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Observations of Methyl Chloroform at Mt. Cimone, Italy

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Methyl chloroform, also commonly known as 1,1,1, trichloroethane (CH_3CCl_3), is a man-made chlorinated solvent. Due to its ability to release chlorine atoms into the stratosphere, it has been included in the Montreal Protocol as class I substance, and it has been completely phased out in developed countries in 1996. The consequent decline in emissions together with its relatively short lifetime (5 years) have resulted in rapidly decreasing mixing ratios of methyl chloroform from the 140-150 ppt measured in 1992 to the 25 ppt of 2003. Beside the role of methyl chloroform as ozone depleting substance, long-term measurements of this compounds are important because, combined with the emission estimates and inverse modelling procedures, are used to infer the average atmospheric OH concentration. Therefore, the accurate evaluation of world-wide sources of this substance is important. Data, sometime contrasting, on European emissions have been recently reported by different authors (1-3).

Further insights on this issue can be provided by the continuous measurements of methyl chloroform carried out at Mt. Cimone (2160 m a.s.l., Northern Apennines, Italy) in the frame of the EU-project SOGE (System for Observation of Halogenated Greenhouse Gases in Europe).

High concentration peaks sometime observed, together with the analysis of air masses back trajectories, are used in order to estimate sources of methyl chloroform on a regional scale.

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