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

AUTHOR/RESPONSIBLE OFFICE:
D.G. Foley (Coastwatch Coordinator) and LTjg. L. J. Spence* (Coastwatch Operations Officer)

* = point of contact.

TITLE/DESCRIPTION: Coastwatch Advanced Very High Resolution Radiometer (AVHRR) Global Area Coverage (GAC) Sea Surface Temperature Data

PRESENTATION/RELEASE DATE: January 1998 - ongoing

MEDIUM: Internet

PRE-DISSEMINATION REVIEW:
Name and Title of Reviewing Official: Dr. Frank Schwing
(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                     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 member of the scientific community, managers, fishers, educators, and the interested public.
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)

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D.G. Foley (Coastwatch Coordinator) and Lt. L.J. Spence* (Coastwatch Operations Officer)

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Global Area Coverage (GAC)

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Signature
Date 4/25/05

SECTION 515 INFORMATION QUALITY DOCUMENTATION

I. Utility of Information Product

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

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accessible formats. The products are utilized by a wide range of users, including
member of the scientific community, managers, fishers, 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 surface temperature.

The Tagging of Pacific Pelagics (TOPP) program is an international collaborative program between scientists with a goal of better understanding the migration patterns of animals in the open ocean. Satellite tags placed by TOPP relay the location of the tagged animal, as well as other environmental information. The TOPP program uses 8-day composite images of AVHRR SST to optimize efforts at deploying the tags and also in their analysis of the tracks of tagged marine animals. AVHRR Global SST provides quality data for the area of interest in a timely manner. AVHRR SST is displayed alongside animal tracking data on the TOPP data distribution website (SWFSC Environmental Research Division’s Live Access Server: http://las.pfeg.noaa.gov/TOPP_recent/index.html).

The El Niño Watch is a monthly production of the West Coast Regional Node. It was started in January, 1992, in response to the onset of El Niño conditions in the equatorial Pacific. One of the main El Niño indicators for the U.S. west coast is the presence of warmer than average surface water. This report is utilized in federally mandated management programs of west coast fisheries. AVHRR GAC SST is the primary data source for these reports. The El Niño Watch can be viewed at http://coastwatch.pfeg.noaa.gov/elnino.html.

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 GAC SST data is made available through the SWFSC ERD's website, OceanWatch Live Access Server (http://las.pfeg.noaa.gov/OceanWatch.html), and 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 OpenDAP/DODS.

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
II. Integrity of Information Product

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


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 is identified as NOAA, National Environmental Satellite, Data, Information Service (NESDIS), Office of Satellite Data Processing and Distribution (OSDPPD). Information on NOAA’s POES satellites can be found at [http://www.oso.noaa.gov/poes/index.htm](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](http://www.osdpd.noaa.gov/PSB/PSB.html).

**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. The AVHRR instrument stores a sub-sample of its measurements onboard and downloads these to receiving stations. Because data is sub-sampled, the resolution is reduced to 4km for the Global Area Coverage compared to 1.1km resolution in areas capable of receiving a high resolution picture transmission (HRPT) stream. Processing of the data to level 2 is accomplished by NESDIS, OSDPD. The primary users of this near real time AVHRR data are the National Center for Environmental Prediction (NCEP), the National Climate Data Center (NCDC), and the Coral Reef Watch Program, which utilizes the global SST data for the monitoring and assessment of coral bleaching. ([Strong et al., 1997, and Strong et al. 2000](#))

The calculation of surface temperatures from the AVHRR spectral channels uses a non-linear sea surface temperature algorithm (NLSST) following the methods of [Walton et al., 1998](#). The cloud screening uses the CLAVR-x method developed and maintained by NOAA Satellites and Information (e.g., [Stowe et al., 1999](#)). Ongoing calibration and validation efforts by NOAA Satellites and Information provide for continuity of quality assessment and assurance of algorithm integrity (e.g., [Li et al., 2001a and Li et al., 2001b](#)).

**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.**

The methods employed in the mapping and composite image generation are consistent with techniques in the published literature. The most conservative cloud mask ([Stowe et al. 1999](#)) is applied to the surface temperature data. The data are mapped to an equal angle grid (0.1 degrees longitude by 0.1 degrees latitude) using a simple arithmetic mean to produce individual and composite images of various durations (e.g., 1, 3, 8, and 14-days), following the recommendations of the International Ocean-Colour Coordinating Group ([Antoine et al., 2004](#)) and using methods described by [Smith and Wessel, 1990](#). Graphical end products are generated using the Generic Mapping Tools software ([Wessel and Smith, 1998](#)). Digital data, including the cloud mask and unmasked surface temperatures, are made available via Live Access Server and OpenDAP/DODS.
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-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 data supplied by NESDIS, 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.

The WCRN runs monthly validation tests for all SST data streams using data from the NOAA National Weather Service, National Data Buoy Center, after the method of Li et al. 2001b. The comparisons between SST derived from buoys and various satellites platforms are made available upon request. 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:


