

National Aeronautics and
Space Administration



PI LAUNCHPAD

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Executive Officer
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NASA SCIENCE

AN INTEGRATED PROGRAM

Planetary
Science



Earth
Science



Joint Agency
Satellite Division

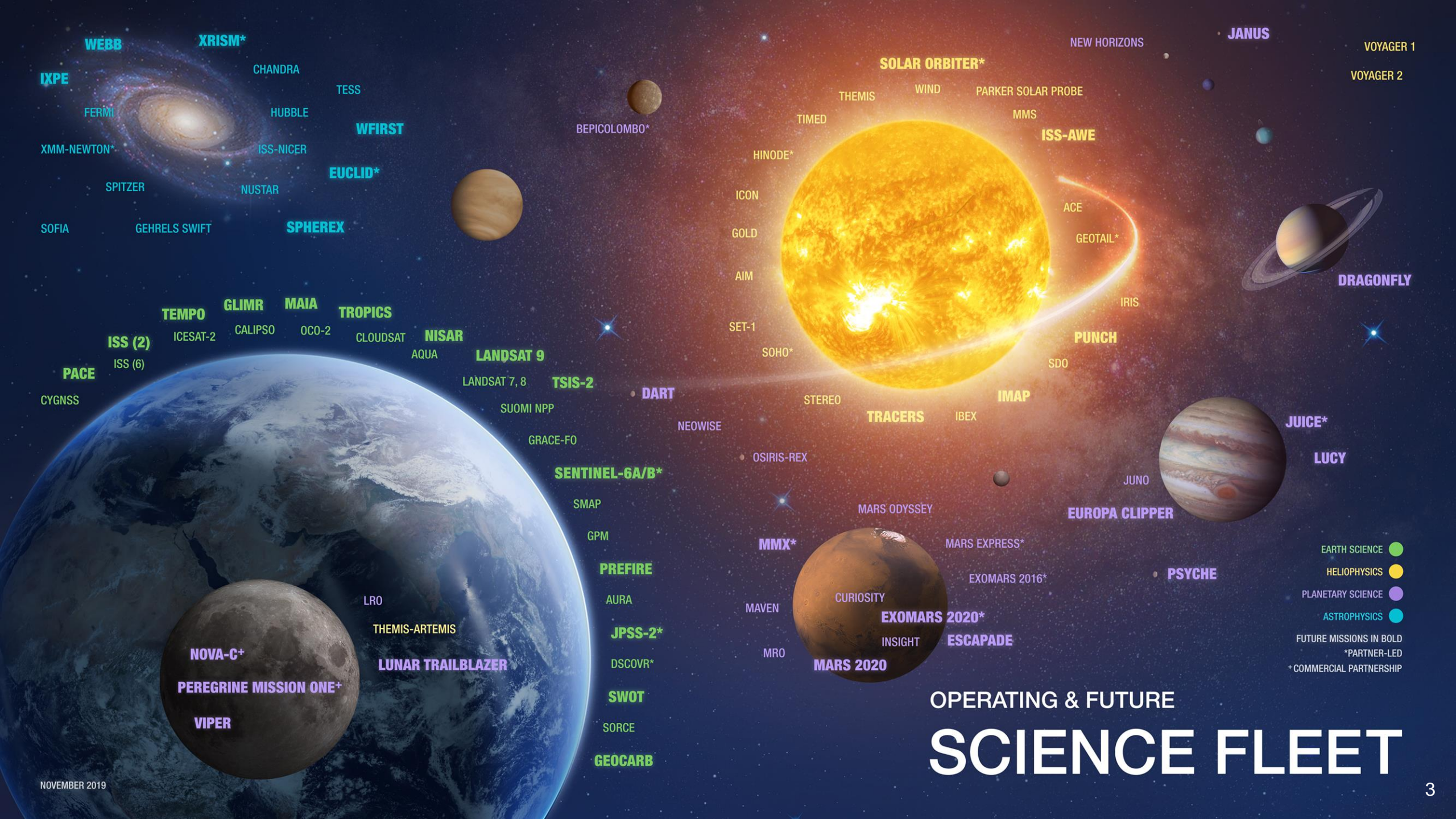


Astrophysics



Heliophysics





WEBB XRISM*
IXPE CHANDRA
FERMI TESS
XMM-NEWTON* HUBBLE
SPITZER NUSTAR
SOFIA GEHRELS SWIFT
WFIRST
EUCLID*
SPHEREX

ISS (2) ISS (6)
PACE
CYGNSS
TEMPO GLIMR MAIA TROPICS
ICESAT-2 CALIPSO OCO-2
CLOUDSAT NISAR
AQUA LANDSAT 9
LANDSAT 7, 8
SUOMI NPP
GRACE-FO

NOVA-C+
PEREGRINE MISSION ONE+
VIPER
LRO
THEMIS-ARTEMIS
LUNAR TRAILBLAZER

BEPICOLOMBO*

DART
NEOWISE
OSIRIS-REX
SENTINEL-6A/B*

PREFIRE
AURA
JPSS-2*
DSCOVR*
SWOT
SORCE
GEOCARB

SOLAR ORBITER*

THEMIS WIND PARKER SOLAR PROBE
TIMED MMS
HINODE*
ICON GOLD AIM
SET-1 SOHO*
STEREO TRACERS
IBEX IMAP

MMX*

MAVEN MRO
CURIOSITY
INSIGHT

EXOMARS 2020*
MARS 2020
EXOMARS 2016*
MARS EXPRESS*
ESCADAPE

NEW HORIZONS

ISS-AWE

PUNCH

EUROPA CLIPPER

PSYCHE

JANUS

VOYAGER 1

VOYAGER 2

DRAGONFLY

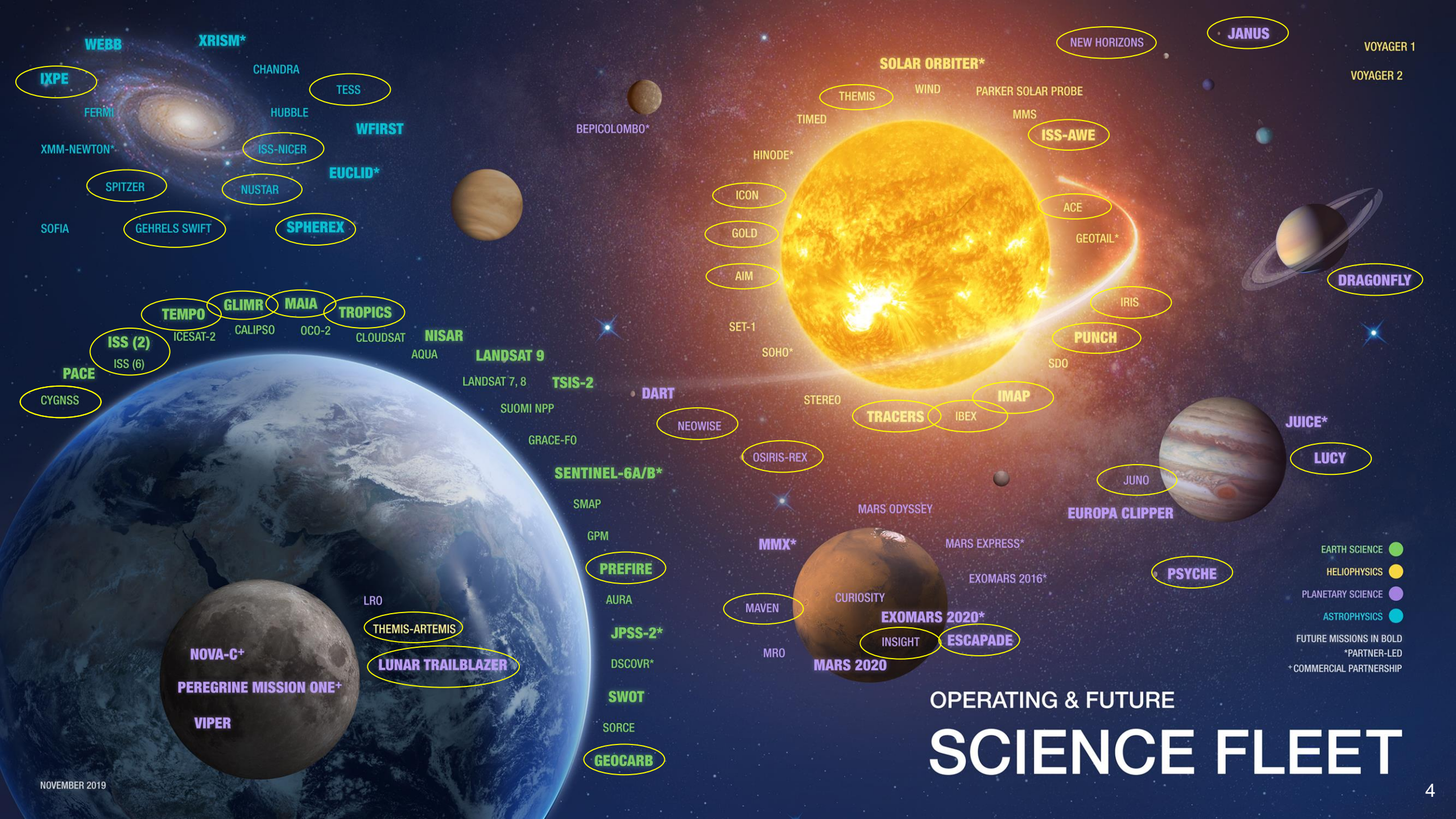
JUICE*

LUCY

EARTH SCIENCE ●
HELIOPHYSICS ●
PLANETARY SCIENCE ●
ASTROPHYSICS ●

FUTURE MISSIONS IN BOLD
*PARTNER-LED
+COMMERCIAL PARTNERSHIP

OPERATING & FUTURE SCIENCE FLEET

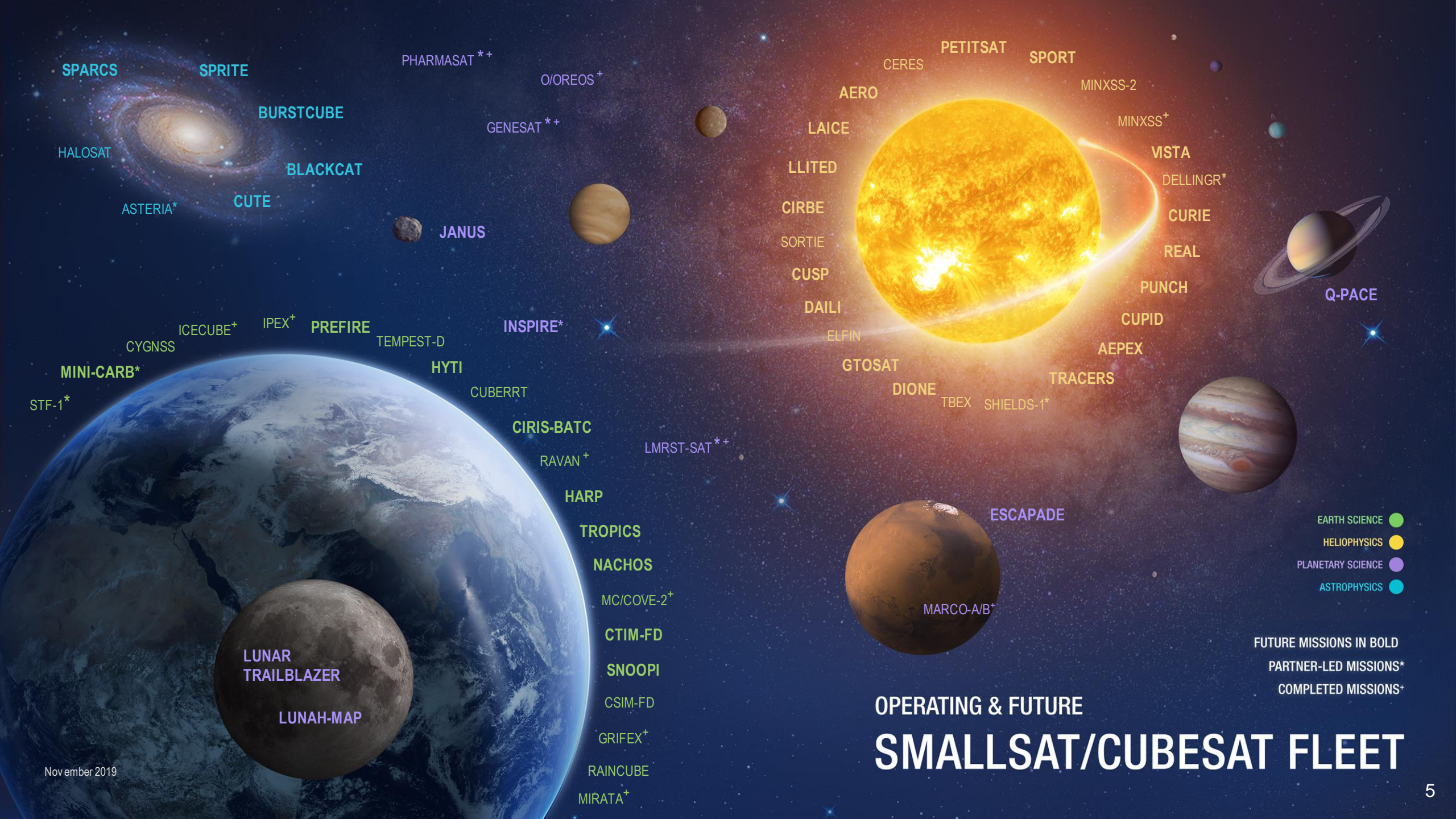


WEBB **XRISM*** **CHANDRA** **IXPE** **FERMI** **HUBBLE** **TESS** **WFIRST** **XMM-NEWTON*** **ISS-NICER** **EUCLID*** **SPITZER** **NUSTAR** **SOFIA** **GEHRELS SWIFT** **SPHEREX**

ISS (2) **ISS (6)** **ISS-AWE** **TEMPO** **GLIMR** **MAIA** **TROPICS** **ICESAT-2** **CALIPSO** **OCO-2** **CLOUDSAT** **NISAR** **AQUA** **LANDSAT 9** **LANDSAT 7, 8** **TSIS-2** **PACE** **CYGNSS** **SMAP** **GRACE-FO** **SUOMI NPP** **DART** **NEOWISE** **STEREO** **TRACERS** **IBEX** **IMAP** **OSIRIS-REX** **JUNO** **EUROPA CLIPPER** **JUICE*** **LUCY** **NEW HORIZONS** **JANUS** **VOYAGER 1** **VOYAGER 2** **BEPICOLOMBO*** **SOLAR ORBITER*** **THEMIS** **WIND** **PARKER SOLAR PROBE** **MMS** **ACE** **GEOTAIL*** **IRIS** **PUNCH** **SDO** **ICON** **GOLD** **AIM** **SET-1** **SOHO*** **STEREO** **TRACERS** **IBEX** **IMAP** **OSIRIS-REX** **JUNO** **EUROPA CLIPPER** **JUICE*** **LUCY** **SENTINEL-6A/B*** **SMAP** **GPM** **PREFIRE** **AURA** **JPSS-2*** **DSCOVR*** **SWOT** **SORCE** **GEOCARB** **NOVA-C+** **PEREGRINE MISSION ONE+** **VIPER** **LRO** **THEMIS-ARTEMIS** **LUNAR TRAILBLAZER** **MARS 2020** **MARS ODYSSEY** **MARS EXPRESS*** **EXOMARS 2016*** **EXOMARS 2020*** **INSIGHT** **ESCAPADE** **PSYCHE**

- EARTH SCIENCE ●
- HELIOPHYSICS ●
- PLANETARY SCIENCE ●
- ASTROPHYSICS ●
- FUTURE MISSIONS IN BOLD
- *PARTNER-LED
- +COMMERCIAL PARTNERSHIP

OPERATING & FUTURE SCIENCE FLEET



SPARCS

SPRITE

PHARMASAT**

O/OREOS+

CERES

PETITSAT

SPORT

MINXSS-2

BURSTCUBE

GENESAT**

AERO

MINXSS+

HALOSAT

BLACKCAT

LAICE

VISTA

ASTERIA*

CUTE

LLITED

DELLINGR*



JANUS



CIRBE

SORTIE

CUSP

DAILI

ELFIN

GOTOSAT

DIONE

TBEX

SHIELDS-1*

CURIE

REAL

PUNCH

CUPID

AEPEX

TRACERS



Q-PACE

STF-1*

MINI-CARB*

CYGNSS

ICECUBE+

IPEX+

PREFIRE

TEMPEST-D

INSPIRE*

HYTI

CUBERRT

CIRIS-BATC

RAVAN+

LMRST-SAT**

HARP

TROPICS

NACHOS

MC/COVE-2+

CTIM-FD

SNOOPI

CSIM-FD

GRIFEX+

RAINCUBE

MIRATA+



ESCAPADE

MARCO-A/B+

EARTH SCIENCE ●

HELIOPHYSICS ●

PLANETARY SCIENCE ●

ASTROPHYSICS ●

FUTURE MISSIONS IN BOLD

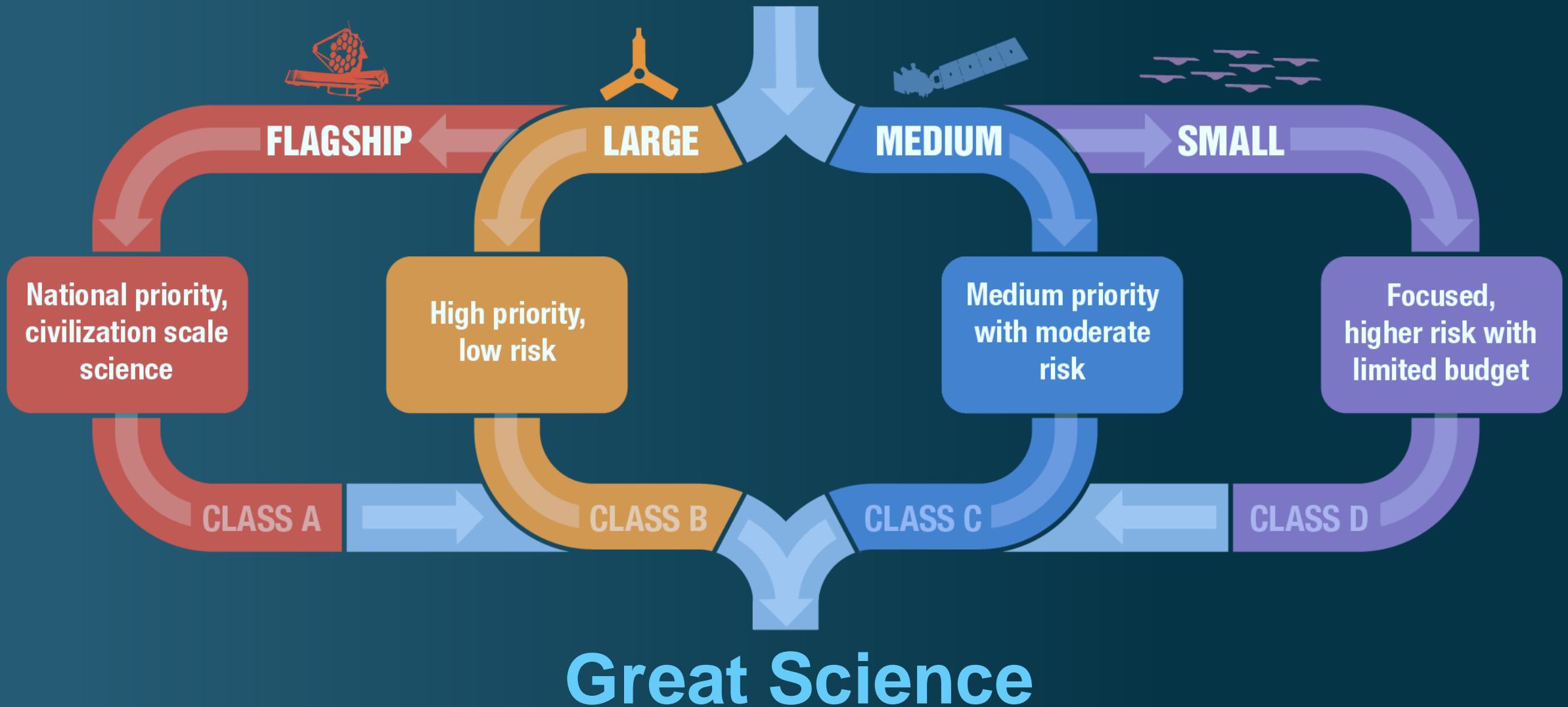
PARTNER-LED MISSIONS*

COMPLETED MISSIONS+

OPERATING & FUTURE

SMALLSAT/CUBESAT FLEET

Balanced Mission Portfolio



Solicitations Across NASA Science

	Low-Cost AO's	Medium-Cost AO's	High-Cost AO's
Astrophysics	Small Explorers, Missions of Opportunity	Medium-Size Explorers	
Earth Science	Earth Venture Instruments, Earth Venture Missions, Earth Venture Continuity	Earth System Explorer	
Heliophysics	Small Explorers, Missions of Opportunity	Medium-Size Explorers, Solar-Terrestrial Probes	
Planetary Science	Small, Innovative Missions in Planetary Exploration	Discovery	New Frontiers

How Many Proposals Submitted?

More proposers in low and medium cost classes and fewer in high cost class, resulting in higher competition for each solicitation

	Number of Calls	Total Number of Proposals Submitted	Average Number of Proposals Submitted	Selection Rate from Submitted Proposals
Low	8	176	21	17%
Medium	9	193	20	16%
High	3	25	8	28%
Overall	20	394	20	17%

NASA Science Planned Announcements of Opportunity

FY 2019

- Discovery (PSD)
- Earth Venture Continuity-1
- Astrophysics Small Explorers (SMEX) and Missions of Opportunity
- Heliophysics Medium Explorers (MIDEX)

FY 2020 Planned

- Earth Venture Mission-3, Q1
- Earth Venture Instrument-6, Q3
- Small Innovative Missions for Planetary Exploration (SIMPLEx) Missions of Opportunity, Q4

FY 2021 Planned

- Earth Venture Suborbital-4, Q4
- Astrophysics Medium Explorers (MIDEX) and Missions of Opportunity, Q4
- Heliophysics Small Explorers (SMEX) and Missions of Opportunity, Q4

FY 2022 Planned

- Earth Venture Continuity-2, Q1
- New Frontiers-5, Q3

For most current target release dates of future solicitations, go to Science Office for Missions Assessments website, <https://soma.larc.nasa.gov/>

The background of the slide is a composite of two cosmic images. The top half features a dark space filled with numerous small stars and a prominent, glowing blue nebula on the right side. The bottom half shows a similar starry field but with a warm, golden-yellow and green color palette, suggesting a different nebula or star formation region. A horizontal white band with a light blue gradient runs across the middle, containing the text.

Transformative Science



What is Transformative Science?

- Anchored in Decadal priorities
- Achieves a significant leap in capability or understanding (i.e., 10x, clear threshold, new location, etc.)

When is a Mission Appropriate?

- Science can only be acquired in space and must be achievable
- When there is a strong answer for, “why now?”
- Science impact and appeal is consistent with mission cost

Baseline and Threshold Science Mission Proposals

Baseline Science Mission: If fully implemented, would achieve full science objectives

Threshold Science Mission: Reduced version that would achieve minimum acceptable science

- NASA evaluates the Baseline Science Mission and the adequacy of the Threshold Science Mission
- The difference between the two missions provides resiliency in the face of cost and schedule pressures
- Reducing mission scope (descoping) by eliminating instruments or degrading their performance requirements may save time and money
- For some mission architectures, the Baseline Science Mission may be the same as the Threshold Science Mission



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Nomenclature

Announcement of Opportunity (AO)	Call for science investigations requiring a spaceflight mission
Mission of Opportunity (MOO)	Focused proposals to leverage specific flight opportunities
Technical, Management, and Cost (TMC)	Engineering, cost, schedule, etc. review of a mission proposal
Preliminary Major Weakness (PMW)	Potential major weakness sent to proposers for clarification
Clarification	When a proposing team points to the places in their proposal that explain away a preliminary major weakness
Plenary	Meeting of all evaluators in the same place, at the same time
Categorization	Process by which proposals are assigned selection priorities based on their evaluations
Steering	Process through which fairness of an evaluation process is judged
Debriefing	Formalized discussion between NASA and proposers regarding the strengths and weaknesses in their proposal
Step 1	First phase of a mission competition where proposals are submitted, evaluated, and selected to conduct a Concept Study
Concept Study	Period of time when a team fleshes out their mission concept; results are described in a Concept Study Report (CSR)

Nomenclature

Step 2	Second stage of a mission competition where Concept Study Reports are evaluated; not all AO's have a second step; e.g., Earth Venture Instruments
Down-selection	When NASA chooses which Step 2 Concept Studies to continue towards flight
Form A	Evaluation form where strengths and weaknesses of a proposed spaceflight investigation's Science Merit are recorded
Form B	Evaluation form where strengths and weaknesses of a proposed spaceflight investigation's Science Implementation Merit are recorded
Form C	Evaluation form where strengths and weaknesses of a proposed spaceflight investigation's TMC Feasibility are recorded

A vibrant space-themed background featuring a large blue circle on the right side. The background is filled with various celestial bodies: a bright yellow sun in the lower left, a blue and white Earth in the bottom right, a large dark blue moon in the center, a reddish-orange planet in the upper left, and a ringed planet (Saturn) in the middle left. The sky is a mix of blue, green, and yellow, with numerous white stars and a blue nebula-like structure in the upper right.

Peer Review Panels

- NASA Science makes decisions based on competition and peer review
- Volunteering on a review panel is highly encouraged
 - Opportunity to learn how to write successful proposals
 - NASA provides honorarium for participants
- More information on how to volunteer here:
<https://science.nasa.gov/researchers/volunteer-review-panels>

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Funding Opportunities: Grant Solicitations

- The 2019 version of Research Opportunities in Earth and Space Science (ROSES-19) has been posted at <http://solicitation.nasaprs.com/ROSES2019> on March 14, 2019.
- Table 2 with all program elements organized by due date may be found at <http://solicitation.nasaprs.com/ROSES2019table2>
- Table 3 with all program elements organized by subject matter may be found at <http://solicitation.nasaprs.com/ROSES2019table3>
- The FAQ on what's new in ROSES-2019 has been posted at <http://science.nasa.gov/researchers/sara/faqs/#1>
- We have a few ways for proposers to keep up to date with changes to ROSES-19. You may:
 - Subscribe to the SMD NSPIRES mailing lists (by logging in at <http://nspires.nasaprs.com/> and checking the appropriate boxes under Account Management and Email Subscriptions),
 - Sign up for the ROSES-2019 RSS feed for clarifications, corrections and amendments at <http://science.nasa.gov/researchers/sara/grant-solicitations/roses-2019/> and
 - Subscribe to the relevant ROSES-2019 due date Google calendars. Instructions have been posted at <https://science.nasa.gov/researchers/sara/library-and->

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