PHOTOCHEMISTRY OF FORMALDEHYDE

FRANCIS D. POPE, MIKE N. R. ASHFOLD, ANDREW J. ORR-EWING, CARINA A. SMITH, DUDLEY E. SHALLCROSS, *School of Chemistry, University of Bristol, Bristol, UK BS8 1TS*.

The HO_x family (OH and HO_2) is central to the photochemistry of the atmosphere. Recent measurement campaigns have revealed HO_x concentrations much greater than predicted by models using only water, methane and ozone chemistry. Formaldehyde is now recognized as an important source of HO_x in the upper troposphere. The photodissociation of formaldehyde by sunlight can occur through two distinct and competing channels:

$H_2CO + h\nu \rightarrow H_2 + CO$
$H_2CO + h\nu \rightarrow HCO + H$

The second channel produces radicals that, after subsequent reaction with O_2, form HO_x. This project investigates the HO_x production from the photochemistry of formaldehyde. To achieve this high resolution absorption cross section data for formaldehyde and formaldehyde quantum yields for the production of HCO are needed over a wavelength range and conditions of temperature and pressure appropriate to the upper troposphere. The data are then introduced into atmospheric models to predict the importance of formaldehyde in the upper tropospheric region.