SYSTEM OF AUTOMATIC WEATHER MONITORING

SISMAT

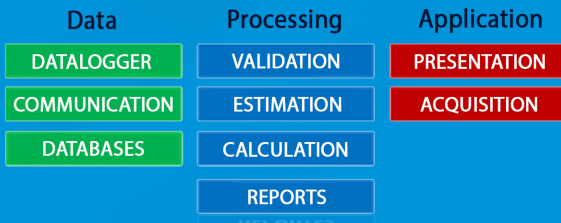| Data	Processing	Application
DATALOGGER	VALIDATION	PRESENTATION
COMMUNICATION	ESTIMATION	ACQUISITION
DATABASES	CALCULATION	
	REPORTS	

Weather stations are the major source of information for conducting environmental studies of climate change, mapping of weather forecast, editing of newsletters for agriculture, and many other meteorological applications.

Created in the context of the Project for Improvement of hydrometeorological Early Warning System (EWS) affected by Hurricane Sandy SISMAT is a software tool for monitoring time that consists of components capable of automatically managing data from meteorological stations.

This tool ensures homogeneous access to information of multiple types of stations, with different data formats and transmission means. This functionality facilitates the use of various hardware technologies with a single software system for data management.

Downloading, transmission, processing and visualization of data from a weather station is provided with SISMAT; this also includes new features satisfying every need of weather data management. This is guaranteed by its modular design and component specialization.

Solution Design

SISMAT is structured following a computational component-based architecture, aimed to achieve greater independence of functionalities.

The components of SISMAT are:
- Data Management
- Processing
- Application

These components are composed of modules:
- Management of Datalogger
- Databases Management
- Data Communication
- Data Acquisition
- Data Validation
- Weather Calculation
- Astronomical Estimation
- Reports Generation
- Presentation

The modules related to data management are those that guarantee the homogeneous access to information to the other units. Thus, the processing component is completely isolated from the type of station that generated the data to be processed and, likewise, it accesses to multiple media and various types of databases.

The Application component contains the modules that manage key processes associated with any weather station:
- Data Acquisition
- Presentation

The Data Display module of SISMAT has currently two versions:
- Desktop
- Web

The desktop application is available via an installer, and the Web application is currently available in the private national Intranet of the Institute of Meteorology (INSMET) of Cuba.

Meteorological variables in real time

SISMAT represents a complete tool for anyone who needs to manage data from a weather station, achieving the greatest benefits in the automatic weather stations, because the whole process of data acquisition and presentation is fully managed without human intervention, thus minimizing the generation of errors.

With this system, it is currently monitored the state of the entire network of automatic weather stations of the INSMET of Cuba, in real and centrally time, which has model stations HUATRON, THIÈS and VAISALA, and communication systems via SERIAL, TCP/IP and GPRS.
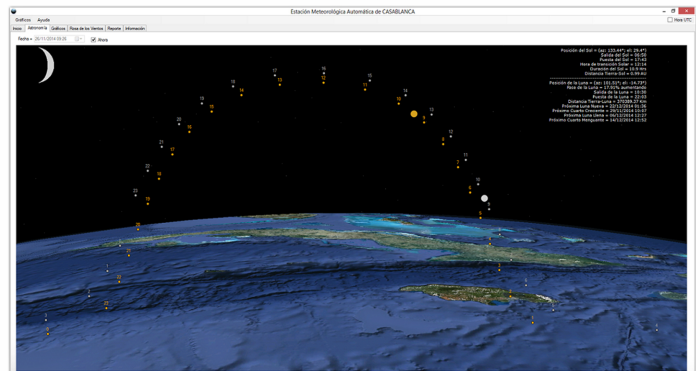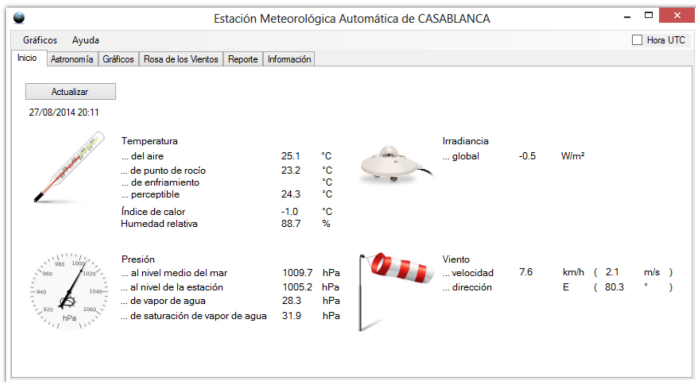
Among different available applications on SISMAT, the graphics associated to weather reports and statistical analyses are in the display module.

There are also interactive graphics specialized in modelling the behavior of specific variables (e.g., wind).

Another available feature on SISMAT is exporting data in various formats, and automatically generating custom reports.
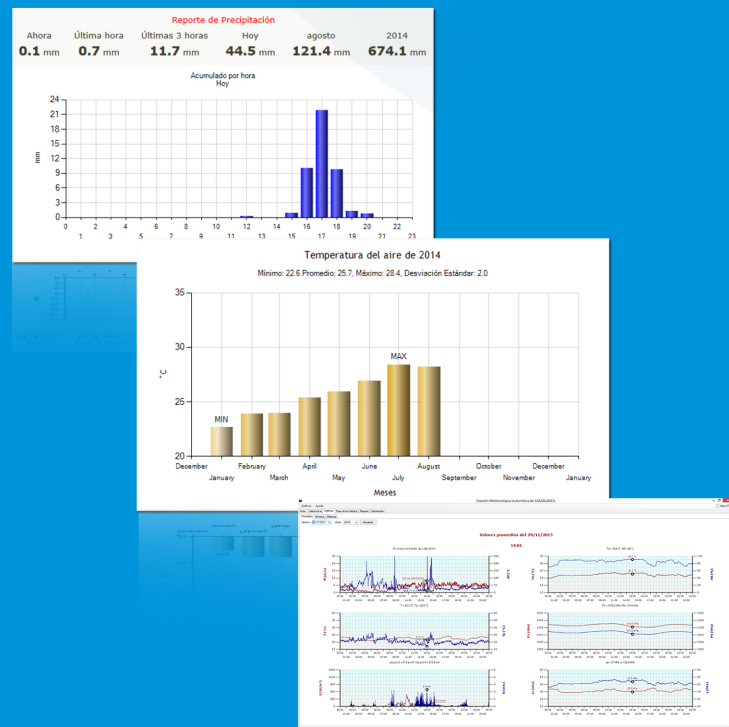
SISMAT

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