

Weather solution safeguards Turin Olympics

Accurate forecasting is important for any winter sport, but vital when weather impacts the safety of nearly a million people and the event scheduling of the 2006 Turin Olympic Winter Games.

Measurement challenge

The Olympic Games are complex events involving competition, security, crowds of spectators, the media and more. Weather plays a big part in how smoothly and safely such events transpire. For example, fog could obscure live coverage. And in the case of a downhill race, for instance, it could endanger participants or force an event cancellation. Accurate weather forecasting is essential in giving officials the leeway to reschedule as needed.

Because of the size of the venue and the complexity of weather information requirements, meeting the Turin Olympics' needs required a complex solution that could not be met with just a few instruments. To complicate matters, many instruments are only capable of providing information for a specific site, whereas data is needed for the entire event.

Vaisala chosen for Olympics

The Piemonte Regional Environment Agency (ARPA Piemonte) had overall responsibility for the Turin Olympics. Weather forecasting systems had to be installed and functioning one year prior to the Games, and ARPA Piemonte began planning 5 years ahead of time.



Challenge

- Providing accurate weather forecasts over many days while providing for the safety of audience and athletes
- A wide variety of weather information requirements required a complex solution
- The Olympic Committee required coverage of the entire event, but many instruments are only capable of providing information for a specific site
- Integrating the network and creating outputs in different formats for a variety of user groups

Solution

- Collaborating directly with ARPA Piemonte regarding requirements
- Delivering hardware, software, installation and training services
- An integrated monitoring system that combines all observed data, providing more reliable monitoring
- Continuous user support during the event by Vaisala's local representative in Italy, Eurelettronica Icas

Benefits

- Organizers were able to guarantee safety of athletes and spectators from weather-related incidents
- Event scheduling and preparation could be fine-tuned, thanks to accurate weather reports
- The weather network put into place for the Olympics was a tremendous upgrade to existing Turin infrastructure. After the Games it was put to use for civil protection, environmental monitoring and research



“With an event of this magnitude, one simply cannot take any risks - supplier reliability as well as worldwide and long-time experience are a must.”

*Dr. Roberto Cremonini,
Area Previsione e Monitoraggio
Ambientale (ARPA),
Piemonte, Italy*



To provide more accurate and reliable information, the Agency chose to integrate the operational weather network with dedicated on-site instruments - an action coordinated by Dr. Roberto Cremonini. Naturally, Vaisala was pleased to be working with ARPA Piemonte once again, and thrilled to be a part of such an important world event. The approach taken was to deliver a total solution matching ARPA Piemonte's needs, from hardware to training to installation and user support during the event, with the help of Eurelettronica Icas, Vaisala's representative.

Implementation

There were two distinct phases to the weather measurement program:

- Pre-games work involved the synchronization of infrastructures (weather forecast offices, hardware, etc.); measurements and monitoring instrument installation; procedure, software and hardware system implementation and testing.
- Once the Games were underway, ARPA Piemonte needed to ensure system delivery and provide real time and forecast measurements, including avalanche warning and snow conditions on all competition tracks. Meteorological data was forwarded in a variety of formats to a broad number of parties, including the INFO2006 intranet system, venue information systems and the official Olympic website.

Impressive logistics

Weather system infrastructure and logistics requirements were impressive. Putting it all in place and ensuring perfect service during events required the efforts of 75

people, as well as a long list of facilities, equipment and services:

- 10 forecasting offices and 65 ground stations
- 16 mobile Vaisala HydroMet Automatic Weather Stations (MAWS 201)
- 4 portable Vaisala Present Weather Detectors (PWD22)
- 2 Vaisala Sounding Systems (AUTOSONDE)
- 1 Vaisala Wind Profiler (LAP-3000)
- Vaisala MetMan network software
- Global and net solar radiation sensors for existing Vaisala weather stations
- 5 video cameras for environmental monitoring
- 2 C-band polarimetric doppler radars
- Installation, training and dedicated event support through Eurelettronica Icas

Results

The end result was a more reliable, accurate monitoring system capable of integrating all observed data. The system worked according to expectations, with no major glitches. Over the course of the event, the 65 ground stations performed 869,040 measurements resulting in 370 weather bulletins and 9146 messages sent to the INFO2006 event intranet. In hindsight, Dr. Cremonini would have liked to change just one thing: considering the magnitude of the event, it would have been useful to have the dedicated use of a weather radar. As the two radars used also served the needs of Italy's national meteorological institute, their use was somewhat limited.

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