

Perspective of UN Ocean Decade Program:

The Observing Air-Sea Interactions Strategy (OASIS)

a practical, integrated approach for observing air-sea exchanges associated with the
Energy, Water, Carbon and Life Cycles

airseaobs.org/get-involved

OASIS Co-Chairs: Meghan Cronin (NOAA PMEL, USA), Christa Marandino (GEOMAR, Germany) & Sebastiaan Swart (University of Gothenburg, Sweden)
SCOR Working Group #162 & OASIS community

OASIS Mission & Vision

OASIS Mission is to develop a **practical, integrated approach for observing air-sea exchanges** associated with the **Energy, Water, Carbon and Life Cycles**

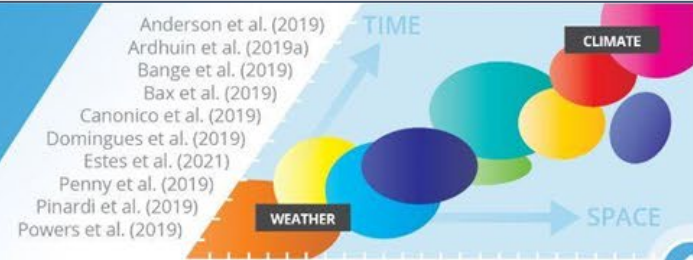


Recent hybrid OASIS workshop had more than 54 in person participants, with Early Career Ocean Professionals from Africa, South America, Asia, Australia, Europe, and North America

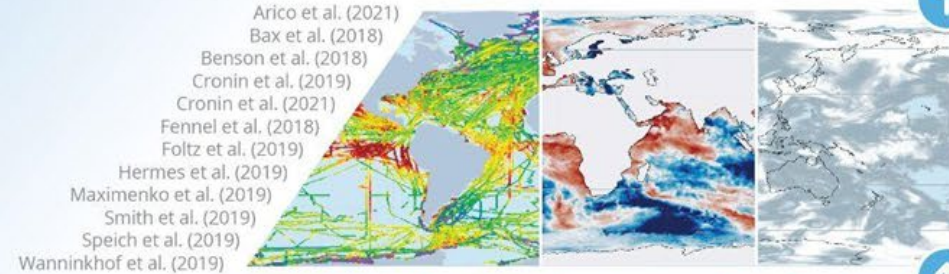
OASIS envisions a pathway to Get Involved in Ocean-Atmosphere Interaction Science for Sustainable Development. www.airseaobs.org/get-involved



Observing Air-Sea Interactions Strategy (OASIS) is harmonizing community recommendations from OceanObs'19 and UN Decade Laboratories... ...into three **Grand Ideas**

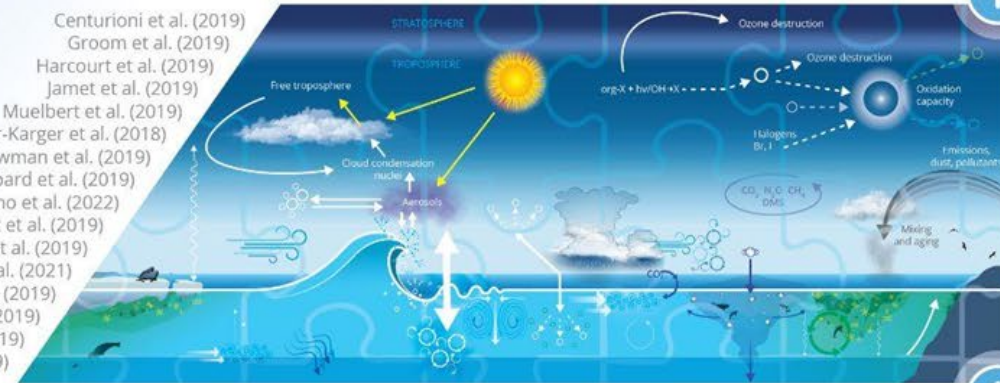


Improved Earth system (including ecosystem) forecasts for a predicted, clean, accessible, healthy, safe & productive ocean



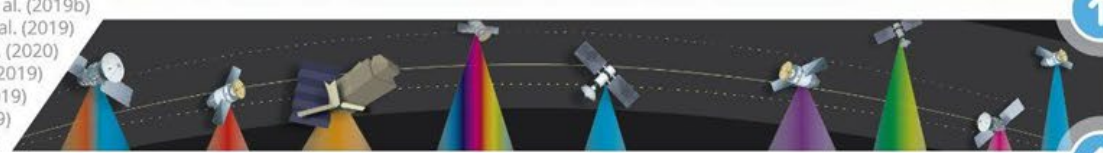
Arico et al. (2021)
Bax et al. (2018)
Benson et al. (2018)
Cronin et al. (2019)
Cronin et al. (2021)
Fennel et al. (2018)
Foltz et al. (2019)
Hermes et al. (2019)
Maximenko et al. (2019)
Smith et al. (2019)
Speich et al. (2019)
Wanninkhof et al. (2019)

Improved ocean information serving stakeholders around the world



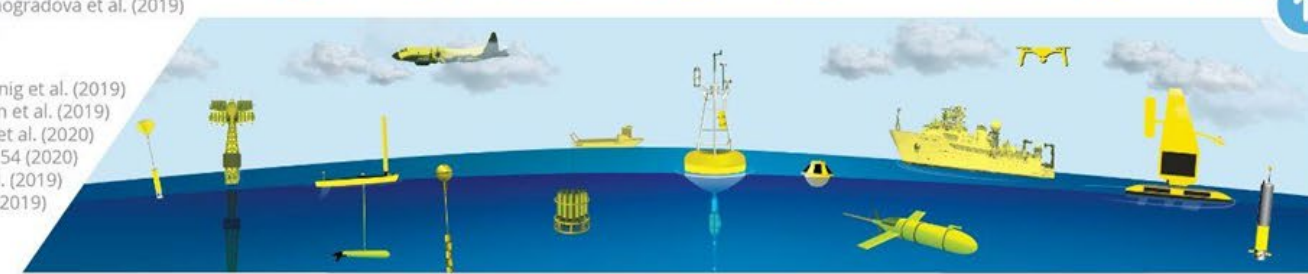
Centurioni et al. (2019)
Groom et al. (2019)
Harcourt et al. (2019)
Jamet et al. (2019)
Muelbert et al. (2019)
Muller-Karger et al. (2018)
Newman et al. (2019)
Lombard et al. (2019)
Marandino et al. (2022)
Kent et al. (2019)
O'Carroll et al. (2019)
Sequeira et al. (2021)
Steinhoff et al. (2019)
Subramanian et al. (2019)
Swart et al. (2019)
Villas Bôas et al. (2019)

Grand Idea #3
Improved models & understanding of air-sea interaction processes



Ardhuin et al. (2019b)
Bourassa et al. (2019)
Gentemann et al. (2020)
Gommenginger et al. (2019)
Morrow et al. (2019)
Rodríguez et al. (2019)
Shutler et al. (2020)
Vinogradova et al. (2019)

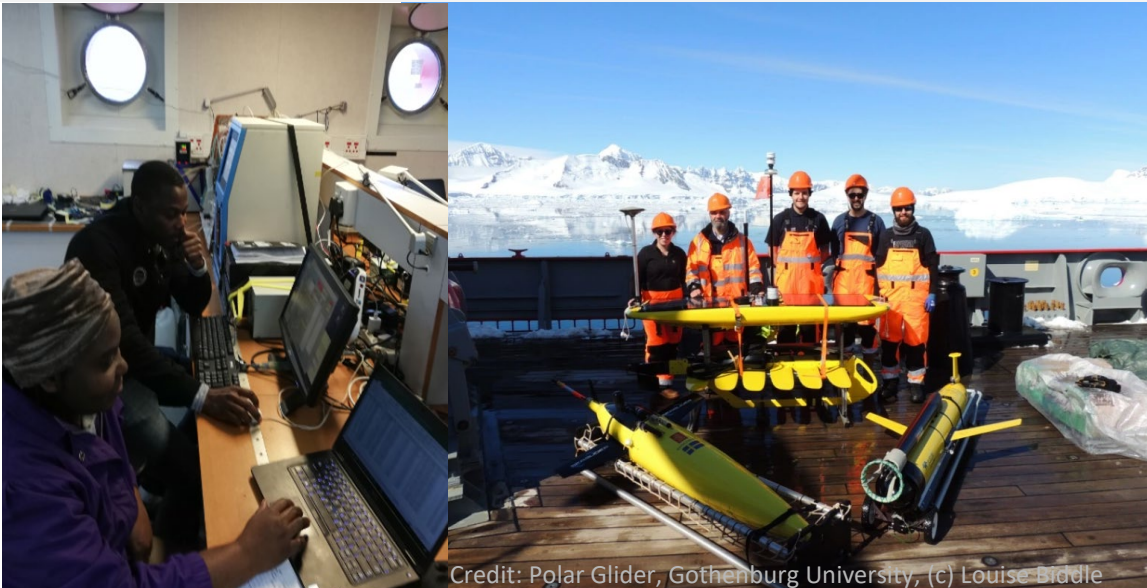
Grand Idea #2
Satellites optimized for air-sea fluxes



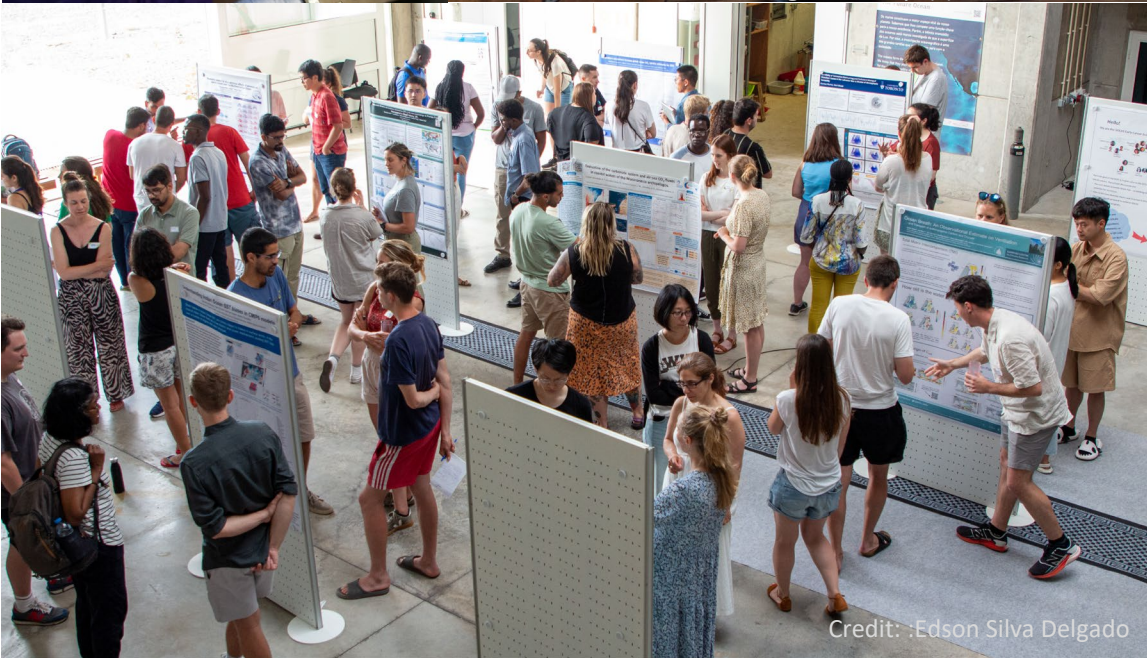
Meinig et al. (2019)
Pearlman et al. (2019)
Sabine et al. (2020)
SCOR Working Group 154 (2020)
Smith et al. (2019)
Wang et al. (2019)

Grand Idea #1
A globally distributed in situ air-sea observing network built around an expanded array of time series stations

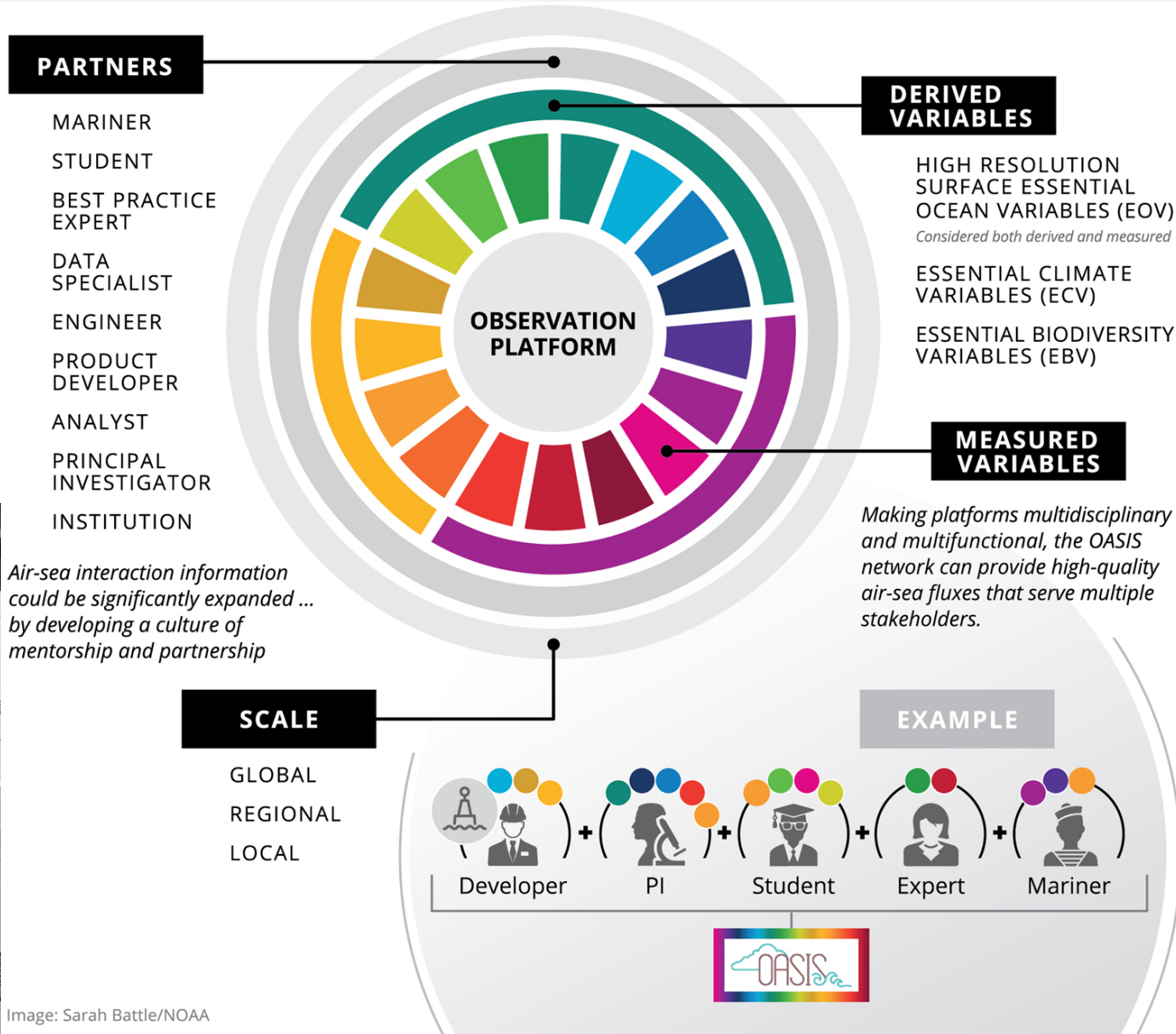
OASIS Theory of Change



Credit: Polar Glider, Gothenburg University, (c) Louise Biddle



Credit: Edson Silva Delgado



To Join Task Teams: airseaobs.org/get-involved

Grand Idea #1: Expanding the in situ observing system – Fill Gaps in GOOS!

- Uncrewed Surface Vehicle Network for the Global Ocean Observing System Project
 - ECOP-led Community of Practice paper, Webinar Series!

Not Enough  Implementing the USV network for GOOS

Grand Idea #2: Improve air-sea interaction observing from satellites

- Webinar Series! Satellite proposals, next Decadal Survey?

Grand Idea #3: Improve hierarchy of Earth System Models for air-sea interactions

- Building international partnerships to expand process study field campaigns

OASIS Theory of Change

- More support needed  ECOP-organized Best Practices Workshops, ECOP-led Commentary, Community papers
- Interoperability Experiments

More could be done  Partnership & Capacity Strengthening (summer schools, SIDS AGU sessions)

- FAIR Data & OASIS Products

Webinar Series: airseaobs.org/resources/webinars [OASIS-youtube-channel](https://www.youtube.com/channel/UC...) (125 videos!)

UN Decade has helped with...

1. Having a Theory of Change
2. Being a welcoming ECOP-focused international network
3. Starting discussions about an OASIS for SIDS
4. Encouraging ECOPs to be lead-authors on large multi-authored papers
5. Amplifying OASIS-related activities done by SOLAS, CLIVAR, and other international science organizations
6. Providing a value chain linking foundational air-sea interaction observations to transformative scientific information benefiting humanity, and the world
7. Getting a project office at UCAR Center for Ocean Leadership that helps administer meetings, website, newsletters, workshops, and project funding,
Providing a pathway for accepting NGO funding!

More could be done!

We seek scalable funding...

1. ECOP participation in OASIS activities, including for **Honorariums, travel, publications** relevant to OASIS activities. These funds would be administered by the OASIS project office – \$100K/year
2. Creation of a **website and data portal** for the “Uncrewed Surface Vehicle (USV) network for GOOS” project (Endorsed Action # 35.3) linked to OASIS. This website and data portal would form a centralized home for the international USV for GOOS Community of Practice – \$200K/year
3. **OASIS project office** at UCAR Center for Ocean Leadership – 1 FTE with professional communication skills
4. Face-to-face community **workshops** for OASIS programme and its individual theme teams and task teams (i.e., OASIS, Best Practices, FAIR data, Partnership & Capacity Strengthening, USV for GOOS, Fluxes from Space, SOFLUX, Tech Development Dream Team,...) – \$30K each
5. **Data buys** for air-sea interaction observations (e.g. from Saildrone, Inc., Sofar, Inc) delivered to public “Open Data” repositories and modeling & data centers around the world, with support of mission management and scientific analyses – \$1M each
6. (a) “**Scientist in Residence**” scientific extended visits (2 weeks or longer) to **SIDS & the Global South** and (b) Short (2 - 6 months) **paid internships** to foster institutional collaboration. \$5-15K
7. **OASIS Graduate Research Fellowship** with Academic and Research Advisors and OASIS community mentors from multiple institutions – \$90K



2021 United Nations Decade
2030 of Ocean Science
for Sustainable Development

Get Involved!



OASIS (Observing Air-Sea Interactions Strategy) mission: is to develop a **practical, integrated approach for observing air-sea exchanges** associated with the **Energy, Water, Carbon and Life Cycles**

OASIS provides a pathway to Get Involved in a Decade of Air-Sea Interaction *Ocean Science for Sustainable Development*



OASIS - SOLAS Scholars from the Surface Ocean-Lower Atmosphere Studies (SOLAS) Open Science Conference in Cape Town South Africa, Sep 25-29, 2022

Get Involved: airseaobs.org/get-involved