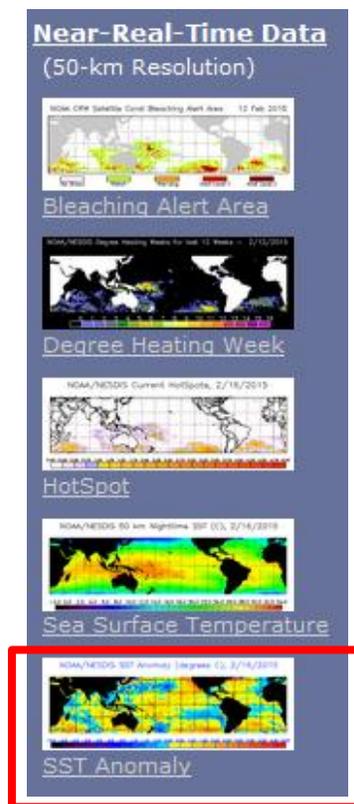


The goal of these hands-on exercises is to reinforce the concepts taught in the online tutorial, using simple examples, and to familiarize users with our website so they will know where to find each of the products. For each exercise, please follow along, starting from the main page of the NOAA Coral Reef Watch (CRW) website: <http://coralreefwatch.noaa.gov/satellite/>.

SST Anomaly product exercises

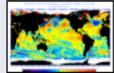
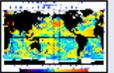
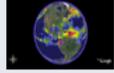
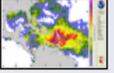
3. For the Caribbean image, November 1, 2007, which areas were anomalously warm/cool?

a. Return to CRW's 50-km homepage, and click on **SST Anomaly** in the left-hand navigation bar.



b. This takes you to the page for the current year of the 50-km SST Anomaly product. The latest image is at the top, and a table of archived images is below. Click on **Image Archives**.

Data Formats Available

 <p>Image Archives Regional imagery and image archives from OSDPD.</p>	 <p>Animations Data animations and downloadable animated GIF files from OSDPD.</p>
 <p>Google Earth All of our satellite data products are available on Google Earth.</p>	 <p>HDF data files Raw data in Hierarchical Data Format (HDF), with free NOAA viewing software.</p>
 <p>Virtual Stations Imagery, graphs, ASCII data, and e-mail alerts for reef pixels around the world.</p>	

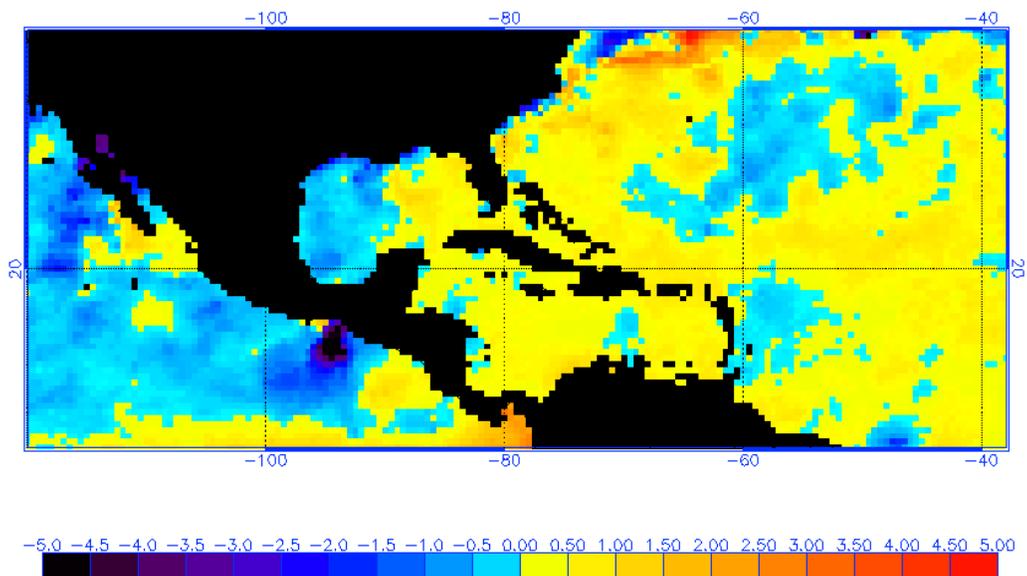
c. Scroll to the bottom of the page to locate the 2007 archived anomalies.

- [2013 Anomalies](#)
- [2012 Anomalies](#)
- [2011 Anomalies](#)
- [2010 Anomalies](#)
- [2009 Anomalies](#)
- [2008 Anomalies](#)
- [2007 Anomalies](#)
- [2006 Anomalies](#)
- [2005 Anomalies](#)
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- [2002 Anomalies](#)
- [2001 Anomalies](#)
- [2000 Anomalies](#)
- [1999 Anomalies](#)
- [1998 Anomalies](#)
- [1997 Anomalies](#)
- [1996 Anomalies](#)

d. There will be an image at the top of the page, with an archive table below. Scroll down in the table to find November 1; then click on **Caribbean**.

November	1	5
	Caribbean	Caribbean
	E.Hemi	E.Hemi
	Global	Global
	Full Global	Full Global
	Pacific	Pacific
	W.Hemi	W.Hemi

NOAA/NESDIS SST Anomaly (degrees C), 11/1/2007



e. Which areas are warmer than the long-term mean? Which areas are cooler? (*See #3 on the answer sheet.*)

4. Compare the global 50-km SST Anomaly on May 5, 1998, to the 50-km SST Anomaly one year later. What change do you see in the global anomaly patterns? What might have caused this change?

a. Navigate back to the 2007 SST Anomalies page; then scroll down below the archive table until you see other years. Click on **1998 Anomalies**.

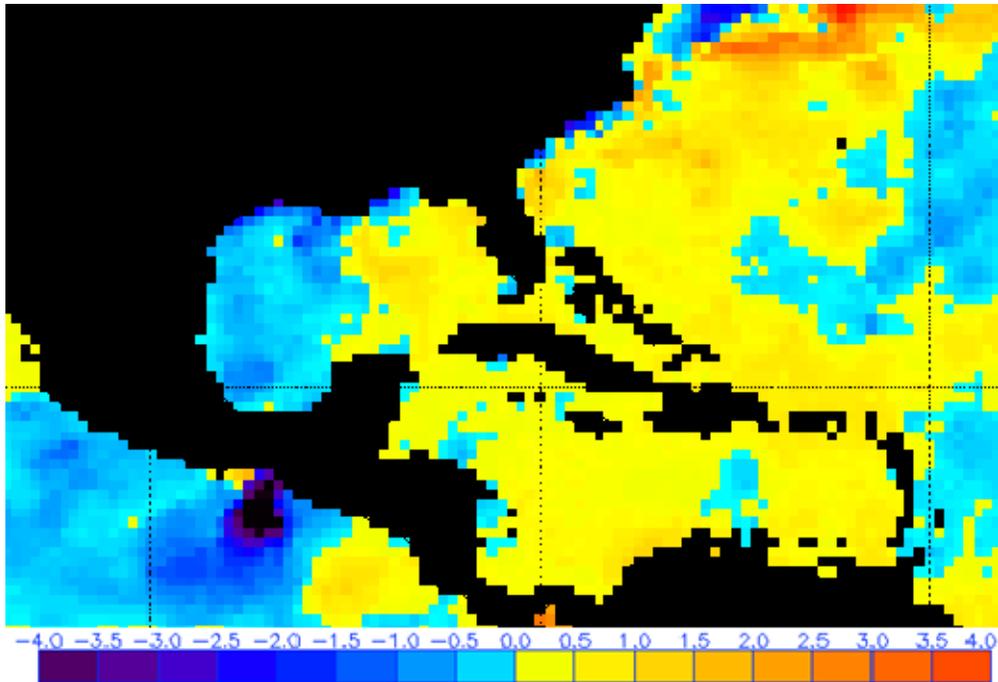
b. This takes you to the archive page for 1998. Right-click on the link for May 5, and open the image into a new browser window or tab.

c. Now go to the 50-km SST Anomaly archive page for 1999. Right-click on the link for May 4, and open the image in a new browser window or tab.

d. Compare these two global images, one year apart. What changes do you see in the 50-km SST Anomaly patterns? What might have caused these changes? (*#4 on the answer sheet*)

SST ANOMALY PRODUCT ANSWER SHEET

3. Areas in yellow to orange are above the long-term mean for November 1, 2007 in the Caribbean region. Parts of the Gulf Stream current, east of the US coastline, are the furthest above the mean, but all of the central Caribbean and eastern Gulf of Mexico are above average. The western Gulf of Mexico is cooler than the mean. In addition, there is a small area off the Mexican west coast that is more than 3.5°C below the mean. This is probably due to an upwelling of cold, deep water.



4. Almost everywhere that was warmer than the mean in May 1998 was cooler than the mean in May 1999. This is especially evident along the equator in the Pacific: a huge warm anomaly that was present in 1998 switched to being cooler-than-average one year later. The anomalous warmth in the equatorial Pacific is characteristic of an El Niño period; in fact, 1998 was one of the strongest El Niños on record. This pattern causes many areas of the world's tropical oceans to be warmer than average. By 1999, the equatorial Pacific had switched to being cooler than average, which is characteristic of a La Niña. This pattern causes many other areas to be cooler than normal also, but it does lead to above-average temperatures in some areas of the tropics. This period caused the worst global episode of coral bleaching on record to that point. It is estimated that 16% of the world's coral reefs died during the 1998 El Niño/1999 La Niña event.

