NOAA Automatic Processing System

The objective of this task is to provide IMIDA with an automatic processing system to generate agro-meteorological products starting from the satellite NOAA-AVHRR data and the already available in-situ sensors networks. The system runs a data-driven chain of processes which generates, initially, six basis remote sensing products.

For this purpose, IMIDA already counts with the following resources in its facilicties:

-

Dartcom NOAA station. This station is able to download and process the NOAA-AVHRR satellites data.

-   **SIAM** (Sistema de información Ambiental de la Región de Murcia) in-situ sensor network database.

The following figure shows the context diagram of the proposed automatic processing system:

{loadposition user201}

Initially, each AVHRR product received is processed to generate the following raster products:

-

 Image NOAA-AVHRR Level1C (georreferenced)

-

LST (Land Surface Temperature)

-

Air Temperature

-

NDVI (Normalise difference Vegetation Index)

-

Albedo

-

Evapotranspiration (Potential)

Some examples of the generated products are showed in the following figures:

{rokbox title=|LST :: Temperatura de superficie de 31-Jul-09|
album=|albumnoaa|}images/stories/rokbox/album_noaa/lst.jpg{/rokbox}   {rokbox

title=|NOAA1C :: Imagen NOAA-AVHRR L1C de 31-Jul-09|
album=|albumnoaa|}images/stories/rokbox/album_noaa/noaa1c.jpg{/rokbox}

The design of the automatic processing system has been driven taken into account the
following points:

-

System expandability: the proposed system is easily expandable in several ways:

-

To receive additional data to be processed. The system is not limited to receive data from the
NOAA station, it is potentially configurable to download EO (Earth Observation) data from any
repository world wide.

-

The system can be expanded to include additional processors to generate new products from
input data.

- The system can be expanded to process data of other geographical areas where a sensor
network is available.

-

Interoperability: The system makes use of OGC standard web services: SOS-SWE (Sensor
Observation Service-Sensor Web Enablement) is used to store and make available the in-situ
data observations. For more information about OGC-SWE, see   http://www.op
engeospatial.org/projects/groups/sensorweb
.