



Lessons learned
from the Planetary Decadal mid-term
Review, and 2011 Decadal Survey

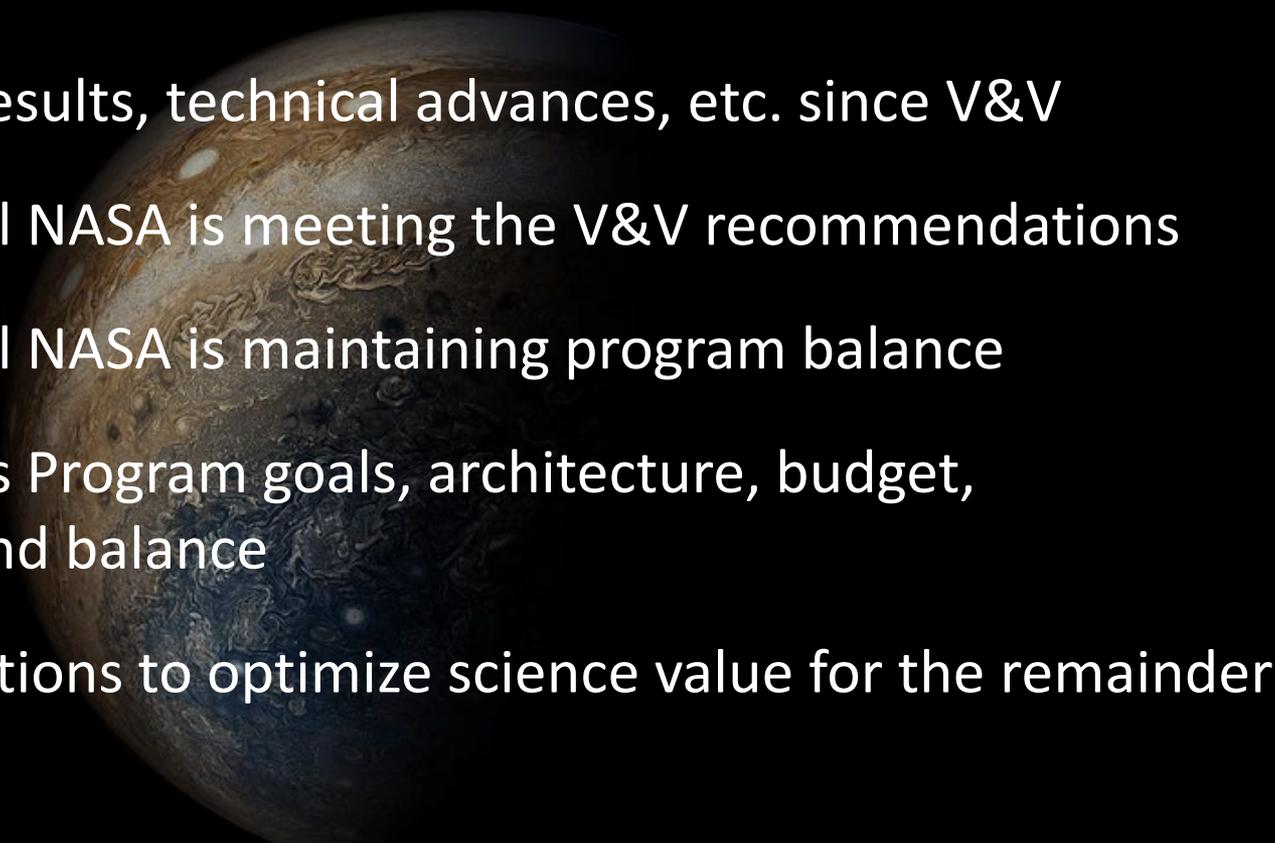
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OPAG

August, 2019

Recap: Mid-term Task summary

(highly abbreviated)

- Describe new results, technical advances, etc. since V&V
 - Assess how well NASA is meeting the V&V recommendations
 - Assess how well NASA is maintaining program balance
 - Assess the Mars Program goals, architecture, budget, partnerships, and balance
 - Recommend actions to optimize science value for the remainder of the decade
 - Recommend actions to be taken now that will prepare for the next decadal survey
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Mid-term: Key Issues relevant to OPAG (1)

- Cadence of competed missions
 - *Discovery on track; New Frontiers not quite*
- R&A and Technology spending
 - *Recommendation met*
- Europa Clipper – does it meet the decadal guidance?
 - *Yes*
- Is the Clipper on budget/schedule, or do they pose a risk to programmatic balance?
 - *On budget, but there is a risk*

Mid-term: Key Issues relevant to OPAG (2)

- Europa Lander
 - *Not in Decadal Survey; should be considered in next Decadal*
- Adding Ocean Worlds to New Frontiers
 - *New scientific priorities should be vetted with community input*
- Is the overall program still balanced?
 - *Mostly; some concern about flagships*

Outstanding Decadal recommendations relevant to OPAG (1)

- New Frontiers 4 should be selected from among the following five candidates:
 - Comet Surface Sample Return
 - Lunar South Pole Aitken Basin Sample Return
 - **Saturn Probe**
 - ❖ Trojan Tour and Rendezvous – *selected for Discovery 14*
 - Venus In Situ Explorer
- For the New Frontiers Mission 5 selection, the following missions should be added to the list of remaining candidates:
 - **Io Observer**
 - Lunar Geophysical Network

Outstanding Decadal recommendations relevant to OPAG (2)

- Flagship-class missions
 - ❖ Max-C (*descope*d to \$2.5B)
 - ❖ Jupiter Europa Orbiter (*descope*d version)
 - Uranus Orbiter and Probe “Should be initiated even if both MAX-C and JEO take place”
- If budget was better than anticipated:
 - “ 1. An increase in funding for the Discovery program,
 - 2. Another New Frontiers mission, and
 - 3. Either the [\$1.9B] Enceladus Orbiter mission or the Venus Climate Mission”

Personal thoughts based on experience from the mid-term and the 2011 Decadal Survey panels

- Aim for a small number of thoughtful, focused white papers with clear recommendations
 - Remember that OPAG does not speak for everyone in the outer solar system community
- Be realistic about mission concepts that are likely to be feasible within the next decade
 - Budget for robotic exploration is not likely to increase
 - Mars Sample Return will require considerable resources
 - Workforce is finite

Personal thoughts based on experience from the mid-term and the 2011 Decadal Survey panels

- Consider whether there is a need for a “small flagship” mission class, or whether the caps for Discovery and New Frontiers should be raised
- What changes to the Discovery and New Frontiers calls could further enable outer solar system exploration?
- What new science can be done with existing assets (Juno, New Horizons, etc.)?

Personal thoughts based on experience from the mid-term and the 2011 Decadal Survey panels

- Consider the technology developments that will have the highest impact for OPAG priorities
- Consider whether the New Frontiers call should be open to all concepts
 - Ongoing NASA technology development may make this more feasible than previously

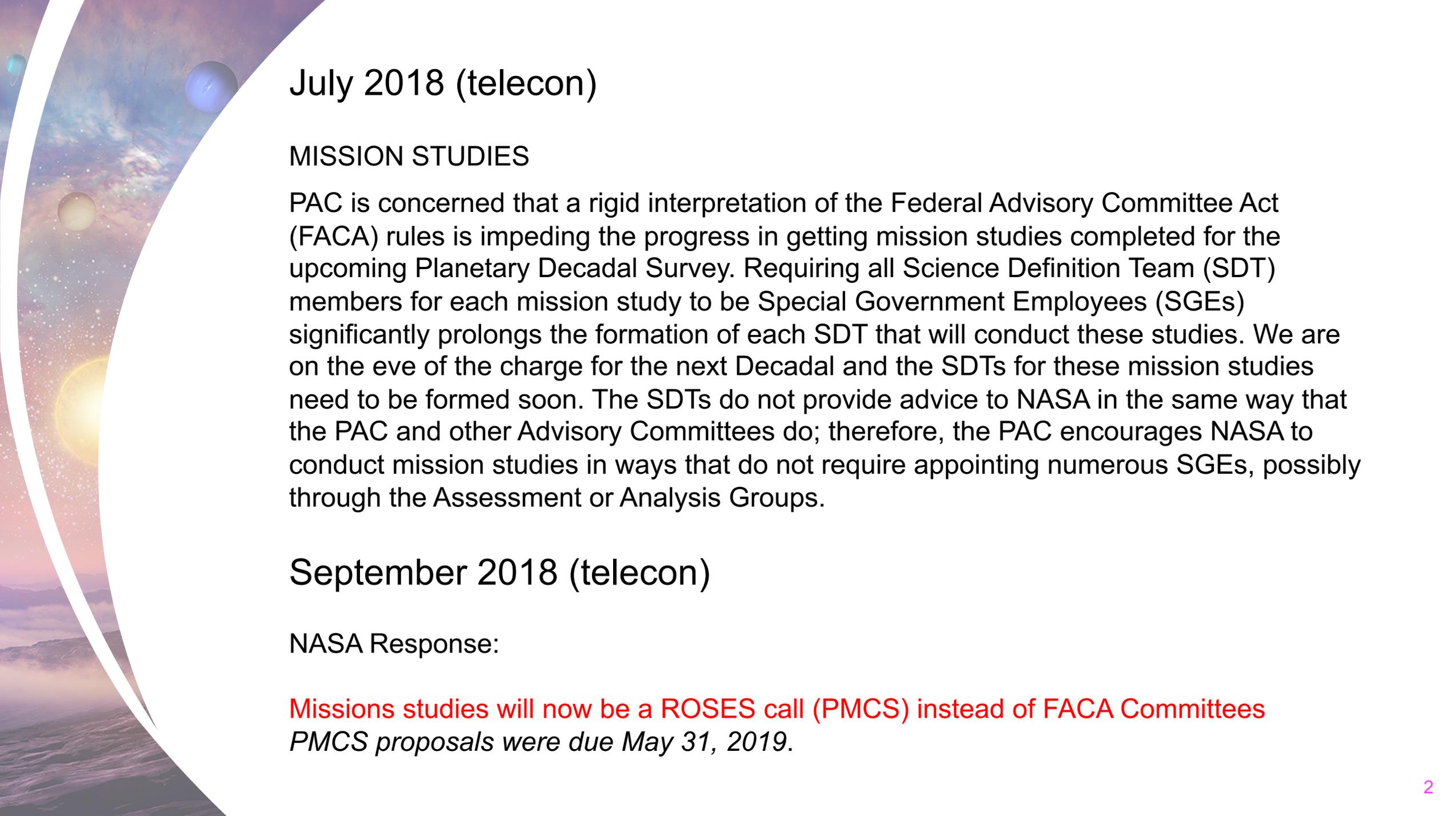


NASA Planetary Science Advisory Committee (PAC) Findings Relevant to the Decadal Survey

Anne Verbiscer, PAC Chair

OPAG meeting 20 August 2019

University of Colorado, Boulder



July 2018 (telecon)

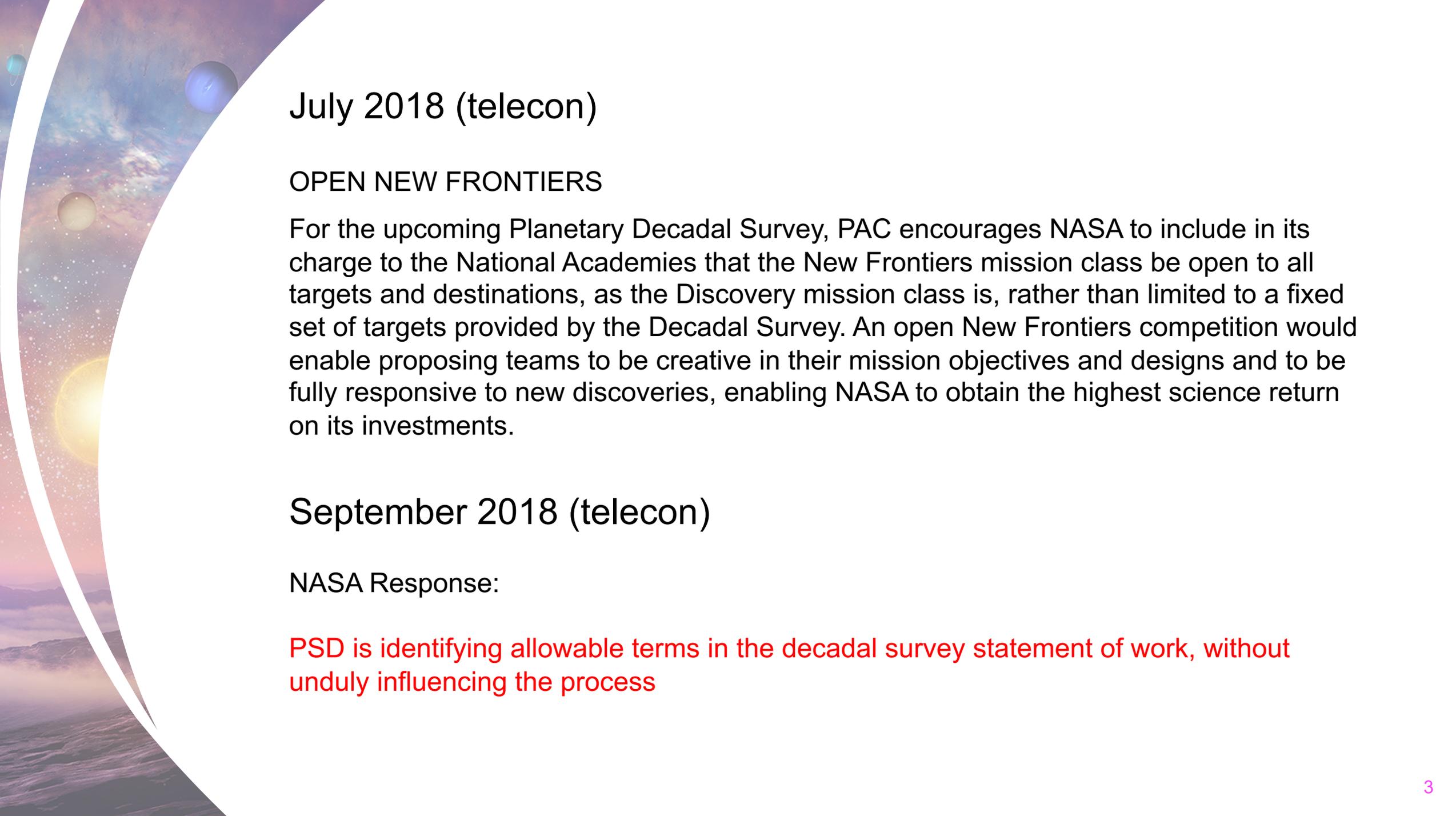
MISSION STUDIES

PAC is concerned that a rigid interpretation of the Federal Advisory Committee Act (FACA) rules is impeding the progress in getting mission studies completed for the upcoming Planetary Decadal Survey. Requiring all Science Definition Team (SDT) members for each mission study to be Special Government Employees (SGEs) significantly prolongs the formation of each SDT that will conduct these studies. We are on the eve of the charge for the next Decadal and the SDTs for these mission studies need to be formed soon. The SDTs do not provide advice to NASA in the same way that the PAC and other Advisory Committees do; therefore, the PAC encourages NASA to conduct mission studies in ways that do not require appointing numerous SGEs, possibly through the Assessment or Analysis Groups.

September 2018 (telecon)

NASA Response:

Missions studies will now be a ROSES call (PMCS) instead of FACA Committees
PMCS proposals were due May 31, 2019.



July 2018 (telecon)

OPEN NEW FRONTIERS

For the upcoming Planetary Decadal Survey, PAC encourages NASA to include in its charge to the National Academies that the New Frontiers mission class be open to all targets and destinations, as the Discovery mission class is, rather than limited to a fixed set of targets provided by the Decadal Survey. An open New Frontiers competition would enable proposing teams to be creative in their mission objectives and designs and to be fully responsive to new discoveries, enabling NASA to obtain the highest science return on its investments.

September 2018 (telecon)

NASA Response:

PSD is identifying allowable terms in the decadal survey statement of work, without unduly influencing the process



Discussion