


On the Shore of the Cosmic Ocean

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National Aeronautics and
Space Administration



*“The surface of the Earth is the **shore of the cosmic ocean**. On this shore, we've learned most of what we know. Recently, we've waded a little way out, maybe ankle-deep, and the water seems inviting.”*

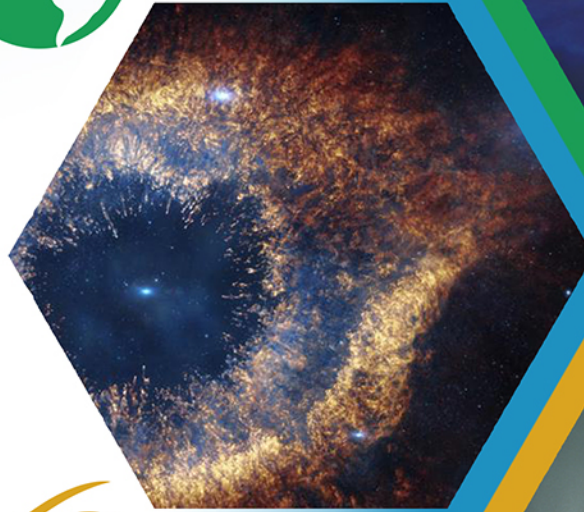
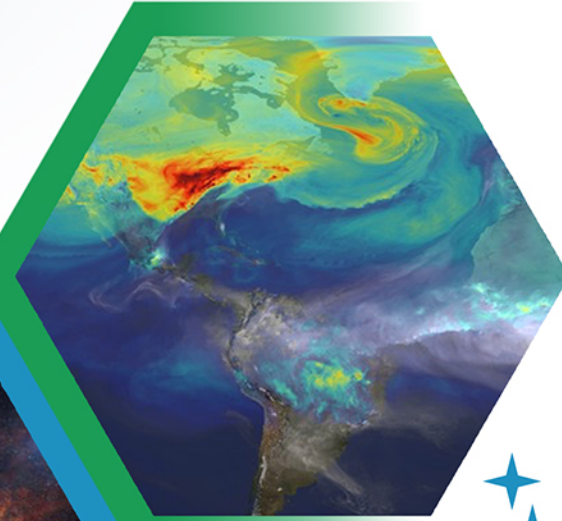
Carl Sagan



...the shore of the cosmic ocean
—Carl Sagan

Key Science THEMES

Protect & Improve
Life on Earth

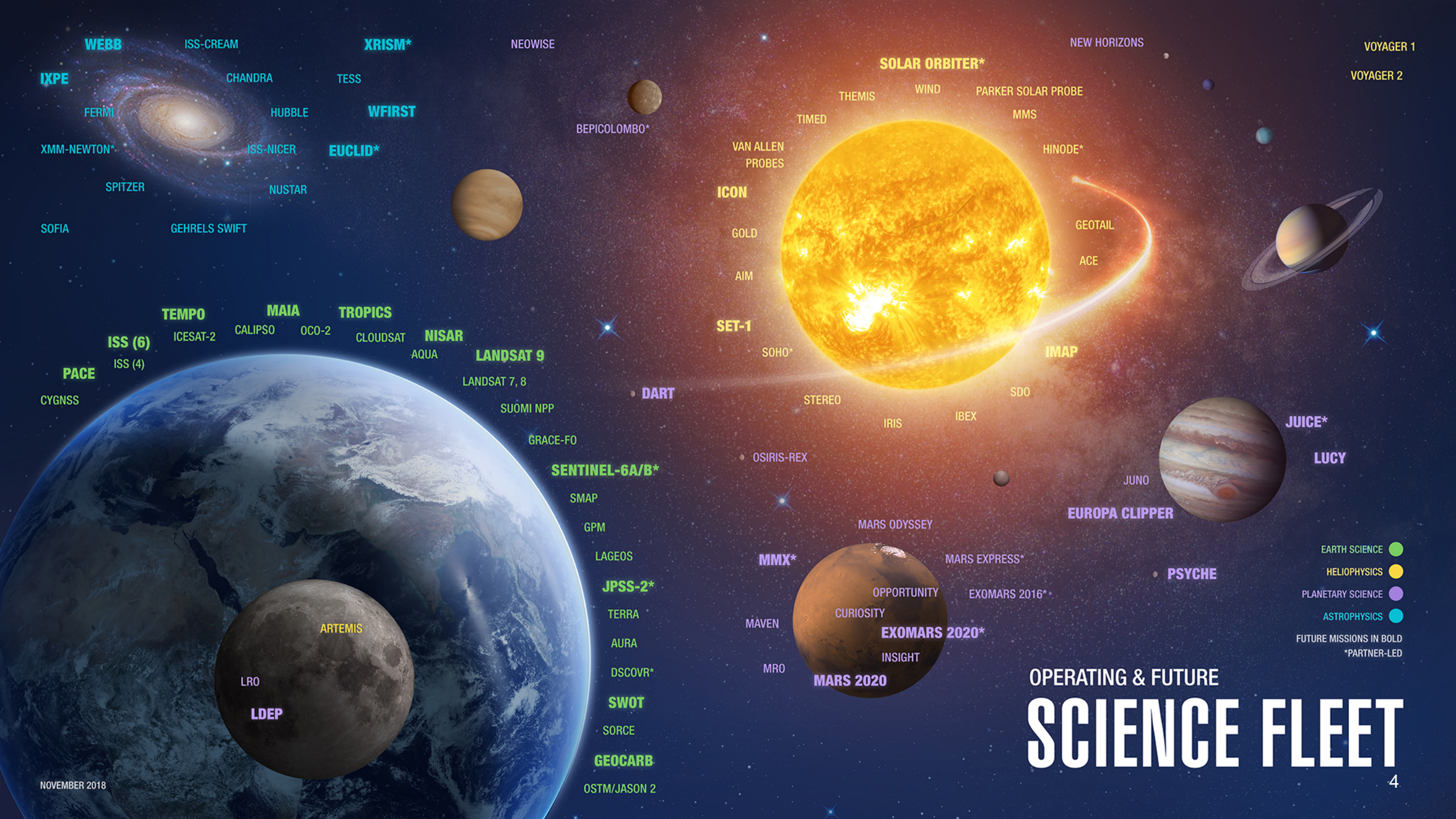


Discover Secrets
of the Universe



Search for
Life Elsewhere





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

TEMPO
ICESAT-2
MAIA
CALIPSO
OCO-2
TROPICS
CLOUDSAT
NISAR
AQUA
LANDSAT 9
LANDSAT 7, 8
SUOMI NPP
PACE
ISS (6)
ISS (4)
CYGNSS
ARTEMIS
LRO
LDEP

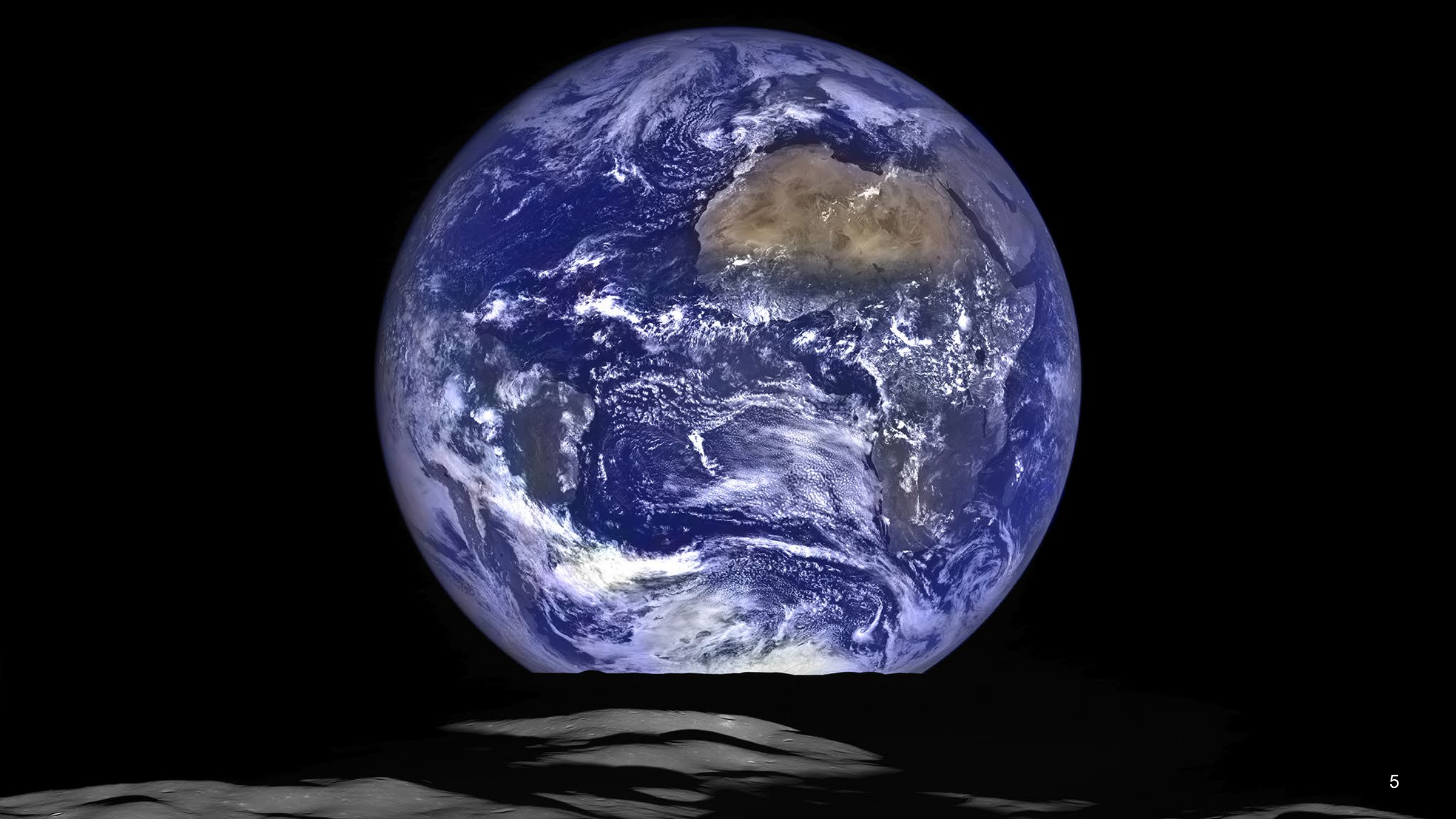
NEOWISE
BEPICOLOMBO*
DART
GRACE-FO
SENTINEL-6A/B*
SMAP
GPM
LAGEOS
JPSS-2*
TERRA
AURA
DSCOVR*
SWOT
SORCE
GEOCARB
OSTM/JASON 2

SOLAR ORBITER*
THEMIS
WIND
PARKER SOLAR PROBE
MMS
Hinode*
TIMED
VAN ALLEN PROBES
ICON
GOLD
AIM
SET-1
SOHO*
STEREO
IRIS
IBEX
SDO
IMAP
GEOTAIL
ACE
JUNO
EUROPA CLIPPER
PSYCHE
MARS 2020
MAVEN
MRO
MARS ODYSSEY
MARS EXPRESS*
EXOMARS 2016*
EXOMARS 2020*
INSIGHT
CURIOSITY
OPPORTUNITY

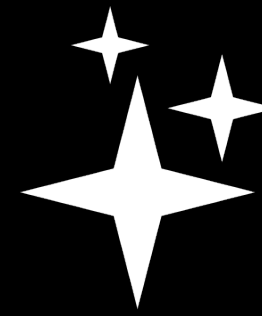
NEW HORIZONS
VOYAGER 1
VOYAGER 2
JUICE*
LUCY

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

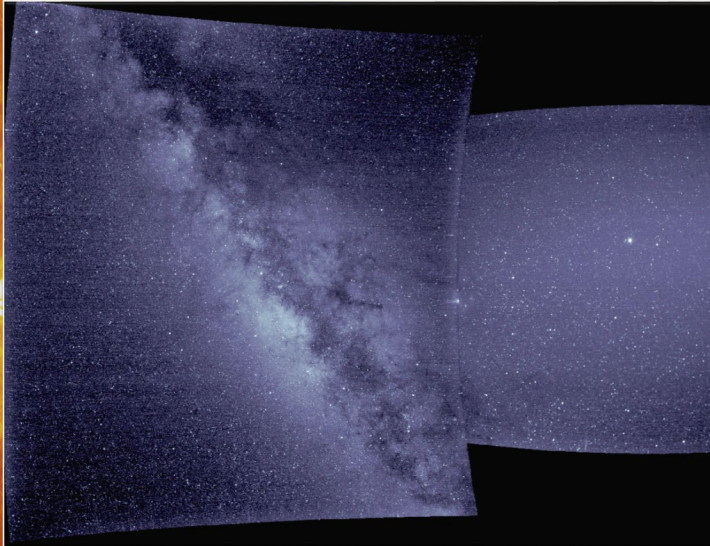
OPERATING & FUTURE SCIENCE FLEET







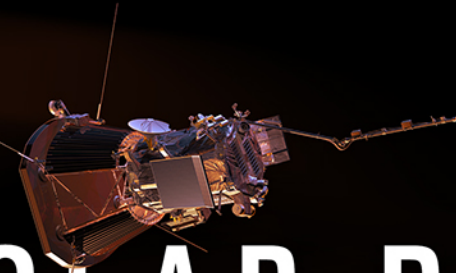
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*Sept. 25, 2018 - WISPR instrument on Parker Solar
Probe shows Earth on the right panel*

PARKER SOLAR PROBE

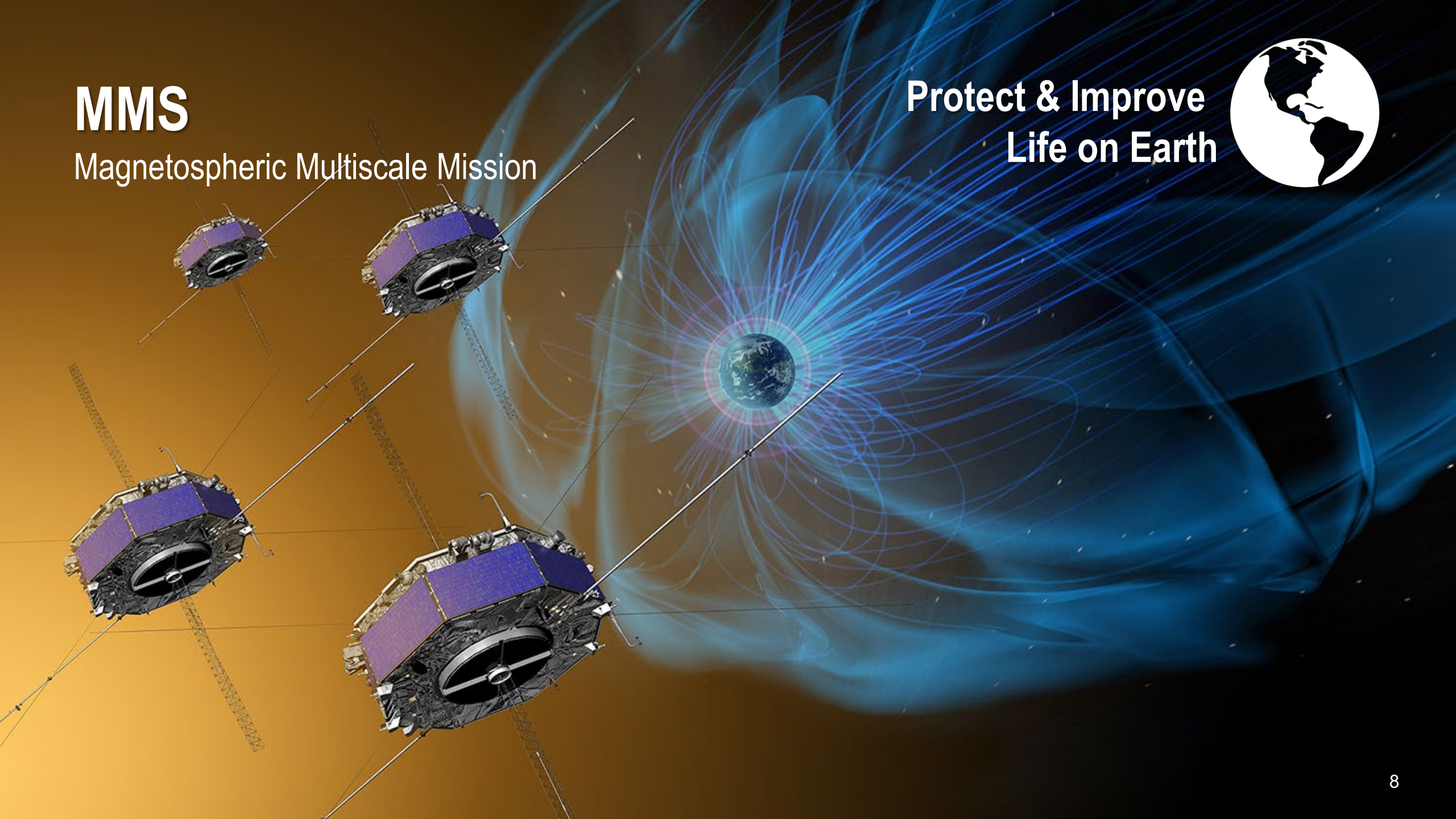
A Mission to Touch the Sun

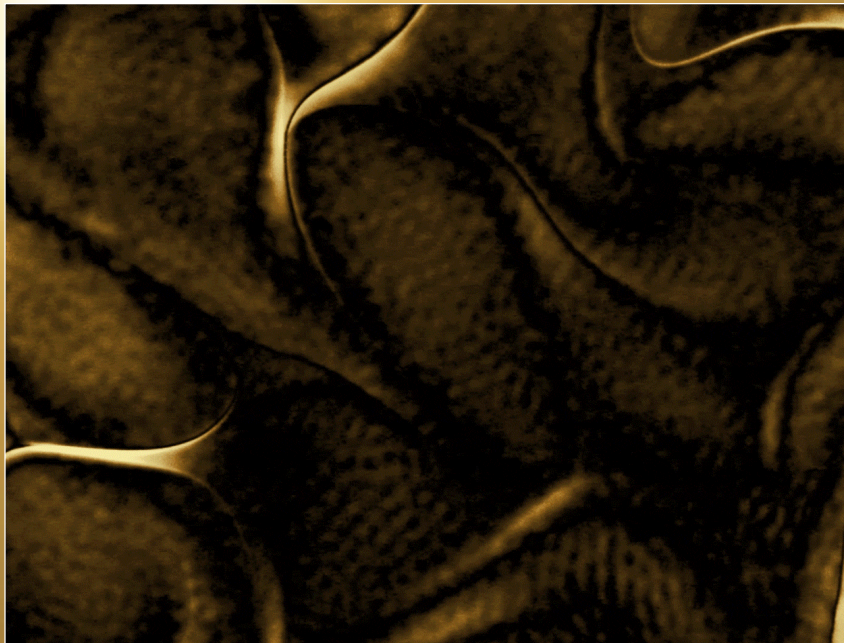


MMS

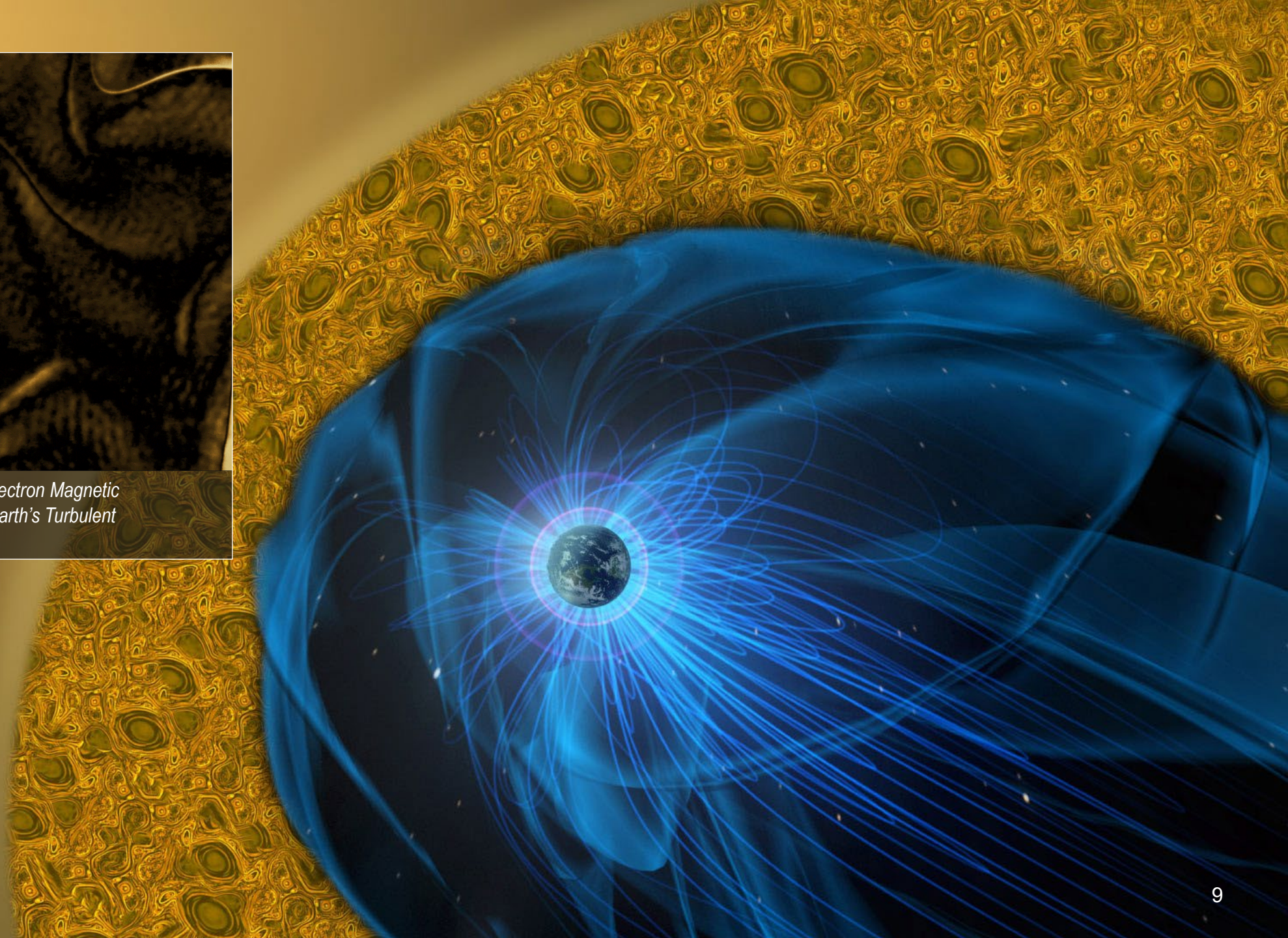
Magnetospheric Multiscale Mission

Protect & Improve
Life on Earth





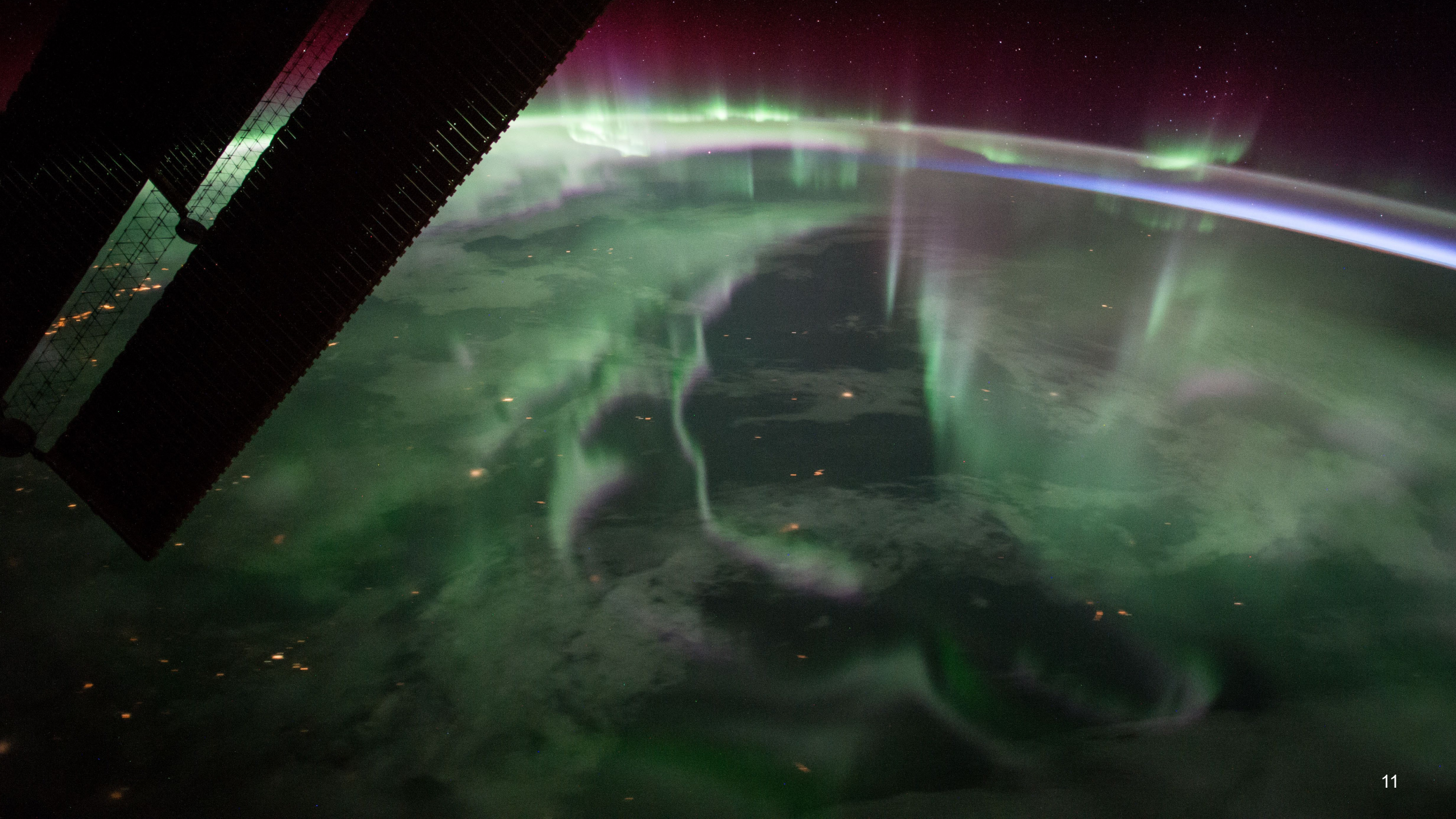
May 9, 2018 – Phan, T. et al., (2018). *Electron Magnetic Reconnection Without Ion Coupling in Earth's Turbulent Magnetosheath*. *Nature*, 557, 202–206



International Space Station

Protect & Improve
Life on Earth







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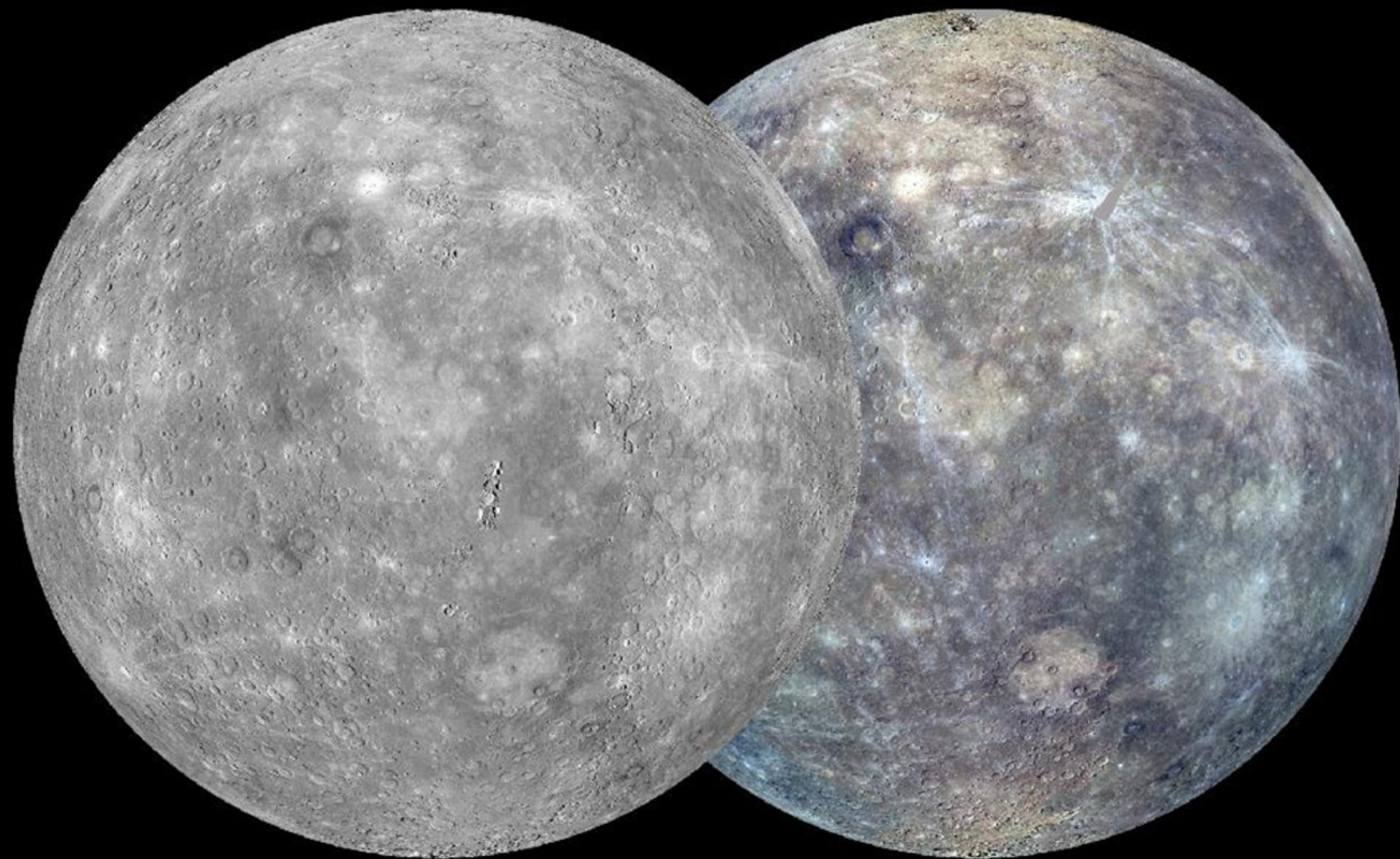
March 14, 2018

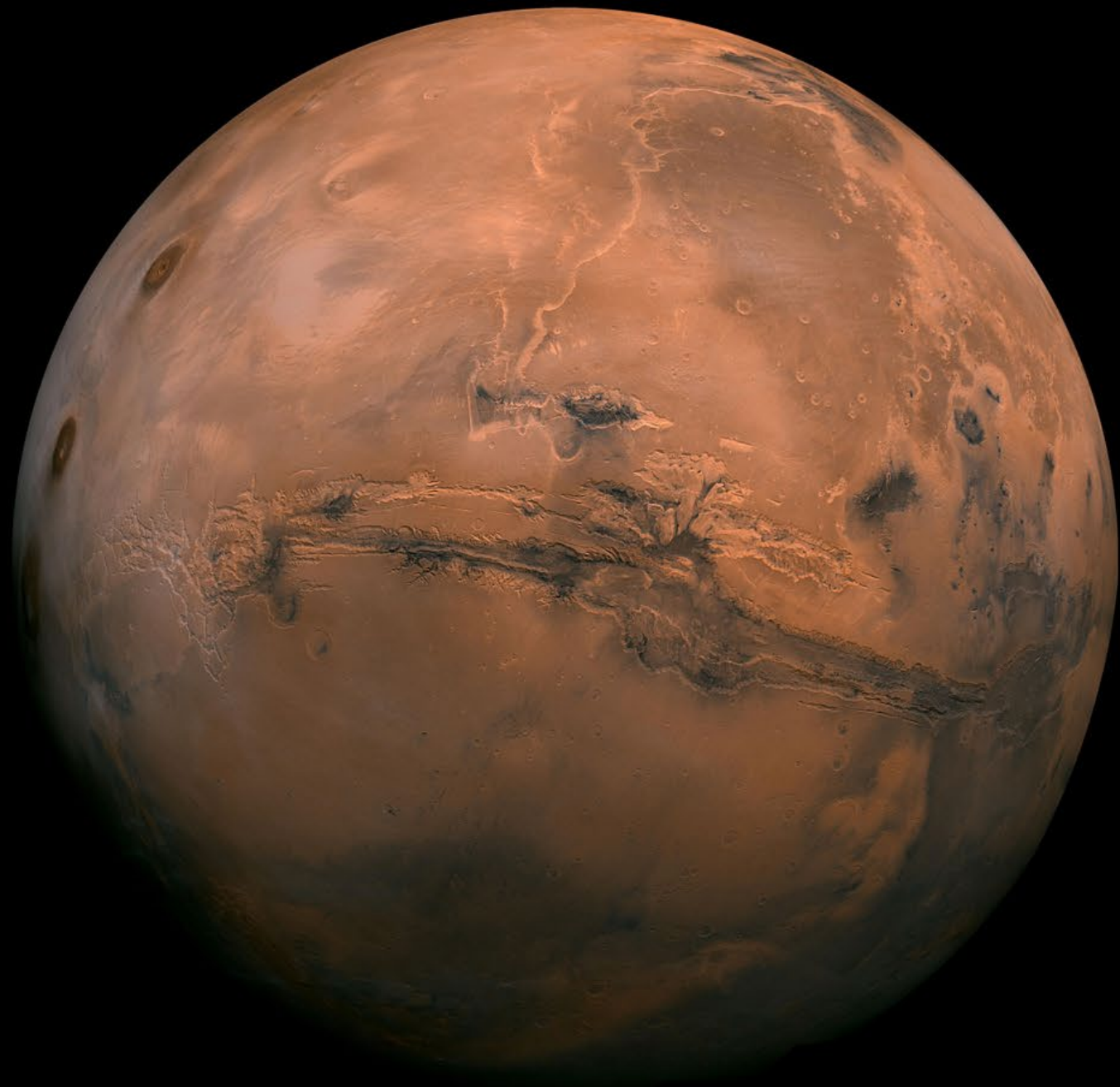
NASA Needs Your Help to Find Steve and Here's How

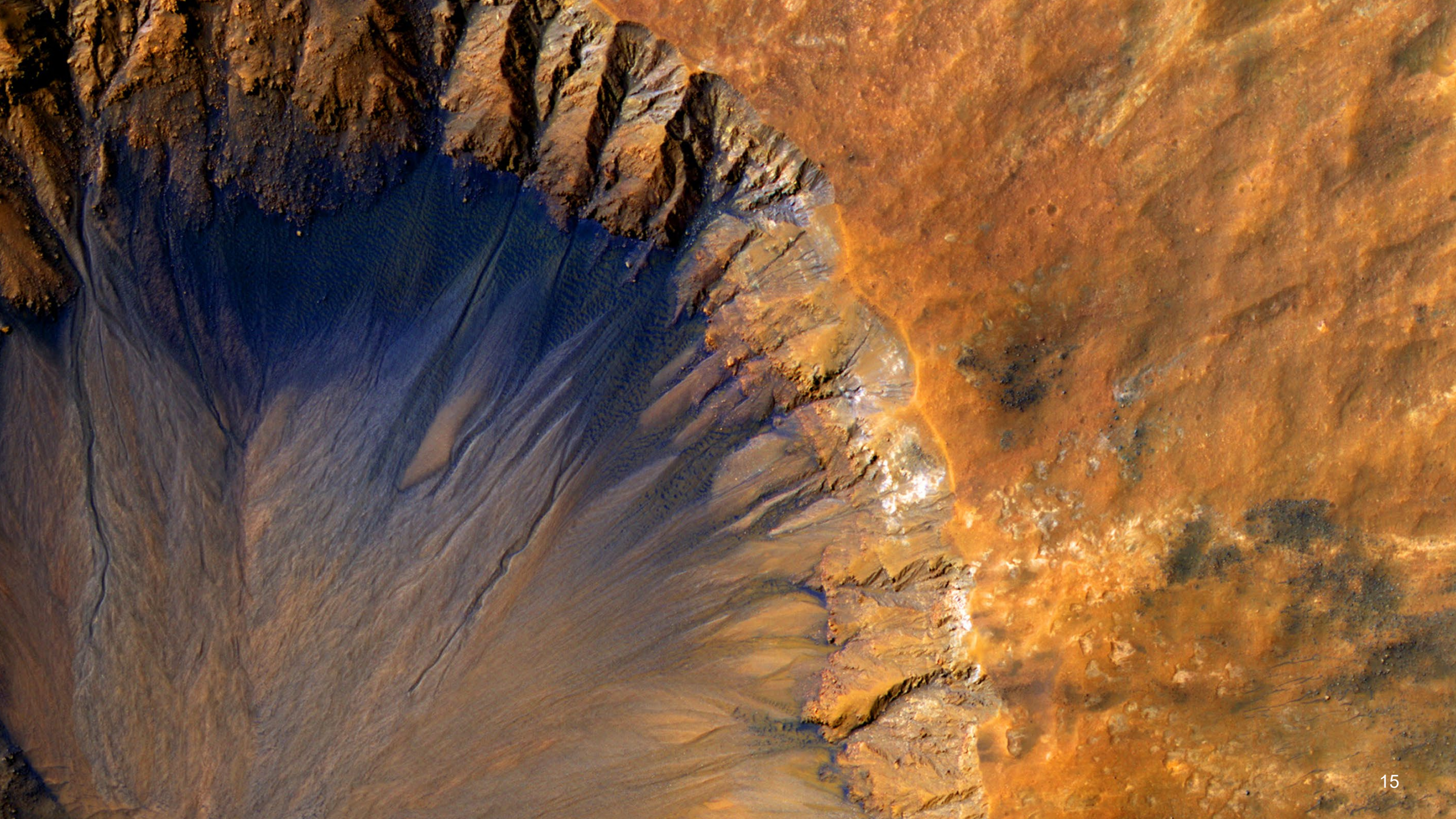


Glowing in mostly purple and green colors, a new celestial phenomenon is sparking the interest of scientists, photographers and astronauts. The display was initially discovered by a group of citizen scientists who took pictures of the unusual lights and playfully named them "Steve." Scientists have since learned more about the purples and greens, and have given it a more accurate name: Strong Thermal Emission Velocity Enhancement, which can still can be shortened to STEVE.



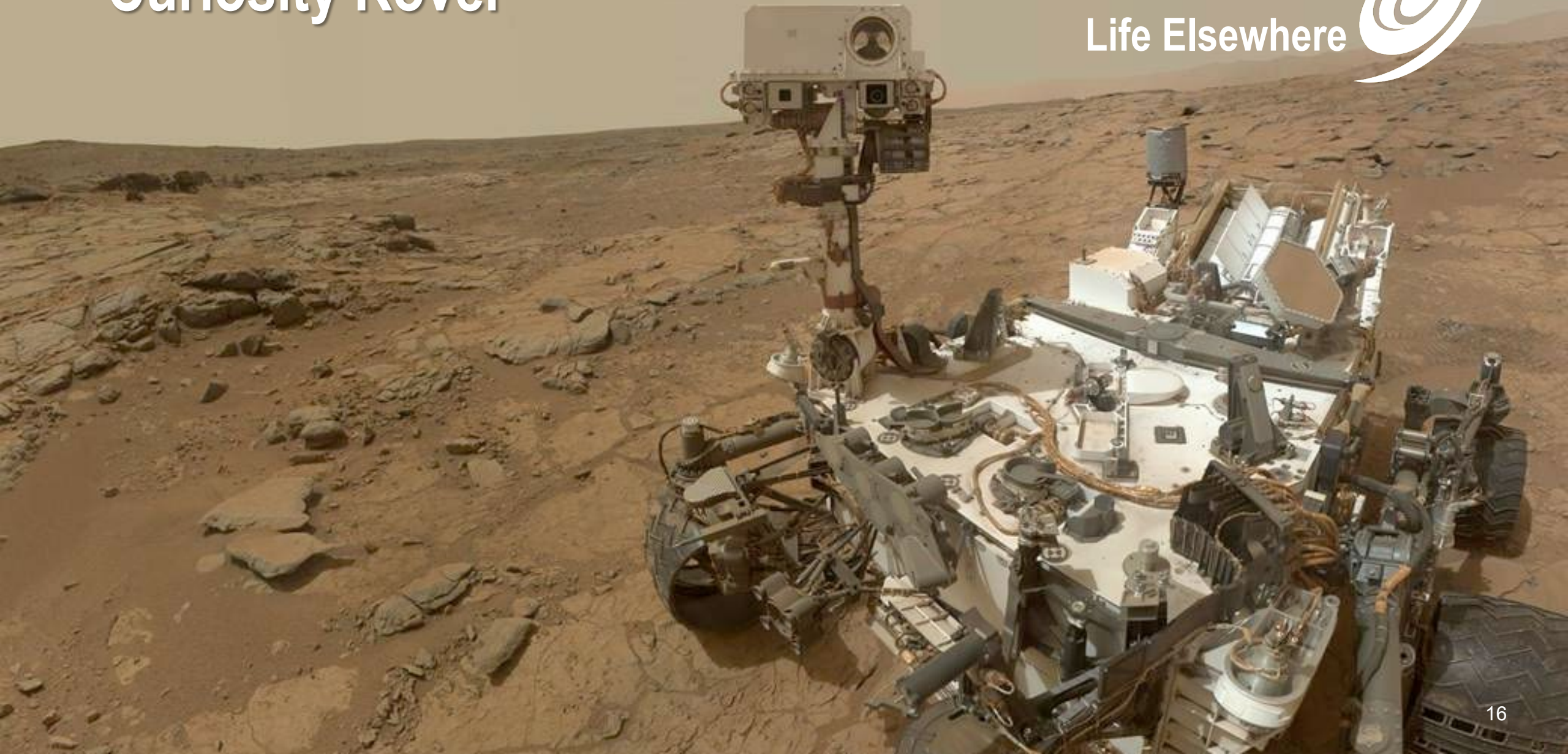






Curiosity Rover

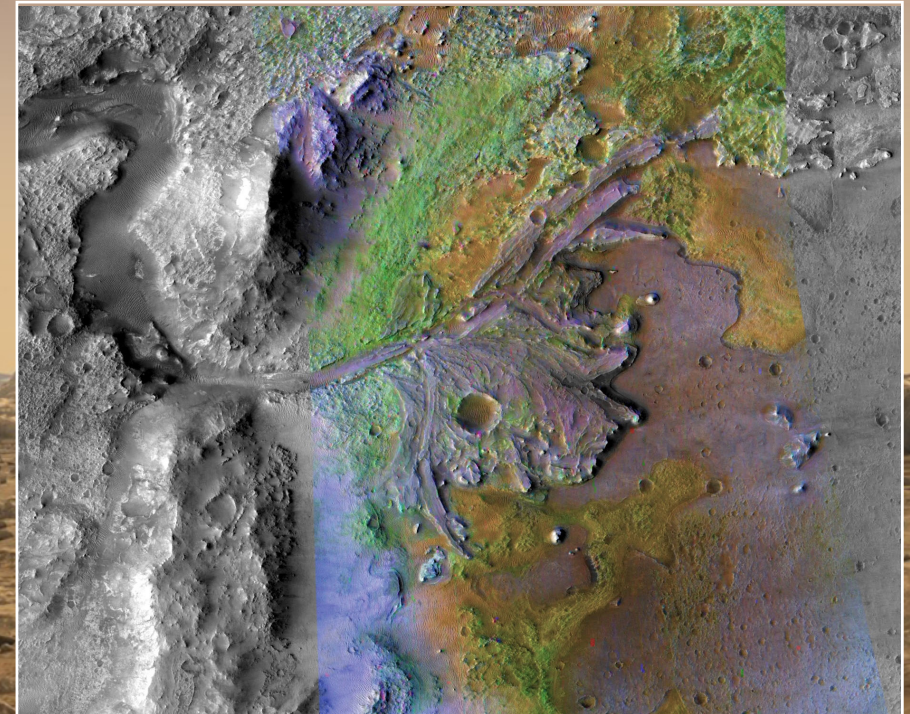
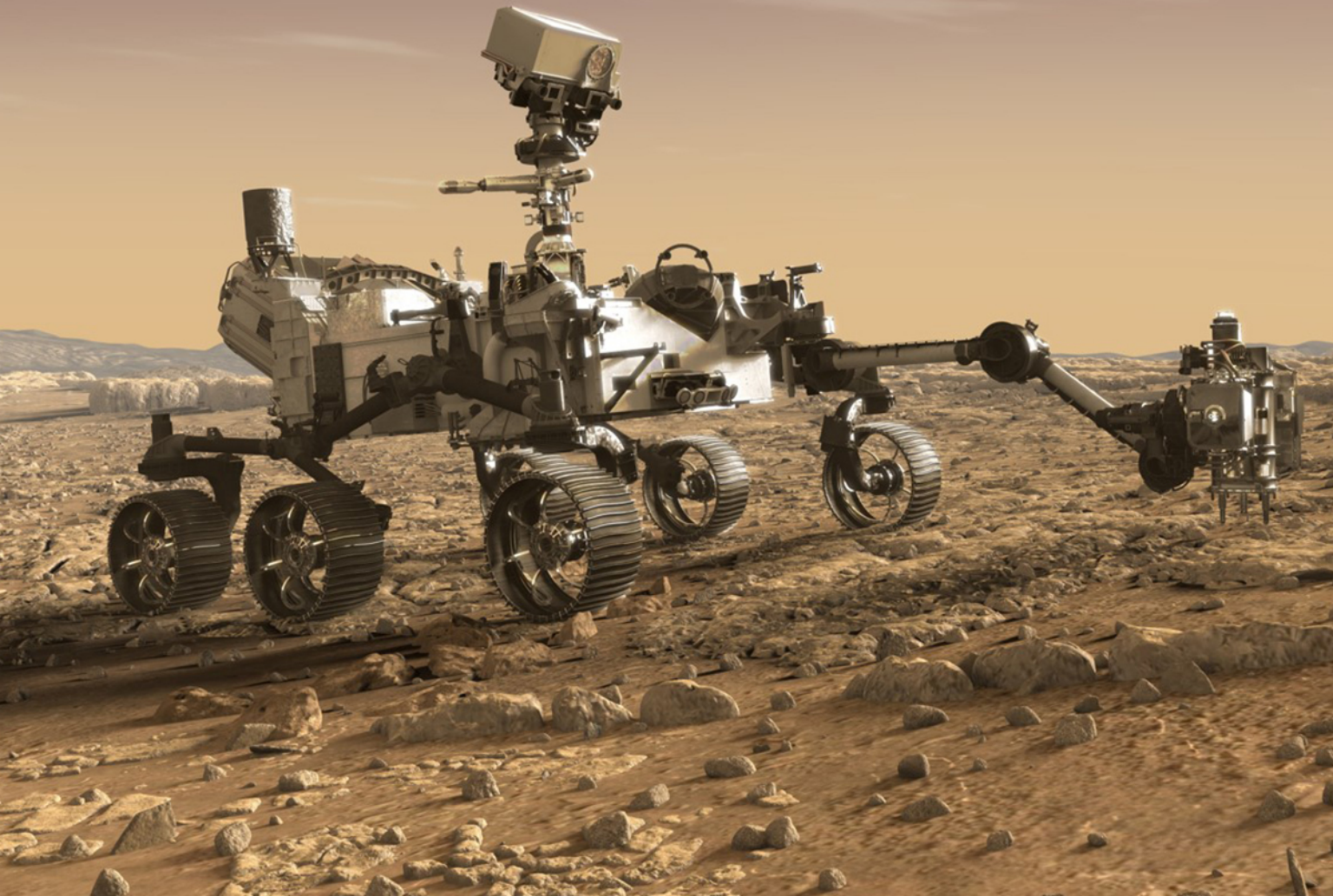
Search for
Life Elsewhere





Mars 2020

Search for
Life Elsewhere

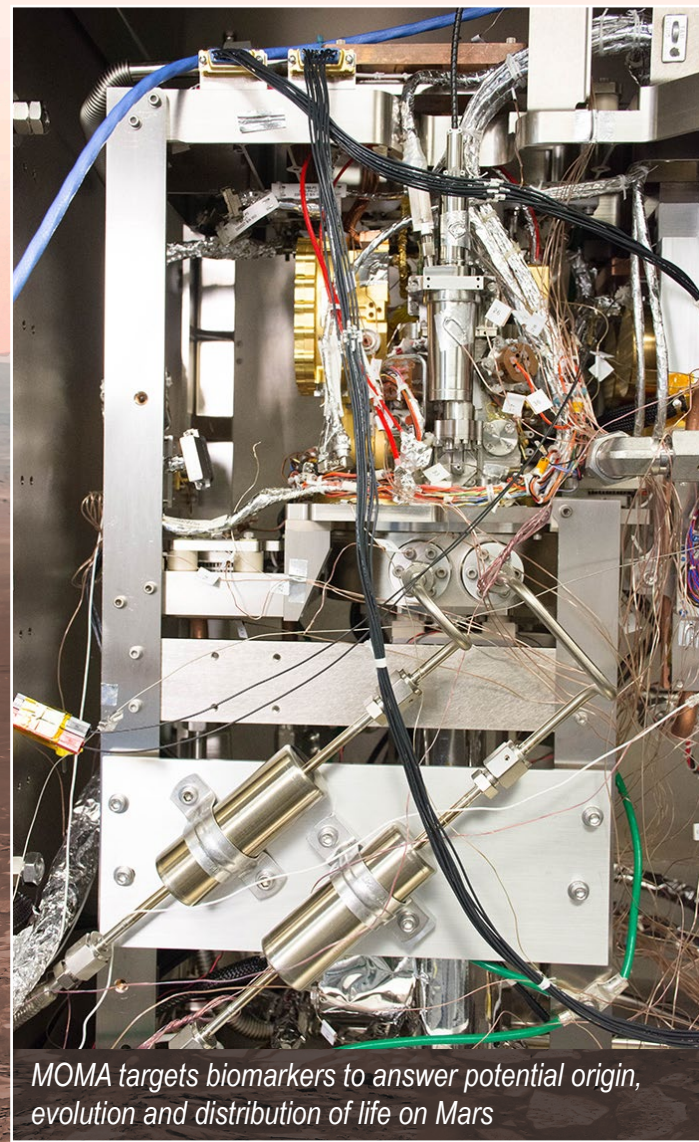


Nov. 19 – NASA Announced landing site for Mars 2020 Rover mission as Jezero Crater

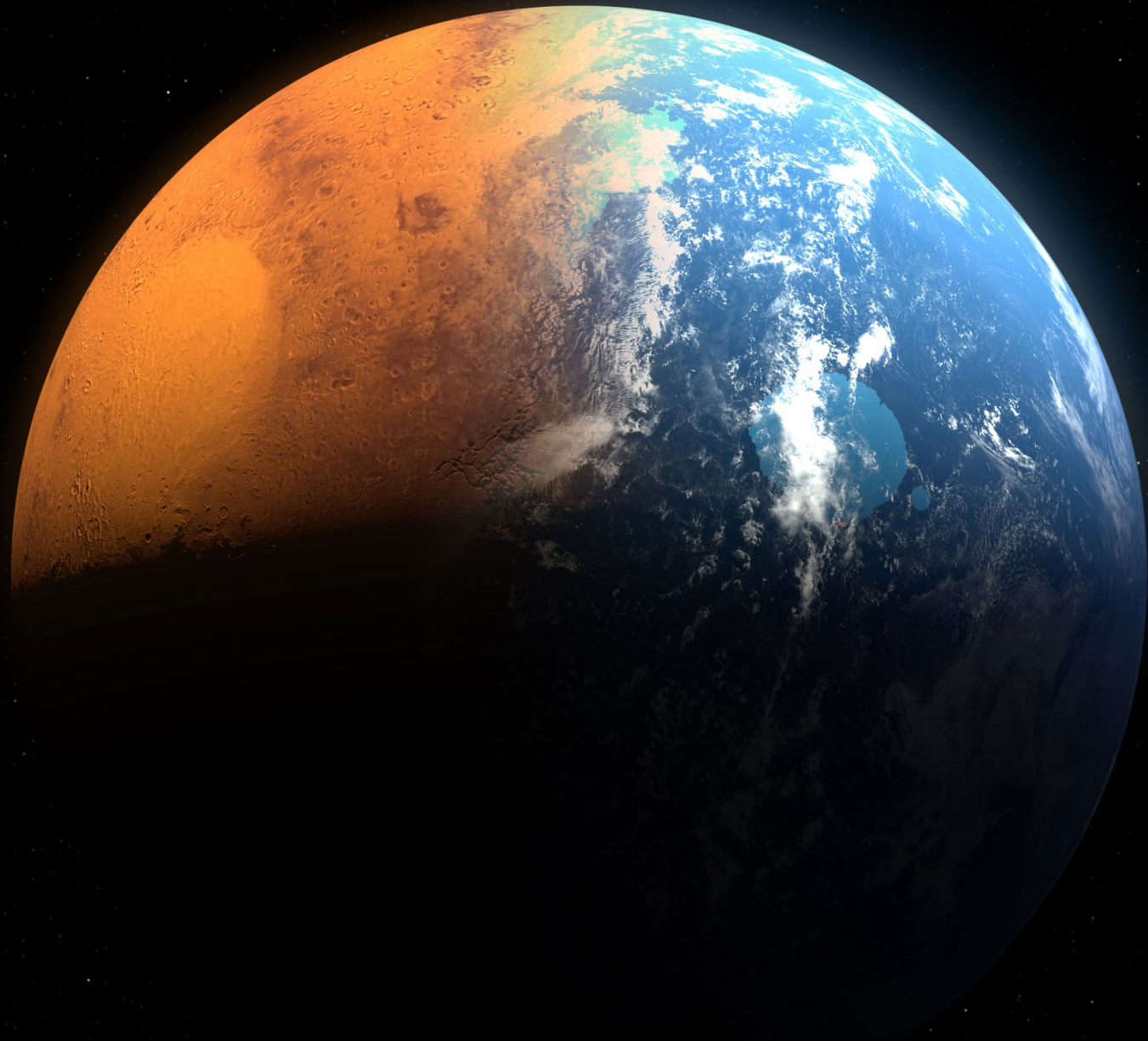


ExoMars Rover

Mars Organic Molecule Analyzer

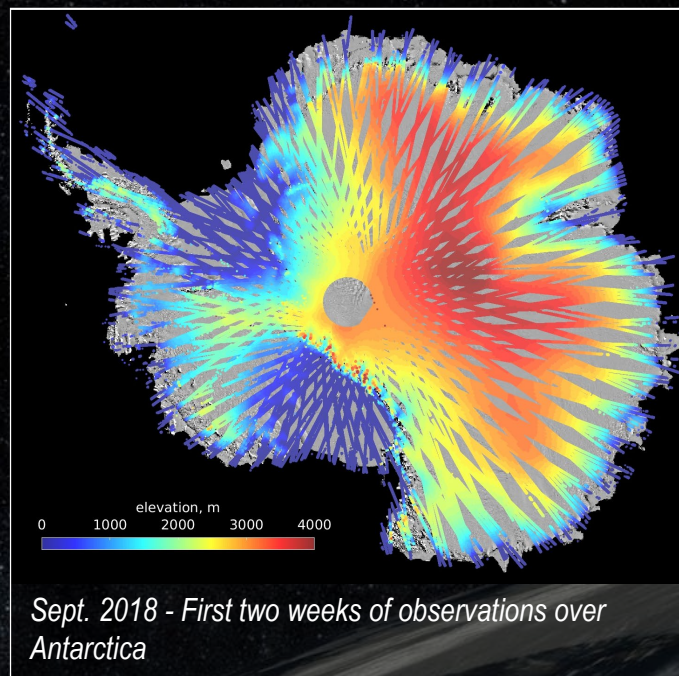


MOMA targets biomarkers to answer potential origin, evolution and distribution of life on Mars



ICESat-2

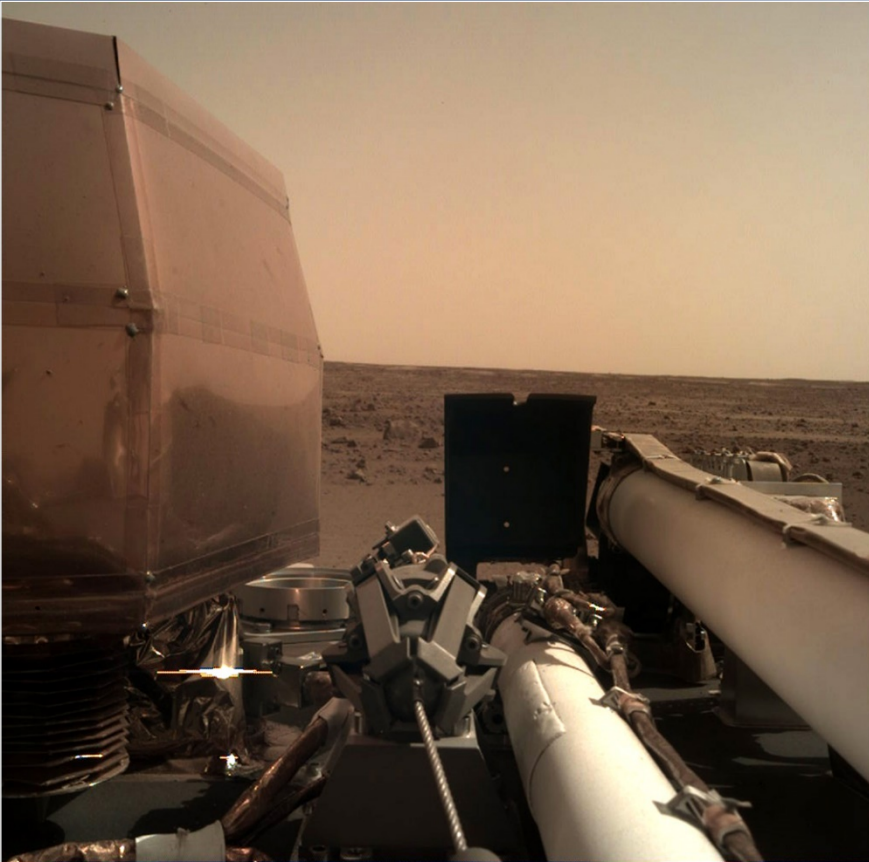
Protect & Improve
Life on Earth



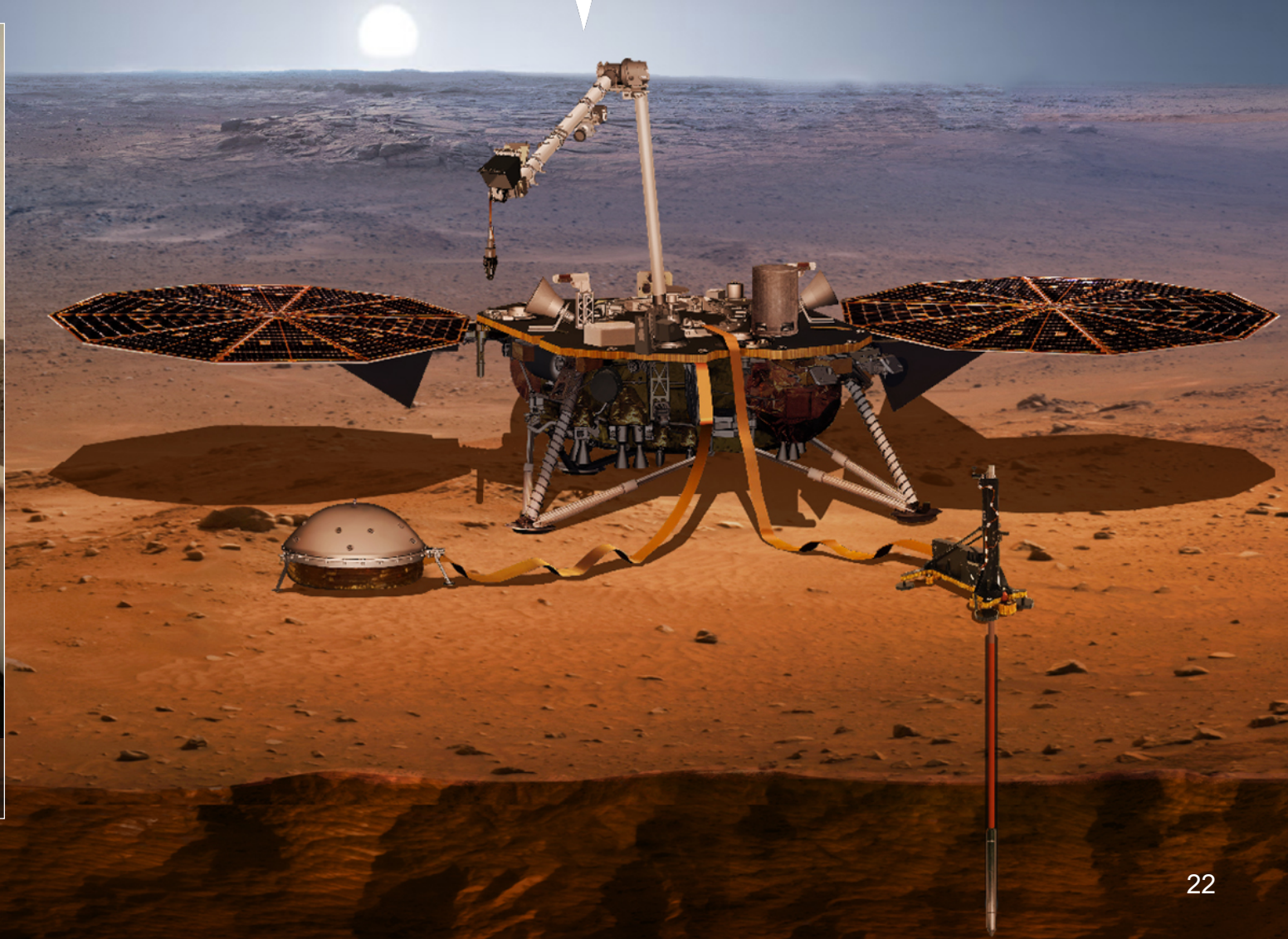
InSight

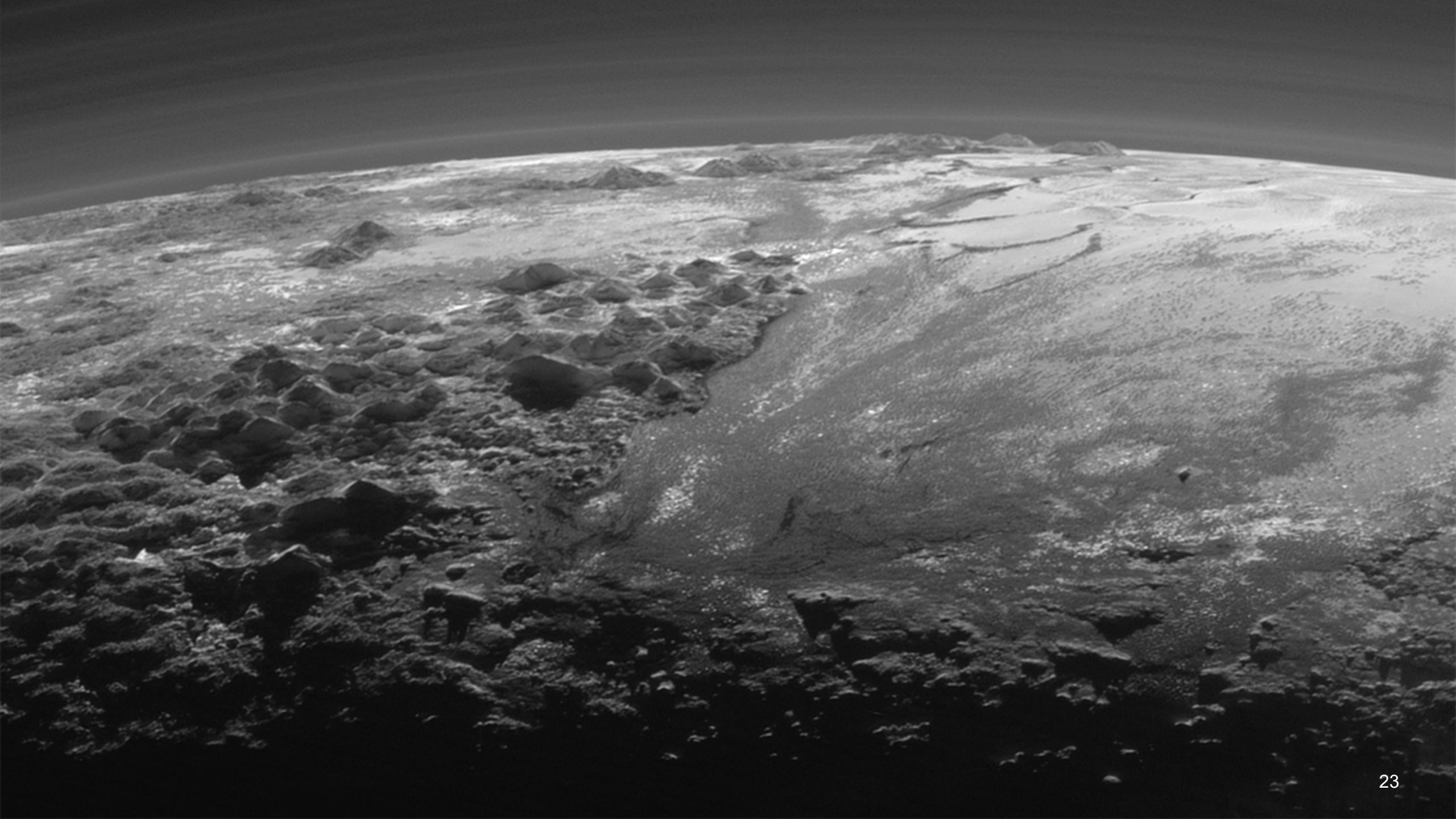


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Nov. 26, 2018 - Surface picture taken by InSight's Instrument Deployment Camera (IDL) on the day of its successful landing on Mars



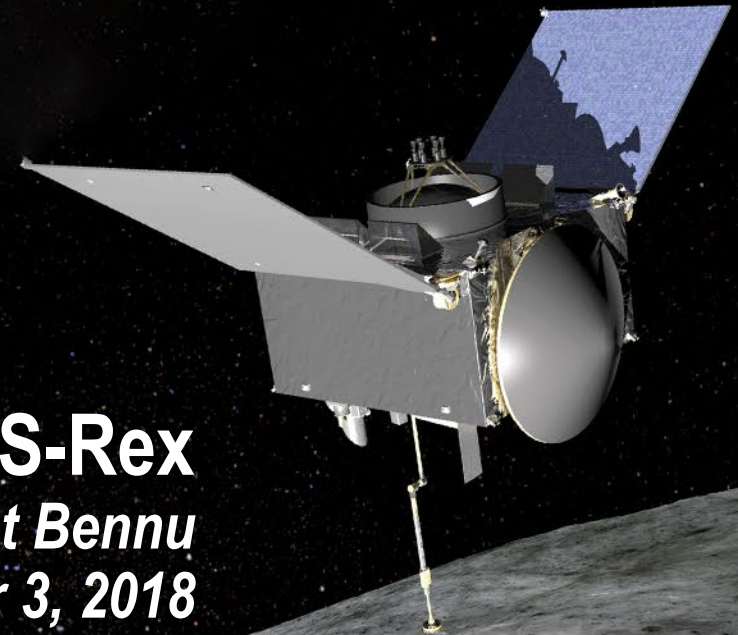




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New Horizons
Arrival at Ultima Thule
January 1, 2019

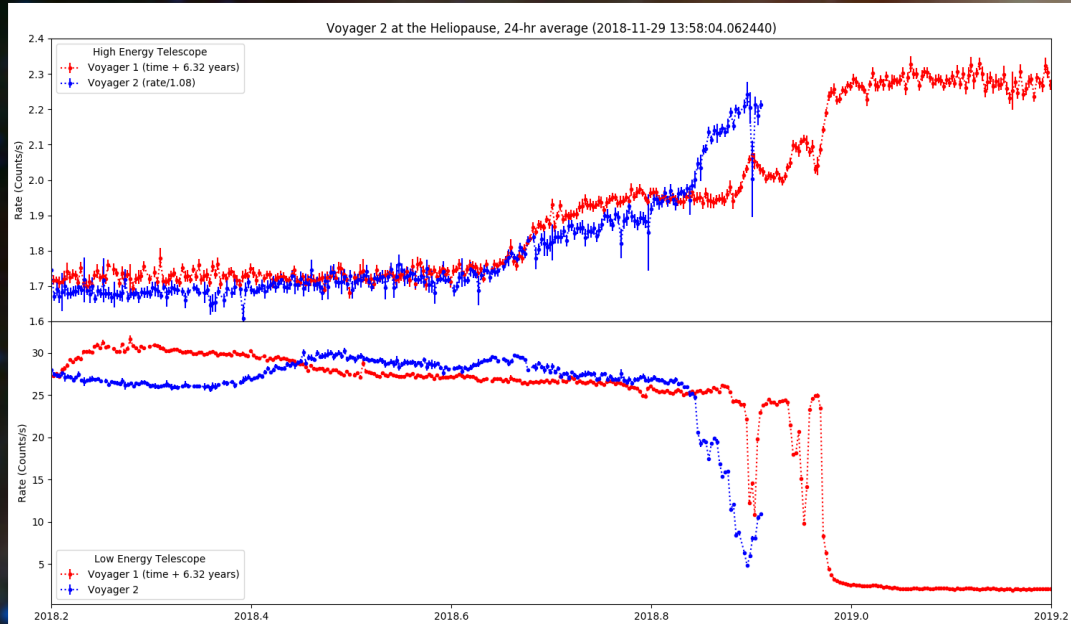


OSIRIS-Rex
Arrival at Bennu
December 3, 2018

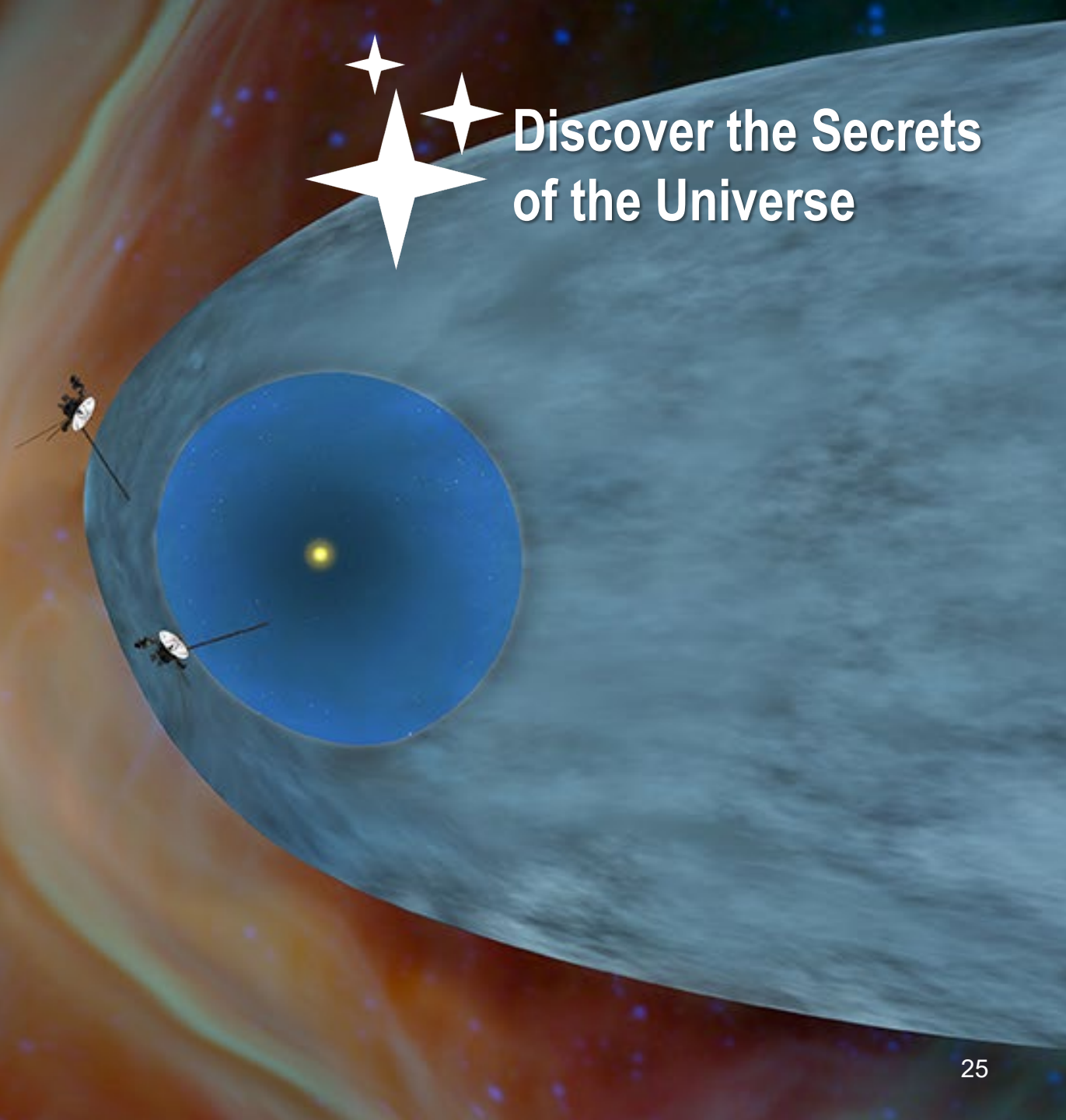
Voyager



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Nov. 29, 2018 - Upper panel shows galactic cosmic ray rates for both Voyager 1 (red, shifted by 6.2 yrs) and Voyager 2 (blue); lower panel shows anomalous cosmic ray rates





exoplanets.nasa.gov
12/3/2018

Discovery Alert! A New Super Earth in the Neighborhood (Six Light- Years Away)

Data from a world-wide array of telescopes revealed Barnard's Star b, a frozen, dimly lit world. The newly discovered planet is the second-closest known exoplanet to the Earth.

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Exoplanets

Last update: December 3, 2018

3,848

CONFIRMED

2,899

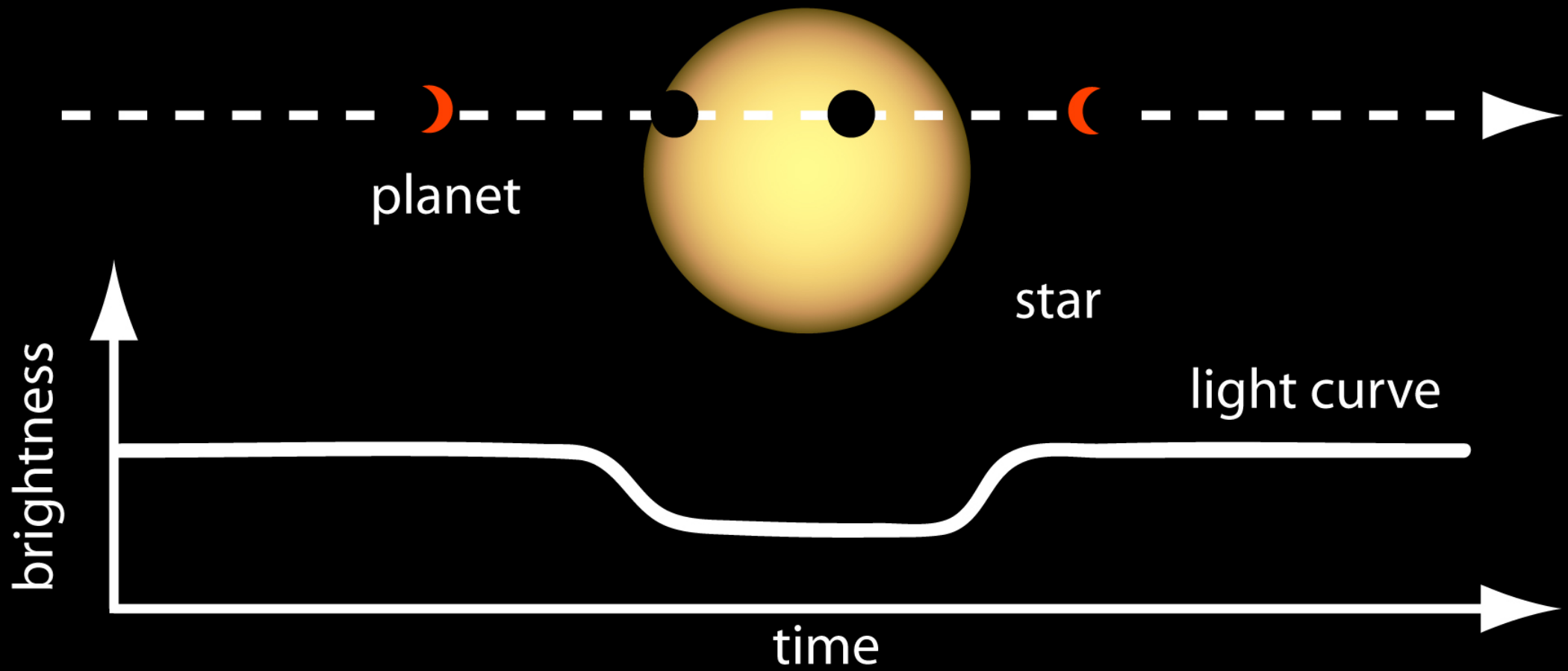
NASA CANDIDATES

2,870

PLANETARY SYSTEMS

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TESS

Transiting Exoplanet Survey Satellite

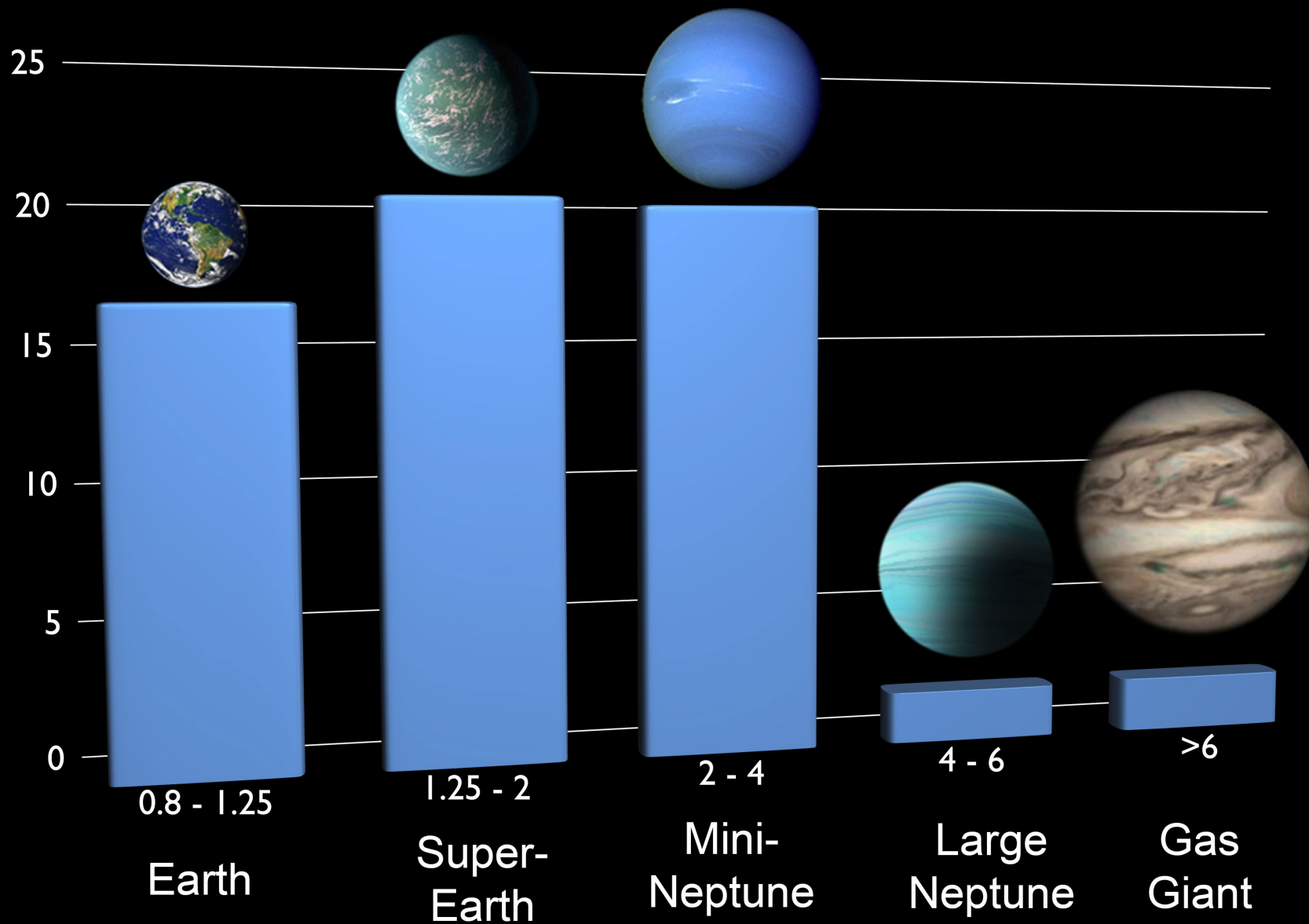


May 17, 2018 - Test image from one of the four cameras aboard TESS captures a swath of the southern sky along the plane of our galaxy after completing Lunar fly-by

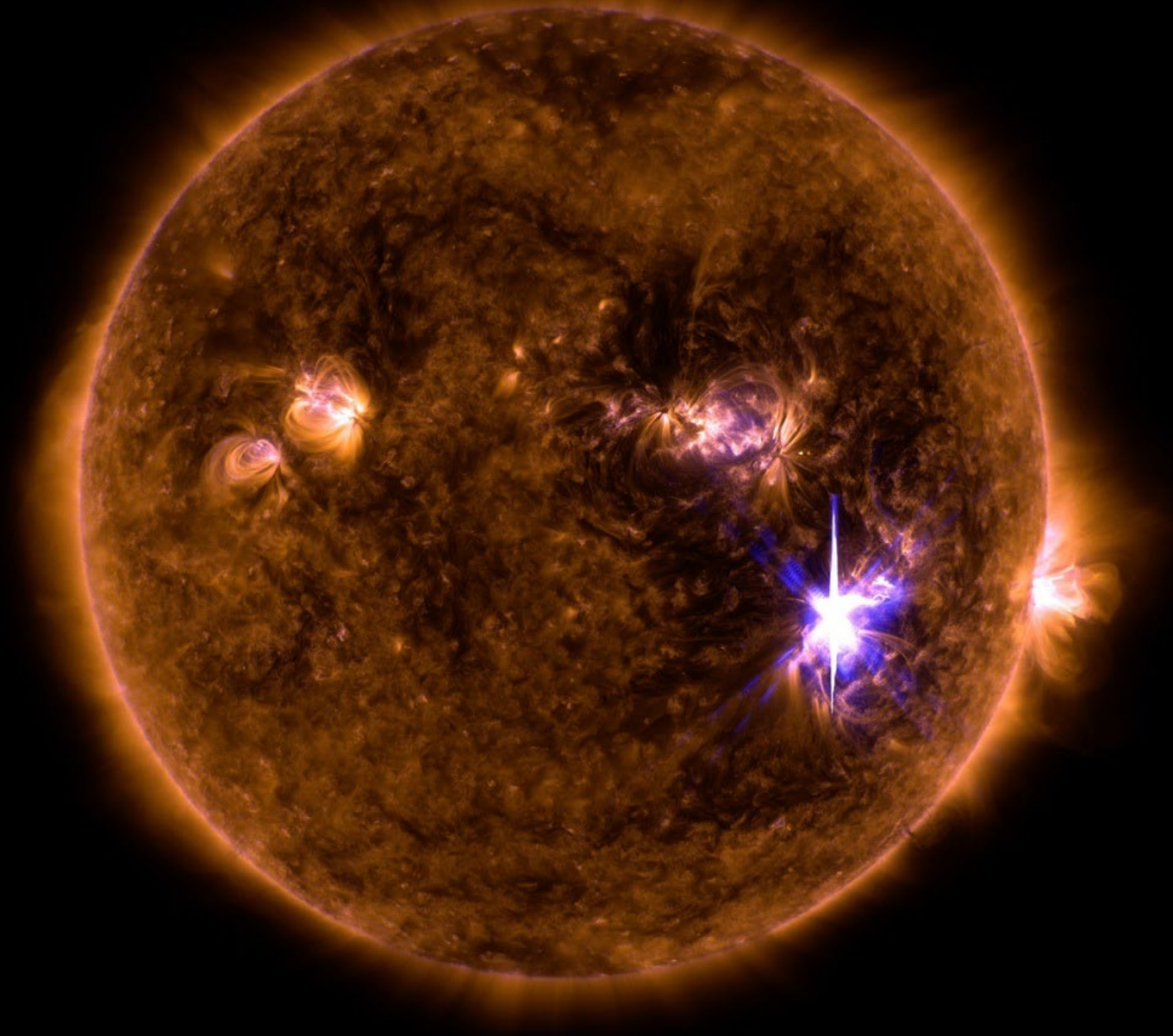
Search for
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FRACTION OF STARS
WITH AT LEAST ONE PLANET




PLANET SIZE (relative to Earth)







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