

Announcement of Opportunity for European membership in the *Hinode* Science Working Group (SWG)

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General information

1.1 Participation in the *Hinode* program

The scientific community is invited to participate in the JAXA/NASA/PPARC/ESA *Hinode* program by responding to the present ESA Announcement of Opportunity, which solicits proposals for European membership in the *Hinode* Science Working Group (two individuals in total). Participation in the *Hinode* Science Working Group is open to all scientists affiliated with institutions in ESA member states.

1.2 The *Hinode* mission

Hinode (formerly known as Solar-B) is a Japanese-led mission with NASA, PPARC, and ESA participation to study the mechanisms which power the solar atmosphere and look for the causes of violent solar eruptions. It carries a suite of three science instruments:

- a *Solar Optical Telescope (SOT)*, a high (0.2") resolution visual imaging system with a vector magnetograph and spectrograph,
- an *X-Ray Telescope (XRT)*, full or partial disc imaging with resolution 1-2.5" in the wavelength range 0.2 to 6 nm, and
- an *EUV Imaging Spectrometer (EIS)*, with wavelength ranges 17-21 nm and 25-29 nm, pixel size 1.0" x 0.002nm and a FOV of 400°.

Together these instruments will study the generation, transport, and dissipation of magnetic energy from the photosphere to the corona and will record how energy stored in the Sun's magnetic field is released as the field rises into the Sun's outer atmosphere.

Hinode has been launched on September 23, 2006 into a 680 km dusk-dawn polar sun-synchronous orbit. The nominal mission lifetime is 3 years. Considering the 11 years lifetime of Yohkoh it is prudent to assume the possibility of an extended operational period after evaluation of the scientific value of the prime mission.

ESA, in partnership with Norway, provides ground station coverage of all 15 daily passes through the Svalbard Satellite Station (SvalSat), situated on the Norwegian Svalbard islands.

1.3 Responsibilities

JAXA is responsible for overall implementation of the *Hinode* mission. ESA and JAXA have recently signed a Memorandum of Understanding (MoU) in which a detailed collaboration between both agencies within the Solar B project is outlined. According to this MoU the programmatic responsibility of JAXA is to:

- (a) design, develop, build, test, launch and operate the *Hinode* spacecraft;
- (b) carry out the merging, sequencing and storage of the complete raw data set from all the ground stations collecting data for the *Hinode* Mission and maintain the integrity of the raw dataset.
- (c) transfer all such data to the European *Hinode* data centre in Oslo on a daily basis, in accordance with a protocol to be agreed by Project Managers as defined below.

ESA has entered into contract with the Norwegian Space Centre for the use of its ground station on Svalbard for the provision to JAXA of the following services:

- (a) an X-band data dump downlink at 4 Mbits/s for every orbit of *Hinode*;
- (b) an S-band downlink of up to 256 kbits/s for real time data;
- (c) an up to 256 kbits/s link to the *Hinode* Operations Centre at JAXA for real time data transmission to be used for planning purposes;
- (d) all transferred raw telemetry data will be stored at a European facility until a successful transfer has been confirmed;
- (e) a full mirror database of the *Hinode* science data following the return of a complete time-tagged raw data produced by JAXA.

Beyond this bilateral agreement between ESA and JAXA, JAXA has entered into a separate arrangement with NASA.

1.4 The Announcement of Opportunity for membership in the *Hinode* Science Working Group

All details of the scientific operation of the *Hinode* satellite, its instruments and the overall scientific exploitation of the Solar B mission are planned, initiated, and monitored by the *Hinode* Science Working Group (SWG). The *Hinode* SWG consists of the JAXA *Hinode* project team, the key instrument Principal Investigators and project scientists from Japan, US and the UK (see below for more details).

In return for ESA's contributions to the *Hinode* mission, it has been agreed that two positions in the SWG be filled with scientists from the European solar community, to participate in discussions for providing high-level guidance to the science program of the *Hinode* mission on behalf of the European scientific community.

The purpose of the present Announcement of Opportunity is to solicit proposals for such European membership in the *Hinode* Science Working Group from the European Solar science community.

2. Role, composition and responsibilities of the *Hinode* Science Working Group

2.1 General

The *Hinode* Science Working Group will provide high-level guidance to the science program of the *Hinode* mission. In this role, it will advise the JAXA *Hinode* Project and the partner agencies (JAXA, ESA, NASA, and PPARC) on all matters regarding *Hinode* science. The *Hinode* Science Working Group is responsible for optimizing the science return of the mission. In addition to the Project Scientists and to the Payload Principal Investigators, who are members of the *Hinode* Science Working Group for the lifetime of the project, the *Hinode* Science Working Group also comprises senior scientists, the European contingent of which will be selected through the present ESA Announcement of Opportunity.

2.2 Composition of the *Hinode* Science Working Group

The *Hinode* Science Working Group will include at least the following members:

1. JAXA *Hinode* project representatives (1 or 2 persons)
2. The seven instrument Principal Investigators or alternates (3 Japan, 3 US, 1 UK)
3. The Japanese Project Scientists (2) and the UK and US Project Scientists
4. Two Solar scientists from the wider ESA science community (selected on the basis of this AO)

The chairman will normally invite additional experts as required and an observer representing ESA management to specific SWG meetings as non-voting attendees.

2.3 Responsibilities of the *Hinode* Science Working Team

The *Hinode* Science Working Team responsibilities include:

1. maximizing the scientific return of *Hinode*;
2. being the main forum for communication between the scientific community and the partnering agencies JAXA, ESA, NASA and PPARC for all scientific matters related to *Hinode*;
3. overseeing and applying the definition of the scientific requirements for the mission and exploiting scientific opportunities within the boundaries of financial and technical possibilities;

4. monitoring the execution of payload and spacecraft science operation and advise on the relevant operational and scientific aspects;
5. recommending updates or changes to the observing plan during the mission's lifetime, should the need arise;
6. pointing out opportunities for collaboration and exploiting synergies between *Hinode* and other solar and geo-space missions and between *Hinode* and ground-based observatories;
7. reviewing the scientific goals of *Hinode* during the mission's development and its operations in the light of the evolution of the scientific understanding in the relevant fields;
8. advising on calibration strategies;
9. supervising and verifying the quality of the final data products;
10. overseeing the delivery of the data products to the community and the organization of the relevant data archive(s);
11. monitoring the scientific publication emerging from the mission's science data;
12. ensuring the involvement of a broad scientific community in the scientific exploitation of the *Hinode* data;
13. promoting the awareness and appreciation of the *Hinode* results toward both the scientific community and the general public, and supporting the involved space agencies in their public relation efforts.

3. Application and selection procedure

3.1 Requirements

The Announcement of Opportunity for membership in the *Hinode* Science Working Group is open to qualified solar scientists affiliated with institutions from ESA member states. *Hinode* Science Working Group members are expected to be scientists with a high international scientific reputation. Applicants will have to show specific expertise and a proven track record in a field related to *Hinode* science. Applicants will also have to demonstrate their capability and interest to make a significant contribution – personal and/or through their research groups – to the *Hinode* program. Science operations support by the applicants and their teams will be considered beneficial.

In order to discharge their responsibilities as listed under Sect. 2.3 the future European members of the *Hinode* Science Working Group are expected to:

1. Attend the meetings of the *Hinode* Science Working Group, and take an active role in its activities.
2. Participate in the major reviews of the *Hinode* program, concentrating on the aspects which may have an impact on the science return.
3. Establish and maintain close contact, through the Project Scientist(s), with the development of the operation and exploitation of the *Hinode* program.
4. Provide through the ESA Observer a yearly report to the ESA Solar System Working Group (SSWG), describing their activities and achievements in fulfillment of their appointed tasks.
5. Carry out their own active scientific programme on data from the *Hinode* mission.

The ESA-appointed members of the *Hinode* Science Working Group are initially nominated for a two-year term; at the end of each year they will produce a short report detailing their activities (see above). Following evaluation of the activities during her/his term, ESA may decide to extend the appointment for a further term. There is no limit on the number of terms a scientist can serve on the *Hinode* Science Working Group. Vacant positions will be filled following an ad-hoc Announcement of Opportunity.

3.2 Financial aspects

European members of the *Hinode* SWG, which are selected through the present Announcement of Opportunity, are expected to demonstrate the availability of own national or institutional funding to cover their scientific activities in context of the *Hinode* mission, including their attendance of *Hinode* SWG and other *Hinode* reviews and science meetings.

3.3 Further information

Requests for further information and clarification should be sent, by email, to the *Hinode* ESA Coordinator (presently *Bernhard Fleck*, with *cc to Hermann Opgenoorth, Sci-SM*) at the email address below. All questions and answers will be circulated to all interested parties (i.e. all the individuals who have submitted a proposal in response to the present Announcement of Opportunity).

3.4 Proposal submission procedure

Proposal submission will be by email, in PDF format.

Proposals have to be sent to:

o **Marcello Coradini** (Marcello.Coradini@esa.int),

with copy to

o **Hermann Opgenoorth** (Hermann.Opgenoorth@esa.int)

and

o **Bernhard Fleck** (Bernhard.Fleck@esa.int)

by **02 March 2007**

The Subject line of the email containing the proposal must say “Proposal for *Hinode* Science Team membership”.

A complete copy of the proposal must be sent to all funding Agencies that might later be asked to support activities related to the applicant’s membership in the *Hinode* Science Working Group, including any other scientific exploitation of the *Hinode* data.

The complete list of addresses to which the proposal has been sent must be clearly indicated in the cover letter.

In addition, a 1-page cover letter, signed by the applicant and by her/his head of Institute should be sent to the addresses indicated below.

3.5 Proposal content and format

The proposal must clearly address how the candidate intends to fulfill her/his responsibilities within the framework of the *Hinode* Science Working Group, and detail the specific contributions the candidate plans to make to the *Hinode* program. The scientific and technical expertise of the candidate in the areas of relevance for the *Hinode* mission, as well as his “track record”, should be described.

Proposals shall not exceed a maximum length of five A4 pages, with a minimum font size of 11 pt, and must be written in English.

A Curriculum Vitae should be included in the proposal, as well as the proposer's name, position, affiliation, full address and contact information.

Proposals in electronic formats other than PDF, or received after the deadline, will not be considered in the selection process.

3.6 Selection procedure and criteria

Proposals for membership in the *Hinode* Science Working Team will be jointly reviewed and evaluated by the SSWG and the ESA executive, if necessary and where appropriate with the support of external scientists. The evaluation and selection procedure will be arranged to eliminate conflicts of interests.

The following specific criteria will be used (in no particular order) in assessing and evaluating individual proposals:

1. Experience of the proposer in the science area of the *Hinode* mission and her/his expertise in one or more of the tasks described in Sect. 2.3 above.
2. Merit of the proposed general as well as specific contributions to the *Hinode* mission.
3. Demonstrated availability of time and resources.
4. Benefits to wider European Solar community.

3.7 Appointment procedure and duration

Based on the evaluation and recommendation of the ESA Solar System Working Group the ESA executive will appoint two European members of the *Hinode* Science Working Group for a fixed, renewable period of 2 years.

3.8 Schedule and deadlines

Announcement of Opportunity issue: **19 January 2007**

Proposal due date: **2 March 2007**

Appointment: Following evaluation within SSWG at the meeting **on April 4, 2007**