

Minutes of Inter-Agency meeting for SOLAR-C

Date: 2010/03/12 13:30 - 17:00

Place: 7th floor meeting room in the A-building at ISAS

Participants:

Newmark, Cirtain (NASA), Fleck (ESA)

Tarbell (LM), DeLuca (SAO), Culhane, Harra (UCL), Doschek (NRL)

Nakamura, Sakao, Shimizu, Matsuzaki (JAXA)

Tsuneta, Watanabe, Suematsu, Sekii, Hara, Katsukawa, Kano, Kubo (NAOJ)

Ichimoto (Kyoto University), Kusano (Nagoya University)

Summary

The formation of a JAXA–NASA Joint WG was proposed by NASA to evaluate science goals of Solar-C, and it was accepted by JAXA SOLAR-C WG. As the approach for the inclusion of Solar-C in the Decadal Survey document, output documents from the Joint WG will be delivered to the Decadal Survey. The Solar-C mission proposal document will be prepared for both Plan A and Plan B by October 2010.

Programmatic Review

The meeting began with expressing brief impressions of the SCSDM2 from personnel representing JAXA, NASA, and ESA. Tsuneta (JAXA SOLAR-C WG chair) summarized the SCSDM2. Plan A has evolved into a good plan in terms of scientific and orbital considerations, while the following issues should be seriously addressed: (a) Assessment on the reliability of the bigger ion engines, (b) relationship to the Solar Orbiter and Solar Probe Plus; real story for synergy, beyond mere words, is necessary with the SO, and (c) domestic continuation of science (or lack of Japanese researchers involved in the Plan A science). Plan B, on the other hand, is a unique mission aiming high-resolution observations coupled with spectroscopic (or even spectro-polarimetric) observations from the photosphere to corona. He also pointed out that Plan B is a mission that only Japan can take a leading role for building it with reasonable cost based on Hinode/OTA heritage, and that the VL/UV telescope and the photon-counting X-ray telescope have their own scientific discovery spaces.

Newmark (NASA) agreed that both plans are excellent and was willing to move further forward. He pointed out that both Plan A and B mission objectives fit well to the questions that U.S. heliophysics community has, and an approach for the inclusion of Solar-C in the Decadal Survey document (that will come out in 2012) was discussed: In order to have Solar-C in the queue of NASA strategic missions (whose NASA contribution exceeding ~\$200M), not a mission with MOO (Mission Of Opportunity), he pointed out that it is essential to clarify how Solar-C's scientific objectives align with NASA's highest priority goals. Approach for this aim was discussed, which is described in the Mission Proposal section in the minutes.

He also stated that it is important to combine various missions for understanding the system from small scale to large scale in the heliosphere. Tsuneta asked Newmark about the relation between JAXA and NASA in the SOLAR-C mission. The answer by Newmark was that NASA will help propelling the Solar-C mission with intensive international collaborations experienced in Yohkoh and Hinode, but no fixed supports at this moment. That means if Solar-C mission proposal were to be submitted in autumn this year (2010), NASA would not be able to make any commitment to the mission by that timing.

Fleck (ESA) made comments on ESA's standpoint for the Solar-C mission. As Solar-C is currently not in Cosmic Vision, Solar-C needs to enter M3 slot of CV for ESA to contribute. In general, ESA provides only 'major portions' of a mission, such as spacecraft and/or launcher vehicle, but not single instrument(s). (Note in the case of SPICA, ESA took part in the telescope mirror as it is large enough to be considered as a major portion of the satellite.) Thus, for European contribution of instrument(s), each collaborating country should be contacted instead of ESA; this is what NASA did for European instruments aboard STEREO. In order to avoid contacting all related countries, forming a consortium for that instrument would be a possibility.

JAXA Mission Review Process

Prof. Nakamura, chair of Space Sciences Steering Committee at ISAS/JAXA, gave information about the review processes, schedule, and cost for the Solar-C project. JAXA requests a MDR (Mission Definition Review) and SRR (System Requirements Review) as a first step of the JAXA review. MDR and SRR usually take place simultaneously, but sequential reviews (MDR first, followed by SRR) are also acceptable in the case of Solar-C, because of its intensive international collaboration. Newmark pointed out that NASA is not prepared to commit on the proposal, if it is submitted in fall 2010.

Nakamura answered that NASA and/or ESA commitments are not compulsory in MDR/SRR processes; the important point he mentioned was as long as foreign agencies are proceeding in accordance with Japanese side preparation and that fact is visible from ISAS/JAXA management, no letter from foreign agencies expressing commitment to Solar-C is necessary for the MDR and SRR. Regarding timing of issuing AO of the next JAXA mission, it depends on ISAS budget situation which will become clear in April 2010. If no AO comes out this fall, the next opportunity will be in fall 2011. One notice about the schedule is that four projects (SCOPE, SPICA, WISH, and Solar-C) hope for the launch of 2017-2018. Finally, the cost cap for ISAS/JAXA mission is about \$250M in total, including the vehicle and the cost of H2A is about \$100M (~\$60M for the dual launch case).

Mission Proposal

Newmark proposed to form a JAXA–NASA Joint WG (JWG). The JWG will be organized in NASA in a few months, with 6–12 months of activity, with carrying the two plans. The primary role of the JWG is to generate and to document scientific goals and priorities for the project in terms of how well the proposed Solar-C science fits within and supports the NASA Heliophysics Roadmap and NASA Strategic Plan and within the resources to be specified by the Agencies. The output documents will be available for evaluation and inclusion in the NASA Heliophysics Decadal Survey and form the basis for a strategic science mission. The JWG will consist of 6–8 persons each from Japan and from U.S. This proposal of JWG (also the term SDT (Science Definition Team) was used in the meeting) was favorably accepted by the JAXA SOLAR-C WG. Tarbell commented that U.S. researchers who are outside Hinode team should also be included in the JWG so that Solar-C would be well appreciated by the entire U.S. heliophysics community. As for the relationship between ESA and the JWG, it was proposed by Tsuneta that ESA representative to participate in the JWG as an observer, which is the approach that has been working quite well for Hinode Science Working Group. Fleck took the action to consider this possibility.

Watanabe proposed the way for moving forward with the Solar-C mission proposal document as follows: (1) The final product by the current sub-WGs is the document describing Solar-C science and strawman instruments, which correspond to Sections 3 and 4 of the JAXA proposal document, respectively. (2) One document is prepared for Plan A and the other for Plan B. Each document should include science part, strawman instrument, and spacecraft resources. (3) Chief editors are Hara for Plan A and Shimizu

for Plan B. Certain will help the editorial work for both plans. (4) The deadline is October 2010. All of these four items have been accepted by Tsuneta and all of the sub-WG chairs. It was discussed that the current sub-WG activities would be taken over to more technical-oriented sub-WG(s) once the final product from each sub-WG is submitted.

The mission proposal should include cost and weight estimate. JAXA can provide cost estimate on the spacecraft bus and the 1.5-m telescope. Newmark took an action of providing scheme for estimating cost of the three major telescopes.
