



Sea Ice Melt Pond Data from the Canadian Arctic, Version 1

USER GUIDE

How to Cite These Data

As a condition of using these data, you must include a citation:

Morassutti, M. 1995. *Sea Ice Melt Pond Data from the Canadian Arctic, Version 1*. [Indicate subset used]. Boulder, Colorado USA. NSIDC: National Snow and Ice Data Center.

<https://doi.org/10.7265/N55Q4T1C>. [Date Accessed].

FOR QUESTIONS ABOUT THESE DATA, CONTACT NSIDC@NSIDC.ORG

FOR CURRENT INFORMATION, VISIT <https://nsidc.org/data/G01169>



National Snow and Ice Data Center

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1 DETAILED DATA DESCRIPTION

This data set contains observations of albedo, depth, and physical characteristics of melt ponds on sea ice, taken during the summer of 1994. The melt ponds studied were located just south of Cornwallis Island in the Barrow Strait, Nunavut, Canada. The reflectance spectra were acquired with a portable spectrometer. Cloud conditions and ice type were recorded as well.

This data set of melt pond observations from Barrow Strait, Nunavut, Canada, was provided to NSIDC by Mike Morassutti. The extensive measurements were acquired for use in climate studies and sea ice modeling. The reflectance spectra were acquired using a portable spectrometer. All data processing and quality control were completed at the Institute for Space and Terrestrial Science. The data are also in a report by Morassutti and LeDrew (1995). Please see this publication for more information.

1.1 Format

The data are stored in an ASCII file containing 22 columns. See sample data below.

Table 1. Column definitions of the ASCII data set

Column	Definition	Code Used	Format
1	Julian Day		I3
2	2 Time of measurement (local time)	0001-2400	I4
3	Field of view	see table 2	A3
4	Predominant observable cloud type	see table 3	A3
5	Degree of obscuration of solar disc	see table 4	I1
6	Ice type	see table 5	I1
7	Pond depth (m)		F5.3
8	Pond bottom texture	0=smooth,1=rough	I1
9	Indicates presence of ice layer	0=no,1=yes	I1
10	Indicates presence of debris in pond	0=no,1=yes	I1
11	Pond color	see table 6	I2
12	Broadband albedo (400-1000 nm)		F5.3
13	Visible albedo (400-700 nm)		F5.3
14	Near-infrared albedo (700-1000 nm)		F5.3
15	Band 1 albedo (blue, 400-500 nm)		F5.3
16	Band 2 albedo (green, 500-600 nm)		F5.3
17	Band 3 albedo (red, 600-700 nm)		F5.3
18	Band 4 albedo (near IR, 700-800 nm)		F5.3

Column	Definition	Code Used	Format
19	Band 5 albedo (near IR, 800-900 nm)		F5.3
20	Band 6 albedo (near IR, 900-1000 nm)		F5.3
21	Thickness of ice layer (cm)		F3.1
22	Pond number		I3

Table 2. Coding scheme used for instrument field of view (FOV)

Code	Instrument FOV
CR	180 degrees
B18	18 degrees
B5	5 degrees

Table 3. Coding scheme used for predominant cloud type

Code	Cloud Type
AC	altocumulus
AS	altostratus
CC	cirrocumulus
CI	cirrus
CLR	clear skies
AC	altocumulus
FOG	foggy conditions
SC	stratocumulus
SCA	scattered conditions
ST	stratus

Table 4. Coding scheme used for degree of obscuration of sun

Code	Sun Obscuration
1	Full solar disc is visible
2	Bright sun with some obscuration (resulting from the presence of thin cirrus)
3	Noticeable reduction in solar disc brightness
4	Solar disc is faintly observable
5	Solar disc is totally occluded

Table 5. Coding scheme used for the ice type

Code	Ice Type
1	First-year ice
2	Multi-year ice
3	Landfast ice

Table 6. Coding scheme used for pond color

Code	Color
1	white
2	white-grey
3	grey-white
4	grey
5	grey-blue
6	blue-grey
7	blue
8	blue-green
9	green-blue
10	green
11	green-brown
12	brown-green
13	brown
14	dark green
15	dark blue
16	dark grey
17	black
The color codes specified were selected to match as closely as possible the color gradations occurring in the visible spectrum.	

1.2 File Size

The data file is 67.4 KB.

1.2.1 Sample Data Record

See Table 1 for definitions of each column in the data, below.

147	1310	CR	SC	5	3	0.090	1	0	1	7	0.402	0.619	0.184	0.702	0.682	0.519	0.256	0.198	0.140	0.0	01
147	1340	CR	SC	5	3	0.002	1	0	1	6	0.508	0.640	0.377	0.694	0.674	0.607	0.489	0.375	0.261	0.0	02
148	1931	CR	SC	5	1	0.025	1	0	0	4	0.483	0.673	0.292	0.733	0.712	0.633	0.437	0.296	0.154	0.0	03
148	1943	CR	SC	5	1	0.030	1	0	0	4	0.423	0.593	0.253	0.649	0.630	0.551	0.373	0.260	0.146	0.0	04
148	2004	CR	SC	5	1	0.040	1	0	0	4	0.431	0.556	0.305	0.613	0.595	0.522	0.380	0.314	0.248	0.0	05

2 REFERENCES AND RELATED PUBLICATIONS

M.P. Morassutti and E.F. LeDrew. 1995. Melt Pond Dataset for use in Sea-Ice and Climate Related Studies. Institute for Space and Terrestrial Science, Ontario, Canada, ISTS-EOL-TR95-001.

2.1 Related Data Collections

- [Arctic Sea Ice Melt Pond Statistics and Maps, 1999, 2000, and 2001](#)
- [Meltpond2000 Polarimetric Scanning Radiometer Sea Ice Brightness Temperatures](#)

3 CONTACTS AND ACKNOWLEDGMENTS

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4 DOCUMENT INFORMATION

4.1 Publication Date

17 April 1996

4.2 Date Last Updated

26 November 2020