

WEATHER RADAR

Optimizing Meteorological Services with the Weather Radar

In 2010 the Colombian civil aviation authority, Aeronautica Civil de Colombia, invested in the first Vaisala Weather Radar WRM200, a dual polarization weather radar.

It was installed in a nearby mountain, Tablazo, in the vicinity of Colombia's capital city of Bogotá to monitor El Dorado International Airport. El Dorado is a major hub in Latin America and it is the largest cargo airport in the region.

For the special administrative unit of the local civil aviation authority (UAEAC), the radar is of vital importance since it helps to optimize the meteorological service, and therefore leads to improved security in the aerial navigation in the most important airport of the country.

Increased Early Warning Capability for Severe Weather Conditions

As Vaisala's WRM200 is designed for mesoscale observations, it helps short-term weather forecasting, enabling early warning of adverse weather and following the trajectory of extreme conditions. For Colombia this is important because severe weather has been affecting the country; especially phenomena like el Niño and la Niña have become more evident and aggressive during recent years.



WRM200 in Tablazo. Photo courtesy of Unicom

Challenge

- Reducing risks caused by severe weather
- Continuous local weather observation
- Achieve better coverage of weather observation of air traffic and of all Colombia

Solution

- Vaisala Dual Polarization Weather Radar WRM200
- Vaisala Global Lightning Dataset GLD360

Benefits

- Early warnings, e.g. of hails and storms
- Numerical weather prediction
- Precipitation estimation
- Remote observation of rain
- Detection and analysis of storms
- Cloud height

"Having radar is indispensable to airport operations in order to prepare and obtain forecast and other pertinent information for flights, prepare and obtain forecasts based on local conditions and provide flight information and documentation to crews, operational personal and other users".

Doctor Oscar Bermúdez, Aerocivil, Colombia.

The radar will facilitate the decision support for civil protection. With the correct processing of the data, it is possible to feed the information obtained to other systems to mitigate the damage due to flooding in flood prone areas.

Moreover, the added value of the Vaisala Global Lightning Dataset GLD360 will give Aerocivil a view on 11m Sq. km, enabling it to see storms approaching from the Pacific, the Atlantic, and the neighboring countries. This will help them manage air traffic safely and give advance severe weather warnings. The real-time lightning data generated by the GLD360 service greatly enhances forecasting and early warnings capability for high seas, thunderstorms and cyclones.

A Network of Weather Radars

The Bogotá radar is part of the Aeronautica Civil de Colombia's effort to implement a network of weather radars during the next 5 years to compliment the weather information obtained by their ground network of stations, satellite information, and other remote monitoring observation equipment.

Another goal is to improve the National Forecast Centre (CNAP) to guarantee regular, safe and efficient operations at the Bogota International airport and progressively the whole National Territory, and to contribute to the development of the country by providing useful information to the organizations in charge of hydrometeorology, civil protection, power generation, and other mission critical agencies.

Eventually the combination of remote observation data can be used to for NWP (Numerical Weather Prediction) when Colombia continues to modernize its meteorological system.



Night time view of the WRM200 in Tablazo. Photo courtesy of Unicom

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