Heliophysics Explorer Program
Mission of Opportunity
Phase A Concept Study Kickoff Meeting
Overview

Welcome and Congratulations!

Dan Moses

October 15, 2019

[Amended October 15, 2019]

Missions Selected for Phase A Study

- **17-HPSMO18-1-0017, "Aeronomy at Earth: Tools for Heliophysics Exploration and Research (AETHER)", Dr. James Clemmons (PI), Univ. New Hampshire, Durham** – AETHER would probe the ionosphere-thermosphere system and its response to geomagnetic storms using an instrumentation package onboard the International Space Station (ISS) that will provide comprehensive, co-located, *in-situ* observations of ionospheric plasmas and neutrals. Furthermore, ground based TEC observations and incoherent scatter radar observations are proposed to provide IT context for the *in-situ* observations and a simulation & physics-based modeling activity is proposed for science interpretation of observations. Because the coupling between the ionosphere and thermosphere is poorly understood and ion-neutral interactions are believed to be vital in the transfer of energy between the two regimes, the research area is fundamental and the specific science questions posed are compelling.

Missions Selected for Phase A Study

- **17-HPSMO18-1-0019, "Electrojet Zeeman Imaging Explorer (EZIE)", Dr. Jeng-Hwa Yee (PI), Johns Hopkins University/Applied Physics Laboratory** – The overarching science goal of EZIE investigation is to reveal the spatial structure and temporal evolution of the auroral electrojet and discern the physical mechanisms of their generation in the magnetosphere-ionosphere system, with the focus on the mesoscale (~150-500 km) structure. The EZIE investigation proposes to fly three 6U-class spacecraft in a pearls-on-a-string configuration. Each spacecraft would carry a single microwave spectropolarimeter instrument, the Microwave Electrojet Magnetogram (MEM), to provide multipoint vector magnetic field (B) measurements proximate to their source current.

Missions Selected for Phase A Study

17-HPSMO18-1-0010, "NASA Contributions to the Extreme Ultraviolet High-Throughput Spectroscopic Telescope (EUVST) Epsilon Mission", Dr. Clarence Korendyke (PI), Naval Research Laboratory – The Extreme UltraViolet High-Throughput Spectroscopic Telescope (EUVST) mission aims to provide an answer to the fundamental question in solar physics: how does the interplay of magnetic fields and plasma drive solar activity? The proposal is a partner mission of opportunity to contribute to the Japanese Space Agency's (JAXA) Solar-C mission, planned for launch in 2025. EUVST is a revolutionary EUV spectrometer and slit-jaw imaging system that would observe the solar atmosphere as a coupled system for the first time. Competing theories of solar energetic process can only be tested with observations from an instrument such as EUVST that combines very high spatial resolution (0.4" or 300 km), fast cadence (as high as 0.1s), and a seamless temperature coverage of the solar chromosphere, transition region, corona, and flare plasma. EUVST will complement new solar observatories, including DKIST, Parker Solar Probe, and Solar Orbiter.

2018 Heliophysics Explorer Program MO Kickoff Agenda

October 15, 2019

GSFC, Building 36 C211

Session	Room
Plenary:	**C211**
Debriefs:	**N207**
Contracts	**N241**
Lunch:	**C211**

Dial in #: 1-844-467-6272; Passcode: 334821
Webex: Meeting number: 906 457 867
Meeting password: GvyHg8W

Start	End	Duration	Comment			
9:00 AM	9:25 AM	0:25	Plenary	**Introduction** - Dan Moses		
9:25 AM	9:50 AM	0:25	"	**Evaluation Process** -Willis Jenkins		
9:50 AM	10:15 AM	0:25	"	**TMC Requirements** -James Florance		
10:15 AM	10:25 AM	0:10	"	**Explorers Program Office** - Greg Frazier		
10:25 AM	10:35 AM	0:10	"	**Safety & Mission Assurance** - Lynette Marbley		
10:35 AM	10:40 AM	0:05	"	**International Relations** - OIIR		
10:40 AM	10:45 AM	0:05	"	**Export Control** - OIIR		
10:45 AM	11:00 AM	0:15		**Break**		
				UNH Clemmons	**NRL** Korendyke	**APL/JHU** Yee
11:00 AM	12:30 PM	1:30	Individual	Debrief		Contract Meeting
12:30 PM	1:15 PM	0:45		Lunch		
1:15 PM	2:45 PM	1:30	Individual	Contract Meeting	Debrief	
2:45 PM	4:15 PM	1:30	Individual		Contract Meeting	Debrief

Phase A Overview

- Missions of Opportunity (MO) selected teams will conduct 9-month Phase A Concept Studies, funded up to $400k
- Concept Study Reports (CSRs) will be due August 7, 2020
- At the end of Concept Studies, NASA will conduct detailed reviews to evaluate the implementation details of the investigations, including any modifications of the scientific objectives, and the implementation including all technical and management factors.
- The CSR plus any modifications from the Site Visit and associated responses will form the Step-2 proposal in the down-selection competition.
- Nominally, the CSR will be evaluated only for Criteria B and Criteria C
  - The initial Criteria A (Intrinsic Merit) evaluation will be retained for the down-select competition
  - Note: In this step Criteria B includes factor B-7: Likelihood of Scientific Success
    - This is a revisit of Factor A-3, in light of the Phase A study
    - If a Proposal received a Major Weakness finding in Criteria A, it is essential to address this in the CSR and the Factor B-7 will specifically evaluate this
  - If the Lead Program Scientist determines the CSR contains significant change of the Science Basis for the investigation (Intrinsic Merit) in comparison to the Step-1 proposal, an evaluation of the Criteria A will be conducted on the CSR

Management and Constraints

- Phase A Study deliverables:
  - **Concept Study Report** providing sufficient implementation detail and planning to allow NASA to judge probability of mission success
  - **Complete cost or pricing data** for Phase B shall be included with the CSR for each organization. A separate, 4-month bridge phase option shall be part of the Phase B cost or pricing data.
- Phase A activity includes:
  - **Site Visit** with 1 day summary presentation of investigation with responses to evaluation team Significant Weaknesses, Questions, and/or Requests for Information.
  - **Post-Site Visit request** responses.

Management and Constraints

- Each mission's Concept Study Report must conclude with a ***commitment*** by the PI for the cost, schedule, and scientific performance of the investigation.
- NASA cannot guarantee that the proposed funding ***profile*** can be accommodated within the Explorer Program's budget.
  - The funding profile for the selected mission will be negotiated during Phase B.
- During the Bridge Phase, NASA and the continued project will negotiate and sign a contract modification necessary for the remaining portion of Phase B.
- Deliverables for Phase B will be negotiated during the Bridge Phase, on the basis of information provided in the Concept Study Report.

Procurement

- The CSR plus any modifications from the Site Visit and associated responses will form the Step-2 proposal in the down-selection competition.
- CSR (Proposals) must be for complete mission cycle (Phase A-Phase F).
- Solicit science proposals with sufficient implementation information to evaluate risk, expected total cost to NASA, and commitment to other programmatic goals.
- Each Phase A contract will contain a priced option for Phase B along with a Bridge Phase, to be exercised upon investigation(s) down-selected to proceed into Phase B.
  - The Bridge Phase option will allow work to be continued uninterrupted under the contract after a Step-2 down selection decision is made.

Schedule

- The 9-month Phase A clock starts today with the kickoff.
- Concept Study Reports (CSRs) will be due on August 7, 2020.
- Anticipate site visits in November 2020
- Dan Moses will be the overall chair of the evaluation team.
- James Florance and ~~Carlos Liceaga~~ **Victor Lucas** (SOMA) will lead the TMC evaluations & coordinate site visits. **[Amended Oct. 15, 2019]**

New text is in bold and deleted text is struck through.

Competition Conditions

- "Blackout" after the Kickoff Meeting. Communications between Study Teams and the various NASA program offices will be focused to ensure fairness
  - Communications after this meeting will be controlled.
  - Technical and expert advice should be obtained directly from identified Points of Contact (POC's)
    - See CSR Guidance and Criteria document
  - All programmatic questions, including questions of policy, questions of interpretation, and questions of clarification, should come to NASA HQ addressed to Dan Moses ~~or Roshanak Hakimzadeh~~ **[Amended Oct. 15, 2019]**

- Generic versions of questions and answers will be posted as "Questions and Answers" available from the SOMA Acquisition websites.

New text is in bold and deleted text is struck through.

Concept Study Guidelines

- Draft Guidelines And Criteria For The Phase A Concept Study may be found at the 2018 Heliophysics Science MO SOMA Acquisition Website:
  - 2018 Heliophysics Science MO Program Library or
  - https://soma.larc.nasa.gov/2018HelioMO/pdf_files/CSR%20Guidelines_PEAsL+M.Amended-11Oct2019.pdf
  - These Draft Guidelines are based on the “Standard CSR Guidelines,” so changes for the final version are expected to be minimal

QUESTIONS?