Geophysical Research Abstracts,
Vol. 11, EGU2009-8633, 2009
EGU General Assembly 2009

UV Photochemistry of Glyoxal trapped in Ice

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The understanding of the uptake and incorporation of atmospheric trace gases in water ice as well as their interactions with water molecules is very important for the understanding of processes at the air/ice interface. Reactive trace gases trapped in ice particles or surface ice may be subject of photochemical reactions when irradiated with solar UV radiation. Dicarbonyls are generated in the atmosphere by oxidation of organic compounds. The simplest a-dicarbonyl compound is glyoxal(HCOCHO).
In laboratory experiments we have simulated the UV photochemistry of HCOCHO trapped in ice at 14 K and for comparison in solid argon matrices. The photoproducts formed in the ice or argon matrix have been identified by means of FTIR spectroscopy. The main products found after UV photodissociation in H2O-ice and solid argon are H2CO, CO2 and CO.