

ANOMALIES (01.01.2005 - 31.12.2005)

On June 22 2003 the ERS-2 tape recorder became permanently unavailable due to a technical failure. The ERS-2 tape recorders were used to record the ERS-2 Low Rate mission globally. After eight years of continuous acquisition, this service is discontinued. The ERS-2 Low Rate mission is continued within the visibility of ESA ground stations over Europe, North Atlantic, the Arctic and western North America.

Additionally the DLR Antarctic Receiving Station at the O'Higgins base is providing GOME data in near-real time since 22 October 2003, allowing the monitoring of the ozone hole over the South Pole to resume; during year 2005 3 new stations have been added Beijing, Miami (June 2005) and McMurdo (July 2005); Hobart is under qualification.

Special GOME operations such as the operational switch off/switch on in time tag (on calendar days 04, 14, 24 each month) are continued also after the unavailability of the tape recorders. Nevertheless due to the non completeness of data, analysis on cooler switchings and instrument switch-offs cannot be performed and detailed information is missing in the tables below.

GOME Lamp Failures did occur during nearly all lamp calibration sequences from January 2004 to June 2004. In the few cases, where no Lamp Failure occurred, a high instability in the voltage was noted. A sudden decrease of the voltage from a value of ~198 to typically 180/185V, afterwards remaining on this low voltage value for several products then increase again to the nominal value was observed frequently.

Therefore the Monthly Calibration sequences were reduced to only quarterly calibration. 5 Calibration orbits are scheduled for 28 January, 28 April, 28 July, 28 October each calendar year started in October 2004. The performance of all quarterly calibrations since then was impacted by lamp failures or lamp instability.

listed are:

- 1. single event upsets**
- 2. patches of the on-board software**
- 3. cooler switchings**
- 4. list of datagaps due to anomalies or special GOME instrument operations**
- 5. timeline interruption (operation in static nadir view)**
- 6. narrow swath timeline GMNNOT41**
- 7. commanding problems - incorrect timelines executions**
- 8. moon measurements**
- 9. lamp failures**
- 10. other events**

single event upsets:

Date	reason
20/01/05	<p>on-board software problem caused anomaly (orbits 50995-50997);</p> <p>14:00 - 19:00</p> <p>Level 0:</p> <ul style="list-style-type: none"> - parameter V316 out of limit; - 3xNack flag set - instrument not in rotating mode - scan mirror position set 16 at 261.8 deg, instead of alternating between +/- 30 deg - scan mirror motor current at 65535 BU

14/04/05	09:03:33 off (exact start cannot be given due to missing data) 12:15:20 on	FPA 1: 265 FPA 2: 265 FPA 3: 265 FPA 4: 265
23-24/05/05	18:31:02 (23/05/05) off 17:57:07 (24/05/05) on	FPA 1: 267 FPA 2: 267 FPA 3: 267 FPA 4: 267
22/09/05	02:38:21 off 11:17:51 on	FPA 1: 274.3 FPA 2: 274.4 FPA 3: 274.8 FPA 4: 274.8
18-19/11/05	16:53 (18/11/05) off 11:16 (19/11/05) on	FPA 1: 263.7 FPA 2: 264.6 FPA 3: 264.4 FPA 4: 264.8
30/11/05	14:02:12½ off 18:38:22 on	FPA 1: 273 FPA 2: 273 FPA 3: 273 FPA 4: 273

list of datagaps due to anomalies or special GOME instrument operations: (For detailed information see monthly/weekly performance)

Date	Orbit	duration (GOME off/start of nominal operations)	reason
20/01/05	50993-998	11:18:37 - 16:12:04	GOME was unavailable due to an onboard anomaly (see unavailability ER-UNA-002)
14/04/05	52190 - 52197	01:39:26 - 13:42:16	GOME was unavailable due to an onboard anomaly (see unavailability ER-UNA-009)
23-24/05/05	52758 - 52771	18:31:02 (23/05/05) ½ 16:18:59 (24/05/05)	GOME unavailable due to ERS2 Payload in standby (see ER-UNA 2005/012)
22/09/05	54495- 54499	02:38:21 - 09:40:24	GOME switch off (see unavailability ER2-UNA-2005/020)
07/11/05 - 11/11/05	55152 - 55218		Data from MM do not arrive due to station problem (application problem)
18/11/05 - 19/11/05	55319 - 55330	16:53 (18/11/05) ½ 11:04 (19/11/05)	GOME switch off (see unavailability ER2-UNA-2005/025)
26/11/05	55425 - 55433		Data from BE do not arrive due to station problem
30/11/05	55490	14:02:12 - 16:48:12	GOME switch off (see unavailability ER2-UNA-2005/026)

04/12/05 10 /12/05	55539 - 55632	Data from BE do not arrive due to station problem
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Timeline Interruption (operations in static nadir view):

Date	Orbit No.	duration	reason
06/01/05	50799	21:53:05 - 21:54:53	GOME Timeline stopped, instrument in Nadir Static View
26/02/05	51523	11:53:45 - 13:24:34	GOME Timeline stopped, instrument in Nadir Static View, due to Payload synchronization due to AMI anomaly (see ER2- UNA- 2005/005)
21/03/05	51853	13:00 - 14:00	GOME Timeline stopped, instrument in Nadir Static View
21/06/05	53166	10:04:11 - 11:20:26	GOME Timeline stopped, instrument in Nadir Static View (see ER2-UNA 2005/015)
01/08/05	53756 - 53758	~ 13:40 - ~18:00	GOME Timeline stopped, instrument in Nadir Static View (see ER2-UNA 2005/016), Nadir Static View was interrupted by nominal solar calibration GMNSOT33
28/09/05	54590 - 54591	~ 19:43 - 21:20	GOME Timeline stopped, instrument in Nadir Static View (see ER2-UNA 2005/021) due to a payload synchronization
13/10/05	54799 - 54800	~ 08:55 - 10:06	GOME Timeline stopped, instrument in Nadir Static View (see ER2-UNA 2005/022) due to a payload synchronization
24/10/05	54958 - 54961	~ 12:52 - ~14:23	GOME Timeline stopped, instrument in Nadir Static View (see ER2-UNA 2005/023)
02/11/05	55093	21:30:17 - 21:30:29	GOME in Nadir Static View (see ER2-UNA 2005/024)
30/11/05	55492	18:24:52 - 18:25:12	GOME switch - off GOME in Nadir Static View (see ER2-UNA-2005/026)

Narrow Swath Timeline GMNNOT41

Date	Orbit No.	Duration
04-05/01/05	50765 - 50779	~14:00 (04/01/05) - ~12:00 (05/01/05)
14-15/01/05	50908 - 50921	~12:30 (14/01/05) - ~10:00 (15/01/05)
24-25/01/05	51502 - 51065	~14:00 (24/01/05) - ~11:00 (25/01/05)
04-05/02/05	51210 - 51223	~15:00 (04/02/05) - ~12:30 (05/02/05)

14-15/02/05	51352 - 51364	~13:00 (14/02/05) - ~10:30 (15/02/05)
24-25/02/05	51495 - 51516	~14:00 (24/02/05) - ~12:00 (25/02/05)
04-05/03/05	51612 - 51625	~17:00 (04/03/05) - ~15:00 (05/03/05)
14-15/03/05	51753 - 51769	~14:30 (14/03/05) - ~15:30 (15/03/05)
24-25/03/05	51898 - 51911	~16:00 (24/03/05) - ~14:00 (25/03/05)
04-05/04/05	52058 - 52071	~20:30 (04/04/05) - ~18:00 (05/04/05)
14-15/04/05	52200 - 52215	~19:00 (14/04/05) - ~21:00 (15/04/05)
24-25/04/05	52344 - 52359	~19:00 (24/04/05) - ~21:00 (25/04/05)
04-05/05/05	52487 - 52500	~21:30 (04/05/05) - ~18:30 (05/05/05)
14-15/05/05	52630 - 52642	~19:30 (14/05/05) - ~17:00 (15/05/05)
24-25/05/05	52774 - 52787	~21:00 (24/05/05) - ~20:00 (25/05/05)
04-05/06/05	52929 - 52945	~18:45 (04/06/05) - ~19:30 (05/06/05)
14-15/06/05	53074 - 53087	~20:00 (14/06/05) - ~18:00 (15/06/05)
24-25/06/05	53217- 53230	~21:30 (24/06/05) - ~19:00 (25/06/05)
04-05/07/05	53360 - 53373	~19:30 (04/07/05) - ~17:30 (05/07/05)
14-15/07/05	53504 - 53517	~21:00 (14/07/05) - ~19:30 (15/07/05)
24-26/07/05	53646 - 53669	~19:00 (24/07/05) - ~09:30 (26/07/05)
04-05/08/05	53804 - 53817	~19:30 (04/08/05) - ~18:00 (05/08/05)
14-15/08/05	53948 - 53961	~21:30 (14/08/05) - ~19:00 (15/08/05)
24-25/08/05	54090 - 54103	~19:30 (24/08/05) - ~18:00 (25/08/05)
04-05/09/05	54247 - 54261	~20:30 (04/09/05) - ~18:00 (05/09/05)
14-15/09/05	54389 - 54405	~17:30 (14/09/05) - ~20:00 (15/09/05)
24-25/09/05	54533 - 54547	~18:30 (24/09/05) - 18:00 (25/09/05)
04-05/10/05	54676 - 54689	~18:30 (04/09/05) - 16:00 (05/09/05)
14-15/10/05	54817 - 54830	~16:00 (14/10/05) - 14:00 (15/10/05)

24-25/10/05	54960 - 54973	~16:30 (24/10/05) - ~12:00 (25/10/05)
04-05/11/05	55116 - 55132	~10:00 (04/11/05) - 14:30 (05/11/05)
14-15/11/05	55259 - 55273	~12:30 (14/11/05) - ~11:00 (15/11/05)
24-25/11/05	55404 - 55418	15:00 : (24/11/05) - ~14:00 (25/11/05)
04-05/12/05	55552 - 55559	~13:00 (04/12/05) - 11:00 (05/12/05)
14-15/12/05	55690 - 55703	14:00 (14/12/05) - ~11:00 (15/12/05)
24-25/12/05	55832 i _c /2 55845	12:00 (24/12/05) - ~10:00 (25/12/05)

Commanding Problems - Incorrect Timelines Executions: none

Moon Measurements: none

Lamp Failures:

Date	reason	remark
20/01/05	Lamp Failure (no. 140 - 141) Orbit 50995	Lamp Failures set during diffuser lamp mode, voltage reached only a value of 180 V
28/01/05	Lamp Failure (no. 142 - 147) Orbit 51108-112	Lamp Failures set during quarterly calibration, voltage reached only (or dropped down after a few seconds to) a value of 180 V
28/02/05	Lamp Failure (no. 148) Orbit 51553	after 13 sec Lamp Sequence at 14:11:58, the lamp voltage dropped i _c /2 down suddenly from 200 V to a value below 180V and the calibration lamp sequence turned into Lamp Failure
28-29/04/05	Lamp Failure (no. 149 - 153) Orbit 52403-06	Lamp Failures set during quarterly calibration sequences, voltage reached only a value of 180 V, only two sequences without lamp failure but with calibration lamp instability
28-29/07/05	Lamp Failure (no. 154 - 159) Orbit 53704-08	Lamp Failures set during quarterly calibration sequences, voltage reached only a value of 180 V, only one sequences without lamp failure but with calibration lamp instability
22/09/04	Lamp Failure (no. 160) Orbit 54500	Lamp Failure set, 11:16:09 - 11:17:53, voltage reached only a value of 180 V

28-29/10/05	Lamp Failure (no. 161- 168) Orbit 55016 -021	Lamp Failures set during al quarterly calibration sequences, voltage reached only a value of 180.
28-29/10/05	Lamp Failure (no. 161- 168) Orbit 55016 -021	Lamp Failures set during al quarterly calibration sequences, voltage reached only a value of 180.
19/11/05	Lamp failure (169) Orbit 55331	Lamp Failure set, 12:29:42 i;½ 12:34
30/11/05	Lamp Failure (no. 170) Orbit 55492	Lamp Failure set, 18:27:00 i;½ 18:28:42, voltage reached only a value of 180 V
30/11/05	Lamp Failure (no. 171) Orbit 55492	Lamp Failure set, 18:36:39 - 18:38:22, voltage reached only a value of 180 V

Other Events

Date	Orbit	remark
20/01/05	50995	calibration lamp switched on (diffuser mode), but voltage reached only ~180 V and measurement went into Lamp Failure
28/02/05	51553	Lamp Calibration sequence executed
10/03/05	51687	GOME North Polar View operations activated
28/04/05	52402	calibration lamp sequence without lamp failure but calibration lamp instability, voltage dropped down suddenly at 21:34:16 to 180 V instead of nominal staying at 198 V)
28/04/05	52403	calibration lamp sequence without lamp failure, but voltage only at 180 V
10/03/05 - 05/05/05	51687 - 52501	GOME North Polar View operations ended on day 05/05/2005; start of operations was day 10/03/2005
24/05/05	52772	calibration lamp sequence without lamp failure and without calibration lamp instability but with warm detectors (TST44)
24/06/05	n/a	operational acquisition at BE (Beijing) and MI (Miami) started
28/07/05	53704	calibration lamp sequence without lamp failure but calibration lamp instability, voltage dropped down suddenly at 20:32:45 to 180 V instead of nominal staying at 198 V)
06/09/05	54275	Polar View Timeline (GMNSPT31, GMNSPT32) operations started; scan amplitude of +/- 4.3 deg; the polar timeline is alternating with the nominal operational timeline with 960 km swath
30/12/05	55920	product with padded frames (Frame 20), science data channel4 not used