



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

M. Maione (1), J. Arduini (1), F. Uggioni (1), F. Graziosi (1), U. Giostra (2), F. Furlani (2), P. Bonasoni (3), and P. Cristofanelli (3)

(1) University of Urbino, Chemical Sciences - Istituto di Scienze Chimiche, Urbino, Italy (michela.maione@uniurb.it, +390722303311), (2) University of Urbino, Institute of Physics, Urbino, Italy, (3) CNR-Institute for Atmospheric Sciences and Climate, Bologna, Italy

Since hydrogen will certainly play an important role in the energy supply chain of the coming decades, it is important to prevent consequences deriving from unbalanced source-sink processes deriving from a possible increase of molecular hydrogen emissions. In fact, higher atmospheric hydrogen levels lead to an increased lifetime of a greenhouse gas like methane and to an increase of stratospheric water vapour, resulting in a stratospheric cooling. The EU-FP6 Project EuroHydros has been established with the aim of i) developing a European Network for observations of molecular hydrogen and carbon monoxide; ii) putting in place a new and consistent calibration scale for molecular hydrogen; iii) improving the understanding of hydrogen in the global background atmosphere and of the impact of European emissions on the present day atmosphere. In this frame, continuous measurements of molecular hydrogen and carbon monoxide have been started since January 2007 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, using a custom made gas-chromatograph equipped with an RGD detector – Trace Analytical RGA-2. The instrument is running continuously. Results since obtained since January 2007 will be shown, highlighting correlation patterns between H₂ and CO, with a focus on selected episodes. Also, the seasonal and short time variability of molecular hydrogen will be reported.