

RADAR IMAGING FROM SPACE. SPECIFICS AND PROSPECTS

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Successful solution of many problems, including Earth monitoring, the detection of small ground displacements, fast mapping of large areas (especially in nook), depends on the existence and availability of objective and reliable information that can be obtained by various observation methods, including remote sensing methods. Among such methods one of the most important is radar remote sensing.

It is well known that the most important and distinctive feature of SAR sensing is its independence on the weather and light conditions in the observed area, which is essential for its use in Russia taking into account Russian geography and climate.

In fact, the age of civil radiosensing was opened by the European Space Agency in 1991, when the first ERS satellite with spatial resolution of 30 m was launched. Recently the possibility to obtain and use radar data with very high spatial resolution – up to 1 meter – for solving various problems has become real.

The last year was truly exciting because of the number of launched civil radar satellites: TerraSAR-X, COSMO-SkyMed-1/2, RADARSAT-2. It is important to notice that the systems listed above allow to carry out regular and high-frequency monitoring of the Earth surface.

What can SAR data be used for? The variety is quite wide and first of all, for ground displacements monitoring using interferometric technique with –mm precision, for large-scale mapping etc. But it is necessary to have knowledge of radar data processing and have special software products in order to perform data processing.

In this paper the overview of the current situation in radar remote sensing is given. Also the prospects of SAR data usage (including TerraSAR-X) and the technologies related to regular monitoring of the Earth surface are presented.