



SORCE August 2001 Project Summary

The EOS SORCE mission is still on schedule and within budget. Launch is scheduled for July 31, 2002. Progress made on the SORCE Mission integration at LASP during the past month includes the completion of the SOLSTICE A shake, the delivery of the SOLSTICE A to SURF (Synchrotron Ultraviolet Radiation Facility) for final calibration, and the "extermination" of the SORCE MU FPGA (microprocessor unit flight programmable gate array) bug. The end-to-end LPT (limited performance test) testing for the XPS and TIM instruments has been completed.

Activities at Orbital Science Corporation include the integration of the CEUA (central electronics unit A), APE1 (attitude power electronics 1), PRE (power regulator electronics) and the NF (nonflight) Fuse Assembly on the spacecraft bus. In addition the CEUB, MTB (Magnetic Torquer Bar) X & Y, and TAM (Three Axis Magnetometer) B have also been installed on the spacecraft bus. The end-to-end LPT (limited performance test) testing for the XPS and TIM instruments has been completed.

The TIM Hitchhiker schedule has been lowered in priority to accommodate the completion of SORCE. The spacecraft "gyro" descope discussions continue. SORCE Red Team activity is in progress and the Aerospace Corporation has received the Red Team proposal from Orbital Sciences Corporation. The entire document is being edited for its submission to NASA by September 2001. SORCE continues to routinely monitor and adjust schedules to expedite instrument fabrication. Currently the spacecraft bus is one month behind schedule. Orbital Sciences Corporation is reorganizing their build plans in order to find additional build slack. Slack in Phase D is being pulled forward to cover phase C. This process has reduced slack for Phase D, but current slack margins although tight, are acceptable.

The top concerns facing the SORCE program are:

1. Concern from NASA Code 570 for a "gyroless" SORCE flight mode.

2. Tight instrument testing schedules.
3. Late delivery of the flight SORCE MU (microprocessor unit).
4. Tight SIM characterization and calibration schedules.
5. Diminishing contingency funds.
6. Delayed instrument software testing due to late MU build
7. Replacement of Interpoint Power Converters, and discovery that the power converters do not meet radiation specifications. A discussion of the situation follows.

Interpoint Power Converters

Over the past two months, SORCE has encountered problems concerning Interpoint power converters. At power on, the power converters were delivering transient power spikes to the instrument GCIs (generic channel interfaces). A softstart circuit has been designed to eliminate the problem. Replacement parts that do not exhibit the spiking were procured to replace the questionable units and thereby solve the initial problem. Then, SORCE discovered that the power converters did not meet radiation specifications. The parts SORCE is employing, SMHF2805S and SMHF2815D, appear not to function at the specific dose rate. Parts failures have occurred at 4 to 6 K rad. The parts failures are due to a CMOS MOSFET driver chip - TC4426. The Electronic Parts Engineering Office of JPL (Jet Propulsion Lab) is working with Crane Interpoint Corporation to resolve the problem. A GIDEP (government industry data exchange program) Problem Advisory has been written by Interpoint defining the issue. It has not yet been officially released by Interpoint, but its identifying number will be MT2-P-01-01. SORCE currently holds the unofficial copy of the document. SORCE has some options for dealing with the radiation problem. The questionable parts could be shielded using tantalum or tungsten in order to arrive at <2Krad TID. This approach will add mass and may present PWB (printed wire board) structural problems. Additional analysis will be required to fully define the problem and find a solution. Crane Interpoint speculates they



may be able to modify existing SMHF28XXX/HR parts by opening them, removing the TC4426 and replacing it with a new part. Then the hybrids would be resealed with an epoxy lid and undergo abbreviated requalification. This process would result in a four-week delivery time for usable, rad safe converters. SORCE could also procure new, fully qualified, hermetic parts from Interpoint, but this process will require 8 weeks minimum to deliver parts. The soft start circuit modification would still be employed with either of the two options. Final resolution of the situation is progressing.

SORCE Science

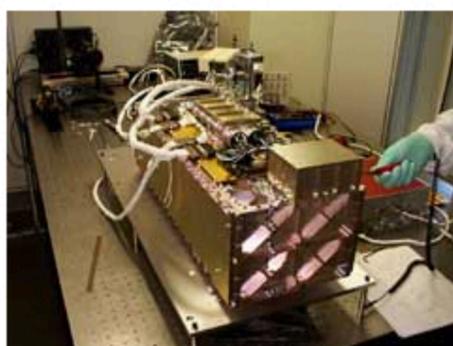
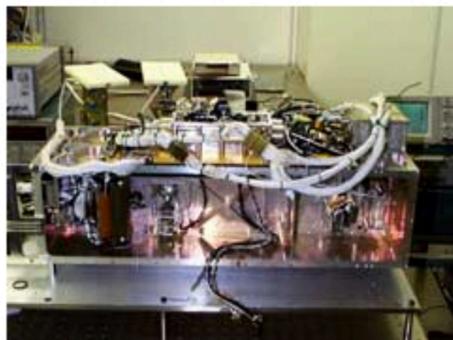
Gary Rottman, SORCE PI traveled to Hanoi, Vietnam and attended the IAGA Session on Solar Variability August 2001. Dr. Rottman gave a talk titled, "Measurement of Solar Irradiance During the Past Two Solar Cycles". The International Association of Geomagnetism and Aeronomy (IAGA) is one of the 7 Associations in the International Union of Geodesy and Geophysics (IUGG).

Meetings

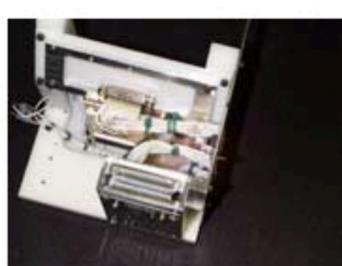
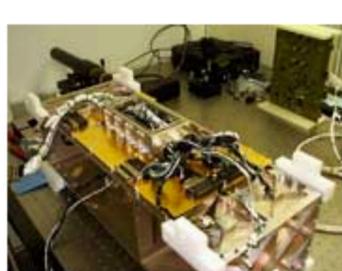
SORCE scientists and engineers plan to present papers and attend the following upcoming 2001 meetings:

- "Gyroless" Discussion at GSFC September 20, 2001
GSFC Program Management Council
Consideration of the "Gyro" Issue
September 24, 2001
- Calcon 2001 September 2001 Logan, Utah
- MIWG KSC October, 2001
- NewRAD October 2001 Gaithersburg, Maryland

Please contact Kathy.Lozier@lasp.colorado.edu for information submission.



SIM Instrument Photo Update



SIM Instrument Photo Update (cont'd)