ELECTRONIC SPECTROSCOPY OF ATMOSPHERIC RADICALS

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The photo reactivity of atmospheric radicals is investigated and illustrated here with two examples: a) chlorine dioxide (OClO) and b) alkylperoxiradicals (RO_2). The former is used to monitor the chlorine content of the polar stratosphere and is implicated in stratospheric ozone chemistry. The latter is involved in the oxidation of hydrocarbons in the troposphere and tropospheric ozone production. Electronic absorption spectra of jet cooled samples reveal complex photo chemistry. High resolution absorption spectra are used to study the excited state structure, mode coupling and photo reaction dynamics of these radicals. Consequences of the excited state reactions investigated spectroscopically are discussed using results of atmospheric models.