic ones that are evident in the cold zone. There are isolated lenses of several thousands cubic meters in volume in the strata of the permafrost rocks.. These lenses are filled with saline and very saline waters. Analogous objects occur below the strata bottom. Their origin is related to the processes of the cold zone formation and development. Isolated water-bearing capacitances are being formed in the deep sedimentary basins through the regional metamorphism and tectonic deformations. In all cases they are the nature dilatometers that react to the change of the tense condition of the interior part of the earth. Well yields of the water self-effusion from these capacitances change with the amplitude up to 2.5 l/sec. It takes place at the same rate as tides in the Earth's crust. The direct correlative relation of these movements with methane concentrations in the surface layers of an air was established in the oil and gas-bearing areas of Chukotka. Studied processes enable one to estimate volumes of the nature reservoirs at the different depths, to predict earthquakes, and to reveal local structures perspective for oil and gas by the data of observations for periodic changes of the water levels and the volumes of fluid flows in the isolated well.