

EARTH OBSERVATION SYMPOSIUM (B1)
Earth Observation Data Management Systems (4)

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SPACE TECHNOLOGY AND CLIMATE CHANGE / NATURAL DISASTER CORRELATIONS

Abstract

The gradual warming of the earth's atmosphere has become one of the main reasons of increasing a frequency and severity of climate-related disasters, such as drought, flooding, and catastrophic storms. The impacts of the climate change are reflected on ecosystems, forest and wetland conservation, water supply and sea level change etc.

An identification of the correlation between climate change and natural disaster is a highly important and key issue in point of view global warning prognosis.

The study of flooding as a very sensitive natural disaster to the climate change impacts is very interesting instrument which needed to be monitored for understanding of a huge of processes. In the meantime the use of advances in information systems, satellites imaging systems and improved software technologies open a wide opportunities for investigation of a very sensitive natural phenomena. The integration of this data provides a wide scale of analysis tools and information products on the base of developed geographical information system (GIS) created on application of space technology.

Within the framework of carried out investigations the river flooding has been undertaken for investigation. The following aspects have been studied:

- the use of multichannel ALOS space imagery with the spatial resolution 10m for the year of 2007 to be created the land use / land cover basic map;
- the use of Landsat ETM space imagery to be detected potential flood inundation areas using a tasseled cap transformation method;
- the derive 1m Digital Elevation Model (DEM) from contour lines and elevation points of the investigated area to be generated a deterministic model of potential inundated areas for the region using the DEM and a convex-areas surface;
- evaluation and comparison of the received data with meteorological data for the last years and correlation of those with the consequences of the natural disaster in particularly river flooding.

This presented research work has been dedicated for study of the river flood. During exploration of above indicated impacts of the natural disaster river flood has been carefully classified and analyzed. The outcomes of the conducted researches have shown a direct dependence and relation of the river flooding on climatic conditions based on the meteorological data for the indicated region selected for investigation.

Key words: natural disaster, space technology, remote sensing, data processing.