

QUANTITATIVE SPECTROSCOPY FOR THE ANALYSIS OF GOME DATA

K. Chance

Harvard-Smithsonian Center for Astrophysics

Accurate analysis of the GOME data to obtain atmospheric constituents requires reliable, traceable spectroscopic parameters for atmospheric absorption and scattering. Results are presented here for research that includes: the re-determination of Rayleigh scattering cross sections and phase functions for the 200-1000 nm range; analysis of solar spectra to obtain a high-resolution reference spectrum with absolute vacuum wavelength calibration good to 0.001 nm above 305 nm and 0.002 nm below 300 nm; Ring effect cross sections and phase functions determined directly from accurate molecular parameters of N₂ and O₂; O₂ A band cross sections and pressure broadening coefficients; and analysis of absolute accuracies for ultraviolet and visible absorption cross sections of O₃.

Keywords: ESA European Space Agency - Agence spatiale europeenne, observation de la terre, earth observation, satellite remote sensing, teledetection, geophysique, altimetrie, radar, chimique atmospherique, geophysics, altimetry, radar, atmospheric chemistry