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New Frontiers 4 Kickoff

Dr. Curt Niebur
Lead Program Scientist
NASA Headquarters
February 6, 2018



Agenda

- The purpose of the kickoff meeting is to provide the study teams the information needed to begin the Step 2 effort.
 - Specifically, the Concept Study Report (CSR) Guidelines will be discussed and finalized.
 - We will also discuss the necessity of aligning expectations with the CSR Guidelines.

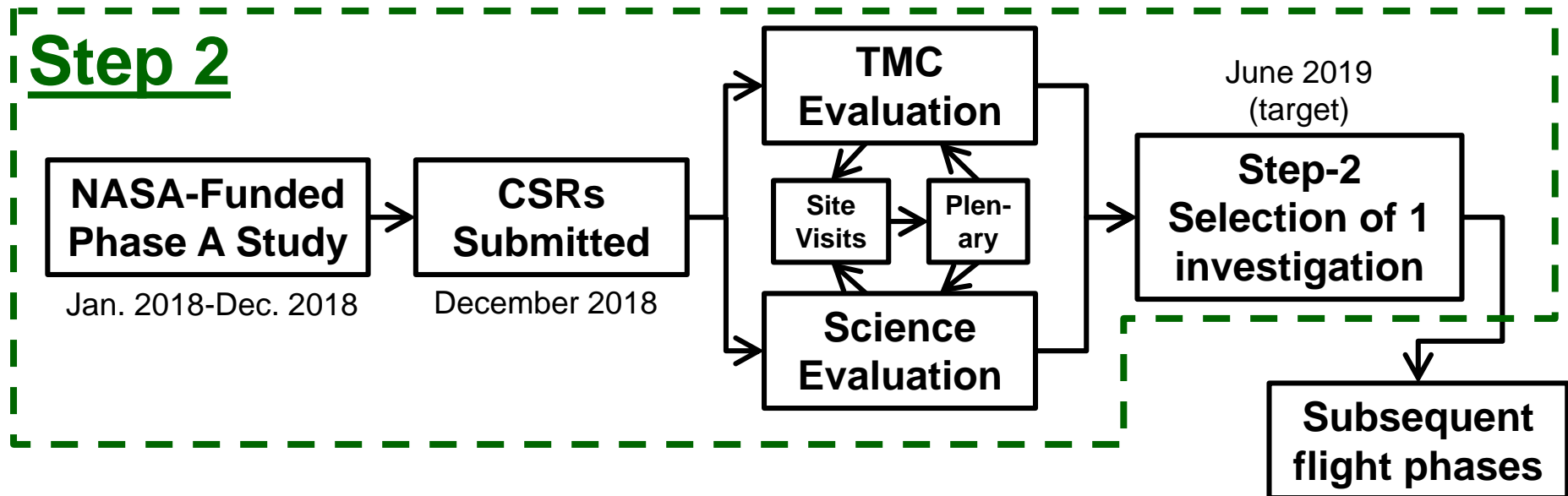
8:30	Welcome and Introductions	David Schurr, Deputy Director, Planetary Science Div.
8:40	Roles, Responsibilities, and Step-2 process	Curt Niebur, Lead Program Scientist, New Frontiers Program
9:00	Introduction to the Program Office	Brian Key, Program Manager (acting), Planetary Mission Program Office
9:20	CSR Guidelines	Curt Niebur and Victor Lucas , NF Acquisition Manager, Science Office for Mission Assessments
11:20	Lessons from Previous Step-2 Efforts	Victor Lucas
11:50	Q&A	

- Dragonfly and CAESAR debriefs will follow the kickoff. Each will last two hours.



Step 2 Process

- Interaction differentiates Step 2 from Step 1
- After CSRs submitted the evaluation process will:
 - Provide requests for clarifications to PMWs
 - Provide areas of focus for the site visit after reviewing PMW clarifications
 - Attend a site visit hosted by the investigation teams





Roles and Responsibilities during Step 2



- PI: leads the investigation team and is accountable to NASA for the success of the investigation, with full responsibility for its scientific integrity and for its execution within committed cost and schedule
- Investigation Team: works to both resolve major weaknesses and to mature the concept from MCR to MDR levels
- Program Scientist: responsible to NASA for integrity of AO process, serves as the single POC between Step-2 teams and NASA, and manages the science panel (Forms A and B)
- SOMA Acquisition Manager: manages the TMC panel conducting the technical review (Form C)
- Evaluation Team: assesses your submitted CSR within constraints provided by CSR Guidelines, AM, and PS



Direction to Selectees



- The selection letter will provide explicit direction on the following:
 - As part of the CSR effort, all selectees must adjust their requested funding profile to match as closely as possible a profile provided by NASA
 - As part of the CSR effort, all selectees must identify a later alternate launch window, including revised schedules and funding profiles
 - As part of the CSR effort, all selectees must provide a detailed technology development plan for any mission elements not currently at TRL 6
 - PIs, Project Managers, and other key personnel must attend a kick off meeting in January for debriefings and to finalize CSR guidelines
 - No later than Mar. 2, all selectees must provide a brief response to each major weakness, including a plan to fully address each as part of the CSR effort



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Introduction to the Program Office

Brian Key

Program Manager (acting)

Planetary Mission Program Office



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Concept Study Report Guidelines

Victor Lucas/Curt Niebur

SOMA Acquisition Lead/Lead Program Scientist



VICTOR Slides





Topics for Discussion (1)



- Schedule
 - Current plan calls for CSRs due in early December 2018, site visits in March 2019, and selection in June 2019
- PI Forum
 - Do we have one, when, and what should its focus be?
- Time Commitments
 - Concerns were raised about the availability of key personnel – this must be addressed in the CSR report
- Proposal Submission
 - What number of CDs containing CSR and supporting material represents an onerous burden that decreases time available for work?
- “Education and Outreach”
 - Provide SME to liaise with Agency CANs in the event of selection



Topics for Discussion (2)



- Reserve
 - Rules still call for 25% (AO req. 69), but the value is less important than the rationale behind it (CSR req. CS-48)
- Institutional Experience (CSR req. CS-46)
 - “...summarize the relevant institutional experience and refer to supporting detail included in Section M.2, Relevant Experience and Past Performance. If experience for a partner organization is not equivalent to, or better than, the requirements for the proposed mission, explain how confidence can be gained that the mission can be accomplished within cost and schedule constraints.”
 - TMC expectations at Step 1 and Step 2
- ITAR
 - Follow req. 89 in AO



Topics for Discussion (3)

- Technology Development (CSR req. CS-40)
 - “This section shall describe any proposed new technologies and/or advanced engineering developments...and the approaches that will be taken to reduce associated risks”
 - Rationale for TRL
 - “The approach for maturing each of the proposed systems to a minimum of TRL 6 by PDR”
 - It is to everyone’s benefit to provide as much information as possible in this area; to that end, are enough pages provided?



Page Limits

- Assume three flight elements and five instruments
 - Step-1 proposals would have $30+35+2*5+2*6=87$ pages
 - CSR would have $30+98+2*(5+3)=144$ pages
- Additional 57 pages (65%) in CSR to cover:
 - Higher level of detail for matured mission concept
 - Resolve all major weaknesses
 - Much more information on technology development (CSR CS-40)
- How many pages do you think are needed for this?

Topic	AO	CSR
Science Investigation	30+2 per instrument	30
Science Implementation		98+2 per instrument or flight element
Mission Implementation	35+2 per element+3 schedule FO	
Management		
Other Factors (SC, SB, SEO, TDO)	N/A	5+5+5=15
Prelim. Design & Tech Completion (Ph. B) Plan	N/A	
Cost	15	No limit
SEO/TDO	N/A	No limit



Diversity and Code of Conduct



- “NASA recognizes and supports the benefits of having diverse and inclusive scientific, engineering, and technology communities and fully expects that such values will be reflected in the composition of all proposal teams as well as peer review panels (science, engineering, and technology), science definition teams, and mission and instrument teams.”
 - Diversity is not the same as tokenism
- The selected flight mission will incorporate a Code of Conduct into its Science Management Plan or equivalent document:
 - Treat others, including their opinions, contributions, emotions, and bodies, with respect;
 - Demonstrate respect in your actions, and expect respect (both toward yourself and to others) in the actions of others;
 - Intercede for your teammates unwilling or unable to advocate for themselves;
 - Consider calmly your actions when challenged by someone who feels disrespected by them; and
 - Seek mediation, and participate fully in it.



SEO, TDO, and SC (1)



- SEOs/TDOs/SCs are a) optional, b) reviewed and selected separately from primary mission, c) not given any numeric weighting, d) must be clearly separable in all respects, and e) outside of PIMMC.
 - Cost of SCs in excess of \$10M must be contributed to NASA
- Note that these and other constraints described in the AO and CSR should be treated as requirements despite the fact they are not always enumerated as such.



SEO, TDO, and SC (2)



- SEOs enlarge the science impact (not content) of the mission.
- TDOs enlarge the science impact of the mission and/or provide value to future missions by demonstrating a specific technology.
- SCs provide mentoring and oversight of students to maximize the opportunity for teaching, learning, and success in contributing to the mission.
- What constitutes a SEO/TDO/SC?
 - SEO examples: extended missions, guest investigator programs, general observer programs, participating scientist programs, and/or interdisciplinary scientist programs; *SEOs are not HW.*
 - There is no need to discuss Participating Scientist (PS) or equivalent programs in the CSR. The selected mission will have a PS program, it will be funded outside the PIMMC, and PSs will be treated as Co-Is.
 - TDO examples: instrument, investigation, new technology, hardware, or software that may be demonstrated on either the flight system or ground system; *TDOs are HW o SW.*
 - SC examples: can take the form of an instrument development, an

When in doubt, don't hope for the best - ask the Program Scientist for a ruling.



SEO, TDO, and SC (3)



- **Factor B-6, Merit of any Science Enhancement Options (SEOs)**, if proposed. This factor includes assessing the appropriateness of activities selected to enlarge the science impact of the mission; the potential of the selected activities to enlarge the science impact of the mission; and the appropriate costing of the selected activities. The peer review panel will inform NASA whether the evaluation of the proposed SEO(s) impacted the overall rating for scientific implementation merit and feasibility. Lack of an SEO will have no impact on the overall rating for scientific implementation merit and feasibility
- **Factor B-7. Merit of any Technology Demonstration Opportunities (TDOs)**, if proposed. This factor includes assessing the potential of the TDO(s) to enlarge the science impact of the mission, the value to future missions of demonstrating the selected technology, and the risk to the mission science objectives posed by the TDO. The peer review panel will inform NASA whether the evaluation of the proposed TDO(s) impacted the overall rating for scientific implementation merit and feasibility. There will be no penalty for any inherent higher technical risk of the TDO itself.
- **Overall Merit of Student Collaboration (SC)**, if proposed. This factor will include an assessment of whether the scope of the SC follows the guidelines in section 5.5.3 of the AO. The criteria to be used to evaluate the SC component and a discussion of those criteria are described in the document...



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Lessons from Previous Step-2 Efforts

Victor Lucas

New Frontiers Acquisition Manager, Science Office for Mission Assessments



DONE





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Q&A

Victor Lucas

New Frontiers Acquisition Manager, Science Office for
Mission Assessments



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Debriefs

Room 7Q46 is available for the CAESAR team during
the Dragonfly debriefing