

NERP

Torres Strait / GBR environmental conditions report:

Recent status and predictions

09 March 2012

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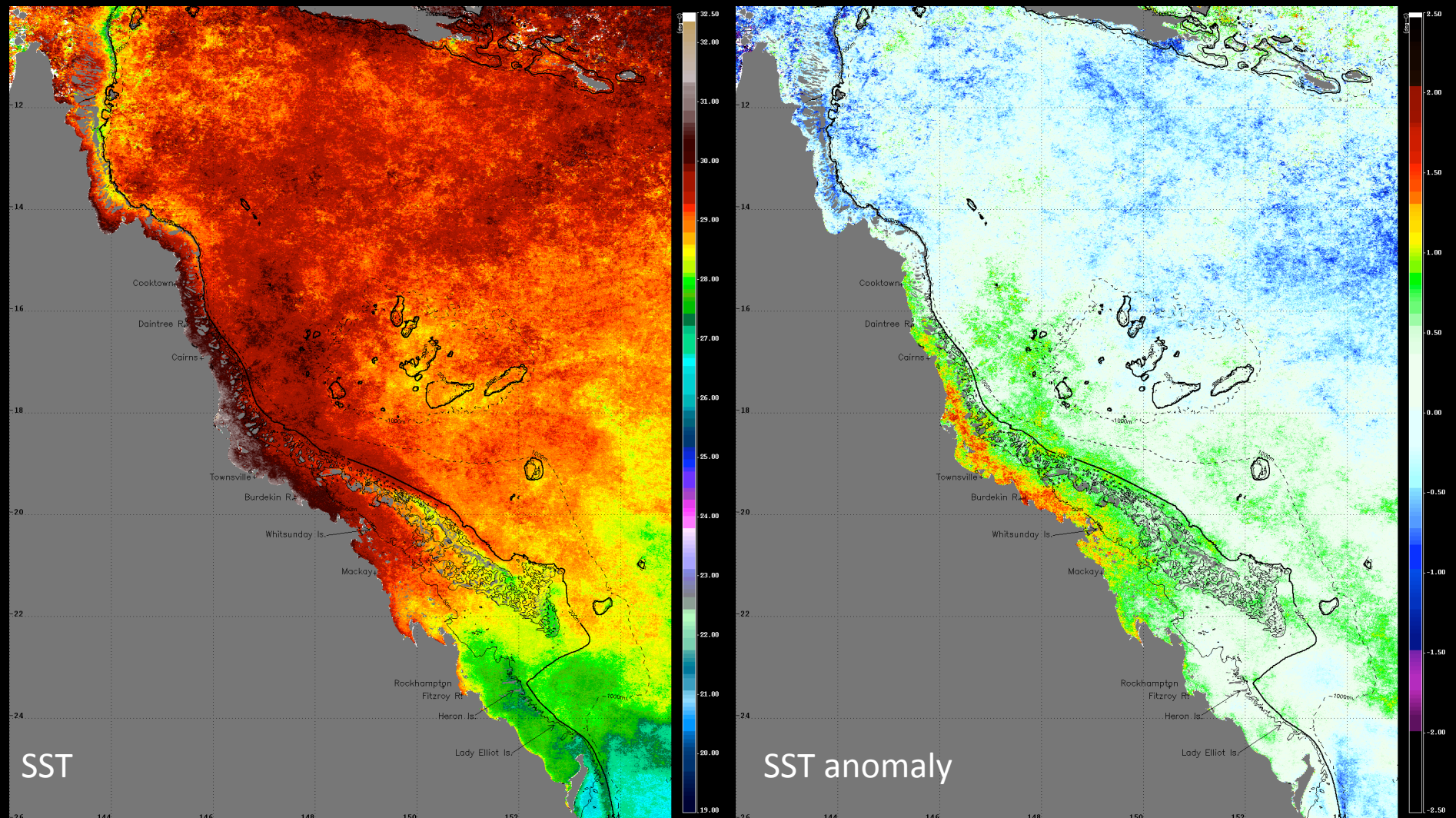
Outline

- Overview
- Recent SST and in situ Temperature evolution
- GBR SST forecast (POAMA)
- Coral Bleaching Outlook (NOAA:CRW)
- Surface conditions in the tropical Pacific
- ENSO evolution and predictions

Overview

- Strong positive SST anomalies present on the central GBR reefs
- Forecast of close to neutral SST anomalies along the GBR for the upcoming months.
- No bleaching alert for most of the GBR, but alert level 1 around the PNG and Torres Strait area.
- La Niña weakened in the Pacific and expected neutral conditions on the following months

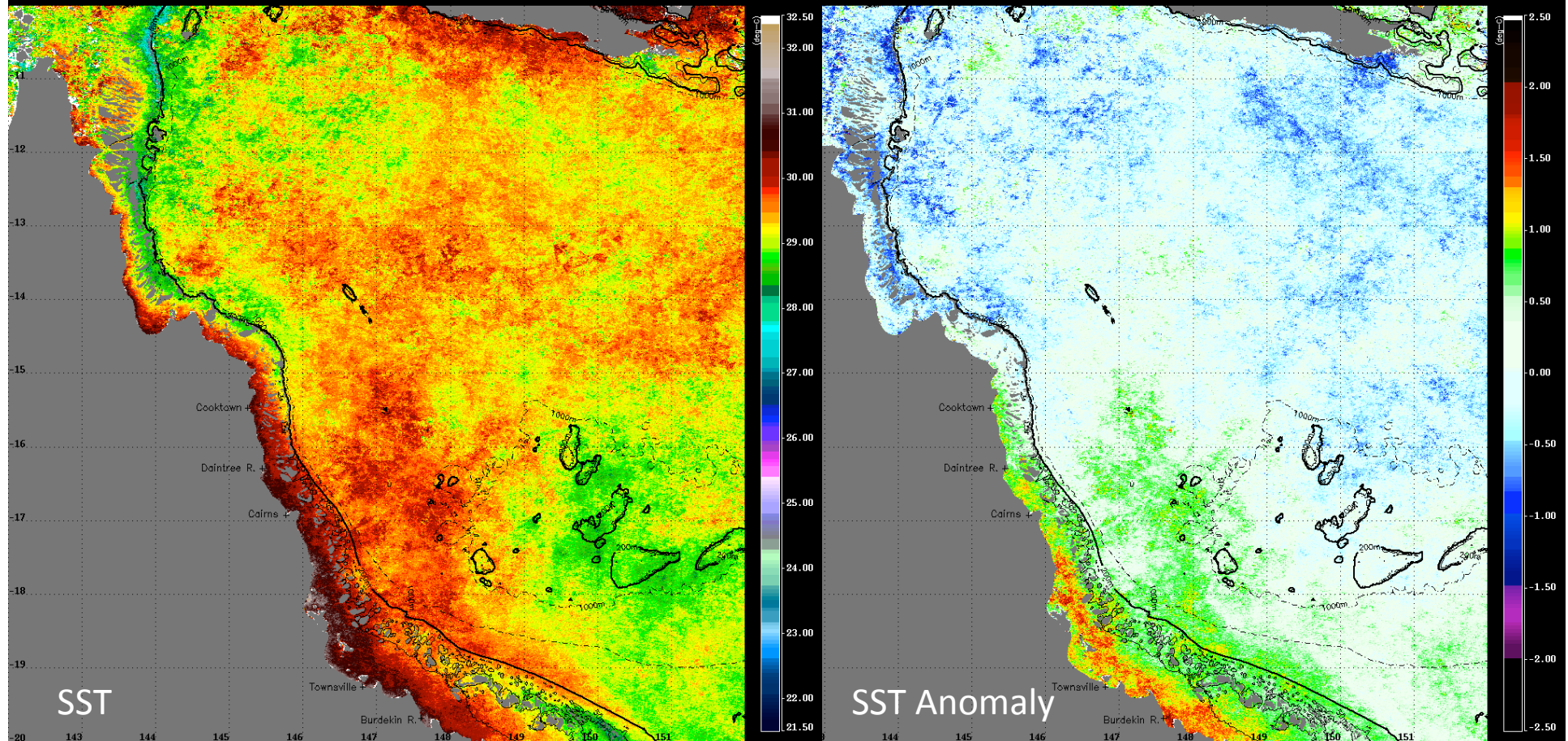
Modis SST (day+night): February 2012



Note:

- Pronounced positive anomalies in the central GBR region (inshore mostly) during February
- The strong negative anomalies in the southern GBR in January have dissipated
- Due to cloud contamination, especially north of ~18S, the monthly mean is not indicative of mean conditions for the full month so caution should be applied in interpretation of the monthly anomalies.

Torres Strait / northern GBR MODIS SST: February 2012

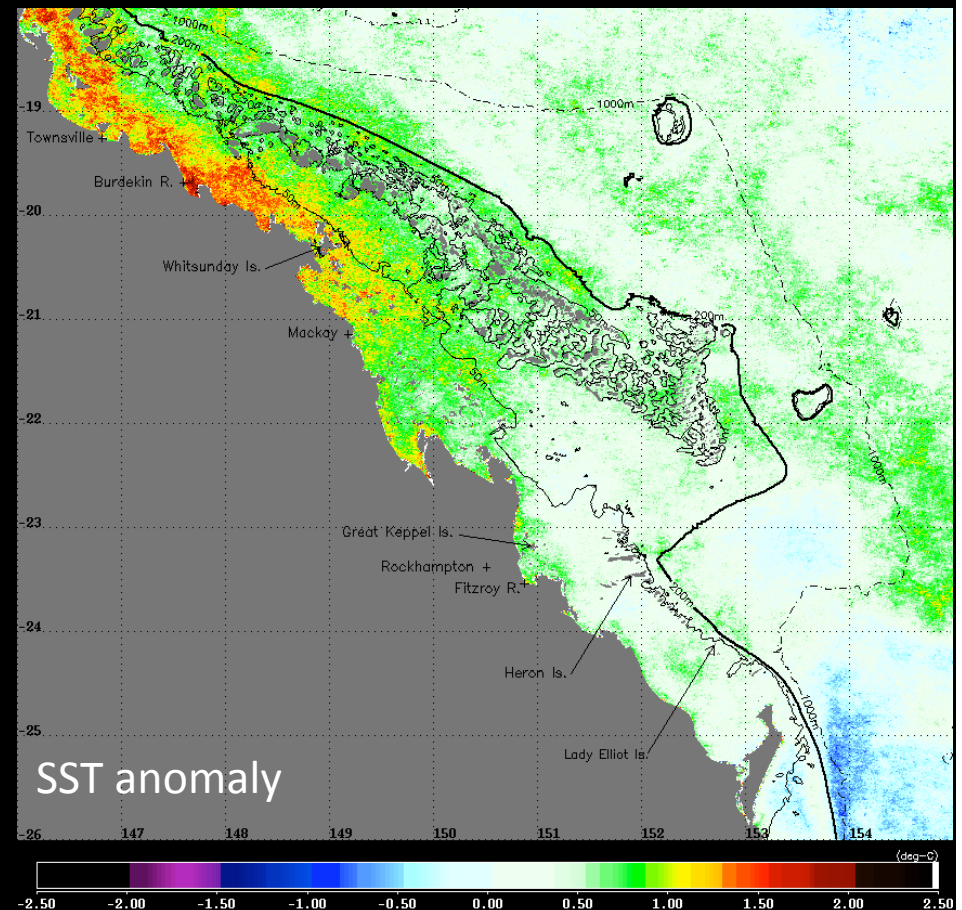
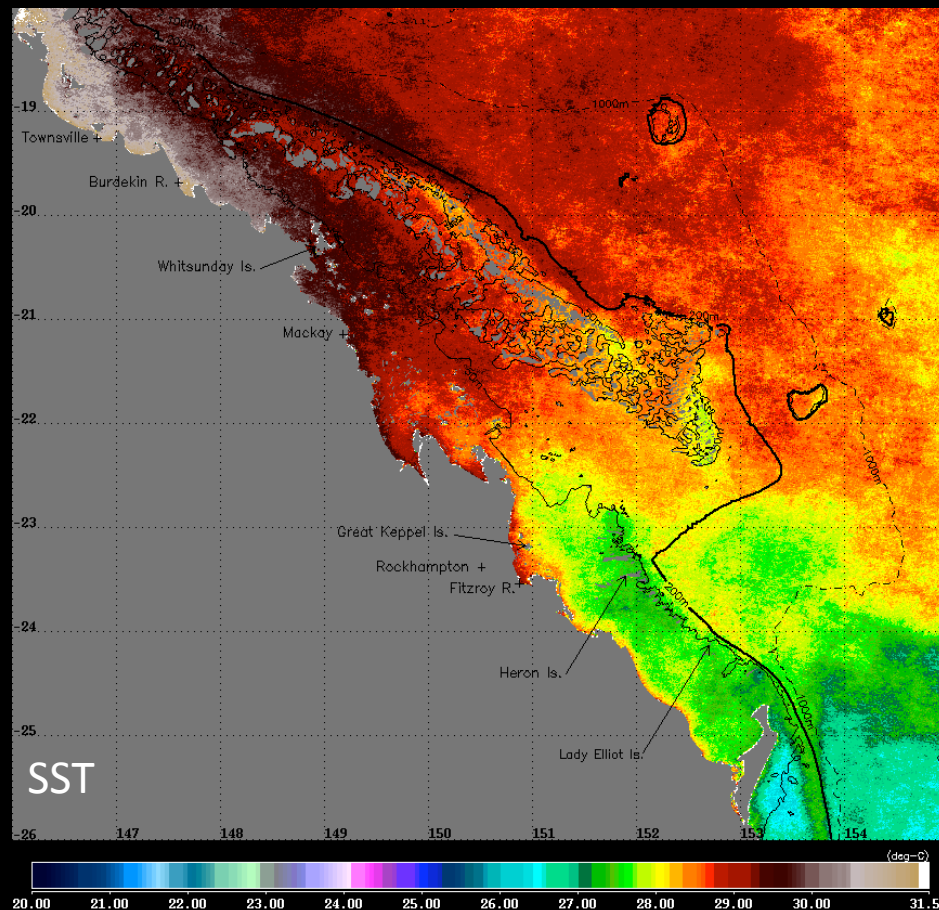


Note:

(SST scale adjusted for N-GBR)

- Strong positive anomalies present south of ~18°S during the month of February
- Notable cloud contamination in the Torres Strait/N-GBR during February, limiting the representation of accurate monthly SST anomaly data north of ~18°S

Southern GBR MODIS SST: February 2012

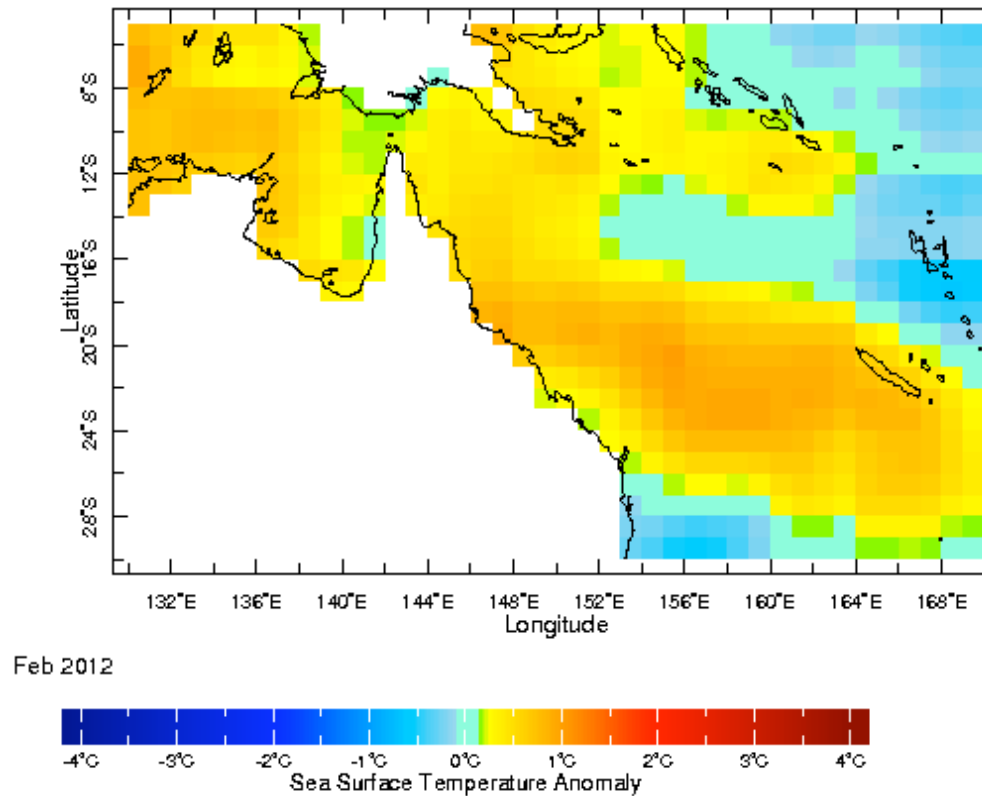


Note: (SST scale adjusted for S-GBR)

- Strong positive anomalies north of 22°S during February
- The strong negative anomalies present in January for most of the inshore reefs on the southern GBR have dissipated, with close to average SST present in February south of ~22degS.

NOAA NCEP EMC CMB GLOBAL Reyn_SmithOlv2 monthly SSTA: Sea Surface Temperature Anomaly data

February 2012



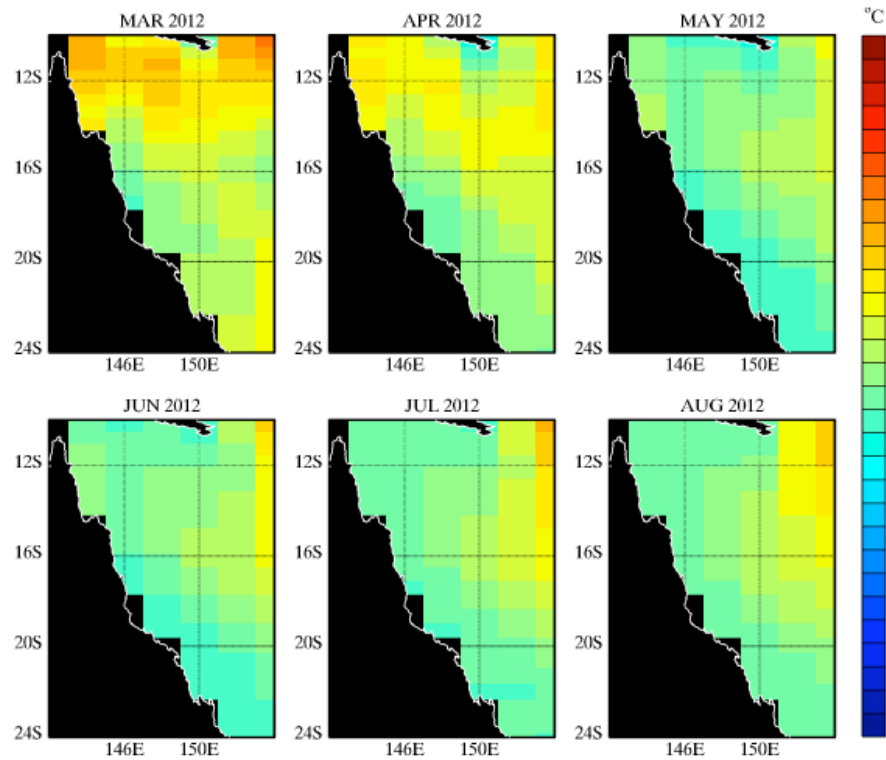
Note:

- Coincident with the MODIS SST, an area of strong positive anomalies was centered around 18S, but positive SST anomalies occurred along the length of the GBR

Great Barrier Reef SST Anomaly Forecast (POAMA-2)

POAMA SST anomaly forecast for the next 6 months
(Operational)

P2.4abc Monthly SSTA: GBR 20120301 [Lead=0-5 months, Nens=30]

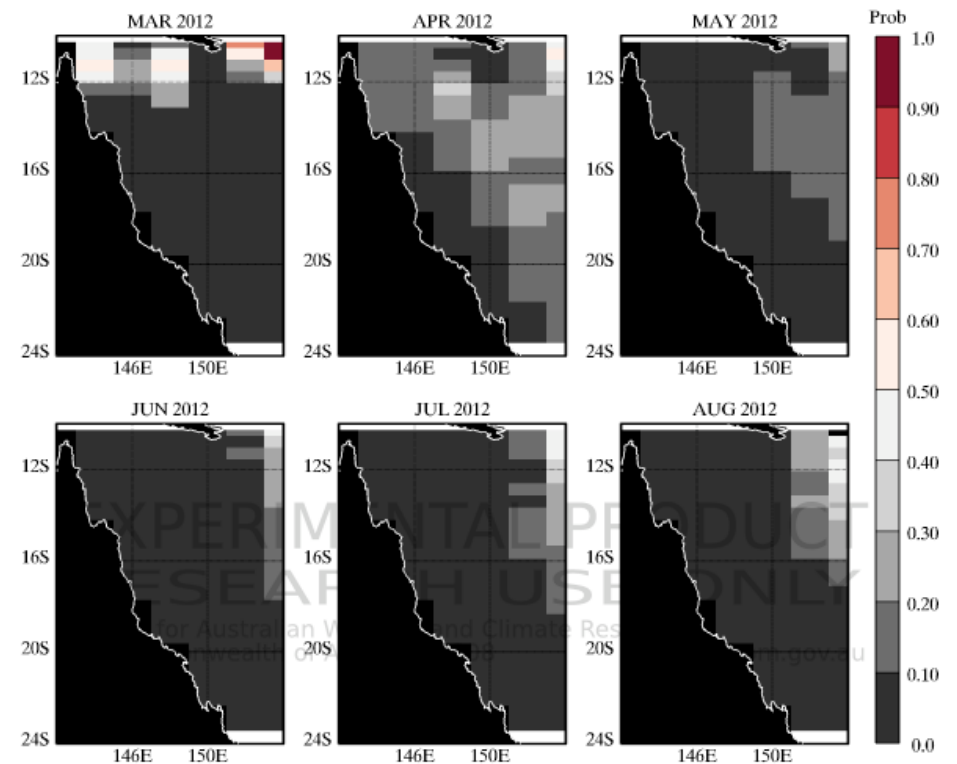


Plotted: 20120303

Operational Product: IDYOC046

Probabilities of SST anomalies greater than 0.6°C for the
next 6 months (Experimental)

POAMA 2.4abc Probability SSTA $\geq 0.6^\circ\text{C}$: 20120301 [Lead=0-5 months, Nens=30]



Plotted: 20120308

Note:

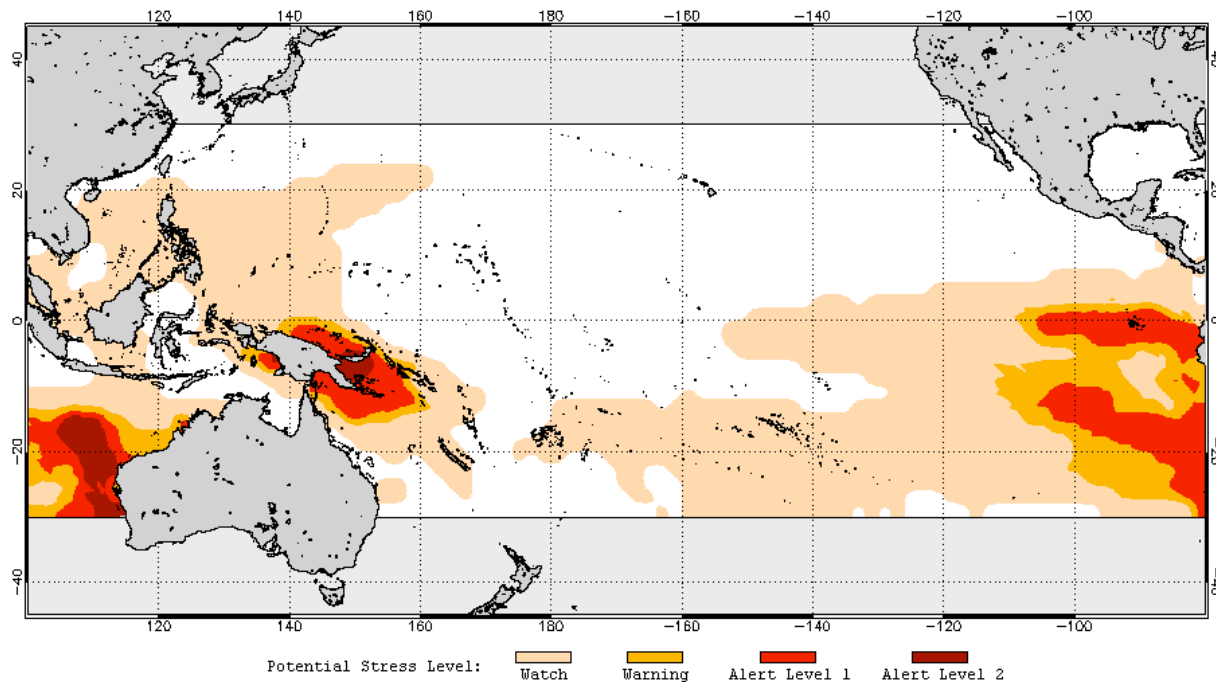
- Forecast of SST anomalies for the upcoming months shows SST close to/slightly above-average conditions for March, that will dissipate as we head into winter.
- In the Torres strait & far northern GBR the temperatures may exceed 0.6°C during March.

NOAA Coral Reef Watch

Coral Bleaching Thermal Stress Outlook (Version 2, experimental)

Outlook for March 2012 to June 2012

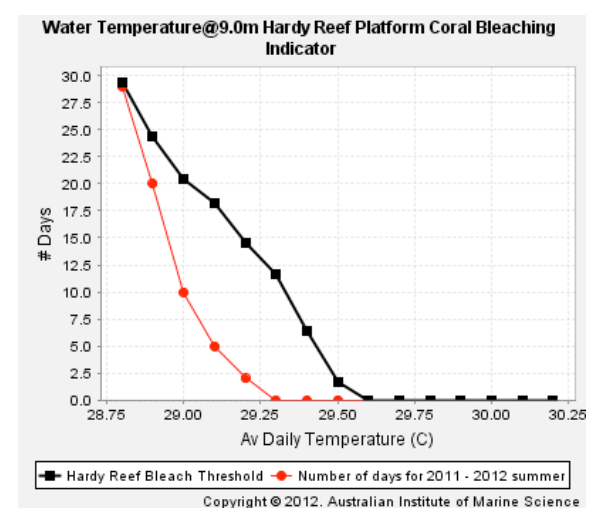
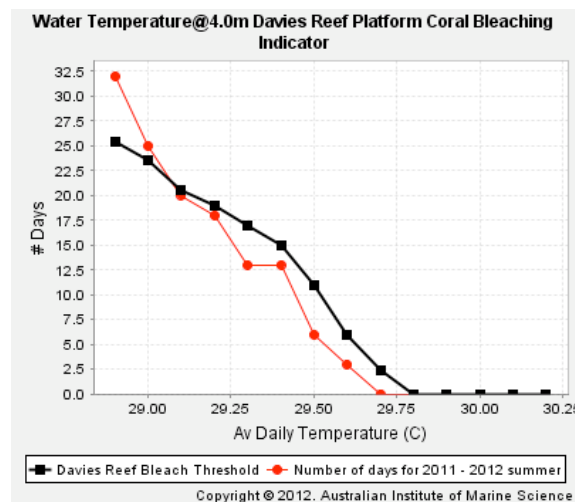
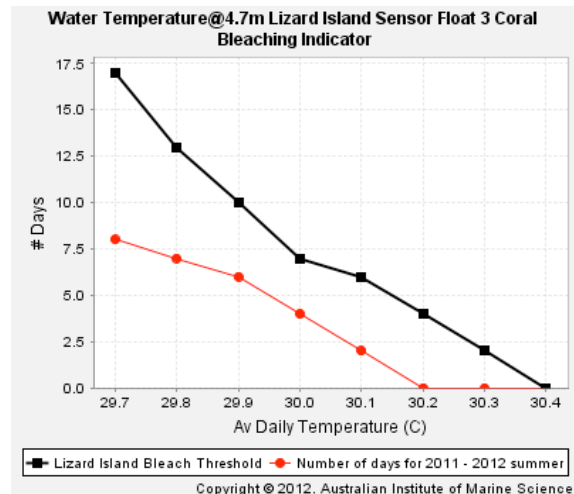
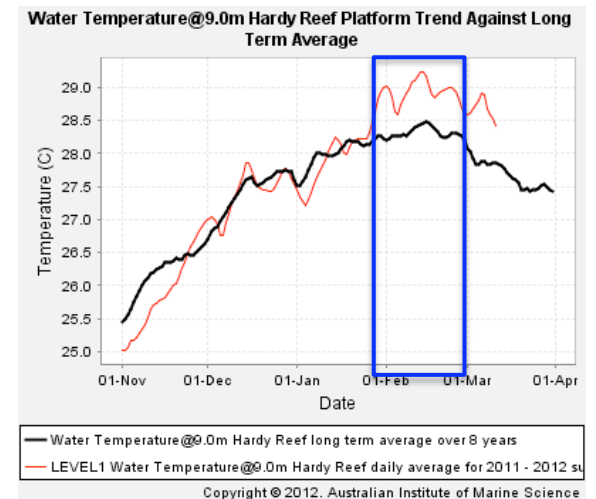
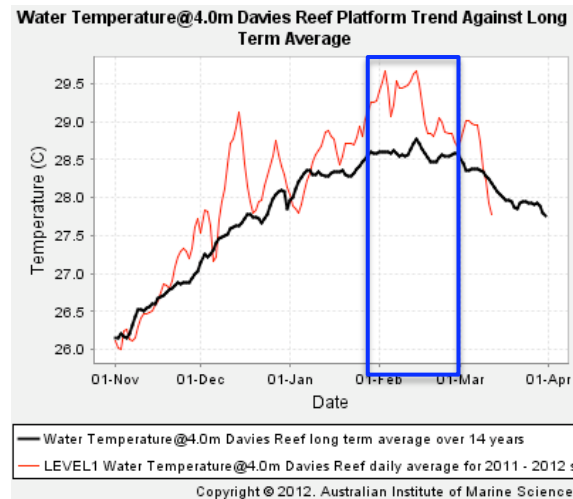
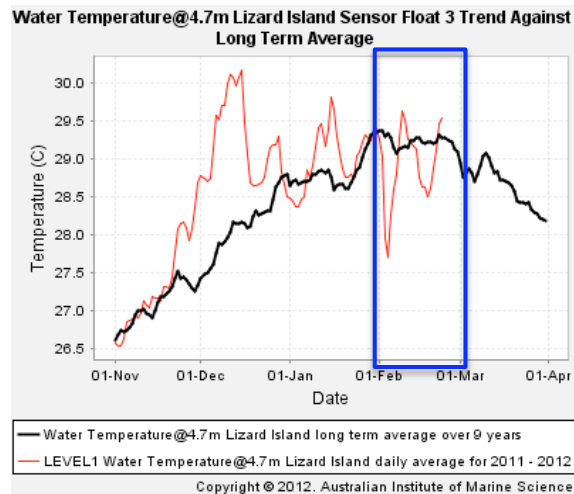
2012 Mar 06 NOAA Coral Reef Watch Coral Bleaching Thermal Stress Outlook for Mar–Jun 2012
(Version 2, Experimental)



Note:

- Alert levels continue around Torres Strait and PNG reefs, however - reduced to Level 1.
- No warning is expected for the GBR.

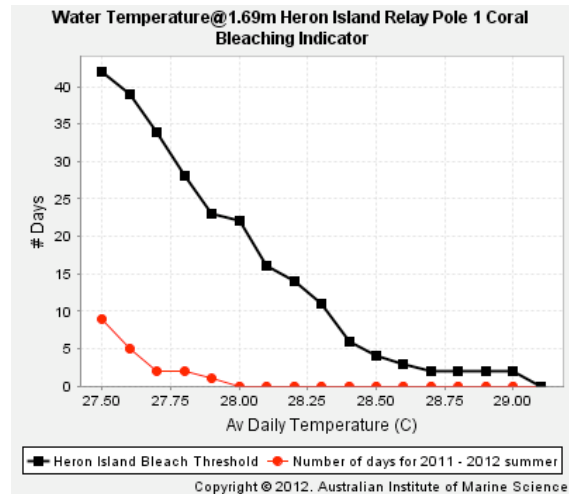
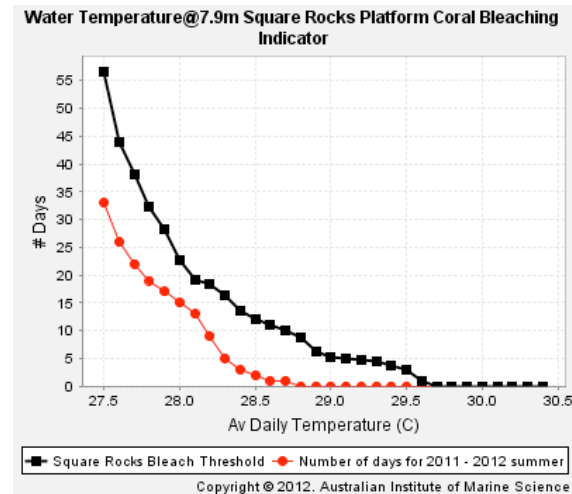
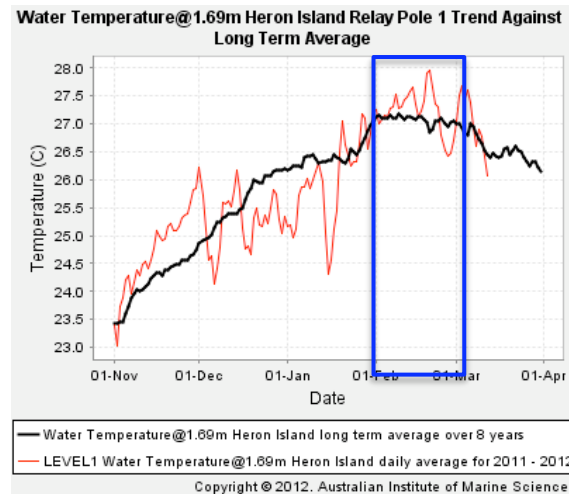
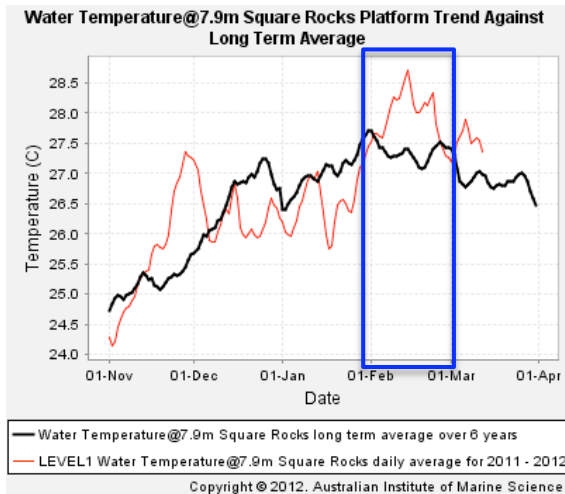
Weather Observing System: AIMS Data Centre



Note:

- Coincident with MODIS data, both Davies Reef and Hardy Reef, located on the central GBR, have changed from ~ average conditions in January to very warm temperatures, pushing the bleaching indicator to close to/above the threshold.
- Lizard island (located on the northern GBR) shows temperatures mostly below average for February.

Weather Observing System: AIMS Data Centre

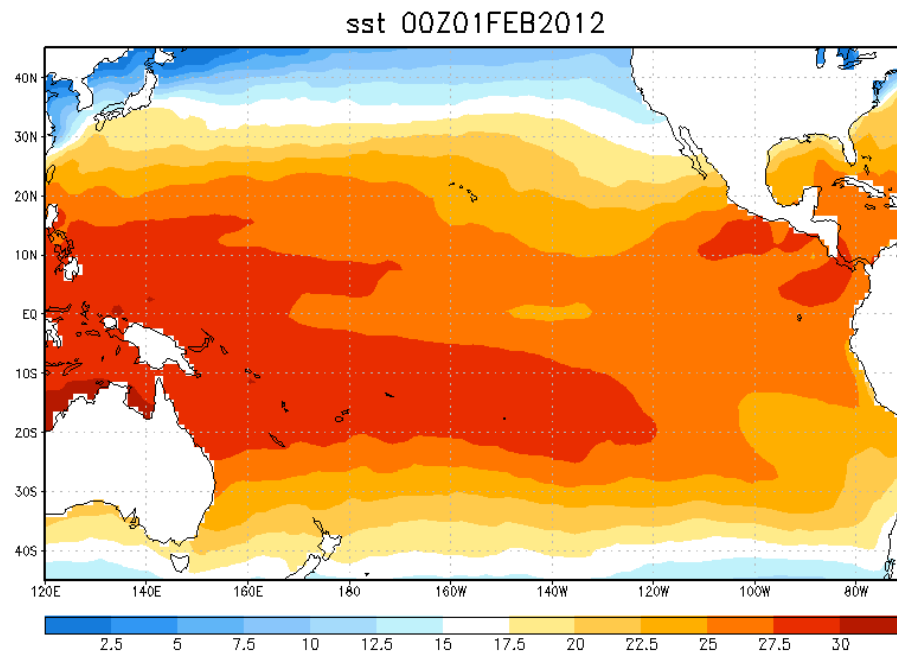


Note:

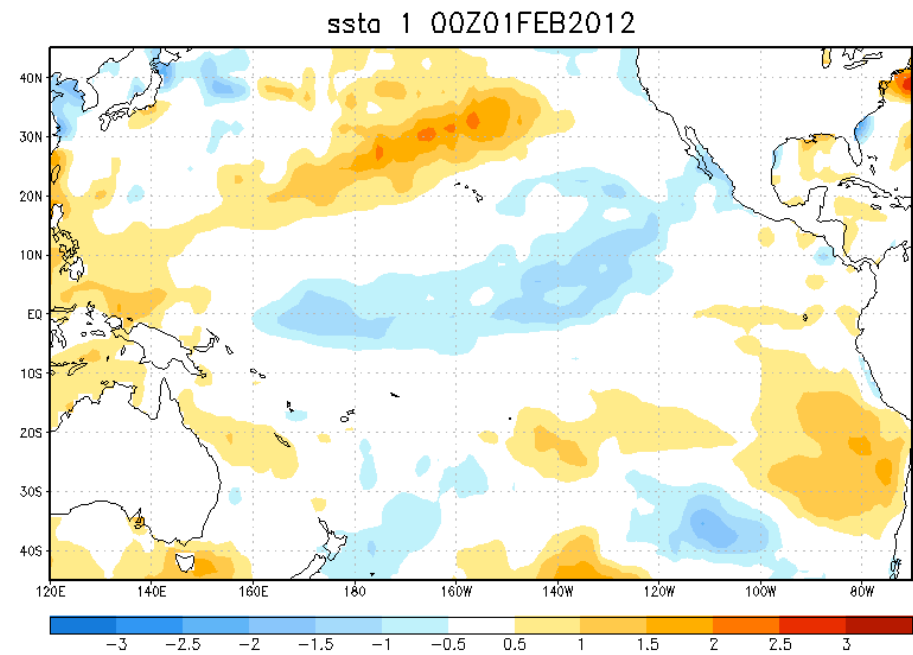
- Square Rocks, in the inshore southern GBR, shows a change from below average temperatures (in January) to above average temperatures for most of February,
- Heron Island on the other hand, experienced mostly average temperatures during February, coincident with MODIS data

NOAA Optimum Interpolation Sea Surface Temperature Analysis:

OI SST: FEBRUARY 2012



OI SST ANOMALY: FEBRUARY 2012

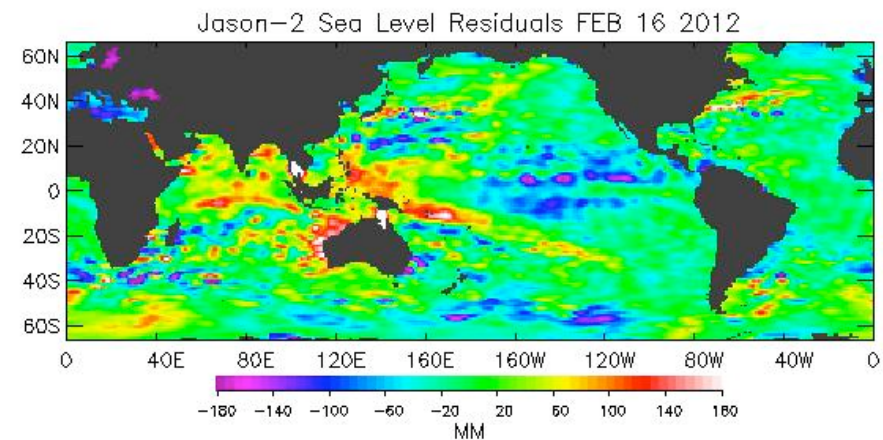
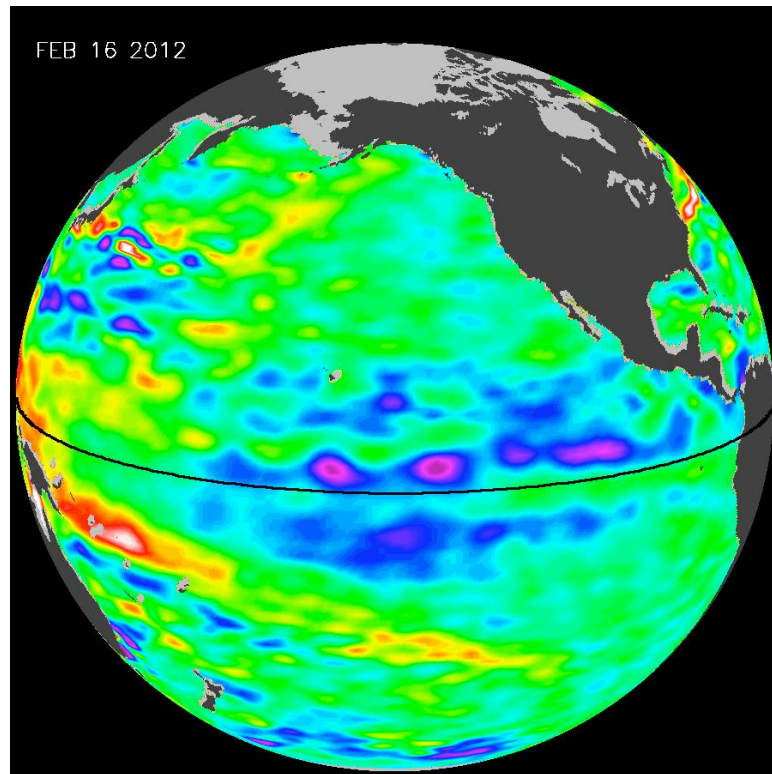


Note:

- The negative anomalies in the the equatorial Pacific continued to weaken during February, with close to/ slightly above-average SST already present in the far eastern equatorial Pacific.

Sea surface height anomalies from Ocean Surface Topography: Jason-1 and Jason-2 (NASA/French)

10-day data cycle centered around 16 February, 2012.



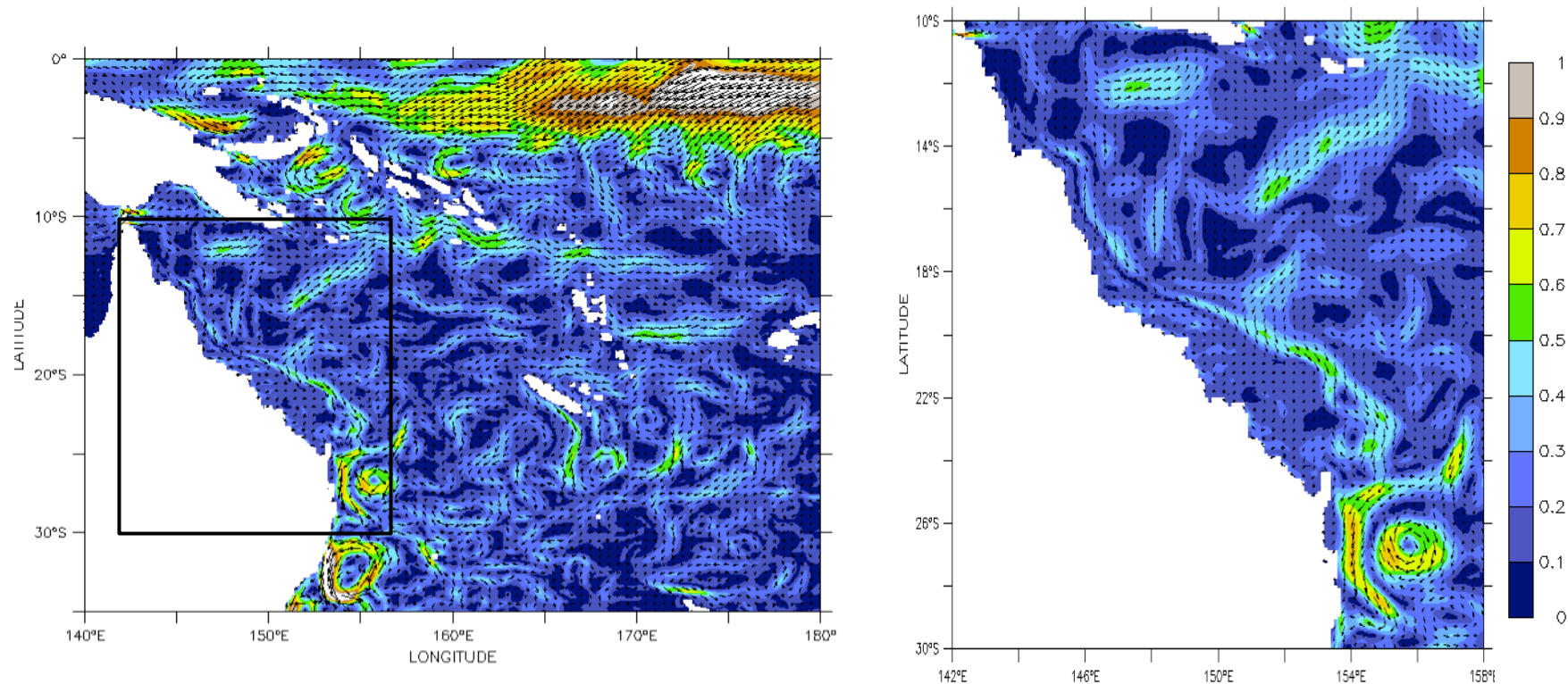
Note:

- As with the SST anomaly pattern in the eastern equatorial Pacific, the negative sea level anomalies dissipated in February, corresponding to a weakening of La Niña.

OceanMAPS 15m Depth-Average Currents

February 2012

OceanMAPS Ocean Modeling, Analysis and Prediction System was developed at CSIRO Marine and Atmospheric Research and the Bureau of Meteorology and it is part of the **Bluelink** project.

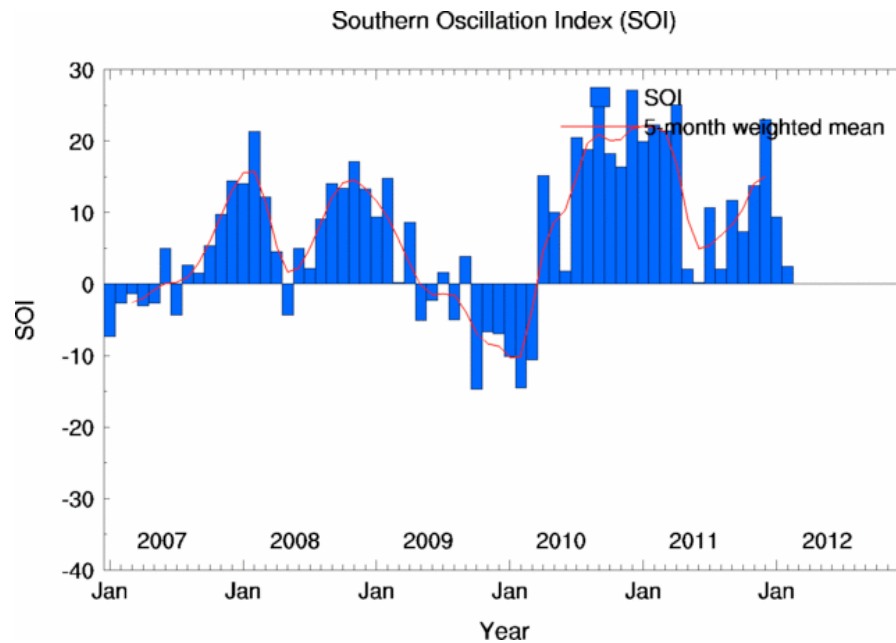


Behind Real Time analysis
15 m Depth-Averaged Currents (m/s).

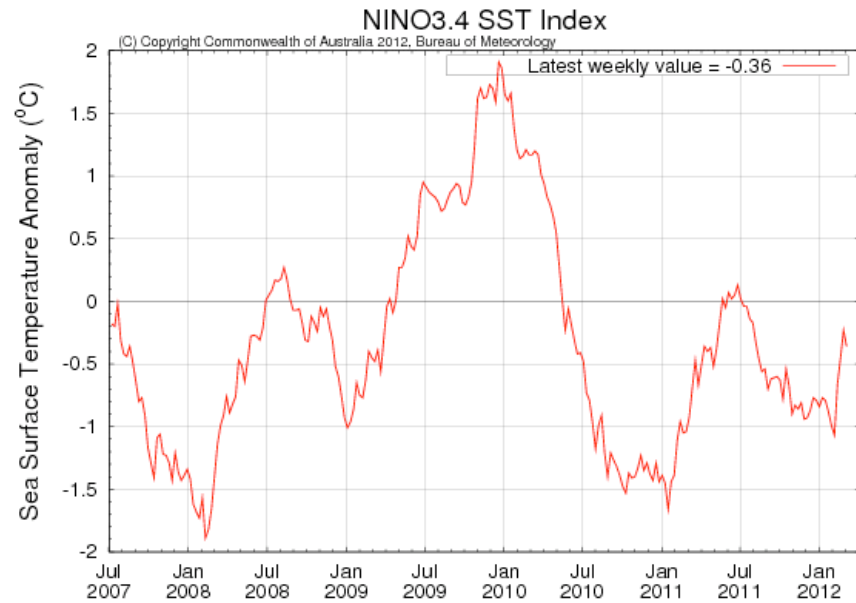
Note:

- Strong South Equatorial Current (SEC) flowing westward south of the equator
- Apparent eastward-flowing counter current at around 10°S, characteristic of the summer months.
- Weak EAC flowing adjacent to the GBR shelf that intensifies considerably towards its southern limit.

ENSO index



Positive SOI = La Niña



Negative Nino 3.4 index= La Niña

Note:

- Both, SST-based and SLP-based indices showed a shift towards neutral conditions over the month of February. La Niña is expected to change towards neutral conditions over the following months.