



Assessing the strength of biogenic vs anthropogenic emission sources of methyl bromide in the Mediterranean area

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Methyl bromide (MeBr) is the most abundant bromine-containing species in the free troposphere and the most important source of bromine atoms in the lower stratosphere where it can effectively carry out its ozone depleting action. MeBr, unlike other ozone-depleting gases, has significant natural and anthropogenic sources. Production and consumption are regulated under the Montreal Protocol which calls for its complete phase out in 2005 in developed countries. Italy, however, asked and obtained large exemptions in critical use, i.e. cultivation of high value-added agricultural products. Identification and quantification of natural sources with respect to anthropogenic ones is important because the calculated atmospheric budget of this compound is largely out of balance, with identified sinks outweighing identified sources. Potential sources of MeBr in Mediterranean area have been investigated on the base of continuously measurements carried out at Mt Cimone station and on the base of a BT approach. Atmospheric circulation induces a mixing between MeBr emitted from land based and from marine sources. In order to attempt to distinguish between these sources, a methodology using HFCs as continental air marker has been proposed. On this base, more intense continental potential MeBr sources have been localized. Moreover, the proposed approach allowed to evaluate a minimum threshold for the frequency of occurrence of high MeBr concentration events characterized by marine origin.