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# SATELLITE OCEANOGRAPHY AT THE NOAA NATIONAL OCEANOGRAPHIC DATA CENTER: A NEW GENERATION OF HIGH QUALITY LONG-TERM CLIMATE DATA RECORDS AND ENHANCED USER ACCESS

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The mission of the NODC's Satellite Oceanography Group is to provide scientific stewardship of satellite-based oceanographic data by developing climate data records and assisting in applying them toward societal benefits. Of sufficient resolution for coastal applications, these data provide resource managers and researchers with enhanced tools for understanding changing environmental conditions. Existing web-accessible data of interest to coastal communities include the international Group for High Resolution Sea Surface Temperature (GHRSST) data, global 4 km AVHRR Pathfinder SST, and the Coral Reef Temperature Anomaly Database (CoRTAD). Recently, the latest satellite altimeter data from the Jason-2 Ocean Surface Topography Mission (OSTM) joined the NODC collection. These and other datasets on the horizon are opening up new possibilities for coastal communities attempting to understand their changing marine environments.

GHRSST was established to develop an operational demonstration system for delivering a new generation of global coverage high-resolution (better than10 km) SST data products in both real-time (~ 6 hourly) and delayed mode. GHRSST data products include Level 2 satellite datasets from individual sensors as well as Level 4 combined satellite and *in situ* observations from multiple sensors. These Level 4 products provide consistent, gap-free regional SSTs at 2 km resolution and several global gap-free products at 5 to 25 km resolution. Many of the individual Level 2 data sets include global coverage 1 km data, though gaps from clouds exist.

In this Pathfinder project, the AVHRR time series has been reprocessed at the 4 km Global Area Coverage (GAC) level, the highest resolution possible globally. Twice-daily SST and related parameters back to1985 have been produced, as well as temporal averages for 5-day, 7-day, 8-day, monthly, and yearly periods. The CoRTAD is a large database of SST and derived thermal stress metrics built using the Pathfinder dataset. Originally developed for coral reef ecosystem studies, the CoRTAD has been applied to a range of climate-ecosystem interaction studies.

The OSTM provides radar altimeter measurements of sea surface height used in studies of ocean circulation and sea level rise. Wind and wave information is also available from the sensor. NODC is implementing a quality monitoring system known as the Rich Inventory which will track multiple statistics and attributes for twenty-two Jason-2 parameters, and make the results available to current and future users via a web interface in both graphical and numerical representations. While altimeter data has not been previously used widely in coastal applications, recent developments by the altimeter science community are enabling accurate observations of sea level and sea state within 5-10 km of the coast.

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