Dataset Information

Dataset Description

Dataset Name	IPY_CFL 2008 Physical Ice Sampling Series
Dataset Description	Sea Ice Physical sampling is conducted each year at designated stations. Sampling included, but was not limited to taking ice cores, measuring thickness, temperature, salinity and conductivity. At each station, physical properties of sea ice in the vicinity were observed. By measuring the temperature and salinity of the sea ice it is possible to calculate the brine volume present in the sea ice and thus get an estimate for the ice porosity. The total thickness and freeboard of the ice floe was also recorded. Physical sampling activities were generally conducted in concert with scatterometer and SBR EM scans, and were constrained by the presence / absence of sea ice.
Dataset Keywords	Amundsen, Arctic, Sea Ice
Dataset keyword Vocabulary	
Dataset Status	Complete
Dataset Version	1.0
Dataset Research Area	Arctic
Dataset Maintenance and Update Frequency	In progress
Resource Type	Dataset
Dataset Collection Start Date	
Dataset Collection End Date	
Date Last Revision	
Dataset DOI	Assigned by CanWIN unless user already has one

Dataset Contributors

Dataset Author	Barber, David
Dataset Author Email	dbarber@cc.umanitoba.ca
Dataset Author Affiliation	Centre for Earth Observation Science, University of Manitoba
Dataset Author ORCID ID	0000-0001-9466-3291
Contributor Type	Principal Investigator
Dataset Contributor Name	Barber, David
Dataset Contributor Email	dbarber@cc.umanitoba.ca
Dataset Contributor Affiliation	Centre for Earth Observation Science, University of Manitoba
Dataset Contributor ORCID ID	0000-0001-9466-3291

Data Curator	The Canadian Watershed Information Network
Data Curator Email	arcdata@umanitoba.ca
Data Curator Affiliation	Centre for Earth Observation Science, University of Manitoba
Metadata Creation Date	2019

Datasets in this series

Salinity Core Dataset	Temperature core Dataset	Activity collection Date	Research Area
Leg_5_SAL_3_D13.csv		2008-01-01	Arctic
	Leg_5_Temp_4_D13.csv	2008-01-03	Arctic
	Leg_5_Temp_5_D13.csv	2008-01-06	Arctic
	Leg_5_Temp_6_D13.csv	2008-01-06	Arctic
Leg_5_SAL_4_D14.csv		2008-01-03	Arctic
	Leg_5_Temp_7_D14.csv	2008-01-07	Arctic
	Leg_5_Temp_8_D14.csv	2008-01-07	Arctic
Leg_5_SAL_5_D17.csv	Leg_5_Temp_9_D17.csv	2008-01-15	Arctic
Leg_5_SAL_6_D17.csv	Leg_5_Temp_10_D17.csv	2008-01-15	Arctic
Leg_5_SAL_7_D17.csv	Leg_5_Temp_11_D17.csv	2008-01-16	Arctic
Leg_5_SAL_8_D17.csv	Leg_5_Temp_12_D17.csv	2008-01-16	Arctic
Leg_5_SAL_9_D17.csv	Leg_5_Temp_13_D17.csv	2008-01-17	Arctic
Leg_5_SAL_10_D17.csv	Leg_5_Temp_14_D17.csv	2008-01-17	Arctic
Leg_5_SAL_11_D17.csv	Leg_5_Temp_15_D17.csv	2008-01-18	Arctic
Leg_5_SAL_12_D17.csv	Leg_5_Temp_16_D17.csv	2008-01-18	Arctic
Leg_5_SAL_13_D17.csv	Leg_5_Temp_17_D17.csv	2008-01-19	Arctic
Leg_5_SAL_14_D17.csv	Leg_5_Temp_18_D17.csv	2008-01-19	Arctic
Leg_5_SAL_15_D17.csv	Leg_5_Temp_19_D17.csv	2008-01-20	Arctic
Leg_5_SAL_16_D17.csv	Leg_5_Temp_20_D17.csv	2008-01-20	Arctic
Leg_5_SAL_17_D17.csv	Leg_5_Temp_21_D17.csv	2008-01-21	Arctic
Leg_5_SAL_18_D19.csv	Leg_5_Temp_22_D19.csv	2008-01-23	Arctic
Leg_5_SAL_19_D19.csv	Leg_5_Temp_23_D19.csv	2008-01-28	Arctic
Leg_5_SAL_20_D19.csv	Leg_5_Temp_24_D19.csv	2008-01-18	Arctic
Leg_5_SAL_21_D19.csv	Leg_5_Temp_25_D19.csv	2008-01-18	Arctic
Leg_5_SAL_22_D19.csv	Leg_5_Temp_26_D19.csv	2008-01-18	Arctic
Leg_5_SAL_23_D19.csv	Leg_5_Temp_27_D19.csv	2008-01-18	Arctic
Leg_6_SAL_1_D19.csv	Leg_6_Temp_1_D19.csv	2008-02-03	Arctic
Leg_6_SAL_2_D19.csv	Leg_6_Temp_2_D19.csv	2008-02-04	Arctic
Leg_6_SAL_3_D19.csv	Leg_6_Temp_4_D19.csv	2008-02-06	Arctic
	Leg_6_Temp_3_D19.csv	2008-02-06	Arctic
Leg_6_SAL_4_D19.csv	Leg_6_Temp_5_D19.csv	2008-02-07	Arctic
Leg_6_SAL_5_D19.csv	Leg_6_Temp_6_D19.csv	2008-02-07	Arctic
Leg_6_SAL_6_D19.csv	Leg_6_Temp_7_D19.csv	2008-02-08	Arctic
Leg_6_SAL_7_D19.csv	Leg_6_Temp_8_D19.csv	2008-02-08	Arctic
Leg_6_SAL_8_D19.csv	Leg_6_Temp_9_D19.csv	2008-02-09	Arctic
Leg_6_SAL_9_D19.csv	Leg_6_Temp_10_D19.csv	2008-02-09	Arctic

	Leg_6_Temp_11_D19.csv	2008-02-10	Arctic
Leg_6_SAL_10_D19.csv		2008-02-11	Arctic
Leg_6_SAL_11_D22.csv		2008-02-17	Arctic
Leg_6_SAL_12_D22.csv	Leg_6_Temp_12_D22.csv	2008-02-18	Arctic
Leg_6_SAL_13_D22.csv	Leg_6_Temp_13_D22.csv	2008-02-18	Arctic
Leg_6_SAL_14_D22.csv	Leg_6_Temp_14_D22.csv	2008-02-19	Arctic
Leg_6_SAL_15_D26.csv	Leg_6_Temp_15_D26.csv	2008-02-24	Arctic
Leg_6_SAL_16_D26.csv	Leg_6_Temp_16_D26.csv	2008-02-24	Arctic
Leg_6_SAL_17_D26.csv	Leg_6_Temp_17_D26.csv	2008-02-25	Arctic
Leg_6_SAL_18_D26.csv	Leg_6_Temp_18_D26.csv	2008-02-25	Arctic
Leg_6_SAL_19_D26.csv	Leg_6_Temp_19_D26.csv	2008-02-26	Arctic
Leg_6_SAL_20_D26.csv	Leg_6_Temp_20_D26.csv	2008-02-26	Arctic
Leg_6_SAL_21_D26.csv	Leg_6_Temp_21_D26.csv	2008-02-27	Arctic
Leg_6_SAL_22_D26.csv	Leg_6_Temp_22_D26.csv	2008-02-27	Arctic
Leg_6_SAL_23_D26.csv	Leg_6_Temp_23_D26.csv	2008-02-28	Arctic
	Leg_6_Temp_24_D26.csv	2008-02-28	Arctic
	Leg_6_Temp_25_D26.csv	2008-02-29	Arctic
Leg_6_SAL_24_2008D28.csv		2008-03-01	Arctic
Leg_6_SAL_25_D27.csv	Leg_6_Temp_26_D27.csv	2008-03-01	Arctic
Leg_6_SAL_26_2008D29.csv	Leg_6_Temp_27_2008D29.csv	2008-03-05	Arctic
	Leg_6_Temp_28_D29.csv Leg_6_Temp_29_D29.csv	2008-03-05	Arctic
Leg_6_SAL_27_D29.csv		2008-03-06	Arctic
	Leg_6_Temp_30_D29.csv	2008-03-06	Arctic
Leg_6_SAL_28_D29.csv	Leg_6_Temp_31_D29.csv	2008-03-07	Arctic
	Leg_6_Temp_32_D29.csv	2008-03-07	Arctic
Leg_6_SAL_29_D29.csv	Leg_6_Temp_33_D29.csv	2008-03-08	Arctic
Leg_6_SAL_30_D29.csv	Leg_6_Temp_34_D29.csv	2008-03-08	Arctic
Leg_6_SAL_31_D29.csv	Leg_6_Temp_35_D29.csv	2008-03-09	Arctic
Leg_6_SAL_32_D29.csv		2008-03-09	Arctic
Leg_6_SAL_33_D29.csv	Leg_6_Temp_36_D29.csv	2008-03-10	Arctic
Leg_6_SAL_34_D29.csv	Leg_6_Temp_37_D29.csv	2008-03-10	Arctic
Leg_8_SAL_1_F2.csv	Leg_8_Temp_1_F2.csv	2008-05-16	Arctic
Leg_8_SAL_2_F2.csv	Leg_8_Temp_2_F2.csv	2008-05-17	Arctic
Leg_8_SAL_3_F2.csv	Leg_8_Temp_3_F2.csv	2008-05-17	Arctic
Leg_8_SAL_4_F2.csv	Leg_8_Temp_4_F2.csv	2008-05-18	Arctic
Leg_8_SAL_5_F2.csv		2008-05-19	Arctic
Leg_8_SAL_7_F3.csv	Leg_8_Temp_6_F3.csv	2008-05-20	Arctic
Leg_8_SAL_6_F3.csv	Leg_8_Temp_5_F3.csv	2008-05-20	Arctic
Leg_8_SAL_8_F4.csv	Leg_8_Temp_7_F4.csv	2008-05-24	Arctic
	Leg_8_Temp_9_M1.csv Leg_8_Temp_20_M1.csv	2008-05-25	Arctic
Leg_8_SAL_17_M1.csv	Leg_8_Temp_19_M1.csv	2008-05-25	Arctic
Leg_8_SAL_9_M1.csv	Leg_8_Temp_8_M1.csv	2008-05-25	Arctic
Leg_8_SAL_10_M2.csv	Leg_8_Temp_10_M2.csv	2008-05-26	Arctic
Leg_8_SAL_11_F5.csv	Leg_8_Temp_11_F5.csv	2008-05-28	Arctic

Leg_8_SAL_12_D46.csv	Leg_8_Temp_12_D46.csv	2008-05-30	Arctic
Leg_8_SAL_13_D46.csv	Leg_8_Temp_13_D46.csv	2008-05-30	Arctic
Leg_8_SAL_14_D46.csv	Leg_8_Temp_14_D46.csv	2008-05-31	Arctic
Leg_8_SAL_15_F6.csv	Leg_8_Temp_15_F6.csv	2008-06-02	Arctic
Leg_8_SAL_16_F6.csv	Leg_8_Temp_16_F6.csv	2008-06-02	Arctic
	Leg_8_Temp_17_F6.csv	2008-06-03	Arctic
	Leg_8_Temp_18_F6.csv	2008-06-03	Arctic
Leg_9_SAL_1_F7.csv	Leg_9_Temp_1_F7.csv	2008-06-08	Arctic
Leg_9_SAL_2_F7.csv	Leg_9_Temp_2_F7.csv	2008-06-09	Arctic
Leg_9_SAL_3_F7.csv	Leg_9_Temp_3_F7.csv	2008-06-11	Arctic
Leg_9_SAL_4_F7.csv	Leg_9_Temp_4_F7.csv	2008-06-13	Arctic
Leg_9_SAL_5_F7.csv	Leg_9_Temp_5_F7.csv	2008-06-20	Arctic
Leg_9_SAL_6_F8.csv		2008-06-20	Arctic

Deployment Information

Platform Name	Platform Type	Start Date	End Date	Deployment	Coordinated (Dataset) Platform Deployment
CCGS Amundsen	Vessel	2007-12-21	2008-12-31	Leg 5	
CCGS Amundsen	Vessel	2008-02-01	2008-03-12	Leg 6	
CCGS Amundsen	Vessel	2008-03-13	2008-04-24	Leg 7	
CCGS Amundsen	Vessel	2008-04-25	2008-06-05	Leg 8	
CCGS Amundsen	Vessel	2008-06-06	2008-07-17	Leg 9	

Site Information

Site ID	Site Latitude	Site Longitude	Site Type	Site Location Country
D3	70.9804	-123.4902	Ice floe	Canada
D14	-9999	-9999	Ice floe	Canada
D17	71.5117	-124.9283	Ice floe	Canada
D19	71.2833	-125.4033	Ice floe	Canada
D22	70.9698	-124.724	Ice floe	Canada
D26	70.976	-123.928	Ice floe	Canada
2008D28	70.77	-123.497	Ice floe	Canada
D27	70.77	-123.497	Ice floe	Canada
2008D29	71.0635	-123.463	Ice floe	Canada
D29	71.0958	-123.528	Ice floe	Canada
D21	70.9698	-124.724	Ice floe	Canada
D31	70.9118	-123.0183	Ice floe	Canada
D33	71.065	-121.787	Ice floe	Canada
F2	69.56805	-126.103	Ice floe	Canada
F3	71.3438	-119.364	Ice floe	Canada
F4	72.36605	-126.022	Ice floe	Canada
M1	72.6577	-128.347	Ice floe	Canada

M2	74.089	-128.501	Ice floe	Canada
F5	74.3056	-124.059	Ice floe	Canada
D46	71.3431	-125.178	Ice floe	Canada
F6	69.51595	-123.451	Ice floe	Canada
F7	69.8267	-123.631	Ice floe	Canada
F8	69.9453	-125.889	Ice floe	Canada

Collection and Analysis Procedures

Sample Collection Method Name	Physical Ice Sampling
Method Link	http://hdl.handle.net/1993/34082
Method Summary	Typical Sea ice physical sampling activities include, but are not limited to: 1. Taking ice cores from a location with the same snow depth close to were the snow pit is/was done (even at the same spot). Extract **two cores**: **one** core for temperature, and **one** for salinity. **Details:** 1. At each station, physical properties of sea ice in the vicinity were observed. The temperature at depth within the visited ice floe(s) was determined by coring the floe and drilling holes in it at 10 cm intervals, starting 5 cm from the ice surface. After each hole was drilled a fast response digital temperature probe was inserted and the result recorded. The surface temperature of the ice surface was also recorded. 2. A second core was pulled at each station and cut in the field at 10 cm intervals in order to determine the salinity profile within the ice floe
Analytical Method Name	Salinity and Temperature Profiling
Analytical Method Link	http://hdl.handle.net/1993/34082
Analytical Method Summary	From the ice cores and site measure: • **Freeboard** (**FB**): determine FB from a core hole using a ruler. • **Thickness** (**hi**): determine hi using an ice thickness gauge. • **Temperature** (**Ti**): Measure at surface or snow/ice interface immediately after removing snow cover. Temperature profiles at intervals in the ice using **temperature probe**: immediately after extracting core, use drill to make hole to the center of ice core at a known distance from the surface, insert temperature probe to measure temperature. Shade the sensor from direct solar radiation.

	• **Salinity:** An Additional core extracted. Cut into 5-10 cm intervals after retrieval and placed into a whirl pack bag or bucket. Brought back to ship to melt so conductivity and salinity can be measured.
Analytical Laboratory Name	CCGS Amundsen

Processing Description

Variable	Variable method speciation	Variable sample fraction

CanWIN Data Cleaning Notes

The data for temperature and salinity cores (initially both in one excel file) has been split so that each core's data is listed in one .csv file.

All cleaned files were q.a/q. c'd for any error. The following standards were set for the physical ice sampling data:

- Both Latitude and Longitude are listed in Decimal Degrees (DecDeg)
- Dates follow the ISO standard: yyyy-mm-dd (i.e. 2011-09-07 = September 7th, 2011)
- Time is displayed in 24 hours and is UTC
- Device Salinity units are listed as PSU
- Conductivity units are listed as mS/cm
- Temperature is listed in Degrees C
- If a data point is missing, invalid, was not taken, corrupt, etc., the value -9999 was used

Variable Detection Limits

Variable Name	Units	Detection Limit Value & Units
Salinity	PSU	
Temperature	°C	
Conductivity	mS/cm	+/- 0.01

In Table 1. Below indicate the codes used in the dataset for above or below detection limit values.

Table 1. . CanWIN & User defined Detection Limit Codes

CanWIN Description	User Code
Above detection limit	
Below detection limit	

Instruments

CanWIN Instrument Name	Common Instrument Name	Activity Collection Type	Variables measured	Units
Hart Scientific Model 1522 Temperature probe	Temperature probe	Field Measurement	Ice Temperature, air temperature	°C
Hach Sension5 portable conductivity meter	Conductivity meter	Field Measurement	Conductivity	mS/cm
Kovacs Enterprises Mark II Coring System	Ice corer	Field Measurement	Extracts cores with a 9cm diameter	None

Instrument/Result Data Parameters

Salinity Dataset Parameters

Header	Description	Units	CanWIN Variable Name	Result Value Type	Formula or script applied	Statistic Applied
Station_ID	Station ID	None	Station ID	None		
Latitude_DecDeg	Latitude	Decimal Degree	Latitude	None		
Longitude_DecDeg	Longitude	Decimal Degree	Longitude	None		
Date	Date	YY: MM:DD	Date	None		
Time_UTC	Time of sampling	UTC	Time	None		
Depth_Top_m	Depth at top	Meters	Depth	None		
Depth_Bottom_m	Depth at bottom	Meters	Depth	None		
SAL_o_oo	Salinity	PSU	Salinity	Calculated Value		
Cond mS_cm	Conductivity	mS/cm	Conductivity	Actual		
Temp_C	Temperature	Celsius	Temperature	Actual		

Temperature Dataset Parameters

Header	Description	Units	CanWIN Variable Name	Result Value Type	Formula or script applied	Statistic Applied
Station_ID	Station ID	None	Station ID	None		
Latitude_DecDeg	Site latitude	Decimal Degrees	Latitude	None		
Longitude_DecDeg	Site Longitude	Decimal Degrees	Longitude	None		
Date	Date of sampling	YY:MM:DD	Date	None		
Time_UTC	Time of Sampling	UTC	Time	None		
Depth_cm	Depth	cm	Depth	Actual		
Temp_C	Core Temperature	°C	Temperature	Actual		

Table 2. Result Value Qualifier

CanWIN Short Code	Definition	User Code
$	Incorrect sample container	
EFAI	Equipment failure, sample lost	
FEQ	Field Equipment Questionable	
FFB	Failed. Field blank not acceptable	
FFD	Field Duplicate, failed	
FFS	Failed. Field spike not acceptable	
H	Holding time exceeded	
ISP	Improper Sample Preservation	
ITNA	Incubation time not attained	
ITNM	Incubation temperature not maintained	
JCW	Sample Container Damaged, sample lost	
NC	Not Collected	
ND	Not detected	
NS	Sample collected but not submitted	

Terms of Use

License Type	Open
Dataset License	CC-BY-NC-ND-4.0
Terms of Use	CanWIN site terms of use

Terms of Access

Access Level	Allowed Users on CanWIN project site
Allowed Users	Allowed
Embargo Date	Available
Embargo Time	Not applicable
Embargo Time zone	Not Applicable
Access Constraints	

Related Data

Related Identifier	
Identifier Type	
Relationship	
If part of a series, name series	IPY-CFL 2008 Physical Ice Series

Related Publications

Circumpolar Flaw Lead System Study (CFL) International Polar Year (IPY). (2008). The Centre for Earth Observation Science. http://hdl.handle.net/1993/34082, Retrieved from, https://mspace.lib.umanitoba.ca.