

Minutes of the 13th Hinode Monthly Meeting November 28-29, 2007

The 12th Hinode Monthly Meeting was chaired by Prof. Watanabe and held on October 25, 2007 at 7:00 AM (JST). The Agenda circulated by Prof. Watanabe and was accepted.

1. Instrument and Spacecraft Status

SOT: Berger referenced Tarbell's e-mail (Appendix A) and commented that the H-alpha filter is not being used, except where it is absolutely essential to meeting the science requirements, due to wavelength shifting perhaps due to temperature variations. More testing for temperature dependence is underway.

XRT: DeLuca reported that operations were normal. When the Sun is very quiet, they have started taking images for the AXION program and many times a day they are switching to the medium Be filter. During this process they have made a large number of rotations of FW1 without seeing any evidence of sticking over the last week and a half. Shimizu asked about the progress on understanding the contamination problem. DeLuca stated that it is still being investigated by both sides. They are monitoring the situation and have limited the use of the aluminum mesh filter as they are concerned about the effect of the EUV flux passing through the filter may have on polymerization of the contamination. The case for another bakeout is under discussion within the XRT teams.

EIS: Culhane referred to Harrah's e-mail (Appendix B) and had nothing further to add.

Spacecraft: Shimizu referred to his e-mail (Appendix C) on spacecraft issues. He was concerned about the rate of rise in temperature of the sun sensor, which they found difficult to explain.

2. Campaign Review for November

Culhane reported on the SUMER campaign that had involved seven HOPs. (Ed's. Note: The link with Culhane was poor and the editor of the minutes had difficulty in recording these comments) Culhane reported that he had heard from HOP31 (Madjarska – went very well) and 47 (Patsourakos – who had some concerns about pointing). Mariska reported that Enrico Landi had commented that this went far better than the first campaign. Watanabe agreed with this assessment. He also reported that Kamio (HOP40) was pleased and that they had found links associated with FeXV brightness changes. Culhane reported that Walsh (HOP52 STEREO/SECCHI joint observations) had had a successful observing run but wanted to hold back their second run until the week of January 7, 2008 when they have their second 2-hour high speed observing mode with SECCHI.

3. New Proposals

Watanabe reported that all the three new proposals were from the core team. The first (HOP53) was from Shimizu who wants to observe the same quiet region for several days with SOT to compare with XRT XBP data. This has not yet been done and is important to magnetic-field observations suitable for investigating mechanisms responsible for XBPs

for a period of 2-3 days. Since there were no objections Watanabe confirmed the proposal with the proviso that no significant active region appeared.

Next HOP54 and 55 both of which were submitted by Ishikawa to look at transient horizontal fields in the chromosphere at the limb and at disk center were discussed. Watanabe requested more details of the actual observing plans. Sekii reported that he had been in contact with her and that she would send in detailed plans in the next few days. At the moment for HOP54 she was requesting 6 hrs per day for 3 consecutive days for an active region (AR) is at the limb and five consecutive days, for 12 hrs per day, to follow an active region starting two days before CMP. If possible she would like to collaborate with the HIDA Observatory, which would fix the observing time to the morning in Japan and she also stated that the active region doesn't have to be "very sexy". She is also working with Sekii to develop appropriate programs for her problem. Davis asked if this program was to be given priority and whether this priority was recognized by the weekly planners. Watanabe thought that there were several active region programs that were Targets of Opportunity (TO) and that this could be accommodated as part of a broader program. Watanabe thought that the TOs should be prioritized. Davis asked whether this was an SSC responsibility and should we give priority to students who needed observations for their theses? Culhane noted that there was an EIS requirement for AR limb observations that would complement this TO even though apparently Ishikawa had not mentioned any requirements for EIS. DeLuca commented that if an AR appeared there would be overwhelming support for tracking an AR, so from XRT's point of view there would not be a problem with giving this TO a high priority. However he couldn't speak for SOT and they would have to solve the problem internally. Mariska commented that we were working with a lack of information and she needed to complete her proposal. Sekii thought that she was not really ready to run her HOP in the next week. DeLuca felt that to avoid disappointments proposers needed to work closely with the instrument teams to ensure that their requirements could be included within the instrument teams' priorities. Sekii agreed to talk with her in establishing requirements for EIS and XRT. Finally Watanabe closed this discussion by agreeing to take an action to prioritize the TOs so as to discuss them at the next SSCs meeting.

Approved proposals for December included HOP15 (Kosovichev) and HOP35 (Romano). Culhane stated that Romano will be at the DunnST and he is requesting to observe a filament in the SE quadrant. This information has been passed to the CO. He will be observing at the DST and has consequently has requested observations from 1600-2000 UT between December 1 through 9.

Sekii (HOP35) said that he wouldn't know until tomorrow (11/30) the exact times for the start of the helioseismology observations but they were expected to being on 12/3. They are coupled to the SOHO high data transmission period. Three observation sequences were planned: 24 hours with MDI in the high resolution mode pointed at disk center, with tracking, and two 12 hr sequences pointed at an AR. If no AR is present one of the 12 observations would look at a high latitude. Culhane noted that Romano would lose priority during the 24 hour period.

Berger would like to run HOP46. He is CO from 12/11 to 12/21 and his preference is for week 51, but he is prepared to select the exact date selection during the weekly meeting. He is also interested in running other filament observation.

Shimizu is requesting time for HOP53. He would like 2-3 days continuous observations for each week for a three week period. His preference would be for weeks 50, 51 and 52. Conflicts with HOPs 35(week 50) and 46 (week 51) would have to be resolved. HOP46 doesn't require a whole week and HOP35 require a filament. Shimizu suggested that the dates should be defined Sun was quiet HOP53 should be run.

Shimizu then discussed year operations. The final uplink for the year would take place on evening of December 30th. At that time the OP for the period 12/31 to 1/04 needed to be uploaded. Watanabe stated the need for a 4 day plan. DeLuca suggested that in the absence of any ARs two separate 2 day quiet regions studies near disk center might be appropriate. This would allow XRT to record a long series of full disk images. Mariska thought that it might be scientifically more interesting to track the same region for the full period. This would allow EIS to tailor their raster to be a little larger than the SOT image. All agreed.

No HOPS will be accepted in January as this will be reserved for core team studies. The one exception is the co-observations with STEREO to take advantage of the high rate telemetry period. Culhane agreed but pointed out that this was for a two hour period only. Doschek suggested that EIS would probably spend this time performing long duration observations. Shimizu asked what kind of programs should be proposed. Berger suggested that one reason for this set aside period was to foster coordinated observations between the three instrument teams and therefore proposals should emphasize joint observations. The proposals should be submitted to the SSCs in time for their next meeting (12/19/07 JST).

The 14th monthly meeting will be held on December 20 at 7:00 A.M. JST and at various times on December 19 in the US and UK.

John Davis, December 16, 2007

Attendees: Shibasaki, Watanabe, Shimizu, Sekii, Ichimoto, Mariska, Doschek, Berger, DeLuca, Golub, Culhane, Weber, Williams, Davis, Cobb and others.

Appendix A: SOT Status (Tarbell)

* SOT is nominal, except for the usual constraints on the NFI because of tunable filter bubbles

* To protect the NFI blocking filters from UV damage, the Na D line 5896 is the default line for NFI observations; use of the other lines will be approved when there are a good scientific reasons and appropriate targets on the sun.

* In the past month, we made some table loads and tested them successfully. These enable higher quality Doppler observations and more efficient use of telemetry in certain programs.

* After the SUMER campaign, we increased the temperature of the FPP, mainly to shift the H-alpha blocking filter passband towards the red.

We had seen too much leakage of continuum light into H-alpha images in September and October, probably due to mis-centering of the blocking filter. The increased temperature has improved the situation and not caused other problems, and tests are continuing to understand the spectral content of the H-alpha images.

* We have been monitoring the usage of NFI blocking filters, and the H-alpha filter has had a lot of use in the past 6 months. To protect it from UV damage, we will use it sparingly during the solar minimum.

We will only make H-alpha observations when there are well-defined programs which require them and when there are good targets for those programs. We will not use the H-alpha filter for backup programs or low priority context images.

Finally, let me say that I agree strongly with the frustration Louise expressed in her email, about observing being dominated by HOP's and Hinode jumping around from one target to another, with no extended observations on one target and few truly coordinated programs involving the 3 instruments. I look forward to email and face-to-face discussion in Japan of her message and Tsuneta-san's response. I think we need to plan some extended observing periods of more coordinated programs than we have had so far.

Appendix B: EIS Status (Harrah)

* EIS status is nominal

* SUMER campaign *has* just been finished. It ran much better than the one last March!

* EUNIS rocket launch took place on 6/11 and good data was acquired. Analysis needed on both.

* As we are coming to the warm season (CCD temperatures around -36, at present) (should be less than -40), MHC heaters adjusting studies were provided. However, when run, the old heaters power values were retained. The cause of this is under investigation (possible DB mix up). The heaters power studies will be re-run.

* Problems with the computing system the last few days *are* causing a problem in putting EIS DB updates on MSSL FTP site (were SSW *can* pick it up). We are considering workarounds.

Appendix C: Spacecraft Status (Shimizu)

1. Momentum Wheel Speed

The nominal speed of 4 momentum wheels in the spacecraft is requested to be 1800 +/-100 rpm, considering the micro-vibration influence on SOT image quality. It has been observed that the speed shows very slowly drift since the launch and the deviation from the nominal 1800rpm is now over 100 rpm:

MW-A 1930

B 1670

C -1670

D -1930 as of early November 2007.

From viewpoint of the spacecraft attitude control, the situation is acceptable until the speed of one MW reaches 6000rpm (it is preferable to adjust the speed before one of MW reaching zero).

The SOT has analyzed the latest level of micro-vibration and confirmed that the micro-vibration level still meets the SOT image quality requirement. Since a large vibration peak is expected with around 2200 rpm, it may be good to adjust the MW speed to 1800rpm at some time in the future (TBD).

The root cause of the slow drift has not yet been well understood; the most possible cause may be the accumulation of inaccuracy caused by rounding off in angular momentum control logic. This is under investigation by the AOCS team. The special operation plan for adjusting the speeds needs to consider various aspects carefully and the AOCS also spends the coming half of the year for defining the special operation plan (in case that the speed adjustment is needed).

2, UFSS/NSAS temperatures

The temperature of the top panel of the IRU tower, where important sun sensors UFSS-A/B and NSAS are mounted, is still increasing from 46 deg C *measured* at the end of the eclipse season on early August. The temperature has reached 50 deg C in November. The increase rate *in the 2007 August-November period* is very similar to that observed in 2006 *between* October - 2007 January. It is estimated unfortunately that the temperature *may reach* 55 deg C by the start of the next eclipse season, if the increase continues *at the same rate* observed in 2006 Oct - 2007 April. Note that the operational range limit is 55 deg C, which is given by the dark current non-uniformity of one-dimensional CCD used inside UFSS sensors. The UFSS manufacturer says that the sensors are operational above 55 deg C, although some degradation may be seen in sensor signals. We do not understand why the *rate of* temperature increase one year after the launch is *the same* as that seen *in the early phase*. It may be difficult to understand the behavior *if only the* degradation of opt-thermal properties of the materials used around

the top panel of the tower *are considered*. This is under investigation.
