

An attempt to deduce ozone column amount from ultraviolet spectra measured with Airborne-OPUS

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In order to monitoring the increase of pollutants including tropospheric ozone in the air affected by emissions from East Asia, where industrial activities have been developed recently, Geostationary Observation of Atmospheric chemistry and Lightning (GOAL) satellite is proposed. Ozone and Pollution measuring Ultraviolet Spectrometer (OPUS) is one of sensors in GOAL. OPUS measures backward-scattered ultraviolet spectra from earth surface and lower atmosphere to estimate total and tropospheric column amounts of ozone, nitrogen dioxide, sulfur dioxide, and some other species. As a prototype of OPUS, Airborne-OPUS has been developed in JAXA/EORC.

Airborne-OPUS measures backward-scattered ultraviolet spectra between 300 and 455 nm from aircraft. In this study, spectra between 300 and 340 nm were analyzed to deduce total amount of ozone. The spectrum data were obtained in Pacific Exploration and Asia and Continental Emission (PEACE)-A campaign in January 2002. Total ozone amount was estimated from 2-dimensional spectra obtained during this campaign by DOAS technique, and was compared with that measured by Total Ozone Mapping Spectrometer (TOMS).