SCIAMACHY	Operation Change Request	OCR No: 24 Issue: A

Title: Improve limb and nadir coverage for Sodankylä ozone campaign

Description of Request:
During March 19, 2006 - April 15, 2006, a validation campaign aimed at satellite, balloon and groundbased observations of ozone under low-sun, high ozone conditions is performed at Sodankylä (67.368 °N, 26.633 °E), Finland.

In order to get additional SCIAMACHY data, we request that SCIAMACHY mission planning is adjusted such that maximum coverage of limb as well as nadir states over Sodankylä is achieved.

Originator: E.J. Brinksma/KNMI	Date of Issue: 10-10-2005	Signature:

Assessment of SSAG (necessary for requests by scientists):
The documentation of the quality of the SCIAMACHY limb measurements under low-sun and high ozone conditions is an important validation activity, therefore it is recommended to investigate and if feasible, implement the requested change.

SSAG: H. Bovensmann	Date: 4.11.2005	Signature: e-mail, 6.11.2005

Classification of OCR: D

OCR Analysis (incl. Implementation Option):
This OCR is implemented in a way similar to OCR no. 23, i.e. SOST will run the planning process twice. If Sodankylä coverage orbits do not show a nadir state over this site, the planned limb/nadir sequence will be exchanged by using the timeline with the opposite limb/nadir sequence. This gives a high probability for Sodankylä nadir coverage which is, due to the limb/nadir matching, equivalent to limb coverage. The only minor drawback is that such orbits modify the sequence 1 / sequence 2 pattern of nadir and limb states.

SOST: M. Gottwald, DLR-IMF (ESA, Industry if necessary)	Date: 07/11/2005	Signature: via e-mail 07/11/2005

Approval of Proposed Implementation:

Originator Approval: Ellen Brinksma	Date: 17.11.2005	Signature: e-mail, 17.11.2005
SSAG Approval: H. Bovensmann	Date: 10.11.2005	Signature: e-mail, 10.11.2005

Decision / Approval:
OCR shall be implemented as proposed by DLR-IMF.

DLR Approval: Ch. Chlebek	Date: 22.11.05	Signature: e-mail, 22.11.2005

Implementation by SOST:
In the OSDF for the period March 1st - April 30th the timelines in the Sodankylä relevant orbits (between March 19th and April 15th) will include the limb/nadir sequence which provides maximum coverage at Sodankylä. This is ensured by running SOST's simulation of the mission planning schedule twice, identify cases where the sequence is unsuitable and exchange the sequence by the opposite limb/nadir sequence. Only for orbits in the monthly lunar visibility window or when running the monthly calibration this approach is not feasible. Sodankylä relevant orbits are those listed in the annex. Note that depending on the type of measurements planned for Sodankylä orbits might be added or deleted.

Due to the northern latitude of Sodankylä an ENVISAT overpass outside eclipse (related to the platform) occurs twice/day: One in the ascending part of the orbit and one in the descending part. In the descending part the limb/nadir matching fully applies, i.e. limb and nadir measurements exists with Sodankylä coverage. In the ascending part this is different. Until about March 25th sunrise occurs so late in the orbit that Sodankylä is not covered by the first nadir state in the timeline but one of the 4 limb states executed before the solar occultation state has its tangent point approx. over Sodankylä. From March 26th onwards the first or second nadir state coincides with the Sodankylä geolocation with one of the 4 limb states before sunsrise still having its tangent point over Sodankylä. Orbits with 'ascending' coverage occur in the evening, those with 'descending' coverage before noon.

The planning for the period March 1st - April 30th following to this scheme is just under preparation and will be submitted to RGT/FOCC within the next two weeks.

SOST: M. Gottwald, DLR-IMF	Date: 25/01/2006	Signature: via e-mail 25/01/2006

Orbit	Part of Orbit	ANX longitude (deg)	ANX Time (UTC)
21175	descending	198,46	19.03.2006 08:46
21181	ascending	47,56	19.03.2006 18:49
21189	descending	206,36	20.03.2006 08:14
21195	ascending	55,46	20.03.2006 18:18
21204	descending	189,12	21.03.2006 09:23
21209	ascending	63,37	21.03.2006 17:46
21218	descending	197,02	22.03.2006 08:51
21224	ascending	46,12	22.03.2006 18:55
21232	descending	204,92	23.03.2006 08:20
21238	ascending	54,03	23.03.2006 18:23
21247	descending	187,68	24.03.2006 09:29
21252	ascending	61,93	24.03.2006 17:52
21261	descending	195,58	25.03.2006 08:57
21267	ascending	44,68	25.03.2006 19:01
21275	descending	203,49	26.03.2006 08:26
21281	ascending	52,59	26.03.2006 18:29
21290	descending	186,24	27.03.2006 09:35
21295	ascending	60,49	27.03.2006 17:58
21304	descending	194,15	28.03.2006 09:03
21309 *	ascending	68,40	28.03.2006 17:26
21310 *	ascending	43,25	28.03.2006 19:07
21318	descending	202,05	29.03.2006 08:31
21324	ascending	51,15	29.03.2006 18:35
21333	descending	184,80	30.03.2006 09:40
21338	ascending	59,06	30.03.2006 18:03
21347	descending	192,71	31.03.2006 09:09
21352 *	ascending	66,96	31.03.2006 17:32
21353 *	ascending	41,81	31.03.2006 19:12
21361	descending	200,61	01.04.2006 08:37
21367	ascending	49,71	01.04.2006 18:41
21375 *	descending	208,52	02.04.2006 08:05
21376 *	descending	183,37	02.04.2006 09:46
21381	ascending	57,62	02.04.2006 18:09
21390	descending	191,27	03.04.2006 09:14
21395	ascending	65,52	03.04.2006 17:37
21404	descending	199,18	04.04.2006 08:43
21410	ascending	48,28	04.04.2006 18:46
21418	descending	207,08	05.04.2006 08:11
21424	ascending	56,18	05.04.2006 18:15
21433 (moon, no coverage)	descending	189,83	06.04.2006 09:20
21438	ascending	64,09	06.04.2006 17:43
21447	descending	197,74	07.04.2006 08:49
21453	ascending	46,84	07.04.2006 18:52
21461	descending	205,64	08.04.2006 08:17
21467	ascending	54,74	08.04.2006 18:21
21476	descending	188,40	09.04.2006 09:26
21481	ascending	62,65	09.04.2006 17:49
21490	descending	196,30	10.04.2006 08:54
21496	ascending	45,40	10.04.2006 18:58
21504	descending	204,21	11.04.2006 08:23
21510 (monthly calibration, no coverage)	ascending	53,31	11.04.2006 18:26
21519	descending	186,96	12.04.2006 09:32
21524	ascending	61,21	12.04.2006 17:55
21533	descending	194,86	13.04.2006 09:00
21539	ascending	43,97	13.04.2006 19:04
21547	descending	202,77	14.04.2006 08:28
21553	ascending	51,87	14.04.2006 18:32
21562	descending	185,52	15.04.2006 09:37
21567	ascending	59,77	15.04.2006 18:00

* Sodankylä lies between both orbits

Table: ENVISAT orbits with nadir or limb ground pixel coverage at Sodankylä between March 19, 2006 and April 15, 2006