

Committee on Solar & Space Physics (CSSP) Call for Community Input

for a report on

*Agile Responses to Short-Notice Rideshare
Opportunities for the NASA Heliophysics Division*

Alignment with Decadal Survey

- The decadal survey *Solar and Space Physics: A Science for a Technological Society* DRIVE initiative (DRIVE - Diversify, Realize, Integrate, Venture, Educate)
- Under ‘Diversify,’ the survey explained that “exploration of the complex heliospheric system... requires the strategic use of diverse assets that range from large missions and facilities, through Explorers and mid-sized projects, down to small CubeSats and suborbital flights... The field is entering an era of opportunities for multipoint and multiscale measurements with an increasingly diverse set of platforms and technologies...”¹

¹National Research Council. 2013. *Solar and Space Physics: A Science for a Technological Society*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/13060>. p. 79.

NASA Science Mission Directorate - New Guiding Principle

- Exploit opportunities for secondary science payloads on launches with excess mass capacity
- Via standard solicitation processes
 - Evolved Expendable Launch Vehicle (EELV) Secondary Payload Adapter (called the “ESPA ring”) capability on future missions
 - Calls for such “rideshares” on the ESPA ring associated with the NASA Heliophysics Interstellar Mapping and Acceleration Probe (IMAP) mission
 - Anticipate such missions of opportunity (MOOs) will continue and expand with new commercial capacity

NASA Heliophysics Division (HPD) also wants to take advantage of opportunities that arise on much shorter notice (e.g., months)

- Rideshare openings are likely to be heterogeneous in size, in the nature of the payloads that might be hosted, and in the locations where they might be deployed.
 - Potential opportunities with NASA, other agencies, commercial companies
- Payloads ranging from individual instruments to autonomous small satellites or constellations of small satellites are candidates for ridesharing.
- Locations from near-Earth to lunar and beyond are potential destinations

CSSP Short Report Statement of Task

Provide guidance to NASA HPD on a program that has the flexibility and agility to respond to emergent rideshare opportunities

1. Kinds of solar and space physics science that would be enabled by an agile response to rideshare opportunities, at locations that would provide global perspectives, unique views, or continuous coverage, among others;
2. Types of payloads that are suited to these opportunities, because they are scientifically valuable in single or multiple locations and rapidly deployable with short development times or that can be shelved until a launch becomes available;
3. Considerations for the development and implementation of a new HPD program that would allow agile responses to future short-notice rideshare opportunities

Community Input for CSSP Rideshare Short Report

- Before October 1, 2019, answer the following three questions on-line at the link (in progress) from the CSSP website
https://sites.nationalacademies.org/SSB/SSB_052324
 1. What kinds of solar and space physics science at what locations would be enabled by an agile response to rideshare opportunities?
 2. What types of payloads are suited to these opportunities and why? Rationale might include scientific value in single or multiple locations, ability to be rapidly deployed with short development times, or ability to be shelved until a launch becomes available.
 3. What should HPD consider as they develop and implement a new program that would allow agile responses to future short-notice rideshare opportunities?
- Attend the special Rideshare Workshop sponsored by HPD and hosted by Johns Hopkins University Applied Physics Laboratory during the week of September 16, 2019 (final dates TBA)
- Encourage your colleagues to engage with these activities

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Questions?

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