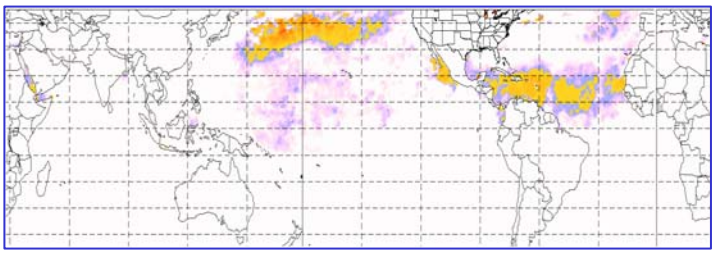
NOAA Coral Reef Watch
Satellite Monitoring for Coral Reefs

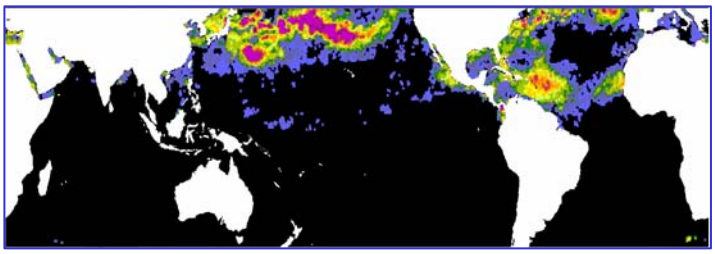
The NOAA Coral Reef Watch (CRW) satellite program produces near-real-time, Web-accessible Sea Surface Temperature (SST) products, which monitor for conditions conducive to coral bleaching around the globe. Our data provide current reef environmental conditions to quickly identify areas at risk, as well as archived information and retrospective analyses to be used for reef management, scientific research, and monitoring our changing climate.

Near-Real-Time Data Products



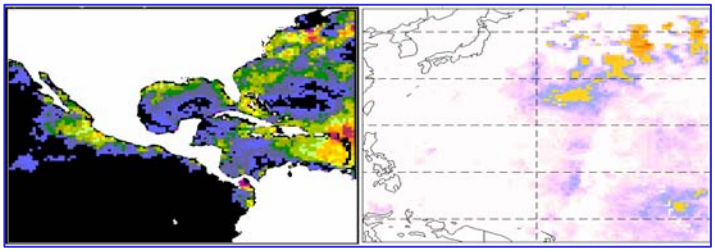
HotSpot Charts

This map shows areas of thermal stress (anomalously high SSTs) conducive to coral bleaching. The scale shows the intensity of the stress; areas at risk for bleaching are shown in orange and red colorations.



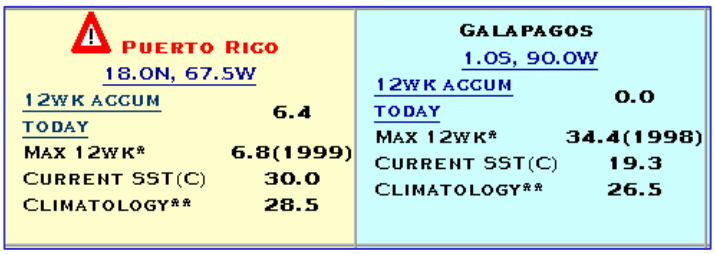
Degree Heating Weeks (DHW) Charts

This depicts the cumulative thermal stress experienced by an area over the last 12 weeks. Orange to purple indicates persistently high SST, where reefs may be experiencing severe bleaching.



Regional Charts

Besides looking at global temperature patterns, users can also focus in to see more detail for a specific area.



PUERTO RICO
18.0N, 67.5W

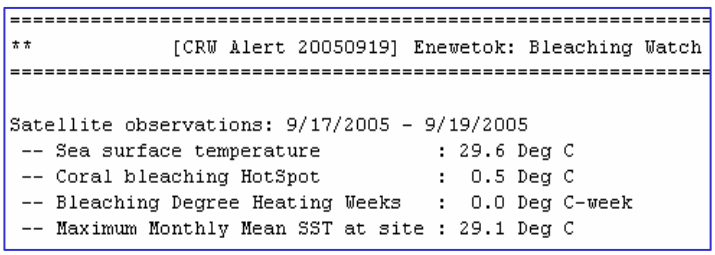
12WK ACCUM TODAY	6.4
MAX 12WK*	6.8(1999)
CURRENT SST(C)	30.0
CLIMATOLOGY**	28.5

GALAPAGOS
1.0S, 90.0W

12WK ACCUM TODAY	0.0
MAX 12WK*	34.4(1998)
CURRENT SST(C)	19.3
CLIMATOLOGY**	26.5

Bleaching Indices

This chart gives detailed, near-real-time data for selected reef sites around the globe. These data include current DHWs, maximum DHWs, current SST, maximum SST climatology, and time series charts.



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**            [CRW Alert 20050919] Enewetok: Bleaching Watch
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Satellite observations: 9/17/2005 - 9/19/2005
 -- Sea surface temperature          : 29.6 Deg C
 -- Coral bleaching HotSpot          :  0.5 Deg C
 -- Bleaching Degree Heating Weeks   :  0.0 Deg C-week
 -- Maximum Monthly Mean SST at site : 29.1 Deg C
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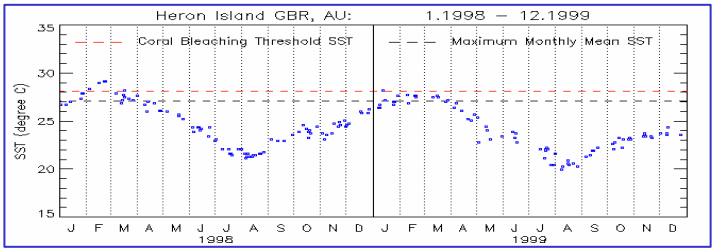
Satellite Bleaching Alert (SBA) System

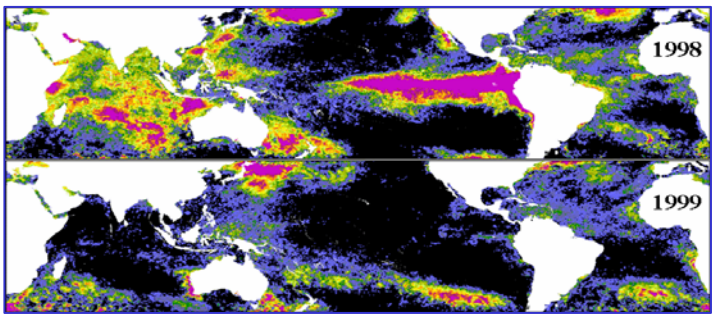
CRW recently developed an automated alert system that monitors the status of thermal stress at selected reef sites, and issues e-mail bleaching alerts. Reef conditions are assessed twice-weekly.

Retrospective Data



Time Series

Reprocessed satellite SSTs, like NOAA/ NASA Pathfinder data, have been used to produce retrospective time series data for selected global coral reef sites.



Global Analyses

These composite charts show maximum DHW values for a calendar year, for example. Clear differences can be seen between global temperature patterns in 1998 and 1999.

About Coral Reef Watch

The mission of NOAA's Coral Reef Watch satellite work is to develop integrated remote-sensing products for near-real-time and long-term monitoring, modeling, and reporting of environmental conditions on coral reef ecosystems. Spanning from research to operations, Coral Reef Watch incorporates paleo, *in situ*, and satellite biophysical data to provide information tools and expertise to managers, researchers, and stakeholders.

The Coral Reef Watch program is an important component of a coordinated NOAA Coral Reef Conservation Program: a partnership that includes parts of NESDIS, the National Ocean Service (NOS), the Office of Oceanic and Atmospheric Research (OAR), and the National Marine Fisheries Service (NMFS).

Linking coral reef conservation with satellite technology

Coral reefs are one of the most diverse ecosystems in the world, supporting essential coastal fisheries, offering potential medicines, protecting coasts from erosion, and supporting coastal tourism industries. Recent literature has shown that sustained high water temperatures, in conjunction with other natural and human-based stressors, could cause coral bleaching to become an annual event in most oceans. This could lead to a rapid decline in the health of coral reef ecosystems worldwide.

Constant SST monitoring at global scales can provide researchers and stakeholders with tools to understand and better manage the complex interactions leading to coral bleaching. We hope that our data products can assist in the coral's recovery and help promote wise management decisions.

Our future direction

The Coral Reef Watch operational product suite is constantly improving. In the near future, we hope to increase the resolution of our current data products, add more reef sites to the Satellite Bleaching Alert system, and expand into forecasting and paleoclimatic data.

Access our data products on-line at:
http://coralreefwatch.noaa.gov/satellite

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