

A High-Resolution Decision Support System for Ecosystem-Based Management of Tropical Coral Reef Environments

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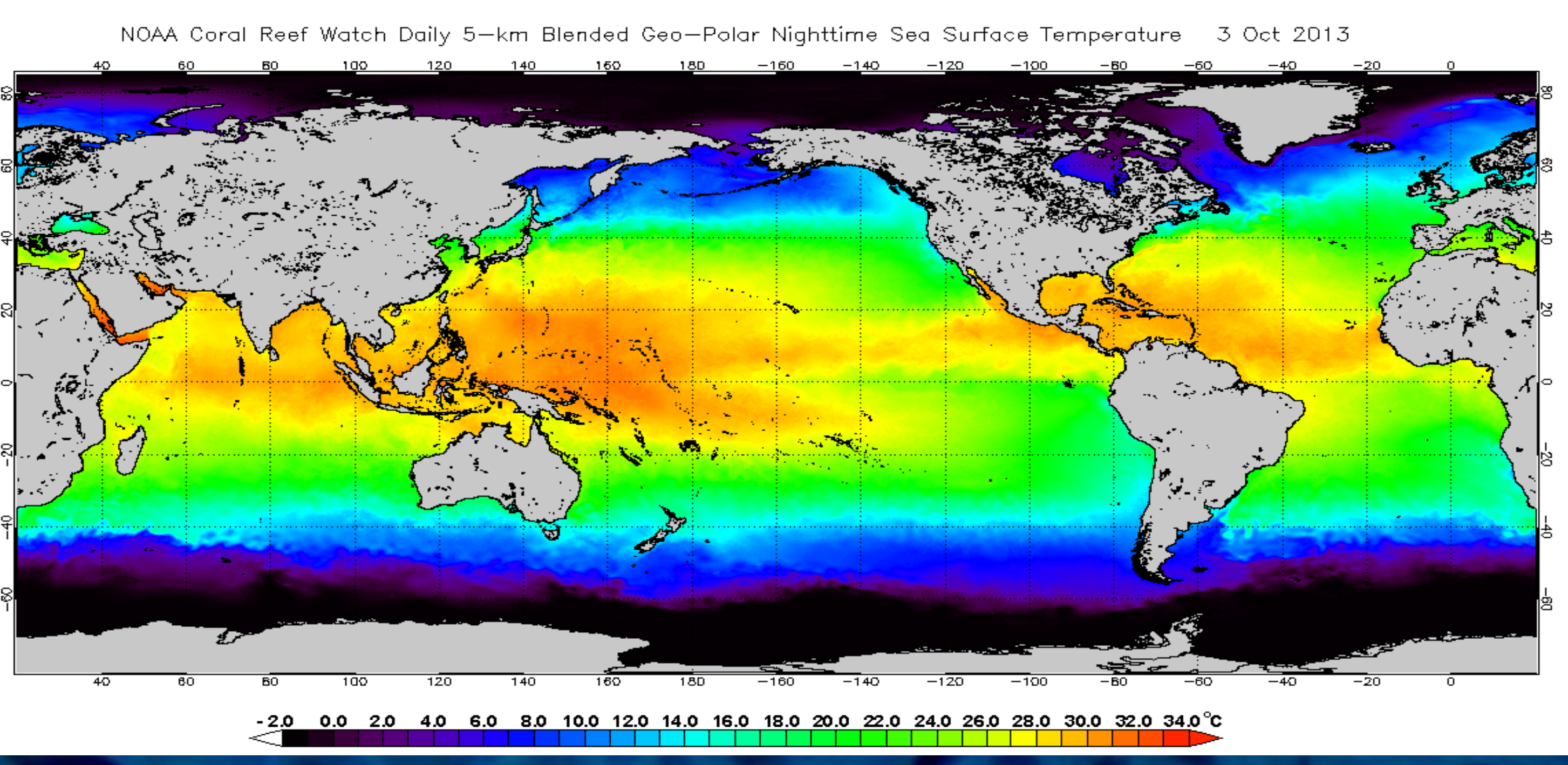
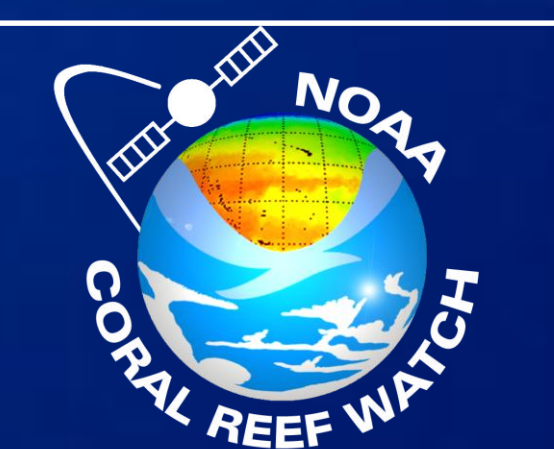


Through NASA Applied Science funding, the University of South Florida, NOAA Coral Reef Watch (CRW), NASA Ames, and the University of Colorado developed a next-generation near-real-time satellite decision support system to monitor conditions leading to coral bleaching. New products transition the CRW global system from 50-km to 5-km resolution, with 100 X greater spatial resolution and 25-100 X greater data density per pixel. These products are moving toward operational status at NOAA/NESDIS and are already being applied by resource managers. Regional 1-km products are being run at USF and CONABIO for regional applications.

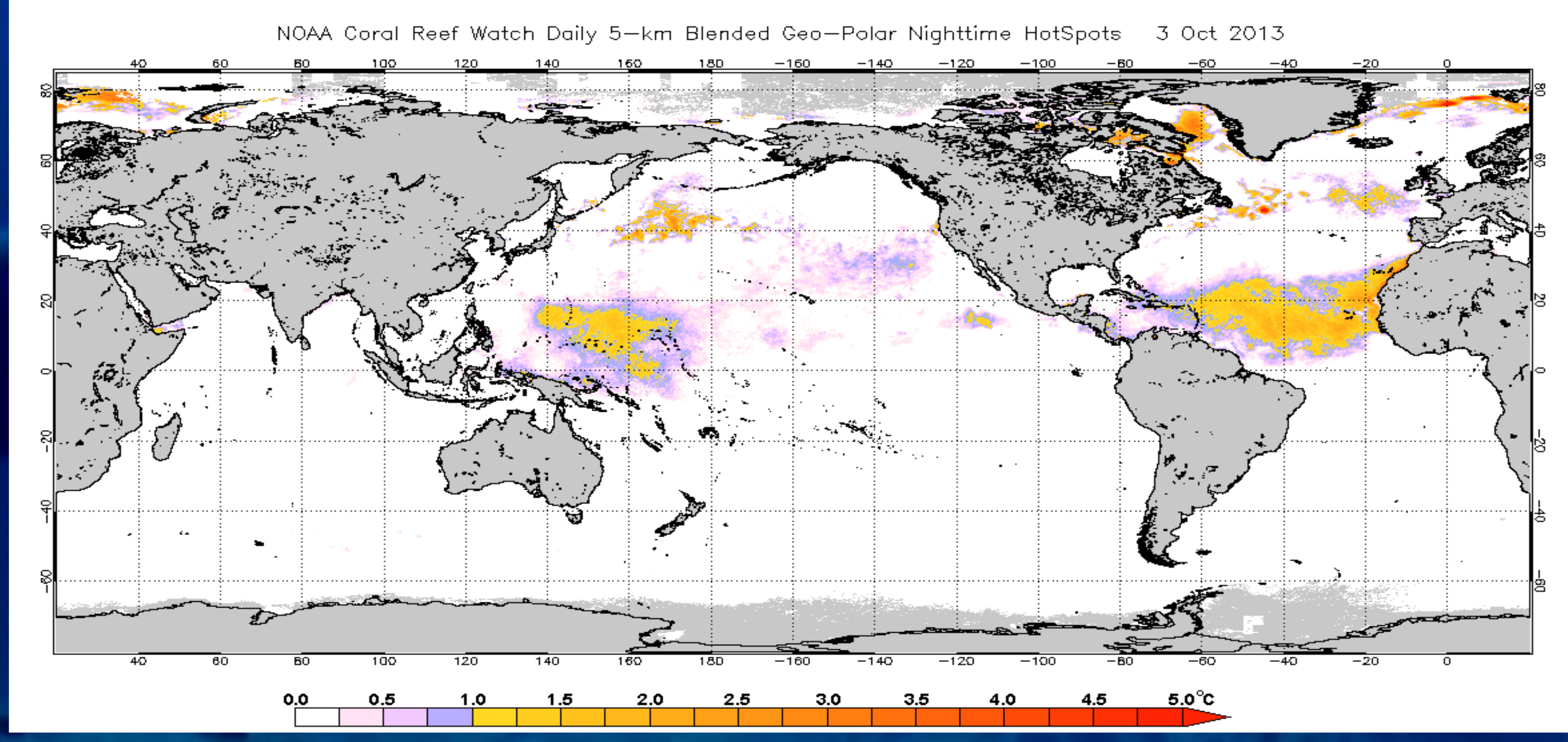
New Coral Reef Watch 5-km Early Warning System for Mass Coral Bleaching Events

(Current system: 50-km, twice-weekly; Next-generation system: 5-km, daily)

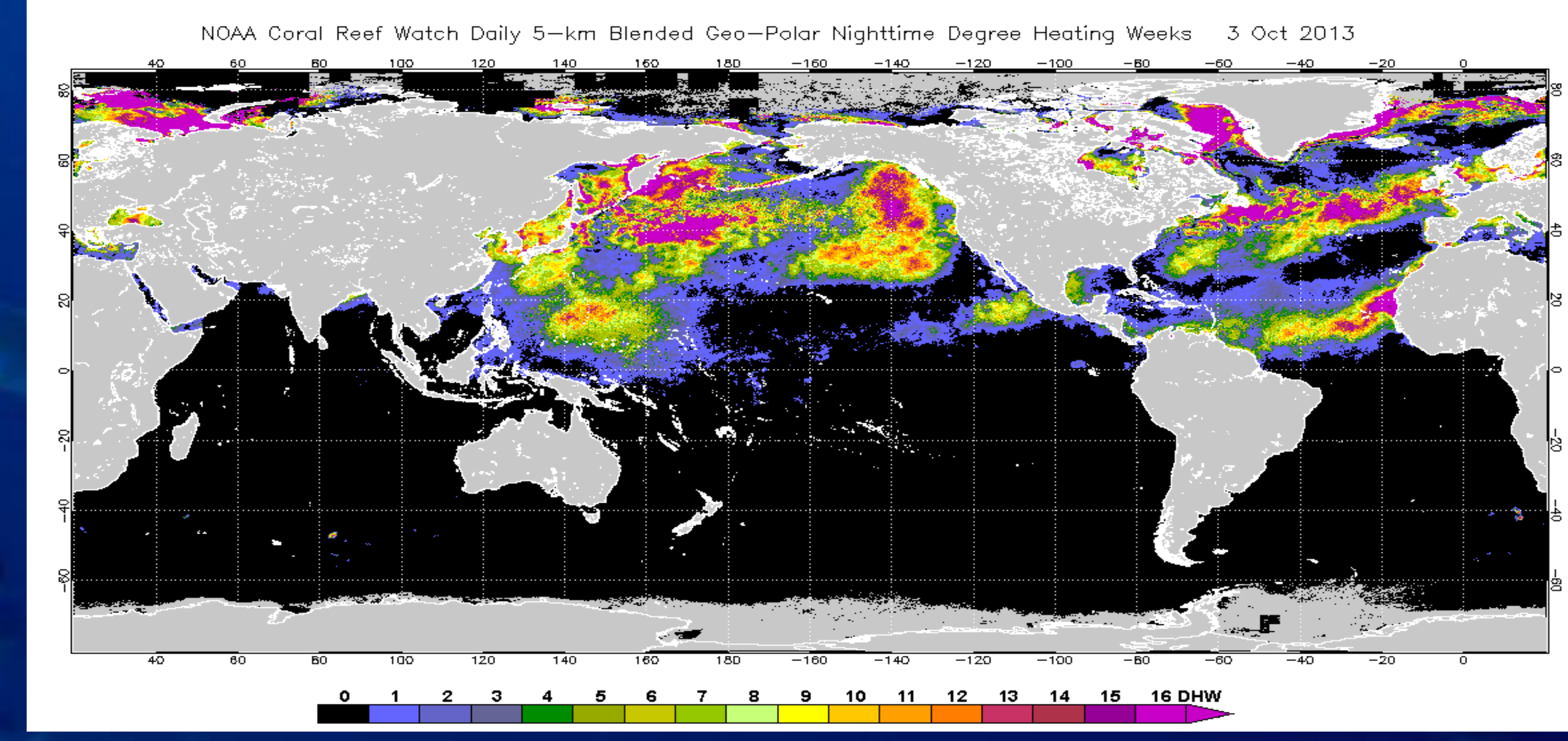
<http://coralreefwatch.noaa.gov/satellite/bleaching5km>



SST

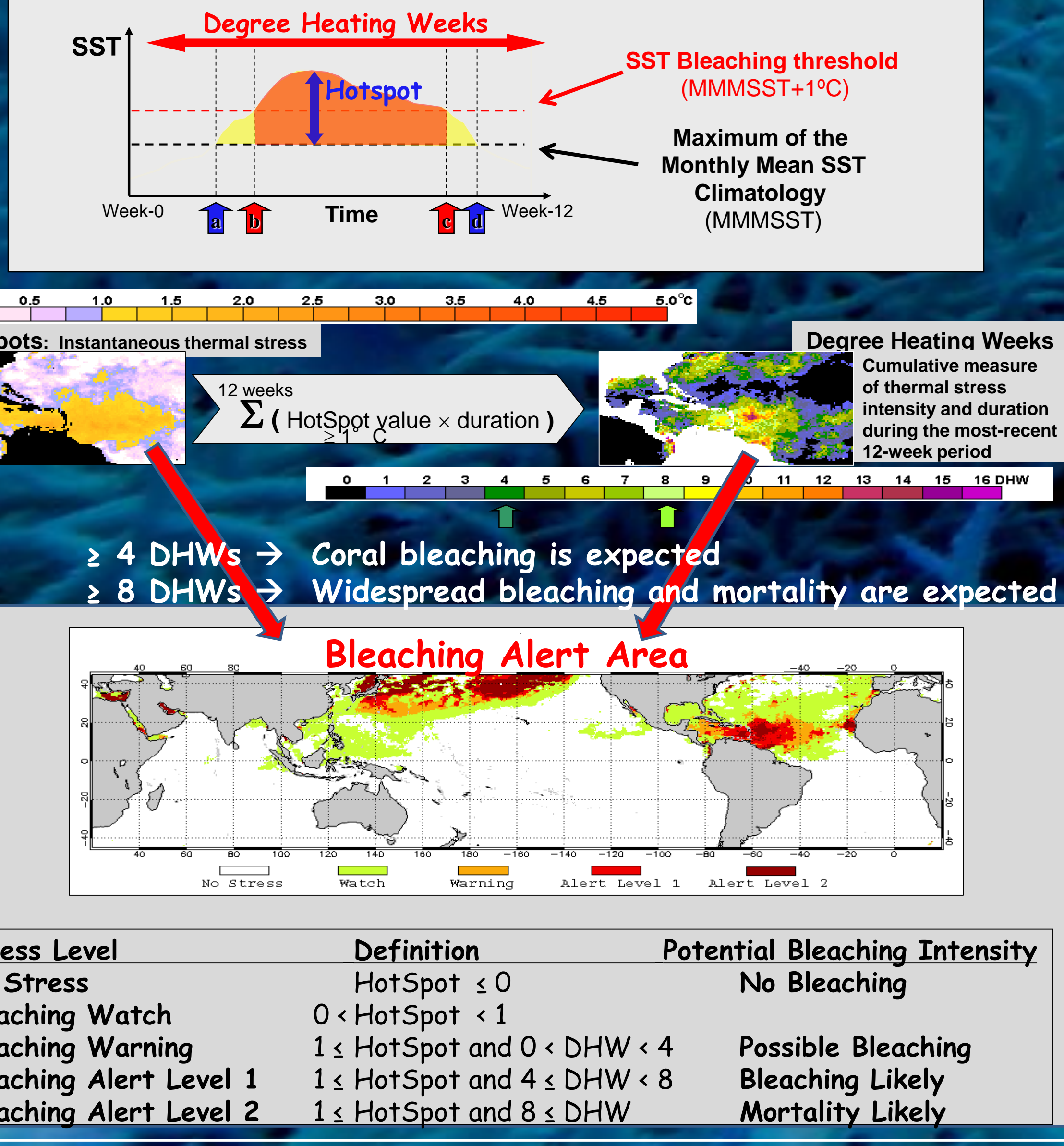


HotSpots

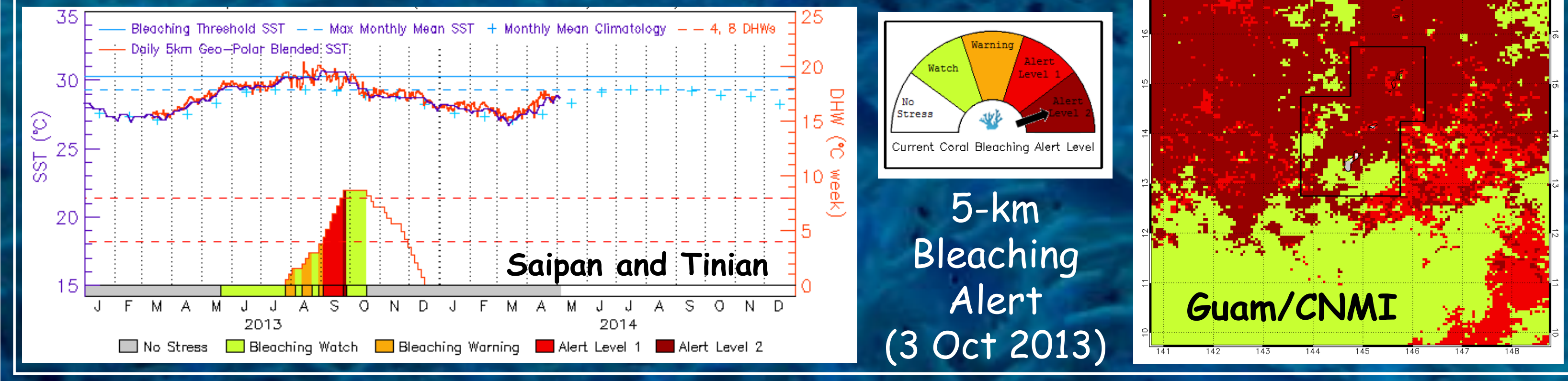


Degree Heating Weeks

All products based on CRW Satellite Bleaching Thermal Stress Algorithms



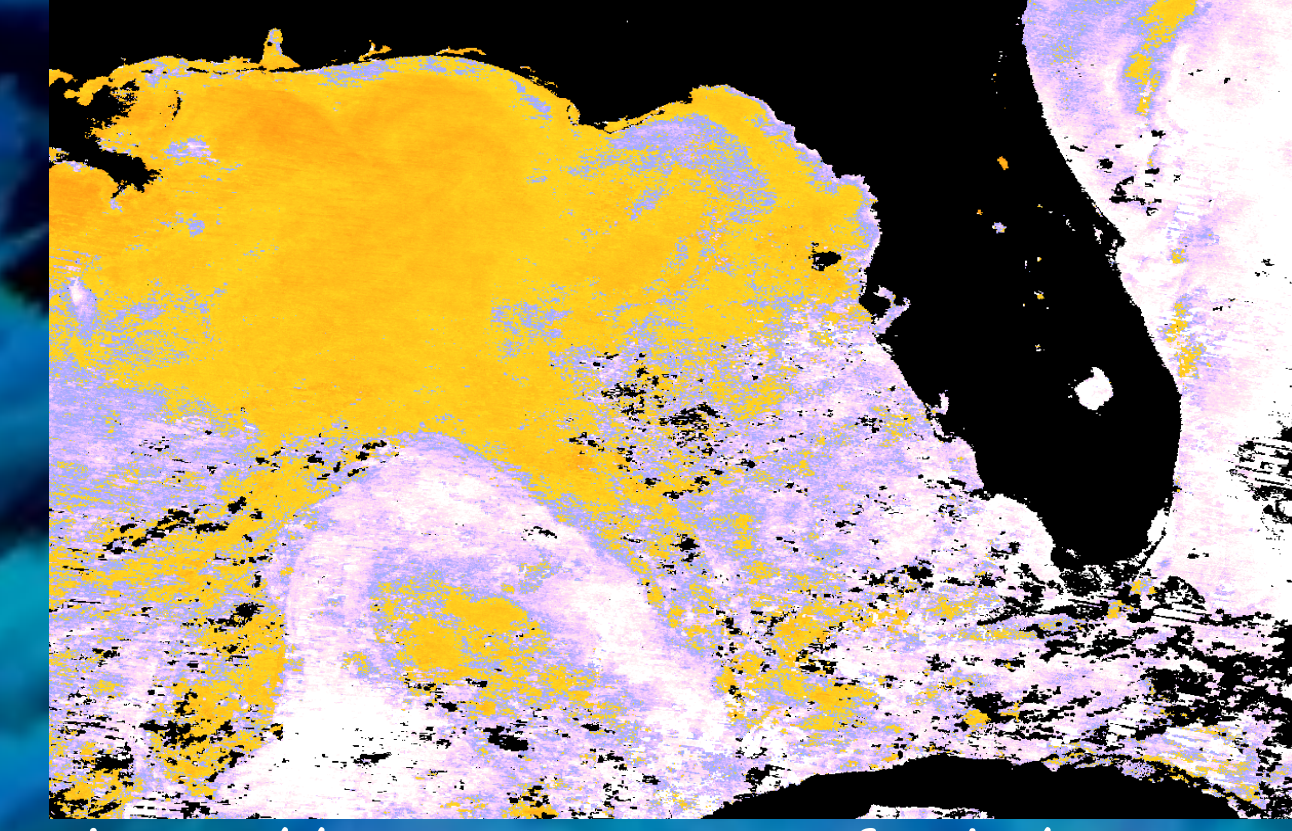
New 5-km CRW products providing new perspective on bleaching near reef scale



CONABIO (Mexico) has already adopted new 1-km USF products from MODIS for monitoring thermal stress

USF 1-km HotSpot for the West Florida Shelf

CONABIO 1-km SST for the western Caribbean



New high-resolution products meeting #1 need identified in user surveys - higher resolution

Florida users have already adopted the new 5-km CRW products to direct coral bleaching monitoring activities

http://www.dep.state.fl.us/coastal/programs/coral/bleach_watch.htm

Florida Department of Environment
Coral Reef Conservation Program
SEAFAN BleachWatch
Current Conditions Report
September 4, 2013

Summary: Based on climate predictions and field observations, the threat for mass coral bleaching within the FKNM remains LOW.

Environmental Monitoring

According to NOAA's Coral Reef Watch (CRW) satellite imagery products, the Florida Keys National Marine Sanctuary (FKNM) is experiencing a low level of thermal stress.

Figure 1. NOAA CRW Experimental 5 km Daily Geo-Polar Night Blended Bleaching Alert Area (a) and NOAA CRW Operational Satellite Bleaching Alert Area (b) for September 2, 2013.

(a) <http://coralreefwatch.noaa.gov/satellite/bleaching5km> (b) <http://coralreefwatch.noaa.gov/satellite/bleaching5km>

Mote Marine Laboratory / Florida Keys National Marine Sanctuary
Coral Bleaching Early Warning Network
Current Conditions Report #20130903
Updated September 3, 2013

Summary: Based on climate predictions, current conditions, and field observations, the threat for mass coral bleaching within the FKNM remains LOW.

NOAA Coral Reef Watch Coral Bleaching Alert Area
September 1, 2013 (experimental)

Figure 1. NOAA's 5 km Experimental Coral Bleaching Alert Area for September 1, 2013.

Figure 2. NOAA's Experimental 5 km Experimental Coral Bleaching Alert Area for September 1, 2013.

Figure 3. NOAA's Experimental 5 km Experimental Coral Bleaching Alert Area for September 1, 2013.

Weather and Sea Temperatures

According to the latest NOAA Coral Reef Watch (CRW) experimental 5 km Daily Geo-Polar Night Blended Bleaching Alert Area (a) and NOAA CRW Operational Satellite Bleaching Alert Area (b) for September 2, 2013.

(a) <http://coralreefwatch.noaa.gov/satellite/bleaching5km> (b) <http://coralreefwatch.noaa.gov/satellite/bleaching5km>

<http://isurus.mote.org/Keys/bleaching.phtml>



Coral Reef Watch: a NOAA/NESDIS program, funded predominantly by the NOAA Coral Reef Conservation Program

<http://coralreefwatch.noaa.gov>
The only satellite-based system available for U.S. and global coral reef management

