

Report for the year 2020 and future activities

SOLAS Noreay

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This report has two parts:

- **Part 1:** reporting of activities in the period of January 2020 - Jan/Feb 2021
- **Part 2:** reporting on planned activities for 2021 and 2022.

*The information provided will be used for reporting, fundraising, networking, strategic development and updating of the live web-based implementation plan. As much as possible, please indicate the specific SOLAS 2015-2025 Science Plan Themes addressed by each activity or **specify an overlap between Themes or Cross-Cutting Themes.***

- 1 Greenhouse gases and the oceans;
 - 2 Air-sea interfaces and fluxes of mass and energy;
 - 3 Atmospheric deposition and ocean biogeochemistry;
 - 4 Interconnections between aerosols, clouds, and marine ecosystems;
 - 5 Ocean biogeochemical control on atmospheric chemistry;
- Integrated studies of high sensitivity systems;
Environmental impacts of geoengineering;
Science and society.

IMPORTANT: *This report should reflect the efforts of the SOLAS community in the entire country you are representing (all universities, institutes, lab, units, groups, cities).*

First things first...Please tell us what the IPO may do to help you in your current and future SOLAS activities. ?

Norway does not have a dedicated SOLAS scientific project, so funding for SOLAS research is limited and spread on different projects. We want to write a proposal to the Research Council of Norway to attempt to get funding to do more SOLAS research in Norwegian coastal areas. Is there a way we can use SOLAS to our benefit? How do we, for example, best argue that we become part of an international effort that SOLAS is?

PART 1 - Activities from January 2020 to Jan/Feb 2021

1. Scientific highlight

*Describe one scientific highlight with a title, text (**max. 300 words**), a figure with legend and full references. Please focus on a result that would not have happened without SOLAS, and we are most interested in results of international collaborations. (If you wish to include more than one highlight, feel free to do so).*

The Ocean C sink is a significant component of the global C cycle, taking up around 25% of the carbon we emit to the atmosphere via fossil fuel combustion, and changes in patterns of land usage. This has slowed climate change and allowed us more time to adapt and mitigate the effects of climate change. However this sink has not been constant in size over the observational period and understanding its current status is therefore a high priority activity. In this paper Macovei et al., report estimates of C uptake in the NE Atlantic over 2002-2017 using data from a ship of opportunity, a mooring and Argo floats. Uptake approximately doubled over the course of the observations. This was caused by the size of the annual cycle in pCO₂ increasing significantly. Winter time pCO₂ increased in response to the atmospheric increase however the summertime reduction caused by biological processes increased in size leading to a widening of the difference between atmosphere and ocean pCO₂ levels. This was not due to an increase in the amount of biological activity but likely due to alterations in the buffer capacity driven by the uptake of CO₂ by the upper ocean.

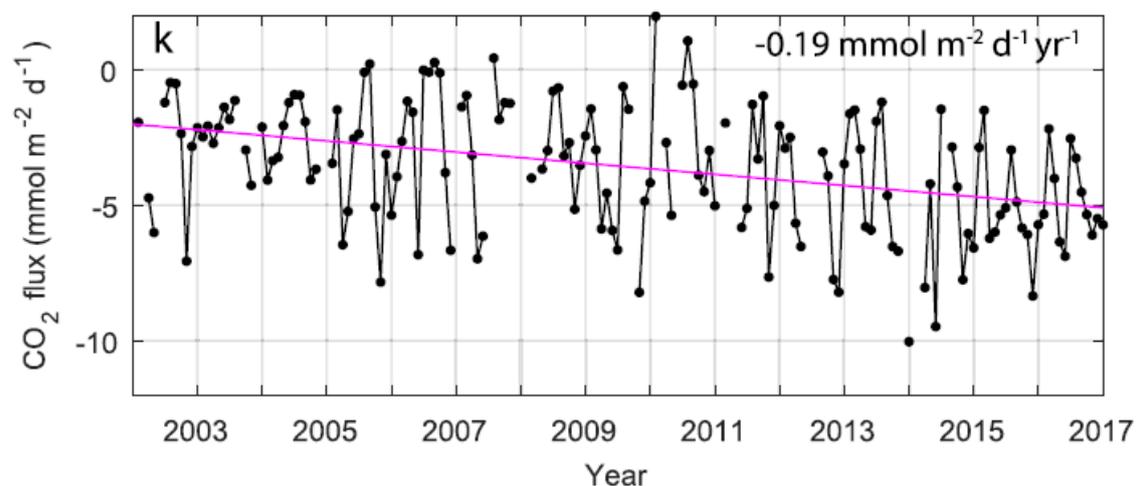


Figure 1.

Citation:

2. Activities/main accomplishments in 2020 (e.g., projects; field campaigns; workshops and conferences; model and data intercomparisons; capacity building; international collaborations; contributions to int. assessments such as IPCC; collaborations with social sciences, humanities, medicine, economics and/or arts; interactions with policy makers, companies, and/or journalists and media).

3. Top 5 publications in 2020 (only PUBLISHED articles) and if any, weblinks to models, datasets, products, etc.

Friedlingstein et al., 2020, 10.5194/essd-12-3269-2020

Fransner et al., 2020, 10.3389/fmars.2020.00386

Hauck et al., 2020, 10.3389/fmars.2020.571720

Hopkins et al., 2020, 10.1098/rspa.2019.0769

Macovei et al., 2020, 10.1016/j.pocean.2019.102223

4. Did you engage any stakeholders/societal partners/external research users in order to co-produce knowledge in 2020? If yes, who? How did you engage?

PART 2 - Planned activities for 2021 and 2022

1. Planned major national and international field studies and collaborative laboratory and modelling studies (incl. all information possible, dates, locations, teams, work, etc.).

ICOS OTC intercalibration, June 2021

IOCCP and ICOS OTC sensor training, postponed until June 2022

2. Events like conferences, workshops, meetings, summer schools, capacity building etc. (incl. all information possible).

3. Funded national and international projects/activities underway.

- **ICOS Norway and OTC**, funded by the Research Council of Norway
- **Norwegian Ocean Acidification Monitoring program**
- **NorArgo**, funded by the Research Council of Norway
- **NorEMSO**, funded by the Research Council of Norway

4. Plans / ideas for future national or international projects, programmes, proposals, etc. (please indicate the funding agencies and potential submission dates).

5. Engagements with other international projects, organisations, programmes, etc.

Participates as Ocean Acidification expert in OSPAR

IOCCP SSC member responsible for ocean carbon synthesis products, including SOCAT.

Executive council member for the Northeast Atlantic GOA-ON hub

Deliveries towards UN's SDG on Ocean Acidification

Comments

