

SCIAMACHY ON ENVISAT: TRACE GAS PROFIL RETRIEVAL FROM SOLAR AND LUNAR OCCULTATION

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SCIAMACHY on Envisat: Trace Gas Profil Retrieval from Solar and Lunar Occultation. SCIAMACHY (SCanning Imaging Absorption spectroMeter for Atmospheric CHartographY) is a passive remote sensing moderate-resolution imaging UV-Vis-NIR spectrometer on board the European Space Agency's (ESA) Environmental Satellite (ENVISAT). ENVISAT was launched in March 2002 from Kourou, French Guiana to a sun synchronous orbit. The instrument observes the Earth atmosphere in nadir, limb and solar/lunar occultation geometries and provide column and profile information of atmospheric trace gases of relevance to ozone chemistry, air pollution, and climate monitoring issues. SCIAMACHY performs solar occultation measurements every orbit in the Northern hemisphere at sunset. Lunar occultation measurements are performed in the Southern hemisphere, when the moon is visible in the FOV after sunset and the moon phase is at least 0.5. Various trace gases are derived from SCIAMACHY's occultation measurements. Ozone, NO₂, water vapor, and Methane are derived so far from solar occultation, using an optimal estimation approach and the new retrieval method Onion Peeling DOAS. From lunar occultation, Ozone, NO₂, NO₃ and water vapor are derived with the optimal estimation scheme. We present the datasets, and first validation and application results.