Minutes of the 33rd SOHO SWT Meeting

Goddard Space Flight Center, Greenbelt, Maryland

23-24 April 2001

Contents

1 Welcoming Address

B. Fleck welcomed the attendees, hoping everyone had been able to enjoy the pleasant weather over the weekend.

2 Action Items

Action 33-1:
On Program Office: To explore the possibilities of lowering ERNE temperatures with minimal impact to GOLF and VIRGO.

Action 33-2:
On PIs/SOCs: To define requirements and a timetable for a roll manoeuvre, given availability of a fast roll mode.

Action 33-3:
On PIs/instrument teams: Inform SOCs if any personnel should be alerted during off-hours in case of a Major Flare Alert.

Action 33-4:
On S. Haugan/PIs: A template web page with links to instrument/data file information to be constructed, and filled out by instruments.

3 Agree Agenda and Action Revision

No changes to the agenda (see annex 1). List of attendees - annex 2.

Actions Revision

Action 32-1: Closed
On PIs: Provide names/institutions that may participate in SOHO 5-year celebration and the Sun-Earth Day on 27 April. Input to P. Brekke before 15 January 2001.

Action 32-2: Closed
On PIs: Provide input to NASA Senior Review (1-3 pages per instrument), including instrument status and science highlights. Input to J. Gurman before 16 March 2001.

Action 32-3: Closed
On L. Sanchez and PIs: List of Level Zero CD recipients to be sent out by L. Sanchez and reviewed by PIs to eliminate those that no longer need them. See annex 3.

Action 32-4: Open
On L. Sanchez and European archive administrators: Provide monthly usage statistics for archive sites.

Action 32-5: Open
On S. Haugan: Coordinate automated SOHO instrument input to HESSI Flare Catalog with D. Zarro.

4 Spacecraft Status

M. Verdant presented the spacecraft status (annex 4).

A monitoring function has been installed to enable determination of the cause of any new AOCS resets (parity error vs watchdog). Possibilities of not going to ESR when an AOCS reset occurs are also being investigated, as is the possibility of ESR operations using reaction wheels to eliminate thruster firings.

The off-point manoeuvre was very successful from an operational as well as a scientific point of view. Some wheel speed range limits have been changed, making station keeping the most frequent reason for manoeuvres. The next manoeuvre is tentatively scheduled for June 28.

A faster roll mode (from 30 to 540 arcsec/s) is being prepared, and may be ready by July 2001.

There are no concerns for spacecraft health or durability in the foreseeable future, with enough fuel and power.

A note should be made that the high number of CEPAC anomalies is due to a "routine" anomaly (ESU Data Request Error) which corrects itself autonomously.

5 Ground System Status

R. Mahmot presented the ground system status (see annex 5).

6 Instrument Status

The PIs presented the status of their instruments (see annex 6).

6.1 GOLF (A. Gabriel)

(see annex 6-1)

6.2 VIRGO (C. Frölich)

The uniquely stable environment on SOHO has enabled an understanding of long-timescale detector changes that have never been seen before. A very good understanding of the instrument has been established, enabling precise corrections of total irradiance values (long term stability likely within 100ppm).

Two VIRGO anomalies (latch-ups in the data handling system) have prompted some changes in the instrument monitoring.

6.3 MDI (P. Scherrer)

MDI can no longer report no indications of instrument ageing. On 12 March 2000, it seems like something got stuck in a shutter bearing, after a couple of days of slightly increased jitter. Since then, an increased level in the exposure time jitter has been observed. The jitter does not appear to be increasing with time – rather, it appears to be settling somewhat. However, the shutter needs to be monitored for any further changes.

The jitter causes some noise in the magnetic field measurements (mean field noise of up to 1 gauss), and low frequency modes (l=0-3 p and g modes).

6.4 CDS (A. Fludra)

(see annex 6-2)

6.5 EIT (J.-P. Delaboudiniere)

(see annex 6-3)

The off-point manoeuvre was very successful, and EIT would like to have it repeated about once a year.

6.6 UVCS (J. Kohl)

(see annex 6-4)

6.7 LASCO (R. Howard)

(see annex 6-5)

6.8 SWAN (E. Quemerais)

SWAN is operating nominally. Real-time images have been made available online. See also annex 6-6.

6.9 CELIAS (F. Ipavich)

(see annex 6-7)

6.10 ERNE (J. Torsti)

(see annex 6-8)

7 Payload Temperature Changes

J. Torsti presented ERNE's problem: Although all internal heating has been switched off, temperatures of the LED sensor have risen from 25^{o}C at the beginning of 1998 to 32^{o}C at the beginning of 2001. The maximum operational temperature of the LED surface barrier is 35^{o}C according to the manufacturer.

Changing the spacecraft side heaters will affect VIRGO and GOLF, however, and an action item on the Program Office was established to explore the possibilities of lowering ERNE (action 33-1) temperatures with minimal impact to GOLF/VIRGO.

8 Future Spacecraft Manoeuvres

With the possibility of a faster roll mode, science-driven roll manoeuvres may again be possible. SUMER have requested one along the lines of the 1997 roll manoeuvre (see annex 7).

MDI and SWAN would also benefit very much from a roll. An action was put on PIs/instrument teams to define requirements for SOCs who will work on final time line. (action 33-2)

The roll would most likely be performed between 2 - 7 December.

A repeat of the off-point manoeuvre would be desirable for EIT and MDI, and the suggested time would be April 2002 (after 3-month MDI continuous).

9 MEDOC Campaigns

K. Bocchialini presented some results of previous MEDOC campaigns, plans for MEDOC campaign #7, and it was agreed to schedule MEDOC campaign #8 for 15-28 October 2001. See annex 8.

10 Major Flare Watch for HESSI Collaborations

S. Haugan presented the status of HESSI collaborations. The default HESSI collaboration is (will be) going smoothly, with targets reaching EOF usually before noon local.

The Major Flare Watch program has been invoked three times (26 March, 5 April, and 22 April); The first two cases involved 4 X flares each within the watch periods (including X20 and X14.4). The strongest flare during the last period was an M8.

It was agreed that SOHO would support the Major Flare Watch 3 times (after HESSI becomes operational) before a revision of SOHO's response. Telemetry submode changes (5 to 6, enabling full-resolution EIT 195 Å CME Watch) during SUMER operations periods will be performed on a best effort basis during workweek if no suitable HESSI target is reachable by SUMER.

PIs/instrument teams should inform SOCs if they want to receive off-hours notification about new Major Flare Watch alerts. (action 33-3)

11 5 Year Event and Future Outreach Activities

P. Brekke presented the plans for the 5-year event, including the shipping status of the PR kits. For an overview of events, look at `http://soho.nascom.nasa.gov/5year/` and `http://spdext.estec.esa.nl/content/doc/9e/27038_.htm` (with pictures).

We will need to look into the processing of real-time images. Several times lately we have had no updated images of large events (CNN now expects us to have them, and have called to ask when they are missing).

The web traffic has set a new monthly record (8.3 million requests in April), very much helped by a burst of solar activity. At some points in time, web traffic was limited by the physical capacity (with poor connectivity to the outside from EOF/EAF users).

Ideas for public relations events, Hot Shots, etc are most welcome.

12 Status of SOHO Archives

L. Sanchez presented the status of the SOHO archive (see annex 9).

13 Working with SOHO data

S. Haugan had gone through data from all instruments supplied by the official archive to verify that data can be read, understood in relation to the physical measurements done with the instrument, and used at least in a qualitative sense (notwithstanding any calibration issues yet), with a reasonable investment of time searching for information on the data sets.

The results can be summarised as:

GOLF: FITS files contain descriptive labels in French, and this made it difficult to decipher the contents and relate them to the physical measurements taken. A working knowledge of the language may have changed the outcome. Simple tools or descriptions of file contents should be available.

VIRGO: Passes, with good descriptions through ESTEC home page on how to read data using standard tools. But: TFORM keyword is misspelled and TNULL values not defined in PMO6 data (easily fixed, though).

MDI: Well documented, no problems. No time-series files inspected.

SUMER: It is possible to read and understand the data, and there is quite a bit of documentation available. However, within a short time span 3 different sets of routines for handling data were found (Wilhelm, Warren and Carlsson were the three main sources). It is also very unclear how to apply the "Wilhelm" set of routines to the data set in the archive (if it is indeed possible).

CDS: Data can be read, understood and used. A true test of how an outsider would view the experience was impossible, due to the affiliation of the test person.

EIT: Useful, straightforward user's guide. No problems. Multi-image data sets not explored, but they are described in the user's guide.

UVCS: Information on how to read, calibrate, and manipulate data appears to be well documented (and the description worked as far as it was tested). It would presumably take quite some time to get useful information from the data (other than single exposure displays), but this comes with the nature of the instrument.

LASCO: Data can be read and interpreted, but it was impossible to use for e.g. identification of streamers etc, since no model subtraction had been done. It would have been very welcome with a software package that could do this (with the calibration data distributed through e.g. the SolarSoft Database).

SWAN: Data could only be interpreted after some "dimensional analysis" (relating the number of pixels to the sizes of data arrays). Also, only maps in "mechanism encoder" coordinates were possible, with no conversion algorithm to sky positions (even relative to SOHO). Amendments have been promised.

CELIAS: Files are in CDF format – which are supported by stand-alone libraries, IDL routines etc. However, they are somewhat "opaque", meaning that very active exploration is needed to figure out what they contain. However, given the effort to do this, the files seem to contain enough information to enable an understanding of the data. Some help or explanation of file contents should be available.

COSTEP: Easy to read ASCII files, but not easily understandable. It was pointed out at the meeting that file documentation has been provided. Yours truly has now discovered the pointers to the file documentation - from the SOHO software page, in the SolarSoft tree!

ERNE: Easy to read ASCII files, but not easily understandable. It was pointed out at the meeting that file documentation has been provided. An investigation is under way to make this available.

It was agreed that S. Haugan will construct a web page template for each instrument to fill in with links to locations with e.g. file descriptions and other relevant information. These pages will be pointed to from the archive. (action 33-4)

14 Meetings and Workshops

See annex 10. Aspects regarding the planning of the SOHO-11 workshop (Davos, 11-15 March 2002) were also discussed.

15 AOB

SWT-34 will be held either in Florence first week of November (in conjunction with a possible UVCS science team meeting) or 18-19 October at Goddard Space Flight Center.

Annex 1: Agenda

Annex 2: List of Participants

<u>**Attendees SOHO SWT-33**</u>

Name	Institute/Experiment	Address
Bocchialini, K.	IAS/MEDOC	IAS Bât 121, Univ. Paris XI, F 91405 ORSAY (bocchialini@ias.fr)
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Annex 3: LZ CDROM recipients (removed in bold)

Annex 4: Spacecraft Status

Annex 5: Ground System Status

Annex 6-1: GOLF

Annex 6-2: CDS

Annex 6-3: EIT

Annex 6-4: UVCS

Annex 6-5: LASCO

Annex 6-6: SWAN

Annex 6-7: CELIAS

Annex 6-8: ERNE

Annex 7: SUMER request for 360^o roll

Annex 8: Review of MEDOC campaigns

Annex 9: Status of the SOHO Archive

Annex 10: Meetings and Workshops