

**“MUD VOLCANISM” ACTIVITY IS LIKELY TO EXIST ON TITAN.** V.A. Alekseev. State Research Center of Russia (TRINITI) “Troitsk Institute for Innovation & Fusion Troitsk, Moscow region, Russia A.Getling@ru.net

Juxtaposing some images made by the Huygens probe near the surface of Titan [1] and the photos of a mud volcano region on the Earth (Kerch and Taman peninsulas, the Crimea and the Caucasus, accordingly; this volcano region has been studied in [2] and others) reveals similarity of geomorphologic features. Therefore, we put forward a hypothesis about existence of the mud-volcano activity on Titan. The liquid methane of Titan can manifest itself in producing it, instead of methane gas producing this activity on the Earth. For Titan, gas hydrates (hydrates of hydrocarbon gases) and water ice are the analog with the earthly clay breccia. Note, in accordance with [3], that gas hydrates are stable at the P-T condition known for Titan. The mud-volcano activity can explain: 1) general type of the landscape about the Huygens probe landing site on Titan; 2) the chain of bright islands seen during descent to the landing site, which can be marker

of a fault line; 3) the conic form of a hill at the first plan of the image taken from an altitude of 8 km; 4) the rounded pebble-like form of the small blocks on the surface of Titan (compare similar form of blocks seen on the surface of Venus [4]); 5) the presence of solitary long white strips, each of which diverges at one of the ends (the methane wind can bring this picture into existence by extending matter of volcano-eruption pollution).

**References:** [1] ESA Cassini – Huygens First Science Results. 2005. January:14,15,21. <http://huygens.esa.int/science-e/www/object/printfriendly.cfm?fobjectid=36370> [2] Alekseev V.A., Alekseeva N.G.// (1992) *Nucl.Geophys*, 6, N. 1, 99-110. [3] Makogon Yu.F. (1997) *Hydrates of hydrocarbons*. Pen Well Books, 482 p. [4] Florensky C.P., Ronca L.B., Basilevsky A.T. (1977) // *Science*, 196, No 4292, 869-871.