

Southwest Fisheries Science Center
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
La Jolla, California

SECTION 515 PRE-DISSEMINATION REVIEW & DOCUMENTATION FORM
(5/2003)

AUTHOR/RESPONSIBLE OFFICE:

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* = point of contact.

TITLE/DESCRIPTION: Coastwatch Advanced Very High Resolution Radiometer
(AVHRR) Sea Surface Temperature Anomaly Data

PRESENTATION/RELEASE DATE: 2005 - ongoing

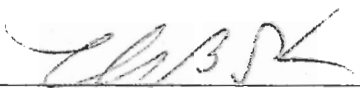
MEDIUM: Internet

PRE-DISSEMINATION REVIEW:

Name and Title of Reviewing Official: Dr. Franklin B. Schwing, Director, NMFS
SWFSC, Environmental Research Division

(Must be at least one level above person generating the information product)

Pursuant to Section 515 of Public Law 106-554 (the Data Quality Act), this product has undergone a pre-dissemination review.



Signature

10/2/06

Date

SECTION 515 INFORMATION QUALITY DOCUMENTATION

I. Utility of Information Product

Explain how the information product meets the standards for utility:

A. Is the information helpful, beneficial or serviceable to the intended user?

The satellite-derived products generated by the NOAA CoastWatch, West Coast Regional Node (WCRN), offer useful information to data customers in easily accessible formats. The products are utilized by a wide range of users including members of the scientific community, managers, fishing men and women, educators,

and the interested public.

The AVHRR sensor is a 5-channel radiance sensor mounted on NOAA's Polar Operational Environmental Satellites (POES). The sensor contains 2 visible and 3 infrared channels. The radiance measured by these channels is processed to sea surface temperature (SST) for the global oceans. CoastWatch generates a temperature anomaly product by comparing the AVHRR Global Area Coverage (GAC) SST product to an established SST climatology dataset.

B. Is the data or information product an improvement over previously available information? Is it more current or detailed? Is it more useful or accessible to the public? Has it been improved based on comments from or interactions with customers?

AVHRR SST Anomaly data are made available in near real-time through the WCRN's CoastWatch Browser (<http://coastwatch.pfeg.noaa.gov/coastwatch/CWBrowser.jsp>) for the west coast of North America, the WCRN's Alaska Browser (<http://coastwatch.pfeg.noaa.gov/coastwatch/CWBrowserAK.jsp>) for Alaskan waters, the WCRN's South America Browser (<http://coastwatch.pfeg.noaa.gov/coastwatch/CWBrowserSA.jsp>) for the west coast of South America, the WCRN's Global Bloomwatch Browsers (<http://coastwatch.pfeg.noaa.gov/coastwatch/CWBrowserWW180.jsp> and <http://coastwatch.pfeg.noaa.gov/coastwatch/CWBrowserWW360.jsp>) and the Southwest Fisheries Science Center (SWFSC) Environmental Research Division's (ERD) OceanWatch Live Access Server (http://las.pfeg.noaa.gov/oceanWatch/oceanwatch_safari.php) for the global oceans. Data can be accessed using any computer with internet access and the appropriate browser. The product is also distributed via OpenDAP/DODS.

All venues for accessing CoastWatch data and images include information required to contact CoastWatch personnel. Improvements are continuously being implemented based on feedback from customers, with a focus on usability and accessibility.

C. What media are used in the dissemination of the information? Printed publications? CD-ROM? Internet? Is the product made available in a standard data format? Does it use consistent attribute naming and unit conventions to ensure that the information is accessible to a broad range of users with a variety of operating systems and data needs?

This is an internet product, distributed via simple browser, Live Access Server, and THREDDS.

The product is available in formats commonly used by imaging programs (e.g., HDF, netCDF files), GIS programs (ASCII grid), and spreadsheet programs (CSV and other simple ASCII files).

All attributes are named in a manner consistent with NOAA guidelines. All units follow System Internationale (SI) and the United Nations Educational, Scientific and Cultural Organization (UNESCO) guidelines. At the discretion of the user, data may also be

displayed and distributed in the units of measurement traditionally used by mariners and marine scientists.

II. Integrity of Information Product

Explain (Circle) how the information product meets the standards for integrity:

(A). All electronic information disseminated by NOAA adheres to the standards set out in Appendix III, _ Security of Automated Information Resources, _ OMB Circular A-130; the Computer Security Act; and the Government Information Security Reform Act.

B. If information is confidential, it is safeguarded pursuant to the Privacy Act and Titles 13, 15, and 22 of the U.S. Code (confidentiality of census, business and financial information).

C. Other/Discussion (e.g., Confidentiality of Statistics of the Magnuson-Stevens Fishery Conservation and Management Act; NOAA Administrative Order 216-100 - Protection of Confidential Fisheries Statistics; 50 CFR 229.11, Confidentiality of information collected under the Marine Mammal Protection Act.)

III. Objectivity of Information Product

(1) Indicate which of the following categories of information products apply for this product:

- Original Data
- Synthesized Products
- Interpreted Products
- Hydrometeorological, Hazardous Chemical Spill, and Space Weather Warnings, Forecasts, and Advisories
- Experimental Products
- Natural Resource Plans
- Corporate and General Information

(2) Describe how this information product meets the applicable objectivity standards. (See the DQA Documentation and Pre-Dissemination Review Guidelines for assistance and attach the appropriate completed documentation to this form.)

B. Synthesized Products

The objectivity of synthesized products is achieved by using data of known quality, applying sound analytical techniques, and reviewing the products or processes used to create them before dissemination. For synthesized products, please document the following:

Data and information sources are identified or made available upon request.

The data source for AVHRR GAC SST is identified as NOAA, National Environmental Satellite, Data, Information Service (NESDIS), Office of Satellite Data Processing and Distribution (OSDPD). Information on NOAA's POES satellites can be found at <http://www.oso.noaa.gov/poes/index.htm>. More detailed information regarding the data source and processing methods can be viewed at <http://www.osdpd.noaa.gov/PSB/PSB.html>.

The SST climatology is identified as *Casey and Cornillon, 1999*.

NOAA uses data of known quality or from sources acceptable to the relevant scientific and technical communities in order to ensure that synthesized products are valid, credible and useful.

The source data are derived by methods common to the relevant scientific and technical communities. Information on the processing of AVHRR GAC SST can be found in the Pre-Dissemination Review and Documentation Form (*Foley and Spence, 2005*). The climatological source data are generated using acceptable methods published in a peer-reviewed scientific journal (*Casey and Cornillon, 1999*).

Synthesized products are created using methods that are either published in standard methods manuals, documented in accessible formats by the dissemination office, or generally accepted by the relevant scientific and technical communities.

AVHRR GAC SST data are first generated for the specified region and time period. Anomaly values are then calculated as the difference between AVHRR GAC SST and climatological SST for the specified region and time period.

The methods employed in the mapping and composite image generation are consistent with techniques in the published literature. The data are mapped to an equal angle grid of 0.1 degrees longitude by 0.1 degrees latitude. The mapping uses simple arithmetic means to produce individual and composite images of various durations (e.g., 1, 3, 8, 14-days, and monthly), following the recommendations of the International Ocean-Colour Coordinating Group (*Antoine et al., 2004*). Graphical end products are generated using the Generic Mapping Tools software (*Wessel and Smith, 1998*).

NOAA includes the methods by which synthesized products are created when they are disseminated or makes them available upon request.

A basic description of all methods is included in the accompanying FGDC, CF, COARDS, and THREDDS ACDD-compliant metadata files. More detailed descriptions of these methods are available on-line, with links originating at the WCRN web page. A complete description of the methods, including the program code used to generate the end products from the source data, is available upon request.

NOAA reviews synthesized products or the procedures used to create them (e.g. statistical procedures, models, or other analysis tools) to ensure their validity.

These products are generated and distributed on an operational basis in near real time. In addition to the efforts WCRN takes to ensure data validity, users are cautioned these products may not be appropriate for many scientific applications. Users interested in scientific applications which are not time critical are referred to an appropriate data source, whenever one is available.

References:

Antoine, D., J. W. Campbell, R. H. Evans, W. W. Gregg, M. R. Lewis, A. Morel, C. Moulin, H. Murakami. 2004. Guide to the creation and use of Ocean-Colour, Level-3, binned data products. IOCCG Report Number 4.

Casey, K.S. and P. Cornillon. 1999. A comparison of satellite and in situ based sea surface temperature climatologies. *Journal of Climate*. Vol. 12, no. 6, 1848-1863.

Foley, D.G., and L.J. Spence. 2005. CoastWatch Advanced Very High Resolution Radiometer (AVHRR) Global Area Coverage (GAC) Sea Surface Temperature Data. Section 515 Pre-dissemination review & documentation form (5/2003). NOAA Fisheries Service, Southwest Fisheries Science Center. La Jolla, CA.

Wessel, P. and W. H. F. Smith. 1998. New, improved version of the Generic Mapping Tools released, *EOS Trans. AGU*, 79, 579.