Tiltle: Total Carbon Column Observing Network (TCCON) activities at Izaña, Tenerife (28°N, 17°W).

Authors: E. Sepúlveda[1,2], M. Schneider[2], A. Gómez[2], E. Cuevas[2], F. Hase[3], T. Blumenstock[3], JC. Guerra[1].

Affiliation:

- [1] La Laguna University, Tenerife. Spain.
- [2] Izaña Atmospheric Research Centre, Agencia Estatal de Meteorología (AEMET), Spain.
- [3] Intitute for Meteorology and Climate Research (IMK-ASF), Karlsruhe Institute of Technology, Germany.

Abstract:

Total Carbon Observing Network (TCCON) is a global network of ground-based Fourier Transform Spectrometers recording direct solar spectra in the near-infrared spectral region. With stringent requirements on the instrumentation, data processing and calibration, from the spectra obtained, accurate and precise column-averaged abundance of CO2, CH4, N2O, HF, CO, H2O, and HDO are retrieved. TCCON was established in 2004 with primary focus of measuring precise and accurate columns of CO2. Actually there are 19 sites affiliated around the world being Izaña fully operational since May 2007. Izaña is a subtropical high mountain observatory located at 2.3 km. altitude over a temperature inversion layer that works as a natural barrier for local pollution. Its latitude and geographical location complements the other TCCON sites, since it is well representative for atmospheric background conditions. Since many years Izaña is a Global Atmospheric Watch (GAW) station and it has a comprehensive measurement programm of a large variety of different atmospheric constituents.

A first overview of the TCCON ativities perfomed at the Izaña Obsevatory will be presented. The ground-based FTIR measurement technique will be explained and the procedure for calculating the trace gas abundances from the measured spectra will be described. First examples for retrievals of CO2 and CH4 will be shown and the good quality of the data will be documented. Furthermore, the column-averaged abundances of CO2 and CH4 will be compared with the simultaneously performed surface in-situ measurements.