

Goelectrical markers and oreols of subsurface frozen structures on Mars for long-term monitoring of spatial and temporal variations and changes of martian cryolitozone structure on the base ground and satellite low-frequency radar measurements. Y. R. Ozorovich, A. K. Lukomskiy, Space Research Institute, Russian Academy of Sciences, 84/32 Profsoyuznaya st., Moscow, 117810, Russia Tel:7-095-333-3177; Fax:7-095-333-2177; e-mail: yozorovi@iki.rssi.ru.

Choosing right methods and instruments for Mars' cryolitozone structure research is the present-day task for future missions on Mars. Data analysis of Mars' near-surface element composition (Mossbauer spectrums from Mars Exploration Rovers) shows magnetic materials presence on the surface. In some extent it confirm the "theory of meteorite Mars' upper crust evaporating". At the same time crust structure will develop under any frequency- or time-domain sounding methods in additional induced polarisation effects.

This goelectrical subsurface structure of Mars is complicated enough to make us searching methodical and instrumental ways to reveal real Mars' frozen structure.

One way seems to be establishing goelectrical markers of specific subsurface layers that will help us getting certainty structure of Mars subsurface layers as the result of direct measurements from Mars' surface or from the base satellite low-frequency radar for regional distribution of martian cryolitozone. Basing on established markers and oreols more accurate goelectrical structure measurements of frozen subsurface structure can be done.

Solving one of previously mentioned tasks a comprehensive expedition near Tambov area have been made. Finding similar goelectrical markers reference measurements using TDEM method have been done. These allow us building spatial goelectrical structure using given approach.

These results shows necessity of further experimental and methodical research studies on Mars analog field sites to find out adequate experiment strategy on Mars' surface.

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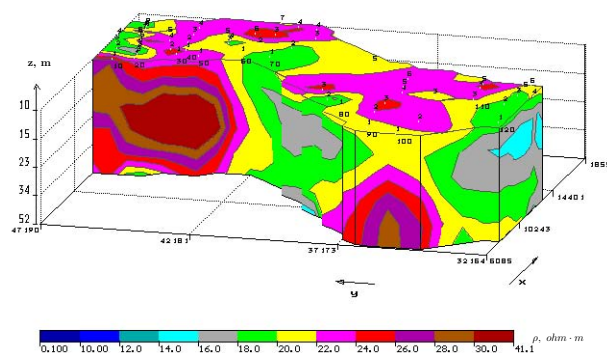


Figure 1: 3D goelectrical subsurface structure of the field site (titanium- zircon deposit near Tambov). (x,y – distance in m, vertical component z – the depth in m). Goelectrcal markers reflections of thin geological structure in this deposit.

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