



OTT Pluvio2

Weather stations for the 2014 Winter Olympic Games in Sotschi



Background

For real-time meteorological data at the XXII Winter Olympic and XI Winter Paralympic Games in Sotschi from February–March 2014, 29 specialized automatic meteorological stations (AMS) were installed in the areas around sport venues in 2010-2013 in addition to the regular observation network that provided data for the weather nowcasting system. Meteorologic real-time data was considered an important safety factor for the athletes and the visitors.

The Olympic events were separated between two groups: a coastal cluster for ice sport competitions and a mountain cluster for snow sport events.

The latter was located at Krasnaya Polyana about 45 km away from the coast. Mountains of approximately 2 km height are typical for that area. The mountain cluster events (Alpine skiing, Cross-country skiing, Biathlon, Ski jumping and Nordic Combined, Freestyle and Snowboard, Bobsleigh, and Skeleton) were especially weather-sensitive and required accurate real time weather data.

Measurement Solution

- Weather stations equipped with 10 OTT Pluvio² all-weather precipitation gauges were installed on both banks of river Mzimta at heights of 180 – 1455 meters within an area of 12 km by 15 km.

- Every precipitation gauge was connected to a datalogger of the corresponding station MAWS301 (Vaisala)
- Data was collected in intervals of 10 minutes
- Each of the stations was connected to the collection center via two (basic and reserve) communications channels.
- Precipitation data volume met the requirements of Roshydromet and included mean and maximum values of precipitation intensity and amount in 1, 10, 60, and 180 minutes Areal control of precipitation amount in mountain cluster presented a strong agreement in precipitation data from different weather stations.



Summary

To measure the amount of liquid, solid and mixed type precipitation, 10 OTT Pluvio² all-weather precipitation gauges were installed by engineers of IRAM, a partner company of MeteoExpert. Each precipitation gauge was connected to the logger of a corresponding weather station MAWS301 (produced by Vaisala).

In the mountain cluster, 24 AMSs (Automated weather stations) were setup. A number of Roshydromet AMS networks were enhanced with additional sensors, especially for meteorological data in the Olympics. In the coastal cluster, one AMS was installed, and 4 AMSs were installed at the area of "Big Sochi" along the maritime line and coastal mountainside.

The AMSs delivered data for the now-casting system from MeteoExpert, which operated at the Main Operations Center of Sochi-2014 Olympic and Paralympic Games. MeteoExpert provided 24h/7D information for forecasters, referees and organizers of the Olympic and Paralympic Games in Sochi via the MeteoExpert web site.

All needed data, such as weather station data, weather maps and prognostic maps, measured and simulated temperature profiles, aerological diagrams (radiosonde, satellite, and prognostic), and AMDAR data were visualized.

Four-hour forecasts of meteorological parameters including air temperature, dew point temperature, relative humidity, wind speed and direction, precipitation, visibility and cloud ceiling for five objects in mountain cluster (Biathlon stadium, Sanki-700, Snowboard, Ski jump -650, and helipad Rosa Khutor) were presented.



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