

SCIAMACHY - Mission Planning Concept

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Abstract

The SCIAMACHY (Scanning Imaging Absorption Spectrometer for Atmospheric Chartography) instrument measures sun- and moonlight which is transmitted, reflected, and scattered by the Earth atmosphere in the ultraviolet, visible, and near infrared wavelength region (240 nm - 2400 nm) with high spectral resolution (0.2 nm - 0.5 nm).

To fulfill the scientific requirements of SCIAMACHY, the operational concept has to handle the three viewing geometries (Nadir, Limb, and Solar/Lunar Occultation) and various calibration measurements. One of the most important features of SCIAMACHY is the possibility to observe the *same* atmospheric volume first in limb and then after a short time in nadir geometry.

The operations concept of SCIAMACHY is built on the hierarchy Mission Scenarios - Timelines - States. Mission Scenarios define the high-level sequence of activities. They describe what type/categories of measurements have to be performed and how they are related to one another. Timelines are the implementation of the mission scenarios. They provide a detailed outline of the sequence of individual measurements. States are the lowest level in the hierarchy. Each state represents a single measurement type with a specific set of parameters.

The implementation of this complex instrument operation concept represents a major challenge to the mission planning of spaceborn "hyperspectral" sensors.

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