

Total alkalinity, dissolved inorganic carbon, temperature, salinity, nutrients and dissolved oxygen collected from discrete samples and profile observations during the R/V Bjarni Saemundsson time series Irminger Sea (FX9) cruises in the North Atlantic Ocean from 2020-02-11 to 2022-08-09.

INVESTIGATORS:

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PACKAGE DESCRIPTION: This dataset includes temperature, salinity, oxygen, nitrate + nitrite, silicate, phosphate, dissolved inorganic carbon, total alkalinity collected from discrete samples and profile observations during the R/V Bjarni Saemundsson seasonal cruises in the North Atlantic Ocean from 2020-02-11 to 2022-08-09.

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IDENTIFICATION INFORMATION FOR THIS DATA PACKAGE:

NCEI ACCESSION:

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EXPCODE:

CRUISE ID: B1-2020; B6-2020; B9-2020; B12-2020; B3-2021; B7-2021; B9-2021; B12-2021; B3-2022; B7-2022; B9-2022

SECTION/LEG:

TYPES OF STUDY:

Discrete measurement; Profile;

TEMPORAL COVERAGE:

START DATE: 2020-02-11

END DATE: 2022-08-09

SPATIAL COVERAGE:

NORTH: 64.3385°

WEST: -27.9757°

EAST: -27.9692°

SOUTH: 64.3320°

GEOGRAPHIC NAMES:

North Atlantic Ocean – Irminger Sea

PLATFORMS:

R/V Bjarni Saemundsson (ID: 46BS)

RESEARCH PROJECT(S):

Time series observations of biogeochemical properties in Iceland waters.

VARIABLES / PARAMETERS:

CTDTMP	
Abbreviation:	CTDTMP
Unit:	DEG_C
Controlled vocabulary name:	WATER TEMPERATURE
Observation type:	CTD
In-situ / Manipulation / Response variable:	in-situ
Detailed sampling and analyzing information:	Temperature in °C. Measured with a Sea-Bird SBE3 Oceanographic Temperature Sensor. Lower CTD to 10m, then raise back to surface, wait for pump to start, then begin downcast. Lowering speed as close to 1 m/s as possible. On upcast, stop rosette before fire bottle.
SALNTY	
Abbreviation:	SALNTY
Unit:	
Controlled vocabulary name:	SALINITY
Observation type:	discrete
In-situ / Manipulation / Response variable:	in-situ
Detailed sampling and analyzing information:	Salinity measured on discrete samples with a Guildline Autosol Salinometer 8400B. 200 mL coated borosilicate glass bottles with plastic insert. Stored at room temperature and analyzed in laboratory within a month from sampling.
OXYGEN	
Abbreviation:	OXYGEN
Unit:	UMOL/KG
Controlled vocabulary name:	DISSOLVED OXYGEN
Observation type:	discrete
In-situ / Manipulation / Response variable:	in-situ
Detailed sampling and analyzing information:	In-bottle Winkler titration. First sample drawn from the Niskin. Temperature difference between lowest in situ temperature and ambient temperature on deck is 12°C at most. The upcast takes 30 minutes max and the water column has rather uniform temperature. Drawn temperature is not recorded. Samples are stored in a cool location and analyzed on board.

PHSPHT	
Abbreviation:	PHSPHT
Unit:	UMOL/KG
Controlled vocabulary name:	Phosphate
Observation type:	discrete
In-situ / Manipulation / Response variable:	in-situ
Detailed sampling and analyzing information:	Measured on Seal AutoAnalyzer 3 three channel autoanalyzer. Samples are kept refrigerated if analyzed on ship within 24 hours. Otherwise, they are kept frozen upright and analyzed in the lab after allowing them to thaw in the dark. In spring and summer, samples from the surface layer (0-60m) are syringe filtered through 0.45 um Whatman filter to avoid turbidity blank effect. Calibration range within 0-1.2 umol/l, to match the concentration of the samples. Quasimeme test material used.
SILCAT	
Abbreviation:	SILCAT
Unit:	UMOL/KG
Controlled vocabulary name:	Silicate
Observation type:	Discrete
In-situ / Manipulation / Response variable:	In-situ
Detailed sampling and analyzing information:	Measured on Seal AutoAnalyzer 3 three channel autoanalyzer. Samples are kept refrigerated if analyzed on ship within 24 hours. Otherwise, they are kept frozen upright and analyzed in the lab after allowing them to thaw in the dark. In spring and summer, samples from the surface layer (0-60m) are syringe filtered through 0.45 um Whatman filter to avoid turbidity blank effect. Calibration range within 0-15 umol/l, to match the concentration of the samples. Quasimeme test material used.
NITRATE+NITRITE	
Abbreviation:	NO3+NO2
Unit:	UMOL/KG
Controlled vocabulary name:	NO3+NO2
Observation type:	Discrete
In-situ / Manipulation / Response variable:	In-situ
Detailed sampling and analyzing information:	Measured on Seal AutoAnalyzer 3 three channel autoanalyzer. Samples are kept refrigerated if analyzed on ship within 24 hours. Otherwise, they are kept frozen upright and analyzed in the lab after allowing them to thaw in the dark. In spring and summer, samples from the surface layer (0-60m) are syringe filtered through 0.45 um Whatman

	filter to avoid turbidity blank effect. Calibration range within 0-20 $\mu\text{mol/l}$, to match the concentration of the samples. Quasimeme test material used.
TCARBN	
Abbreviation:	TCARBN
Unit:	UMOL/KG
Controlled vocabulary name:	DISSOLVED INORGANIC CARBON (DIC)
Observation type:	Discrete
In-situ / Manipulation / Response variable:	In-situ
Detailed sampling and analyzing information:	Dissolved Inorganic Carbon in $\mu\text{mol/kg}$. Measured on discrete samples by coulometry with a UIC Inc CM-5010 coulometer for the years 2020 and 2021, and with a UIC Inc CM-5017 coulometer for the year 2022. Samples are drawn into borosilicate glass bottles and the stopper is sealed with grease. Samples are preserved with HgCl_2 saturated, kept in the dark in a cool location and returned to the laboratory for coulometric determination. The system is calibrated by 99.998 % CO_2 gas at known temperature and pressure with two stainless steel loops of known volumes. Dickson CRM are used.
ALKALI	
Abbreviation:	ALKALI
Unit:	UMOL/KG
Controlled vocabulary name:	TOTAL ALKALINITY (TA)
Observation type:	Discrete
In-situ / Manipulation / Response variable:	In-situ
Detailed sampling and analyzing information:	Measured on discrete samples by an open-cell potentiometric titration by HCl 0.1 M with a Metrohm titrator 888 Titrando. Samples are drawn into borosilicate glass bottles and the stopper is sealed with grease. Samples are preserved with HgCl_2 saturated, kept in the dark in a cool location and returned to the laboratory for determination. Dickson CRM are used.

DATA PACKAGES RELATED TO THIS ONE:

https://doi.org/10.3334/cdiac/otg.carina_irmingersea_v2

<https://doi.org/10.25921/vjmy-8h90>

PUBLICATIONS DESCRIBING THIS DATASET:

Daniel, A., K  rouel, R., & Aminot, A. (2012). Pasteurization: A reliable method for preservation of nutrient in seawater samples for inter-laboratory and field applications. *Marine Chemistry*, 128, 57-63.

Dickson, A. G., Sabine, C. L., & Christian, J. R. (2007). *Guide to best practices for ocean CO₂ measurements*. North Pacific Marine Science Organization.

Olafsson, J., Olafsdottir, S. R., Benoit-Cattin, A., & Takahashi, T. (2010). The Irminger Sea and the Iceland Sea time series measurements of sea water carbon and nutrient chemistry 1983-2008. *Earth System Science Data*, 2(1), 99.

ADDITIONAL INFORMATION:

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SUBMITTED BY: