INSIDE THE ISSUE

PACE Community Newsletter / October 2022/ Issue 2

WELCOME

Summertime, and the living was busy ...

At least it was for the PACE Project. What a pleasure to watch all mission elements moving closer and closer to completion and delivery. SPEXone was integrated onto the spacecraft in June. OCI and HARP2 will be delivered in the coming months. Full observatory integration and testing will begin before we release our first newsletter of 2023.

It's getting real, folks. Summer days have drifted away. We are 15 months out from launch. On behalf of the PACE mission, we're thrilled to have you along for the ride.

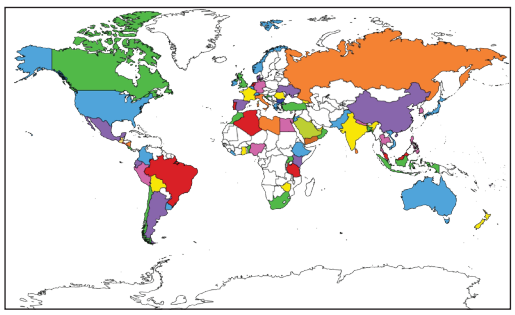
- Jeremy Werdell
PACE Project Scientist

PACE Applications Workshop

On September 14-15, the PACE mission hosted its 3rd PACE Applications Workshop. Nearly 1000 participants from over 80 counties registered to hear the latest about the PACE Mission, science, and societal applications. This year's event focused on advancing the application readiness and societal value of future PACE satellite data, research, and applications. Participants considered action steps to ensure PACE data are readily accessible and have high practical value.

The workshop featured a fantastic line up of keynote speakers (Lawrence Friedl; NASA HQ, Neil Davé; Tidal-x.company, Dez Holmes; Research in Practice, and Dr. Chelle Gentemann; NASA HQ) and three live panel discussions on community involvement, data accessibility, and mission synergies. Additionally, a poster session highlighted work by PACE Early Adopters and the PACE Science & Applications Team.

Watch the session recordings online.



Global representation of 2022 PACE Applications workshop particpants.

PACE Mission Updates

We're nearing the end of our individual elements' Integration and Testing (I&T) phase and, as such, can see the light at the end of the tunnel for the instrument testing programs.

The complete Ocean Color Instrument (OCI). Credit: Desiree Stover, Dennis Henry, Katherine Mellos | NASA

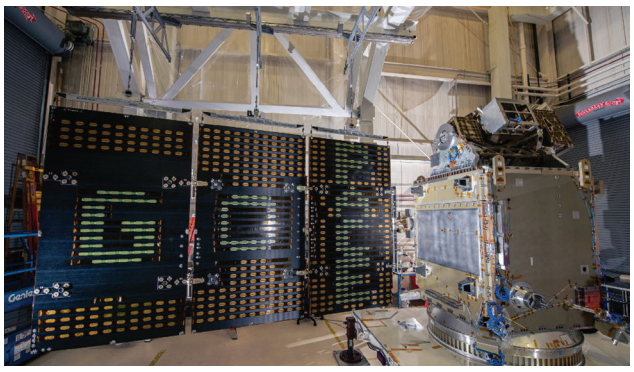
Our fully assembled primary instrument, OCI, entered its two-month thermal vacuum campaign in early September. OCI will be delivered to the spacecraft by the end of this calendar year.

The completed SPEXone multi-angle polarimeter was mechanically and electronically integrated onto the spacecraft in June 2022. The HARP2 multi-angle polarimeter completed its environmental testing program and will be delivered to the mission in late October 2022.

SPEXone mechanical integration onto the PACE spacecraft. Credit: Dennis Henry | NASA

HARP2 prepares to enter a thermal vacuum chamber. Credit: Katherine Mellos | NASA

Our PACE spacecraft team has worked tirelessly to ensure the observatory is ready to accept OCI and HARP2. **Next up: instrument integration onto the spacecraft and full observatory testing!**



The PACE spacecraft structural verification unit (SVU). Credit: Barbara Lambert | NASA

PACE CoP

Interested in joining a growing group of researchers & applied scientists who are excited about everything PACE!?

The PACE Community of Practice fosters new partnerships and collaboration, generates new knowledge and innovations, and promotes interdisciplinary research using PACE data.

SIGN UP NOW

PACE Early Adopter Program

Do you have an existing application or system that could leverage PACE data for societal benefit?

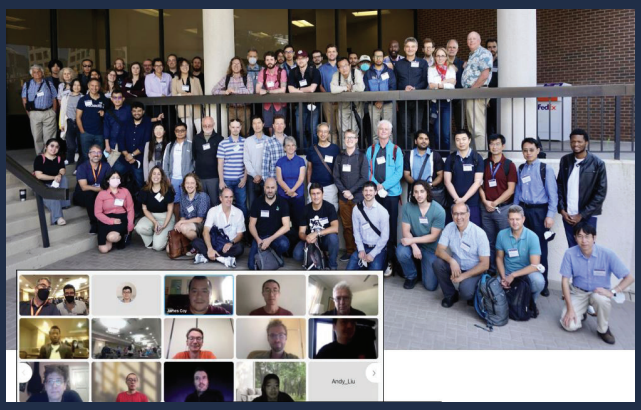
The Early Adopter Program promotes applied science designed to scale and integrate PACE data into activities that directly benefit society and inform decision making.

LEARN MORE

Newsworthy

Keeping PACE with Polarization at APOLO

The 3rd Advancement of POLarimetric Observations (APOLO) took place in the Washington, D.C. area from August 9-12, 2022. APOLO is devoted to research on the use of light polarization for remote sensing of Earth (and other places too). As one of NASA's upcoming missions that will make use of polarization, PACE affiliated scientists participated in force with 14 talks. PACE's Deputy Project Scientist, Brian Cairns (NASA GISS), was presented with the 2022 François Arago Award for Polarimetric Remote Sensing!



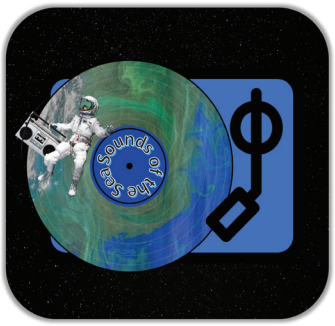
Presentations can be found at the APOLO website.

APOLO 2022 in person & virtual attendees. Credit: Kirk Nobelspiesse | NASA

Ocean Data Goes Sentient, Creates Music

In honor of World Oceans Day, Ryan Vandermeulen (PACE research scientist | NASA/SSAI) and his brother, Jon, shared "Sounds of the Sea," a project that merged ocean color data with musical notes to allow for an immersive experience into ocean imagery.

What started as a low-key coding experiment evolved into something more. With no underlying subjectivity, the ocean color data created natural music, a mixture of chaos and uncertainty, but also order, representing the product of life and photosynthesis in the ocean. Listening, they found themselves inspired by the words of Rachel Carson, "those who dwell among the beauties and mysteries of the Earth are never alone or weary of life." What better way to experience this occurrence than to listen to oceanographic elements dance around each other as they silently take energy from the sun, and give us life-giving oxygen and food? Listen to the Sounds of the Sea online.



GOT GEAR?

PACE STORE

Order Deadline*
October 31st, 2022

**Payments for merchandise are to a vendor not affiliated with NASA, PACE or any employees thereof.*

Training the Next Generation of PACE Users

The "What's behind the curtain of the NASA Plankton, Aerosol, Cloud, ocean Ecosystem (PACE) mission" training course was held at the University of Maryland Baltimore County from August 1st through 5th, 2022. This in-person graduate-level course focused on imprinting PACE on a new generation of scientists by offering initimate access to all elements of this major flight project.

Participants on the PACE flight build & ground system facilities tour at NASA Goddard. Credit: Katherine Mellos | NASA GSFC

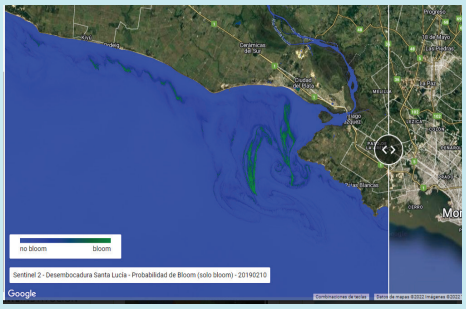
The class was made up of lectures, laboratories, panels with NASA Headquarters' representatives and Goddard's Earth Sciences communications team, plus a behind-the-scenes tour of the PACE flight build and ground system facilities! The curriculum focused not only on Earth science, but also on instruments' performances and how their measurements relate to derived geophysical products and, more broadly to society. The class was made up of 42 students from the U.S. and abroad. All lectures are publicly available online.

(Left) Participants on bus ride eagerly awaiting PACE facilities tour. (Below) Day in the life "flowerside" chat with NASA HQ Program Managers. Credit: Jessie Turner | UCONN

EA Spotlight

National Environmental Observatory Algal Bloom Detection Tool

With the support of Early Adopter Fernanda Maciel, Uruguay's National Environmental Observatory shares visualizations of processed satellite images in near real-time, aimed at monitoring algal blooms within reservoirs, lagoons, and the Río de la Plata Estuary.



National Observatory portal displaying probability of bloom in Santa Lucia, Montevideo for 02/10/2019 using Sentinel 2 data. Credit: Fernanda Maciel | IMFIA

Environmental managers use the tool to monitor and manage water quality to support local uses of the estuary, including general navigation, transportation, recreation, fishing, and other activities.

Learn more about this project.

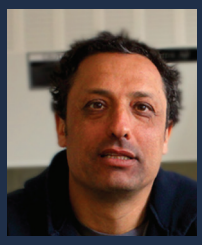
Harmful algal bloom in the Río de la Plata Estuary. Credit: Fernanda Maciel | IMFIA

People of PACE

Dustyn Kujawa | PACE Polarimeter Instrument Manager

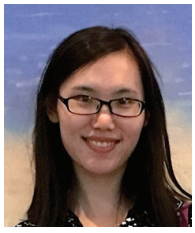
Dustyn is the newest member to join the PACE Polarimeter Team. This Team consists of GSFC Engineers, our partners at SRON/Airbus who have delivered the SPEXone Instrument & our partners at UMBC who will soon deliver the HARP2 Instrument. These two plus the OCI are the three PACE science instruments being integrated onto the spacecraft. In addition to supporting these Teams through delivery, she's been known to volunteer in her spare time and has served as an Elected Official in a nearby city.

Dr. Emmanuel Boss | PACE Science & Applications Team (SAT) Member



The amount and color of light illuminating the ocean surface and below, critical for processes such as photosynthesis, photo-chemistry and heating, is what Dr. Emmanuel Boss and Dr. Robert Frouin are working on for PACE. When not cooking eggplants, Emmanuel spends much time in liquid water swimming and diving, paddling on top of water, or skating and skiing in Maine on top of frozen water.

Dr. Guoqing Wang | OB.DAAC Scientist



Dr. Wang is a scientist with the NASA Ocean Biology Distributed Active Archive Center (OB.DAAC) managed by NASA's Ocean Biology Processing Group (OBPG). Dr. Wang has a background in satellite ocean color remote sensing. As a DAAC scientist, she works closely with the software engineers, mission scientists, and users to make sure OB.DAAC provides the best services to the ocean color community. She thinks doing research is cool, while helping others to do research is awesome.

Dr. Joaquim Goes | PACE Early Adopter (EA) Member

Dr. Joaquim Goes leads a NASA applications project "Decision and Information System for the Coastal waters of Oman (DISCO) - an integrative tool for managing coastal resources under climate change". Joaquim's PACE project will leverage hyperspectral PACE data for pigment-based species-level detection of HABs that are emerging as a significant threat to water and food security for coastal communities in the tropics. When not bogged down with work, Joaquim loves traveling and exploring local cultures through food and music.

This newsletter is brought to you by the PACE Applications Team!

Erin Urquhart | Project Applications Coordinator

Natasha Sadoff | Project Applications Deputy Coordinator

CONTACT US

STAY CONNECTED

Follow @NASAOcean on social media!

NEW PACE PUBLICATIONS

- *Optimal Estimation Framework for Ocean Color Atmospheric Correction & Pixel-level Uncertainty Quantification.* (Ibrahim et al. 2022). Read More
- *Quantifying the Ocean's Biological Pump and Its Carbon Cycle Impacts on Global Scales* (Siegel et al. 2022). Read More
- *Effective uncertainty quantification for multi-angle polarimetric aerosol remote sensing over ocean.* (Gao et al. 2022). Read More
- *Estimating Pixel-level uncertainty in Ocean Color Retrivals from MODIS.* (Zhang et al. 2022). Read More
- *Alignment of optical backscatter measurements from the EXPORTS Northeast Pacific Field Deployment.* (Erickson et al. 2022). Read More

Do you have a PACE related publication that you'd like featured? Let us know!

UPCOMING EVENTS

AeroCom/ AeroSAT 2022 | Oct. 10-14, 2022 | Oslo, Norway

PECORA 2022 | Oct. 24-27, 2022 | Denver, Colorado, USA

American Geophysical Union (AGU) 2022 | Dec. 12-16, 2022 | Chicago, Illinois, USA

American Meterological Society (AMS) 2022 | Jan. 8-12, 2023 | Denver, Colorado, USA