

## **Fair Use of NOAA's CDR Data Sets, Algorithms and Documentation:**

The development of a Climate Data Record (CDR) - including computer algorithms, data sets and documentation - is typically a painstaking process involving multiple scientists working over many years. These scientists rely on the fair use and proper acknowledgment of the CDR to sustain their professional reputations and careers.

The National Academy of Sciences has issued guidance for credit allocation in scientific work [1]. The CDR Program urges anyone using a NOAA CDR to honor this guidance by properly recognizing the CDR scientists and the CDR Program following the acknowledgement and citation examples below. In cases where a NOAA CDR becomes a fundamental part of a study, publication, presentation or proposal, the CDR Program encourages users to offer co-authorship status to the original CDR developers. If the data are used we encourage the use of the data citation to ensure data provenance and attribution [2].

Acknowledgement: The Ocean Heat Content CDR used in this study was acquired from the NOAA National Centers for Environmental Information (NCEI; formerly NCDC) (<https://www.ncei.noaa.gov>). This CDR was developed by Syd Levitus, John Antonov, Tim Boyer, Olga Baranova, Hernan Garcia, Ricardo Locarnini, Alexey Mishonov, James Reagan, Dan Seidov, Evgeney Yarosh, and Melissa Zweng at the National Centers for Environmental Information.

Literature Citation: Levitus, S., J. I. Antonov, T. P. Boyer, O. K. Baranova, H. E. Garcia, R. A. Locarnini, A.V. Mishonov, J. R. Reagan, D. Seidov, E. S. Yarosh, M. M. Zweng, 2012: World Ocean heat content and thermosteric sea level change (0-2000 m) 1955-2010. *Geophys. Res. Lett.* , 39, L10603, doi:10.1029/2012GL051106.

Data Citation: Levitus, S; Antonov, J.; Boyer, T.; Baranova, O.; Garcia, H.; Locarnini, R.; Mishonov, A.; Reagan, J.; Seidov, D.; Yarosh, E.; Zweng, M.; (2017). NCEI ocean heat content, temperature anomalies, salinity anomalies, thermosteric sea level anomalies, halosteric sea level anomalies, and total steric sea level anomalies from 1955 to present calculated from in situ oceanographic subsurface profile data (NCEI Accession 0164586). Version 1.1. NOAA National Centers for Environmental Information. doi:10.7289/V53F4MVP. [access date]

## **CDR Program Open Data Policy:**

The NOAA CDR Program's official distribution point for CDRs is NOAA's National Centers for Environmental Information (NCEI; formerly NCDC) which provides sustained, open access and active data management of the CDR packages and related information in keeping with the United States' open data policies and practices as described in the President's Memorandum on "Open Data Policy" [3] and pursuant to the Executive Order of May 9, 2013, "Making Open and Machine Readable the New Default for Government Information" [4]. In line with these policies, the CDR data sets are non-proprietary, publicly available, and no restrictions are placed upon their use.

The software used to produce the CDRs may or may not be Government owned, and is outside of the scope of the Open Data policies, so permissions to re-use or modify the CDR production software should be sought from the software's copyright owner identified within its source code.

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[1] On Being a Scientist: A Guide to Responsible Conduct in Research: 3rd Edition (2009), Committee on Science, Engineering, and Public Policy, National Academy of Sciences, National Academy of Engineering, and Institute of Medicine, 82 pages, ISBN-10: 0-309-11970-7. Available for download at: [http://www.nap.edu/catalog.php?record\\_id=12192](http://www.nap.edu/catalog.php?record_id=12192).

[2] Ruth E. Duerr, Robert R. Downs, Curt Tilmes, Bruce Barkstrom, W. Christopher Lenhardt, Joseph Glassy, Luis E. Bermudez and Peter Slaughter. On the utility of identification schemes for digital earth science data: an assessment and recommendations, Earth Science Informatics, Vol. 4, Num. 3, 139-160, 2011, doi:10.1007/s12145-011-0083-6.

[3] <http://www.whitehouse.gov/sites/default/files/omb/memoranda/2013/m-13-13.pdf>

[4] <http://www.whitehouse.gov/the-press-office/2013/05/09/executive-order-making-open-and-machine-readable-new-default-government>

[5] <https://www.ncdc.noaa.gov/cdr>