

Name of research institute or organization:

Surface Meteorological Networks, MeteoSwiss, Payerne

Title of project:

Operation of a meteorological station at high altitude in the Alps

Project leader and team:

Dr. Christian Félix, head of surface networks, MeteoSwiss
Gilles Durieux, Bertrand Equey, Stéphane Vincent and the surface networks team

Project description:

The surface network team at MeteoSwiss operates an automatic meteorological station at the Jungfrauoch Observatory and services the instrumentation for the Global Atmosphere Watch Radiation Measurements Project.

In particular we operate different instruments that accurately measure direct solar radiation (broadband and at 16 different wavelengths). These instruments are protected from the harsh meteorological environment by an astronomical cupola. Based on different meteorological instruments (wind, precipitation, sky temperature, sun position and sunshine) the cupola decides fully automatically of its opening and closing as well as its azimuth position.

In 2009 we renewed completely the command of this astronomical cupola in order to improve its stability and to comply with Swiss safety regulation.



Figure 1: Astronomical cupola for direct solar radiation measurements

The chosen solution is based on a versatile and modular automat with an embedded controller than runs a LabView program. This system allows the full control of the cupola from the MeteoSwiss Aerological station in Payerne including software updates via an Ethernet connection.



Figure 2: Versatile automat from National Instruments



Figure 3: Safety switches for interrupting the motors

The necessary software development has been performed by Sci-Consulting based in St-Sulpice. The support from the custodians in the ongoing development and test period has been very helpful and is gratefully acknowledged.

Key words:

wind, temperature, sunshine duration, solar radiation, pressure, relative humidity

Internet data bases:

http://www.meteosuisse.admin.ch/web/en/weather/current_weather.par0001.reg8.stationJUN.html

Address:

Federal Office of Meteorology and Climatology
MeteoSwiss
Measuring Technology
Ch. de l'Aérologie
CH-1530 Payerne

Contacts:

Dr. Christian Félix
Tel.: +41 26 662 6226
Fax: +41 26 662 6212
e-mail: christian.felix@meteoswiss.ch
URL: <http://www.meteoswiss.ch>