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Retrieval of land surface albedo from SCIAMACHY PMD using radiance calibrations based on GOME data

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The accurate retrieval of surface albedo is an important issue for the retrieval of trace gases and clouds using the SCIAMACHY instrument. Surface albedo is usually taken from other instruments like GOME-1 because of problems with absolute radiance calibration of SCIAMACHY.

This presentation describes a new method of radiance calibration based on the combination of SCIAMACHY and GOME data. A selection of surface types and a cloud filter based on the HICRU algorithm is used to calculate correction factors. This minimizes effects like different spatial resolutions of the sensors. It is shown, that the results are consistent for a wide range of surface reflectances at different seasons as well as for the reflectances of cloudy scenes.

The radiance calibration can be used to invert a surface albedo database using the lower thresholds of the HICRU cloud algorithm combined with the radiative transfer model McArtim. The global albedo maps are compared to results from MODIS and GOME. It is shown, that the new albedo database improves the GOME results due to the higher spatial resolution of the SCIAMACHY detectors and the improved cloud cleaning used with the SCIAMACHY retrieval.