

SORCE Weekly Status Report – 12/08/2005 to 12/14/2005

1. Introduction

This status report addresses the performance of the SORCE spacecraft, instruments, and ground assets during the week starting Thursday, December 08, through Wednesday, December 14, 2005.

2. Spacecraft Summary (submitted by Deb McCabe, 15 December)

12/08	12/09	12/10	12/11	12/12	12/13	12/14
342	343	344	345	346	347	348

SOLSTICE A had one Science SpaM event on DOY 336.

The MU reported 2 read "0" event in the last reporting period:

2005/342-20:11:54

2005/348-08:32:14

GCI lockups:	(MINUTES)	Duration	Lat	Lon
solstice_a	2005/345-09:48:38 2005/345-11:07:26	78.80	-22.0	-63.7
solstice_a	2005/346-01:28:55 2005/346-01:41:42	12.78	-20.3	-68.0
solstice_a	2005/346-06:51:31 2005/346-08:10:17	78.77	-19.5	-21.3
solstice_a	2005/347-00:09:16 2005/347-00:21:49	12.55	-23.2	-49.5
solstice_b	2005/344-09:34:13 2005/344-10:50:24	76.18	-18.6	-48.3
solstice_b	2005/345-01:08:11 2005/345-01:24:33	16.37	-9.6	-70.7
solstice_b	2005/346-21:00:42 2005/346-21:07:25	6.72	-33.3	19.1
solstice_b	2005/347-03:35:04 2005/347-05:13:13	98.15	-39.4	-54.3
solstice_b	2005/347-05:28:49 2005/347-06:50:25	81.60	-23.1	-12.3
sim_a	2005/342-02:10:17 2005/342-03:16:10	65.88	-34.5	-23.5
sim_a	2005/342-03:43:41 2005/342-03:46:39	2.97	-28.9	-61.2
sim_a	2005/343-04:01:45 2005/343-05:11:59	70.23	-32.4	-64.4
sim_a	2005/343-07:41:13 2005/343-08:26:28	45.25	-18.6	-13.1
sim_a	2005/344-02:37:37 2005/344-02:43:16	5.65	-27.2	-60.9
sim_a	2005/344-06:11:15 2005/344-07:08:13	56.97	-34.8	-29.0
sim_a	2005/344-09:31:50 2005/344-10:22:48	50.97	-23.9	-55.9
sim_a	2005/345-01:14:33 2005/345-01:23:03	8.50	-23.6	-52.7
sim_a	2005/347-08:41:38 2005/347-09:45:31	63.88	-25.7	-65.8
sim_a	2005/347-21:13:17 2005/347-21:23:35	10.30	-27.5	-3.6
sim_a	2005/347-22:44:51 2005/347-23:00:47	15.93	-16.4	-44.8
sim_b	2005/342-02:04:12 2005/342-02:09:37	5.42	-24.3	-44.5
sim_b	2005/342-05:26:37 2005/342-06:30:43	64.10	-37.2	-63.9
sim_b	2005/342-09:01:42 2005/342-09:45:10	43.47	-19.9	-29.1
sim_b	2005/342-10:35:09 2005/342-11:22:23	47.23	-27.3	-65.2
sim_b	2005/343-03:59:34 2005/343-04:03:35	4.02	-28.8	-72.1
sim_b	2005/343-10:54:51 2005/343-11:41:04	46.22	-19.6	-63.8
sim_b	2005/345-23:53:55 2005/346-00:03:02	9.12	-24.5	-37.0
sim_b	2005/346-01:35:28 2005/346-01:40:12	4.73	-32.4	-46.6
sim_b	2005/346-05:07:01 2005/346-06:10:29	63.47	-33.3	-21.3
sim_b	2005/347-07:00:10 2005/347-08:08:14	68.07	-33.4	-56.7
sim_b	2005/348-02:11:14 2005/348-02:15:17	4.05	-37.4	-52.0
tim	2005/342-02:00:39 2005/342-02:10:57	10.30	-16.6	-55.4
tim	2005/342-05:25:43 2005/342-06:33:29	67.77	-36.3	-67.4
tim	2005/342-08:56:31 2005/342-09:47:58	51.45	-30.1	-45.8
tim	2005/345-02:54:27 2005/345-03:01:37	7.17	-28.8	-68.3
tim	2005/345-08:06:59 2005/345-09:08:39	61.67	-30.7	-54.2
tim	2005/348-07:21:01 2005/348-08:33:47	72.77	-24.4	-49.6

XPS	2005/344-00:58:46	-23.7	-41.9
XPS	2005/346-01:28:25	-19.2	-69.5
XPS	2005/348-05:38:58	-33.4	-42.6
XPS	2005/348-07:15:34	-34.0	-68.8

	SIM A	SIM B	SOL A	SOL B	TIM	XPS*
Week	11	11	4	5	6	4
Total	764	994	513	615	875	768

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

Three TDRSS blind acquisition performed and one GN blind acquisition performed this week due to WPS PTP being down.

13 nominal ground contacts were performed over the past week.

	Captured VCDUS	Recorded VCDUS	%
SC housekeeping	313166	313168	100
IM housekeeping	57646	57657	99.98
Science	377057	377057	100

4. Instrument Status

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

TIM operations during previous week

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

Current work

- Normal Operations
- Data Version 6 available (but not yet on the web – coming soon!)
 - Updated degradation corrections (through Oct. 2005)
 - Updated gain calibrations (through Oct. 2005)
 - Improved uncertainty estimates include:
 - Instrument Uncertainty (~ 350 ppm) – absolute accuracy
 - Instrument Precision (5 ppm) – sensitivity to signal change
 - Solar Standard Deviation – std dev of Level 2 data averaged to produce Level 3
 - Measurement Uncertainty – RSS of Instrument Uncertainty and Solar Std Dev
 - New data format (additional columns for uncertainties) will require change to user's programs to read ascii data files
 - Analyzing processing problems and data gaps caused by NORAD TLEs

TIM anomalies during previous week

- Wallops data transfer problems make this last week hard to read

4.2. **SIM** (submitted by Jerry Harder, 12 December)

Summary:

Instrument was planned to be in normal mode of operation:

- ESR Table scans
- 24-min scans
- Servo gain calibrations for 10 and 50 sec half cycles
- Prism transmission calibration modes
- Cruciform alignments
- Image light and image dark tests on SIM A & B
- Fixed wavelength
- IR scans

Activities:

- A preliminary diode degradation correction is complete and is included in Version 7 of SIM data processing. The Version 7 data processing is underway.

SIM Anomalous Behavior:

- None to report

SIM Plans for Next Week:

- Normal operations

4.3. **SOLSTICE** (submitted by Marty Snow, 15 December)

The version 6 degradation correction is in progress and should be ready shortly after the holidays. The new responsivity calibration for SOLSTICE B FUV channel will be finished by the end of next week. Otherwise, operation has been normal with no irregularities.

4.4. **XPS** (submitted by Tom Woods, 15 December)

For days 2005/337 (Dec. 3) to 2005/348 (Dec. 14):

- Number of XPS GCI errors: 8
- SORCE XPS Data Gaps: None

FLARES: None above class M1.0

5. **Planning** (submitted by Jay Kominek, 15 December)

Plans completed 08 – 15 December:

SORCE Spacecraft

Activity	Total	Total Time
Solar Rolls	505	11:53
Stellar Rolls	298	7:34
Ram Avoidance	0	0:00
Solar Alignment	0	0:00
Stellar Alignment	0	0:00
Field Of View Maps	0	0:00
FSS Calibration	0	0:00

Station Contacts	14	3:09
GCI Checks	837	0:10
State Vector Upload	7	0:21
MU Checksum	1	0:12

SIM A (Primary)

Solar Activity	Total	Total Time
ESR Mode	9	5:40
ESR Mode with HRT	87	57:09
IR Scan	7	8:22
Quick Scan	14	5:46
Quick Scan HRT	68	27:25
Calibration Activity		
Fixed Wavelength	7	8:01
Servo Gain Calibration	2	1:20
Solar Alignment	2	1:19
Field Of View Map	0	0:00
Prism Calibration	8	9:12
Image Light	2	0:14
Image Dark	2	0:10
ESR Full Scan	0	0:00
Dark	163	1:58
Special Activity		
Power Cycle Checks	200	13:20

SIM B (Secondary)

Solar Activity	Total	Total Time
ESR Mode	9	5:40
ESR Mode with HRT	0	0:00
IR Scan	1	1:08
Quick Scan	2	0:50
Quick Scan HRT	6	2:25
Calibration Activity		
Fixed Wavelength	1	1:08
Servo Gain Calibration	2	1:20
Solar Alignment	2	1:19
Field Of View Map	0	0:00
Prism Calibration	8	9:12
Image Light	2	0:14
Image Dark	2	0:10
ESR Full Scan	0	0:00
Dark	16	0:10
Special Activity		
Power Cycle Checks	208	13:35

SOLSTICE A (MUV)

Solar Activity	Total	Total Time
Normal Scan	95	90:57
Quick Scan	41	11:53
Mini Quick Scan	35	9:53
Stellar Activity		
Fixed Wavelength	416	13:53
Companion	39	2:17
Stellar Scan	3	0:29
Zero Order Scan	198	5:49
Number Unique Targets	31	23:37
Calibration Activity		
Filter Calibration	1	1:15

Fixed Wavelength	0	0:00
AB Comparison	1	0:53
Mini 64 Scan	7	8:24
MUV Solar Alignment	1	0:39
FUV Solar Alignment	1	0:40
MUV Stellar Alignment	3	0:29
FUV Stellar Alignment	4	0:36
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	97	99:12
Quick Scan	42	8:12
Mini Quick Scan	35	6:44
Stellar Activity		
Fixed Wavelength	416	13:48
Companion	39	2:17
Stellar Scan	3	0:29
Zero Order Scan	198	5:50
Number Unique Targets	31	23:33
Calibration Activity		
Fixed Wavelength	0	0:00
AB Comparison	1	0:53
Mini 64 Seam	7	8:24
MUV Solar Alignment	1	0:39
FUV Solar Alignment	1	0:40
MUV Stellar Alignment	3	0:29
FUV Stellar Alignment	4	0:36
MUV Field Of View Map	0	0:00
FUV Field of View Map	0	0:00
Special Activity		
Power Cycle Checks	104	4:38
Step Response Test	1	0:02

TIM

Solar Activity	Total	Total Time
Normal Solar	105	130:26
Normal Eclipse	104	34:10
Calibration Activity		
Degradation A	1	1:25
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	1:19
Field Of View Map	0	0:00
Special Activity		
Power Cycle Checks	209	8:56

XPS

Solar Activity	Total	Total Time
Normal Solar	105	122:30
Calibration Activity		
Calibration	1	1:06

Solar Alignment	2	1:19
Field Of View Map	0	0:00

6. Data Processing Summary (submitted by Chris Pankratz, 15 December 2005)

TIM

- Status
 - New version 6 data are available from the SORCE web site, and will be delivered to the DAAC shortly.
 -
 - Routine TIM processing is producing version 6 data.
 - New data are always available from the SORCE web site each day after they are processed, approximately 5 days after observations are made.
- Work in Progress
 - Possible minor improvements to the TIM dark correction model

SOLSTICE

- Status
 - Routine data processing is currently producing version 5 data. These data are available from the SORCE web site immediately after they are produced, approximately 5 days after the measurements are made by the instrument.
 - Version 5 SOLSTICE data have been delivered to the DAAC as part of the version 3 composite Spectral Solar Irradiance data product.
- Work in Progress
 - Preparations for version 6 reprocessing continue.
 - Planned for Version 6
 - Responsivity updates to account for improved pre-flight calibration analysis.
 - MUV degradation correction
 - Updated FUV degradation correction
 - In-flight FOV map calibrations
 - It has taken a few iterations to generate the new FOV map calibration data, as these are the first FOV maps to be derived from in-flight pointing sensitivity measurements. We believe these maps are nearly ready for release.
 - SOLSTICE_B reprocessing will begin shortly after the SOLSTICE_A reprocessing begins.
 - Planned for Version 7
 - Possible updates to temperature gain calibration based on in-flight measurements
 - In-flight scattered light data analysis

SIM

- Status
 - Routine data processing is currently producing version 6 data. These data are available from the SORCE web site immediately after they are produced, approximately 5 days after the measurements are made by the instrument.
 - The wavelength shift algorithm is now believed to be mature and ready for production processing; however, coupling between wavelength shifts and diode detector degradation requires further analysis before the first year of SIM measurements can be reprocessed (February 2003-April 2004).

- Version 6 data are available at the DAAC after 21 April 2004. Please do not use the older version 3 data.
- Work in Progress
 - Planned for version 7 (December 2005)
 - Diode degradation correction
 - Prism transmission calibration update
 - Planned for Version 8 (early 2006?)
 - Wavelength scale correction algorithm
 - Planned for Version 9 (spring 2006?)
 - Hard Radiation Trap transmission (for improved time coverage)
 - Field-of-view pointing correction?

XPS

- The current XPS processing system is producing version 7 data
- Version 7 data are available for general access from the [SORCE web site](#) and are updated weekly.