



The first one year measurements at the Monte Portella (Italy) climate high altitude station

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With the purpose of contributing in providing information about atmospheric composition baseline variability in the Mediterranean basin, an atmospheric station has been installed at a high mountain site in Central Italy (Monte Portella, 2401 m a.s.l.), on July 20th 2012. Monte Portella is not far from the Corno Grande (the highest peak of the Italian Appennines, 2912 m a.s.l.) and the Calderone, the southernmost glacier in Europe. This remote site is very interesting for the analysis of the atmospheric processes occurring in the free troposphere of the Mediterranean Basin since local emissions are not in its proximity; moreover, Cristofanelli et al. (2013) found that during the July 2009 the air masses reaching the site originate mainly from the Mediterranean basin, but also from the Continental Europe and from the Northern Italy and that different origins of the air masses impact differently on the ozone budget. This station is part of the SHARE (Station at High Altitude for Environmental Research) Project. The instrumentation until now available includes: a meteorological station (VAISALA Hydromet for measurements of Temperature, Pressure, Relative Humidity, Wind speed and direction, Solar Radiation and precipitation), ozone monitor (2B technologies, model 205), NO monitor (2B technologies, model 410), aerosol size distribution (OPC monitor multichannel, FAI instruments). In our study we will show the results of the first one year of continuous measurements collected. In particular, we will study the ozone trend as a function of meteorological parameter and, in detail, of the wind direction. We will show also the PM1 and PM10 annual trends individuating events of pollution transport in free troposphere and analyzing their dependence on different air masses origins. These analyses represent the first hints about atmospheric composition variability at high altitude in the central Italy.

Reference

Cristofanelli, P., Di Carlo, P., D'Altorio, A., Dari Salisburgo, C., Tuccella, P., Biancofiore, F., Stocchi, P., Verza, G.P., Landi, T.C., Marinoni, A., Calzolari, F., Duchi, R., and Bonasoni, P., Analysis of summer Ozone observations at a high mountain site in central Italy, Pure Appl. Geophys., DOI 10.1007/s00024-012-0630-1, 2013.