

# SORCE Weekly Status Report – 6/25/2009 to 7/01/2009

## 1. Introduction

This status report addresses the performance of the SORCE spacecraft, instruments, and ground assets during the week of Thursday, June 25, through Wednesday, July 1, 2009.

## 2. Spacecraft Summary (submitted by Deb McCabe, July 3)

06/25	06/26	06/27	06/28	06/29	06/30	07/01
176	177	178	179	180	181	182

There were six MU read zero event this week:

2009/176-00:19:43  
 2009/177-08:25:12  
 2009/177-08:36:02  
 2009/178-00:44:34  
 2009/178-15:16:18  
 2009/181-11:37:09

Battery CPV 10 has been showing degraded performance, particularly over the past 6 months. CPV's 4 and 9 have as well, although not to the same extent as CPV 10. An investigation into methods to "save" CPV 10, as well as optimize longevity and performance of the other CPV's is underway with Orbital Sciences Corporation and Eagle Pitcher.

Initially the battery trickle charge rate will be decreased from 0.46A to 0.25A to ease the rate at which the battery is trickle charge which should prolong battery life. Other changes are under review, including changing the charge rate for full charge to lengthen the charge time.

### GCI lockups:

(MINUTES)

Instrument	Lockup Time	Response Time	Duration	Lat	Lon
solstice_a	2009/177-16:14:07	2009/177-17:07:40	53.55	-19.4	-52.5
solstice_a	2009/178-14:53:36	2009/178-15:47:00	53.40	-21.4	-35.3
solstice_a	2009/178-16:29:07	2009/178-17:24:07	55.00	-18.6	-64.0
solstice_a	2009/179-18:32:33	2009/179-19:17:36	45.05	-37.1	-61.1
solstice_a	2009/180-17:07:02	2009/180-17:56:53	49.85	-32.0	-62.0
solstice_a	2009/180-22:17:20	2009/180-22:48:10	30.83	-31.0	-55.1
solstice_a	2009/181-22:34:56	2009/181-23:04:34	29.63	-27.3	-58.3
solstice_a	2009/182-12:35:20	2009/182-13:38:25	63.08	-8.7	-43.6
solstice_b	2009/176-00:13:56	2009/176-00:40:09	26.22	-31.9	-54.4
solstice_b	2009/177-14:41:05	2009/177-15:30:31	49.43	-27.2	-15.8
solstice_b	2009/177-21:34:36	2009/177-21:58:53	24.28	-24.8	-12.4
solstice_b	2009/178-16:36:50	2009/178-17:24:01	47.18	-33.0	-38.8
solstice_b	2009/178-18:16:38	2009/178-19:01:07	44.48	-36.5	-52.8
solstice_b	2009/180-13:47:13	2009/180-14:42:37	55.40	-21.2	-31.8
solstice_b	2009/180-15:25:13	2009/180-16:19:43	54.50	-23.3	-53.5
solstice_b	2009/180-22:17:50	2009/180-22:48:05	30.25	-30.1	-53.3
solstice_b	2009/181-12:25:24	2009/181-13:21:55	56.52	-20.8	-18.1
sim_a	2009/176-16:01:09	2009/176-16:19:31	18.37	-24.4	-34.8
sim_a	2009/177-23:15:19	2009/177-23:34:29	19.17	-16.8	-25.7
sim_a	2009/178-14:48:14	2009/178-15:16:27	28.22	-9.6	-50.3
sim_a	2009/178-19:59:55	2009/178-20:07:53	7.97	-39.9	-50.1
sim_a	2009/179-23:42:14	2009/180-00:07:18	25.07	-25.1	-58.5
sim_a	2009/180-13:52:42	2009/180-14:13:56	21.23	-31.6	-13.6
sim_a	2009/182-14:17:55	2009/182-14:49:31	31.60	-21.0	-53.0
sim_a	2009/182-21:08:35	2009/182-21:18:22	9.78	-34.7	-60.7
sim_b	2009/176-14:23:11	2009/176-14:42:29	19.30	-22.4	-13.1
sim_b	2009/176-22:51:36	2009/176-23:18:07	26.52	-32.9	-42.7

sim_b	2009/177-17:56:06	2009/177-18:13:43	17.62	-29.1	-61.7
sim_b	2009/179-15:14:08	2009/179-15:33:46	19.63	-31.4	-28.4
sim_b	2009/179-23:44:37	2009/180-00:07:23	22.77	-20.0	-50.8
sim_b	2009/180-13:45:52	2009/180-14:14:01	28.15	-18.4	-35.7
sim_b	2009/182-14:18:22	2009/182-14:49:36	31.23	-22.0	-51.5
tim	2009/176-17:36:20	2009/176-17:54:04	17.73	-20.6	-65.1
tim	2009/177-21:27:23	2009/177-21:58:49	31.43	-36.3	-38.5
tim	2009/180-15:27:30	2009/180-15:48:31	21.02	-27.8	-46.0
tim	2009/181-12:28:02	2009/181-12:51:49	23.78	-26.2	-9.8
tim	2009/181-17:26:40	2009/181-17:43:22	16.70	-37.5	-55.5
tim	2009/181-22:32:05	2009/181-22:34:57	2.87	-32.1	-68.2
tim	2009/182-00:17:09	2009/182-00:41:30	24.35	-16.3	-66.7
tim	2009/182-12:34:50	2009/182-13:09:45	34.92	-7.6	-45.0
tim	2009/182-15:56:53	2009/182-16:24:09	27.27	-25.0	-71.6
tim	2009/182-19:30:47	2009/182-19:38:34	7.78	-35.7	-38.9
tim	2009/182-21:15:10	2009/182-21:43:43	28.55	-23.4	-37.7
tim	2009/182-22:51:33	2009/182-23:20:49	29.27	-24.8	-64.5
XPS	2009/176-00:17:46			-25.0	-41.2
XPS	2009/177-19:48:50			-37.8	-20.0
XPS	2009/178-00:47:20			-27.2	-65.8
XPS	2009/178-16:32:28			-25.4	-53.9
XPS	2009/178-19:53:58			-36.9	-75.9
XPS	2009/179-13:33:31			-24.8	-16.0
XPS	2009/179-15:08:06			-19.6	-48.4
XPS	2009/181-17:28:29			-38.9	-47.9
XPS	2009/182-14:24:20			-32.9	-31.2
XPS	2009/182-22:53:26			-21.1	-58.9
XPS	2009/173-20:10:40			-32.6	-61.8

	SIM A	SIM B	SOL A	SOL B	TIM	XPS*
Week	8	7	8	9	12	11
Total	2020	2581	1399	1657	2245	2093

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

Fourteen ground station contacts were performed over the past week.

	Captured VCDUS	Recorded VCDUS	%
SC housekeeping	320276	320278	100
IM housekeeping	44428	44428	100
Science	317289	317290	100

### 4. Instrument Status

#### 4.1. TIM

#### 4.2. SIM (submitted by Jerry Harder, July 2)

For days 2009/176 (June 25) to 2009/183 (July 02):

- Calibration Activities:
 

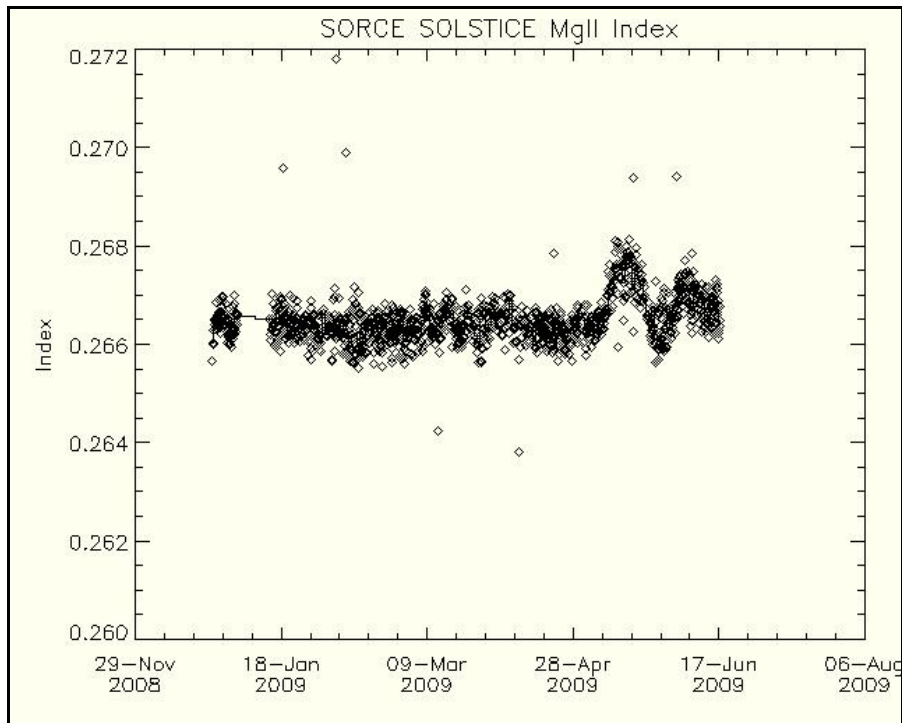
<u>SIM A</u>	<u>SIM B</u>
-- Prism Calibration A_cal_B	25
	25

-- Prism Calibration B_cal_A	25	25
-- 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	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	0
-- 24-minute Scans	14	0
-- 24-minute Scans w/ HRT	0	0
-- IR scans	7	0

#### 4.3. **SOLSTICE** (submitted by Marty Snow, July 1)

For days 2009/175 (June 24) to 2009/182 (July 1):

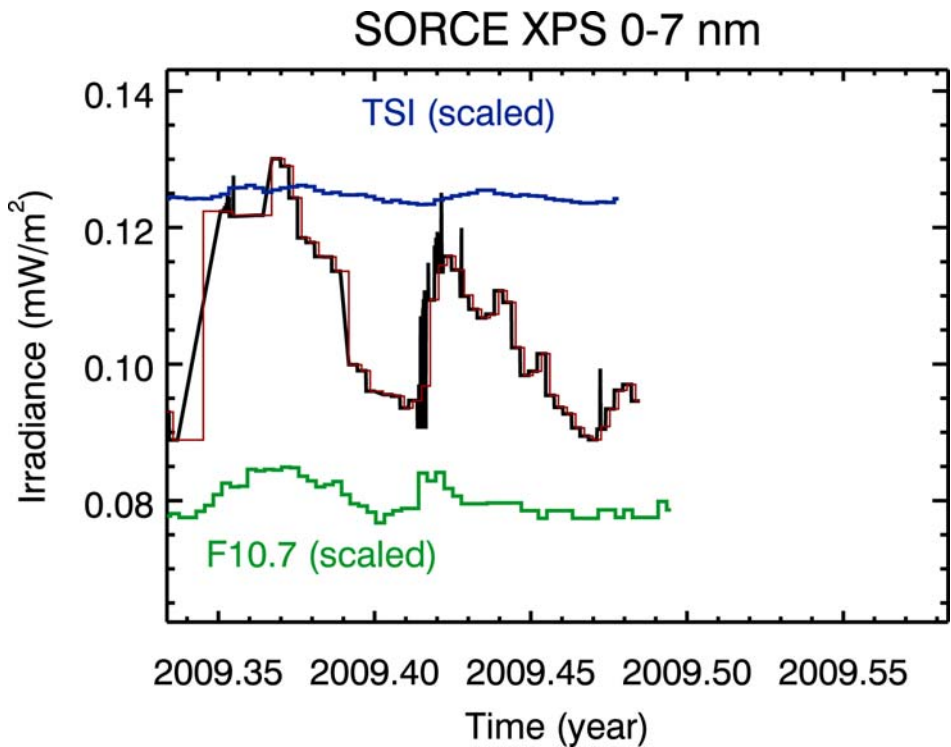
- SOLSTICE A grating drive errors:
  - 2009/177, 17:09:18
  - 2009/178, 15:48:40
  - 2009/179, 19:19:24
  - 2009/180, 22:49:54
- SOLSTICE B grating drive errors:
  - 2009/176, 00:41:47
  - 2009/177, 22:00:10
- Data Gaps for SOLSTICE A (date, length in minutes):
  - 2009/176, 18:16:27      2 minutes
  - 2009/177, 17:08:27      54 minutes
  - 2009/178, 15:47:47      54 minutes
  - 2009/178, 17:25:00      56 minutes
  - 2009/179, 19:18:23      46 minutes
  - 2009/180, 17:57:41      51 minutes
  - 2009/180, 22:49:03      32 minutes
  - 2009/181, 23:05:22      30 minutes
- Data Gaps for SOLSTICE B (date, length in minutes):
  - 2009/176, 00:40:56      27 minutes
  - 2009/177, 15:31:18      50 minutes
  - 2009/177, 21:59:55      25 minutes
  - 2009/178, 17:25:04      48 minutes
  - 2009/178, 19:01:54      45 minutes
  - 2009/180, 14:43:24      56 minutes
  - 2009/180, 16:20:30      55 minutes
  - 2009/180, 22:49:08      31 minutes
  - 2009/181, 13:22:42      57 minutes



**4.4. XPS** (submitted by Tom Woods, 01 July)

For days 2009/170 (June 19) to 2009/181 (June 30):

- Number of XPS GCI errors: 14
- SORCE XPS Data Gaps: None
- SORCE XPS Calibration Experiment Duration:  
1121.00 sec (19 integrations) at 2009/171 1:27
- Flares: None above class M1.0



5. **Planning** (automated report submitted by Jay Kominek, July 2)

**Plans completed 25 June – 02 July:**

**SORCE Spacecraft**

<b>Activity</b>	<b>Total</b>	<b>Total Time</b>
Solar Rolls	409	13:02
Stellar Rolls	436	13:40
Ram Avoidance	0	0:00
Solar Alignment	4	1:28
Stellar Alignment	0	0:00
Field of View Maps	0	0:00
FSS Calibration	0	0:00
Station Contacts	14	2:34
GCI Checks	827	0:13
State Vector Upload	7	0:21
MU Checksum	1	0:12

**SIM A (Primary)**

<b>Solar Activity</b>	<b>Total</b>	<b>Total Time</b>
ESR Mode	7	5:18
ESR Mode with HRT	0	0:00
IR Scan	6	6:18
Quick Scan	15	6:03
Quick Scan HRT	0	0:00
<b>Calibration Activity</b>		
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	2	1:11
Dark	30	0:22
<b>Special Activity</b>		
Power Cycle Checks	209	13:56

**SIM B (Secondary)**

<b>Solar Activity</b>	<b>Total</b>	<b>Total Time</b>
ESR Mode	0	0:00
ESR Mode with HRT	0	0:00
IR Scan	0	0:00
Quick Scan	2	0:48
Quick Scan HRT	0	0:00
<b>Calibration Activity</b>		
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	2	1:11
Dark	4	0:03
<b>Special Activity</b>		
Power Cycle Checks	209	13:38

## **SOLSTICE A (MUV)**

	<b>Total</b>	<b>Total Time</b>
<b>Solar Activity</b>		
Normal Scan	93	76:32
Quick Scan	41	11:35
Mini Quick Scan	35	10:06
<b>Stellar Activity</b>		
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
<b>Calibration Activity</b>		
Filter Calibration	1	1:03
Fixed Wavelength	0	0:00
AB Comparison	1	1:02
Mini 64 Scan	7	7:20
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
<b>Special Activity</b>		
Power Cycle Checks	104	4:28
Step Response Test	1	0:02

## **SOLSTICE B (FUV)**

	<b>Total</b>	<b>Total Time</b>
<b>Solar Activity</b>		
Normal Scan	94	84:18
Quick Scan	43	8:06
Mini Quick Scan	37	6:56
<b>Stellar Activity</b>		
Fixed Wavelength	410	17:07
Companion	87	5:04
Stellar Scan	16	2:18
Zero Order Scan	370	10:50
Number Unique Targets	43	36:37
<b>Calibration Activity</b>		
Fixed Wavelength	0	0:00
AB Comparison	1	1:02
Mini 64 Seam	7	7:20
MUV Solar Alignment	0	0:00
FUV Solar Alignment	0	0:00
MUV Stellar Alignment	3	0:27
FUV Stellar Alignment	3	0:27
MUV Field of View Map	0	0:00
FUV Field of View Map	0	0:00
<b>Special Activity</b>		
Power Cycle Checks	104	4:37
Step Response Test	1	0:02

## **TIM**

	<b>Total</b>	<b>Total Time</b>
<b>Solar Activity</b>		
Normal Solar	99	105:18
Normal Eclipse	108	51:06
<b>Calibration Activity</b>		
Degradation A	1	1:07
Degradation C	1	1:07
Aliveness D	0	0:00

Gain Calibration AB	1	6:00
Gain Calibration CD	0	0:00
Solar Alignment	2	1:33
Field of View Map	0	0:00
<b>Special Activity</b>		
Power Cycle Checks	202	8:41

### **XPS**

#### **Calibration Activity**

Calibration	0	0:00
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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, 25 June 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.
- 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, 25 June 2009)

- Status
  - Modifications of software are being evaluated to fix problems in the version 10 data. Reprocessing will begin soon.
  - Routine data processing is producing version 9 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
  - 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.

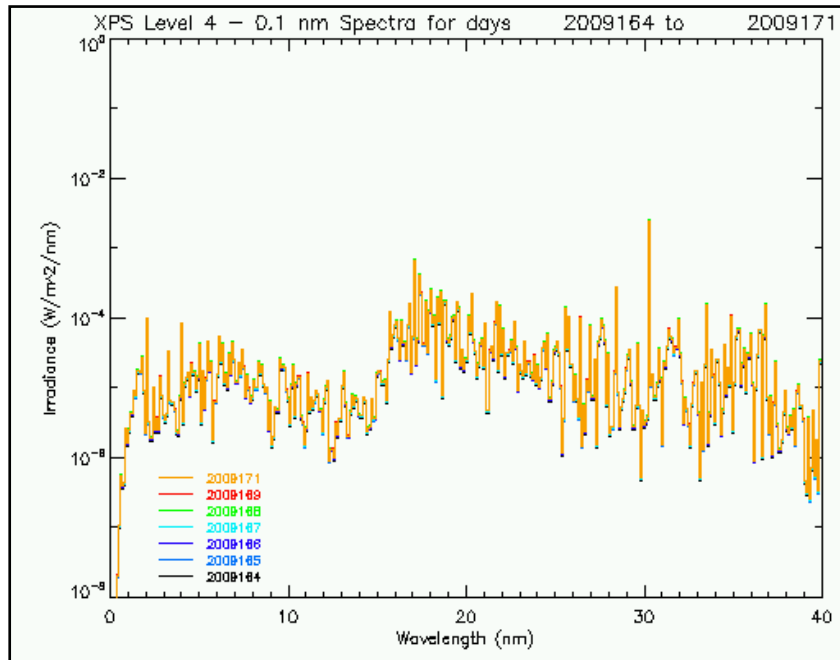
**SIM** (submitted by Doug Lindholm, 25 June 2009)

- 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.

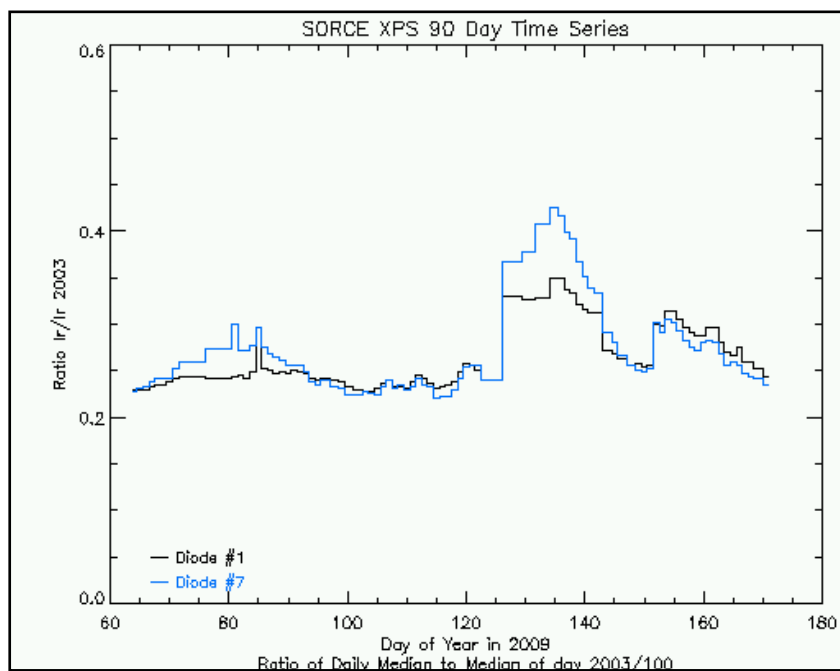
**XPS** (submitted by Brian Templeman, 25 June 2009)

- 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 2009/164 to 2009/171

Total level 1b Observations Processed: 24311  
Percent used in level 2 Processing: 59.7878  
Total level 3 Observations Processed: 14535



**Weekly Image**



**Diode Time Series**