

SORCE Weekly Status Report – 10/08/2009 to 10/14/2009

1. Introduction

This status report addresses the performance of the SORCE spacecraft, instruments, and ground assets during the week of Thursday, October 8, through Wednesday, October 14, 2009.

2. Spacecraft Summary (submitted by D. McCabe, 10/19/09)

SORCE had an under-voltage Wednesday, Oct. 14, at 13:06:13 due to the battery heaters being ON during eclipse.

Mission Operations was executing the new ATS and RTS's to disable the battery heaters, and the commands to disable heater control were executed. We have learned that this command disables heater control, and not the actual operation of the heater. When the command was sent, the heaters were ON, thereby leaving the heaters on - through eclipse, proving that we do not have enough power to run the battery heater throughout the entire eclipse period.

The recovery plan is to get the battery heaters back on Wednesday afternoon/evening, and then to slowly recover the observatory over the next couple of days.

As of Friday afternoon (Oct. 16), all SORCE instruments had been turned on except for SIM B. SIM B was successfully turned on Monday morning, Oct. 19.

The normal weekly reports that appear in Sections 2 and 3 will return next week.

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

The normal weekly reports that appear in Sections 2 and 3 will return next week.

4. Instrument Status

4.1. TIM (submitted by Greg Kopp, October 14)

TIM operations during previous week

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

Current work

- Normal operations
 - Version 9 data processing provides daily updated TSI values
- Started 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 show continued stability

- Completed PICARD/PREMOS-1 instrument comparisons on the TSI Radiometer Facility with visiting scientist Wolfgang Finsterle
 - Optical power measurements agree well between the PREMOS-1 and the TRF (and thus the Glory/TIM and SORCE/TIM)

TIM anomalies during previous week

- Had an unusually high number of GCI lockups during this period

4.2. SIM (submitted by Jerry Harder, October 19)

For days 2009/282 (Oct. 9) to 2009/287 (Oct. 14):

• Calibration Activities:	<u>SIM A</u>	<u>SIM B</u>
-- 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	1	1
-- Servo Gain 50 sec half cycle	0	0
-- Cruciform Scans	0	0
-- FOV Maps	0	0
• Science Activities:	<u>SIM A</u>	<u>SIM B</u>
-- ESR Full Scan Segments	0	0
-- ESR Table Scan Segments	7	7
-- 24-minute Scans	10	2
-- 24-minute Scans w/ HRT	0	0
-- IR scans	5	1

SIM anomalies during previous week

- This report covers the range from October 9 to October 16, 2009 – day of the SIM A recovery. Undervoltage occurred on Wednesday, October 13, at 19:06 (UT) and SIM A was turned on at 14:00 UT, Friday, October 16. Telemetry was available for the SIM baseplate temperature during this event, and SIM recorded its minimum temperature of -18.3 C on October 15 at 20:34. The temperature warm-up to nominal required about 8.3 hours. Science telemetry was checked and all detectors are operational with no apparent change in responsivity. Based on experience from the OBC (on-board computer) resets, we anticipate a change in the SIM wavelength scale due to the ~40 C temperature swing during this event. This correction will be manageable and performed in the same manner as the wavelength shifts from earlier OBC events. Telemetry will be monitored to determine the best time period to make the correction.

4.3. SOLSTICE (submitted by Marty Snow, October 14)

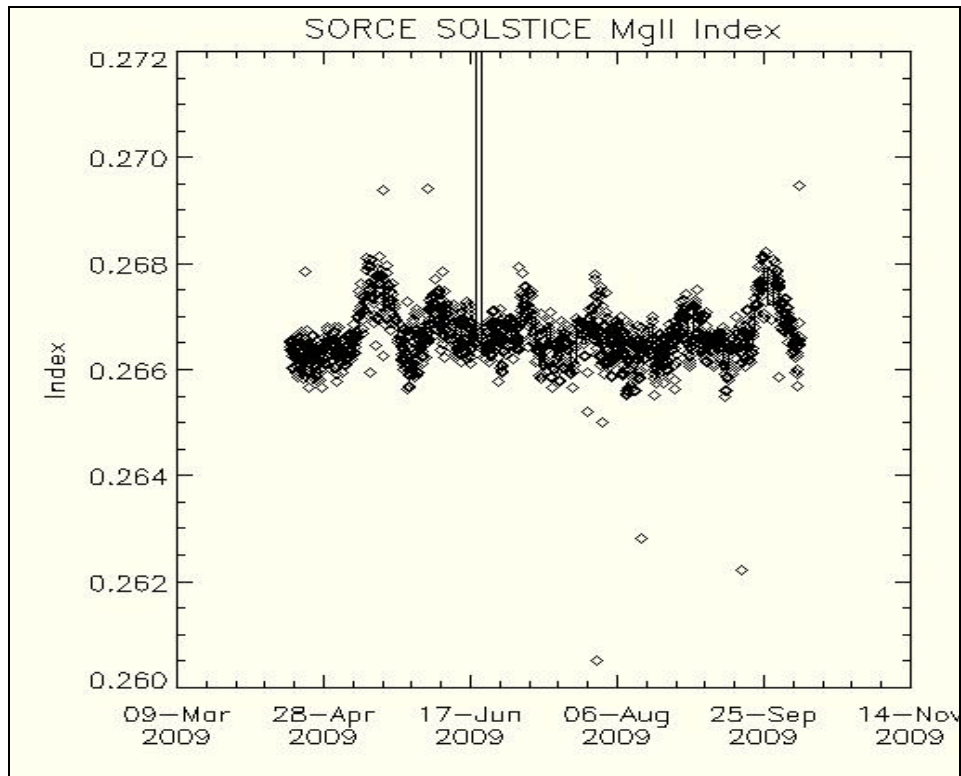
For days 2009/280 (Oct. 7) to 2009/287 (Oct. 14):

- SOLSTICE A grating drive errors:
2009/282, 19:47:55
- SOLSTICE B grating drive errors: None

- Data Gaps for SOLSTICE A (date, length in minutes):

2009/281, 01:41:27	28 minutes
2009/281, 04:55:32	17 minutes
2009/282, 19:47:02	51 minutes
2009/283, 02:15:36	23 minutes
2009/283, 23:18:22	38 minutes
2009/284, 13:37:52	3 minutes
2009/285, 23:52:12	30 minutes
- Data Gaps for SOLSTICE B (date, length in minutes):

2009/282, 01:58:39	27 minutes
2009/282, 03:35:32	19 minutes
2009/284, 02:32:48	25 minutes
2009/284, 13:37:52	3 minutes
2009/284, 17:06:44	51 minutes
2009/284, 20:20:59	48 minutes
2009/286, 20:54:44	54 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 15)

Plans completed 08 October – 15 October:

SORCE Spacecraft

Activity	Total	Total Time
Solar Rolls	353	11:48
Stellar Rolls	457	14:09
Ram Avoidance	0	0:00
Solar Alignment	4	1:34
Stellar Alignment	0	0:00
Field of View Maps	0	0:00
FSS Calibration	0	0:00
Station Contacts	14	2:38
GCI Checks	833	0:13
State Vector Upload	7	0:21
MU Checksum	1	0:12

SIM A (Primary)

Solar Activity	Total	Total Time
ESR Mode	7	5:16
ESR Mode with HRT	0	0:00
IR Scan	7	6:57
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	0	0:00
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	208	13:52

SIM B (Secondary)

Solar Activity	Total	Total Time
ESR Mode	7	5:16
ESR Mode with HRT	0	0:00
IR Scan	1	1:01
Quick Scan	2	0:48
Quick Scan HRT	0	0:00
Calibration Activity		
Fixed Wavelength	0	0:00
Servo Gain Calibration	2	1:20
Solar Alignment	0	0:00
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	4	0:03
Special Activity		
Power Cycle Checks	208	13:34

SOLSTICE A (MUV)

Solar Activity	Total	Total Time
Normal Scan	93	71:03
Quick Scan	48	11:56
Mini Quick Scan	42	10:25
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	1:00
Fixed Wavelength	0	0:00
AB Comparison	1	1:00
Mini 64 Scan	7	6:57
MUV Solar Alignment	0	0:00
FUV Solar Alignment	0	0:00
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	104	4:28
Step Response Test	1	0:02

SOLSTICE B (FUV)

Solar Activity	Total	Total Time
Normal Scan	94	78:46
Quick Scan	49	8:27
Mini Quick Scan	42	7:12
Stellar Activity		
Fixed Wavelength	525	21:27
Companion	27	1:34
Stellar Scan	21	3:22
Zero Order Scan	403	11:53
Number Unique Targets	40	40:04
Calibration Activity		
Fixed Wavelength	0	0:00
AB Comparison	1	1:00
Mini 64 Seam	8	7:01
MUV Solar Alignment	0	0:00
FUV Solar Alignment	0	0:00
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	104	4:37
Step Response Test	1	0:02

TIM

Solar Activity	Total	Total Time
Normal Solar	101	96:29
Normal Eclipse	127	56:28
Calibration Activity		
Degradation A	1	0:51
Degradation C	0	0:00
Aliveness D	0	0:00

Gain Calibration AB	0	0:00
Gain Calibration CD	0	0:00
Solar Alignment	2	1:41
Field of View Map	0	0:00

Special Activity

Power Cycle Checks	208	8:57
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XPS

Calibration Activity

Calibration	1	0:20
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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, 15 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.
 - Version 10 processing code is being tested.
- 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, 15 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, 15 October 2009)

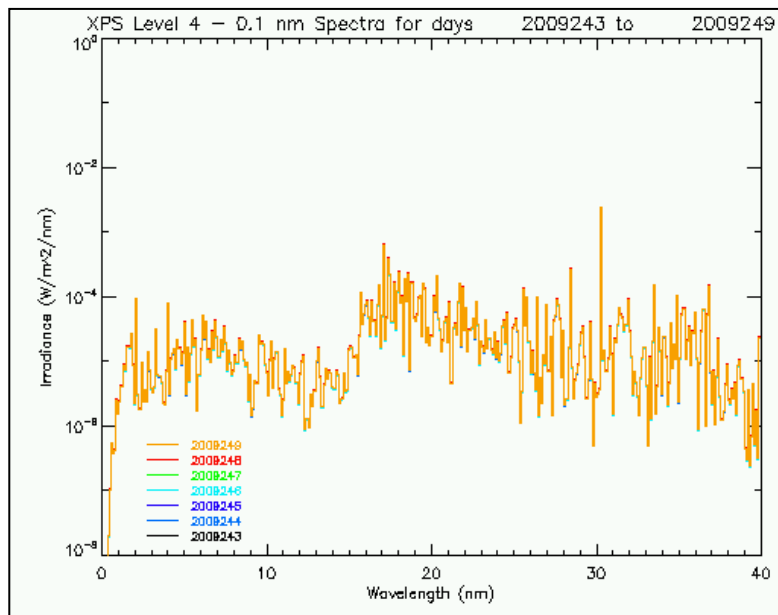
- Status
 - The routine processing of version 17 data is ongoing.
 - The level 3 data products are available on the SORCE web site and LISIRD.
- Work in Progress
 - Calibration to improve the quality of early mission data.
 - Updating SIM exposure time data.

- Future Plans
 - Process SIM B.
 - Investigate UV degradation.
 - Consider field of view correction for data affected by the filter wheel anomaly.

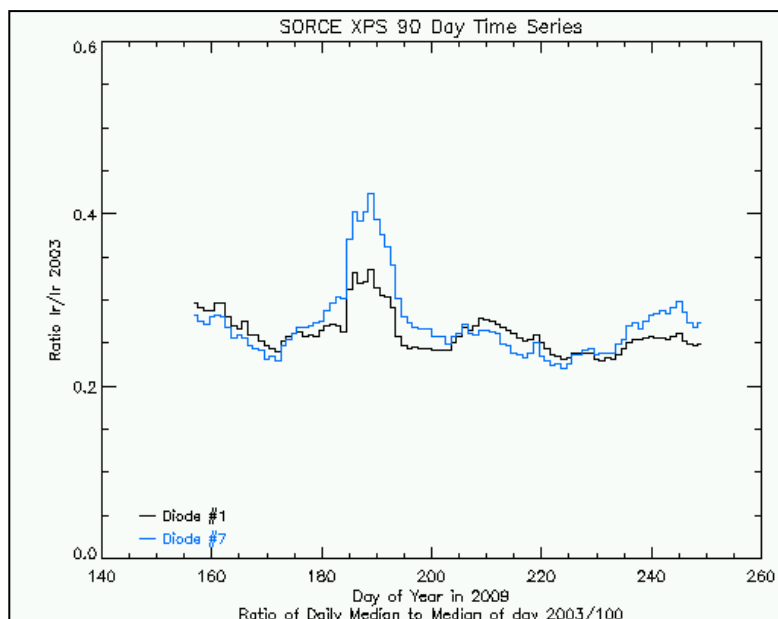
XPS (submitted by Brian Templeman, 10 September 2009)

- 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



Weekly Image



Diode Time Series