

MEASUREMENT TECHNIQUES OF METEO-CLIMATOLOGICAL PARAMETERS

Innovations and benefits - Characterization, calibration and installation of sensors for measuring meteo- climatological parameters.

Implementation of procedures of data acquisition, calibration and quality control. Data analysis for the meteo-climatological characterization of the measurement site.

Use

- Study of the variability of meteorological parameters on different time scales.
- Applications concerning the air quality: analysis of weather conditions related to the diffusion of pollutants.
- Applications concerning the exploitation of solar energy: measurement of the spectrum of solar radiation; cloud cover estimate; characterization of the impact of clouds and aerosols on solar radiation; analysis of the trajectories of the air masses to be associated with the presence of aerosols and clouds.
- Applications concerning the exploitation of wind energy: analysis of wind fields aimed at identifying the prevailing directions and intensities; analysis of the frequency and intensity of wind peaks.
- Applications concerning the evaluation of extreme events: statistical analysis of the frequency and intensity of extreme events.

Applications and ongoing Activities -

- Meteo-climatological characterization of ENEA's Climate Observation Station in Lampedusa (measurements of meteorological parameters and of solar and infrared radiation, measurements of vertical profiles of temperature and humidity).
- Measurement campaigns within the framework of national and international projects for the study of the climate in the Mediterranean and for the validation of meteorological and radiative models.
- Study of air-sea interactions in the Mediterranean through measures acquired at the buoy off Lampedusa.
- Antarctic meteo-climatological observatory: measurements of standard meteorological parameters on the ground, through a network of 16 automatic meteorological stations, and at altitude by two radio-survey stations (Mario Zucchelli base and Italian-French Concordia base); measurements of rainfall and snow accumulation and cloud cover.



Weather and radiation instruments Lampedusa



Antarctica radiosounding

