

DIAL Measurements of Vertical Distribution of Ozone at the Siberian Lidar Station in Tomsk

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Abstract : The paper presents the results of DIAL measurements of the vertical ozone distribution. The ozone lidar operate as part of the measurement complex at Siberian Lidar Station (SLS) of V.E. Zuev Institute of Atmospheric Optics SB RAS, Tomsk (56.5°N; 85.0°E) and designed for study of the vertical ozone distribution in the upper troposphere–lower stratosphere. Most suitable wavelengths for measurements of ozone profiles are selected. We present an algorithm for retrieval of vertical distribution of ozone with temperature and aerosol correction during DIAL lidar sounding of the atmosphere. The temperature correction of ozone absorption coefficients is introduced in the software to reduce the retrieval errors. Results of lidar measurement at wavelengths of 299 and 341 nm agree with model estimates, which point to acceptable accuracy of ozone sounding in the 6–18 km altitude range.

Keywords : lidar, ozone distribution, atmosphere, DIAL

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