Meridional Overturning Circulation and the Associated Heat and Freshwater Transports Observed by the OSNAP (Overturning in the Subpolar North Atlantic Program) Array from 2014 to 2016.

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1. File history

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Data from the full OSNAP array for the first 21 months (31-Jul-2014 to 20-Apr-2016) have been used to produce the 30-day mean MOC, MHT and MFT time series across the section along with the gridded property fields.

2. Data management and policy

The full OSNAP data policy and management plan is available online at: https://www.o-snap.org/observations/data/ Before the use and publication of any OSNAP data, users are strongly encouraged to read the full OSNAP data policy. We draw your attention to the following excerpts from that policy:

- *Any person making use of OSNAP observational data and/or numerical results must communicate with the responsible investigators at the start of the analysis and anticipate that the data collectors will be co-authors of published results.*
- *In cases where investigators choose not to be co-authors on publications that rely on their data, the parties responsible for collecting the data and the sponsoring funding agencies should be acknowledged, including reference to any relevant publications by the originating authors describing the data sets and a reference to the data set itself using its DOI.*
- *OSNAP data are intended for scholarly use by the academic and scientific community, with the express understanding that any such use will properly acknowledge the originating investigator.*

The project scientists would appreciate it if you would use the data DOI (**10.7924/r4z60gf0f**) and add the following acknowledgement to any publication that use this data:

"OSNAP data were collected and made freely available by the OSNAP (Overturning in the Subpolar North Atlantic Program) project and all the national programs that contribute to it (www.o-snap.org)."

3. Calculation methods

Details of the calculation methods are given in the following publications:

[1] Lozier, M. S., Co-authors (2019): A sea change in our view of overturning in the subpolar North Atlantic. *Science*, doi:10.1126/science.aau6592.

[2] Li, F., M. S. Lozier, W. E. Johns (2017): Calculating the meridional volume, heat, and freshwater transports from an observing system in the subpolar North Atlantic: Observing System Simulation Experiment. *J. Atmos. Oceanic Technol.*, **34**, 1483–1500. doi:10.1175/JTECH-D-16-0247.1.

4. Description of the data

Data in this collection are in netCDF format, including the following two separate files.

(a) MOC, MHT and MFT time series with uncertainty estimates

The file "OSNAP_Transports_201408_201604_2018.nc" contains 30-day mean estimates of the meridional overturning circulation and its associated heat and freshwater transports across the full OSNAP array for the period 31-Jul-2014 to 20-Apr-2016 (**Table 1**).

Data variable	Content
TIME	Start date of each 30-day period [days since 1950-01-01]
MOC_SIGMA	Maximum of the overturning streamfunction in σ_θ coordinates [Sv]
MOC_SIGMA_ERR	Uncertainty for MOC_SIGMA [Sv]
MOC_Z	Maximum of the overturning streamfunction in z coordinates [Sv]
MOC_Z_ERR	Uncertainty for MOC_Z [Sv]
MHT	Total heat transport [PW]
MHT_ERR	Uncertainty for MHT [PW]
MFT	Total equivalent freshwater transport relative to the section-mean salinity [Sv]
MFT_ERR	Uncertainty for MFT [Sv]

Table 1. File contents for the time series product.

(b) Gridded temperature and salinity fields

The file "OSNAP_Gridded_TS_201408_201604_2018.nc" contains 30-day mean temperature and salinity fields on the OSNAP section for the period 31-Jul-2014 to 20-Apr-2016 (**Table 2**).

Data variable	Content
TIME	Start date of each 30-day period [days since 1950-01-01]
LONGITUDE	Longitude of the OSNAP grid [deg East]
LATITUDE	Latitude of the OSNAP grid [deg North]
DEPTH	Depth level of the OSNAP grid [m]
TEMP	Gridded temperature fields [deg C]
PSAL	Gridded practical salinity fields

Table 2. File contents for the gridded product.