

Report for the year 2018 and future activities

SOLAS 'The Netherlands' compiled by: Jan-Berend Stuut

This report has two parts:

- **Part 1:** reporting of activities in the period of January 2022 – Feb 2023

- **Part 2:** list of SOLAS-related publications.

Introduction

The SOLAS community in the Netherlands has suffered quite badly from the pandemic. One month after the mantle of the SOLAS representative was passed on, the first lockdown was a fact, which blocked all meetings. In 2022 we tried to pick up pace again, during a workshop, which was a good success and which attracted many young scientists to become involved with SOLAS. As a result, many of them applied to enrol in SOLAS summer schools.

PART 1 - Activities in 2022

1. Scientific highlights

- Many highlights from the MOSAIC cruise, in which Dutch SOLAS participants were involved are summarized on the [MOSAIC website](#)
- So-called wet-dust collectors were added to the dust-collecting buoys off NW Africa, in order to quantify the amounts of dust deposited with rain. In 2023, these newly designed instruments will be 'harvested' for the first time during expedition 64PE514 – DUST2023

2. Activities/main accomplishments in 2022 (projects, field campaigns, events, model and data intercomparisons, capacity building, international collaborations, contributions to int. assessments such as IPCC, interactions with policy makers or socio-economics circles, social sciences, and media).

- Tug Macistone expedition [MedDust2022](#) to Mediterranean Sea, June 2022, PI Stuut

3. Publications in 2022 (only PUBLISHED articles) and if any, weblinks to models, datasets, products, etc.

- Ades, M., et al. (2022), GLOBAL CLIMATE, *Bulletin of the American Meteorological Society*, 103(8), S11-S142, doi:10.1175/BAMS-D-22-0092.1.
- Angelopoulos, M., et al. (2022), Deciphering the Properties of Different Arctic Ice Types During the Growth Phase of MOSAIC: Implications for Future Studies on Gas Pathways, *Frontiers in Earth Science*, 10, doi:10.3389/feart.2022.864523.
- Bergman, T., R. Makkonen, R. Schrödner, E. Swietlicki, V. T. J. Phillips, P. Le Sager, and T. Van Noije (2022), Description and evaluation of a secondary organic aerosol and new particle formation scheme within TM5-MP v1.2, *Geoscientific Model Development*, 15(2), 683-713, doi:10.5194/gmd-15-683-2022.
- Chen, N., J. Wang, X. Liu, C. Zhang, B. Huang, A. H. W. Beusen, J. J. Middelburg, and A. F. Bouwman (2022), Exploring Seasonal and Annual Nitrogen Transfer and Ecological Response in River-Coast Continuums Based on Spatially Explicit Models, *Journal of Geophysical Research: Biogeosciences*, 127(1), doi:10.1029/2021JG006634.

- Dasari, S., A. Andersson, M. E. Popa, T. Röckmann, H. Holmstrand, K. Budhavant, and O. Gustafsson (2022), Observational Evidence of Large Contribution from Primary Sources for Carbon Monoxide in the South Asian Outflow, *Environmental Science and Technology*, 56(1), 165-174, doi:10.1021/acs.est.1c05486.
- Duarte, C. M., et al. (2022), Global estimates of the extent and production of macroalgal forests, *Global Ecology and Biogeography*, 31(7), 1422-1439, doi:10.1111/geb.13515.
- Eich, C., T. E. G. Biggs, W. H. van de Poll, M. van Manen, H. A. Tian, J. Jung, Y. Lee, R. Middag, and C. P. D. Brussaard (2022), Ecological Importance of Viral Lysis as a Loss Factor of Phytoplankton in the Amundsen Sea, *Microorganisms*, 10(10), doi:10.3390/microorganisms10101967.
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- Hassan, T., R. J. Allen, W. Liu, S. Shim, T. van Noije, P. Le Sager, N. Oshima, M. Deushi, C. A. Randles, and F. M. O'Connor (2022), Air quality improvements are projected to weaken the Atlantic meridional overturning circulation through radiative forcing effects, *Communications Earth and Environment*, 3(1), doi:10.1038/s43247-022-00476-9.
- Huijnen, V., P. Le Sager, M. O. Köhler, G. Carver, S. Rémy, J. Flemming, S. Chabrillat, Q. Errera, and T. Van Noije (2022), OpenIFS/AC: atmospheric chemistry and aerosol in OpenIFS 43r3, *Geoscientific Model Development*, 15(15), 6221-6241, doi:10.5194/gmd-15-6221-2022.
- Jensen, L. T., J. T. Cullen, S. L. Jackson, L. J. A. Gerringa, D. Bauch, R. Middag, R. M. Sherrell, and J. N. Fitzsimmons (2022), A Refinement of the Processes Controlling Dissolved Copper and Nickel Biogeochemistry: Insights From the Pan-Arctic, *Journal of Geophysical Research: Oceans*, 127(5), doi:10.1029/2021JC018087.
- Joy-Warren, H. L., et al. (2022), Springtime phytoplankton responses to light and iron availability along the western Antarctic Peninsula, *Limnology and Oceanography*, 67(4), 800-815, doi:10.1002/lno.12035.
- Kacenenbogen, M. S. F., et al. (2022), Identifying chemical aerosol signatures using optical suborbital observations: How much can optical properties tell us about aerosol composition?, *Atmospheric Chemistry and Physics*, 22(6), 3713-3742, doi:10.5194/acp-22-3713-2022.
- Krisch, S., et al. (2022), Arctic – Atlantic Exchange of the Dissolved Micronutrients Iron, Manganese, Cobalt, Nickel, Copper and Zinc With a Focus on Fram Strait, *Global Biogeochemical Cycles*, 36(5), doi:10.1029/2021GB007191.
- Kuliński, K., et al. (2022), Biogeochemical functioning of the Baltic Sea, *Earth System Dynamics*, 13(1), 633-685, doi:10.5194/esd-13-633-2022.
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4. Did you engage any stakeholders/societal partners/external research users in order to co-produce knowledge in 2022? If yes, who? How did you engage?

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PART 2 - Planned activities for 2023

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

In 2023, several ocean-going expeditions will be undertaken focussing on the SOLAS goals:

- 64PE514 – [DUST2023](#), subtropical eastern north Atlantic Ocean, PI Stuit
- 64PE517 – NoSE, North Sea Atlantic Exchange, PI Mienis
- 64PE519 – Bothnian Marix (Methane & ammonium removal in coastal systems, PI Slomp)
- 64PE525 – Methane emission in the North Sea II, PI Niemann

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

- Scientific session at the European Geosciences Union, Vienna, 23-27 May 2022 *Dusty* Session AS3.10/BG1.14/CL4.15/GM8.2/SSP3.13: **Aeolian dust**
- Scientific session at the EBUS – Eastern Boundary Upwelling Systems meeting, Lima, Peru, 19-23 September 2022. **Understanding the driving factors of marine productivity in EBUS**

3. Funded national and international projects / activities underway.

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

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

Comments

The SOLAS community in the Netherlands is very active on a personal basis; there are many scientists that are involved in SOLAS-related studies, without being organised as SOLAS-NL. During the NAC – Dutch Earth Sciences Congress, held in September 2022, a workshop was set up to bring together SOLAS-interested colleagues, which was a first step towards bringing the community into contact again. This workshop will be repeated in subsequent NAC meetings, aiming to unite and strengthen the SOLAS-NL community. In addition, personal international networks will be used to strengthen the international SOLAS community.