SORCE Weekly Status Report – 10/01/2009 to 10/07/2009

1. Introduction

This status report addresses the performance of the SORCE spacecraft, instruments, and ground assets during the week of Thursday, October 1, through Wednesday, October 7, 2009.

2. Spacecraft Summary (submitted by D. McCabe 10/09/09)

10/01	10/02	10/03	10/04	10/05	10/06	10/07
274	275	276	277	278	279	280

Taper charging has been stepped down on the following schedule.

DOY 274 – taper charge to 0.040
DOY 278 – taper charge to 0.935
DOY 279 – taper charge to 0.930
DOY 280 – taper charge to 0.925
DOY 281 – taper charge to 0.920

Taper charge change will continue for two more steps, and on DOY 287 battery heaters will be disabled in eclipse.

The maximum charge rate on the APE was reduced from 11.5A to 9.0A on DOY 273. This is consistent with the OBC charge rate, which has been determined to be a gentler charge for the battery and should maintain better overall battery health.

TIM CMD_FAIL_CT increased by 2 on DOY 274 due to ram safing commands being issued during a SPaM power down. The instrument gets safed during the SPaM reset, so the absence of these two commands has no affect on the instrument.

GCI lockups:

Instrument	Lockup Time	Response Time	(MINUTES) Duration	Lat	Lon
solstice_a	2009/277-03:27:58	2009/277-03:44:35	16.62	-35.6	-51.1
solstice_a	2009/278-02:05:02	2009/278-02:25:07	20.08	-37.2	-42.4
solstice_b	2009/276-01:26:43	2009/276-01:49:28	22.75	-39.6	-55.4
solstice_b	2009/276-04:57:54	2009/276-05:03:51	5.95	-21.3	-36.6
sim_a	2009/274-04:19:53	2009/274-04:26:35	6.70	-34.3	-40.6
sim_a	2009/274-07:44:24	2009/274-08:51:59	67.58	-14.2	-55.8
sim_a	2009/276-17:40:33	2009/276-17:59:53	19.33	-39.8	73.9
sim_a	2009/278-03:45:25	2009/278-04:00:43	15.30	-32.9	-53.9
sim_b	2009/274-20:03:40	2009/274-20:12:19	8.65	-13.3	-30.1
sim_b	2009/274-23:17:48	2009/274-23:26:39	8.85	-13.6	-79.1
sim_b	2009/275-01:09:18	2009/275-01:30:10	20.87	-38.4	-53.7
sim_b	2009/275-20:18:59	2009/275-20:29:49	10.83	-13.2	-40.6
sim_b	2009/275-23:44:09	2009/276-00:10:51	26.70	-34.6	-54.0
sim_b	2009/276-03:14:42	2009/276-03:25:14	10.53	-32.7	-32.6
sim_b	2009/277-00:03:31	2009/277-00:28:42	25.18	-38.7	-48.0
sim_b	2009/277-20:53:50	2009/277-21:04:22	10.53	-22.1	-49.7
sim_b	2009/277-22:36:12	2009/277-22:41:30	5.30	-32.0	-56.7
sim_b	2009/278-03:47:49	2009/278-04:00:48	12.98	-28.8	-44.9
sim_b	2009/278-05:25:37	2009/278-05:37:58	12.35	-27.3	-66.8
sim_b	2009/279-18:10:51	2009/279-18:24:05	13.23	-22.8	-20.2
sim_b	2009/279-19:47:26	2009/279-20:01:13	13.78	-21.7	-46.5
sim_b	2009/279-23:12:41	2009/279-23:15:28	2.78	-38.7	-54.2
sim_b	2009/280-18:26:07	2009/280-18:40:57	14.83	-22.7	-30.8
sim_b	2009/280-21:42:47	2009/280-21:55:11	12.40	-27.6	-72.1

tim	2009/274-04:17:18	2009/274-04:28:01	10.72	-37.3	-50.8
tim	2009/276-06:39:51	2009/276-07:47:17	67.43	-10.2	-47.2
tim	2009/276-18:57:49	2009/276-19:07:21	9.53	-14.3	-25.0
tim	2009/277-00:02:31	2009/277-00:30:02	27.52	-37.9	-52.3
tim	2009/278-21:06:03	2009/278-21:18:45	12.70	-15.2	-69.4
tim	2009/280-21:46:38	2009/280-21:52:31	5.88	-34.0	-58.3
XPS	2009/275-01:03:03			-30.2	-78.7
XPS	2009/275-23:37:29			-22.9	-77.1
XPS	2009/275-23:42:18			-31.8	-60.9
XPS	2009/277-19:14:48			-17.9	-30.9
XPS	2009/279-05:39:44			-29.8	-82.0
XPS	2009/279-19:49:50			-26.7	-38.7
XPS	2009/279-21:37:46			-39.8	-20.5
XPS	2009/280-01:02:10			-32.7	-24.9
XPS	2009/280-21:47:20			-35.0	-55.4

	SIM A	SIM B	SOL A	SOL B	TIM	XPS*
Week	4	16	2	2	5	9
Total	2133	2715	1465	1741	2353	2208

3. Ground Support / Contact Summary (submitted by D. McCabe)

Seventeen ground station contacts, including one blind acquisition to monitor the first taper charge change were performed over the past week.

	Captured VCDUS	Recorded VCDUS	%
SC housekeeping	333282	333283	100
IM housekeeping	45899	45900	100
Science	338308	338309	100

4. Instrument Status

4.1. TIM (submitted by Greg Kopp, October 7)

TIM operations during previous week

- Normal Ops (TSI data w/ Cavity B)
- Cavity A&B comparisons

Current work

- Normal operations
  - Version 9 data processing provides daily updated TSI values
- PICARD/PREMOS-1 instrument is being compared on the TSI Radiometer Facility with visiting scientist Wolfgang Finsterle
- Preparing for Version 10 data reprocessing
  - Updated cavity inter-comparisons show continued exponentially decreasing degradation, similar to what is applied to current Version 9 data
  - Servo gain calibrations showing continued stability

TIM anomalies during previous week

- Two commands were rejected on 1 October at 04:28:52 because of a SPAM reset during ram
- Had an unusually high number of GCI lockups during 27-28 September

4.2. SIM (submitted by Jerry Harder, October 9)

For days 2009/275 (Oct. 2) to 2009/282 (Oct. 9):

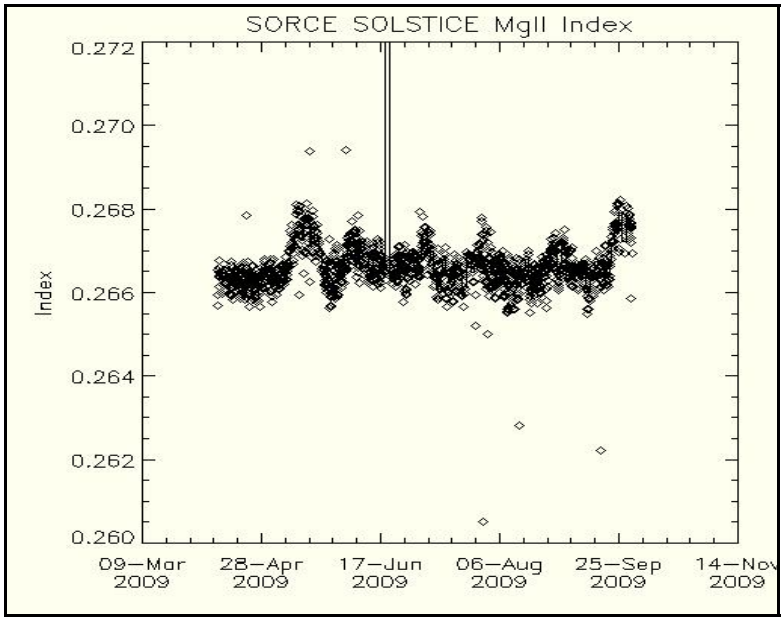
• Calibration Activities:	SIM A	SIM B
-- Prism Calibration A_cal_B	0	0
-- Prism Calibration B_cal_A	0	0
-- CCDDump	2	2
-- Image Dark	1	0
-- Image Light	1	1
-- Servo Gain 20 sec half cycle	2	2
-- Servo Gain 50 sec half cycle	1	1
-- Cruciform Scans	2	2
-- FOV Maps	0	0

• Science Activities:	SIM A	SIM B
-- ESR Full Scan Segments	0	0
-- ESR Table Scan Segments	8	3
-- 24-minute Scans	14	1
-- 24-minute Scans w/ HRT	0	0
-- IR scans	7	1

4.3. SOLSTICE (submitted by Marty Snow, October 7)

For days 2009/273 (Sept. 30) to 2009/280 (Oct. 7):

- SOLSTICE A grating drive errors: None
- SOLSTICE B grating drive errors: None
- Data Gaps for SOLSTICE A (date, length in minutes):
  2009/277, 03:45:22 17 minutes
  2009/278, 02:25:54 21 minutes
- Data Gaps for SOLSTICE B (date, length in minutes):
  2009/276, 01:50:15 24 minutes
  2009/276, 05:04:38 7 minutes



4.4. XPS (submitted by Tom Woods, 08 October)

For days 2009/269 (Sept. 26) to 2009/280 (Oct. 7):

- Number of XPS GCI errors: 16
- SORCE XPS Data Gaps: None
- SORCE XPS Calibration Experiment Duration: None
- Flares: No GOES data for checking on flare magnitude

5. Planning (automated report submitted by Jay Kominek, October 9)

Plans completed 01 October – 08 October:

SORCE Spacecraft

Activity	Total	Total Time
Solar Rolls	389	12:07
Stellar Rolls	508	16:40
Ram Avoidance	0	0:00
Solar Alignment	4	1:08
Stellar Alignment	0	0:00
Field of View Maps	0	0:00
FSS Calibration	0	0:00
Station Contacts	16	3:33
GCI Checks	827	0:13
State Vector Upload	7	0:21
MU Checksum	1	0:12

SIM A (Primary)

Solar Activity	Total	Total Time
ESR Mode	7	5:35
ESR Mode with HRT	0	0:00
IR Scan	7	7:23
Quick Scan	14	5:39
Quick Scan HRT	0	0:00
Calibration Activity		
Fixed Wavelength	0	0:00
Servo Gain Calibration	2	1:20
Solar Alignment	2	1:11
Field of View Map	0	0:00
Prism Calibration	0	0:00
Image Light	1	0:06
Image Dark	1	0:05
ESR Full Scan	0	0:00
Dark	28	0:21
Special Activity		
Power Cycle Checks	207	13:48

SIM B (Secondary)

Solar Activity	Total	Total Time
ESR Mode	0	0:00
ESR Mode with HRT	0	0:00
IR Scan	0	0:00
Quick Scan	0	0:00
Quick Scan HRT	0	0:00
Calibration Activity		
Fixed Wavelength	0	0:00
Servo Gain Calibration	2	1:20

Solar Alignment	2	1:11
Field of View Map	0	0:00
Prism Calibration	0	0:00
Image Light	1	0:06
Image Dark	1	0:05
ESR Full Scan	0	0:00
Dark	0	0:00
Special Activity		
Power Cycle Checks	207	13:30

SOLSTICE A (MUV)

Solar Activity	**Total**	**Total Time**
Normal Scan	92	75:54
Quick Scan	41	11:42
Mini Quick Scan	36	10:16
Stellar Activity		
Fixed Wavelength	0	0:00
Companion	0	0:00
Stellar Scan	0	0:00
Zero Order Scan	0	0:00
Number Unique Targets	0	0:00
Calibration Activity		
Filter Calibration	1	1:02
Fixed Wavelength	0	0:00
AB Comparison	1	1:03
Mini 64 Scan	7	7:23
MUV Solar Alignment	2	0:34
FUV Solar Alignment	2	0:34
MUV Stellar Alignment	0	0:00
FUV Stellar Alignment	0	0:00
MUV Field of View Map	0	0:00
FUV Field of View Map	0	0:00
Special Activity		
Power Cycle Checks	103	4:26
Step Response Test	1	0:02

SOLSTICE B (FUV)

Solar Activity	**Total**	**Total Time**
Normal Scan	95	84:09
Quick Scan	42	7:59
Mini Quick Scan	35	6:48
Stellar Activity		
Fixed Wavelength	477	17:12
Companion	24	1:24
Stellar Scan	51	7:58
Zero Order Scan	202	5:59
Number Unique Targets	43	34:08
Calibration Activity		
Fixed Wavelength	0	0:00
AB Comparison	1	1:03
Mini 64 Seam	7	7:23
MUV Solar Alignment	2	0:34
FUV Solar Alignment	2	0:34
MUV Stellar Alignment	2	0:18
FUV Stellar Alignment	0	0:00
MUV Field of View Map	0	0:00
FUV Field of View Map	0	0:00
Special Activity		
Power Cycle Checks	103	4:34

Step Response Test	1	0:02

TIM

Solar Activity	**Total**	**Total Time**
Normal Solar	100	108:06
Normal Eclipse	114	49:45
Calibration Activity		
Degradation A	1	1:04
Degradation C	1	1:04
Aliveness D	1	1:04
Gain Calibration AB	0	0:00
Gain Calibration CD	0	0:00
Solar Alignment	2	1:11
Field of View Map	0	0:00
Special Activity		
Power Cycle Checks	207	8:54

XPS

Calibration Activity		
Calibration	0	0:00

Since December 2005, XPS is activated for a continuous 1-min integration at filter wheel position 6 (0.1-18 nm range) and only has a monthly calibration experiment.

6. Data Processing Summary

TIM (submitted by Doug Lindholm, 1 October 2009)

- Status
  - Version 9 routine processing is ongoing.
  - Version 9 TSI data are available on LISIRD, the SORCE web site, and the GES DISC with the new LASP ASCII file format.
  - Calibration updates are complete and preparations are being made for version 10 reprocessing.
- Work in progress
  - Preparing for version 10 reprocessing.
  - Code modifications (generalizations) to support Glory TIM data processing.
- Future Plans
  - Field of view analysis and pointing correction.

SOLSTICE (submitted by Doug Lindholm, 1 October 2009)

- Status
  - Routine data processing is producing version 10 level 3 FUV and MUV SOLSTICE data products. These are available on the SORCE web site and LISIRD.
  - MgII index is being produced routinely and is available on the SORCE web site.
- Work in Progress
  - Debugging shift in wavelength correction.
  - Evaluating tasks for version 11 reprocessing.
  - Filter experiment analysis to Improve dead time correction and filter transmission.
- Future Plans
  - Analysis of instrument misalignment calibration.

- Analysis of level 3 uncertainties.
- Improved Jan 2006 slit anomaly correction.
- Improvement of field of view maps.

SIM (submitted by Doug Lindholm, 1 October 2009)

- Status
  - The routine processing of version 17 data is ongoing.
  - The level 3 data products are available on the SORCE web site and LISIRD.
- Work in Progress
  - Calibration to improve the quality of early mission data.
  - Testing of new SIM exposure time algorithm.
- Future Plans
  - Process SIM B.
  - Investigate UV degradation.
  - Consider field of view correction for data affected by the filter wheel anomaly.

XPS (submitted by Brian Templeman, 10 September 2009)

- Version 9 XPS data are being routinely reprocessed and released.
- The safe-hold events in January did not appear to affect data quality.
- SORCE XPS Data Processing Statistics for 2009/243 to 2009/249

Total level 1b Observations Processed:	27031
Percent used in level 2 Processing:	54.3598
Total level 3 Observations Processed:	14694