

AX1 surface sampling information and file format

Sampling information:

Regularly, the crew of the Nuka Arctica (RAL) collects seawater pumped from a depth of ~3-5 m. Sea Surface Salinity (SSS) was from discrete salinity samples analyzed at the Nature Institute (Nuuk, Greenland). Water for isotopic composition has been recovered from some samples and sent for analysis at LOCEAN (in 2012-2013).

Water isotopologs:

Since late 2011, the oxygen isotopic composition of discrete sea water samples has been analyzed with a PICARRO CRDS (cavity ring-down spectrometer; model L2130-I Isotopic H₂O) at LOCEAN-IPSL (Paris, France). Based on repeated analyses of an internal laboratory standard over several months, the accuracy of the $\delta^{18}\text{O}$ measurements is usually better than ± 0.05 ‰. δD is also measured, and d-excess has been computed ($\delta\text{D}-8 \delta^{18}\text{O}$). All sea water samples have been distilled to avoid salt accumulation in the vaporizer and its potential effect on the measurements (e.g., Skrzypek and Ford, 2014). Further information is provided in Benetti et al. (2016). A recent study (Benetti et al., 2017, in review) suggests that different corrections have to be applied on the data depending on the method use to report the data in ‘absolute concentration scale’. We use their recommendation and report both data adjusted to ‘absolute concentration scale’ and original data.

File:

<https://suratlant.locean-ipsl.upmc.fr/surfacesamples-nuka.20122013c>

File format:

One line per sample collection:

Index, date, latitude, longitude, SST, SSS, $\delta^{18}\text{O}$, δD , d excess

Date (year, month, day, hour, minute), and position correspond to the time of the water collection.

SST is missing and replaced by 99.99; hour and minutes missing replaced by 99.

SSS is in practical salinity unit.

References

Benetti, M., G. Reverdin, C. Pierre, S. Khatiwala, B. Tournadre, S. Olafsdottir, A. Naamar. Variability of sea ice melt and meteoric water input in the surface Labrador Current off Newfoundland. <https://suratlant.locean-ipsl.upmc.fr/benettietal2016.pdf>

Figures with data distribution