



Measurements of volatile organic compounds (VOCs) at the puy de Dôme research station (France, 1465m a.s.l.).

A. Colomb (1), C. Gaimoz (1,2), J. Fleuret (1), V. Jacob (3), L. Bouvier (1), J-M. Pichon (1), D. Picard (1), M. Ribeiro (1), E. Freney (1), E. Asmi (1), M. Hervo (1), C. Rose (1), J-L. Jaffrezo (3), and K. Sellegri (1)

(1) LaMP, OPGC, University Blaise Pascal, Clermont-Ferrand, France (a.colomb@opgc.univ-bpclermont.fr), (2) LISA, University Paris est Créteil, Créteil, France, (3) LGGE, University Joseph Fourier, Grenoble, France

The high altitude puy de Dôme research station is located in central France (45° 46' N, 2° 57' E, 1465 m a.s.l.), 16km away from the city of Clermont-Ferrand. This station has been classified as representative background. At the summit, meteorological parameters including wind speed and direction, temperature, pressure, relative humidity and radiation, atmospheric trace gases (O₃, NO_x, SO₂, CO₂, CO), and aerosol physical, optical and chemical properties (particle size, black carbon, mass,...

Selected volatile organic compounds (VOCs, including a large set of non-methane hydrocarbons and some terpenes (isoprene, α -pinene, ...) and some oxygenated and halogenated compounds) were measured during intensive campaigns in summer 2010, spring 2011, summer 2011 and winter 2012.

The analysis of VOCs collected on Tenax/Carbosieve III cartridges was achieved by using thermo-desorption coupled gas-chromatography with mass spectrometry (GC-MS). In order to determine the transport pathways of the air masses prior to arriving at the pdD site, the Hybrid Single Particle Lagrangian Trajectory (HYSPLIT) model was used. Trajectories were classified according to their predominant transport direction prior to measurement as either continental (C), marine (M), marine modified (Mod), Mediterranean (Med), or mixed depending on their pathways.

The results presented here are discussed in terms of observed levels, diurnal variability and sources influence. Different methods, including examination of ratio between compounds, comparison with other tracers (CO, BC, ...) or other variables (temperature, air masses origins, planetary boundary layer height,...), are used to identify main parameters influencing VOCs variability.