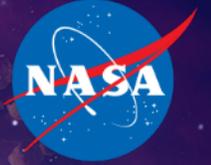


National Aeronautics and  
Space Administration



# EXPLORE SOLAR SYSTEM & BEYOND

**Lori S. Glaze, Ph.D.**  
NASA Planetary Science Division Director  
MEPAG  
April 15, 2020

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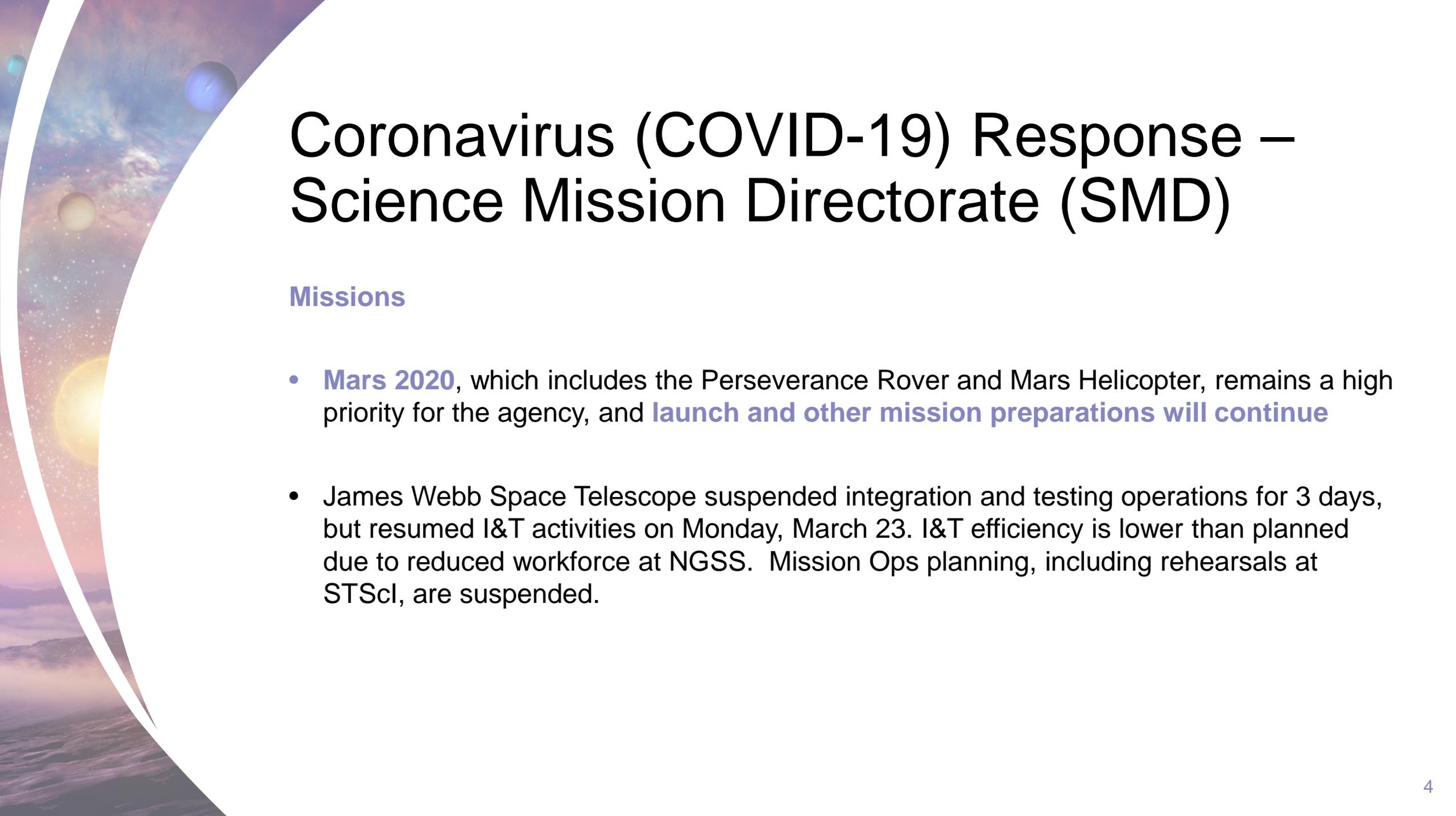
# COVID-19





# Coronavirus (COVID-19) Response – Science Mission Directorate (SMD)

- There will be impacts, and we don't yet know the extent. We're working with each mission and project in detail based on where they are in development process
- **Priority is everyone's safety and protecting hardware and integrity of data for operating missions**
- Conducted status assessment of all 47 flight projects in the SMD Portfolio
- Most missions are in development phases early enough (phases A-B-early C) that bulk of the work can be done virtually
- Missions in integration and testing (I&T) will continue to the extent possible with small teams
- Will work with our domestic and international partners to refine the prioritization of our projects, especially those in I&T
- Have consulted with the NASA Chief Medical Officer and have protocols for working in clean rooms
- **Anticipate impact to solicitations and evaluations**



# Coronavirus (COVID-19) Response – Science Mission Directorate (SMD)

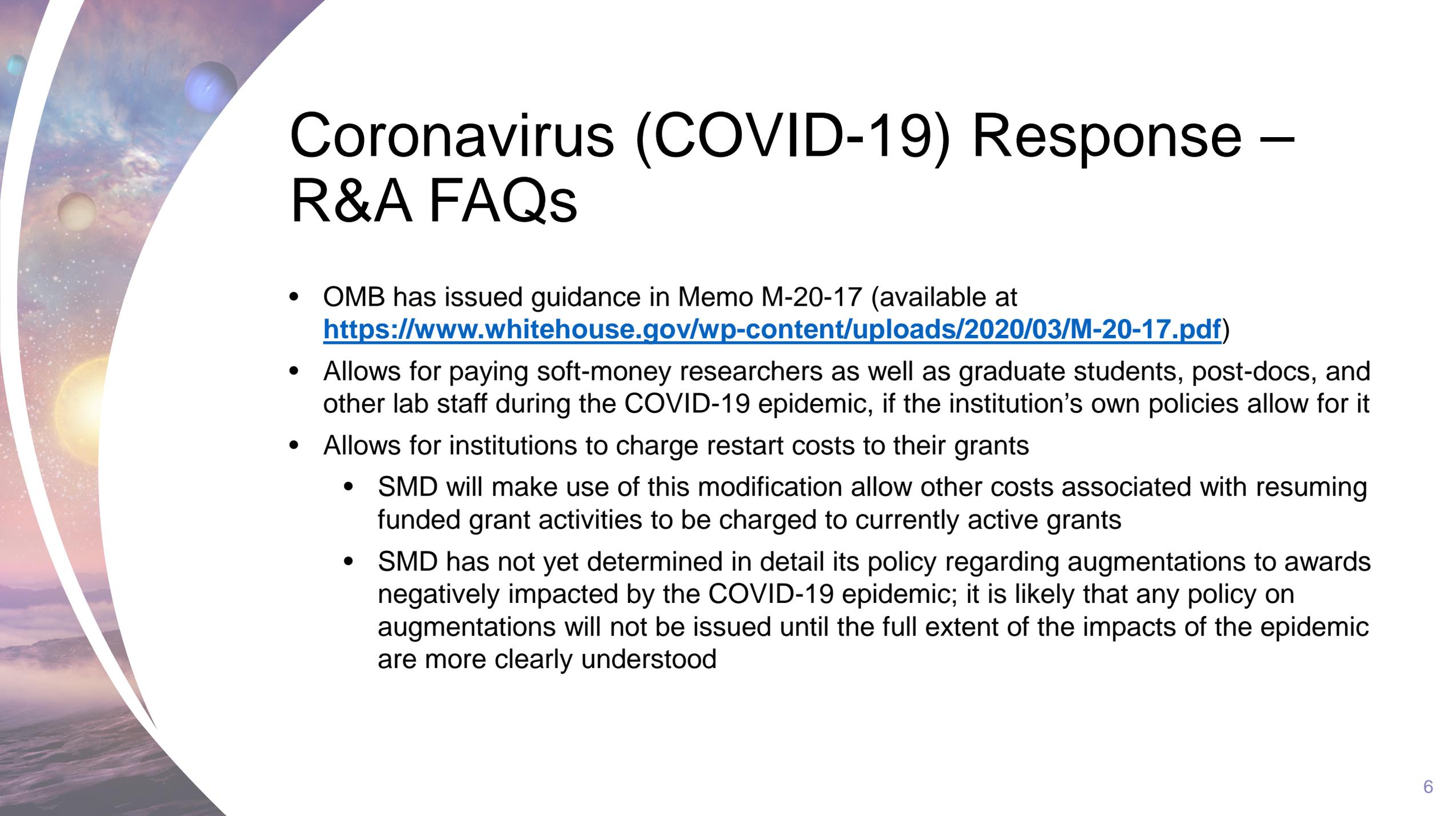
## Missions

- **Mars 2020**, which includes the Perseverance Rover and Mars Helicopter, remains a high priority for the agency, and **launch and other mission preparations will continue**
- James Webb Space Telescope suspended integration and testing operations for 3 days, but resumed I&T activities on Monday, March 23. I&T efficiency is lower than planned due to reduced workforce at NGSS. Mission Ops planning, including rehearsals at STScI, are suspended.



# Coronavirus (COVID-19) Response – ROSES 2020

- We know that progress on funded research may slow, and in some cases, even stop due to necessary telework and lack of access to facilities and labs, and other family obligations
- SMD understands this potential outcome and will work with the research community and its institutions to mitigate any impacts and to make plans, when possible, for a way forward
- NASA has instituted a number of grant administration flexibilities to ease the burden on grant recipients during the COVID-19 emergency
- Considering converting all Step-1 proposals due within the next 30 days into mandatory NOIs to alleviate pressure on Sponsored Projects Offices
- SMD's policy on late proposals will be applied leniently on a case-by-case basis
- Expect that research progress may slow or stop; SMD is prepared to rephase or no-cost extend awards as needed on a case-by-case basis
- Encouraging all to continue to pay graduate students, post-docs, and lab staff
- **Watch the NSPIRES email lists for up-to-the-minute changes in due dates or policies**

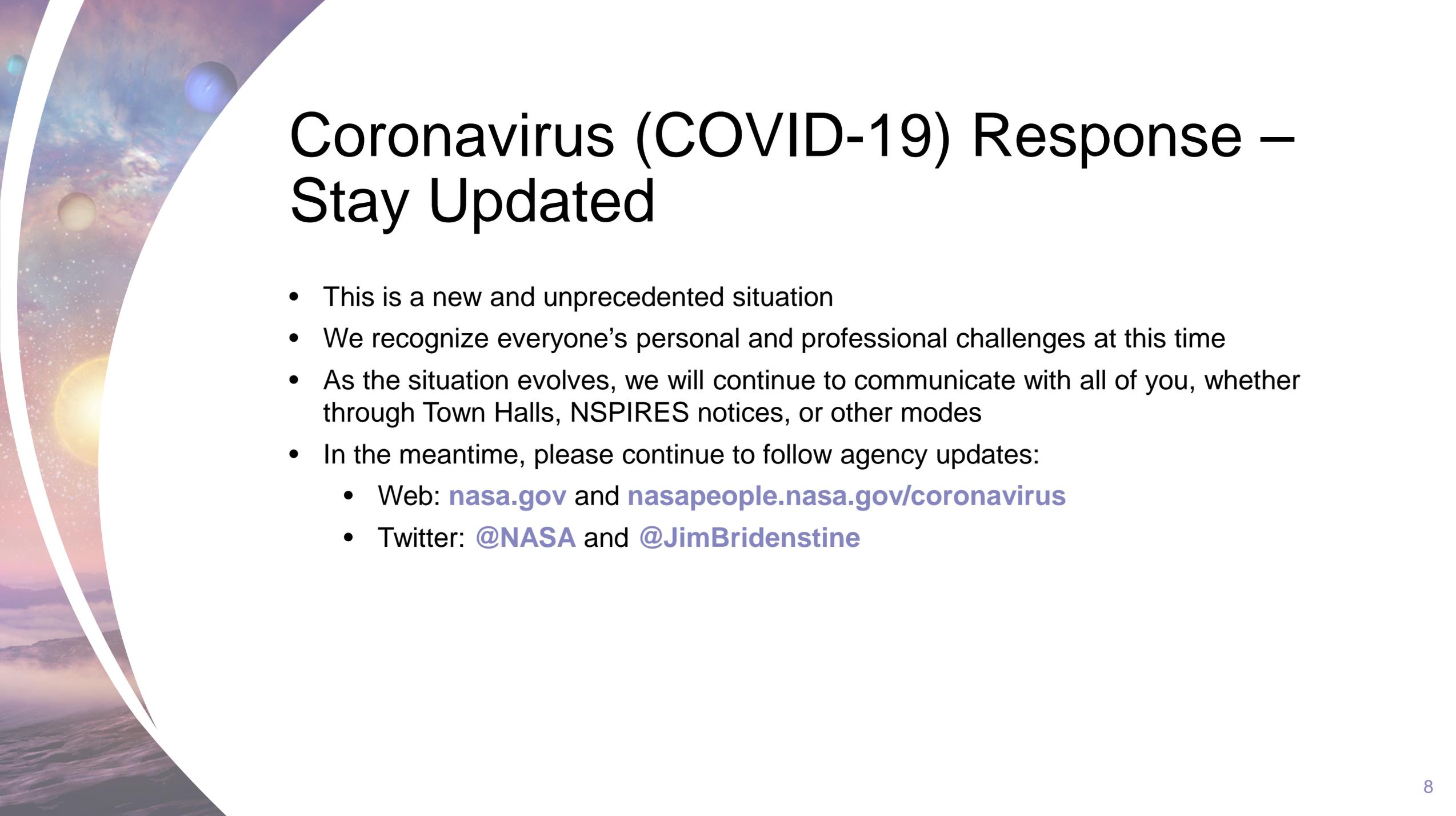


# Coronavirus (COVID-19) Response – R&A FAQs

- OMB has issued guidance in Memo M-20-17 (available at <https://www.whitehouse.gov/wp-content/uploads/2020/03/M-20-17.pdf>)
- Allows for paying soft-money researchers as well as graduate students, post-docs, and other lab staff during the COVID-19 epidemic, if the institution's own policies allow for it
- Allows for institutions to charge restart costs to their grants
  - SMD will make use of this modification allow other costs associated with resuming funded grant activities to be charged to currently active grants
  - SMD has not yet determined in detail its policy regarding augmentations to awards negatively impacted by the COVID-19 epidemic; it is likely that any policy on augmentations will not be issued until the full extent of the impacts of the epidemic are more clearly understood

# Coronavirus (COVID-19) Response – R&A FAQs (cont'd)

- OMB has issued guidance in Memo M-20-17 (available at <https://www.whitehouse.gov/wp-content/uploads/2020/03/M-20-17.pdf>)
- Provides agencies flexibility with regard to the submission of proposals.
  - SMD's policy on late proposals will be applied leniently on a case-by-case basis
  - Proposals started before the due date, but not submitted until after the due date due to the impacts of the COVID-19 epidemic, will be strongly considered for acceptance if they are submitted within seven calendar days of the due date
  - Proposals not yet started in NSPIRES by the time of the due date and submitted after the due date will only be accepted after an analysis of the particular reasons for the late start/late submission by the program element point of contact and with the agreement of the selecting official.



# Coronavirus (COVID-19) Response – Stay Updated

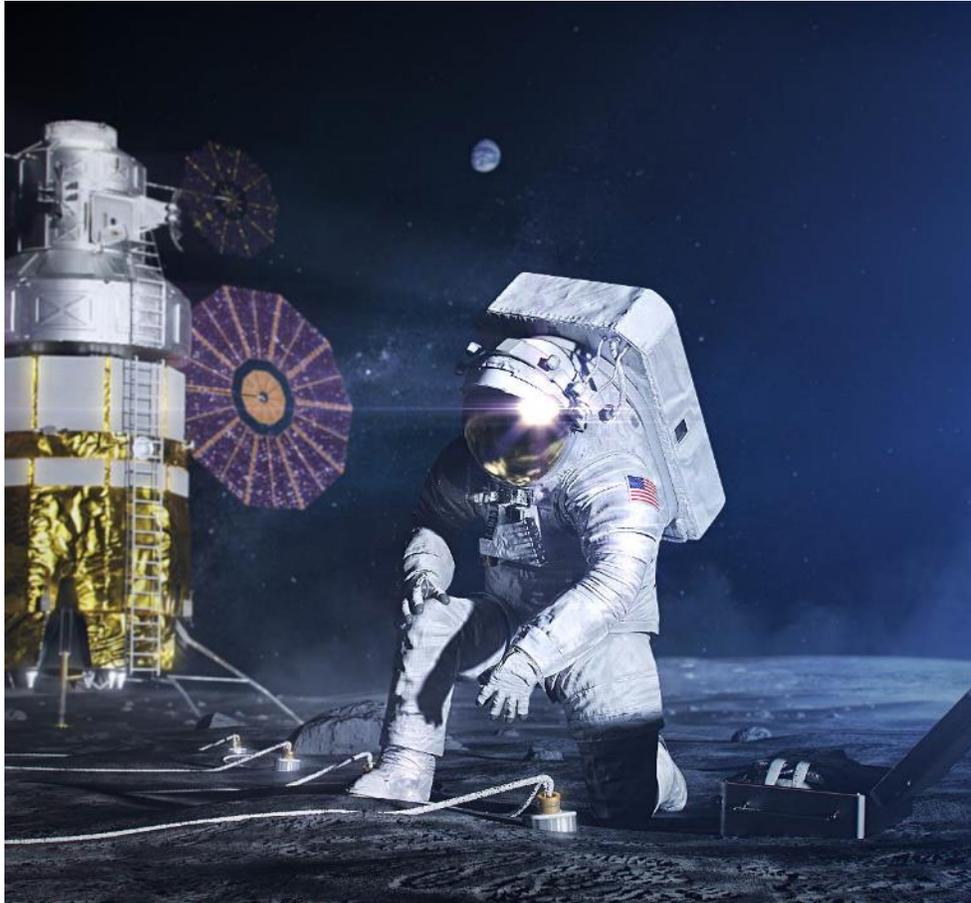
- This is a new and unprecedented situation
- We recognize everyone’s personal and professional challenges at this time
- As the situation evolves, we will continue to communicate with all of you, whether through Town Halls, NSPIRES notices, or other modes
- In the meantime, please continue to follow agency updates:
  - Web: [nasa.gov](https://nasa.gov) and [nasapeople.nasa.gov/coronavirus](https://nasapeople.nasa.gov/coronavirus)
  - Twitter: [@NASA](https://twitter.com/NASA) and [@JimBridenstine](https://twitter.com/JimBridenstine)



# Budget



# FY21 Budget – Agency Highlights



- One of the strongest budgets in NASA's history, investing more than \$25 billion dollars for America's future in space
  - funding proposed represents an increase of about 12% over last year's request
- Keeps the agency on track to land the first woman and the next man on the Moon by 2024, and with the support of the Gateway, helps prepare for human exploration of Mars
- Budget supports decadal priorities such as:
  - Mars Sample Return mission
  - Europa Clipper

# Science Budget Request Summary (\$M)

	Actual	Request	Enacted	Request	Out-years			
	FY 19	FY 20	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25
<b>Science</b>	<b>6,886.6</b>	<b>6,393.7</b>	<b>7,138.9</b>	<b>6,306.5</b>	<b>6,553.5</b>	<b>6,575.7</b>	<b>6,705.2</b>	<b>6,766.9</b>
<b>Earth Science</b>	<b>1,931.0</b>	<b>1,779.8</b>	<b>1,971.8</b>	<b>1,768.1</b>	<b>1,878.2</b>	<b>1,846.1</b>	<b>1,834.5</b>	<b>1,984.6</b>
Earth Science Research	454.1	447.9		447.3	471.9	494.1	528.5	530.3
Earth Systematic Missions	932.7	719.2		608.3	706.1	695.6	640.7	797.3
Earth System Science Pathfinder	223.8	275.4		338.9	301.2	251.6	241.8	234.4
Earth Science Data Systems	202.0	214.4		245.4	259.9	263.2	278.7	277.7
Earth Science Technology	63.4	69.6		74.2	82.8	84.6	86.4	86.4
Applied Sciences	55.1	53.3		53.9	56.3	57.0	58.5	58.5
<b>Planetary Science</b>	<b>2,746.7</b>	<b>2,712.1</b>	<b>2,713.4</b>	<b>2,659.6</b>	<b>2,800.9</b>	<b>2,714.9</b>	<b>2,904.8</b>	<b>2,830.7</b>
Planetary Science Research	276.6	266.2		305.4	288.6	285.1	295.2	286.7
Planetary Defense	150.0	150.0	160.0	150.0	147.2	97.6	98.0	98.0
Lunar Discovery and Exploration	188.0	300.0	300.0	451.5	517.3	491.3	458.3	458.3
Discovery	409.5	502.7		484.3	424.4	434.8	570.1	505.8
New Frontiers	93.0	190.4		179.0	314.3	332.8	326.9	285.0
Mars Exploration	712.7	546.5	570.0	528.5	588.4	671.2	798.7	855.3
Outer Planets and Ocean Worlds	793.6	608.4		414.4	370.7	239.4	192.3	171.7
Radioisotope Power	123.3	147.9	147.9	146.3	150.1	162.8	165.4	169.8
<b>Astrophysics</b>	<b>1,191.1</b>	<b>844.8</b>	<b>1,306.2</b>	<b>831.0</b>	<b>891.2</b>	<b>1,000.9</b>	<b>959.7</b>	<b>975.5</b>
Astrophysics Research	222.8	250.7		269.7	279.1	327.2	314.9	331.1
Cosmic Origins	222.8	185.3		124.0	123.2	120.0	122.4	122.4
Physics of the Cosmos	151.2	148.4		143.9	160.8	155.3	169.8	154.1
Exoplanet Exploration	367.9	46.4		47.2	50.4	47.6	51.6	52.2
Astrophysics Explorer	226.5	214.1		246.2	277.7	350.8	301.0	315.6
<b>James Webb Space Telescope</b>	<b>305.1</b>	<b>352.6</b>	<b>423.0</b>	<b>414.7</b>	<b>175.4</b>	<b>172.0</b>	<b>172.0</b>	<b>172.0</b>
<b>Heliophysics</b>	<b>712.7</b>	<b>704.5</b>	<b>724.5</b>	<b>633.1</b>	<b>807.8</b>	<b>841.8</b>	<b>834.1</b>	<b>804.1</b>
Heliophysics Research	248.9	237.0		230.5	218.7	225.2	224.0	224.5
Living with a Star	135.3	107.6		127.9	134.5	246.4	225.5	233.3
Solar Terrestrial Probes	180.5	177.9	183.2	126.3	262.2	202.6	195.6	115.5
Heliophysics Explorer Program	147.9	182.0	182.0	148.4	192.4	167.6	189.0	230.8

# Planetary Science FY21 Budget Features

## What's changed

- Proposes **Europa Clipper** launch in 2024 on a commercial vehicle, which saves over \$1.5 billion and makes an SLS available to support an Orion launch to the Moon
- **Dragonfly** selected as next New Frontiers mission with launch readiness date in 2026
- Increases **Commercial Lunar Payload Services** based on awards to date
- Increases **SmallSat** future opportunities within the Discovery Program
- Increases **R&A** to maintain adherence to Decadal recommendation
- Begin **Mars Ice Mapper** planning with international and commercial partners

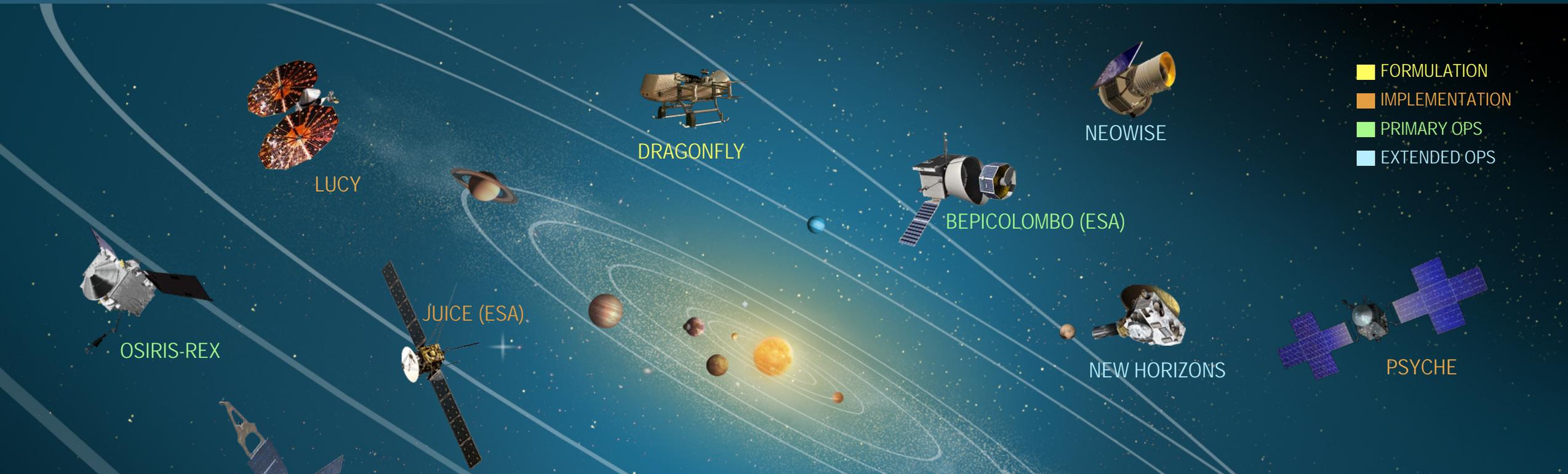
## What's the same

- Enables a **Mars Sample Return** launch in 2026
- Implements **Mars 2020, DART, Dragonfly, Psyche and Lucy** as well as **instruments on ExoMars 2020, JUICE and MMX**
- Enables **Discovery** selection(s) in 2021 and **New Frontiers 5** AO release in 2022
- No funding for Europa Lander
- Maintains nation's **radioisotope power system** capability

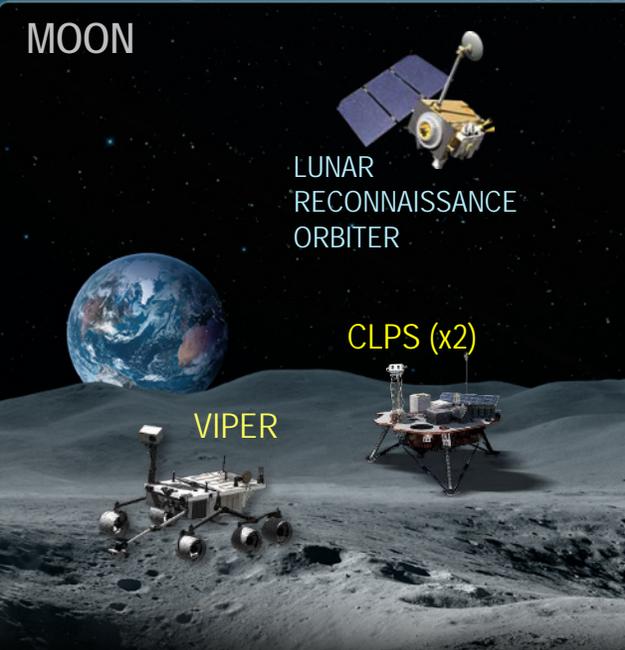


# Mission Updates

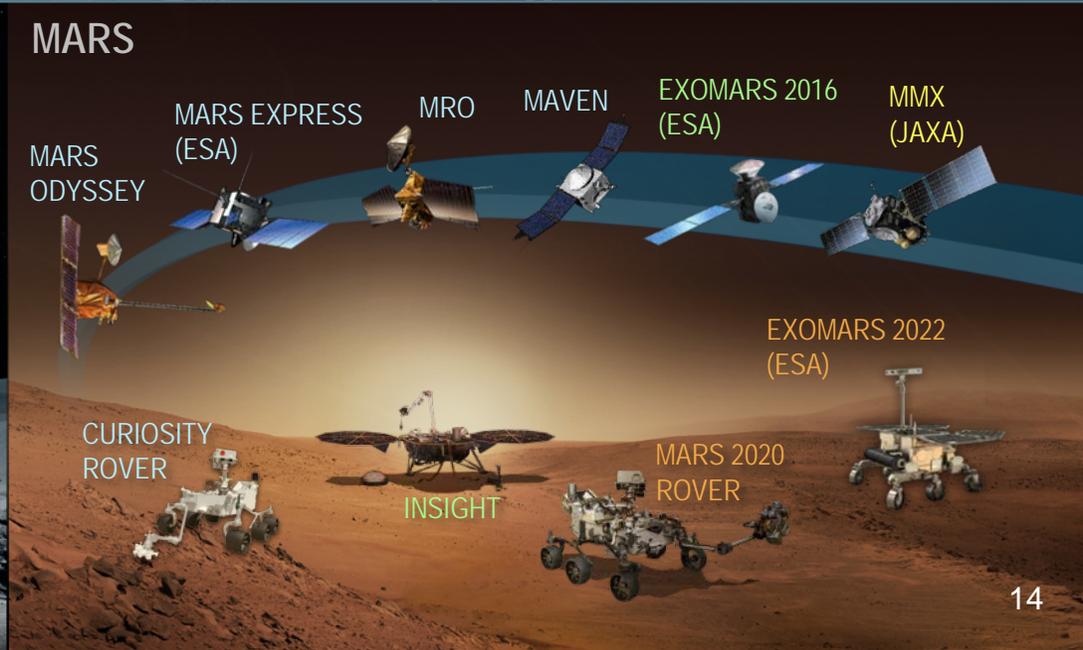




MOON



MARS





# Mars 2020/Perseverance

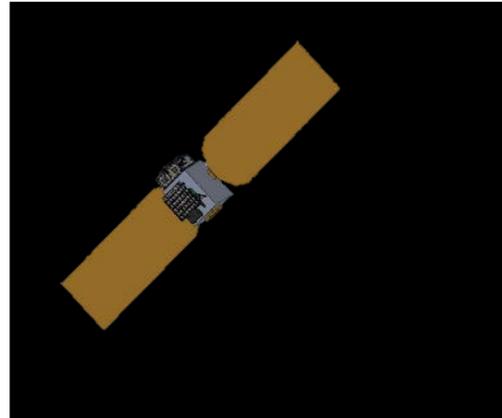
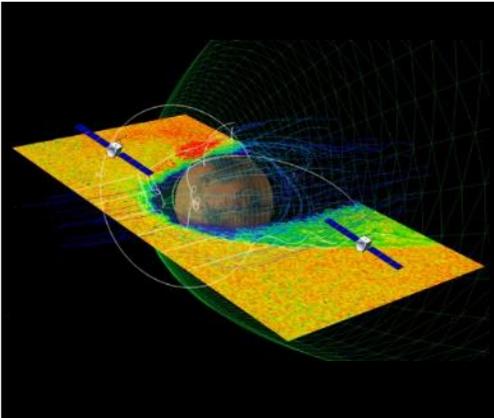
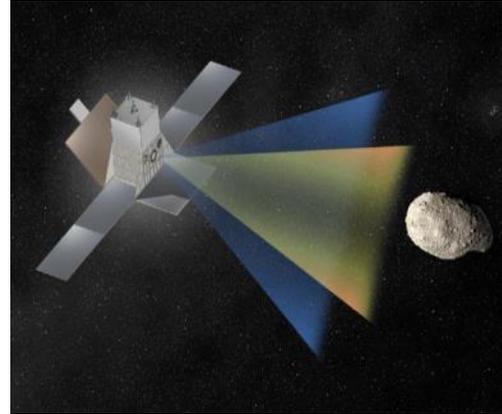
- Mars 2020 is on schedule for launch in July (window opens on July 17)
- Agency has placed high priority on the health and safety of the individuals who are continuing to work the final assembly and test activities both at JPL and at KSC
- Almost all hardware is currently at KSC
  - Hardware that contacts the samples will ship soon
  - MMRTG on schedule for installation at KSC
- The rover name, Perseverance, was announced on March 5
  - Essay written by Alexander Mather was selected from over 28,000 entries
- Participating Scientist proposals received
  - Review will be conducted remotely
  - Selections expected this summer



# Opportunities



# 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 NET Sep 2020

## New Frontiers #4

- Dragonfly selection announced June 27, 2019

## New Frontiers #5

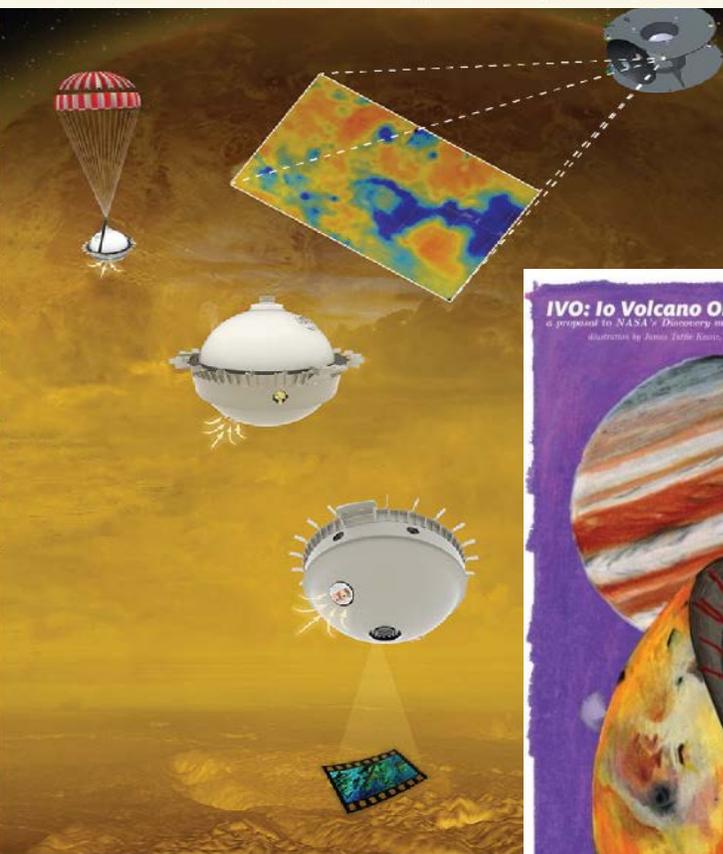
- To be released Fall 2022 (current schedule)

## Discovery 2019

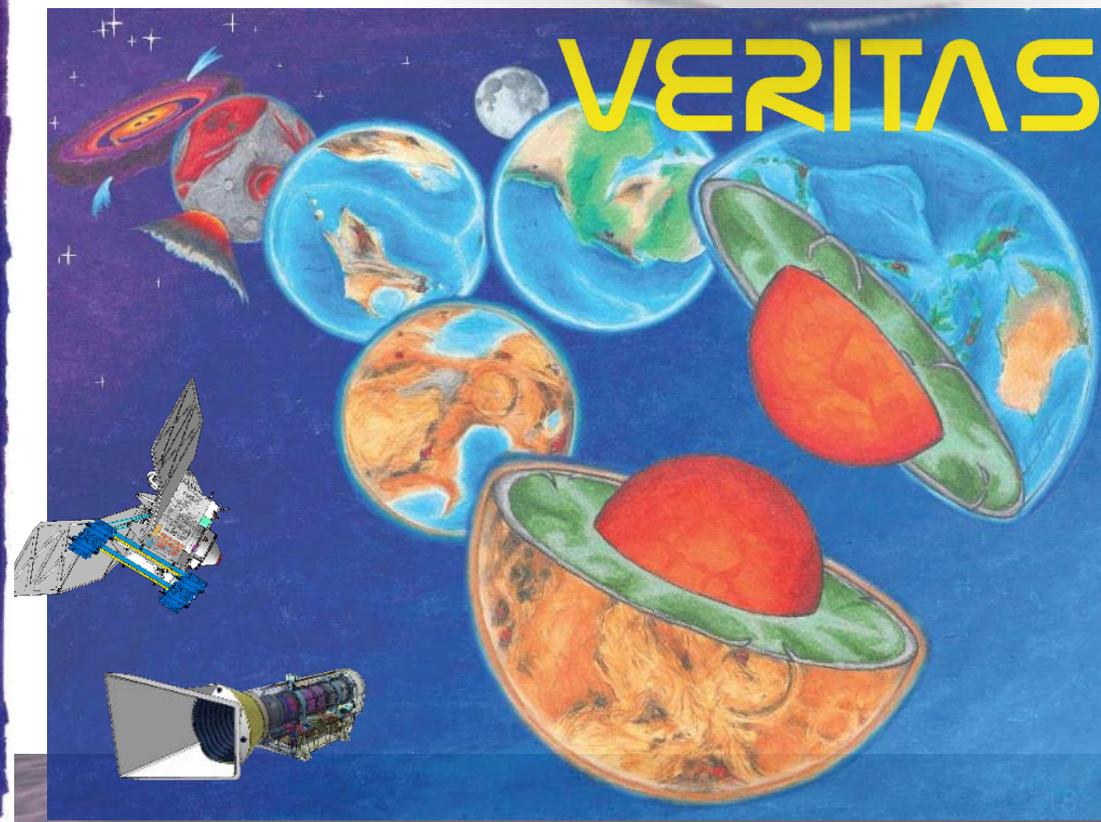
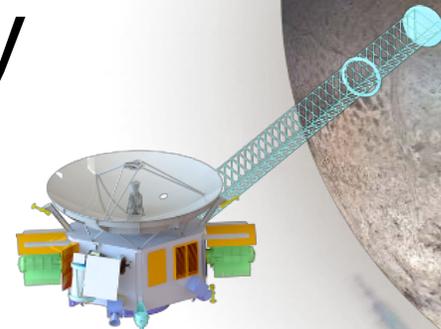
- Step-1 proposals were due July 1, 2019, with selections announced February 13, 2020
- Step-2 selections planned for NET April 2021

# DAVINCI+

Deep Atmosphere Venus Investigation of Noble gases, Chemistry, and Imaging Plus



## Four Discovery Selections for Phase A

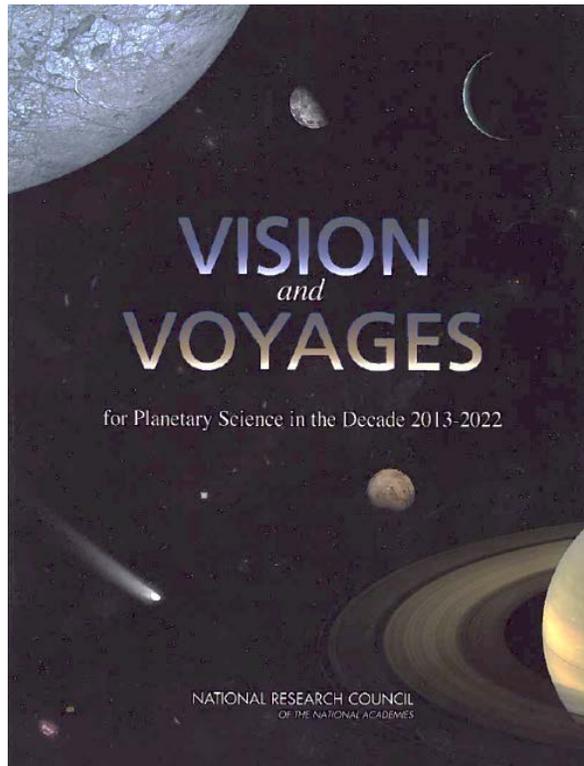




# Decadal Survey



# Preparing for the Next Decadal Survey



- Information on the Planetary Decadal survey can be found at: [www.nas.edu/planetarydecadal](http://www.nas.edu/planetarydecadal)
- White Paper process is being led by the NAS Space Studies Board (SSB)
- LPI and AG websites are open for community collaborations [https://www.lpi.usra.edu/decadal\\_whitepaper\\_proposals/index.cfm](https://www.lpi.usra.edu/decadal_whitepaper_proposals/index.cfm)
- **White paper submissions are now being accepted**
  - Due date: July 4, 2020
- Upcoming:
  - Nominations for panels and committee
  - Planetary Mission Concept Study (PMCS) status virtual workshop (Postponed, date TBC)



# Notional Timeline for 2023 Decadal Survey

## 2020

January  
February  
March

National Academies posts Statement of Task  
Funding proposal to NASA, NSF agree to support  
Early-career and town hall virtual LPSC events

**Survey officially began March 20<sup>th</sup>, 2020!**

April  
May  
July 4

White paper submission begins  
Chair announced  
White paper deadline; meetings begin

## 2021

Autumn  
Spring

Complete draft of survey report  
Survey report released, dissemination starts

## 2023

End of dissemination/NASA contract



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with us

# Conflict of Interest Statement

*Prospective members of all National Academies' committees and panels have their financial relationships reviewed to prevent actual or perceived conflicts of interest. Additionally, the National Academies evaluates whether each prospective member is a strong, publicly known advocate for a specific project—broadly defined as a plan, mission, initiative, architecture, or the equivalent—that the committee or panel may evaluate. Such evaluation is necessary to avoid possible bias or a perception thereof.*

*Nominations and self-nominations to the decadal survey committee—i.e., the steering group and supporting panels—are welcome. Nominees with the following characteristics are encouraged:*

- *Scientific and technical expertise, and objectivity;*
- *Experience in the management of a project, organization, or equivalent enterprise is desirable;*
- *Must be broad thinkers, open-minded, and not active proponents of a specific project; and*
- *Be able to participate in-person in survey committee activities.*

# Conflict of Interest Statement (cont'd)

*Additional considerations include the following:*

- *All authors of science-focused whitepapers prepared for the survey are eligible to be considered as members of the steering group and its supporting panels;*
- *First authors of mission-focused whitepapers prepared for the survey cannot serve on the steering group or on any panel considering that mission; and*
- *Principal Investigators of the NASA-funded, pre-decadal mission-concept studies to be evaluated by the survey cannot serve on the steering committee or on any panel considering that mission.*