



H₂ and CO observations at the high mountain station of Mt. Cimone (2165 m a.s.l.), Northern Apennines, Italy

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An activity for continuous measurements of molecular Hydrogen (H₂) and Carbon Monoxide (CO) has been set up at the Atmospheric Research Station “O.Vittori” at Monte Cimone, Northern Apennines, Italy (44°11’ N, 10°42’ E) at the altitude of 2165 m asl in the frame of the EU-FP6 Project EuroHydros, whose objectives are to develop a European Network for observations of molecular Hydrogen and CO, to put in place a new and consistent calibration scale for molecular Hydrogen and to improve the understanding of hydrogen in the global background atmosphere and of the impact of European emissions on the present day atmosphere. In fact, molecular hydrogen will certainly play an important role in the energy supply chain of the coming decades. A better understanding of molecular hydrogen in the environment is important: since the atmospheric hydrogen levels lead to an increased lifetime of many atmospheric constituents (e.g. Methane) and influence water vapour (H₂O) in the stratosphere. The measurements are performed with a custom made gas-chromatograph equipped with an RGD detector –Trace Analytical RGA-2. The instrument is running continuously since January 2007, The instrument performance is periodically checked analysing a batch of 3 primary standard to maintain control the linearity of the detector and to maintain the calibration scale consistent with all the station of the EuroHydros network. This results in 2 real sample per hour continuously calibrated. We will show the results of the first year of observations highlighting correlation patterns between H₂ and CO, and pointing the attention on selected episodes; we will focus also on the seasonal and short time variability of molecular hydrogen.