SCIAMACHY	Operation Change Request	OCR No: 013 Issue: B

Title: Vertical azimuth alignment in limb viewing geometry

Description of Request:
To have azimuthal scanning modified so that the “checkerboard” pattern is eliminated and the azimuth range sampled on odd and even elevation steps match. This will allow the trace gas retrieval scientists to co-add spectra from the different azimuths of the same elevation step to improve signal to noise without having to account for azimuthal gradients with the current azimuthally-asymmetric limb scanning strategy.

The instrument shall be operated with small swath width (no azimuth scanning during limb) during a day (or less) in each polar winter (e.g. Jan ~5th, Aug ~10th).

In this way, It could be demonstrated how much of a difference it makes to the profile retrievals of photochemically active species, like OClO in particular. Because the inclination of the orbit is +9 rather than -9 off true polar, there is no sunlight in the southern polar regions until later in the (austral) winter, so the ideal day in the south is later into the winter season than in the north. Fortunately, the vortex persists longer in the south.

Originator: Christopher Sioris	Date of Issue: 2004-02-19	Signature: e-mail, C. Sioris, 2004-02-19

Assessment of SSAG (necessary for requests by scientists):
The investigation of implementation options is recommended, as the described effect might be a dominating error source of the photochemically active species NO2, BrO and OclO in case of horizontal gradients. The proposed change will allow to investigate the effect on limb products in a quantitative way.

SSAG: H. Bovensmann	Date: 3.3.2004	Signature: e-mail, H. Bovensmann, 4.3.2004

Classification of OCR: D

OCR Analysis (incl. Implementation Option):
Operation with small swath width is part of the nominally defined mission scenarios. No state modifications are necessary. Around August 10th SCIAMACHY will be operated for 1 day (14 orbits) running timelines with alternating limb/nadir small swath width states only. The associated timelines will be defined after the new timeline set 32 (OCR 12, wide swath = standard swath) has been uploaded and verified. This will occur end of June/early July.

Note that during the 14 orbits also nadir states will be operated with small swath width.

The second occasion with small swath width will be planned around January 5th, 2005 with an identical number of orbits.

SOST: M. Gottwald, DLR-IMF (ESA, Industry if necessary)	Date: 15/03/2004	Signature: via e-mail 15/03/2004

Approval of Proposed Implementation:

Originator Approval: C. Sioris	Date: 2004-03-16	Signature: e-mail, C. Sioris, 2004-03-16
SSAG Approval: H. Bovensmann	Date:2004-03-16	Signature: e-mail, H. Bovensmann, 2004-03-16

Decision / Approval:
OCR shall be implemented as proposed by SOST.

DLR Approval: Ch. Chlebek	Date:2004-03-16	Signature: e-mail, Ch. Chlebek, 2004-03-16

Implementation by SOST:
8 small swath width timelines (1,2,47-52) are defined in set 33 (see note below). They are sufficient to cover all 14 orbits on August 10th (orbits 12782-12795). The timelines will be provided to ENVISAT in preparation of the planning cycle which will run from July 22nd to August 22nd.

On January 5th, 2005, the same measurements will be repeated (orbits 14901-14914). Note that this date might require finetuning in case another long decontamination will be planned around the late December/early January time period.

Note: Since OCR_017, which requires a new timeline set, was under development when implementing OCR_013 it was decided to generate the small swath width timelines used here in set 09 until a final flight timeline set for all small swath width timelines can be implemented.

SOST: M. Gottwald, DLR-IMF	Date: 03/05/2004	Signature: via e-mail 03/05/2004