

## **392 - APPLICATION OF AEROSPACE MONITORING CENTER (ASMC) IN RISK MANAGEMENT OF NATURAL HAZARDS IN BULGARIA**

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The main responsible agency for the risk management of natural hazards in Bulgaria is the Ministry of State Policy of Disaster and Accidents. Aerospace Monitoring Center (ASMC) at the Ministry is a first satellite data receiving center built up in Bulgaria. The Center was opened in July 2007 and its main aims and tasks are focused on monitoring, risk and disaster analysis as well as damage assessment. The center is equipped with two receiving satellite ground stations (one for NOAA - AVHRR and Feng-Yun - MVISR, and second for TERRA/Aqua - MODIS) for real time data receiving and processing. In addition satellite images from Disaster Monitoring Constellation (DMC) are delivered to ASMC by Internet after download and processing. ASMC use the leading geographic information systems ArcGIS and appropriate for the task digital maps of Bulgaria.

The paper deals with the primary results obtained in the activity of ASMC in Bulgaria and application of Aerospace Monitoring Center (ASMC) in risk management of natural hazards in Bulgaria.

Key Words: Aerospace Monitoring Center, Bulgaria, Remote Sensing, Risk Management

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## **394 - MONITORING SAHELIAN TEMPORARY PONDS USING MODIS/TERRA IMAGERY**

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Several studies showed that remote sensing data appear as an appropriate solution for accurately locating ponds over large areas, but there are few studies

on the temporal aspect to monitor their dynamics. Here, we presented a method to monitor ponds hydrological dynamics (filling/emptying) in arid lands using a time series of MODIS/TERRA images.

We studied two consecutive rainy seasons 2001 and 2002 for which we had corresponding measurements of daily water level data on several ponds. The study was conducted within a radius of approximately 13\*13 km around the village of Barkedji (15.22° N, 14.86° W) located in the Ferlo region in North-East Senegal. This area is characterized by a complex and dense network of ponds that are filled during the rainy season. To evaluate MODIS images ability to capture pond dynamics, we calculated the correlation between the NDVI pixel value and the water level data collected at three ponds (Mous, Furdu and Barkedji) using an empirical temporal cross-covariance method. The temporal study showed very good results with a maximum of cross-covariance (Mous: cov=0.69; Furdu: cov=0.77; Barkedji: cov=0.83,) for  $\Delta t=-6$  days for Mous and Furdu and  $\Delta t=-10$  days for Barkedji pond, suggesting that multi-temporal MODIS-NDVI data can prove very efficient for monitoring the state and dynamics of little ponds (about 2000 m<sup>2</sup>) in arid lands.

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### **395 - TOWARDS THE DEVELOPEMENT OF A REGIONAL WATER OBSERVATION MECHANISM IN THE MEDITERRANEAN REGION**

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Stakes related to water resources and demand management in the Mediterranean countries have always been huge. These stakes are continuously increasing, faced with risks related to climate change, such as the development of prolonged drought and water scarcity.

In such a context, access to reliable and relevant information is increasingly essential to support any water resources management and risk prevention policy, whether at the national, international or local level.

After 10 years of successful collaboration between the Euro-Mediterranean countries on the sharing of information on know-how in the water sector within EMWIS, the Water Directors of the Euro-Med countries requested a feasibility study, with the interested countries, regarding a "regional water observation mechanism in the Mediterranean region for monitoring the indicators towards the achievements of the Millennium Development Goals related to water and

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