Application of GIS and Remote Sensing Technologies in Disaster Management in Algeria

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SUMMARY

Algeria is affected by fourteen major risks (earthquakes, landslides, floods, forest fires, oil spill, etc) and the means for the management of these disasters are limited and often inadequate. In recent years, Remote Sensing and Geographical Information System (GIS) technologies have been the object of considerable interest to all bodies concerned with space and in particular emergency services and disaster management in Algeria, in collaboration with all other bodies responsible for prevention and management of all major risks in Algeria.

The use of remote sensing and GIS has become an integrated, well developed and successful tool in disaster management. For our part, we are interested in this communication to present our research work concerning the management of risks and we hope to contribute directly or indirectly to putting these new technologies in place in Algeria. This has been done in collaboration with bodies such as the forestry services for the management of the forest fires, the centre for astronomical, astrophysical and geophysical research for the monitoring of earthquakes and so on.

For the first risk of oil pollution, we present, in this communication, a methodology developed for the oil spill identification. The potential for the detection and characterisation of oil spills using ERS-SAR imagery has been studied in this communication. The methodology is easy to apply and is able to determine the identification probability in an automated way. We expect this to be a useful tool for the monitoring services.

For the second risk, a large earthquake ($M_s > 6.8$) occurred in May 2003 in the Algiers-Boumerdes area (Algeria). Synthetic Aperture Radar Interferometry (InSAR) has been shown to be a valuable tool for monitoring relative surface displacement due to various crustal movements and for creating accurate DEM's using pairs of SAR images. This research is under study in our laboratory and first results as interferograms are obtained and the work is go on.

For the third risk of forests fires, every year, about 30 000 hectares of forests are destroyed by fires in Algeria. Our major preoccupation is to reduce forests fires in the country, thanks to inventory, prevention and management and follow-up. The goal of our work is to set up of a GIS integrating remote sensing data for the prevention and management of the fires.

In this communication, we present through these three examples, our contribution of the Algerian experience in the use of Space technologies for disaster management.

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