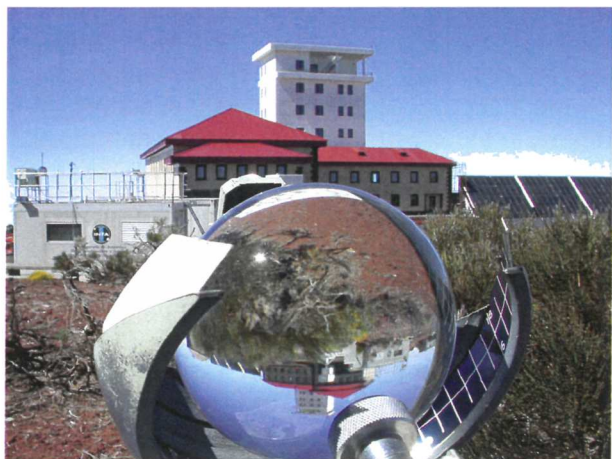


IZAÑA OBSERVATORY

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Izaña Observatory (IZO) is located on the island of Tenerife (The Canary Islands) at 28°18'N, 16°29'W, 2360 m a.s.l. The observatory is situated on the top of a mountain plateau on the dorsal ridge that crosses the island. The ground in the vicinity of Izaña is loosely covered with light volcanic soil. The vegetation in the surrounding area is sparse, consisting mainly of broom. IZO is located in a pre-national park area (that is) protected by national laws including the "sky law". This environmental and protective law was introduced in 1988 by the "Instituto Astrofísica de Canarias", which is 1 km from the IZO facilities. IZO is normally above a

temperature inversion layer, generally well established over the island (between 1200 and 1800 m a.s.l.), and so, free from local anthropogenic source influences. The sky is usually free of clouds and as a result is extremely clean and suitable for radiation measurements.

IZO is managed by the "Instituto Nacional de Meteorología" (INM, Spain) through a Service named "Observatorio Atmosférico de Izaña" (OAI). OAI has two complementary stations. One is located on the roof of the OAI headquarters (50 m a.s.l.) in the city of Santa Cruz de Tenerife, very near the city harbour. This is named SCO. Meteorology, surface ozone, total ozone, global, diffuse and direct radiation, spectral UV, particles and filter samples are part of an air quality program planned to join GURME (WMO GAW Urban Research Meteorology and Environmental Project) in the future. The second complementary station is on the top of the Punta del Hidalgo lighthouse (PHO, 40 m a.s.l.), located in a clean-environment site in the northern part of Tenerife island. This is an excellent site for sampling marine boundary layer air which could become a subtropical sea level GAW station. IZO, SCO and PHO make up a unique observation system to characterize and understand the subtropical atmosphere and long-range transport from other regions.

Meteorological observations started in 1912 at IZO. IZO has one of the longest-running meteorological data series from high mountains in Spain and the longest continuous series in the Canaries. Automatic meteorological stations now run at IZO, SCO and PHO providing temperature, wet-bulb temperature and/or relative humidity, pressure, and wind 1-minute averages. A second automatic weather station has recently been installed at IZO. This station submits Synops automatically every hour through the INM intranet or by telephone line, as a secondary system, to the Madrid communications center. Meteorological soundings (RS-80 radiosondes with Väisälä receiver Digicora MW11) have been launched twice every day from the Santa Cruz Meteorological Center since 1960. A McIDAS station has recently been installed at OAI for meteorological forecasts and analysis. Regional radar, Meteosat, and NOAA data are ingested by the McIDAS system together with 0.2° resolution HIRLAM and 0.5° ECMWF analysis and forecasted fields. Isentropic back-trajectories for Tenerife, at several tropospheric and stratospheric (Knudsen's algorithm, DMI) levels from HIRLAM and ECMWF analyses, respectively, are routinely computed.

Cooperation in activities related to the physics and chemistry of the atmosphere was initiated in the sixties. In early 1963, samples were taken for Trondheim University (Dr. Neydal, Norway) to determine C¹⁴. In October 1968, the Meteorological Institute of Mainz University, headed by Prof. Junge, was temporarily at IZO to test new instruments to be used on board the German oceanographic vessel "Meteor" which would go on an expedition in 1969. From May 1975 to 1997, IZO collaborated with Prof. J. Prospero, of Miami University, on several studies related to the transport of aerosols over the North Atlantic Ocean. One of the most important programs was

carried out within the AEROCE Project (The Atmosphere/Ocean Chemistry Experiment). From August 1979 to December 1979 many observations were carried out for the study of halocarbons by Dr. R.A. Rasmussen, from the Oregon Graduate Center for Study and Research.

In July 1984 a joint Hispano-German agreement was signed for the installation of a Base-Line station at the Izaña Meteorological Observatory (IZO). The former program within the Background Atmospheric Pollution Monitoring Network (BAPMoN) came about thanks to cooperation programs. Nowadays IZO is a Global Atmospheric Watch (GAW) station of global representativeness. Since then IZO has hosted a great number of measurement programs funded by national and international institutes. Now surface O₃, CO, CO₂, CH₄, in-situ size distribution of particles above and below 1 micron, PM₁₀, PM_{2.5} and TSP, aerosol optical depth, spectral UV, global, direct and diffuse radiation, vertical O₃ and aerosol backscatter profiles, total column O₃, NO₂, H₂O, O₄, HDO, N₂O, CH₄, CFC-12, O₃, NO, NO₂, HNO₃, CLONO₂, HCL and HF are routinely measured at IZO.

IZO has played a significant role in intensive campaigns in the last decade. The "Oxidizing Capacity of the Tropospheric Atmosphere" (OCTA) campaign, financed by the European Commission (EC) was held at IZO in August 1993. An International Dobson intercomparison was held at IZO in June 1994. Two Nordic Ozone Group Intercomparisons (NOGIC) were held at IZO in 1993 and 1996, respectively. The international UV spectroradiometers CASCUM was held at IZO in July 1995. That year IZO participated with the NOAA-CMDL in an ozonesonde intensive campaign within the NARES Project. The ACE-2 experiment (June-July, 1997) was partially based at IZO. A NILU-UV instrument intercomparison was held at IZO in August 1999 with instruments from IZO, NILU and the Finnish Meteorological Institute. In summer 2002 the intensive MINATROC (EC) campaign for Saharan aerosol characterization was held there. Several intensive campaigns on radiation and photometry have been held at IZO in recent years in collaboration with national and international institutions.

OAI operates a 7-instrument national Brewer spectrophotometer network. This network provides total ozone and spectral UV which is monitored real-time through the INM intranet. The information is stored and validated at OAI. Total ozone daily means are submitted on a daily basis to the WMO Northern Hemisphere Daily Ozone Mapping Centre. Evaluated and refined total ozone data from Madrid, Murcia and Izaña stations are periodically submitted to the WOUDC database.

OAI manages a network of three multi-channel narrow-band radiometers (NILU-UV6) installed at the permanent Argentinian bases of Belgrano (78°S), Marambio (64°S) and Ushuaia (55°S) in 1999, thanks to the existing agreements of scientific collaboration with "Dirección Nacional del Antártico" (DNA/IAA) and "Centro Austral de Investigaciones Científicas" (CADIC, Argentina). The selected stations are of scientific interest in the study of the polar atmosphere as the southernmost, which is Belgrano, is mostly located inside the vortex, Marambio on the edge, and Ushuaia just outside the vortex (www.inm.es/mar).

In accordance with the COST-713 action ("UV-B prediction") of the European Commission a H+24 forecasting model of UVI for Spain has been implemented by OAI-INM. This model has a resolution of 5'x5' on a geographical domain bounded by 45°N/15°W and 25°N/5°E. The daily maximum forecasted UVI, as well as the daily variation of UVI under clear skies for each province capital in Spain are reported on internet (www.inm.es/uvi) on a daily basis.

Now, four observation programs (Brewer total column O₃, vertical O₃ profiles, UV-VIS/DOAS and FTIR) are integrated in the NDSC (Network for the Detection of Stratospheric Change).

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Additional information can be obtained via internet:

Instituto Nacional de Meteorología: <http://www.inm.es>
Izaña Observatory: <http://www.inm.es/cmt/izo/>
MAR Project (Antarctic network): <http://www.inm.es/mar/>

UVI booklet: <http://www.inm.es/uvi/>
UVI forecasting:
<http://www.inm.es/web/infmet/predi/ulvip.html>