



December 7, 2016

To: CIT/ E. Stone, Voyager and ACE PI
NASA GSFC/671 B. Dennis, RHESSI Mission Scientist
NASA GSFC/674 D. Janches, GSFC TIMED and AIM Mission Scientist
NASA GSFC/671 J. Gurman, STEREO Project Scientist
NASA GSFC/673 G Le, Geotail Mission Scientist
NASA GSFC/672 T. Moore, MMS Mission Scientist
NASA GSFC/674 D. Sibeck, THEMIS and Van Allen Mission Scientist
NASA GSFC/672 L. Wilson, Wind Project Scientist
NASA GSFC/661 T. Moore, MMS Mission Scientist
NASA GSFC/673 M-C Fok TWINS Mission Scientist
NASA GSFC/672 E. Christian, ACE and IBEX Mission Scientist
NASA GSFC/671 A. Daw, IRIS Mission Scientist
NASA GSFC/671 D. Pesnell, SDO Project Scientist
NASA MSFC/ZP13 S.Savage, Hinode Mission Scientist
NASA MSFC/ZP20 S. Elrod, Hinode Mission Manager
Hampton Univ./ J. Russell, AIM PI
UC Berkeley/ S. Krucker, RHESS PI
Lockheed-Martin ATC/ A. Title, IRIS PI
JHU/APL/ J-H Yee, APL TIMED Scientist
JHU/APL/ S. Ukhorskiy, APL Van Allen Probes Scientist
UCLA/ V. Angelopoulos, THEMIS PI
Princeton Univ./ D. McComas, IBEX and TWINS PI
SwRI/ J. Burch, MMS PI
JPL/720 S. Dodd, Voyager Mission Manager
NASA GSFC/444 R. Burns
NASA GSFC/671 A. Roberts
NASA GSFC/670 M. Hesse
NASA GSFC/670 P. Smith

From: NASA HQ/ S. Clarke /Director, Heliophysics Division
NASA HQ/ J. Hayes /Program Executive Mission Operations

Subject: Call for Proposals — Senior Review 2017 of the Mission Operations and Data Analysis Program for the Heliophysics operating missions.

NASA's Science Mission Directorate (SMD) periodically conducts reviews of Mission Operations and Data Analysis (MO&DA) programs to maximize the scientific return from these programs within finite resources. The acronym

MO&DA encompasses operating missions, data analysis from current and past missions, and supporting science data processing and archive centers. NASA uses the findings from these *comparative* reviews to define an implementation strategy and give programmatic direction and budgetary guidelines to the missions and projects concerned for the next 5 fiscal years (matching the Federal government's budget planning cycle). Additionally, from the **NASA Authorization Act of 2005 (Public Law 109-155), Section 304(a)**:

"The Administrator shall carry out biennial reviews within each of the Science divisions to assess the cost and benefits of extending the date of the termination of data collection for those missions that have exceeded their planned mission lifetime".

The NASA Heliophysics Division (HPD) will host the next MO&DA Senior Review, a *comparative* review of missions within the MO&DA portfolio, during the week of April 10, 2017. This will be the third decade for reviews of this type for SMD, and the 10th for the HPD missions.

This Call outlines the objective and process for the review, and contains instructions for the preparation and submission of proposals and in-person presentations to the review panel.

The objectives of the 2017 HPD Senior Review for MO&DA is to assess the science merits and performance of these 16 missions (in alphabetical order): ACE, AIM, Geotail, Hinode, IBEX, IRIS, MMS, RHESSI, SDO, STEREO, THEMIS, TIMED, TWINS, Van Allen Probes, Voyager, and Wind. Performance factors to be evaluated will include mission scientific productivity, technical status, budget efficiency, data quality and accessibility, and contribution to the "Heliophysics System Observatory (HSO)."

The period for this Senior Review will cover FY18 to FY22. Each mission that is invited to this Senior Review will submit a proposal outlining how its science investigations will benefit the Heliophysics research objectives. These objectives and focus areas are described in the Science Plan for NASA's Science Mission Directorate 2014 (the *SMD Science Plan*).

Proposals should outline descriptions of the project's proposed science investigations, in a prioritized manner, the project's most recent accomplishments, the technical status relating to the ability of the project to conduct the proposed science investigations, Mission Archive Plans, and a high-level budget for the proposed investigations.

Projects are to submit plans that have a set of Prioritized Science Goals (PSGs) for the next 5 years: this will allow NASA flexibility in planning within a dynamic budgetary environment (e.g., reaction to a budget reduction; planning for a flat budget without inflation, or if there should be an increase). These PSGs will also allow subsequent senior reviews to assess and measure the success of each mission in achieving its

stated goals. In addition, projects are expected to show progress against the PSGs that they proposed in the 2015 Heliophysics Senior Review.

The Senior Review panel, to be formed by NASA HQ, will evaluate these proposals at a special meeting in Washington, D.C., during the week of April 10, 2017.

The evaluation results will be contained in a report submitted to NASA HQ. NASA will use the panel's assessments as input to rebalance mission allocations within the MO&DA portfolio. Actions could include authorizing the mission to pass from its prime phase to extended phase; maintaining the status quo, significantly restructuring the project; or deciding to terminate an ongoing science mission. The actions will have the most immediate impact on the budget allocations for the portfolio in the near-term (FY18, FY19, and FY20) and will act as guidelines for the level of support in the out-years; FY21 and FY22).

Mission Extension Paradigm:

Under this call, the budgets for mission extensions beyond the prime mission lifetime (in NPR 7120.5 parlance, Prime Phase E) will support, at a lower level, the activities required to maintain operations while continuing to produce meaningful and significant science data, which is adequately described and accessible to the non-specialist researcher. When a mission has completed its Prime Phase E, NASA will accept higher operational risk, lower data collection efficiency, and instrument/mission degradation due to aging. It is anticipated that, along with this greater risk, the cost of implementation will be at the level lower than that of Prime Phase E.

As a corollary to the above direction, priority will be given to maintaining an understanding of the instrument performance, monitoring progress toward accomplishing the objectives of science observations, and to involving the science community in formulating the mission observing program to make the best scientific use of NASA's missions.

Funding Environment:

Missions proposing to the Senior Review will be requesting a funding allocation *via* the Planning, Programming, Budgeting and Execution (PPBE) process for the period under review. Given the dynamic and constrained budget solution space that the Agency is working within, missions are urged to be cognizant of the fact that all discussions are zero-sum in nature with respect to the overall Heliophysics Division's budget.

Budget guidance, as developed by the Heliophysics Division via the PPBE in the summer of 2016 serves as the basis of the budget guideline for the proposals. These budget numbers are available to each project through the N2 system and are to be used as the basis for the In-guideline submission. Any questions on the budgets may be referred to the HQ Program Executive for MO&DA. Missions may submit a budget which is over-guideline, provided justification for such an over-guide is included in the submitted proposal.

The Schedule for the 2017 Senior Review:

The following is the schedule for the 2017 Senior Review for the Heliophysics operating missions:

Call for Proposals issued: December 5, 2016
SR Proposals due: February 24, 2017
Senior Review panel meets: week of April 10, 2017
Publication of the panel's report: late-May, 2017

Instructions to Proposers:

The SMD Science Plan incorporates the HSO as an integral element of the strategic implementation in the Heliophysics science discipline. This has been given renewed emphasis by the 2013 National Academy of Science's Heliophysics decadal report, "Solar and Space Physics: A Science for a Technological Society," and is incorporated into the 2014 Heliophysics Roadmap.

Proposals shall discuss a mission's potential for advancing the state of the art of the science during the FY18 to FY22 timeframe, and will be assessed in each of these areas:

1. Development of Prioritized Science Goals (PSGs) and progress made in the PSGs identified in the last Senior Review (if applicable). Relevance of the PSGs to Heliophysics research objectives, both as individual missions with unique capabilities, and contributions to system science as a part of the ensemble that constitutes the HSO;
2. Spacecraft and instrument health and safety;
3. Productivity and vitality of the science team with respect to data analysis activities (where applicable), published research papers, and the training younger scientists at various levels. In addition, the teams shall demonstrate how they are maintaining the continuity of the expertise in the calibration, validation, and archiving of individual instrument data sets and appropriate metadata;
4. Promise of future impact and productivity (due to uniqueness of measurement, orbit, and location, solar cycle phase, etc.);
5. Impact of scientific results as evidenced by citations, press releases, etc.; and
6. Broad accessibility and usability of the data, with a self-assessment of the utility of the data produced both as a unique mission, and contribution to

system science as part of the HSO.

The proposal shall contain the following sections:

- Science and Science Implementation
- Technical Implementation
- Budget
- Appendix - Mission Archive Plan
- Acronym List
- Budget Spreadsheet

The scientific and the technical/budget sections combined should not exceed more than 30 pages of writing and graphics. *Not included* in the page limit are the appendix, the acronym list, or the standard budget spreadsheet. *Included* in the page limit are bibliographies, references, and letters of endorsement: include only the most important references, as appropriate. Letters of endorsement are *not* needed for the Senior Review.

All pages are to be formatted on 8.5- x 11-inch paper, one-inch margins on all sides, single-spaced, with character (font) size not less than 11 points. The proposal shall be submitted in PDF format.

Should the home institution require signatures, please prepend these as a cover letter to the proposal. Copies of this submittal letter will not be used in the review but will be retained within the Heliophysics Division. Sufficient proposal identifiers include the project name and names of key writers or presenters placed at the top of the first page.

Instructions for the Science and Science Implementation Section:

The science and science implementation section of the proposal should describe the science merits of the proposed continued program and the specific contributions of the instruments to the mission and to the system science of heliophysics. The emphasis of this section should focus on how the proposed science objectives will contribute to the state of knowledge of the discipline, and their relevance to the research objectives and focus areas as stated in the SMD Science Plan. The science proposal should have a set of PSGs for the mission in the next 5 years, as well as a summary of progress made in the PSGs identified in the last Senior Review (if applicable). For missions currently in extended phase, it is not necessary to cite the mission's original science objectives. Each team is expected to conduct extended phase scientific investigations of the highest scientific merit with a clear implementation plan. These investigations should be distinct from the task of archiving data. The scientific merit of the program is a major criterion.

Missions should describe how they will achieve their PSGs. This can be solely within the funded Mission Team, or include other components of the HSO, or can be

broadened out to include the science that will be achieved through the larger community. For the latter this can be both through funded NASA research programs (Guest Investigator, Supporting Research, LWS Targeted Research & Technology, Grand Challenge Research (Theory), etc.) and it can be through domestic and international efforts. Previous work that was performed sets the foundation and establishes the feasibility for the future work.

The Senior Review panel will be asked to assess the scientific merit and implementation of each mission's proposal. Given the emphasis on the systemic nature of the discipline, a discussion of the impact of the mission's unique science, as well as its contribution to the overall system science performed by the HSO, is necessary for the panel to understand the evolving nature of the HSO.

Instructions for the Technical and Budget Sections:

These sections should address the overall technical status of the components of the mission. The Technical Section should contain the status of the various components, including the spacecraft bus, instruments, and ground system, as well as the spacecraft control center and any science center(s). The discussion should summarize the health of the components and point out limitations to future science investigations as a result of degradation, aging, use of consumables, obsolescence, etc.

The Budget Section should discuss the proposed budgets. Labor, major equipment, and other expenses for the in-guideline budget must be explained in sufficient detail to determine the incremental cost of each proposed task. The budget must include any project-specific costs including government-furnished mission services performed by the Space Science Mission Operations Office at Goddard Space Flight Center (GSFC), Marshall Space Flight Center (MSFC), the Jet Propulsion Laboratory (JPL), or by NASA's communication networks such as the Deep Space Network (DSN), the Ground Network (GN), the Space Network (SN) or the NASA Integrated Network Services (NINS) as administered by the SCAN organization. *Missions in extended phase are asked to separate the costs of obtaining, validating, calibrating, and archiving data from the costs of completing scientific investigations (i.e. data analysis) with the data obtained.*

A summary discussion of any anticipated 'in kind' support from NASA-funded sources other than the project's MO&DA budget is required. These 'in kind' sources include tracking support from the NASA tracking networks and support from the multi-mission infrastructure projects at GSFC, MSFC, JPL, and elsewhere. Representations of direct or 'in-kind' funding from non-NASA sources—such as international partners, other U.S. Government agencies, etc.—should not be provided because their contributions are not part of this particular review.

The attached standard spreadsheet contains instructions and the mandatory form for the budget portion of each proposal. This form will serve as a common

format for all proposals. For the period under consideration in this Senior Review, the budget should be itemized, as required in the spreadsheet, and described in sufficient detail for the panel in the technical and budget section. Each mission *must* submit the required budget spreadsheet for, at a minimum, an in-guideline submission. In addition, if there is any non in-guideline submission, there must be a separate budget spreadsheet detailing that request.

If the current budget guideline for the project (as part of the current NASA operating plan) for any of the fiscal years is greater than zero, each project will provide a plan that meets that guideline.

If the project believes that the current budget guideline is insufficient, the project should identify the impact of the current budget on the mission, with emphasis on the science content. If the current budget guideline for the project for any of the years is zero, and it is proposed to carry on the investigations during that year, then the project should propose a minimum scenario to keep the mission viable. *By identifying such a minimum acceptable funding level, the project is indicating that any lower funding level is untenable, and that the project should be terminated rather than be funded at a sub-minimal level.*

The budget spreadsheet had been completely revised. In this Senior Review, projects are required to submit 5 year planning budgets using the NASA Planning, Programming, Budget, and Execution (PPBE) format with an additional line noting the in-kind contributions that have been the norm over the last number of senior review cycles (i.e. DSN or NEN costs, foreign contributions, etc.).

The Mission Archive Plan (MAP) Appendix:

The Heliophysics Science Data Management Policy (see <http://hpde.gsfc.nasa.gov>) incorporates the concept of the Mission Archive Plan (MAP) and establishes the link between the creation and updates of MAPs and the Senior Review process. It also provides an outline of the information sought in a MAP. The Data Policy also identifies the Heliophysics (active) Final Archives and the Space Physics Data Facility (SPDF) and the Solar Data Analysis Center (SDAC).

As the Heliophysics Data Environment matures, more of the Heliophysics long-term active archiving tasks have been completed. There is an increasingly complete set of data products and a data product registry that has as its public face the Heliophysics Data Portal (HDP; <http://heliophysicsdata.gsfc.nasa.gov>). All of a mission's products should be discoverable by using the "Observatory" selection in the left column, and the products and routes to them and their documentation should appear on the right. ("View Current List" will produce a single page listing.) The product registry is made possible by having uniform product descriptions using the SPASE (Space Physics Archive Search and Extract) data model (see <http://www.spase-group.org>). Anyone needing help with producing descriptions of his or her mission data should alert the SPASE Metadata Working Team (SMWT) via http://hpde.gsfc.nasa.gov/spase_metadta.html. Data description work is not intended to be an "unfunded mandate."

Given the above, this year the core of a mission MAP can consist of (for example)

“The XX Mission Archive Plan is to provide both the highest level of untransformed data and fully processed data, along with any higher level products, to the NASA HP YY Final Archive in ZZ format along with documentation on the mission, instruments, calibrations, and data products that is adequate to make the data scientifically useful. Processing and analysis software is also provided via ... [e.g., Information URLs]. All products required by the Project Data Management Plan (PDMP) have been produced and provided in this manner, as is documented in the HDP.” The HDP then provides listings of products, routes to access the data, and links to Information URLs that point to the required documentation. Available variables are often identified upon clicking a “get data” button. Deviations from the above scenario should be noted and explained. The assessment of the MAP would then consist of a check of the completeness, quality, and utility of products as well as the utility and completeness of the documentation.

In instances where the mission products have not been sent to a NASA HP Archive, the mission should indicate its plan for doing this or for making suitable other arrangements in coordination with the Archives. The Plan should provide information on products and documentation, as above, detail progress toward achieving its goals, and provide a timetable of when the goals will be accomplished. If the data are to be held in and served by other than a standard Final Archive, the long-term plan should indicate why this is true, the cost, how it will be defrayed, and how the guidelines for reliable archives specified in the Data Policy will be achieved.

Required Appendices and Attachments:

Appendix A: The Mission Archive Plan, not to exceed 10 pages (does not count against the page limit).

A full list of all acronyms with their designations spelled out. The acronym list does not count against the page limit.

At least one budget spreadsheet.

The budget spreadsheet(s) will be appended with the proposal as a PDF, and sent *via* email as a separate Excel spreadsheet(s) to the Program Executive for MO&DA. The attachment to this memo describes the mandatory format for the budget submission and supplies the spreadsheet template.

Proposal Submission:

The proposals will be uploaded electronically in PDF format to the NASA NSPIRES website and must be received by 6:00 PM EST on the due date, February 24, 2017. Following from the previous Senior Reviews:

- the submissions will be made through the NASA NSPIRES website;
- the standard budget template must be appended to the proposals;
- the entire submission must be made as a single file in PDF format. In addition, the standard budget template shall be emailed directly to the Program Executive for Mission Operations as a separate cover.

Instructions to the Senior Review panel:

NASA HQ will instruct the Senior Review panel to assess for each mission:

(1) In the context of the research objectives and focus areas described in the 2014 SMD Science Plan, rank the scientific merits on the expected returns from the projects reviewed during the period FY18 through FY22. The scientific merits include relevance to the research objectives and focus areas, scientific impact, and promise of future scientific impact, as well as contributing to the system science of heliophysics. It is understood that predicting the science productivity of a mission over such a long period is speculative, but missions are asked to assume the *status quo* operationally; hence, the need for *Prioritized Science Goals* (PSGs) in the proposal. The panel is requested to assess the progress that each mission has made in achieving their PSGs from the last Senior Review. The panel will provide separate assessments on both the individual project's scientific merit and as a contributor to the Heliophysics System Observatory.

(2) Assess the cost efficiency, data availability and usability, and the vitality of the mission's science team as secondary evaluation criteria.

(3) From the assessments above, provide findings on an implementation strategy for the MO&DA portfolio for FY18 through FY22, based on the Extension Paradigm (described above), which could be one of the following:

- i. Continuation of projects as currently baselined;
- ii. Continuation of projects with either enhancements or reductions to the current baseline;
- iii. Project termination.

(4) Provide an overall assessment of the strength and ability of the MO&DA portfolio to meet the expectations of the HSO from FY18 through FY22, as represented in the 2014 SMD Science Plan and in the context of the 2013 Heliophysics Decadal Survey.

The panel will *not* be asked to evaluate or assess the current utility of real-time data for operational or commercial users. However, the relevance of ongoing or new science investigations that may transition from research to operation in the future, is within the purview of the Senior Review.

Review Criteria:

In providing findings for the Heliophysics Division for each of the missions under review, the panel will be asked to assess all the proposals against the following criteria:

Criterion A: Scientific Merit (40% weighting)

- **Factor A-1:** Overall scientific strength and impact of the mission.

- **Factor A-2:** Expected scientific output and “return on investment” over the requested funding period.
- **Factor A-3:** Incremental and synergistic benefit to the Heliophysics Division mission portfolio..
- **Factor A-4:** Quality of data collection, archiving, distribution, and usability.

Criterion B: Relevance and Responsiveness (30% weighting)

- **Factor B-1:** Relevance to the research objectives and focus areas described in the SMD Science Plan. Relevance to the scientific goals of the Heliophysics Division as defined in the Division’s Strategic Objectives and the 2013 Heliophysics Decadal Survey.
- **Factor B-2:** Progress made toward achieving PSGs in the 2015 Senior Review proposal (for missions included in the 2015 SR).
- **Factor B-3:** Performance of addressing any findings in the 2015 Senior Review.

Criterion C: Technical Capability and Cost Reasonableness (30% weighting)

- **Factor C-1:** Cost efficiency of the mission’s operating model in terms of meeting the proposed scientific goals.
- **Factor C-2:** Health of the spacecraft and instruments, and suitability of the mission’s operating model and science team to maximizing its scientific return.
- **Factor C-3:** Current operating costs.

The following scale will be used to map the number and significance of the strengths and weaknesses to an adjectival description for **each** of the three criteria above:

Adjectival description	Basis
Excellent	A thorough and compelling proposal of exceptional merit that fully responds to the objectives of this Call as documented by numerous or significant strengths and with no major weaknesses.
Very Good	A competent proposal of high merit that fully responds to the objectives of this Call, whose strengths fully out-balance any weaknesses and none of those weaknesses constitute fatal flaws.
Good	A competent proposal that represents a credible response to this Call, whose strengths and weaknesses essentially balance each other.
Fair	A proposal that provides a nominal response to this Call, but whose weaknesses outweigh any strengths.
Poor	A seriously flawed proposal having one or more major weaknesses that constitute fatal flaws.

The findings must take into account the following factors:

- The Panel's assessments of the missions under consideration.
- The overall strength and ability of the resulting mission portfolio, including both the missions under consideration, as well as new missions expected to be launched, to fulfill the Heliophysics Division priorities from FY18 through FY22, as represented in the 2014 SMD Science Plan and in the context of the 2013 Heliophysics Decadal Survey.
- The projected science returns of the missions under review with the potential advances to be gained from an alternative strategy of increased funding for other Division priorities.
- The scientific tradeoffs and opportunity costs involved in extending existing projects versus reducing or terminating them and using that funding for future flight opportunities, most especially in light of new Heliophysics missions expected to be launched.

Further Information Required for the Senior Review Deliberations:

After submission of proposals, members of the Senior Review panel may have further questions or requests for clarification. If that is the case, identical requests for further information will be sent to all missions/projects prior to the in-person panel review.

As part of a proposal submission, a project should consider providing an online bibliography of recent publications. The proposal should contain the URL to this bibliography. It is recommended that the bibliography should be listed in sequence with the most recent refereed publications first. The bibliography should contain, as a minimum, the most recent papers over the past 2 or 3 years. It is appropriate to list papers presented at American Geophysical Union (AGU), American Astronomical Society (AAS) meetings, other conferences, PhD theses, etc., but these should be listed separately from the listing of the refereed publications.

The Meeting of the Senior Review Panel:

The Senior Review panel will meet for 4 days and follow this agenda:

Day 1: Morning: Instructions, MO&DA program background, logistics (writing assignments, etc.), comparisons, and a discussion of conflicts of interest and the procedures to minimize their impacts. Rest of the day: Project presentations, plus questions and answers (project assignments TBD);

Day 2: Complete/continue project presentations;

Day 3: Complete the project presentations, and begin writing assessments;

Day 4: The Senior Review panel completes draft assessments and presents its initial findings to NASA HQ.

Presentations to the Senior Review Panel:

Each proposing project will be allotted ~20 minutes: 15 minutes for the oral presentation and 5 minutes for panel Questions and Answer. To minimize the burden on projects, no more than three people may represent any one of the projects.

During each project presentation, the project representatives should plan on using one-half of the allocated time for their prepared presentation, and reserving one-half for questions and answers.

- The primary purpose of the oral presentations is to provide a forum for questions from panelists and answers from the projects.
- Secondly, this is an opportunity for projects to provide any significant updates; e.g., science results obtained since proposal submission.
- Lastly, and with the lowest priority, it is an opportunity to repeat the highlights of the proposals, which have been read by all panelists.

After the Meeting of the Senior Review panel:

At the end of the meeting of the Senior Review panel, a first draft of the each mission's assessment will be developed. The key findings and conclusions of the panel should be in draft form and reviewed prior to the panel's dispersal. The panel will out-brief their findings to the Heliophysics Director and staff. The panel will then take about 4 weeks to finalize and submit their final assessments. When the panel has completed and delivered their final assessments, the panel chair, along with the Program Executive for MO&DA, will brief the Heliophysics management, as well as the Heliophysics Science subcommittee on the overall findings of the review.

It is anticipated that by mid-June 2017, NASA HQ will contact each of the proposing missions/projects and provide direction resulting from the Senior Review. This direction may include new budget guidelines and other specific instructions resulting from the Senior Review process, possibly including notices of intent to terminate. At this time, NASA HQ will post the outcomes of the Senior Review to a public NASA HQ website. Each of the projects will then submit to NASA HQ their plan for complying with the new guidance and instructions. The NASA HQ will ensure that key officials in participating international space agencies or other U.S. government agencies that are partners in a proposing mission are contacted and apprised of NASA's decisions resulting from the Senior Review.

The next Senior Review will be held nominally 2 years hence, allowing NASA the ability to rebalance the portfolio as needed.

Further Information:

For further information, please contact:

Jeffrey J.E. Hayes
Heliophysics Division Science
Mission Directorate NASA
Headquarters Washington DC
20546-0001
Email: jeffrey.hayes-1@nasa.gov
Telephone: (202) 358-0353

One attachment:

MS Excel spreadsheet: SR2017_Helio_Budget_Spreadsheet_FINAL.xlsx

Useful Links:

Policy Documents and other inputs:

NASA Strategic Plan (2014):

https://www.nasa.gov/sites/default/files/files/FY2014_NASA_SP_508c.pdf

SMD Science Plans (2014):

http://science.nasa.gov/media/medialibrary/2014/05/02/2014_Science_Plan-0501_tagged.pdf

NAS Heliophysics Decadal Survey:

<https://www.nap.edu/catalog/13060/solar-and-space-physics-a-science-for-a-technological-society>

Data Archiving material:

Heliophysics Data Policy:

http://science.nasa.gov/media/medialibrary/2011/02/10/Heliophysics_Data_Policy_2009Apr12.pdf

SPASE Standard:

http://hpde.gsfc.nasa.gov/spase_metadata.html

Heliophysics Data Portal:

<http://heliophysicsdata.gsfc.nasa.gov>

