СИСТЕМА ОБРАБОТКИ ДАННЫХ О ТЕХНОГЕННЫХ ЧРЕЗВЫЧАЙНЫХ СИТУАЦИЯХ

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Annotation. The article considers the peculiarities of data processing of space monitoring of territories with the purpose of the prevention of technogenic emergencies. There is an interferogramme that shows subsidence in the district of Karaganda region.

Key words: remote sensing, analysis, monitoring, forecasting, sedimentation, interferogramme

For the successful liquidation of emergency situations and reducing the negative effects of utmost importance timely data collection in the area of occurrence plays a great role. It is necessary to do monitoring of condition of industrial facilities in the most dangerous zones on the base of corresponding structural divisions of the enterprise – the situation centre (SC). [1,2].

Environmental monitoring can be divided into two modes: "cold", in the normal state and “hot” - state of emergency. On the upper level of monitoring – the space – it is proposed to use the existing systems of remote sensing. Operational space monitoring of natural and technogenic emergency situations (ES) and disasters in recent years has become an important and required component of information support services emergency. For observation of the vertical distortion of undermined territories of the Kostenko mine (Karaganda region) satellite radar interferometry was used.

The main output file when the calculation of displacements of the Earth's surface is the differential interferogram (figure 1), representing the result of subtracting the synthetic phase topography of the complex interferogram. Geocoding and calibration are performed relative to the obtained earlier digital elevation model of the city of Karaganda. The calculations showed that since 2003, the area of the mine Kostenko began to form the mold 2 of the subsidence. Until 2010 the mold of subsidence only increase. The sedimentation amount to an average of 2.5 cm during the reporting period, i.e. roughly 30-50 days (figure 2). At the mine Kostenko at this time, carried out work on the seam on the lava K1 45 K1-W power take out of the reservoir when it was 2.8 m. Subsidence of the earth's surface calculated according to the PSI method, also showed subsidence in the area of the mine Kostenko (figure 2). According to the schedule subsidence are active from 2003 to 2004, up to 80 mm. From 2005 to 2009, place a small subsidence in the region of 40 mm. Since 2009, we actively control the extraction of the reservoir, which leads to the active process of displacement of the Earth's surface and subsidence of the mould movement.

The detected subsidence in undermined areas of the city testify to the geodynamic processes, which further can lead to the destruction of asphalt pavement, waterlogged or flooded area, and eventually to failure [1]. On this site it is necessary to monitor the condition of the earth's surface to predict the parameters of the deformation and identify potentially hazardous areas.

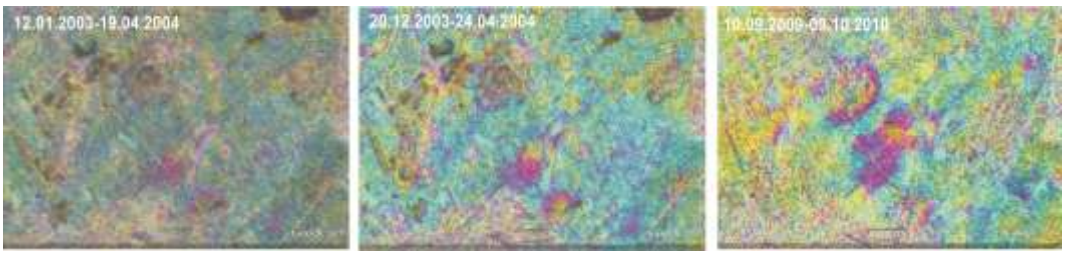

Figure 1 – Differential interferogram

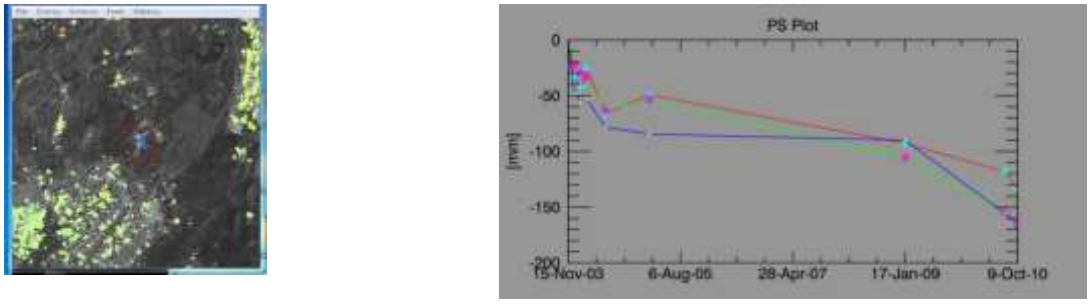

Figure 2 – Subsidence in the area of the Kostenko

Interferogram of the Karaganda region are shown in figure 7.. (Processing of satellite images ENVISAT 2010/07/31 and 2010/10/09, subsidence up to 5 cm).

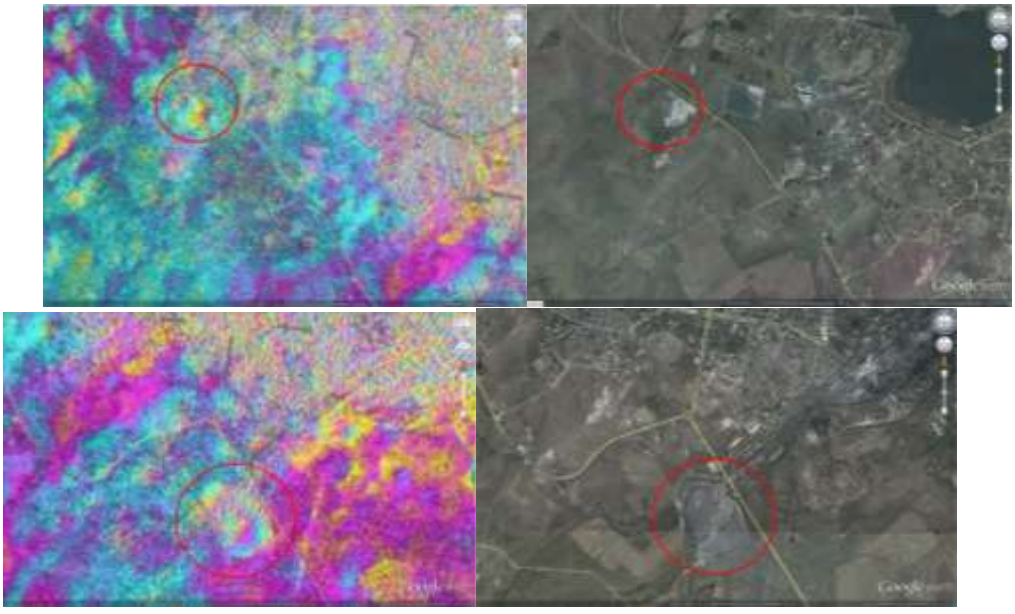

Figure 3 – Subsidence between the reservoir and the township of Aktau

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