

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

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HIGH PERFORMANCE SUPERCOMPUTING VIRTUAL ENVIRONMENT FOR  
GEO-INFORMATION PROCESSING IN MEXICO**Abstract**

Mexico presents natural and anthropogenic disasters of different categories and magnitudes, such as earthquakes, floods, forest fires, volcanic eruptions, emergencies in oil fields, etc. Disasters strike the country, its economy and the safety of the people, events that are beyond human control and are predictable in certain cases, with a limited time frame. To address this Mexico has established a line of action in the National Development Plan (4.5.1.11.) to develop and implement a space early warning system that will help in the prevention, mitigation and rapid response to emergencies and natural disasters. However there are some important constraints that would prevent the proper access, storage, processing and dissemination of the geomatic information that such systems can generate. These constraints are mainly connectivity and data processing capacity.

This paper presents a unique and innovative virtual environment for México, developed in conjunction between inComSpace and the DA+I (Dirección Adjunta de Innovación de la Benemérita Universidad Autónoma de Puebla). This virtual environment runs under the supercomputing capacity operated by the DA+I and includes the software libraries necessary to process the most frequent applications for geomatics data. The end-user benefits not only of the high-speed data links to access and download images around the repositories, but also of a virtual unlimited storage capacity, software tuned to run on parallel processes and use one of the top supercomputers available in Mexico. The tests already conducted show a significant improvement in the performance, reduction of time and increase in stability.

This virtual environment will make possible to support the local states' effort to develop indigenous capacities to be able to produce rapid mapping products to support the effort to deal with a disaster in their municipalities.