

National Aeronautics and
Space Administration



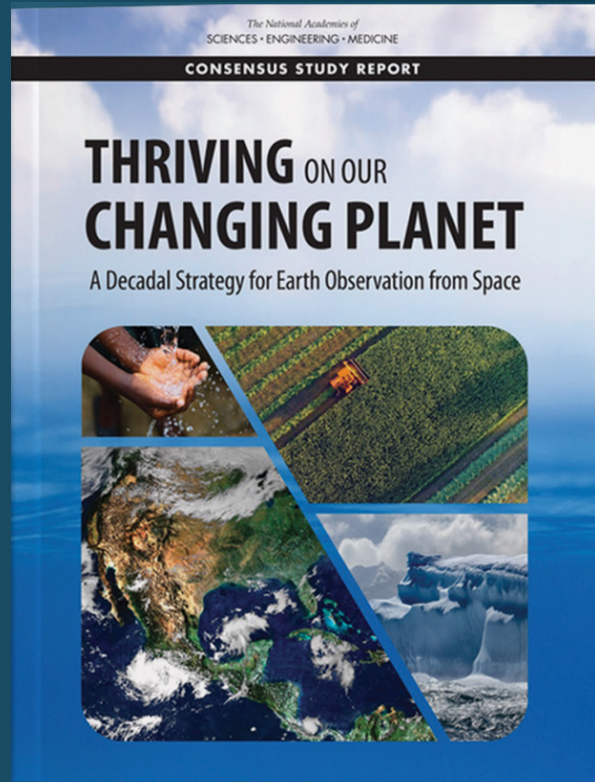
EXPLORE EARTH

KAREN ST. GERMAIN

Director, Earth Science Division

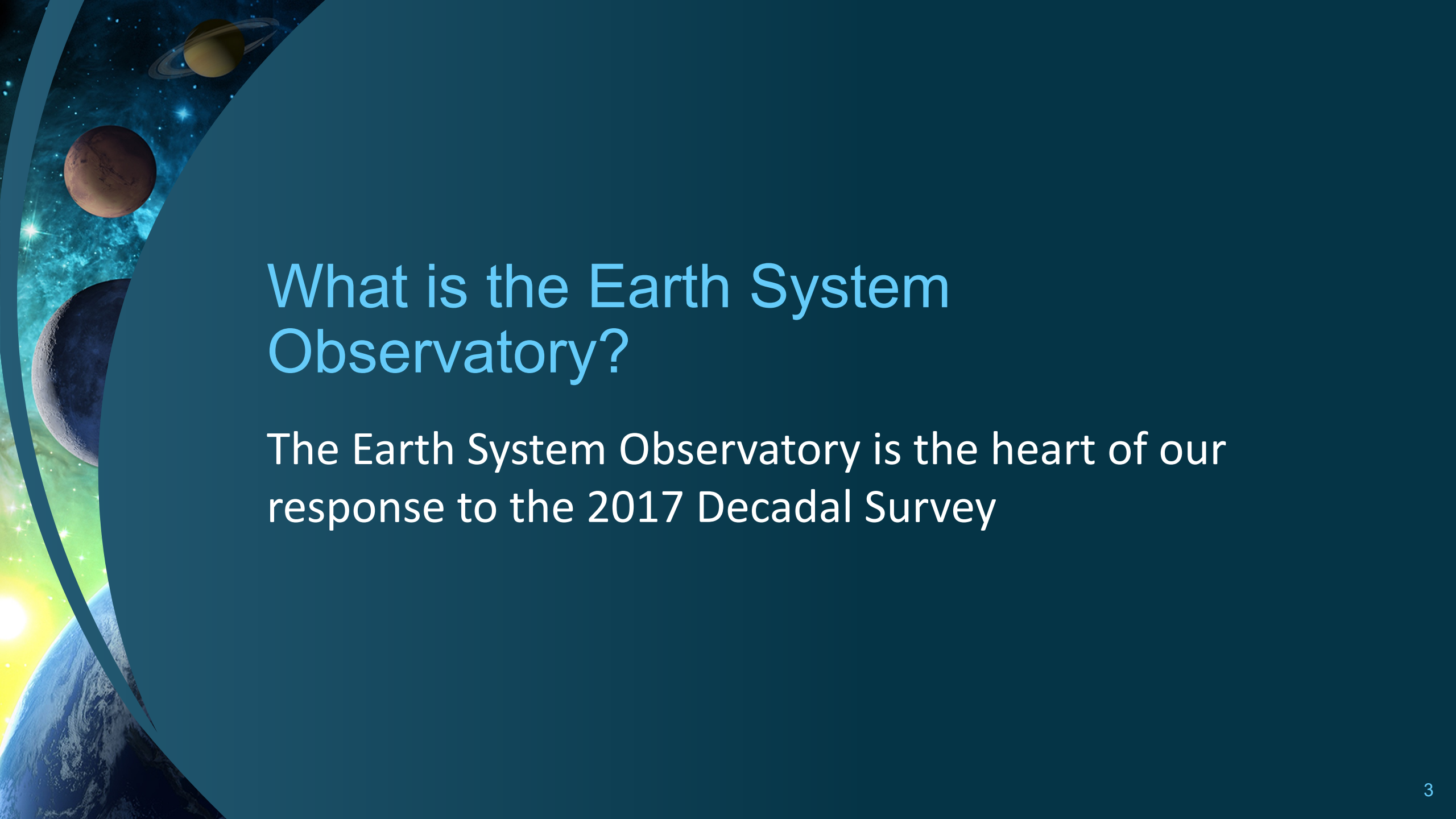
June 30, 2021

Our Starting Point: The Decadal Survey



Among the 2017 Earth Science Decadal Survey primary recommendations were:

- Pursue 5 designated observables
- Pursue 3 of 7 observations via Earth Explorer missions
- Continue the ESD Program of Record
- Accelerating the uptake and integration of science and use of science applications

A space-themed background featuring a curved view of Earth at the bottom left, with a bright sun or star in the lower left corner. Above Earth, the Moon is visible, followed by Mars, and further up, Saturn with its rings. The background is filled with a starry field and nebulae in shades of blue and green.

What is the Earth System Observatory?

The Earth System Observatory is the heart of our response to the 2017 Decadal Survey

EARTH SYSTEM OBSERVATORY

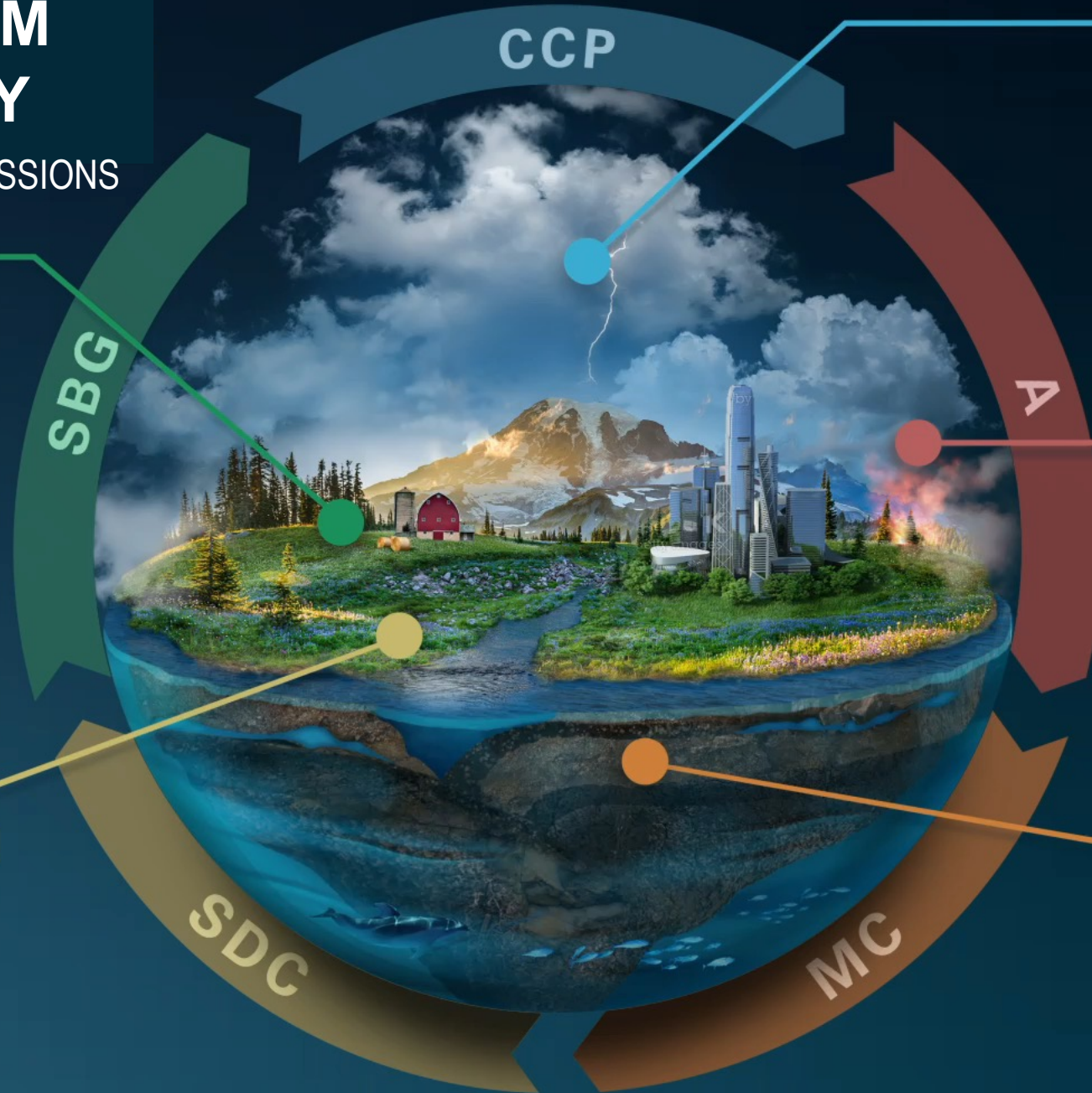
INTERCONNECTED CORE MISSIONS

SURFACE BIOLOGY AND GEOLOGY

Earth Surface & Ecosystems

SURFACE DEFORMATION AND CHANGE

Earth Surface Dynamics



CCP

CLOUDS, CONVECTION AND PRECIPITATION

Water and Energy in the Atmosphere

A

AEROSOLS

Particles in the Atmosphere

SDG

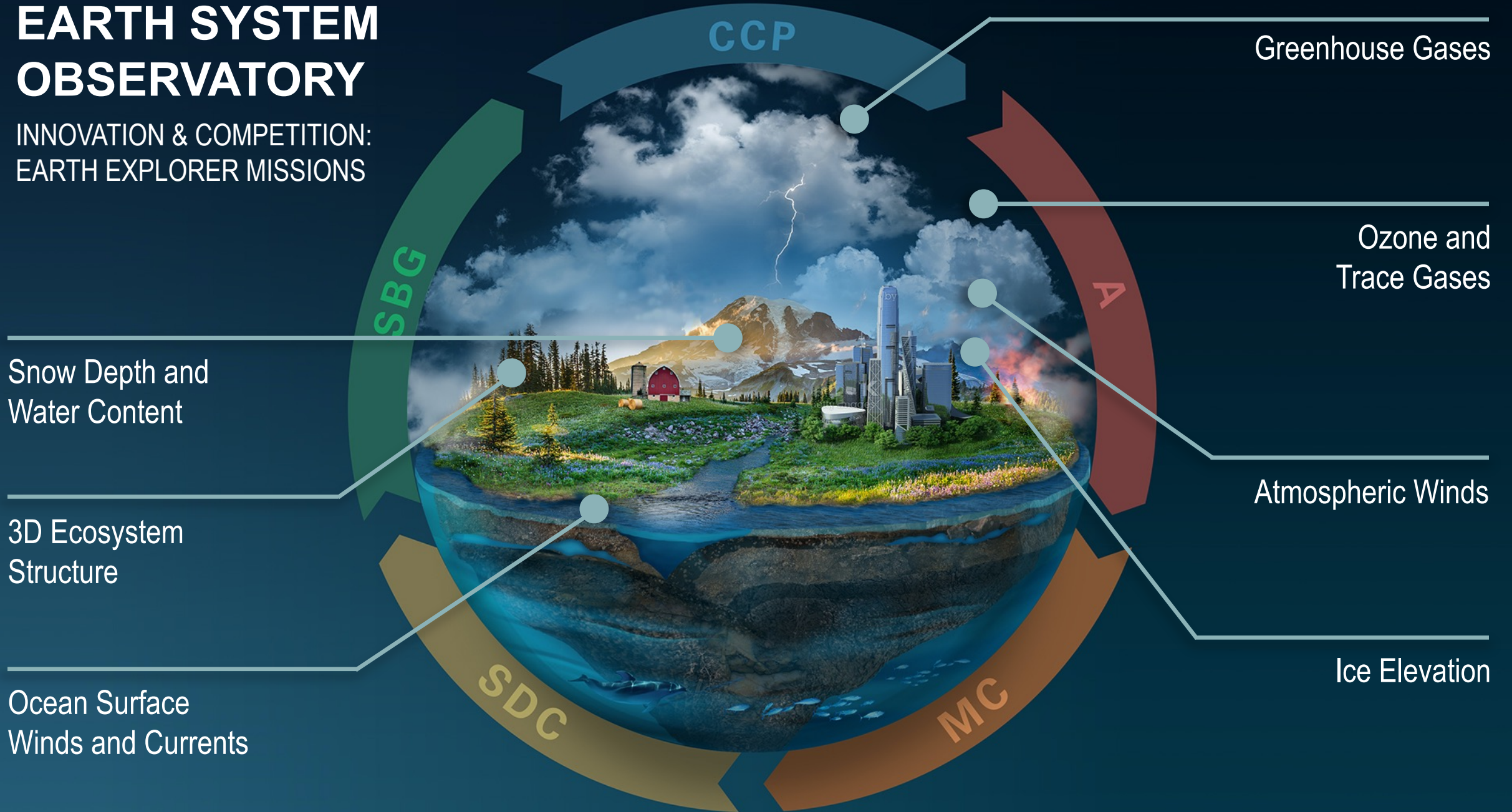
MC

MASS CHANGE

Large-scale Mass Redistribution

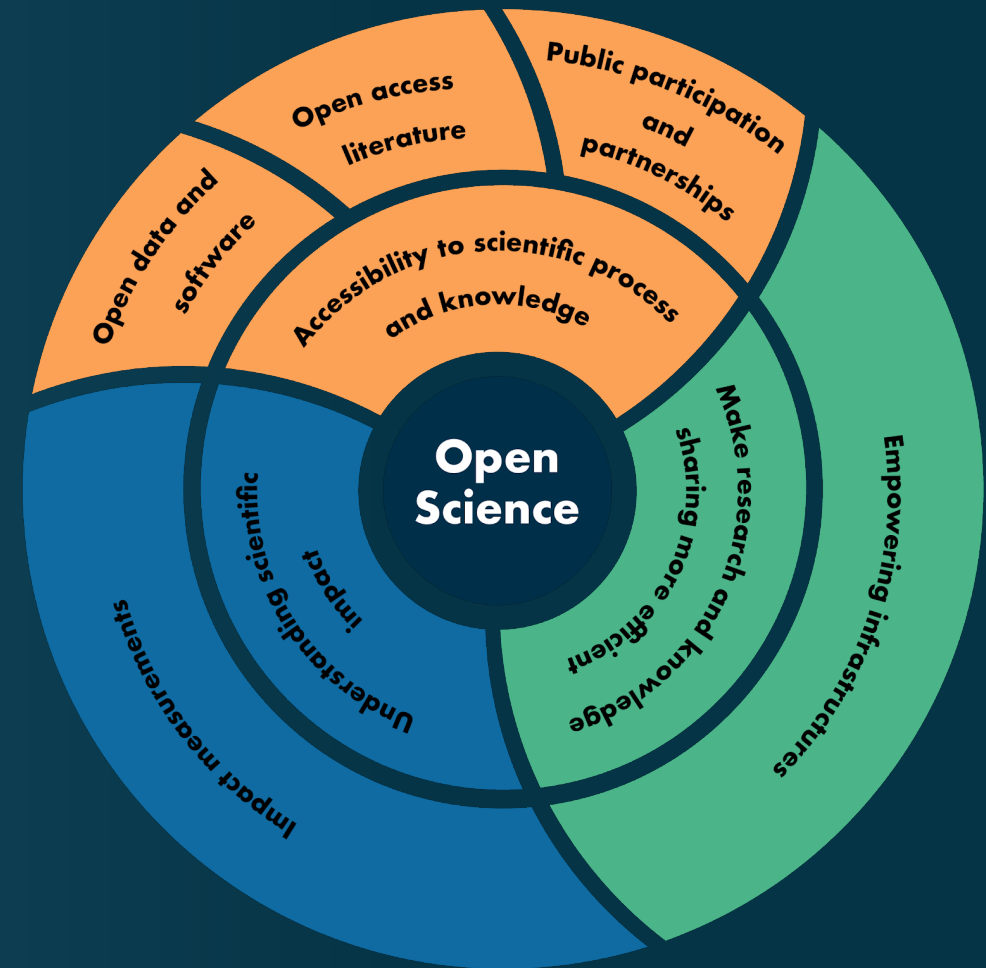
EARTH SYSTEM OBSERVATORY

INNOVATION & COMPETITION:
EARTH EXPLORER MISSIONS



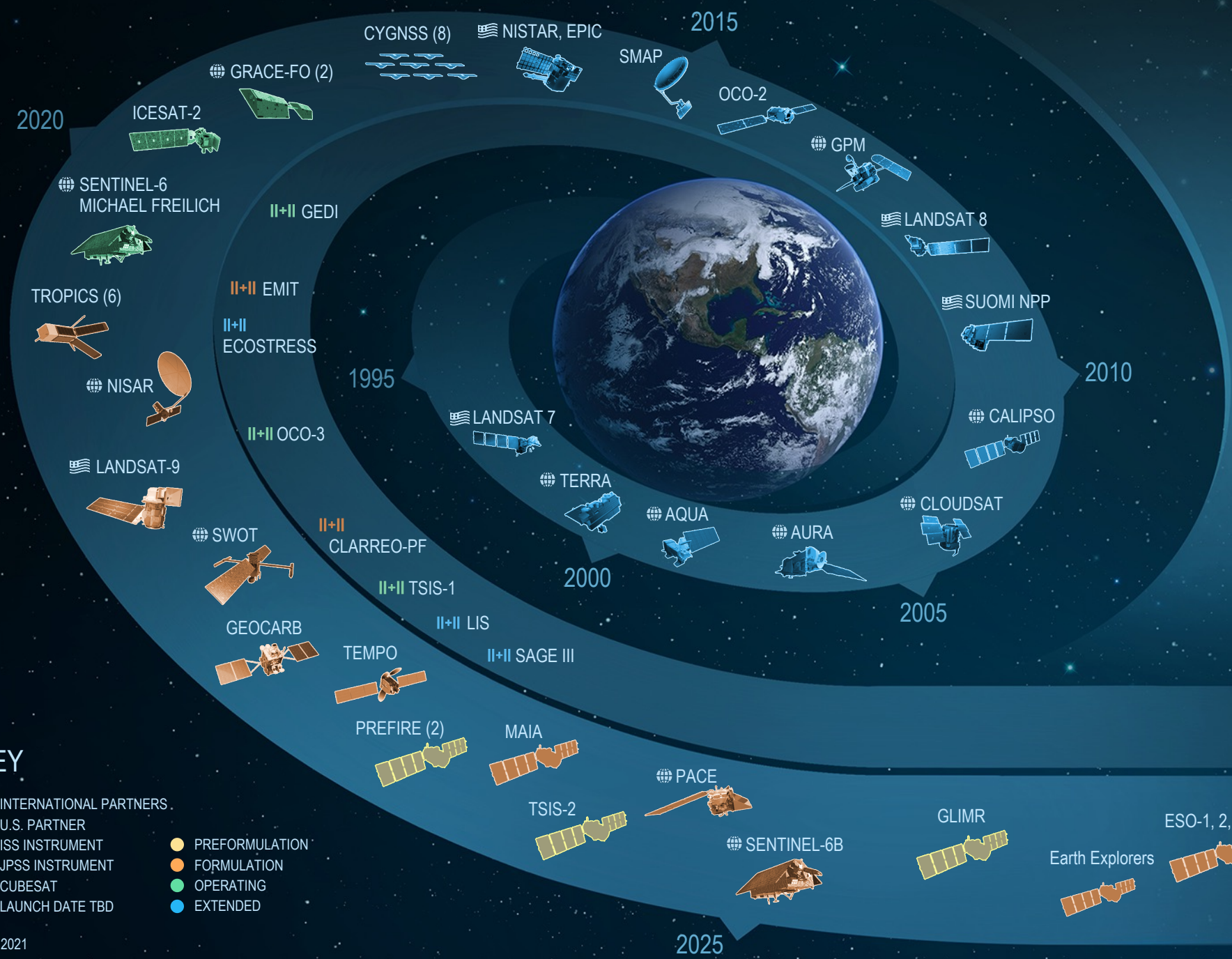
Develop Open Science Ecosystem

- *Shorten the time* it takes for a new user to find and learn how to use data
 - Open access, availability, and discoverability of data
- *Increase the community* of hands-on contributions
 - Open access to and advancement of modeling and simulation code
 - To improve models, assimilation, and prediction tools
- *Explore and exploit data* in new ways
 - Share knowledge and use current informatics and data science tools, in the same ecosystem as the data
- *Incentivize and energize* innovation through prizes and challenges





EARTH FLEET



INVEST/CUBESATS

- TEMPEST-D 2021
- CSIM-FD 2023
- HARP 2022
- CIRIS 2023
- CTIM* 2022
- HYTI* 2022
- SNOOPI* 2022
- NACHOS* 2022
- NACHOS2* 2022

JPSS INSTRUMENTS

- OMPS-LIMB 2022
- LIBERA 2027

ISS INSTRUMENTS

MISSIONS

KEY

- INTERNATIONAL PARTNERS
- U.S. PARTNER
- ISS INSTRUMENT
- JPSS INSTRUMENT
- CUBESAT
- LAUNCH DATE TBD
- PREFORMULATION
- FORMULATION
- OPERATING
- EXTENDED

Earth Science as an Administration Priority

Biden doubling spending to prepare for hurricanes, storms

By MATTHEW DALY and DARLENE SUPERVILLE May 24, 2021

WASHINGTON (AP) — President Joe Biden announced Monday that he's doubling U.S. emergency spending to help communities prepare for hurricanes and other extreme weather events, while launching a new effort at NASA to better understand and track the impact of climate change.



Message from the Administrator

The State of NASA is Strong



Click on the above image to watch the full State of NASA program, recorded Wednesday, June 2.

I hope you were able to tune into my [State of NASA](#) address on June 2 – my first opportunity to speak directly to the NASA family. It's been an incredible month, getting up to speed on the agency's goals and missions, sharing your successes with the president and vice president, and learning more about their vision for the agency.

During my address, I touched on the exciting future here at NASA. I spotlighted the new Earth System Observatory, the James Webb Space Telescope, Perseverance and Ingenuity, Artemis, and more. And I was excited to announce VERITAS and DAVINCI+, our new Discovery missions to Venus.

A vibrant space-themed background featuring a curved view of Earth at the bottom left, a crescent moon, Mars, Saturn with its rings, and a bright yellow sun. The background is filled with stars and nebulae in shades of blue, green, and yellow.

Key Takeaways: Five Things to Know about the ESO

- Before the end of this decade, NASA will put into orbit the Earth System Observatory – a single observation system comprised of five core satellite missions and three Earth Explorer missions
- The ESO is the heart of our implementation strategy for the Decadal Survey, addressing the most pressing questions about our changing planet posed by the Earth Science community through the National Academies Decadal Process
- The ESO builds on the capabilities of NASA's 23 operating missions and the 18 in development that make up the program of record.
- Competitively selected Earth Explorer missions will bring innovation and additional key observations to the ESO - the private sector, academic community, and international space agencies will have significant roles in ESO success
- NISAR serves as a “trailblazer” for the ESO, addressing one of the five core observables, involving substantial international partnership, advancing open source science, and strongly coupling research and applied science

For More Information

Earth System Observatory website:

<https://science.nasa.gov/earth-science/earth-system-observatory>

NASA SCIENCE
SHARE THE SCIENCE

Science Topics News For Researchers Learners Get Involved Citizen Science About Us Español

Earth

Learn More About This Image

Overview What We Study Elements Missions Science Questions Earth Data Resources Global Challenges

NASA Earth System Observatory

Addressing, Mitigating Climate Change

NASA will design a new set of Earth-focused missions to provide key information to guide efforts related to climate change, natural hazard mitigation, fighting forest fires, and improving real-time agricultural processes.

Each uniquely designed satellite in the [Earth System Observatory](#) will complement the others, working in tandem to create a 3D, holistic view of Earth, from bedrock to atmosphere.

Earth System Observatory

- > [About](#)
- > [ESO Community Day](#)

Earth Science Decadal Inputs

- > [Decadal Snapshot](#)

The background of the slide is a composite of two cosmic images. The top half 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 half shows a similar starry field but with a warm, golden-orange glow on the left side, transitioning into a greenish-blue hue on the right, where another nebula is visible. The text 'Questions?' is centered in a white, sans-serif font across the dark blue band.

Questions?