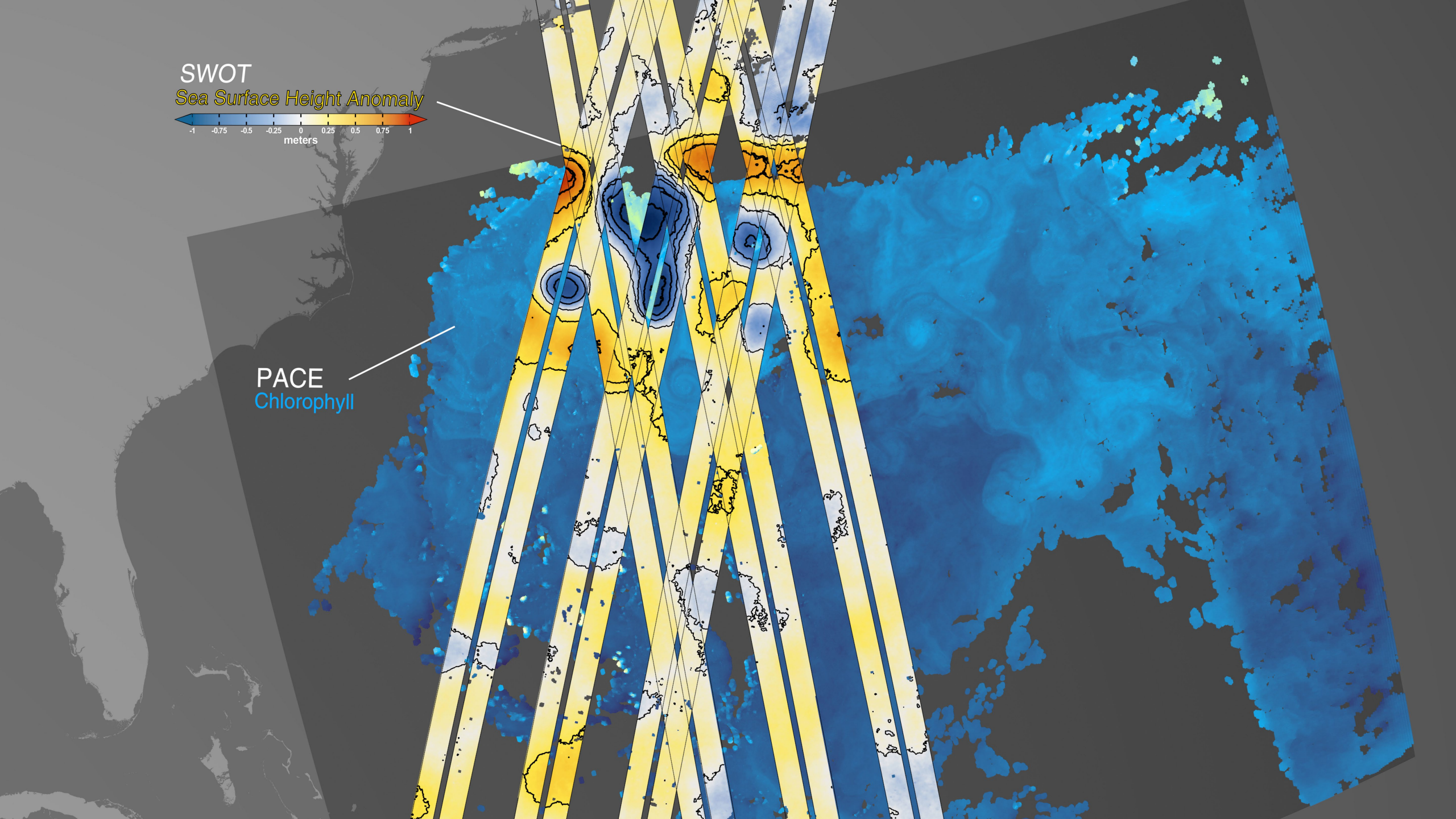
National Aeronautics and
Space Administration

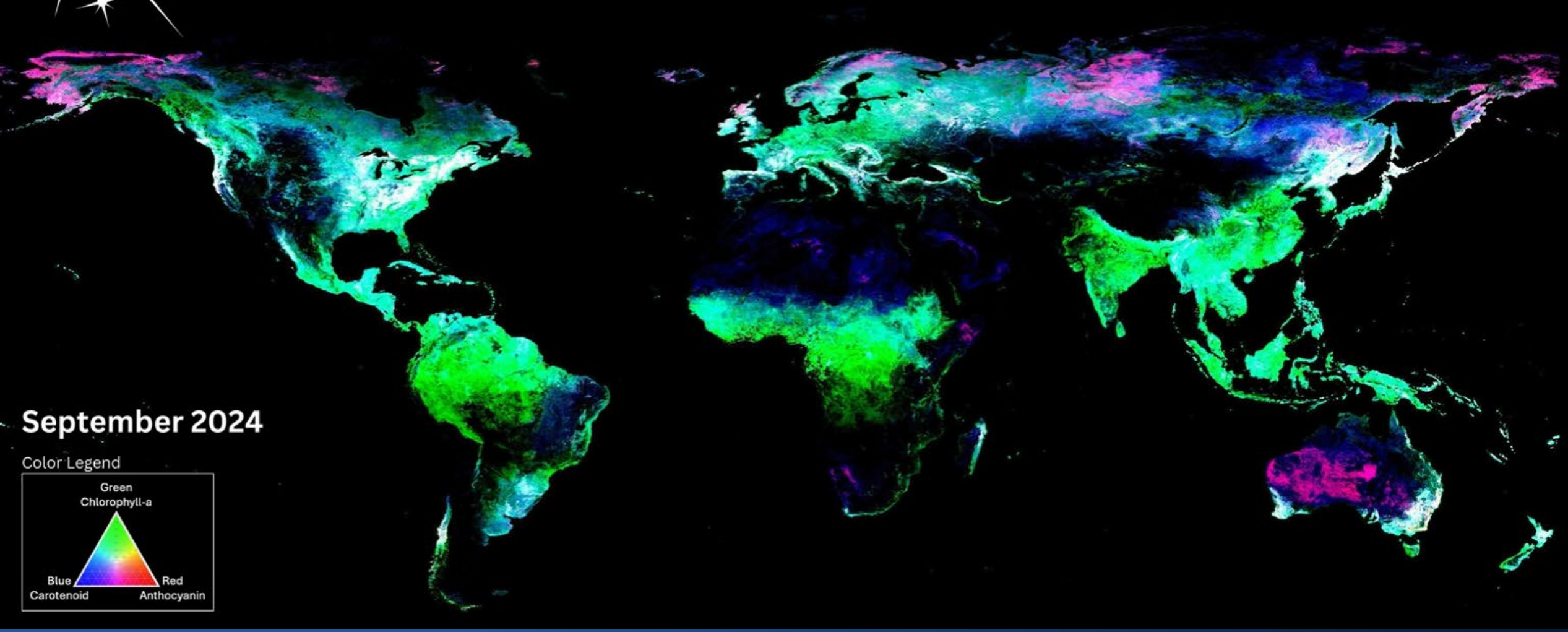
NASA earth

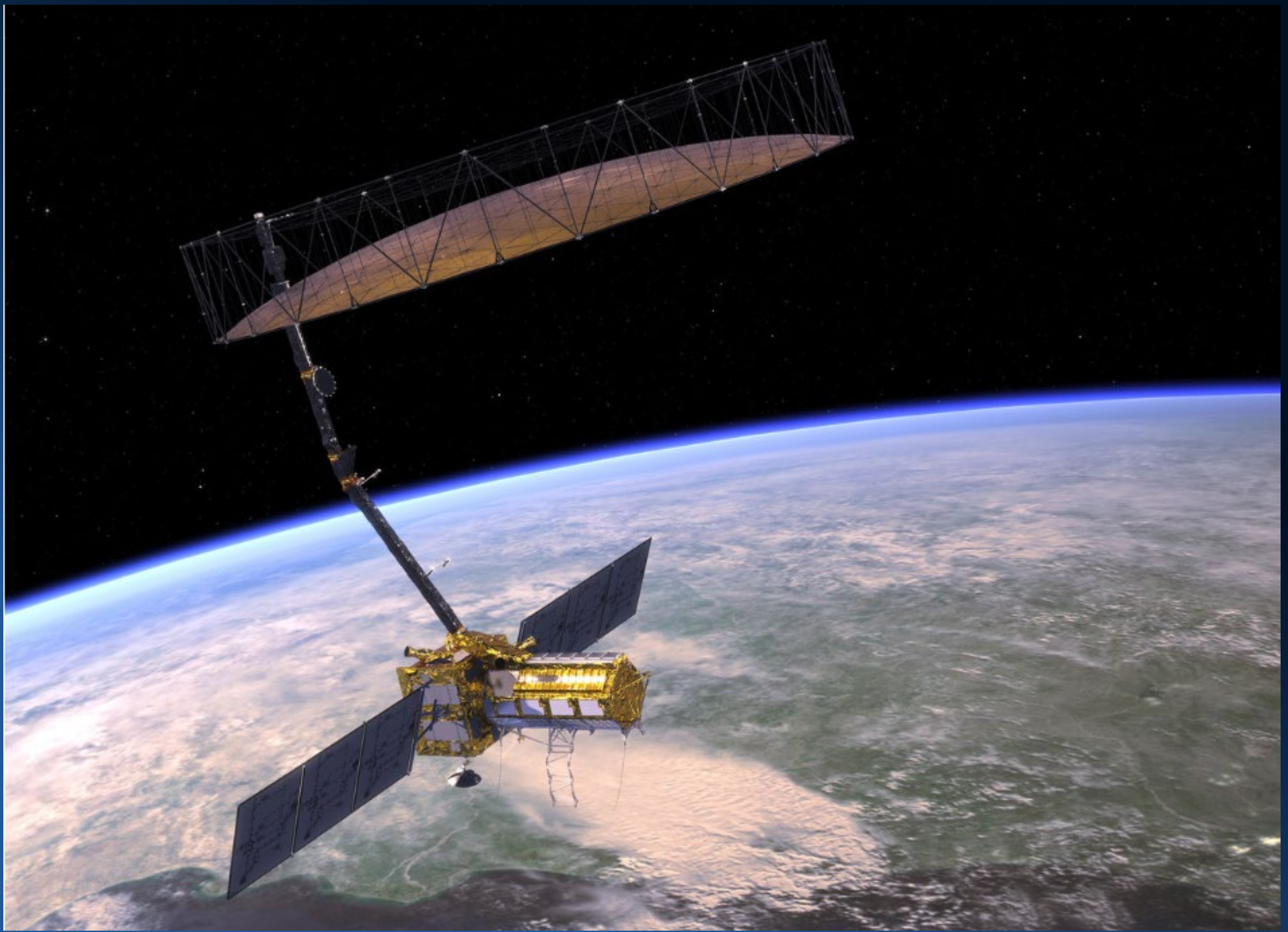
New U.S. Earth Observing Missions

Woody Turner
Program Scientist for Biological Diversity
Earth Science Division


SWOT
Sea Surface Height Anomaly
-1
-0.75
-0.5
-0.25
0
0.25
0.5
0.75
1
meters
PACE
Chlorophyll

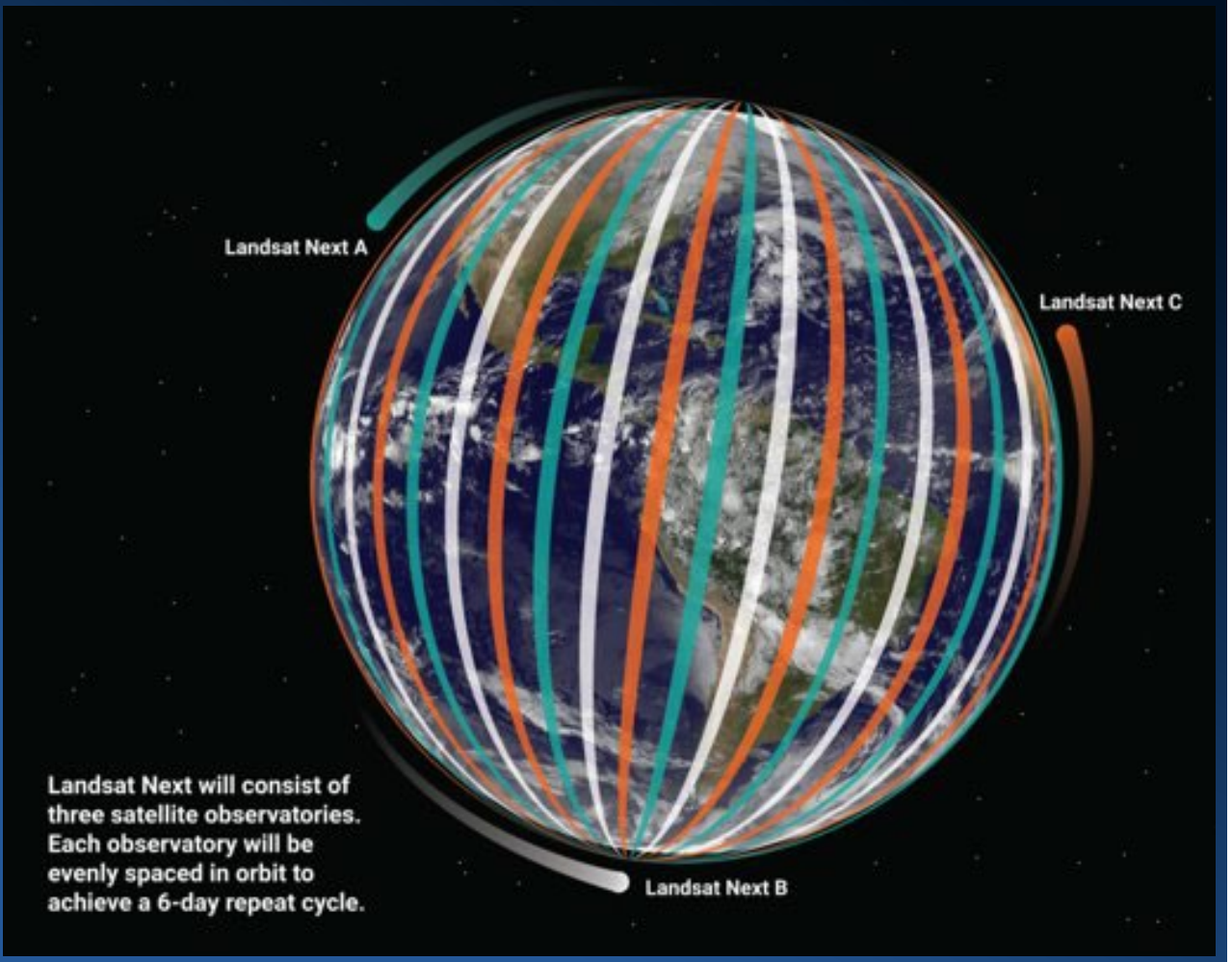
Land in Living Color:
Seasonal changes in 3 plant pigments visualized globally for the first time ever

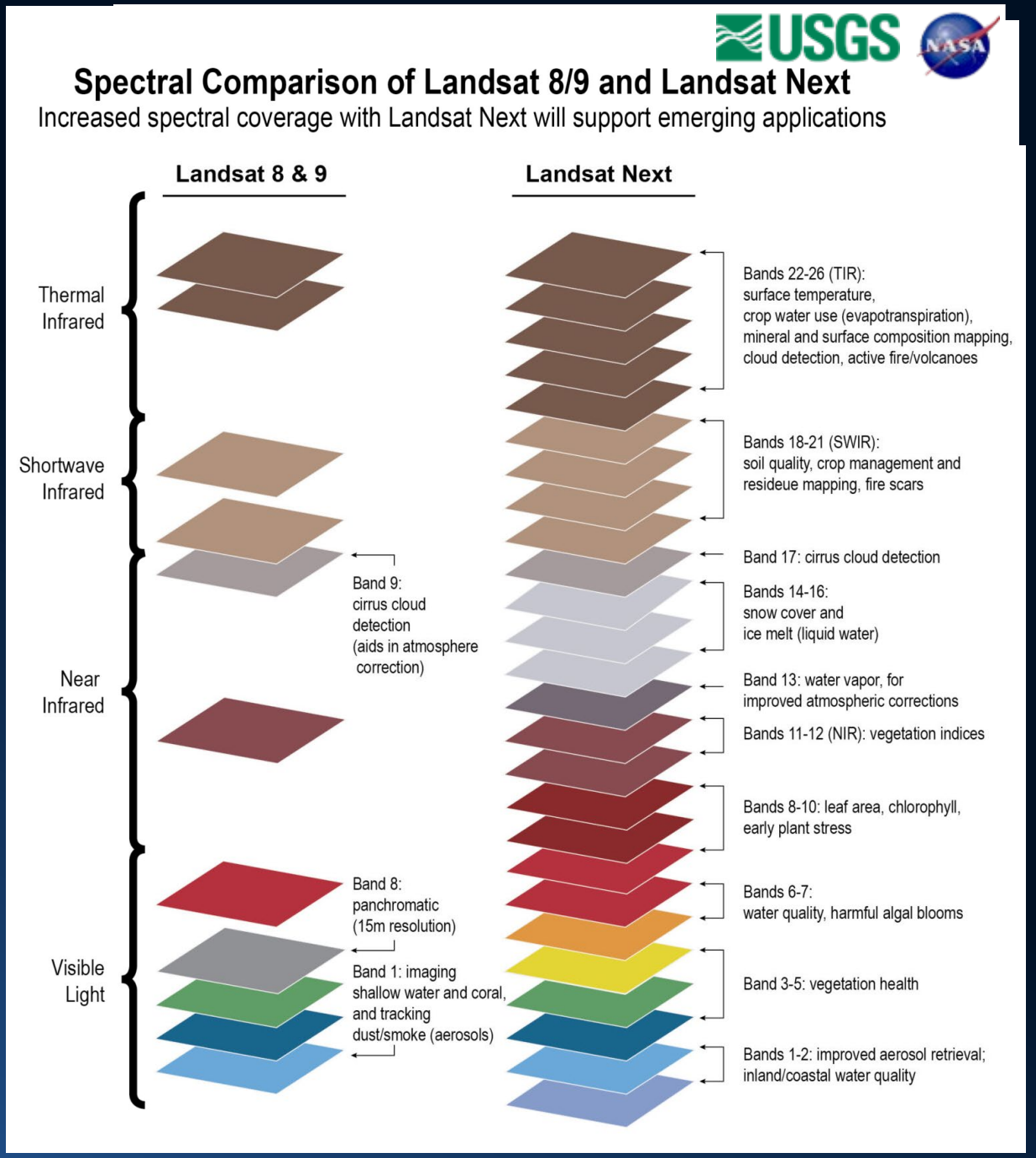




NISAR
NASA - ISRO SAR Mission

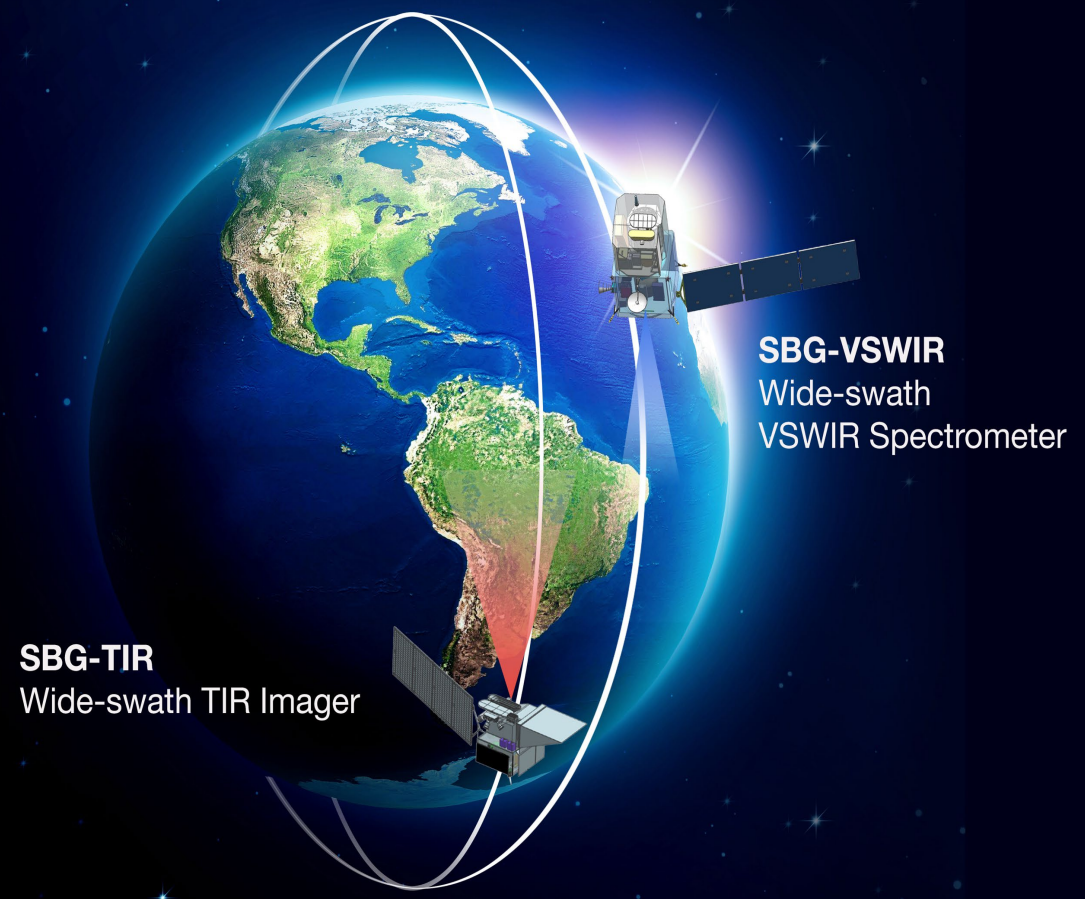
Landsat Next



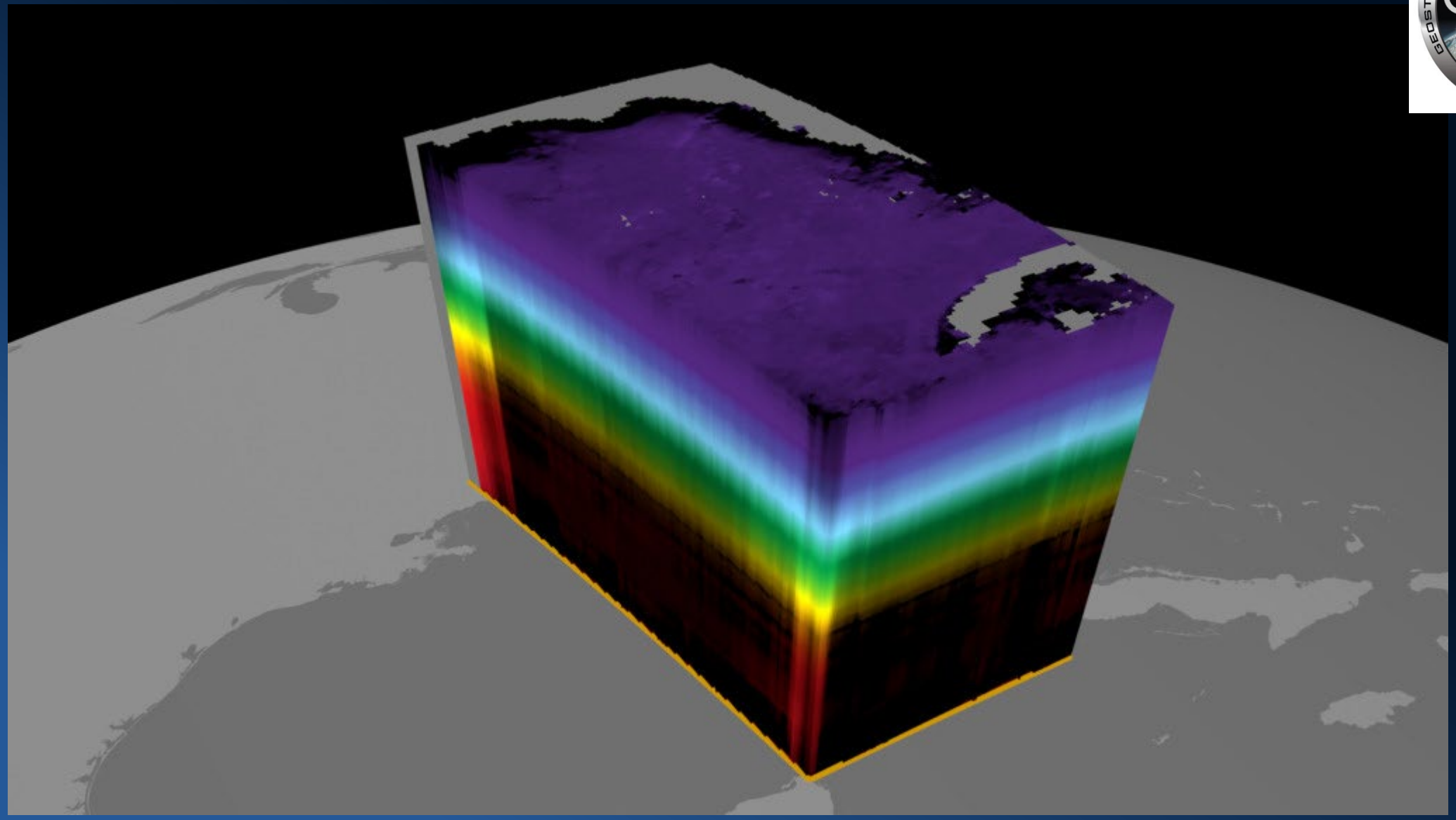


Surface Biology and Geology

- **Wide-swath Thermal Infrared (TIR) Imager platform**
- **Wide-Swath Visible and Short-Wave Infrared (VSWIR) Spectrometer platform**
- **Three-year prime mission for each system**



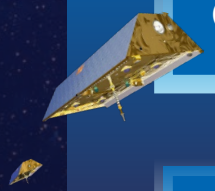
- **Partnership with the Agenzia Spaziale Italiana (ASI) for TIR**



iESO

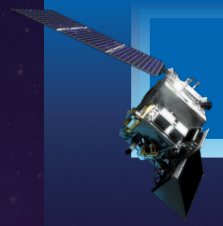
NOTE: This graphic captures the starting point, possible that more missions can be captured here in the future

GRACE Science



- **GRACE-FO**
- **GRACE-C**

PACE Science

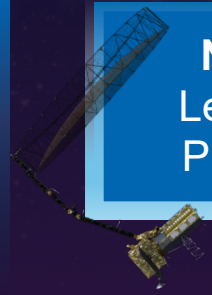


- **PACE**

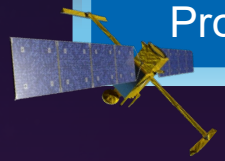
iSBG

- **SBG-TIR** Level 1B
- **SBG-VSWIR** Level 1B

Level 2 and Higher Integrated Products

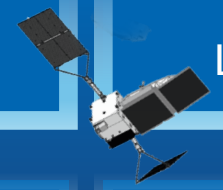


- **NISAR** Level 1-4 Products



- **SWOT** Level 1-2 Products

iAOS



- **AOS-Sky** to Level 1B
- **PMM** to Level 1B
- **AOS-Cloud** to Level 1B
- **AOS-C2OMODO** to Level 1B
- **TICFIRE** to Level 1B
- **CALIGOLIA** to Level 1B

Level 2 and Higher Integrated Products

BIOSCAPE


NASA
NASA earth
science.nasa.gov/earth
Your Home. Our Mission.

Biodiversity in CEOS

- Exploring options for a new focus on biodiversity
  - “How can space agencies increase their impact on biodiversity conservation?”
- Initial activity: Task Team focused on Ecosystem Extent
  - Assessed current and future roles for EO of ecosystem extent
  - Included forthcoming instruments, new technology, and other factors
  - Three “demonstrators” augmented the outcomes
- Now: Broadening to biodiversity more generally
  - Biodiversity Study Team newly formed to assess user needs
  - Needs will be evaluated in the CEOS context to determine a potential CEOS role for biodiversity applications

BIOSCAPE: Biodiversity Survey of the Cape

1. WE COLLECT DATA: REMOTE&IN-FIELD

REMOTE:
landsat, sentinel, EMIT, ECOSTRESS

IN-FIELD:
Phytoplankton functional types

IN-FIELD:
Plant functional traits & species composition

IN-FIELD:
Leaf & canopy spectra

IN-FIELD:
Animal counts

IN-FIELD:
DNA & eDNA samples

REMOTE:
Imaging spectroscopy (UVSWIR & TIR) and laser altimeter

2. TO STUDY BIODIVERSITY

FUNCTIONAL DIVERSITY

TAXONOMIC DIVERSITY

PHYLOGENETIC DIVERSITY

SPECTRAL DIVERSITY

3. TO BETTER CONSERVE NATURE & ITS CONTRIBUTIONS TO PEOPLE

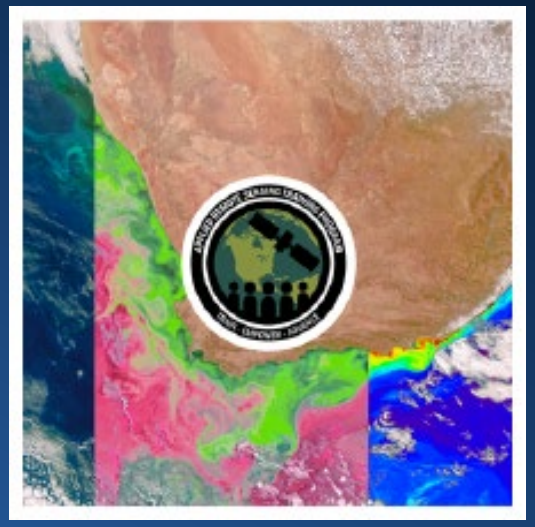
SHIFTING COMMUNITY COMPOSITION

ECOSYSTEM DISTURBANCE, RESILIENCE & RECOVERY

ECOSYSTEM FUNCTION & CONTRIBUTION TO PEOPLE

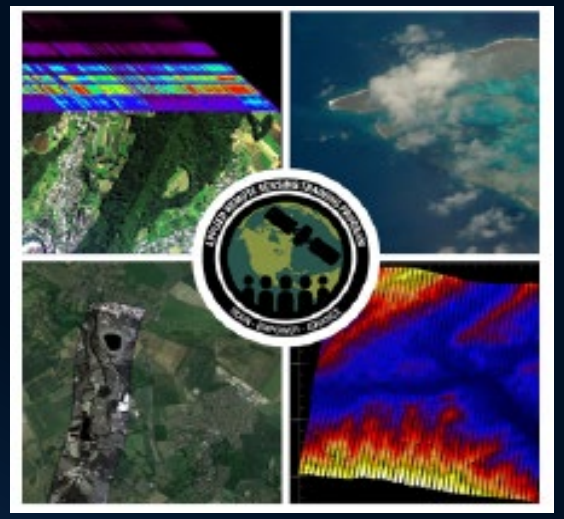
NASA Applied Remote Sensing Training (ARSET)

https://appliedsciences.nasa.gov/arset



Introduction to PACE Hyperspectral Observations for Water Quality Monitoring

Hyperspectral Data for Land and Coastal Systems



Biodiversity Applications for Airborne Imaging Systems