

# Environmental Working Group Joint U.S.-Russian Arctic Sea Ice Atlas User Notes

Note: This document is no longer being updated but is being preserved for historical purposes.

This document contains notes for users of the Environmental Working Group Joint U.S.-Russian Arctic Sea Ice Atlas. Included are:

- List of documents available from the National Ice Center
- Frequently Asked Questions (FAQ)

The errata sheet for the sea ice glossary is available in either [GIF](#) image format or in [Microsoft Word](#) document format.

If you have questions regarding this product, or information that you think may be of interest to other users, please contact [NSIDC User Services](#).

## Documents from the National Ice Center

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### [National Ice Center 7-Day Sea Ice Charts](#)

A compact description of the charts on the EWG Sea Ice Atlas and how they were produced, by LT Kyle Dedrick, 14 October 2003.

### [Satellite Platform and Sensor Availability](#)

Tables that summarize the annual availability of each satellite platform and sensor used to produce the global sea ice analyses.

### [National Ice Center Sea Ice Climatology](#)

A description of the climatology on the EWG Sea Ice Atlas, explaining how source data differs from the 7-Day Sea Ice Charts, by LT Kyle Dedrick, 14 October 2003.



## Frequently Asked Questions

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1. **QUESTION:**

Why is there a difference between EASE-Grid products at 25 km and GIS raster grids at 12.5 km? Were data reclassified from a 25,000 m scale into a 12,500 m scale?

**ANSWER:**

NSIDC was not involved in the creation of these products and has incomplete information on how they were created. The original charts from the National Ice Center (NIC) were drawn on paper based on a variety of satellite, air-reconnaissance, national ice charts other than those belonging to NIC, and ship observations. Therefore, they do not have an inherent resolution. The paper charts were then digitized in a vector format and converted to SIGRID (gridded format), which has a nominal resolution of 15 minutes, but this grid varies with longitude (see <https://nsidc.org/noaa/gdsidb#formats>). The EASE-Grid charts at 25 km were probably created from these SIGRID files. If this is the case, then to avoid losing any information, they should have been created at 12.5 km or less. It is unclear how the GIS raster files were created and why 12.5 km was chosen. If they were created from vector format coverages, a grid cell size less than 12.5 km would have been appropriate. If the vector coverages were available, a new grid or raster product of any spacing or cell size could be created. Unfortunately, the vector coverages from the pre-1995 era have not been preserved. The NIC archives these coverages at [http://www.natice.noaa.gov/pub/archive/historical/Sea\\_Ice\\_Documents/Sea\\_Ice\\_Climatology.html](http://www.natice.noaa.gov/pub/archive/historical/Sea_Ice_Documents/Sea_Ice_Climatology.html). Inquiries may be directed to the [NIC](#).

2. **QUESTION:**

Is there a consistent product available from 1970 to the present, with a resolution better than 12.5 km?

**ANSWER:**

NSIDC is not familiar with such a product. Post-1995 GIS-compatible products are available from [NIC](#).

3. **QUESTION:**

One of the zip files for 1986 is missing a file when it is unzipped: /cdrom/ewg\_seaice\_disc1#1/visual\_atlas/sea\_ice\_data\_sets/nic\_7\_day\_grids/1986/1986nic\_grids.zip is missing gg198601tm.bil. All of the other 51 \*tm.bil files are present, but the file for the first week of the year (01) is missing. Is that file available somewhere?

**ANSWER:**

Unfortunately, this file is not available, and the means to regenerate it are not available at present.

4. **QUESTION:**

Has there been any analysis of these ice chart products?

**ANSWER:**

Yes. See:

[http://www.natice.noaa.gov/pub/archive/historical/Sea\\_Ice\\_Documents/Sea\\_Ice\\_Climatology.html](http://www.natice.noaa.gov/pub/archive/historical/Sea_Ice_Documents/Sea_Ice_Climatology.html)

Also look for:

Partington et al. 2002. *The late twentieth century northern hemisphere sea-ice record from US National Ice Center ice charts*. Submitted to the Journal of Geophysical Research, 2002.

5. **QUESTION:**

The EASE-Grid versions of the charts are not on disk 2 as the documentation says they are. Where are they?

**ANSWER:**

They are zipped on disk 1 under

VISUAL\_ATLAS\SEA\_ICE\_DATA\_SETS\NIC\_7\_DAY\_GRIDS. There is a subdirectory for each year containing several zip files. The YYYYNIC\_GRIDS.zip files contain the EASE grid binary files, for example, gg197301a.bil and gg197301tm.bil.

6. **QUESTION:**

The ice motion data geolocation file seems to be missing, though documentation states that "Each file contains 2025 records corresponding to each of the 2025 grid points. The coordinates of each grid point can be found in the file 'docs/LLXY.'"

**ANSWER:**

The missing file can be obtained from NSIDC's [ftp site](#).

7. **QUESTION:**

Some of the folders of the site map on DISC 1 are not linked. How can I get to the data in those folders?

**ANSWER:**

These folders on the upper right part of the sitemap graphic on DISC 1 may not be linked correctly in your web browser:

DISC 1 SEA ICE DATA SETS  
CLIMATOLOGY STATISTICS AND GRIDS  
NIC 7-DAY GRIDS  
NIC CLIMATOLOGICAL GRIDS

To access these directories with your web browser, go to:

.../visual\_atlas/sea\_ice\_data\_sets/

where you will find the appropriate directories:

/monthly\_statistics\_and\_grids/  
/nic\_7\_day\_grids/  
/nic\_climatological\_grids/

8. **QUESTION:**

I seem to have a problem unzipping one of the 1986 ULS files.

**ANSWER:**

There are two files in the Upward Looking Sonar (ULS) metadata and data files directory that will not unzip correctly on Unix systems. The files are on DISC 2 in the following directory:

/data\_sets/uls\_meta\_profiles\_and\_stats/metadata\_and\_data\_files/1986a/  
files: 1986ai2c1ice.z and 1986ai2c4ice.z

You can access these two files, unzipped, via NSIDC's [ftp site](#).

9. **QUESTION:**

I'm having a hard time finding some information that I need regarding the snow data.

**ANSWER:**

There may be at least two locations where you would find documentation for the various data sets. For instance, you would find the document "Russian Measurements of Snow on the Ice Cover" in the Introduction section which provides historical background and characteristics of these snow measurements. In the Methods and Data Section, you would find "Snow Data - AARI Measurements of the Arctic Snow Cover" which provides some background, but with a focus on the methodology of the measurements. Users would more than likely be interested in both documents, and should realize that there may be several documents pertaining to the data set(s) they are using.

10. **QUESTION:**

Will this product be updated? Can I get data for years later than what are on the CD-ROMs?

**ANSWER:**

There are currently no plans for an updated version of this product. You can obtain recent sea ice data from the National Ice Center (NIC) at <http://www.natice.noaa.gov/> and from the Arctic and Antarctic Research Institute (AARI) <http://www.aari.nw.ru/> Some recent Upward Looking Sonar (ULS) data are available at the National Snow and Ice Data Center (NSIDC) <https://nsidc.org/>.

11. **QUESTION:**

How do I cite the data on this CD-ROM?

**ANSWER:**

Users of the EWG Joint U.S.-Russian Arctic Sea Ice Atlas should cite the atlas in reference lists accompanying published work as follows: "Arctic Climatology Project. 2000. Environmental Working Group Joint U.S.-Russian Arctic Sea Ice Atlas. Edited by F. Tanis and V. Smolyanitsky. Boulder, CO: Distributed by the National Snow and Ice Data Center. CD-ROM."

12. **QUESTION:**

How do ice draft data on this product differ from those in the NSIDC data set, Submarine Upward Looking Sonar Ice Draft Profile Data and Statistics?

**ANSWER:**

The EWG data were processed at the University of Washington Applied Physics Laboratory (APL) using APL software modified in 1994 by the addition of two routines (BSQTIME3 and BSQSPAC2) from Bronson Hills Associates (BHA) -- hereafter referred to as the APL software. The Submarine Upward Looking Sonar Ice Draft Profile Data and Statistics data were processed at CRREL using a suite of all-BHA software. APL software processing is nearly automatic, while BHA processing requires extensive interactive analysis. BHA allows data viewing, but it can potentially recover up to 30% more ice draft profiles. The Environmental Research Institute of Michigan (developers of the EWG data set) and Bronson Hills Associates compared the two processing methods at APL using SCICEX-93 ice draft data collected on September 4, 6, and 11 in the eastern Chukchi Sea, Beaufort Sea, and the North Pole regions. Results were as follows:

*Segment length:* Differences were always less than 6 m and most were less than 3 m. APL and BHA routines were consistent with respect to distances calculated from the raw top sonder data records.

*Ice draft statistics:* The mean and standard deviation compared well, but values of RMS draft departed significantly because the two software packages used different formulae for the RMS calculation.

*Keel location:* APL software selects more keels than the BHA software. Most discrepancies appear to arise from keel picks associated with broad keels characterized by multiple closely spaced peaks. APL software identifies these as separate keels and the BHA software a single keel.

*Keel statistics:* The APL software consistently provided mean keel drafts that exceeded the BHA values by 2.0 to 2.5 m. Standard deviations were consistent. This difference is thought to have occurred from the slightly different application of the Rayleigh criterion used for keel detection and APL interpolation methods.

(Fred Tanis, ERIM International, Yanling Yu, University of Washington, and Dennis Farmer, Bronson Hills Associates, provided this information).