

## A fast cloud retrieval algorithm from the oxygen B band for GOME-2 and TROPOMI measurements

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Based on the Fast Retrieval Scheme for Clouds from the Oxygen A band (FRESCO) algorithm, a new algorithm using the oxygen B band (centered at 688 nm) has been developed for GOME-2 cloud retrievals. The Oxygen B band algorithm retrieves effective cloud fraction and cloud pressure, assuming a cloud albedo of 0.8. For vegetation covered surface, surface albedo at the O<sub>2</sub> B band is lower than the surface albedo at the O<sub>2</sub> A band (760 nm). The retrievals using the O<sub>2</sub> B band may be more accurate than using the O<sub>2</sub> A band due to low surface albedo. Similar to FRESCO, the O<sub>2</sub> B band line parameters are taken from HITRAN 2012. The surface albedo values are taken from O<sub>3</sub>M SAF surface albedo climatology. We have tested the O<sub>2</sub> B band algorithm using the GOME-2 spectral reflectances. The retrieved O<sub>2</sub> B band effective cloud fraction and cloud pressure have been compared with the O<sub>2</sub> A band retrievals for different surface types, such as ocean, forests, deserts.

In this presentation we will give a short description of the FRESCO O<sub>2</sub> B band algorithm, show the the effective cloud fraction and cloud pressure retrieved from GOME-2 O<sub>2</sub> B band, and interpret the difference between the cloud products from the O<sub>2</sub> A and B bands.