NEW HIGH RESOLUTION OZONE ABSORPTION CROSS SECTIONS

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We report on the work devoted to the up-to-date measurements of the ozone absorption cross-sections. The main goal of the project is to produce a consolidated and consistent set of high resolution cross-sections for different temperatures. The work is inspired by the more than two decades (1995 - 2020) of the global ozone observations, which are planned to be carried out using current and future atmospheric chemistry instruments (GOME, GOME-2, SCIAMACHY, SAGE II, etc).

New laboratory measurements provide ozone cross-section in the spectral range 230 1000 nm at a spectral resolution of 0.02 nm with absolute intensity accuracy of at least 2 percents, and wavelength accuracy better than 0.001 nm in the temperature range 193-293 K in 10 K steps. A lot of attention is paid to the accuracy of determining the temperature of the ozone flow and absolute calibration of relative spectra.

We provide analysis and comparison of the previously available ozone cross-sections databases versus our new dataset and report on the impact of the new data on the ozone retrievals.

New cross-sections dataset will improve significantly the ozone data quality and time series as required for climate, air quality, and stratospheric ozone trend studies. Updated ozone cross-sections will be available for reprocessing with satellite spectrometers and to the scientific community as well. Release of the new dataset is planned for the summer 2011.