

ANOMALIES (01.01.2009 - 31.12.2009)

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 was discontinued. The ERS-2 Low Rate mission has continued within the visibility of ESA ground stations over Europe, North Atlantic, the Arctic, Antarctica and western North America.

Additionally, the DLR Antarctic Receiving Station at the O'Higgins base has been providing GOME data in near-real time since 22 October 2003, allowing the continuation of the monitoring of the ozone hole over the South Pole. During the year 2006 two new stations have been added: Hobart (13 February 2006), and Singapore (18 October 2006). In 2007 the station of Chetumal (Mexico, 19 October 2007) has been added. In 2008 the station of Johannesburg (South Africa, 17 July 2008) has been added. Currently GOME data are acquired at the following ground stations:

Kiruna (Sweden), Maspalomas (Canary Islands, Spain), Gatineau and Prince Albert (Canada), McMurdo (Antarctica), Matera (Italy), Singapore, Beijing (China), Miami (USA), Chetumal (Mexico), Hobart (Tasmania), Johannesburg (South Africa), O'Higgins (Antarctica).

In 2008-2009 padded frames (frame 20) occurred (February-September 2008; from 18th December on) due to ATSR/IRR switch off. This feature disappeared after ATSR IRR switch on (3 February 2009, without heater and stirling coolers to minimize power consumption).

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

Quarterly calibration is operated in the following way:

5 Calibration orbits are scheduled for 28 January, 28 April, 28 July, 28 October each calendar year started in October 2004.

The yearly report gives an overview on Lamp Failures as well as on nominally executed calibration lamp sequences.

Since June 2009 a new daily report is published on the web at

[GOME/NEWDAILY/REPORTS/](#); past reports, starting from the year 2000, are also available on the same pages. We recommend to refer to such pages for detailed instrument/data information.

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. Calibration Lamp Sequences without Lamp Failure

11. other events

26/03/09	18:32:39 Off 18:34:4 On	FPA 1: 268.6 FPA 2: 269.2 FPA 3: 268.8 FPA 4: 269.1
26/03/09	20:08:48 Off 20:22:27 On	FPA 1: 268.4 FPA 2: 269.0 FPA 3: 268.6 FPA 4: 269.0
05/05/09	11:35:04 (outside gs visibility) Off 16:00:04 On	FPA 1: 278.8 FPA 2: 279.6 FPA 3: 279.1 FPA 4: 279.5
22/0509 - 23/05/09	21:09:44 (outside gs visibility) Off 11:17:59 (outside gs visibility) On	FPA 1: 273.0 FPA 2: 274.0 FPA 3: 273.7 FPA 4: 274.0
06/06/09	12:39:09 (outside gs visibility) Off 14:12:04½ (outside gs visibility) On	FPA 1: 279.0 FPA 2: 279.9 FPA 3: 279.6 FPA 4: 279.8

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

Date	Orbit	duration (GOME off/start of nominal operations)	reason
08/08/09 - 09/02/09	72180 - 72193	ca 14:28 - ca 12:05	Data gap due to GOME unpowered (see unavailability report ER-UNA-2009006)
09/02/09	72195	ca 16:10 - ca 17:03	Data gap due to TML1 stopped/activated (see unavailability report ER-UNA-2009007)
26/03/09	72838 - 72841	14:10:39 - 18:28:13	Data gap due to GOME unpowered (see unavailability report ERS-2 2009009)
05/05/09	73409 - 73411	11:35:04½ - 14:22:53	Data gap due to GOME unpowered (ERS-2 Unavailability Report 2009016)
22/05/09 - 23/05/2009	73658 - 73665	21:09:44 - 11:17:59	Data gap due to GOME unpowered (ERS-2 Unavailability Report 2009020)
06/06/09	73867 - 73868		Data gap due to GOME unpowered (ERS-2 Unavailability Report 2009026)
18/06/09 - 19/06/09	74041 - 74052	ca 14:00 - ca 10:00	Data gap due to GOME SEU
23/06/09	74104 - 74115	ca 00:00 - ca 18:25	Data gap due to GOME SEU

09/08/09		01:59:21 - 09:01:51	Data gap due to GOME unpowered (ERS-2 Unavailability Report 2009038)
04/12/09	76459 - 76461		Data gap due to GOME SEU (ERS-2 Unavailability Report 2009059)

Timeline Interruption (operations in static nadir view):

Date	Orbit No.	duration	reason
09/02/08	72195	ca 16:10 - ca 17:03	GOME TML1 stopped/activated (ERS-2 Unavailability Report 2009007)
20/04/09	73190	Start before 03:28:39 (outside gs visibility) Stop after 03:34:48 (outside gs visibility)	GOME in Nadir Static View
24/05/09	73685	Start 11:31:31 Stop 12:26:55	GOME in Nadir Static View
23/06/09	74114	Start 16:44 Stop 18:25	GOME in Nadir Static View
28/07/09	74614	Start 15:00 Stop 16:30	GOME in Nadir Static View
11/09/09	75259	16:09:40 - 16:36:14	GOME in Nadir Static View (see ERS2-UNA 2009/048) due to payload synchronization
13/10/09	75718	Start 18:44:36 Stop 19:55:28	GOME unavailable due to Payload synchronization (ERS-2 Unavailability Report 2009054)
28/10/09	75927-75928	Start: 08:30 Stop: 11:00	GOME in Nadir Static View

Narrow Swath Timeline GMNNOT41

Date	Orbit No.	Duration
04-05/01/09	71678 - 71691	~12:30 (04/01/09) - ~10:00 (05/01/09)
14-15/01/09	71822 - 71834	~14:00 (14/01/09) - ~11:00 (15/01/09)
24-25/01/09	71964 - 71980	~12:00 (24/01/09) - ~14:30 (25/01/09)
04-05/02/09	72122 - 72142	~13:00 (04/02/09) - ~10:30 (05/02/09)
14-15/02/09	72266 - 72279	~14:00 (14/02/09) - ~12:00 (15/02/09)
24-25/02/09	72409 - 72421	~14:00 (24/02/09) - ~10:00 (25/02/09)
04-05/03/09	72526 - 72539	~18:30 (04/03/09) - ~16:30 (05/03/09)
14-15/03/09	72668 - 72681	~16:00 (14/03/09) - ~14:00 (15/03/09)
24-25/03/09	72812 - 72824	~18:00 (24/03/09) - ~14:30 (25/03/09)
04-05/04/09	72970 - 72985	~18:30 (04/04/09) - ~19:00 (05/04/09)
14-15/04/09	73114 - 73127	~20:00 (14/04/09) - ~17:30 (15/04/09)
24-25/04/09	73258 - 73271	~21:00 (24/04/09) - ~18:30 (25/04/09)
04-05/05/09	73400 - 73410	~19:30 (04/05/09) - ~12:00 (05/05/09)
14-15/05/09	73544 - 73557	~21:00 (14/05/09) - ~18:00 (15/05/09)
24-25/05/09	73686 - 73699	~19:00 (24/05/09) - ~17:00 (25/05/09)
04-05/06/09	73844 - 73857	~20:00 (04/06/09) - ~18:00 (05/06/09)
14-15/06/09	73987- 73990	~20:00 (14/06/09) - ~00:30 (15/06/09)
24-25/06/09	74130- 74143	~19:30 (24/06/09) - ~17:00 (25/06/09)

05/07/09	74277 - 74286	~00:00 (05/07/09) - ~18:00 (05/07/09)
14-15/07/09	74416 - 74429	~19:00 (14/07/09) - ~17:00 (15/07/09)
24-25/07/09	74560 - 74574	~20:30 (24/07/09) - ~20:00 (25/07/09)
04-05/08/09	74718 - 74731	~21:30 (05/08/09) - ~19:30 (05/08/09)
14-15/08/09	74860 - 74872	~19:30 (14/08/09) - ~17:00 (15/08/09)
24-25/08/09	75004 - 75017	~21:00 (24/08/09) - ~18:30 (25/08/09)
04-05/09/09	75160 - 75175	~18:30 (04/09/09) - ~19:00 (05/09/09)
14-15/09/09	75304 - 75317	~20:00 (14/09/09) - ~18:00 (15/09/09)
24-25/09/09	75448 - 75461	~21:30 (24/09/09) - ~18:30 (25/09/09)
04-05/10/09	75588 - 75601	~16:00 (04/10/09) - ~14:00 (05/10/09)
14-15/10/09	75732 - 75745	~18:00 (14/10/09) - ~15:00 (15/10/09)
24-25/10/09	75872 - 75885	~12:00 (24/10/09) - ~10:00 (25/10/09)
04-05/11/09	76030 - 76043	~13:00 (04/11/09) - ~10:30 (05/11/09)
14-15/11/09	76174 - 76187	~14:30 (14/11/09) - ~12:00 (15/11/09)
24-25/11/09	76136 - 76329	~12:30 (24/11/09) - ~10:30 (25/11/09)
04-07/12/09	76464 - 76504	~21:30 (04/12/09) - ~12:00 (07/12/09)
14-15/12/09	76603 - 76617	~14:00 (14/12/09) - ~13:00 (15/12/09)
24-25/12/09	76746 - 76759	~13:30 (24/12/09) - ~11:00 (25/12/09)

Commanding Problems & Incorrect Timelines Executions:

Date	Orbit No.	Duration	remark
05-07/12/09	- 76504	~12:00 (05/12/09) - ~12:00 (07/12/09)	Narrow Swath Timeline continuation

Moon Measurements: none

Lamp Failures:

Date	Lamp Failure / Orbit	remark
28/01/09	Lamp Failure (no. 248 & 249) Orbits 72023, & 72026	Lamp Failures occurred during quarterly calibration sequences, voltage at a value of ca. 180 V instead of nominally 198 V orbit 72023 start before 15:14:14 - stop 15:24:14 orbit 72026 start before 19:57:43 (no visibility) - stop 20:03:48

26/03/09	Lamp Failure (no. 250) Orbit 72842	Lamp Failure occurred during TST44i½ Start 20:20:28 Stop 20:20:42 voltage at ~179 (nominal would be ~198 V), flag set between 20:20:42 and after 20:21:36 (no visibility gs)
28/10/09	Lamp Failure (no. 251) Orbit 75930	Lamp Failure occurred during quarterly calibration Start 13:53:22 Stop 13:58:05 (no visibility gs)
29/10/09	Lamp Failure (no. 252) Orbit 75948	Lamp Failure occurred during quarterly calibration Start 20:47:31 Stop 20:54:20 (no visibility gs)
29/10/09	Lamp Failure (no. 253) Orbit 75949	Lamp Failure occurred during quarterly calibration Start 21:20:07 (no visibility gs) Stop 21:32:39
30/10/09	Lamp Failure (no. 254) Orbit 75950	Lamp Failure occurred during quarterly calibration Start 00:08:44 Stop 11:14:26 (no visibility gs)
30/10/09	Lamp Failure (no. 255) Orbit 75951	Lamp Failure occurred during quarterly calibration Start 00:39:06 (no visibility gs) Stop 00:48:52 (no visibility gs)
30/10/09	Lamp Failure (no. 256) Orbit 75952	Lamp Failure occurred during quarterly calibration Start 02:50:06 (no visibility gs) Stop 02:56:39
30/10/09	Lamp Failure (no. 257) Orbit 75952	Lamp Failure occurred during quarterly calibration Start 03:11:56 Stop 03:14:53 (no visibility gs)
30/10/09	Lamp Failure (no. 258) Orbit 75952	Lamp Failure occurred during quarterly calibration Start 03:29:58 Stop 03:35:14i½ (no visibility gs)
30/10/09	Lamp Failure (no. 259) Orbit 75953	Lamp Failure occurred during quarterly calibration Start 03:59:17 (no visibility gs) Stop 04:15:01
30/10/09	Lamp Failure (no. 260) Orbit 75954	Lamp Failure occurred during quarterly calibration Start 06:51:09 Stop 06:59:21 (no visibility gs)
30/10/09	Lamp Failure (no. 261) Orbit 759556	Lamp Failure occurred during quarterly calibration Start 09:29:22 Stop 09:39:04

30/10/09	Lamp Failure (no. 262) Orbit 75956	Lamp Failure occurred during quarterly calibration Start 10:12:23 (no visibility gs) Stop 10:22:03
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Calibration Lamp Sequences without Lamp Failure:

Date	Orbit	remark
28/01/09	72022	Start 13:33:39 stop after 13:37:41 (no visibility gs) GOOD Lamp cal measurements, no instability
28/01/09	72022	Start before 13:41:21 (no visibility gs) stop after 13:42:24 (data gap) GOOD Lamp cal measurements, no instability
28/01/09	72023	14:43:06 - 14:52:09 Calibration lamp instabilities: some values at ca. 181 V (nominal would be 198 V)
28/01/09	72024	Start before 16:41:09 (no visibility gs) stop after 16:42:37 Calibration lamp instabilities: some values at ca. 181.5 V (nominal would be 198 V)
28/01/09	72024	16:54:49 - 17:04:49 Calibration lamp instabilities: some values at ca. 181.5 V (nominal would be 198 V)
28/01/09	72025	Start before 18:19:11 (no visibility gs) stop 18:23:12 Calibration lamp instabilities: some values at ca. 181.8 V (nominal would be 198 V)
28/01/09	72025	18:35:26 - 18:45:26 Calibration lamp instabilities: some values at ca. 181.5 V (nominal would be 198 V)
28/01/09	72026	Start 20:16:02 stop after 20:24:18 (no visibility gs) Calibration lamp instabilities: some values at ca. 181.5 V (nominal would be 198 V)
28/01/09	72027	Start before 21:30:34 (no visibility gs) stop 21:44:24 Calibration lamp instabilities: some values at ca. 182 V (nominal would be 198 V)
09/02/09	72193	Start at 12:08:39 Stop at 12:09:02 Calibration lamp instabilities: some values at ca. 182 V (nominal would be 198 V)
09/02/09	72193	Start at 12:16:45 Stop at 12:18:41 GOOD Lamp cal measurements, no instability
26/03/09	72842	20:10:50 -20:12:48 Calibration lamp instabilities: some values at ca. 180 V (nominal would be 198 V)
28/04/09	73314	Start before 19:38:16 (no visibility gs) stop after 19:44:46 (no visibility gs) Calibration lamp instabilities: some values at ca 181 V (nominal would be 198 V)

28/04/09	73315	Start 21:18:51 stop after 21:24:28 (no visibility gs) Calibration lamp instabilities: some values at ca 182 V (nominal would be 198 V)
28/04/09	73316	Start before 22:40:06 stop after 22:47:12 (no visibility gs) Calibration lamp instabilities: some values at ca 183 V (nominal would be 198 V)
28/04/09	73316	Start 22:59:26 stop after 23:04:02 (no visibility gs) Calibration lamp instabilities: some values at ca 182 V (nominal would be 198 V)
29/04/09	73317	Start before 00:20:50 stop 00:27:48 Calibration lamp instabilities: some values at ca 182 V (nominal would be 198 V)
29/04/09	73318	Start before 02:03:54 stop 02:08:27 Calibration lamp instabilities: some values at ca 181 V (nominal would be 198 V)
29/04/09	73318	Start 02:20:38 stop after 02:20:51 (no visibility gs) Calibration lamp instabilities: some values at ca 202 V (nominal would be 198 V)
29/04/09	73318	Start before 02:46:22 (no visibility gs) Calibration lamp instabilities: some values at ca 181 V (nominal would be 198 V)
29/04/09	73319	Start before 03:41:07 (no visibility gs) Calibration lamp instabilities: some values at ca 181 V (nominal would be 198 V)
05/05/09	73412	start 15:58:05 - stop 16:00:02 Calibration lamp instabilities: voltage at ca. 181 V instead of nominally 198V
28/07/09	74616	Start 18:36:54 stop after 18:45:22 (no visibility gs) GOOD Lamp cal measurements, no instability
28/07/09	74617	Start 20:17:31 stop after 20:24:58 (no visibility gs) GOOD Lamp cal measurements, no instability
28/07/09	74617	Start before 21:03:55 stop 21:10:22 Calibration lamp instabilities: value at ca 180 V (nominal would be 198 V)
28/07/09	74618	Start before 21:43:10 stop 21:45:48 Calibration lamp instabilities: value at ca 180 V (nominal would be 198 V)
28/07/09	74618	Start 21:58:01 stop after 22:04:37 (no visibility gs) Calibration lamp instabilities: value at ca 180 V (nominal would be 198 V)
28/07/09	74619	Start before 23:20:06 (no visibility gs) stop 23:26:24 value at ca 180 V (nominal would be 198 V)
28/07/09	74619	Start 23:38:36 stop after 23:44:08 (no visibility gs) Calibration lamp instabilities: value alternating between ca 180 V and 198 V (nominal would be 198 V)
29/07/09	74620	Start 01:04:50 stop 01:06:59 Calibration lamp instabilities: value at ca 180 V (nominal would be 198 V)

29/07/09	74620	Start 01:19:20 i _c ½stop after 01:20:52 (no visibility gs)i _c ½zi _c ½zi _c ½ Calibration lamp instabilities: value at i _c ½ ca 180 V (nominal would be 198 V)
29/07/09	74621	Start before 02:45:27 (no visibility gs)i _c ½zi _c ½zi _c ½zi _c ½ i _c ½stop 02:47:36 Calibration lamp instabilities: value at i _c ½ ca 181 V (nominal would be 198 V)
28/10/09	75930	Start 14:36:26 stop 14:46:19 GOOD Lamp cal measurements, no instability
28/10/09	75930	Start 15:02:57 stop 15:04:57 GOOD Lamp cal measurements, no instability
28/10/09	75931	Start 15:34:03 stop i _c ½ 15:35:49 GOOD Lamp cal measurements, no instability
28/10/09	75931	Start 16:43:33 Stop i _c ½ 16:45:33 GOOD Lamp cal measurements, no instability
28/10/09	75932	Start before 17:01:38 (no visibility gs) stop i _c ½ 17:02:18 GOOD Lamp cal measurements, no instability
28/10/09	75932	Start before 17:22:26 (no visibility gs) stop: 17:24:35 Calibration lamp instabilities: value jump at i _c ½ ca 177 V (nominal would be 198 V)
28/10/09	75932	Start 17:57:40 stop after 18:07:07 (no visibility gs)i _c ½ GOOD Lamp cal measurements, no instability
28/10/09	75933	Start before 18:40:52 (no visibility gs) stop 18:42:56 GOOD Lamp cal measurements, no instability
28/10/09	75934	Start 20:21:28 stop i _c ½ 20:23:33 GOOD Lamp cal measurements, no instability
28/10/09	75934	Start 21:18:53 stop after i _c ½ 21:26:00 (no visibility gs) GOOD Lamp cal measurements, no instability
28/10/09	75935	Start 22:01:59 i _c ½ stop 22:04:10 Calibration lamp instabilities: value at i _c ½ ca 180 V (nominal would be 198 V)
29/10/09	75937	Start before 1:17:34 (no visibility gs) stop i _c ½ 01:25:19 GOOD Lamp cal measurements, no instability
29/10/09	75938	Start before 03:21:20 (no visibility gs) stop 03:28:13 Calibration lamp instabilities: value drop at i _c ½ ca 180 V (nominal would be 198 V)
29/10/09	75938	Start 04:01:13 stop after 04:06:59 (no visibility gs) Calibration lamp instabilities: value drop at i _c ½ ca 180 V (nominal would be 198 V)
29/10/09	75939	Start before 04:30:43 (no visibility gs) stop 04:46:34 Calibration lamp instabilities: value drop at i _c ½ ca 180 V (nominal would be 198 V)
29/10/09	75940	Start before 06:39:24 stop after 06:45:26 (no visibility gs) Calibration lamp instabilities: value drop at i _c ½ ca 180 V (nominal would be 198 V)
29/10/09	75942	Start 10:00:36 stop after 10:10:29 (no visibility gs)

29/10/09	75944	Start 13:21:49 stop 13:31:49 Calibration lamp instabilities: value drop at $i_{\zeta}^{1/2}$ ca 180 V (nominal would be 198 V)
2829/10/09	75945	Start 14:31:17 stop after 14:40:39 (no visibility gs) Calibration lamp instabilities: value drop at $i_{\zeta}^{1/2}$ ca 180 V (nominal would be 198 V)
29/10/09	75946	Start 16:43:01 stop after 16:43:40 (no visibility gs) Calibration lamp instabilities: value drop at $i_{\zeta}^{1/2}$ ca 180 V (nominal would be 198 V)
29/10/09	75946	Start 17:26:01 $i_{\zeta}^{1/2}$ stop after 17:35:55 (no visibility gs) Calibration lamp instabilities: value drop at $i_{\zeta}^{1/2}$ ca 180 V (nominal would be 198 V)
29/10/09	75947	Start before 18:08:57 (no visibility gs) stop 18:11:26 Calibration lamp instabilities: value drop at $i_{\zeta}^{1/2}$ ca 180 V (nominal would be 198 V)

Other Events

Date	Orbit	remark
- 03/02/09 (start 18/12/08)	$i_{\zeta}^{1/2}$ - 72105	products with padded frames (Frame 20), science data channel4 due to the ATSR /IRR being switched off
10/03/09 -01/05 /09	72602 - 73358	GOME North Polar View operations
11/07/09	74368	anomalous long science dump at HL, no data processing possible
12/07/09	74383	anomalous long science dump at HL, no data processing possible
05/09/09 - 30/10 /09	75164 - 75979	South Polar View operations
27/09/09	75480	anomalous long science dump at MI, no data processing possible
12/12/09	76568	anomalous long science dump at MI, no data processing possible
20/12/09	76683	anomalous long science dump at MI, no data processing possible