

Template for Annual SCOR Working Group Reports to SCOR

1. Name of group

Developing an Observing Air-Sea Interactions Strategy (OASIS)

2. Activities since previous report to SCOR (e.g., virtual or in-person meetings, email discussions, special sessions). Limit 1000 words

- The SCOR Working Group (WG) #162 for Developing an Observing Air-Sea Interactions Strategy (OASIS) has had regular meetings in 3 main categories since its start on 1 November 2020. These have been telecons in the form of (1) regular bi-weekly SCOR WG #162 co-chair + COL (Consortium for Ocean Leadership) staff meetings; (2) monthly SCOR WG #162 meetings, several of which have been open to the full OASIS community (approximately 50 attendees); and (3) an webinar series open to the full community. Our first webinar, given by Andy Watson described his new paper recently published in Nature Comms.
- Some of the first SCOR WG #162 activities have been related to engaging in the UN Ocean Decade, including:
 - (a) Two “Ocean Shots” submissions to the US National Academy of Sciences in December 2020: Palter et al. “[A Global Network of Surface Platforms for the Observing Air-Sea Interactions Strategy \(OASIS\)](#)”, and Clayson et al. “[Super Sites for Advancing Understanding of the Oceanic and Atmospheric Boundary Layers](#)”;
 - (b) A successful application for endorsement of OASIS as a UN Ocean Decade Programme was submitted in January 2021, and selected in June 2021!
(<https://www.oceandecade.org/resource/166/Announcement-of-the-results-of-the-first-endorsed-Decade-Actions-following-Call-for-Decade-Actions-No-012020>)
 - (c) In June 2021, a proposal for an Ocean Science Meeting 2022 Session titled “Observing Air-Sea Interactions Strategy (OASIS) Ocean Shots for 2030”. Status is pending.
 - (d) In July 2021, a proposal for a “Observing Air-Sea Interactions Strategy (OASIS) for a Predicted Ocean” satellite-activity as part of the UN Ocean Decade Predicted Ocean laboratory.
 - (e) By 2 August 2021, a proposal for an “Observing Air-Sea Interactions Strategy (OASIS) for a Clean Ocean” satellite-activity will be submitted.
- SCOR WG#162 has culled through more than 40 OceanObs19 Community Strategy Papers to create a spreadsheet of all the relevant OASIS recommendations. These recommendations are being sorted and ranked and will form the basis of the OASIS, summarized in a peer-reviewed manuscript that is currently in preparation.
- The Ocean Best Practice 5th Community Workshop will have an “OASIS Track” that will include surface radiation best practices sessions. OASIS Track workshops will have a webpage hosted by airseaobs.org advertising their scope, agenda, organizers, and links to presentations and reports.
- OASIS co-chairs have presented the WG activities and plans at several meetings/programmes including: NOAA-DOE Precipitation Processes and Predictability Workshop, 2021 GCOS Joint Panel Meeting , OOPC panel meeting, SWOT Satellite modelling group, Int Wshop for mid-lat

air-sea interactions, and various other national and international forums. These various workshops and panel meetings have been opportunities to engage with the larger OASIS community.

- SCOR WG #162 has a vibrant slack workspace with 13 active channels.

3. Documents published since previous report to SCOR (e.g., peer-reviewed journal articles, reports, Web pages) and should be limited to publications that resulted directly from WG activities and which acknowledge SCOR support

- OASIS website: www.airseaobs.org
- OASIS published its first community wide newsletter in mid May 2021 with 165 email recipients: <https://mailchi.mp/oceanleadership/oasis-may-2021-news-and-updates?e=8ed5cf9226>
- The [SCOR Working Group #162 Developing an OASIS Prospectus](#) is available through the airseaobs.org website.
- As part of OASIS Best Practice activities, a manuscript is in preparation on best practice towards radiation measurements.
- Preparation of manuscript describing 5 main OASIS themes which has been carefully distilled from >40 Ocean Obs 19 community white papers, >350 recommendations, >400 authors. This is a unique and valuable bottom-up exercise to strategize the near- and long-term ambitions for an OASIS.

4. Progress toward achieving group's terms of reference. List each term of reference separately and describe progress on each one. Limit 1000 words

Here we list progress towards each of the OASIS TOR listed in the [OASIS prospectus](#).

1. **Harmonize the recommendations from the OceanObs'19 CWPs into a unified Observing Air-Sea Interaction Strategy (OASIS)**

SCOR WG #162 has, with significant effort, culled through more than 40 OceanObs19 Community White Papers (CWP) to create a "grand spreadsheet" of all the relevant OASIS recommendations. The WG started by creating a worksheet listing each CWP. Each WG member signed up for 3-4 papers. Individual worksheets were then created for each WG member to list OASIS relevant recommendations for each CWP. The members provided comments, keywords for sorting, and rankings. These recommendations were then combined into a single worksheet where they could be sorted and compared. In doing this project, it has become clear that many of the CWP are calling for the same recommendations. Multiple CWP calls for new satellite technology for observing air-sea exchanges, for globally distributed air-sea interaction observing platforms, and for "super sites" that observe multiple variables coincidentally. These are the "Ocean Shots" that are coming from OceanObs19 for OASIS. The CWP synthesis effort is also highlighting other themes too, which are discussed below as part of the OASIS TOR. Over the next several months, SCOR WG #162 will be synthesizing this effort into a short manuscript that will be submitted to a peer-reviewed journal (Deliverables #1 Consolidated recommendation report & #2 OASIS publication and submissions to Ocean Decade Calls).

2. Produce a capacity building strategy that enables developing nations (including least developed nations and island nations) to actively participate in and benefit from local-to-global air-sea interaction observations.

Capacity Building and Partnerships is a major theme within OASIS. In the proposed “OASIS for a Predicted Ocean” satellite session, we will have a concurrent breakout session for this theme addressing the following questions: How can OASIS become truly global through capacity building and sharing? Can OASIS work with existing capacity building efforts and programmes that are being spun up through the UN Ocean Decade? This block will highlight potential OASIS Partners in under-resourced nations, including Small Island Developing States (SIDS) and Least Developed Countries (LDC). Brian Arbic has also agreed to be a co-convenor for the “OASIS Ocean Shots for 2030” Ocean Science Meeting 2022 Session, if selected. In that session, potential OASIS partners from SIDS and LDC will be encouraged to submit presentations for the hybrid virtual portion of the session devoted to this theme.

Finally, Christa Marandino has agreed to be a co-chair of the SCOR WG #162. She brings a long history of working with SOLAS to develop summer schools. Her close connection with SOLAS will also help with other OASIS TOR connections with SOLAS. It is expected that the air-sea flux toolbox (Deliverable #4) will be developed as part of the SOLAS / OBPS / OASIS Direct Covariance Flux Best Practice Workshop.

3. Develop and assess network designs that optimize air-sea interaction observations

In the [OASIS prospectus](#), this TOR was planned to be addressed beginning in year 2, through assessments reports of interoperability of different platforms (Working Plan #4), assessment of existing air-sea flux observing systems (WP#5) and assessment of network designs (WP #6). In our first year, we are setting up these activities through the OASIS themes focused on Network Design & Model Development. In the “OASIS for a Predicted Ocean” satellite event, we will have a breakout session devoted to this theme addressing the following questions: What are the physical and biogeochemical air-sea interaction processes and ecological stressors that should be included in the OASIS? How well are these processes resolved or parameterized in models? How well are these processes observed by the Global Ocean Observing System (GOOS)? What near-term activities are needed to optimize the OASIS network design? What near-term activities are needed to advance flux parameterizations? air-sea interaction understanding? coupled model physics? weather, climate and ocean prediction? Applications: marine weather, climate, and ocean predictions; detection and monitoring of extreme events and natural disasters; ecosystem models and monitoring; regional and global energy, water, and carbon dioxide budgets.

4. Develop a strategy for air-sea interaction process studies

Through our synthesis effort describe in item #1, we have folded this TOR into the Network Design and Model Development theme described in item #3 above and into the “[Super Sites for Advancing Understanding of the Oceanic and Atmospheric Boundary Layers](#)” Ocean Shot concept that was proposed to the US NASEM call in December 2020.

5. Develop a strategy for assessing interoperability of surface observing platforms.

Interoperability relies upon use of best practices. Thus the SCOR WG #162 will have an “OASIS Track” as part of the Ocean Best Practice Community Workshop in September 2021. At the moment, this track will include a workshop for Surface Radiation Best Practices. We are also trying to organize a workshop for Direct Covariance Flux Best Practices in partnership with SOLAS.

6. Build community and capacity for using, operating, and developing air-sea interaction observational platforms that allow collaborative partnerships

At the core, OASIS believes in the value of having multifunctional platforms that measure many co-located, co-incident variables. This lends itself towards working in collaborative partnerships. At present, SCOR WG #162 is actively working to build community (and partnerships) through its website (airseaobs.org) which has a “Get Involved” button that invites community to join an OASIS slack workspace. The slack workspace has 13 active channels built around the OASIS themes, TORs, and deliverables.

5. WG activities planned for the coming year. Limit 500 words

During year 2, beginning November 2022, OASIS expects to have followup work associated with the “OASIS for a Predicted Ocean” event and the Ocean Best Practice Workshops to be held in September 2021. OASIS will also be hosting more UN Ocean Decade satellite events, including the “OASIS for a Clean Ocean”, and the Ocean Science Meeting 2022 “OASIS Ocean Shots for 2030” and OASIS Townhall. At least two papers are expected to be submitted: one describing the Surface Radiation Best Practices and one describing the OceanObs19 synthesis effort. It is becoming clear that OASIS is the Big Idea coming out of the once-per-decade OceanObs19 conference. In our second year, we also hope to begin initiating capacity building efforts, including the SOLAS virtual summer school, with an OASIS curriculum.

6. Is the group having difficulties expected in achieving terms of reference or meeting original time schedule? If so, why, and what is being done to address the difficulties Limit 200 words

Due to the global pandemic, we have only been able to realize our WG and community meetings online. In person workshops and meetings are likely postponed until 2022. This is a difficulty in that these in person events were viewed as a key way to come together as a community, discuss and plan for the deliverables of the OASIS SCOR WG. In addition, some capacity building elements have been hampered by travel restrictions (for example, the SOLAS summer school with curriculum to be specifically linked to OASIS was postponed until 2023).

7. Any special comments or requests to SCOR. Limit 100 words.

Additional information can be submitted and will be included in the background book for the SCOR meeting at the discretion of the SCOR Executive Committee Reporter for the WG and the SCOR Secretariat.