Minutes of the 21st SOHO SWT Meeting

Goddard Space Flight Center, Greenbelt, MD

14 November 1996

Contents

1 Action Items SOHO SWT–21

Action 21-1: On relevant PI teams to provide pointing information to Helmut Schweitzer (hschweit@pop400.gsfc.nasa.gov) for S/C trending analysis.

Action 21-2: On PI teams to provide operational information for the time period 8-22 October 96. Input to Jean-Philippe Olive (jolive@pop400.gsfc.nasa.gov) before 30 November.

Action 21-3: On EIT/LASCO to develop and test event detection software for inter-instrument flag system and report at the next SPWG meeting.

Action 21-4: On ESA/Matra to study the effect of S/C rolls on lifetime of gyros. Report at the next SWT meeting.

Action 21-5: On PIs to inform PS on when they plan to provide data and catalogue information for the SOHO archive. Input to PS before 30 November.

Action 21-6: On PIs to fill out mission extension questionnaire before 15 December.

Action 21-7: On PIs of CDS, EIT, LASCO, MDI, SUMER and UVCS to nominate a representative for the MEDOC working group. Input to PS before 15 December.

2 Agree Agenda and Actions Revision

V. Domingo welcomed all participants, informed them about the health status of A. Poland and presented the "BEST of What's Knew 1996 Award" for Aviation and Space, presented to ESA and NASA for SOHO by *Popular Science Magazine* on 12 November 1996.

Agenda — annex 1

List of Participants — annex 2

Actions revision

Action 20-1: closed

On PIs to determine if the new computation of the spacecraft velocity in heliocentric coordinates is correct. (Samples can be found at http://sohowww.nascom.nasa.gov/data/ancillary/orbit/definitive/new_samples). Input to L. Sanchez by September 6.

Action 20-2: closed

On ESA to provide a detailed script for the station keeping/momentum management maneuver on 11-12 September, including window for SSU/SEU patch upload and testing. Due date: 30 August.

Action 20-3: ongoing

On ESA/Matra, MDI and VIRGO to analyse S/C pointing disturbances.

Action 20-4: closed

On PS to establish Working Group to study technical matters of telemetry redistribution with relevant parties (EIT, CDS, SUMER, UVCS, S/C).

Action 20-5: ongoing

On PS to organize series of small workshops at SOHO EAF.

3 S/C Status

Presentations by H. Schweitzer and J.-P. Olive — see annex 3.
Action on MDI, EIT, LASCO, CDS and UVCS to provide pointing information to Helmut Schweitzer (hschweit@pop400.gsfc.nasa.gov) for trending analysis of S/C pointing (Action 21-1). Action on all PI teams to provide operational information for the time period 8-22 October 96 in order to understand the enigmatic 24-hour S/C disturbances seen by MDI, GOLF and VIRGO. Input to Jean-Philippe Olive (jolive@pop400.gsfc.nasa.gov) before 30 November (Action 21-2).

4 Experiment Status

– see annex 4
Following a suggestion by C. Fröhlich the PIs restricted their presentations to the more technical matters and presented the science in the SWT Workshop which was held in the afternoon of Friday, November 15 following the November '96 SPWG meeting. It was agreed that the next SWT meeting should be 1 1/2 days, starting with science presentations and discussion by the PIs in the afternoon.

W. Thompson informed the SWT that the SERTS/CDS crosscalibration flight was successful and that good data have been obtained. Unfortunately, the telescope, which should have been calibrated after the flight at RAL, broke when it landed on a hard rock.

5 Science Priorities

R. Harrison commented that in the last couple of months there was an enormous attention on prominences and plumes. He suggested to shift the priorities to elemental abundances and coronal heating processes (e.g. MHD waves). He also suggested to test and then make use of the inter-instrument flag system (there are several GI proposals requesting the use of flags). Colleagues from the EIT and LASCO teams expressed their concerns having EIT as master for extended time periods since this would put a heavy load on the LASCO electronics box (LEB). Since EIT and the three LASCO coronagraphs share the LEB resources, the LASCO coronagraphs cannot be operated if EIT is run in a high duty cycle. Further, the software to detect and locate specific events such as bright points still needs some development and testing. After a lively discussion about the value of the flag system it was agreed that — before any further tests on the S/C — EIT/LASCO should perform a feasibility study of having EIT as master, develop and test event detection software and report back to the other teams at the December SPWG meeting (Action 21-3). R. Harrsion will send out a memo explaining the details on how he would like to use the flag system.

Science priorities for the comming quarter are:

i) MHD waves (coordinators: C. Deforest and J. Raymond)
ii) Abundances (coordinator: A. Fludra)
iii) Equatorial coronal holes (target of opportunity)

There won't be a rerun of the Global Month campaign in the coming quarter.

6 Spacecraft Matters

6.1 Telemetry Increase

Following EIT's request to redistribute telemetry, Matra found out that they could allocate 16 additional packets (approx. 3.5 kb/s) to the science data stream. In addition to the previous request for increased bandwith from EIT (see minutes SWT-20) there was a new request from LASCO.

G. Brückner presented the scientific case for an increase of the LASCO telemetry rate:

1. *Cadences need higher frequencies.*
   Corona changes faster than anticipated.
2. *Advanced Discrete Cosine Transform (ADCT) compression scheme does not work.*
   Compression is 2:1, was supposed to be 10:1.

   Reasons:

   (a) Strong gradients in corona, not anticipated.
   (b) Strong gradients near occultors.
   (c) Number of stars and cosmic rays much larger than anticipated.

J.-P. Delaboudiniere repeated the arguments why EIT needs a higher bandwith (see annex 4 in minutes SWT-20).

It was agreed that the EIT and LASCO teams first discuss this internally at their upcoming consortium meeting in France and present a proposal to the SWT.[1]

6.2 SWAN Request for Maneuvers

W. Schmidt requested a S/C roll twice a year for crosscalibration of the two SWAN sensors which was accepted by the SWT.

P. Scherrer asked about the impact of S/C rolls on the S/C which is run in gyro mode during these exercises. J.-P. Olive commented that so far the gyros have run approximately 900 hours. The design lifetime for the 2 year nominal mission is 1500 hours, but one can expect a lifetime of about 5000 hours. There is an action on ESA/Matra to study the effect of S/C rolls on the lifetime of the gyros in detail and report back to the SWT at the next meeting (Action 21-5). P. Scherrer then made a request for a 360° S/C roll consisting of 16 steps à 22.5° with 30 min dwell times at each step, except at the 90, 180, and 270° position where the dwell time should be 1 hour. Target date: 3-4 months from now, i.e. February/March. This request was also accepted by the SWT.

6.3 CELIAS, UVCS, LASCO Thermal Disturbances

CELIAS and LASCO colleagues stated that the new operational modes of CELIAS/CTOF and the heater cycling of LASCO will not cause any thermal disturbances for the other experiments or the S/C. The instrument teams were reminded that they should inform the SOT

[1] Note added in proof: At their consortium meeting on 19-21 November LASCO and EIT agreed that on average EIT's data rate would increase by 2 kbps (to approximately 3 kbps) and LASCO's by 1.6 kbps (to 5.8 kbps). It should be noted that this ratio of telemetry bandwidth, and the corresponding requirements for LEB resources, are average values. To maintain the flexibility to run a variety of observing plans, the actual ratio for any given day will be decided by the joint science planning procedures of the two experiments, and they envision observing plans that could deviate in either direction from the mean values of 3 and 5.8 kbps.

at the daily meeting (or the SOCs by e-mail) well in advance of any planned changes in the operational mode of their instrument which might cause a disturbance to other instruments or the S/C. The three helioseismology instruments are extremely sensitive to temperature changes and disturbances should be kept to an absolute minimum. If they can't be avoided at all, one of the ESA/Matra engineers should have a look into it prior to the implementation to evaluate potential consequences.

7 Community involvement in SOHO

86 Guest Investigator (GI) proposals were received. The GI Selection Committee meets on 20-22 November.

8 Archives

— see annex 5
The instrument teams were reminded that it is essential to have the SOHO archive populated (both catalogue informaion and data) for a) the image of the SOHO mission to the external community, b) to provide GIs (both offical and informal) adequate access to catalogue information and data. There is an action on the PIs to inform the project scientist on when they plan to provide data and catalogue information for the SOHO archive. Input to PS before 30 November (action 21-5).

9 Mission Extension until May 2002

V. Domingo will submit a report to ESA asking for a mission extension of 4 years, i.e. until 2002. The report will comprise input from all experiments and the S/C. ESA's Director of Science, Roger Bonnet, will attend a meeting with the PIs on 16 January 1997 to learn about the results from the first year of SOHO operations and to hear about the prospects for the coming years. The meeting may also be attended by Wess Huntress. ESA's Space Science Advisory Committee (SSAC) will meet in late January, and ESA's Science Programme Committee (SPC) will meet on 16/17 February 1997. NASA funding for SOHO will end in spring '98, so *spring '97 is really important to demonstrate that SOHO is doing really well.* W. Worrall mentioned that the ground-system will be restuctured to be more cost efficient. Among the changes are the move of the PACOR workstations to the EOF. None of these changes should have an impact on the operations. W. Worrall also mentioned that he was asked to present possible cost savings options to NASA, such as more autonomous operations, less NRT sessions, operation from remote sites etc.. The project scientist will circulate a questionnaire to the PIs addressing these options and the mission extension in general. There is an action on the PIs to fill out this questionnaire and send it back to the PS before 15 December 1996 (Action 21-6).

10 Publications

— see annex 6
There will be 10 papers in part I of the SOHO First Results Special in Solar Physics which will appear in the January 1997 issue (1 VIRGO, 2 MDI, 2 SUMER, 3 CDS, 2 ERNE). Part II of this special will appear in the April issue of Solar Physics. All instrument teams are strongly encouraged to submit papers for this special before the end of the year (cf. also

Section 8 on "Mission Extension"). Part II may also include a CD-Rom for movie sequences and animations.

The project scientist team is setting up a SOHO bibliography page on the Web. To populate this database and keep it up-to-date, the PI teams are requested to send pre/reprints of accepted papers to the PS office, and an e-mail with authorlist, title, reference, abstract and keywords to bfleck@esa.nascom.nasa.gov.

There are invitations for two further specials in JGR-Space Physics and one special in GRL:

- The 3D Heliosphere (JGR, deadline: 31 January 1997)
- New Results of the ISTP Program (JGR, deadline: 15 March 1997)
- Coronal Heating and Solar Wind Acceleration (GRL; deadline 1 March 1997)

For further information contact Tamas I. Gombosi, Senior Editor JGR (tamas@umich.edu) or J.H. Waite, Editor GRL.

11 PR matters

P. Martens presented plans for future SOHO PR products (see annex 7).

P. Scherrer proposed to have an anniversary press release on 2 December. Everybody agreed.

NASA may have another Space Science Update (SSU) presenting LASCO results in early 1997.

Searching for other potential topics for release in the near future, A. Galvin suggested to have a release on results from the "Whole Sun Month" campaign next spring, eventually in conjunction with the AGU where a special session will be held on this topic. No other suggestions for press releases in the next couple of months were made.

12 AOB

Next SWT meeting: 19/20 February 1997 at RAL (probably in conjunction with the monthly SPWG meeting on 21 Feb). The SWT meeting will start with PI presentations on Wednesday afternoon, 19 February 1997.

MEDOC
V. Domingo presented J.-C. Vial's proposition to increase SOHO activities at MEDOC in the next months. Some PIs expressed concerns that it might be very difficult if not impossible to move over the operations of their instruments to MEDOC. It was agreed to discuss this issue by e-mail in a working group, chaired by J.-C. Vial. Every instrument team should assign one contact person for this WG (action 21-7).

Cluster recovery
P. Wenzel informed the SWT about the SSAC's recommendations concerning the recovery of the Cluster mission:

> The SSAC, at its meeting in Paris on 6 and 7 November 1996, having noted the proposals of the Executive with regards to the reflight of Cluster (Cluster 2) and the recommendation of the SSWG, and
>
> - taking into account the enormous effort invested in the development of the Cluster mission, but
> - being deeply concerned about the impact of Cluster 2 on the timely execution of the Horizon 2000 Programme,

can support the proposed Cluster reflight (Cluster 2, option 1) provided that:

1. the slightly descoped proposed payload can be fully and timely financed and constructed by the national agencies and the national laboratories without endagering the execution of the payloads of the missions of the original Horizon 2000 Programme, and in particular the Rosetta payload;
2. the financing and construction of the Rosetta spacecraft will not be affected;
3. the toal cost to the Agency be strictly capped at 210 MECU, including the 30 MECU already allocated to Phoenix and the launch at 60 MECU.

Annex 1: Agenda

Annex 2: List of Participants

Annex 3: Spacecraft Status

Annex 4: Status of Experiments

GOLF (S. Turck-Chieze)

VIRGO (C. Fröhlich)

SUMER (K. Wilhelm)

CDS (R. Harrison)

EIT (J.-P. Delaboudiniere)

LASCO (G. Brueckner)

SWAN (W. Schmidt)

CELIAS (P. Bochsler)

COSTEP (H. Kunow)

ERNE (J. Torsti)

Annex 5: Status of SOHO Archive

Annex 6: SOHO First Results Special

Annex 7: SOHO PR Products