Met Office

Case study: Climsoft

> "Using Climsoft has transformed how we manage our observation data and the services we deliver."

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Climate Data Management System in Rwanda

Challenge

The Rwanda Meteorology Agency (Meteo Rwanda) sought a fully integrated Climate Data Management System that would ultimately enable them to deliver services to users on all timescales, and to better understand climate patterns, risk assessments and impacts on socio-economic scenarios.

The system also had to meet World Meteorological Organization (WMO) guidelines, in support of the Global Framework for Climate Services. Observations from automatic and manual observing systems needed to be incorporated in the same database.

Previously, Meteo Rwanda had separate systems for collecting observation data depending on the intended use. Data was transferred from paper forms to a database at the end of each month, thereby causing a delay in availability. The parallel systems meant using different quality control methods which gave potentially conflicting values, and only a very limited range of outputs were available until well after the end of the month.

Solution

Meteo Rwanda and the Met Office worked in partnership with an expert consultant from Kenya Meteorological Services (KMS) to deliver an effective integrated Climate Data Management System called Climsoft. This was done under a license agreement held by WMO for use of Climsoft by National Meteorological and Hydrological Services.

Climsoft collects and stores both automatic and manual weather observation data as well as additional observation types. It is only possible to store observations after the collection of essential metadata - the data that describe the stations, the

observations they provide and the details of the equipment used for making the measurements. Observations cannot be stored unless essential metadata is collected first. Both automatic and manual observation data can be stored and it is possible to add additional observation types.

Key-entry of historic observations is supported as well as the import of data files provided by other sources. Automatic weather station data can be set up for automated instantaneous ingestion and automated output of data products. A unique feature is that at manual observing stations data can be entered using a single-station version of Climsoft which is then transmitted to the main Climsoft database, held at head office. Quality control is applied to all data entered.

The project included:

- implementing the Climsoft Climate Data Management System, with appropriate metadata and import of data from previous systems;

- producing queries and suitable products from the database;

- guidance through observations processes;

- advice and reference around ISO9001 quality management standard and the WMO Service Delivery Strategy; and

- recommendations beyond data, including the need for calibration and maintenance of observation sensors.

Benefits

The Climsoft installation gives Meteo Rwanda an integrated observations processing system which simplifies the data handling and eradicates the use of multiple processes.

The system offers processing in real time across multiple applications, online and offline. The speed and simplicity of automation means that services are integrated much closer to the time of observation, creating more timely services.

Climsoft can collect observations data in several formats and then distribute it to the relevant areas. The divergence of information is eradicated, improving accuracy and quality control. This system supports Meteo Rwanda in its challenge to deliver better services and understand climate patterns, risk assessments and impacts on socio-economic scenarios.