Geophysical Research Abstracts
Vol. 17, EGU2015-13989-2, 2015
EGU General Assembly 2015

GuMNet - Guadarrama Monitoring Network. Installation and set up of a high altitude monitoring network, north of Madrid. Spain

Edmundo Santolaria-Canales and the GuMNet Consortium Team
Departamento de Física de la Tierra, Astronomía y Astrofísica II. Universidad Complutense de Madrid (UCM), Madrid, Spain.

An observational monitoring network in the Guadarrama Mountains is due to be operational at the end of 2015. This network integrates atmospheric measurements as well as subsurface observations in a high mountain climate, located up to 2.400 m.a.s.l. The data provided by GuMNet will help to improve the characterization of microclimate in high mountain areas, as well as land-atmosphere interations. The network information aims at meeting the needs of accuracy to be used for biological, agricultural, hydrological, meteorological and climatic investigations in this area.

This initiative is supported and developed by research groups integrating the GuMNet Consortiuma from the Complutense and Polytechnical Universities of Madrid (UCM and UPM), the Energetic Environmental and Technological Research Centre (CIEMAT), the Spanish National Meteorological Agency (AEMET), and the National Park Sierra de Guadarrama (PNSG).

The starting setup includes seven meteorological stations compatible with WMO standards, to be installed in the central area of the massif. Including a four-component net radiation sensor, an ultrasonic snow height, a pluviometer specialized for snow capture, air temperature and humidity devices and wind speed/direction sensor. Along with these atmospheric measurements, each station will include a set of subsurface measurements of temperature in shallow boreholes (20 m depth) and temperature and humidity in trenches up to 1 m depth. These compatible WMO stations will be complemented by a station specialized in eddy covariance measuremets with CO_2 fluxes at low altitude pastureland near Madrid. Another portable station is available to develop ad hoc comparison studies.

This setup is embedded in a broader network of meteorological stations run partly by AEMET and partly by the PNSG. Most of the AEMET stations are distributed over lower altitudes, and will provide a very reliable boundary information for the atmosphere state around the Sierra. In the same way, the PNSG stations will provide a valuable record of atmopheric conditions for the past 15 years in the area of interest.

provisional website: http://tifon.fis.ucm.es/∼gumnet/
contact: edmundo.santolaria@ucm.es