SNOW GAUGE WEATHER MONITORING STATION FOR REGIONAL CIVIL DEFENCE PURPOSES

24/7 snow gauge weather monitoring stations
for civil defence purposes

Supply: **2017** | Region: **Marches** | Sector: **Civil Defence**

CHALLENGE

Execution of several stand-alone monitoring stations integrated in the civil defence regional network and installed in extreme environmental conditions.

WHY ETG?

The wealth of experience that ETG has acquired in the weather instrumentation sector and in real-time monitoring data acquisition, archiving, processing and circulation makes it a valuable collaborator.

INTRODUCTION

The snow gauge weather stations ETG installed in 2017 are inserted in the Marches' regional monitoring network. The network supplied, installed and configured for the Civil Defence is made up of over 140 hydro-thermal-pluviometric and snow gauge stations.
The network communicates through a primary SHF radio transmission vector made up of 17 repeaters and a secondary UHF network with 4 provincial backbones.
The entire system is controlled by the regional control and supervision centre of the Ancona operations centre consisting of 8 hot reserve servers and an HDSL line data communication system, a system for remote maintenance and a system for alerting personnel on call by voice synthesis and data exchange with DPC in Rome.
ETG currently performs its maintenance.

SOLUTION

The newly supplied stations, installed by ETG for snow gauge weather monitoring, are made up of specially made and selected sensors in order to be able to guarantee correct monitoring operation in harsh environmental situations like those of high altitudes where ice, very strong wind and snow play the lord and master.
The sensors installed are WMO certified, have a measurement range and operating range properly adapted to operation in adverse environmental conditions.
We find snow level sensors, pluviometres, sonic gonioanemometres, microwave snow surface temperature sensors, pyranometres and thermo hygrometers on each station.
The stations in question transmit the measurement data by UHF radio vector directly to the consortium control centre, where they can be analysed, charted and used by with the WinNET7 application to send any necessary alarms to the personnel on call.

BENEFITS

Having a monitoring system at high altitudes allows parameters of crucial importance for the safety of the citizens and for monitoring and protecting the territory to be read early.
The mountain environment is a very difficult one, and it is particularly subject to abrupt changes in environmental conditions that are hard to forecast without an appropriate 24/7 monitoring system like the one ETG proposes and makes.

CONCLUSION

The station in question is particularly interesting as it perfectly represents the ongoing updating and technological development in the field of environmental monitoring that ETG is carrying forward.
The newly supplied stations are equipped with advanced sensors, like the microwave technology sensor for measuring the surface temperature of snow, and were made taking into account the particularly difficult and demanding operating conditions for electronic instruments.
The stations and sensors were equipped with heater devices that guarantee their operation even in the case of conditions with the temperature many degrees under zero.
The sensors were chosen to work continuously in extreme conditions. For example, the wind direction and velocity sensors were chosen in ultrasonic technology since they are able to precisely measure even particularly strong intensity events without being broken, which instead might happen if their mechanical cousins are used. This is only one example of the solutions proposed by ETG in difficult environmental conditions like the one described in this case history.