

# EXPLORE SCIENCE

National Aeronautics and  
Space Administration



## Ocean Biology and Biogeochemistry Program

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[https://cce.nasa.gov/ocean\\_biology\\_biogeochemistry/index.html](https://cce.nasa.gov/ocean_biology_biogeochemistry/index.html)

<https://go.nasa.gov/PhOcean>

<https://astrobiology.nasa.gov/nai/index.html>

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# EARTH FLEET

## INVEST/CUBESATS

- CIRIS 2023
- NACHOS 2022
- CTIM 2022
- NACHOS-2 2022
- SNOOPI\* 2022
- MURI-FO\* 2022
- HYTI\* 2023

## JPSS INSTRUMENTS

- OMPS-LIMB 2022
- LIBERA 2027
- OMPS-LIMB 2027
- OMPS-LIMB 2032

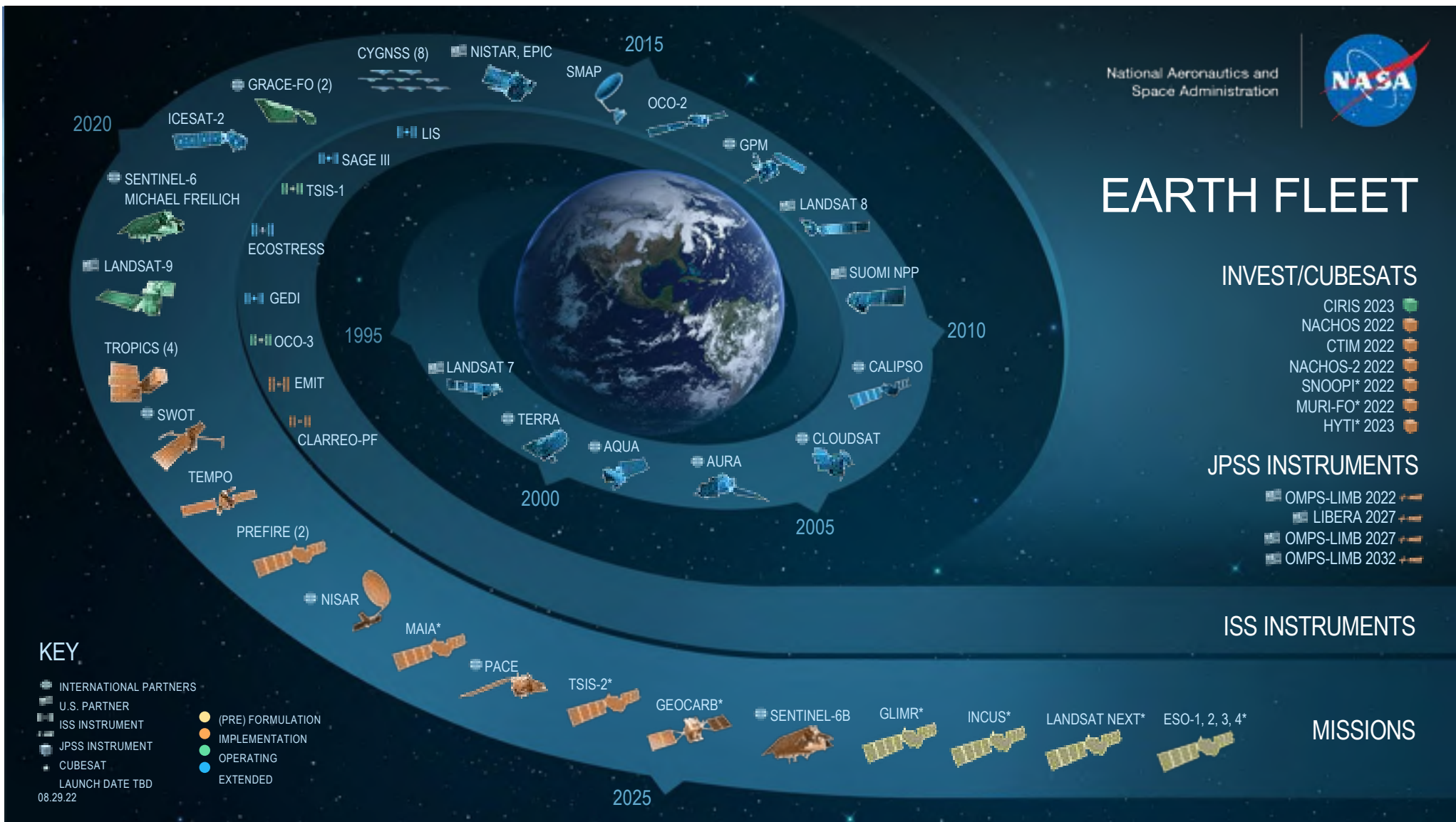
## ISS INSTRUMENTS

## MISSIONS

## KEY

- INTERNATIONAL PARTNERS
  - U.S. PARTNER
  - ISS INSTRUMENT
  - JPSS INSTRUMENT
  - CUBESAT
  - LAUNCH DATE TBD
- 08.29.22

- (PRE) FORMULATION
- IMPLEMENTATION
- OPERATING
- EXTENDED





# Career Development Programs

- NASA has many student and early career programs; read all about them here: <https://science.nasa.gov/earth-science/early-career-opportunities>
  - NASA Postdoctoral Program (<https://npp.oraui.org>)
    - Provides opportunities for postdoctoral fellows to work at NASA Centers. NPP provides opportunities to conduct cutting edge scientific research consistent with NASA's and SMD's strategic objectives, and provides the opportunity to recruit the finest early career scientists for short-term, focused research opportunities. It also serves the purpose of infusing new skills into, and revitalize, both new and existing research groups.
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# Early Career Award (ECA) Program

## Scope

- To support research, professional development, and community involvement of outstanding early-career scientists, in areas supported by the Planetary Sciences Division.
  - Approximately five awards per year, each up to \$200k (made one time, must be used within five years)
  - POC: Stephen Rinehart, [stephen.a.rinehart@nasa.gov](mailto:stephen.a.rinehart@nasa.gov)
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# Early Career Programs

- **New Investigators Program (NIP)**

- The NIP supports outstanding scientific research and career development of scientists and engineers at the early stages of their professional careers
- NASA places particular emphasis on the PI's ability to promote and increase the use of space-based remote sensing through the proposed research
- Solicited every three 3 years; next solicitation expected in 2023

*Special features:*

- In general, early career is defined as having obtained Ph.D. degree within seven years
  - Single PI as the only essential member of an NIP proposal; collaboration encouraged (no Institutional or Science PI; no Co-I's)
  - Average award size \$100K/year
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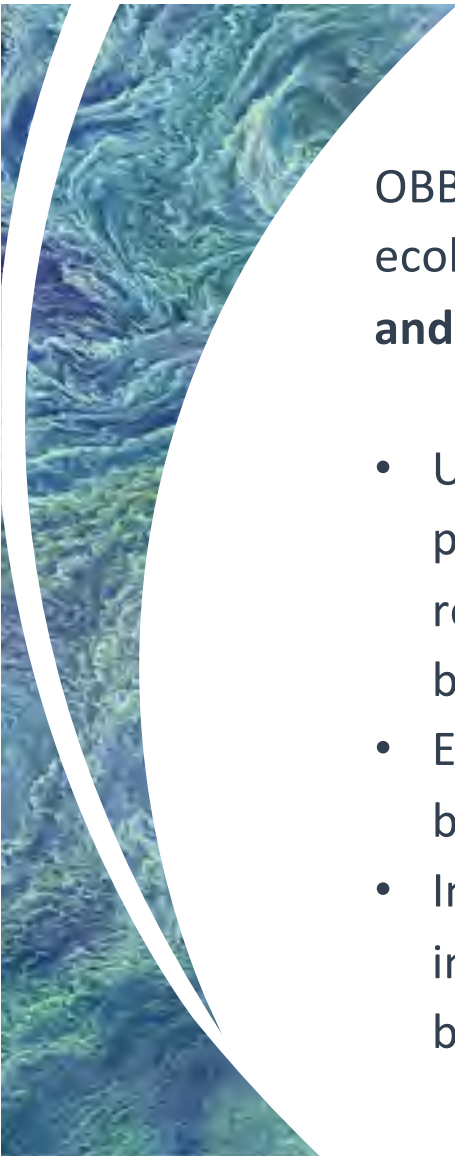


# Student Programs

- **Future Investigators in NASA Earth and Space Sciences and Technology (FINESST)**
    - FINESST is an annual solicitation, and succeeds the NASA Earth and Space Science Fellowship (NESSF).
    - The purpose is to provide relevant research and/or technology development project training in disciplines needed to achieve the goals of NASA Science Mission Directorate (SMD).
    - FINESST grants (up to \$50K/ year) are for student-designed research projects that contribute to NASA SMD's science, technology, and exploration goals.
    - Awards are grants to institutions, with the advisor as the Principal Investigators (PI) and the graduate student researcher as the Future Investigator (FI).
    - FINESST is a GRANT program for PI led research teams, not a FELLOWSHIP program that students apply to.
  - **Internships and other opportunities**
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# **Ocean Biology and Biogeochemistry**

A decorative graphic on the left side of the slide, featuring a stylized, abstract representation of ocean waves in shades of blue and green, with a white curved line separating it from the text area.

OBB focuses on describing, understanding, and predicting the biological, ecological, and biogeochemical regimes of the upper ocean. It uses **in-situ and airborne data, together with remote sensing data**, to:

- Understand and quantifying the impacts and feedbacks of Earth System processes, particularly oceanographic mechanisms, on the global and regional spatial and temporal variability of ocean biology, ecology, and biogeochemistry.
- Explore the development of new biological, ecological, and biogeochemical observations from space-based assets.
- Improve future climate predictions (impacts and feedbacks) by incorporating a dynamic understanding of ocean biology, ecology, and biogeochemistry into global biogeochemical and ecological models.





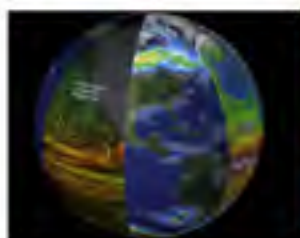
## How do we do this?

- Ocean Biology and Biogeochemistry: every 3 years; topics change in response to community-identified priorities
- Carbon Monitoring System: Annual or bi-annual
- Carbon Cycle Science: every 3 years; topics change in response to community-identified priorities
- Interdisciplinary Science: every 3 years
- Terra/Aqua/SNPP: every 3 years; topics center around T/A/SNPP
- New Investigators (NIP): Annual
- FINESST: Annual
- Remote Sensing of Water Quality: every 3 years
- Periodical opportunities across other program elements (e.g. BDV or one-off opportunities)



# Ocean Physics

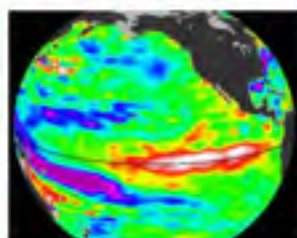
# Ocean Physics at NASA



Physical Oceanography (PO)



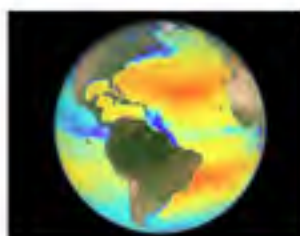
Sea Level Change (N-SLCT)



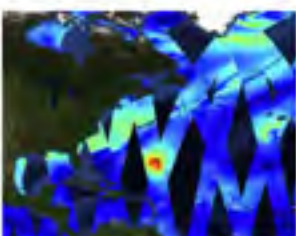
Ocean Surface Topography (OSTST)



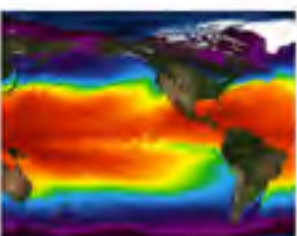
Surface Water and Ocean Topography (SWOT)



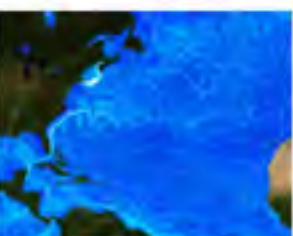
Ocean Surface Salinity (OSSST)



Ocean Vector Winds (OVWST)

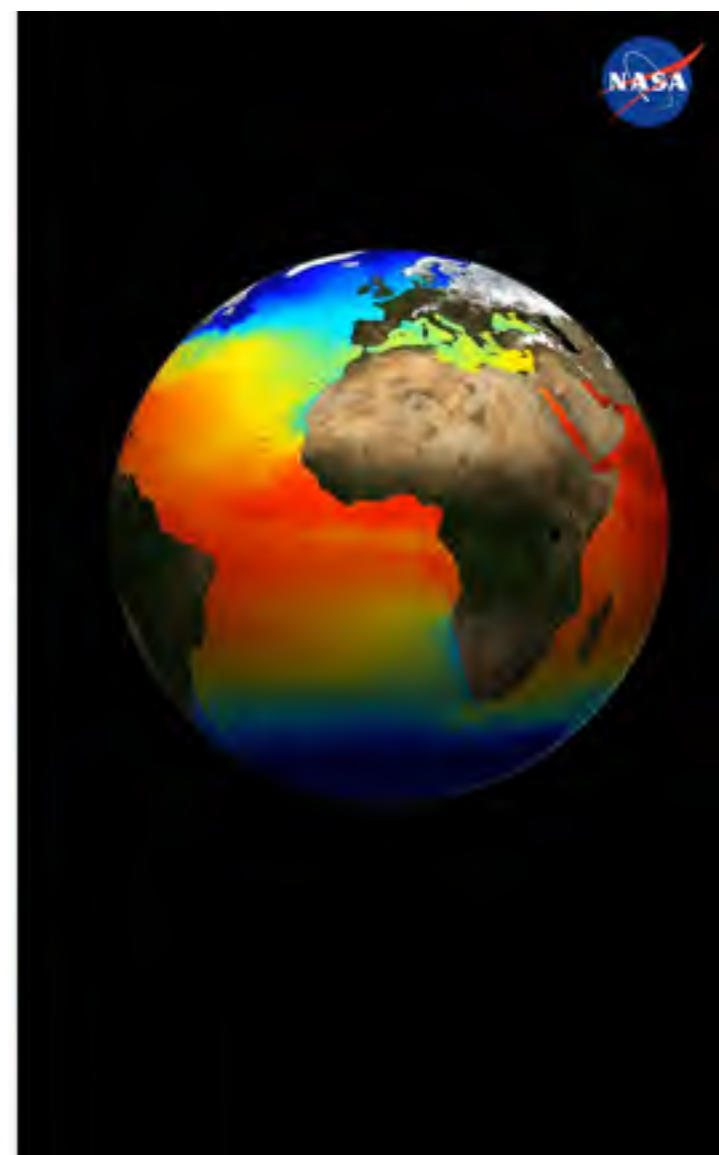


Sea Surface Temperature (SST)



Estimating Circulation and Climate of the Ocean (ECCO)

<https://go.nasa.gov/phocean>



## A note on proposal writing and process...

The best way to learn to write proposals is to write them. Start early — when not getting funded doesn't matter.

The Program Officer is the interface between the funding agency and you. Call them or email them with questions.

Request a debriefing on unsuccessful proposals.

Don't annoy your reviewers!

**Agree/Volunteer to serve on Review Panels!** It is never too early to start gaining proposal experience!

**If you remember nothing else, please remember...** The opportunities are available: find them, learn them, make them yours. READ the solicitations carefully!