

National Aeronautics and
Space Administration



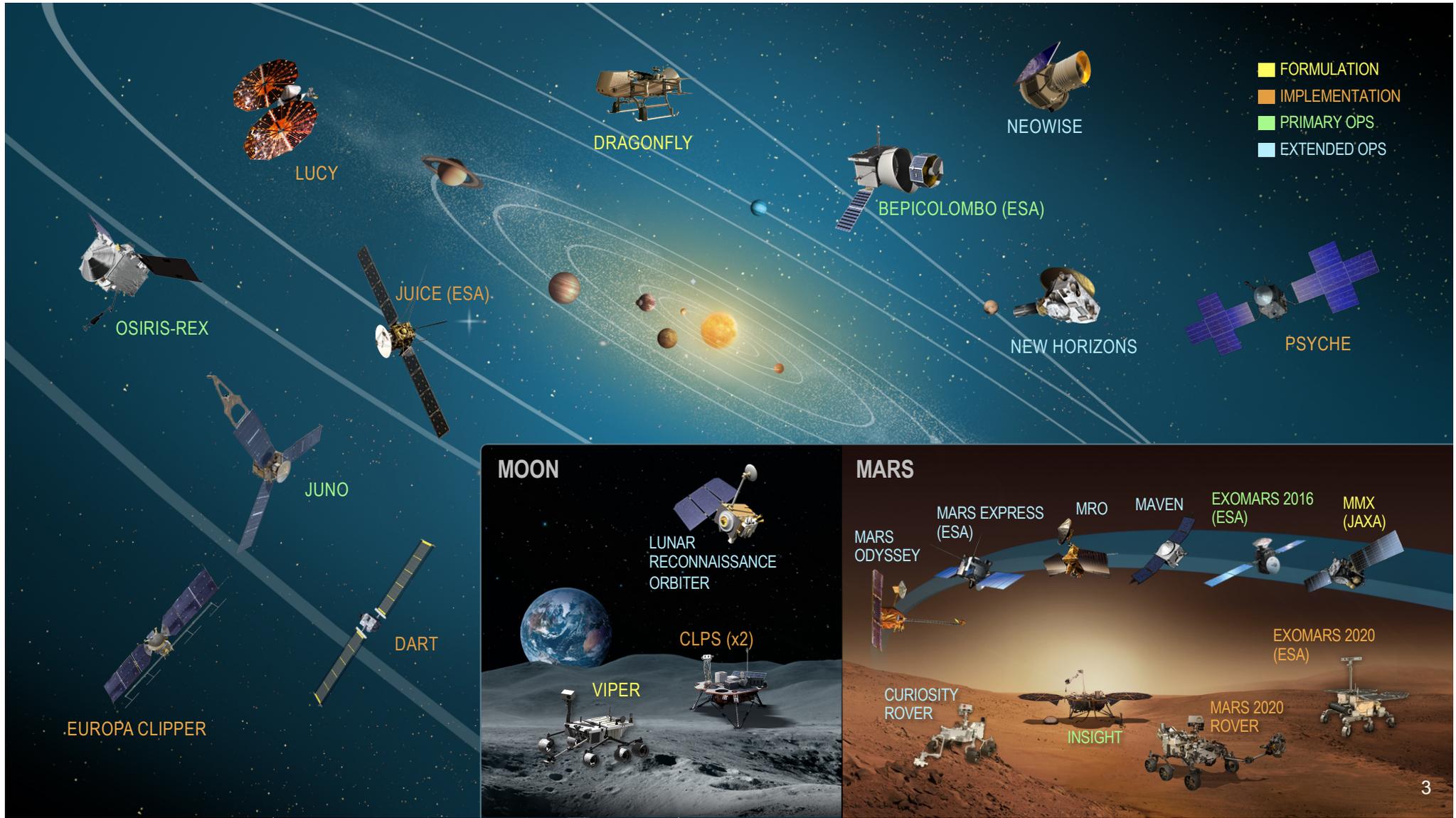
EXPLORE SCIENCE

LORI S. GLAZE, Ph.D.
Planetary Science Division Director
American Geophysics Union

December 9, 2019

The background of the slide is a composite of cosmic imagery. The top portion features a dark blue and black space filled with numerous small, bright stars and a prominent, wispy blue nebula on the right side. The bottom portion shows a similar starry field but with a more vibrant color palette, including orange, yellow, and green, suggesting a different nebula or a different spectral filter. The text 'Planetary Highlights' is centered in a light blue horizontal band.

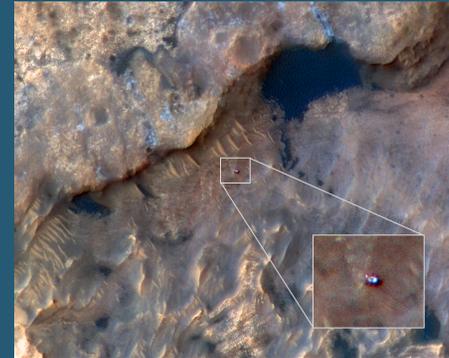
Planetary Highlights



MSL Curiosity



Tuesday, 12/10 @ 10am
Media Roundtable – Curiosity & Mars 2020 Science



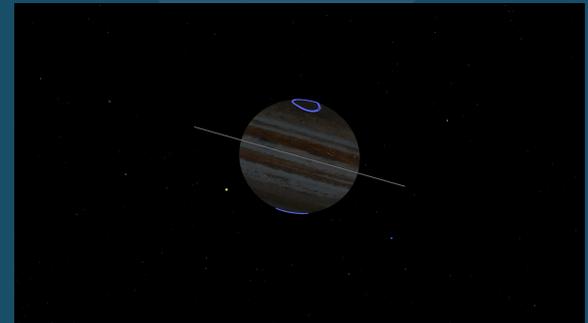
May 31, 2019 – MRO HiRISE spots Curiosity rover at Mars' Woodland Bay



Apr. 6, 2019 – Before and after images from Mastcam of first time Curiosity drilled in the clay-bearing unit

Juno

Wednesday, 12/11 @ 1:30pm
Press Briefing – Juno: Jumping Jupiter's Shadow



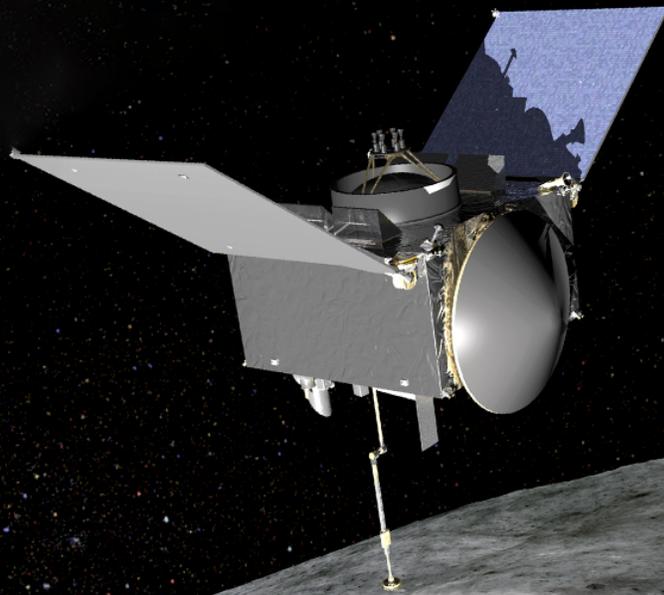
Nov 3, 2019 - NASA's Juno spacecraft during its eclipse-free approach to the gas giant



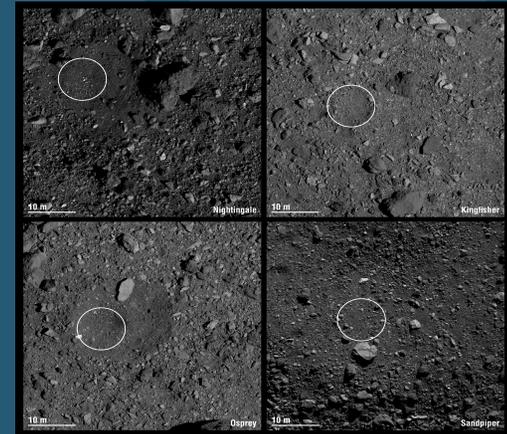
Io casts its shadow on the planet

OSIRIS-REx

*Bennu Arrival
December 3, 2018*



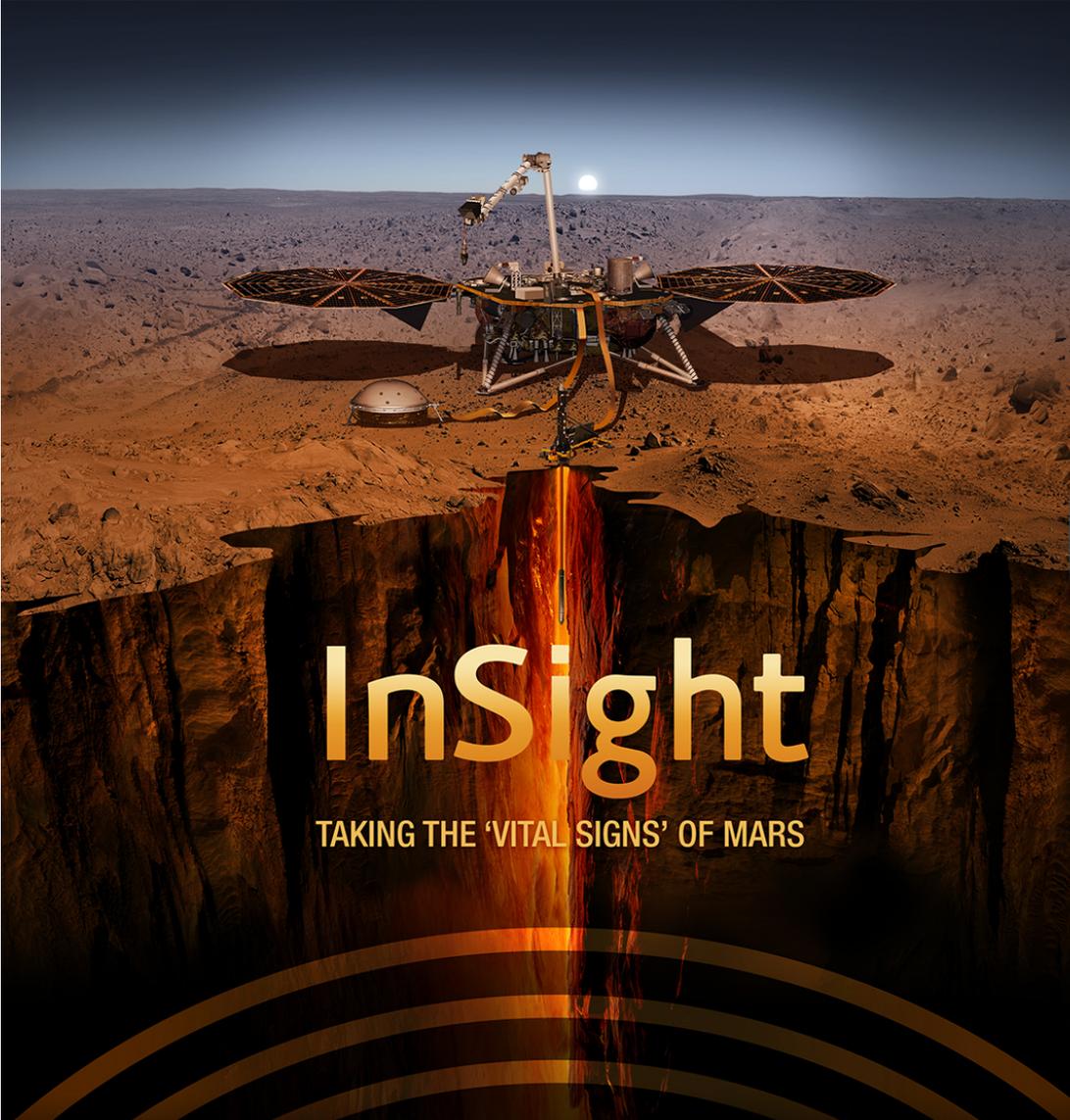
Thursday, 12/12 @ 9:45am PT LIVE SHOW (starts at 10am PT)
O-REx Tag Site Selection



Aug. 12, 2019 - Four candidate sample collection sites on asteroid Bennu



Dec. 3, 2018 – OSIRIS-REx showing Bennu in one full rotation from approximately 80 km away



InSight

TAKING THE 'VITAL SIGNS' OF MARS

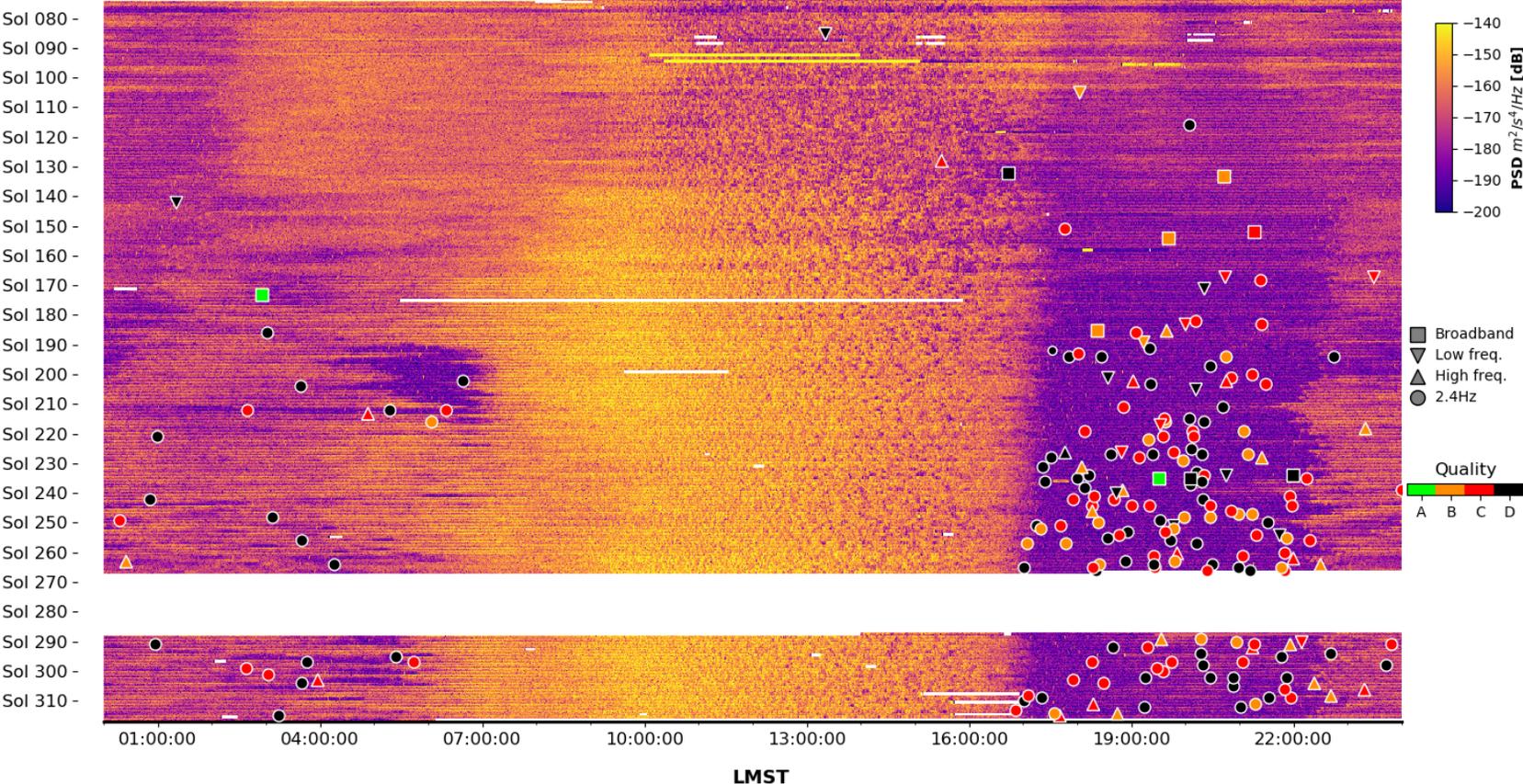


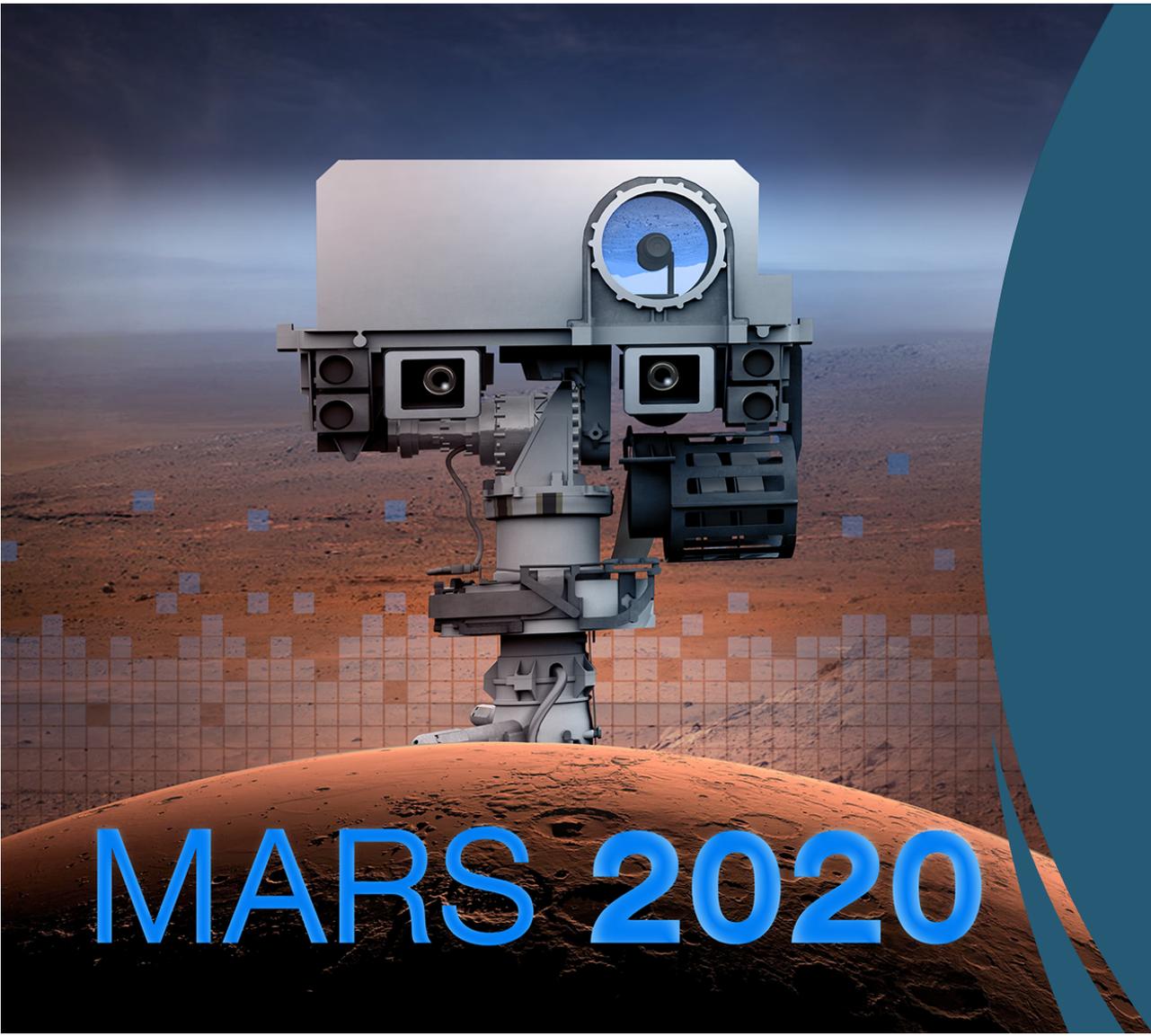
50 hammer strokes were carried out on November 19 with the scoop pressing against the soil/mole; the mole penetrated 4cm. The next hammering was on December 4, 2019



Dec. 19, 2018 – InSight seismometer on Martian surface – first time a spacecraft robotically placed a seismometer onto surface of another planet

InSight Mission: All Detected Events (sols 72-317)

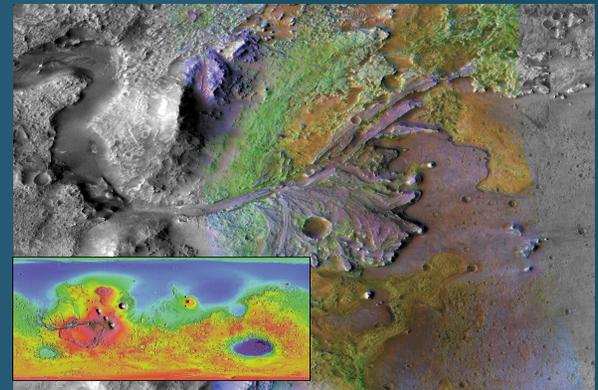




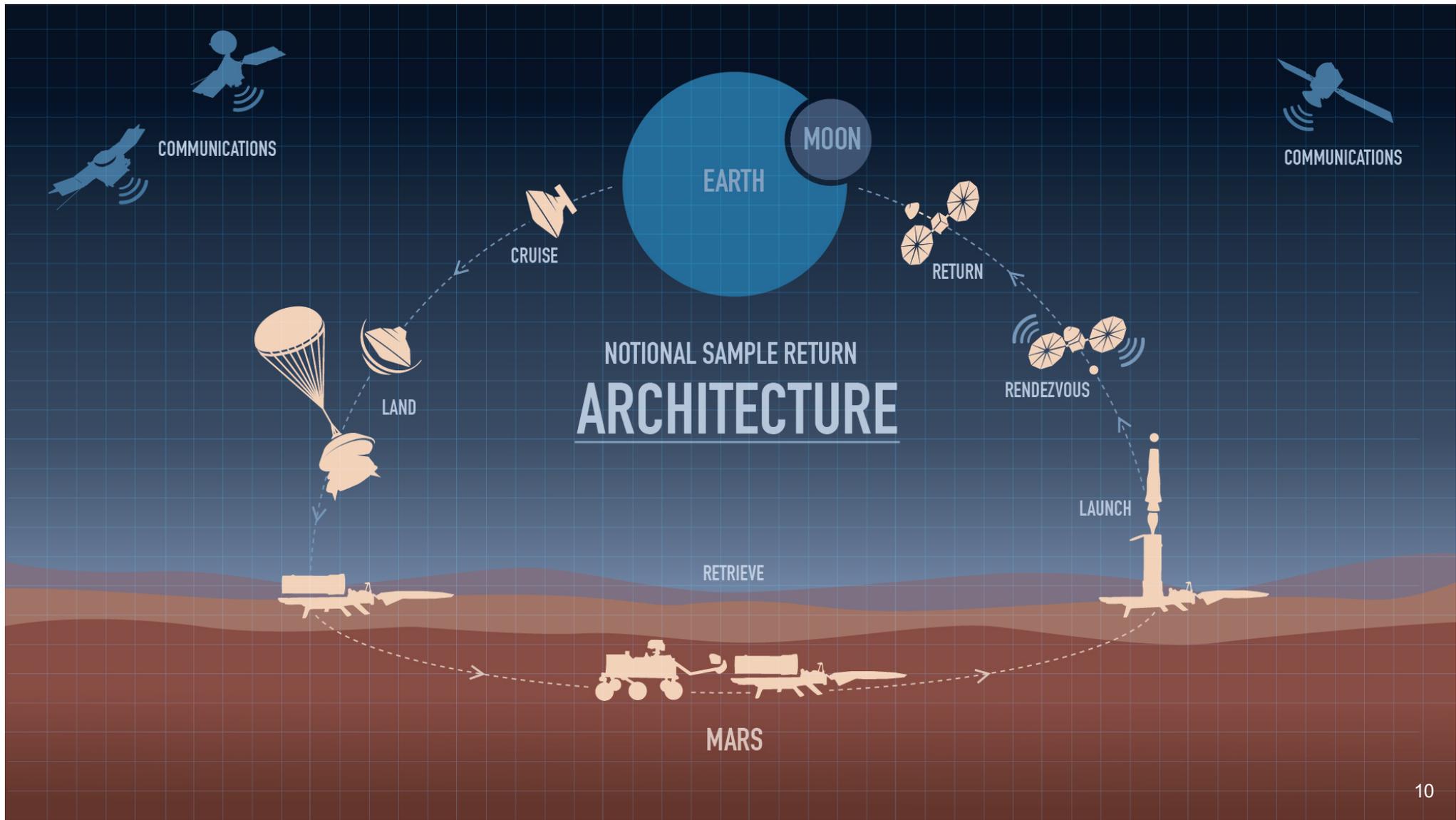
MARS 2020



Oct. 8, 2019 – Engineers, at NASA's Jet Propulsion Laboratory, lower the Mars 2020 rover to carry its full weight for the first time



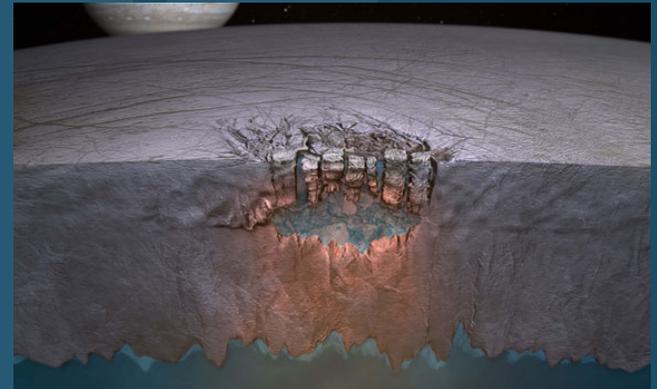
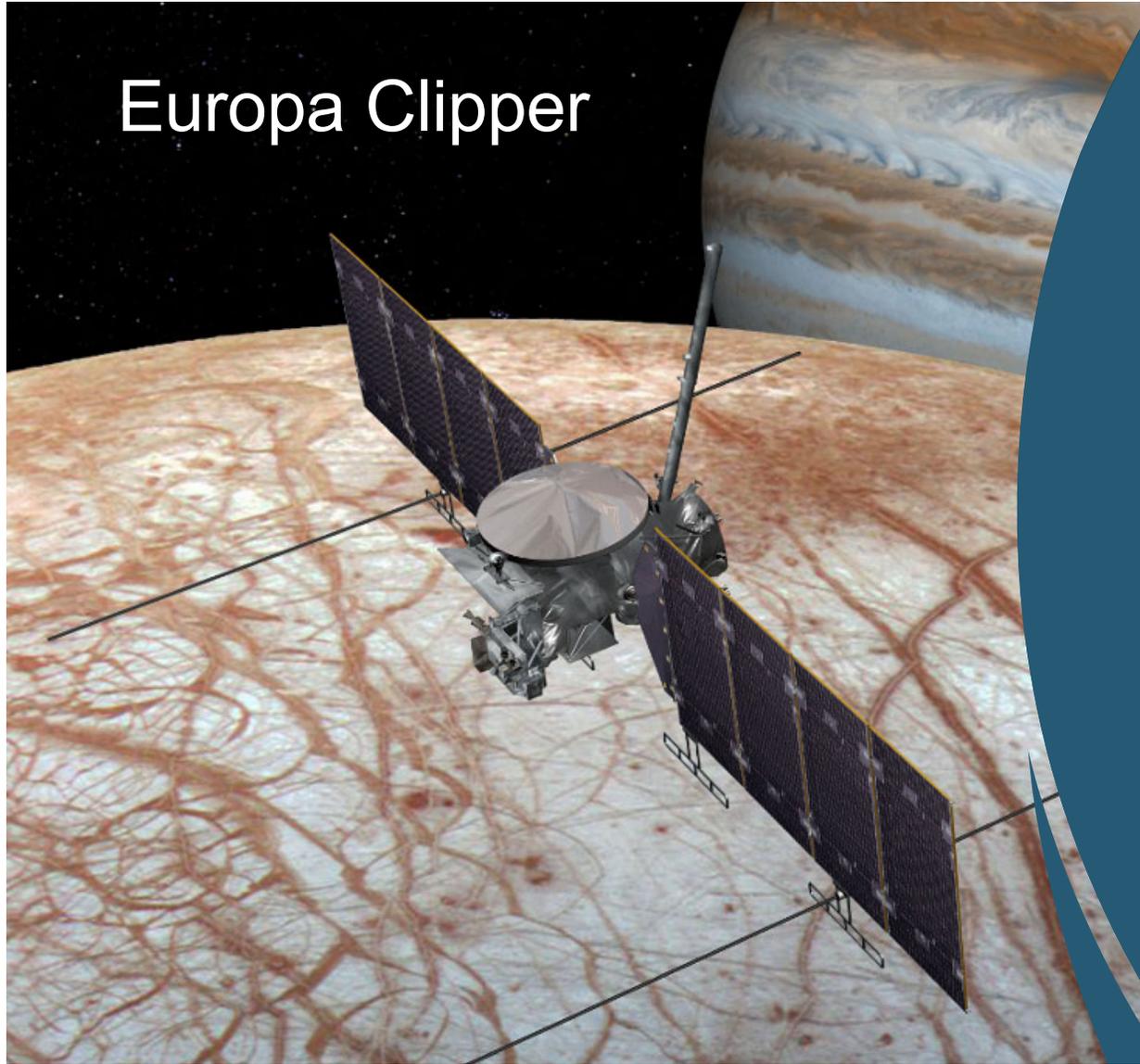
Nov. 19, 2018 - NASA announced landing site for Mars 2020 Rover mission as Jezero Crater



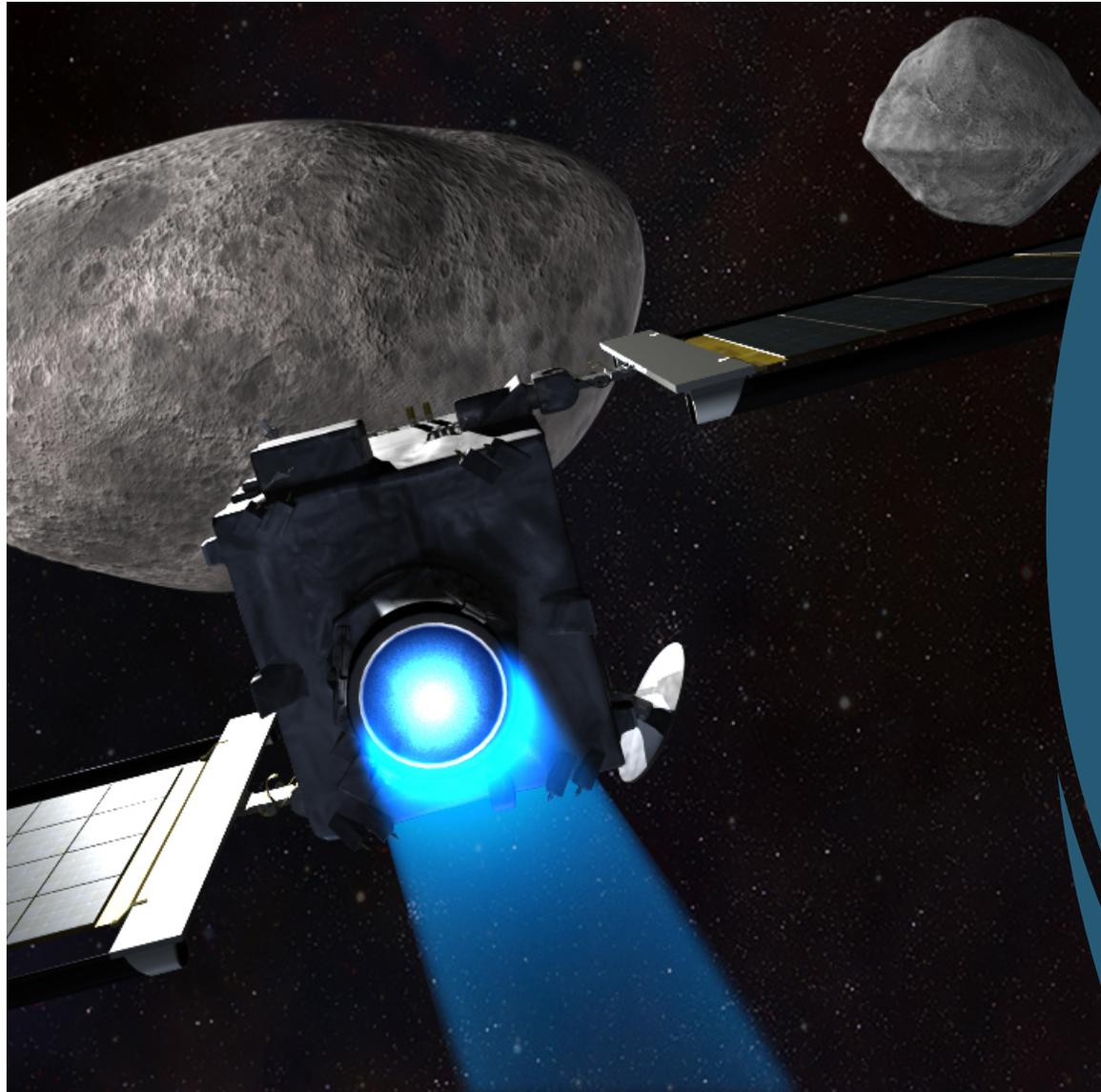
Mars Sample Return (MSR) Status

- Decadal MidTerm recommended that NASA continue planning and begin implementation of proposed MSR architecture
- Throughout 2018/2019: NASA/ESA have been converging campaign requirements, completing mission trade studies, refining mission concept designs, and maturing plans for jointly implementing MSR, potentially launching as early as 2026
- On April 26, 2018: NASA and ESA signed Joint SOI at the Berlin Airshow to jointly develop plans for MSR by the end of 2019
- In July 2019, NASA conducted an Acquisition Strategy Meeting for MSR and ESA released an Invitation to Tender (ITT) for an Earth Return Orbiter (ERO)
- Studies have prepared NASA and ESA to make an informed decision on MSR late 2019 / early 2020
- On Nov 28, the ESA Ministerial Council approved and funded their planned role in MSR

Europa Clipper



*Aug. 19, 2019 – MISSION CONFIRMED
NASA's Europa Clipper mission to study the
Jupiter Ocean World has been confirmed, launch
date pending for 2020s*



Double Asteroid Redirection Test (DART)

- First-ever mission to demonstrate asteroid deflection technique for NASA's Planetary Defense Coordination Office
- Uses kinetic impact to change motion of asteroid in space
- Current DART target, Didymos, will have distant approach to Earth October 2022
- Successfully completed Critical Design Review
- Mission is on track for 2021 launch aboard a SpaceX Falcon 9

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Planetary Opportunities

Planetary Science Division - ROSES 18

ROSES 18- Program Name	Step-1 Due Date	Step-2 Due Date	Panel Occurred	Selections/Submissions (Selection rate%)	Selection Date	Days from Step-2 to Select
Exobiology (EXOB)	04/16/2018	05/24/2018	Yes	23/156 (15%)	10/17	146
Exoplanets (XRP)	03/29/2018	05/30/2018	Yes	16/117 (14%)	10/03/2018	126
Exoplanets (XRP) 2*	03/29/2019	05/29/2019	Yes	18/139 (13%)	10/04/2019	128
Emerging Worlds (EW)	04/12/2018	06/01/2018	Yes	29/110 (26%)	10/18	139
Development & Advance of Lunar Instruments (DALI)	04/03/2018	06/05/2018	Yes	10/48 (17%)	10/26	143
Solar System Obs. (SSO)	04/05/2018	06/07/2018	Yes	10/66 (15%)	03/11	277
MatISSE	04/18/2018	06/20/2018	Yes	8/56 (14%)	11/09	142
Laboratory Analysis of Returned Sample (LARS)	05/24/2018	07/26/2018	Yes	12/26 (46%)	04/30	278
Planetary Data Archiving, Restoration, Tools (PDART)	05/10/2018	07/12/2018	Yes	16/91 (18%)	11/19	130
Cassini Data Analysis (CDAP) C. 10	06/01/2018	08/14/2018	Yes	18/61 (30%)	03/18	216
Cassini Data Analysis (CDAP) C. 26				2/7 (29%)	03/31	114
New Frontiers Data Analysis Program (NFDAP)	06/12/2018	08/23/2018	Yes	10/25 (40%)	03/08	197
Apollo Next Generation Sample Analysis (ANGSA)	06/22/2018	08/21/2018	Yes	9/26 (35%)	03/11	202
Planetary Major Equipment/Facilities (PMEF)	07/17/2018	09/17/2018	Yes	XX/11	TBD	
Mars Data Analysis (MDAP)	08/23/2018	10/25/2018	Yes	24/103 (23%)	05/19	206
Discovery Data Analysis (DDAP)	08/30/2018	11/01/2018	Yes	6/22 (27%)	06/14	225
Rosetta Data Analysis Program (RDAP)	08/30/2018	11/01/2018	Yes	7/23 (30%)	06/19	230
PICASSO	09/20/2018	11/20/2018	Yes	11/91 (12%)	04/29	160
Habitable Worlds (HW)	11/15/2018	03/29/2019	Yes	10/60 (17%)	10/20	205
Solar System Workings (SSW)	11/15/2018	04/02/2019	Yes	74/338 (22%)	09/27	178
Lunar Data Analysis (LDAP)	11/29/2018	03/29/2019	Yes	9/37 (24%)	09/28	183
Korean Pathfinder Lunar Orbiter (KPLO)	04/11/2019	06/11/2019	No	XX/26	DELAYED BY MISSION	
Planetary Protection Research (PPR)	04/12/2019	05/10/2019	Yes	7/35 (20%)	11/08	182

ROSES 19 - Program Name	Step-1 Due Date	Step-2 Due Date	Panels Held	Selections/ Proposals	Selection Dates	Days from Step-2 to Select
Exoplanets (XRP)	Solicited through ROSES 18 Amendment					
Planetary Protection Research (PPR)	Not Solicited					
Emerging Worlds (EW)	04/16/2019	06/12/2019	Yes	20/100 (20%)	11/04	145
Development & Advance of Lunar Instruments (DALI)	04/16/2019	06/12/2019	Yes	5/44 (11%)	11/14	155
Solar System Obs. (SSO)	04/16/2019	06/12/2019	Yes	XX/49	TBD	
MatISSE	Not Solicited					
Laboratory Analysis of Returned Sample (LARS)	04/24/2019	06/25/2019	No	XX/23	TBD	
Planetary Data Archiving, Restoration, Tools (PDART)	05/09/2019	07/11/2019	Yes	17/112 (15%)	TBD	124
Exobiology (EXOB)	05/13/2019	06/12/2019	Yes	XX/159	TBD	
Cassini Data Analysis (CDAP)	05/16/2019	07/18/2019	Yes	17/61 (28%)	TBD	120
New Frontiers Data Analysis Program (NFDAP)	05/30/2019	08/01/2019	No	11/27 (41%)	TBD	106
Planetary Science and Technology Through Analog Research (PSTAR)	07/25/2019	10/10/2019	No	XX/48	TBD	
Planetary Major Equipment/Facilities (PMEF)	08/20/2019	10/22/2019	No	TBD	TBD	
Mars Data Analysis (MDAP)	08/22/2019	10/24/2019	No	XX/101	TBD	
Discovery Data Analysis (DDAP) *	08/29/2019	11/01/2019	No	XX/43	TBD	
PICASSO	09/20/2019	11/20/2019	No	XX/96	TBD	
Early Career Award (C.19)	N/A	12/02/2019	No	TBD	TBD	
Habitable Worlds (HW)	11/15/2019	01/17/2020	No	TBD	TBD	
Solar System Workings (SSW)	11/15/2019	01/30/2020	No	TBD	TBD	
Lunar Data Analysis (LDAP)	11/26/2019	02/27/2020	No	TBD	TBD	

While we continue to operate on a Continuing Resolution, in order to keep all the programs up and running, we have reduced selections by 15%, with the anticipation that additional selections will be made once we have a new operating plan under a new budget

Reviewers

- Quality reviews require enthusiastic volunteers. Please consider reviewing for any of the upcoming R&A review panels on the SARA website
<https://science.nasa.gov/researchers/volunteer-review-panels>
- PSD is committed to having a diverse reviewer pool and will provide reasonable accommodation for reviewers when possible. Talk with your program officers about your needs



Exoplanet Research Program (XRP)

Changes to the program in ROSES19:

- HSD and ESD joined the program
- Review managed collaboratively by all four divisions
- Selections are funding-blind (i.e. not tied to specific Divisions)
- 20 percent more proposals than last year!

Anticipated changes coming in ROSES20:

- Consolidation of exoplanet proposals into XRP
 - Within APD: exoplanet-related proposals from ADAP, ATP, etc. will move into XRP
 - Within PSD: exoplanet proposals in HW may move into XRP (better definition of the line between the two)
- Encourage further cross-divisional collaboration (HSD and ESD participation, in particular)

Astrobiology Research

- Solicitation: NNH19ZDA001N-ICAR
- Targeted timing:
 - Final Text Was Released Nov 25, 2019
 - 1/31/20 Step 1 proposals due
 - 4/3/20 Step 2 proposals due
 - Fall 2020 new ICAR awards start
- Areas of Research Emphasis in this Solicitation are linked to RCN Topics:
 1. Exoplanet System Science - NExSS
 2. Prebiotic Chemistry and Early Earth Environments - PCE₃
 3. Earliest Cells and Multicellularity
- Selected proposals will become part of the Research Coordination Network
- Calls will occur on the order of every two years and will stagger RCN topics that will be included.



PROGRAM NEWS

ROSES-19 Amendment 8:
Interdisciplinary Consortia for
Astrobiology Research (ICAR)

RFI: Research That Fills a Gap Between Current SMD Solicitations

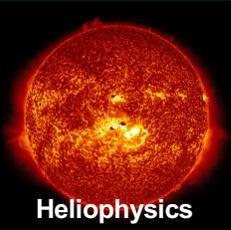
Release Date: Dec. 2, 2019 (Solicitation: NNH20ZDA003L)

Response Date: Jan. 31, 2020

- The NASA Science Mission Directorate is soliciting information on research that is aligned with the Agency mission and SMD's Science Plan **but falls in a gap** between current solicitations, possibly because it is interdisciplinary or interdivisional
- Responses will be used by NASA to inform a decision as to whether the portfolio of current program elements in ROSES needs to be modified and/or expanded to provide the proper avenue for such research
- Full text of the RFI and response instructions on NSPIRES



Earth Science



Heliophysics



Astrophysics



Planetary Science

Announcements of Opportunity

Small Innovative Missions for Planetary Exploration (SIMPLEx)

- Three missions selected for Phase A/B development
- Currently capturing lessons learned through PDR for consideration during next cycle
- Release of next opportunity planned for NET June 2020

New Frontiers #4

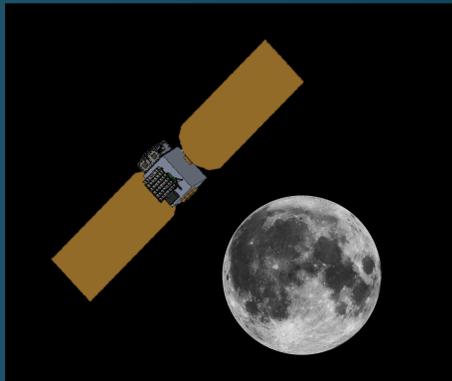
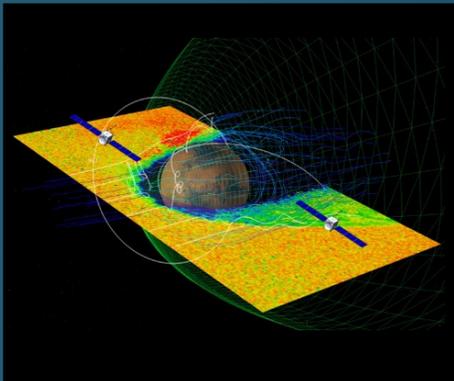
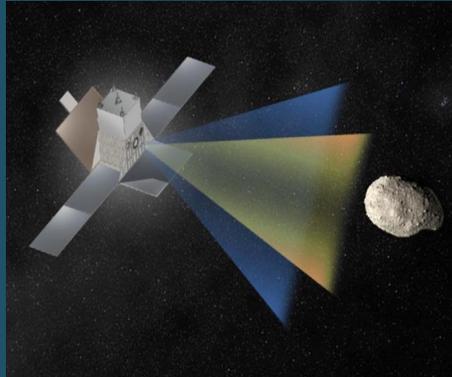
- Dragonfly selection announced June 27, 2019

New Frontiers #5

- To be released Fall 2022 (current schedule)

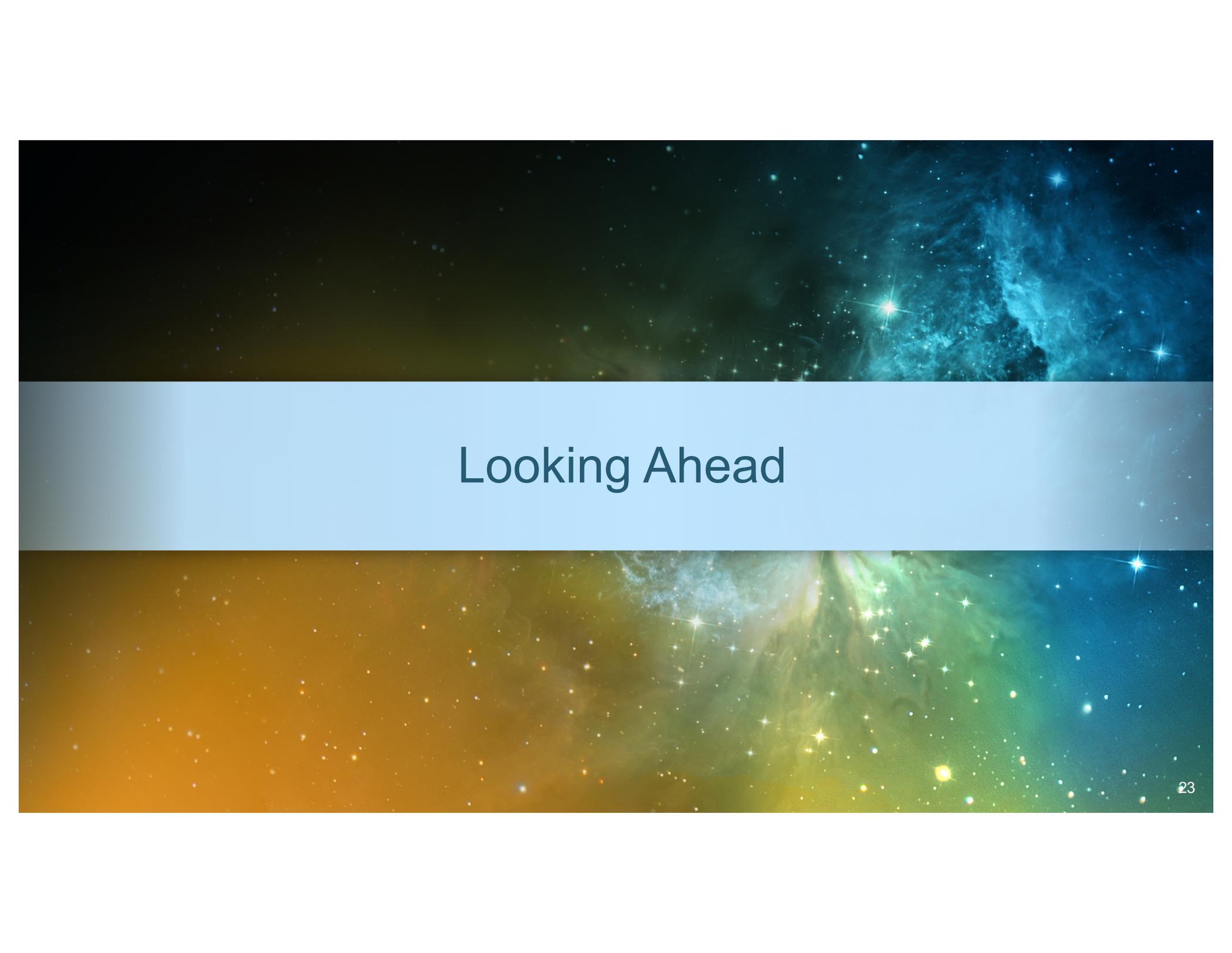
Discovery 2019

- Step-1 proposals were due July 1, 2019, with selections scheduled for January 2020
- Step-2 selections planned for NET April 2021
- Dr. Tom Wagner named Lead Program Scientist for the Discovery Program



Dragonfly



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Looking Ahead



Coming Soon!

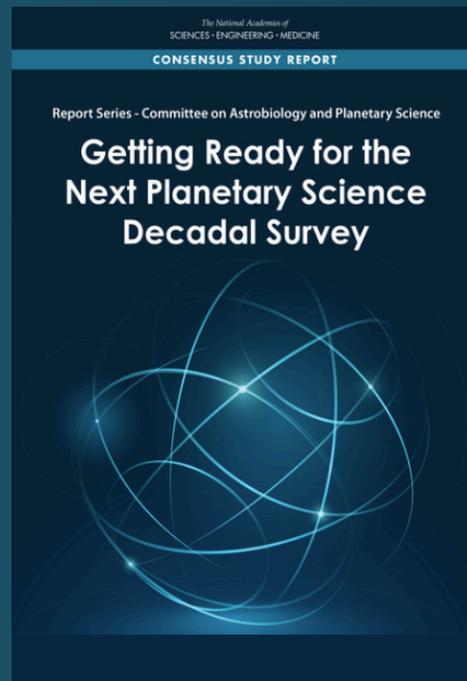
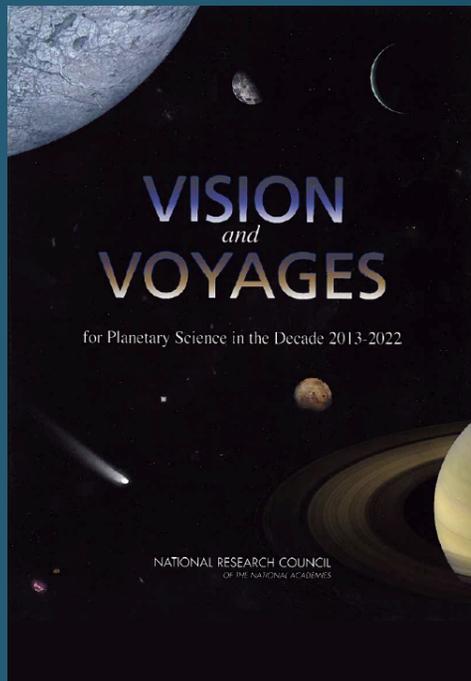
The Planetary Data System Customer Satisfaction Survey

This survey will be used to set the future priorities of the Planetary Data System (PDS). Tell us areas for improvement, what new services are needed, and ensure the needs of the scientific community are met both now and in the future.

Please assist NASA in defining the next generation of your PDS.

Come see us!
AGU Booth #1047

For more information:
<https://pds.nasa.gov>



Preparing for the Next Decadal Survey

- Planetary Mission Concept Studies (PMCS) proposals were due May 31, 2019
- Proposals were assessed by peer review panels this summer
 - 54 proposals received
 - 11 selected
- Results from concept study reports will be submitted to National Academy of Sciences to be included for consideration by the Decadal Survey
- PSD encourages those not selected to consider submitting a white paper



White Paper Process

- Led by the National Academy of Sciences (NAS) Space Studies Board (SSB)
- Format similar to last planetary decadal (NAS website)
- LPI website for community collaborations is OPEN

www.lpi.usra.edu/decadal_whitepaper_proposals/index.cfm

- Upcoming Activities
 - AGU Town Hall with NAS/SSB
 - Scheduled for Dec. 11 at 12:30pm
 - Early Career Workshop/Webinars (Date = TBD)
 - LPSC Town Hall led by NAS/SSB
 - PMCS status workshop, informational webinars and face-to-face meetings at LPSC



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with us



National Aeronautics and
Space Administration

EXPLORE SCIENCE

THOMAS H. ZURBUCHEN

Associate Administrator

NASA Science Mission Directorate

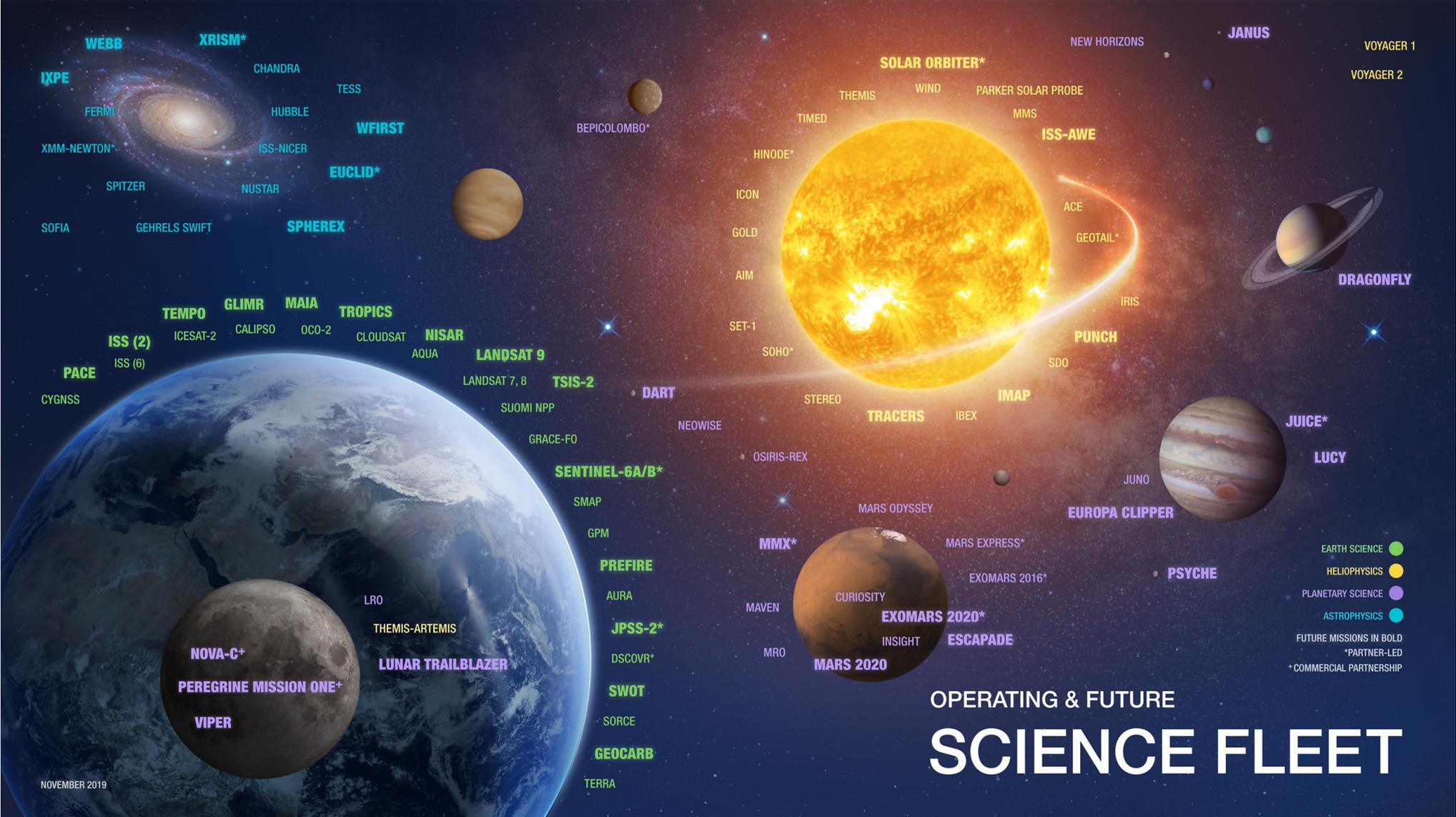
 @Dr_ThomasZ

December 9, 2019





NASA SCIENCE
AN INTEGRATED PROGRAM





Research and Analysis Initiatives



Dual Anonymous Peer Review

- SMD is strongly committed to ensuring that review of proposals is performed in an equitable and fair manner that reduces the impacts of any unconscious biases

High-Risk/ High-Impact (HR/HI)

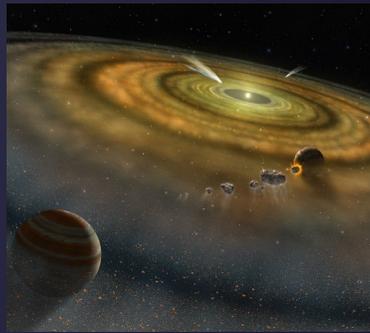
- To reinforce SMD's interest in High-Risk/High-Impact research, a special review process will be implemented in ROSES 2020 to review and select HR/HI proposals

Proposal Selection Metrics for ROSES 2018

- Overall, just under 50% of selections featured new PIs
- Majority of division selection rates were between 25 – 30%, and we are continuing to evaluate

Request for Information:

Research That Falls in Gap between current SMD Solicitations



- Release Date: Dec 2, 2019
(Solicitation: NNH20ZDA003L)
- Response Date: Jan 31, 2020
- NASA SMD is soliciting information on research aligned with agency mission and SMD's Science Plan but falls in a gap between current solicitations, possibly because it's interdisciplinary or interdivisional
- Responses will be used by NASA to inform decision as to whether portfolio of current program elements in ROSES needs to be modified and/or expanded to provide the proper avenue for such research
- Full text of RFI and response instructions on the NSPIRES website

Mission Principal Investigator Development

Seek to increase the diversity of mission principal investigators and develop the next generation of mission leaders to ensure that new ideas and mission concepts are brought forward

- NASA Science has:
 - Developed a consolidated PI resources webpage at <https://science.nasa.gov/researchers/new-pi-resources>, which also includes SMD presentation on lessons learned from past selections
 - Introduced a pre-reviews of mission peer review panels to ensure diversity and reduce conflicts of interest
 - Included career development positions and associated evaluation criteria as part Discovery and New Frontiers AOs
- Upcoming activities include:
 - Making videos and slides from the November 2019 workshop available
 - Looking to host two Launchpad Workshops per year

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