



Arctic Ocean Drift Tracks from Ships, Buoys, and Manned Research Stations, 1872-1973, Version 1

USER GUIDE

How to Cite These Data

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

Colony, R. and A. S. Thorndike. 1984. *Arctic Ocean Drift Tracks from Ships, Buoys, and Manned Research Stations, 1872-1973, Version 1*. [Indicate subset used]. Boulder, Colorado USA. NSIDC: National Snow and Ice Data Center. <https://doi.org/10.7265/N5D798B1>. [Date Accessed].

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

FOR CURRENT INFORMATION, VISIT <https://nsidc.org/data/G01358>



National Snow and Ice Data Center

TABLE OF CONTENTS

1	DETAILED DATA DESCRIPTION.....	2
1.1	Background.....	2
1.2	Format.....	2
1.2.1	Sample Data Record.....	3
1.3	File Size.....	4
1.4	Spatial and Temporal Coverage and Resolution.....	4
2	SOFTWARE AND TOOLS.....	4
3	REFERENCES AND RELATED PUBLICATIONS.....	4
3.1	Related Data Collections.....	4
4	CONTACTS AND ACKNOWLEDGMENTS.....	5
5	DOCUMENT INFORMATION.....	5
5.1	Publication Date.....	5
5.2	Date Last Updated.....	5

1 DETAILED DATA DESCRIPTION

1.1 Background

The collection of drift track positions from 34 platforms or buoys was smoothed, interpolated and projected to a two-dimensional coordinate system by Alan Thorndike and Roger Colony, of the AIDJEX project office, University of Washington. The original raw data consisted of geographic positions at sporadic times for the various platforms. The processes applied to the original data yielded points every two days in x,y coordinates, together with associated velocities (first derivatives).

The origin of the x, y coordinates is the North Pole; positive x-axis is the projection of the Greenwich meridian; positive y-axis is the projection of the 90 degree East meridian. The units of x and y are in kilometers. Velocities are in centimeters per second. The projection is such that the linear accuracy is better than 99 percent over the Arctic Basin. The transformation used in the conversion from lat/lon to x/y is as follows:

$$\begin{aligned}x &= 110.949(90 - \text{lat}) \cos(\text{lon}) \\ y &= 110.949(90 - \text{lat}) \sin(\text{lon})\end{aligned}$$

The dates for the tracks are given in century days, counting from 1 January 1900 (1900 was not a leap year, for ease in subtracting.) Tracks for the Fram and the Tegetthoff ships were recorded during 19th century, so these century days are from 1 January 1800.

Note that oceanographic data from certain Western drifting stations may be found in the [National Oceanic Data Center's World Ocean Database](#).

1.2 Format

Each data file is in ASCII text format and begins with a title record having the following format:

FIELD	COLUMNS	DEFINITION
1	01-10	Alphanumeric name of the track
2	11-18	Numerical track id
3	19-26	Number of data points (half the number of days)
4	27-35	Start day of track (century day)
5	36-44	End day of track (century day)
6	45-80	Filler (blanks)

Data records have the following format:

FIELD	COLUMNS	DEFINITION
1	01-07	Century day
2	08-17	X kilometers
3	18-27	Y kilometers
4	28-36	U (cm/sec)
5	37-45	V (cm/sec)
6	46-80	Filler (blanks)

Drifting station track names as recorded in this data set are:

Station	Date(s)	Station	Date(s)
FRAM	1893-96	NP-19	1970
NP-01	1937	NP-20	1970
NP-02	1950-51	IGY-A	1957-59
NP-04	1954-57	IGY-B	1957-58
NP-06	1956-59	T-3	1962-70
NP-07	1957-59	ARLIS-II	1961-65
NP-08	1959-62	BTAE	1968-69
NP-09	1960-61	T-3 ADD	1959-60
NP-10	1961-64	BUOY 1	1972
NP-11	1962-63	BUOY 2	1972
NP-12	1963-65	BUOY 3	1972
NP-13	1964-67	BUOY 4	1972
NP-14	1965-66	BUOY 5	1972
NP-15	1966-68	BUOY 6	1972
NP-16	1968-70	BUOY 8	1972
NP-17	1968-69	TEGG	1872-73
NP-18	1968-70	ST. ANNA	1912-14

1.2.1 Sample Data Record

```

ARLIS-II      44      715  22433.5  23861.5
22433.5 -1717.294 -713.603      .2240   6.6780
22435.5 -1716.681 -701.376      .4860   7.4740
22437.5 -1715.614 -687.773      .5140  11.0700
22439.5 -1714.905 -663.118      .8710  11.1790
22441.5 -1712.604 -649.138     1.5280   7.6900
    
```

1.3 File Size

The entire data set is 549 KB (compressed).

1.4 Spatial and Temporal Coverage and Resolution

Data cover varying times and positions in the Arctic Ocean during the period 1872-1973. Raw data from drift tracks are processed to a position and velocity vector every two days.

2 SOFTWARE AND TOOLS

These data can be opened with any text reader/editor.

3 REFERENCES AND RELATED PUBLICATIONS

AIDJEX Data Bank Digital Data Indices and Preliminary User's Guide. 1973. AIDJEX Bulletin. 19:125-148

Arctic Climatology Project. 2000. *Environmental Working Group Arctic Meteorology and Climate Atlas*. Edited by F. Fetterer and V. Radionov, Boulder, CO: National Snow and Ice Data Center. CD-ROM.

Colony, R., and A. S. Thorndike. 1984. Estimate of the mean field of Arctic sea ice motion. *J. Geophys. Res.* 89(C6):10623-10629.

Hastings, A. D. 1971. Surface Climate of the Arctic Basin. U. S. Army Engineer Topographic Laboratories, Ft. Belvoir, VA. NTIS Order No. AD738-796.

National Snow and Ice Data Center. 2002. *Norwegian North Polar Expedition 1893-1896: Oceanographic Data*. Fridtjof Nansen, compiler. Boulder, CO: National Snow and Ice Data Center. Digital media.

3.1 Related Data Collections

[Sea Ice Products at NSIDC](#)

[Norwegian North Polar Expedition 1893-1896: Oceanographic Data](#)

[Arctic Climatology Project - EWG Arctic Meteorology and Climate Atlas](#)

4 CONTACTS AND ACKNOWLEDGMENTS

Acknowledgments:

The data were contributed to NSIDC/WDC for Glaciology, Boulder by the AIDJEX project office. This data set is maintained at NSIDC with support from the NOAA National Geophysical Data Center. M. Stateman, AIDJEX data manager, was associated with the data.

5 DOCUMENT INFORMATION

5.1 Publication Date

1984

5.2 Date Last Updated

July 2006; this document was reformatted.