MDEO SYSTEM FOR ENVIRONMENTAL MONITORING IN MOROCCO

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Introduction

- The Mediterranean Dialogue Earth Observatory (MDEO) is a NATO Science for Peace sponsored project (#983168), led by a group of experts from Turkey, Morocco and the USA.

- The objective of the project is to facilitate early warning and mitigation of a wide range of biogenic and anthropogenic disasters using remote sensing techniques.

- The MDEO is implemented at Abdelmalek Essaadi University, Tangier. It comprises a real-time satellite remote sensing ground station, with a geostationary system to collect data from EUMETSAT satellites.

The MDEO System

- The infrastructure includes 1.8M TERACAST EUROPE SYSTEM, DVB-S2 data receiver, post processing computer cluster and relevant storage, software and distribution network.

- The MDEO data is automatically ingested and processed for viewing in TeraScan, a SeaSpace product, which is pre-loaded with local maps and analytical tools.

- End-users are able to use TeraCat III software, which is a cataloging tool that allows archiving, searching, and retrieving data through a web-based interface.

Geostationary Ground Station

- The Geostationary ground station operates in the Ku-Band with Linear Polarization and is able to receive and process the Meteosat.

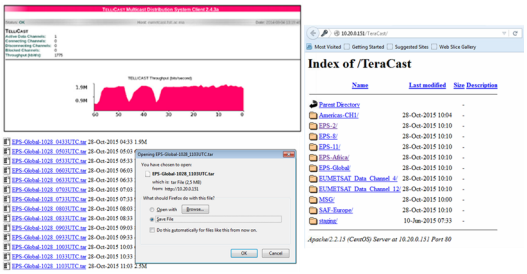
Ku-Band antenna coverage

- The access to Meteosat Second Generation data is provided through the TeraCast system, a complete solution for meteorological data reception.

- Data are received from: Meteosat (7, 8, 9, 10), Metop (A, B), Jason-2, NOAA GOES (13, 15), MT-SAT and Feng-Yun (FY2) satellites.

EUMETSAT Data Retrieval

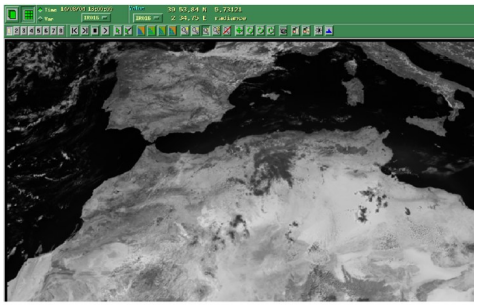
- Several additional Linux scripts were developed to automatize data acquisition, processing and backup



- Access to real-time and near-real-time Eumetsat data can be achieved through the University campus website: http://acquisition/TeraCast/

The Use of EUMETSAT Products

- At the University level, research studies use EUMETSAT channels and associated products. They are exploring data to understand most frequent disasters in Morocco, such as flash inundations, drought and atmospheric pollution.



Channel IR_016

- Local institutions, Ministry of Health, Ministry of Agriculture and Fisheries, National Institute of Meteorology and Civil Protection Agency are the potential end-users.

- Since the completion of the MDEO system implementation in May 2015, several dissemination activities have been organized at the national and international levels.

Conclusion and Future Work

- The MDEO system provide real time early warning for anthropogenic and biogenic disasters. It aims to facilitate vulnerability assessment, early warning, impact mitigation and recovery for an array of natural and human made hazards.

- Moroccan institutions and partnering universities are allowed to use the post-processed data to perform analysis and predictions needed for decision-makers.

- Ongoing research studies at the University concern the processing of received MDEO environmental products with Numerical Weather Prediction (NWP) models, and artificial neural network techniques. This allows studying how these variables and related effects will likely evolve over time and space.

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http://www.mdeo-project.com/