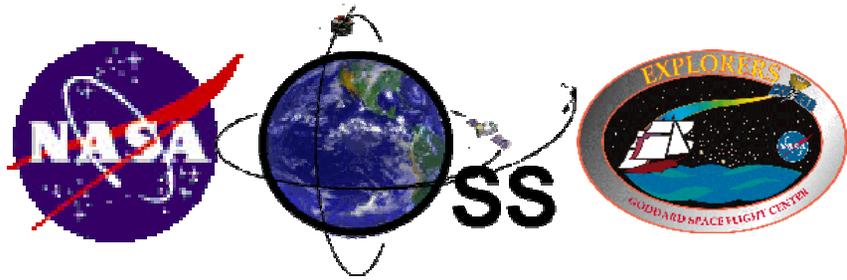


MIDEX 2001 PrePropConf Evaluation and Selection Process

Evaluation and Selection Process

Paul Hertz, Explorer Program Scientist

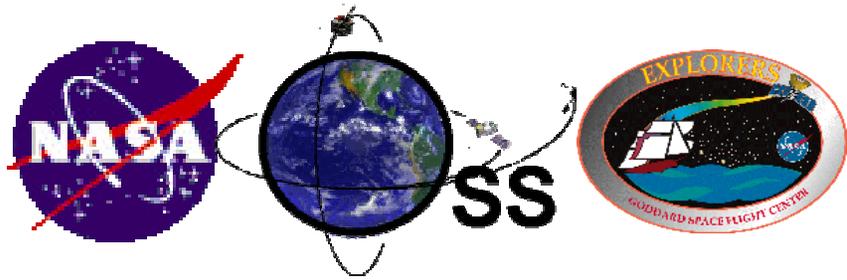
- Modifications to AO
- AO Highlights
- Evaluation, Categorization, Selection Process
- Guidelines for Proposals
- Evaluation Criteria



MIDEX 2001 PrePropConf Evaluation and Selection Process

Modifications to MIDEX AO

- Mission of Opportunity (MO) allowed to propose to International Space Station (ISS) full truss site (§5.4)
 - Propose for full truss site only investigations that can not be accommodated elsewhere.
 - Only a single full truss site is available to this AO; at most either a MIDEX or a MO investigation may be selected.



MIDEX 2001 PrePropConf Evaluation and Selection Process

Modifications to MIDEX AO

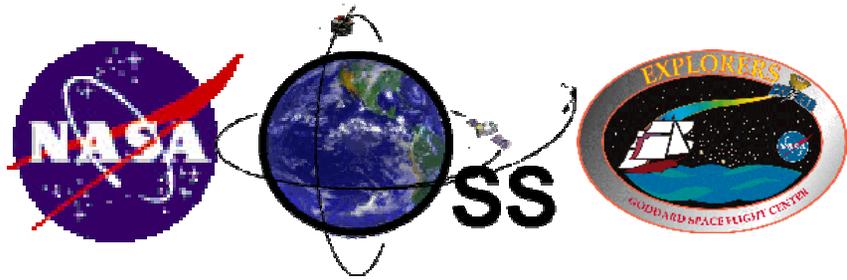
- Clarified requirements for ISS proposals
 - ISS flight opportunities are offered based on the ISS schedule. ISS schedule is uncertain. If ISS is delayed, NASA may decide not to select ISS payloads with this AO. (§3.3.6)
 - Appropriate and efficient use of ISS resources is an evaluation criterion. (§7.2.3)
- Clarified evaluation criteria for scientific merit
 - Scientific value of minimum science mission will be assessed. (§7.2.1)



MIDEX 2001 PrePropConf Evaluation and Selection Process

AO Highlights

- Science Investigations must support scientific objectives of
 - Astronomical Search for Origins (includes Astrobiology)
 - Structure and Evolution of the Universe (includes tests of fundamental laws of physics)
 - Sun-Earth Connection (except Solar-B, STEREO, MMS)
- MIDEX Investigations may be
 - free flyers from ELV or Shuttle
 - ISS attached payload
- MO Investigations may be
 - OSS participation in non-OSS mission
 - ISS investigations including Astrobiology flight experiments
 - Long duration balloon (LDB) investigation
 - Data buys

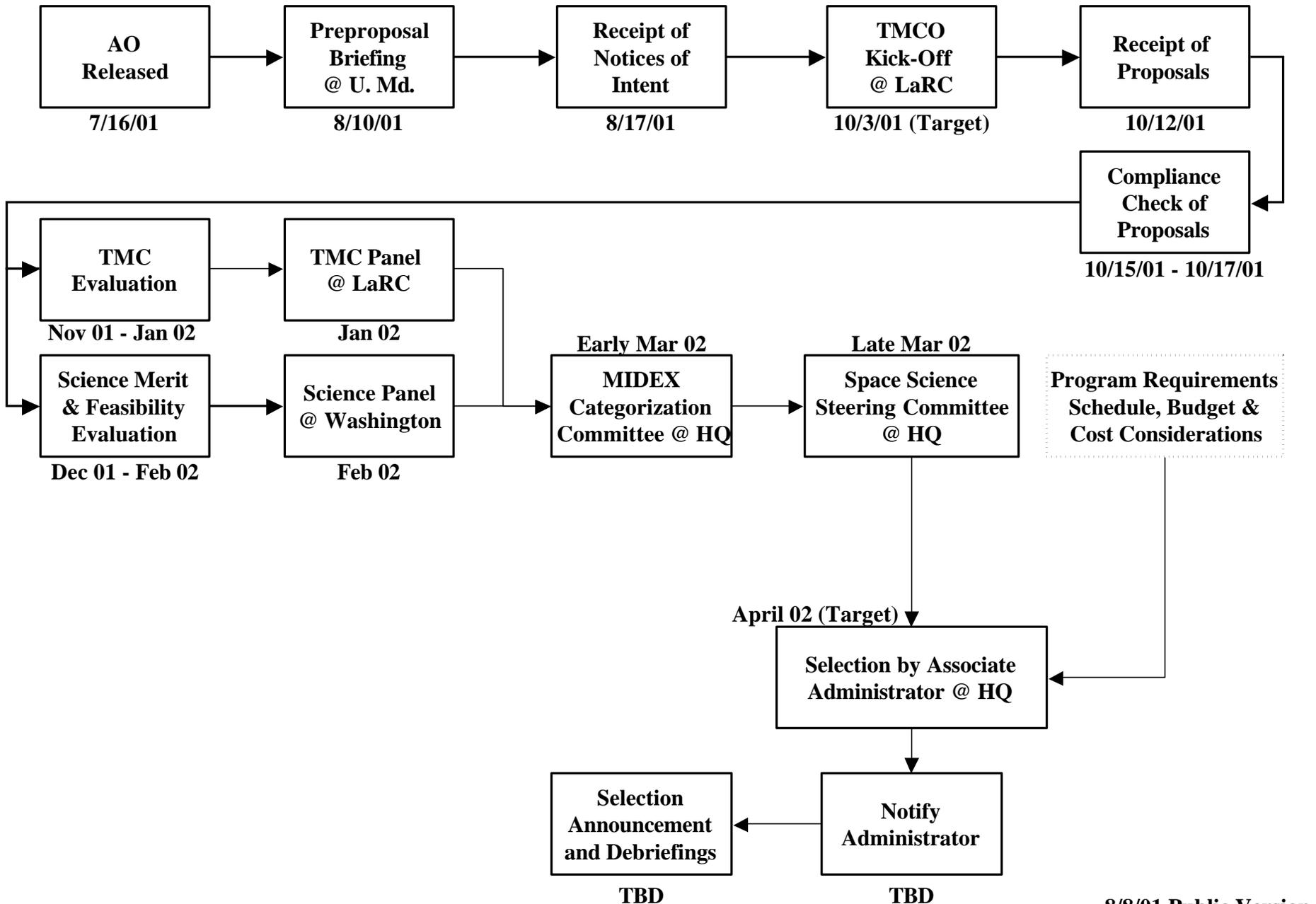


MIDEX 2001 PrePropConf Evaluation and Selection Process

AO Highlights

- Two-Phase, One-Step Procurement
 - Phase I:
 - Solicit science proposals with sufficient implementation information to evaluate risk.
 - Select ~4 proposals for Concept Studies
 - A MO could be selected for implementation .
 - Phase A Funding: \$450K for MIDEX, \$250K for MO.
 - Phase II:
 - Evaluate Concept Study Reports.
 - Downselect to ~2 investigations for implementation.

MIDEX 2001 AO Evaluation Flow

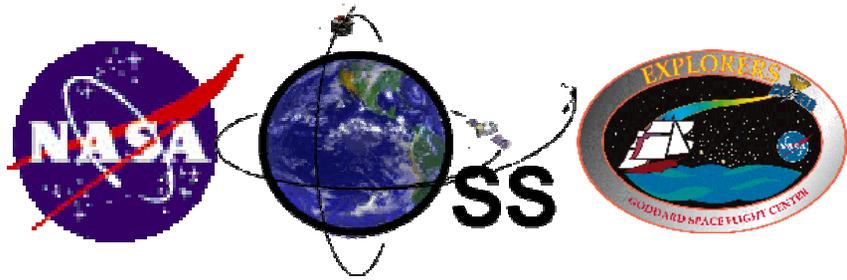




MIDEX 2001 PrePropConf Evaluation and Selection Process

AO Highlights : Launch

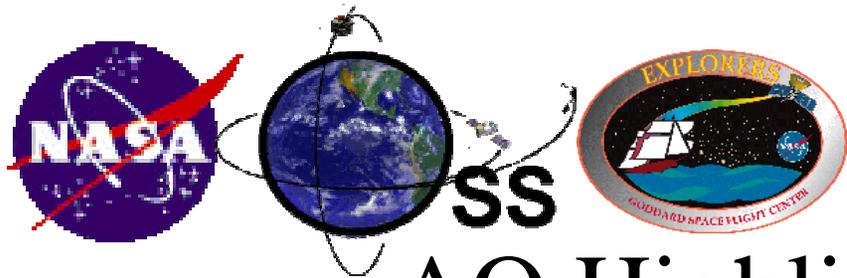
- Launch must be no later than March 2008
 - includes MIDEX, LDB
 - ISS attached payloads are exempt
 - traditional MO requires NASA commitment NLT 31 December 2003
- Shuttle launches are free for MIDEX investigations
 - Must meet Shuttle use policy
 - Must identify potential flight assignment
 - Must include mission unique costs in budget
 - Must mitigate risk of launch delay
 - No MO Shuttle launches except ISS
- ISS payloads have automatic Shuttle flight assignment
 - Must mitigate risk of launch delay



MIDEX 2001 PrePropConf Evaluation and Selection Process

AO Highlights : Phase F

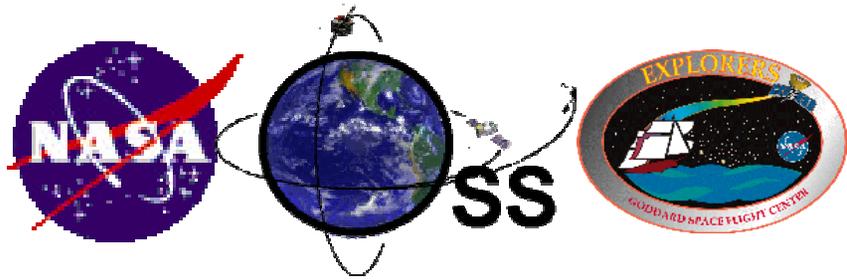
- Options for Enlarging Science Impact (Phase F)
 - E.g. extended missions, guest investigators, archival data analysis programs, etc.
 - Baseline mission must accomplish proposed science goals
 - Options beyond baseline may be included
 - Cost of options are outside of cap
 - Proposal must define and describe options
 - Options not part of scientific merit
 - Options may not be funded even if mission selected



MIDEX 2001 PrePropConf Evaluation and Selection Process

AO Highlights : Cost

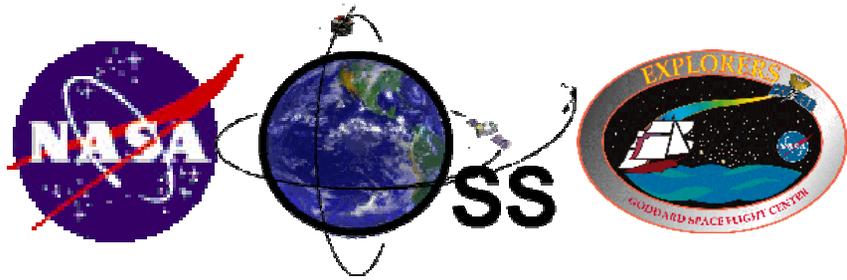
- MIDEX hard cost cap is \$180M FY02
 - MO soft cost cap is \$35M FY02
 - 20% minimum cost reserve at Confirmation
- Contributions for MIDEX remain at 1/3 of OSS cost
- May propose space operations provider other than SOMO
 - Must conduct trade study NLT Phase B
 - SOMO costs must be included in budget
- Government Furnished Equipment (GFE)
 - Expendable launch vehicle services
 - Balloon services
 - Project services and Payload Support and Interface Module (PSIM) for ISS attached payload
 - Not other GSFC or other center services



MIDEX 2001 PrePropConf Evaluation and Selection Process

AO Highlights : Management

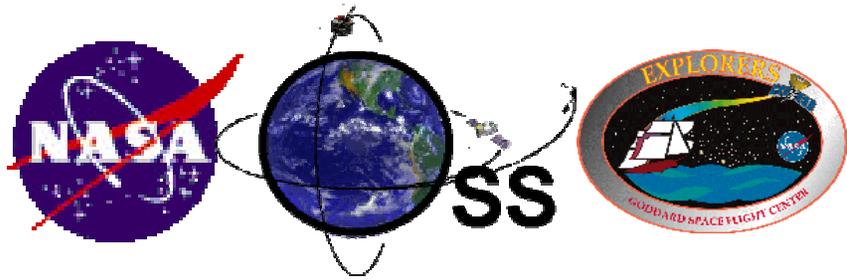
- Define risk management approach
- Co-investigator must define role and identify funding
 - Plays necessary role
- Minimum mission must be defined
 - Consider all possible descope options



MIDEX 2001 PrePropConf Evaluation and Selection Process

AO Highlights : Foreign Participation

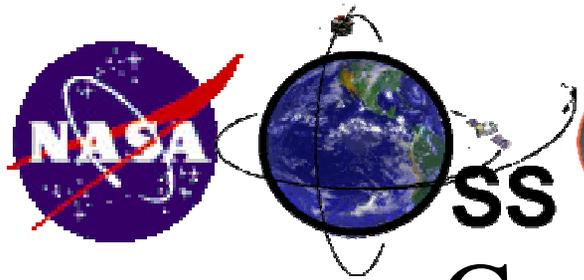
- Foreign participation adds management complexity and risk
 - Cooperative arrangements should offer significant benefits
 - No-exchange-of-funds basis
- Letters of endorsement are required
 - Funding agency endorsement required if applicable
- Must describe how export laws will be complied with
 - During Phase A and Phases B/C/D/E
 - See separate export control presentation
- If LOA is anticipated, letter of endorsement must contain either (1) statement that sponsoring entity can bind government or (2) advance agreement that LOA's will be governed by U.S. law



MIDEX 2001 PrePropConf Evaluation and Selection Process

What's New in this AO?

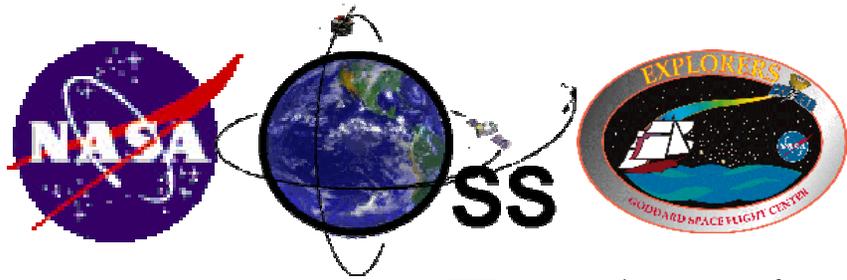
- Cost caps (\$180M MIDEX and \$35M MO)
- Launch dates (NLT March 2008 MIDEX)
- ISS and LDB opportunities
- “Phase F” opportunities
- E/PO etc. plans deferred until Phase A
- Additional risk management requirements
- Additional foreign letter requirement
- Minimum cost reserves at Confirmation
- Co-investigator defined with requirements
- Additional attention and requirements for foreign participation
- No proposal copies to Code I
- No Explorer Technology program for Category III



MIDEX 2001 PrePropConf Evaluation and Selection Process

Compliance Check

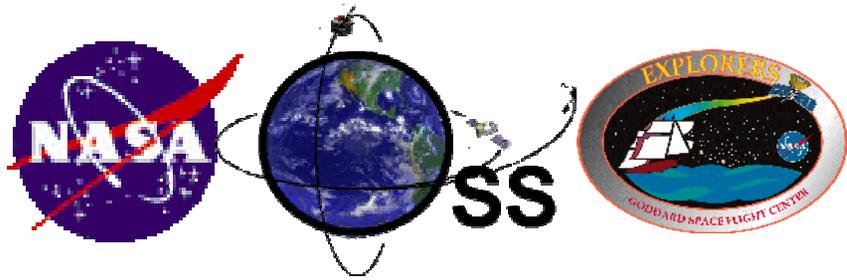
- Proposals received and screened for compliance with AO
 - Proposal received on time (signed original, 55 copies)
 - Complete and within page limit (one volume containing investigation summary, cover page, fact sheet, readily identified sections, satisfies Appendix B)
 - Cost within cap (cost to NASA, total mission cost)
 - Launch date before March 2008 (MIDEX)
 - NASA commitment required before 31 December 2003 (MO)
 - E/PO etc. commitment
 - Letters of Endorsement (organizations offering goods/services, major participants, launch service provider if not NASA, funding agencies; non-U.S. letters have later deadline).
 - Science goals and objectives within solicited themes



MIDEX 2001 PrePropConf Evaluation and Selection Process

Evaluation Process

- Scientific/Technical Peer Panels
 - Assigned to Discipline Scientist based upon science theme designation, primary science proposed, primary science instrumentation and technology proposed
 - Panels formed with expertise in scientific topic areas and science instrumentation
 - Conflict of interest avoided
- Proposals reviewed in depth for scientific merit and technical merit/feasibility
 - Major/minor strengths and weaknesses identified and recorded
 - Evaluation criteria assigned an adjectival rating (Excellent, Very Good, Good, Fair, Poor) based on findings



MIDEX 2001 PrePropConf Evaluation and Selection Process

Evaluation Process (continued)

- Technical, Management, Cost Panels
 - Managed by Earth and Space Science Support Office at Langley Research Center
 - See next presentation

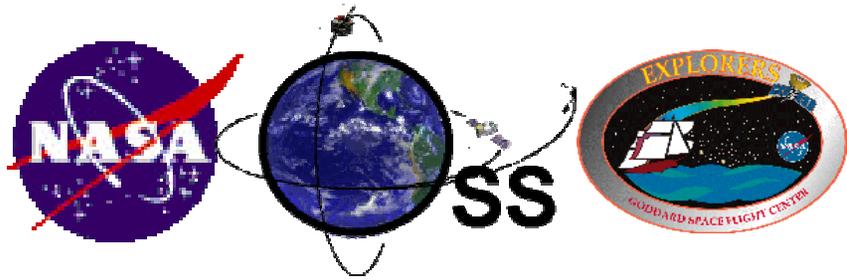


MIDEX 2001 PrePropConf Evaluation and Selection Process

Categorization (§7.1)

- Category I. Well conceived and scientifically and technically sound investigation pertinent to the goals of the program and the AO's objectives and offered by a competent investigator from an institution capable of supplying the necessary support to ensure that any essential flight hardware or other support can be delivered on time and that data can be properly reduced, analyzed, interpreted, and published in a reasonable time. Investigations in Category I are recommended for acceptance and normally will be displaced only by other Category I investigations.
- Category II. Well conceived and scientifically or technically sound investigations which are recommended for acceptance, but at a lower priority than Category I.
- Category III. Scientifically or technically sound investigations which require further development. Category III investigations may be funded for development and may be reconsidered at a later time for the same or other opportunities.
- Category IV. Proposed investigations which are recommended for rejection for the particular opportunity under consideration, whatever the reason.

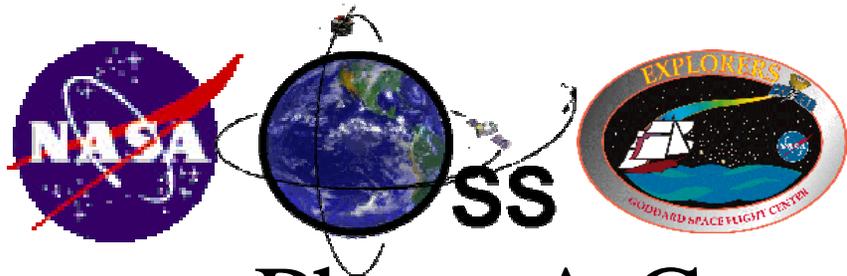
In response to this AO, NASA intends to select and fund only Category I investigations for flight.



MIDEX 2001 PrePropConf Evaluation and Selection Process

Selection (§7.3)

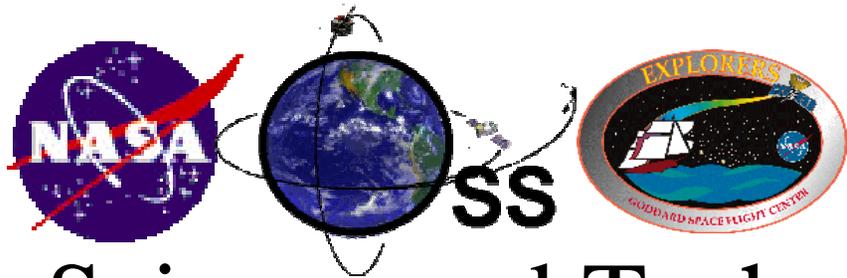
- Selection Factors
 - Proposal evaluations based on published criteria
 - Categorization
 - Cost to NASA OSS
- Overriding consideration: Maximize scientific return within the available budget
 - Space Science program is an evolving activity; selecting official will use all available science planning, policy, and cost considerations
 - Objective (not requirement) to balance among scientific themes
- Select up to four MIDEX investigations for Phase A concept studies



MIDEX 2001 PrePropConf Evaluation and Selection Process

Phase A Concept Study and Downselection (§7.4)

- Up to 4 MIDEX investigations selected
 - Selection by AA and SSB in April 2002
 - Phase A contract with option for 2 month bridge phase
 - Concept study cost up to \$450K (real year \$\$)
 - Product of concept study is report to NASA and commitment by PI for cost, schedule, and scientific performance of investigation
 - See “Guidelines for Concept Study Report Preparation”
- Expect to downselect to two MIDEX investigations
 - NASA may request presentations and/or site visits
 - Downselection by AA and SSB in December 2002

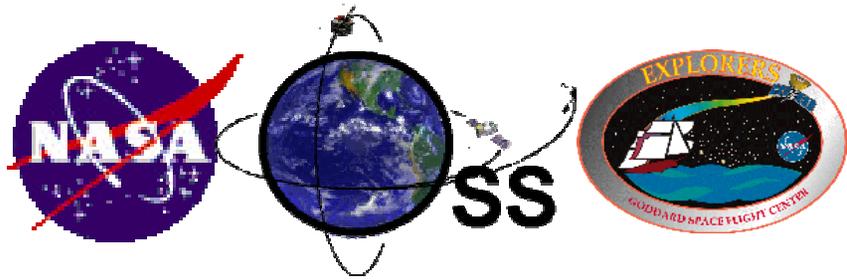


MIDEX 2001 PrePropConf Evaluation and Selection Process

Science and Technical Requirements

- Proposal must contain
 - Clearly stated relationship between the proposed scientific objectives, the anticipated data, and the instrument payload.
 - All technical aspects of the investigation from initial studies through delivery of data and scientific analysis.
 - Data plan** including appropriate period for science analysis (independent of archiving) and specification of time required for archiving appropriate data for the scientific community and the general public (justify minimum time necessary).

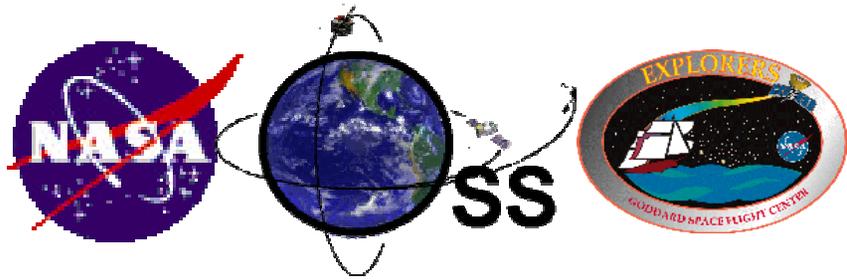
** Mission of Opportunity investigation team's data analysis responsibilities defined by mission sponsor.



MIDEX 2001 PrePropConf Evaluation and Selection Process

Science and Technical Requirements

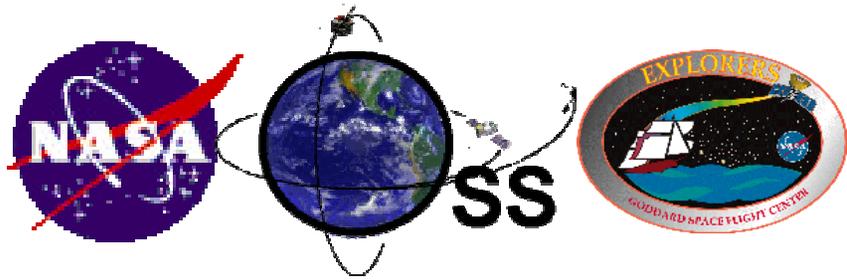
- Science Team Responsibilities
 - Initial analysis of data, delivery to an appropriate data repository, publication of scientific findings, and communication of results to the public.
 - Release data as soon as possible (after appropriate brief validation period).
 - Collect scientific, engineering, and ancillary information necessary to validate and calibrate scientific data.
 - Implement E/PO program.



MIDEX 2001 PrePropConf Evaluation and Selection Process

Guidelines for Science Section

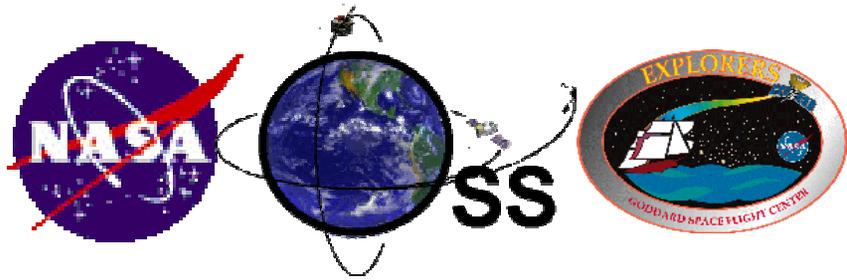
- Describe scientific objectives, identify primary science theme, describe value of investigation to theme.
- Discuss scientific products, discuss how products and data will fulfill scientific objectives.
- Discuss science implementation, discuss how instruments and mission will deliver the required data.
- Discuss how data will be obtained, discuss plan for delivery of data products, identify individuals responsible.
- Describe history and basis for proposal, note relationships to other missions, provide overview of mission.



MIDEX 2001 PrePropConf Evaluation and Selection Process

Guidelines for Science Section

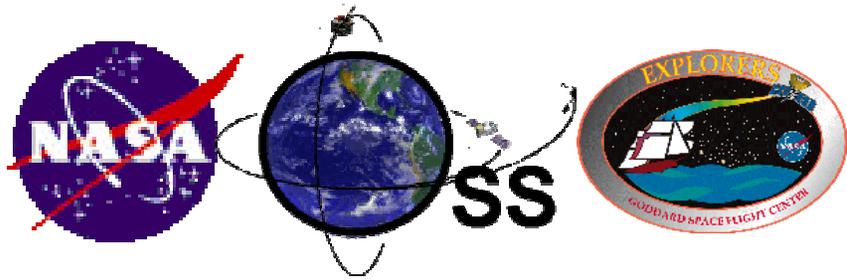
- Define baseline mission: discuss measurements to be taken and data to be returned, identify approach leading from data to science objectives, identify quality and quantity of data returned, explicitly describe relationship between data products and scientific objectives.
- Define Minimum Science Mission: identify minimum acceptable data and scientific return below which mission would not be worth pursuing, discuss value of Minimum Science Mission, describe descope options available (not just instruments or mission life time) and their effect on meeting science objectives.
- Identify only one Baseline and one Minimum Science Mission.



MIDEX 2001 PrePropConf Evaluation and Selection Process

Guidelines for Science Section

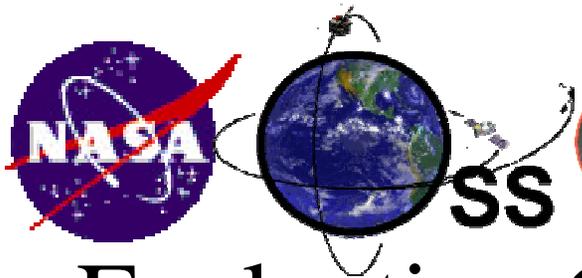
- Describe science implementation, including
 - Instrumentation: describe instrumentation, criteria for selection, individual instruments and heritage, characteristics and performance, block diagrams, interfaces, etc.
 - Mission: observing strategy, spacecraft performance, mission concept, etc.
 - Data Analysis and Archiving: data reduction and analysis plan, method and format, data products, schedule to NASA archive.
 - Science Team: members, roles, responsibilities.



MIDEX 2001 PrePropConf Evaluation and Selection Process

Evaluation Criteria

- Scientific merit of the proposed investigation [40%]
- Technical merit and feasibility of the proposed investigation [40%]
- Feasibility of the proposed approach for mission implementation, including cost risk [20%]
 - Weights are for categorization only, not selection

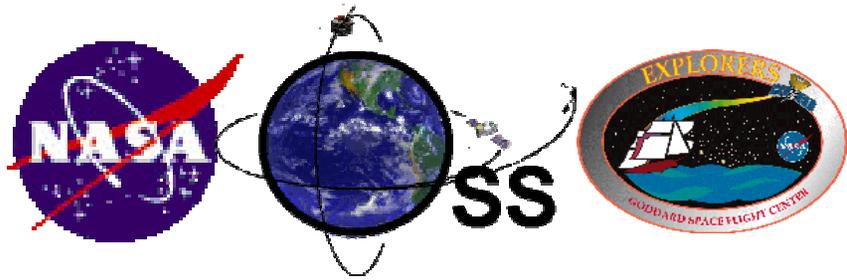


MIDEX 2001 PrePropConf Evaluation and Selection Process

Evaluation Criteria: Scientific Merit

- To evaluate the Scientific Merit of the proposed investigation**, the following factors will be considered:
 - Impact of the investigation on Space Science and on the U.S. space science program
 - How well the investigation
 - fills gaps in the understanding of space science
 - provides progress in a NASA space science theme
 - synergistically supports ongoing space science missions
 - provides ancillary benefits to U.S. space science program
 - Adequacy of data to complete the proposed investigation
 - (MIDEX only) Scientific value of Minimum Mission.

** For a Mission of Opportunity, the proposed investigation encompasses only the contribution to the mission, not the entire mission.



MIDEX 2001 PrePropConf Evaluation and Selection Process

Evaluation Criteria: Technical Merit and Feasibility

- To evaluate the Technical Merit and Feasibility of the investigation, the following factors will be considered:
 - Degree to which the proposed instrument(s) can be built using the proposed technologies.
 - Degree to which the proposed instrument and mission can provide the necessary data.
 - Merit of the proposed data analysis and archiving plan; merit of the proposed plan for timely release of data to the public domain.
 - Selection of appropriate science enhancement options.
 - Likelihood of success of any proposed new technology or untested advance in the state of the art.
 - Probability of success based on (i) experience, expertise, and organization of science team and on (ii) technical risk associated with mission design and instrument set.
 - Necessary contribution of each co-investigator.