Dataset Information

Dataset Description

Dataset Name	IPY-CFL 2007 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	2007-10-27
Dataset Collection End Date	2007-12-29
Date Last Revision	
Dataset DOI	Assigned by CanWIN unless user already has one

Dataset Contributors

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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_3b_SAL_10_1908.csv		2007-11-05	Arctic
Leg_3b_SAL_11_1908.csv		2007-11-05	Arctic
Leg_3b_SAL_12_1916.csv		2007-11-06	Arctic
Leg_3b_SAL_1_1110.csv		2007-10-27	Arctic
Leg_3b_SAL_2_1116.csv		2007-10-28	Arctic
Leg_3b_SAL_3_1216.csv		2007-10-29	Arctic
Leg_3b_SAL_4_1208.csv		2007-10-30	Arctic
Leg_3b_SAL_5_1200.csv		2007-10-31	Arctic
Leg_3b_SAL_6_1200.csv		2007-10-31	Arctic
Leg_3b_SAL_7_1606.csv		2007-11-02	Arctic
Leg_3b_SAL_8_1902.csv		2007-11-03	Arctic
Leg_3b_SAL_9_1902.csv		2007-11-03	Arctic
Leg_4_SAL_10_1200.csv	Leg_4_Temp_10_1200.csv	2007-11-20	Arctic
Leg_4_SAL_11_1910.csv	Leg_4_Temp_11_1910.csv	2007-11-20	Arctic
Leg_4_SAL_12_437.csv	Leg_4_Temp_12_437.csv	2007-11-21	Arctic
Leg_4_SAL_13_437.csv	Leg_4_Temp_13_437.csv	2007-11-21	Arctic
Leg_4_SAL_14_437.csv	Leg_4_Temp_14_437.csv	2007-11-22	Arctic
Leg_4_SAL_15_437.csv		2007-11-22	Arctic
Leg_4_SAL_16_1825.csv	Leg_4_Temp_15_1825.csv	2007-11-24	Arctic
Leg_4_SAL_17_1812.csv	Leg_4_Temp_16_1812.csv	2007-11-25	Arctic
	Leg_4_Temp_17_1800.csv	2007-11-26	Arctic
	Leg_4_Temp_18_1800.csv	2007-11-26	Arctic
Leg_4_SAL_18_1800.csv		2007-11-26	Arctic
Leg_4_SAL_19_1800.csv		2007-11-26	Arctic
Leg_4_SAL_1_1117.csv	Leg_4_Temp_1_1117.csv	2007-11-16	Arctic
Leg_4_SAL_20_1800.csv		2007-11-26	Arctic
Leg_4_SAL_21_2007D1.csv	Leg_4_Temp_19_2007D1.csv	2007-11-28	Arctic
Leg_4_SAL_22_2007D3.csv	Leg_4_Temp_20_2007D3.csv	2007-11-29	Arctic
Leg_4_SAL_23_2007D4.csv	Leg_4_Temp_21_2007D4.csv Leg_4_Temp_22_2007D4.csv	2007-12-02	Arctic
	Leg_4_Temp_23_2007D5.csv	2007-12-04	Arctic
Leg_4_SAL_24_2007D5.csv		2007-12-04	Arctic
Leg_4_SAL_25_2007D6.csv	Leg_4_Temp_24_2007D6.csv	2007-12-09	Arctic
Leg_4_SAL_26_2007D7.csv	Leg_4_Temp_25_2007D7.csv	2007-12-10	Arctic
Leg_4_SAL_27_2007D7.csv	Leg_4_Temp_26_2007D7.csv	2007-12-11	Arctic
Leg_4_SAL_28_2007D7.csv	Leg_4_Temp_27_2007D7.csv	2007-12-12	Arctic

	Leg_4_Temp_28_2007D7.csv	2007-12-13	Arctic
Leg_4_SAL_29_2007D7.csv	Leg_4_Temp_29_2007D7.csv	2007-12-14	Arctic
Leg_4_SAL_2_1117.csv	Leg_4_Temp_2_1117.csv	2007-11-16	Arctic
Leg_4_SAL_30_2007D7.csv	Leg_4_Temp_30_2007D7.csv	2007-12-15	Arctic
Leg_4_SAL_31_2007D8.csv	Leg_4_Temp_31_2007D8.csv	2007-12-17	Arctic
Leg_4_SAL_32_2007D8.csv	Leg_4_Temp_32_2007D8.csv	2007-12-18	Arctic
Leg_4_SAL_3_1117.csv	Leg_4_Temp_3_1117.csv	2007-11-16	Arctic
Leg_4_SAL_4_1117.csv	Leg_4_Temp_4_1117.csv	2007-11-16	Arctic
Leg_4_SAL_5_405.csv	Leg_4_Temp_5_405.csv	2007-11-18	Arctic
Leg_4_SAL_6_405.csv	Leg_4_Temp_6_405.csv	2007-11-18	Arctic
Leg_4_SAL_7_405.csv	Leg_4_Temp_8_405.csv Leg_4_Temp_9_405.csv	2007-11-19	Arctic
Leg_4_SAL_8_1100.csv		2007-11-19	Arctic
Leg_4_SAL_9_1100.csv		2007-11-19	Arctic
Leg_5_SAL_1_2007D11.csv	Leg_5_Temp_1_2007D11.csv	2007-12-25	Arctic
Leg_5_SAL_2_2007D12.csv	Leg_5_Temp_2_2007D12.csv	2007-12-26	Arctic
	Leg_5_Temp_3_D12.csv	2007-12-29	Arctic

Deployment Information

Platform Name	Platform Type	Start Date	End Date	Deployment	Coordinated (Dataset) Platform Deployment
CCGS Amundsen	Vessel	2007-10-18	2007-11-07	Leg 3b	
CCGS Amundsen	Vessel	2007-11-08	2007-12-20	Leg 4	
CCGS Amundsen	Vessel	2007-12-21	2008-01-31	Leg 5	

Site Information

Site ID	Site Latitude	Site Longitude	Site Type	Site Location Country
1110	70.3217	-124.842	Ice floe	Canada
1116	70.0432	-126.278	Ice floe	Canada
1216	70.5833	-127.75	Ice floe	Canada
1208	71.065	-126.047	Ice floe	Canada
1200	71.5467	-124.343	Ice floe	Canada
1606	71.0714	-130.553	Ice floe	Canada
1902	71.5642	-125.666	Ice floe	Canada
1916	70.9	-122.141	Ice floe	Canada
1117	69.869	-126.501	Ice floe	Canada
405	70.634833	-122.902917	Ice floe	Canada
1100	71.035	-123.235	Ice floe	Canada
1910	71.106	-123.413	Ice floe	Canada
437	71.235	-123.936	Ice floe	Canada

1825	73.988	-127.452	Ice floe	Canada
1812	73.788	-126.791	Ice floe	Canada
1800	73.065	-127.403	Ice floe	Canada
2007D1	70.417	-126.384	Ice floe	Canada
2007D3	70.9	-123.351	Ice floe	Canada
2007D4	71.73	-125.57	Ice floe	Canada
2007D5	71.416	-124.931	Ice floe	Canada
2007D6	71.256	-125.208	Ice floe	Canada
2007D7	71.266	-125.255	Ice floe	Canada
2007D8	71.805	-125.869	Ice floe	Canada
2007D11	71.2703	-124.4215	Ice floe	Canada
2007D12	71.2167	-124.4407	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

Related Identifier ID	
Identifier Type	
Relationship	
Resource Type	
If part of a series, name series	IPY-CFL 2007 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.