

Inputs for the INTAROS workshop, 5 May 2017, Brussels **(DRAFT Version 4 May 2017)**

## Status and Progress of Observing Systems – Blue-Action Partners

**Moorings:** The NIOZ moorings in the **Irminger Sea** are part of OSNAP. They are in the water until summer 2018

The **LOCO** mooring will probably be sacrificed to allow an extension of the short IC mooring, difficult to defend continuing it when OOI is so close.

**Sustainability:** NIOZ is trying to find funding to continue the moorings after summer 2018. The plan is to apply for national funding this summer, with the goal to cover a two year period. This would be in line with the UK and US proposals for OSNAP moorings. Naturally any European funding opportunities would also be interesting.

**Partner: NIOZ (NL)**

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**Moorings:** GEOMAR will continue **the 53°N array** over the next couple of years (no termination planned). The moorings are now equipped with oxygen sensors and passive acoustic sensors (for tracking of tagged animals). The array is part of the OSNAP which is of relevance for the Arctic. An overview of OSNAP observing efforts can be found at: <http://www.o-snap.org/observations/configuration/> incl. the contributing countries/institutions.

The GEOMAR mooring in **the deep convection centre of the Irminger Sea** (CIS) will be dismantled in summer 2018, the site will be closed. We see the mooring to be redundant because of the installation of the mooring array (4 moorings and permanent glider observations) in the framework of the US Ocean Observing Initiative (OOI) "Global node Irminger Sea" that started in Sept. 2014.

The GEOMAR mooring in the **deep convection centre of the Labrador Sea** (K1) will be continued over the next years in very close collaboration to our colleagues in Canada (Dalhousie and BIO).

**Partner: GEOMAR (DE)**

**Contacts:** Johannes Karstensen [jkarstensen@geomar.de](mailto:jkarstensen@geomar.de)



**Moorings:** **Denmark Strait**

**Sustainability:** Funded until December 2018, including cruises this year and next year

**Partner:** Univ. Hamburg (DE)

**Contacts:** Kerstin Jochumsen [kerstin.jochumsen@uni-hamburg.de](mailto:kerstin.jochumsen@uni-hamburg.de)

**Moorings:** As part of UK-OSNAP, NOC have moorings **in deep western boundary current, east of Greenland** and SAMS have moorings on the **eastern boundary of the OSNAP array**.

**Sustainability:** Both sets are currently funded to 2018. Efforts are ongoing to secure future funding. RAPID is funded until 2020. Will be seeking continued funding beyond this

**Partner:** NOC and SAMS (UK)

**Contacts:** Gerard McCarthy [gerard.mccarthy@noc.ac.uk](mailto:gerard.mccarthy@noc.ac.uk) and [Stuart.Cunningham@sams.ac.uk](mailto:Stuart.Cunningham@sams.ac.uk)

**Moorings:** **UK-OSNAP Warm Water Path Rockall Trough Moorings**. There are 3 moorings and one ADCP lander in the Rockall Trough measuring the flux of the warm water path under the OSNAP programme. We maintain continual glider presence **from Scotland across Rockall and across the Rockall Hatton Basin to the edge of the Iceland basin near 20W**.

**Sustainability:** OSNAP is funded with in-water measurements until summer 2018. Stuart is currently planning (with Penny Holiday at NOC) a realignment of the NERC National Capability Programme: Extended Ellett Line to cover the costs of my mooring array from 2018 to 2020 (2 more years). This involves reducing annual EEL hydrographic cruises (Scotland to Iceland) to once every 5-years. Through AtlantOS and ATLAS Stuart is instrumenting the UK-OSNAP Rockall trough array with biogeochemistry sensors. (5x O<sub>2</sub>; 1x O<sub>2</sub>+pH; 1 remote access sampler to capture ~ 1 sample every 10 days for nutrient and carbon chemistry)

**Partner:** SAMS (UK)

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**Moorings:** **OVIDE section** should be maintained as collaboration between France and Spain. It should be revisited every second year.

**Sustainability:** The French proposal for the 2018 cruise has been positively evaluated and the Spanish are planning the 2020 cruise. In 2022, it is expected to have a French cruise, but nothing is secured so far.

**Partner:** CNRS-LOCEAN (FR)

**Contacts:** Marie-Noelle Houssais [mnh@locean-ipsl.upmc.fr](mailto:mnh@locean-ipsl.upmc.fr)

**Moorings:** CNRS-LOCEAN Is involved in INTAROS WP3 with glider lines along the **Atlantic water pathway around Svalbard** (starting Summer 2017, and for the next 2 years) and with mooring(s) which will be deployed on the **northern slope of Svalbard (upstream of the A-TWAIN array)**, first deployment in summer 2017 in collaboration with our INTAROS partners

**Sustainability:** funded via INTAROS (H2020) for the next 2 years (2017-2019)

**Partner:** CNRS-LOCEAN (FR)

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**Mooring:** **The Faroe Shetland Channel Transport Mooring Array** (FSC TMA). Marine Scotland Science will continue its programme of repeat hydrography and moored instrumentation, as part of Blue-Action, to monitor the exchange of N Atlantic water via the Faroe Shetland Channel and influence of these water masses on the Northern North Sea. The principal method for estimating the transport now focuses on using altimetry, and therefore the moored instruments are being deployed at new sites to improve our understanding other dynamics influencing Atlantic Water circulation pathways in the FSC. The FSC TMA group are also strengthening our collaboration with the US-coordinated Norrona programme to make the most of all the sustained observations collected in the region.

**Sustainability:** The future beyond Blue-Action is slightly less certain, and I would echo Stuart's concerns about the uncertainty of funding in the UK over the coming years

**Partner:** Marine Scotland Science (UK) and Havstovan (FO)

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**Mooring: The Davis Strait gateway** has data from the following:

1987-1990 Charlie Ross and others at BIO Canada (mid-strait moorings)

2004-2017 US NSF support (moorings, gliders, hydrography)

The 2004-2015 data are freely available from the US Arctic Observing Network Data Archive, and have been used in numerous publications, including JPO papers in 2011 and 2014 led by Beth Curry.

**Sustainability:** A proposal is currently under review at NSF to continue the observational effort for an additional 5 years (through 2022). The timing is tricky, and may result in a one-year gap (2017/2018) in the time series. It all depends on how rapidly a decision can be made, and, if the decision is favorable, whether we can source the supplies (batteries, line, anchors, etc) needed to redeploy the array in time to go to sea this coming autumn. More news on this in late May 2017.

**Partner: University of Washington Applied Physics Laboratory (USA)**

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**Mooring: Bering Strait ( [psc.apl.washington.edu/BeringStrait.html](http://psc.apl.washington.edu/BeringStrait.html) )**

3 moorings, all in US waters, quantifying the physical water properties of the flow through the strait (temperature, salinity, volume, heat and freshwater fluxes, sea ice parameters)

**Sustainability:** Currently funded by NSF AON (Woodgate et al) to recovery in 2018. Rebecca Woodgate is writing an NSF-AON proposal to extend the array for another 4-5 years (the maximum we can put on an NSF-AON grant at one time). Rebecca anticipates seeking funding to keep this going into the future.

Incorporates moored sensors for others on request (currently marine mammal acoustic sensors, by Kate Stafford, UW), continues a timeseries started in 1990 - for overview see Woodgate et al., doi:10.5670/oceanog.2015.57 or <http://psc.apl.washington.edu/HLD/Bstrait/BStraitMooringSynthesis2015.html>

Finds fluxes of volume, heat and freshwater all increasing in the annual means (2001 ~ 0.7Sv, 2014~ 1.2Sv)

**Partner: University of Washington Applied Physics Laboratory (USA)**

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**Moorings:** [Denmark Strait](#); [North Icelandic Irminger Current](#).

Moorings are currently in the water at both locations.

**Sustainability:**

**Partner:** Marine Research Institute (IS)

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**Moorings:** [Faroe Bank Channel Overflow \(FBC\)](#); [Faroe Current Inflow \(FC\)](#).

Two ADCP moorings are deployed in the FBC. One equipped with SeaBird Microcat (T, S, Ox, P) funded by AtlantOS. At the FC only one ADCP is currently deployed and one Bottom Temperature Frame.

Hydrographic sections are continued and the observations are integrated with Satellite altimetry data.

**Sustainability:** The moorings are funded until summer 2018 by Danish National funding. The FC will also be equipped with instruments from UniRES and Univ. Hamburg. Will seek funding to continue the observations beyond 2018.

**Partners:** Havstovan (FO), UniRES (NO) and Univ. Hamburg (DE)

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**Moorings:** [US-OSNAP](#)

**Sustainability:**

**Partners:** MEOPAR (Canada)

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