NERP

Torres Strait / GBR environmental conditions report:

Recent status and predictions

09 November 2012

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UQ-GPEM Biophysical Oceanography Group

Outline

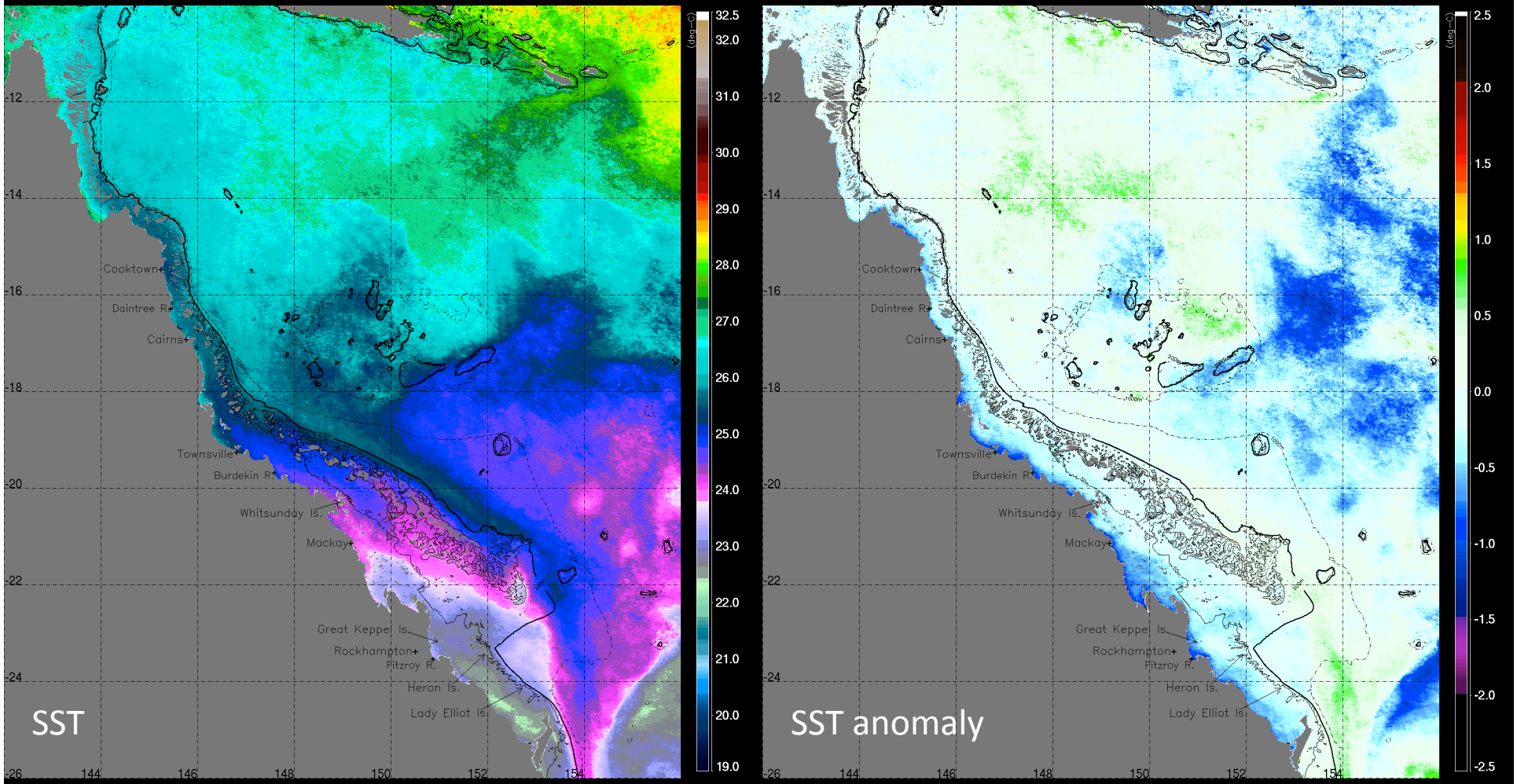
- Overview
- Recent SST and in situ Temperature evolution
- GBR SST forecast (POAMA)
- Coral Bleaching Outlook (NOAA:CRW)
- Surface conditions in the tropical Pacific
- ENSO evolution and predictions

Overview

Note: Torres Strait / far northern GBR region extended north- and westward to cover full Torres Strait area

- Negative SST conditions along the inshore reefs of the GBR in October and neutral conditions for Torres Strait.
- Forecast of negative SST anomalies along the GBR and Torres Strait for the upcoming months.
- No bleaching alert forecasts for the GBR and Torres Strait until February.
- Weak El Niño conditions remain in the Pacific, and ENSO-neutral conditions expected in the upcoming months

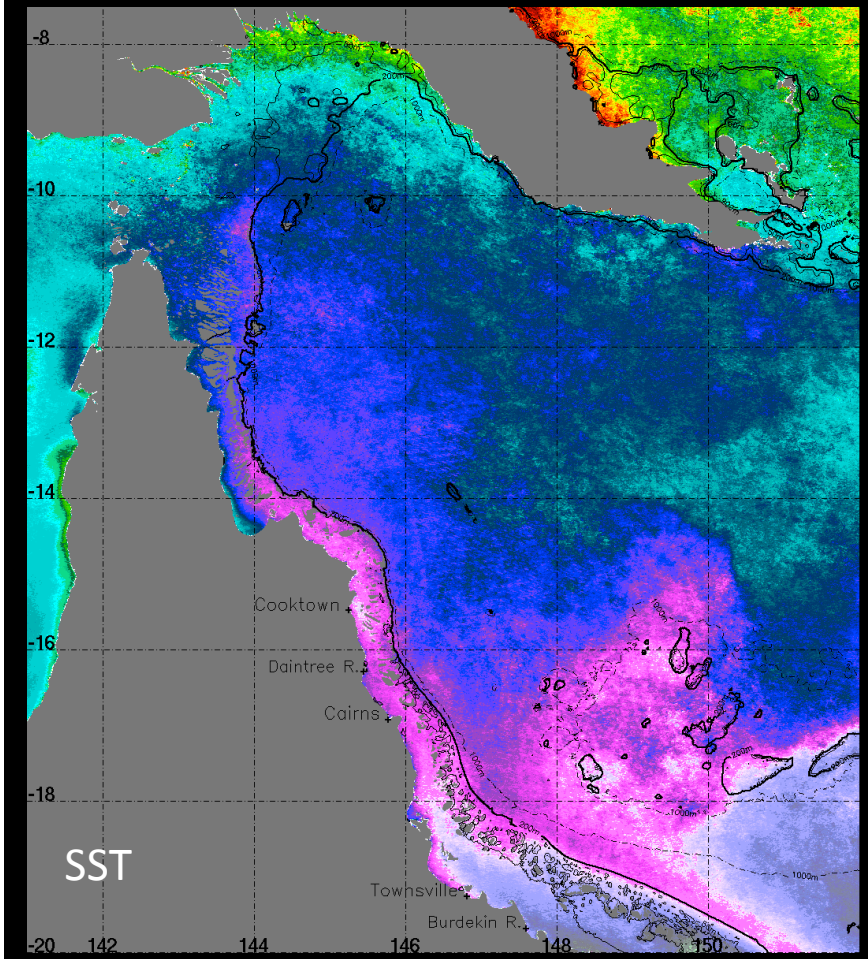
Modis SST (day+night): October 2012

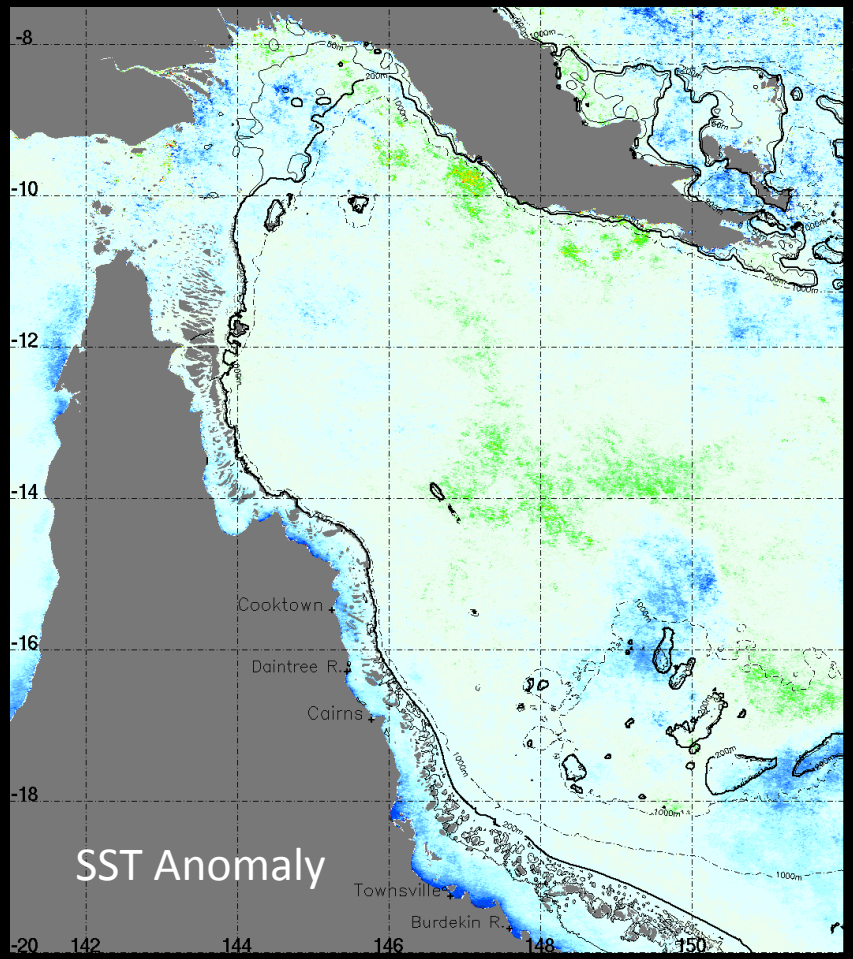


Note:

- Negative SST anomalies for most of the inshore reefs of the GBR during October.
- Mostly average conditions for the Torres Strait and N-GBR regions.

Torres Strait / far northern GBR MODIS SST: October 2012





Note:

- Average conditions continued during October for the Torres Strait and far N-GBR areas, with negative anomalies on the inshore reefs south of ~14°S.
- The moderate positive anomalies present in the Coral Sea during September dissipated during October.

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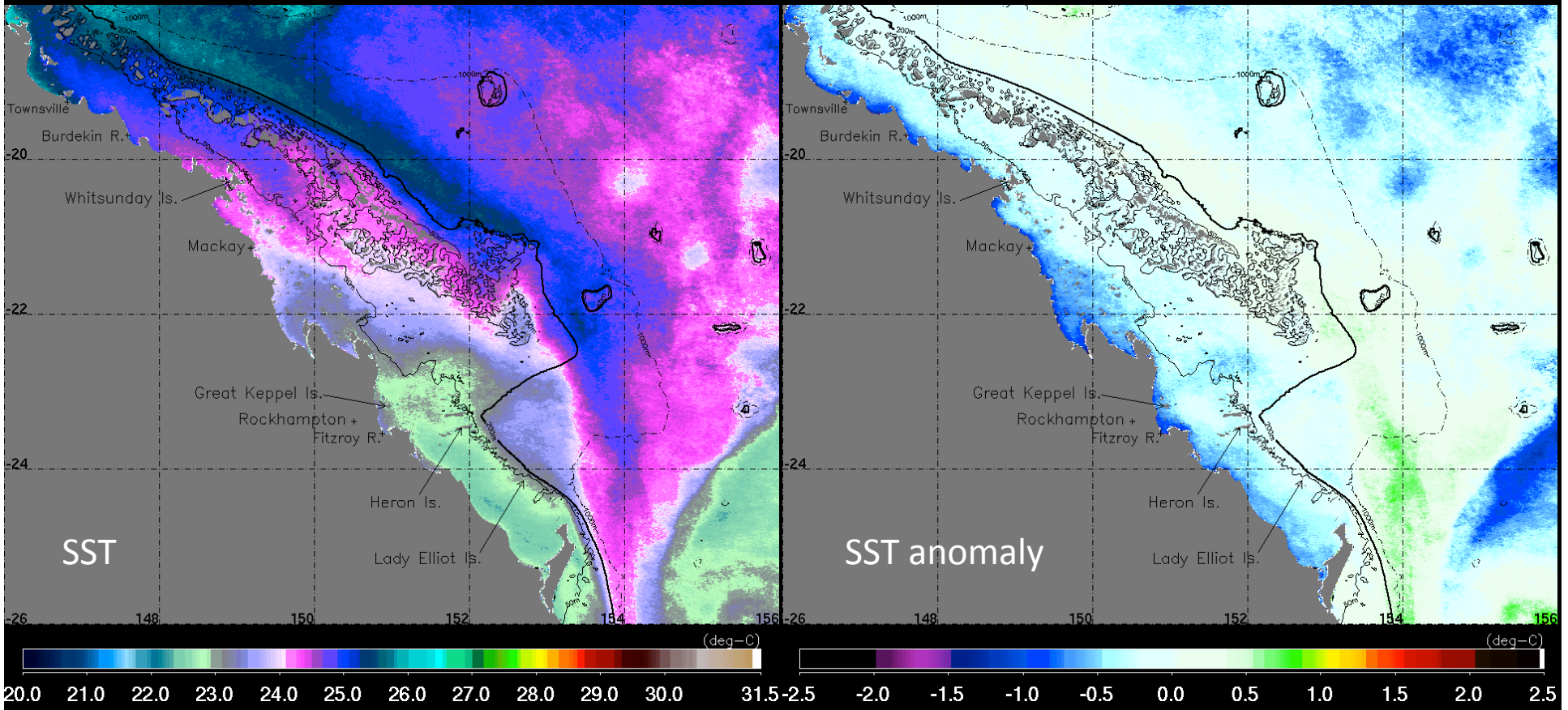
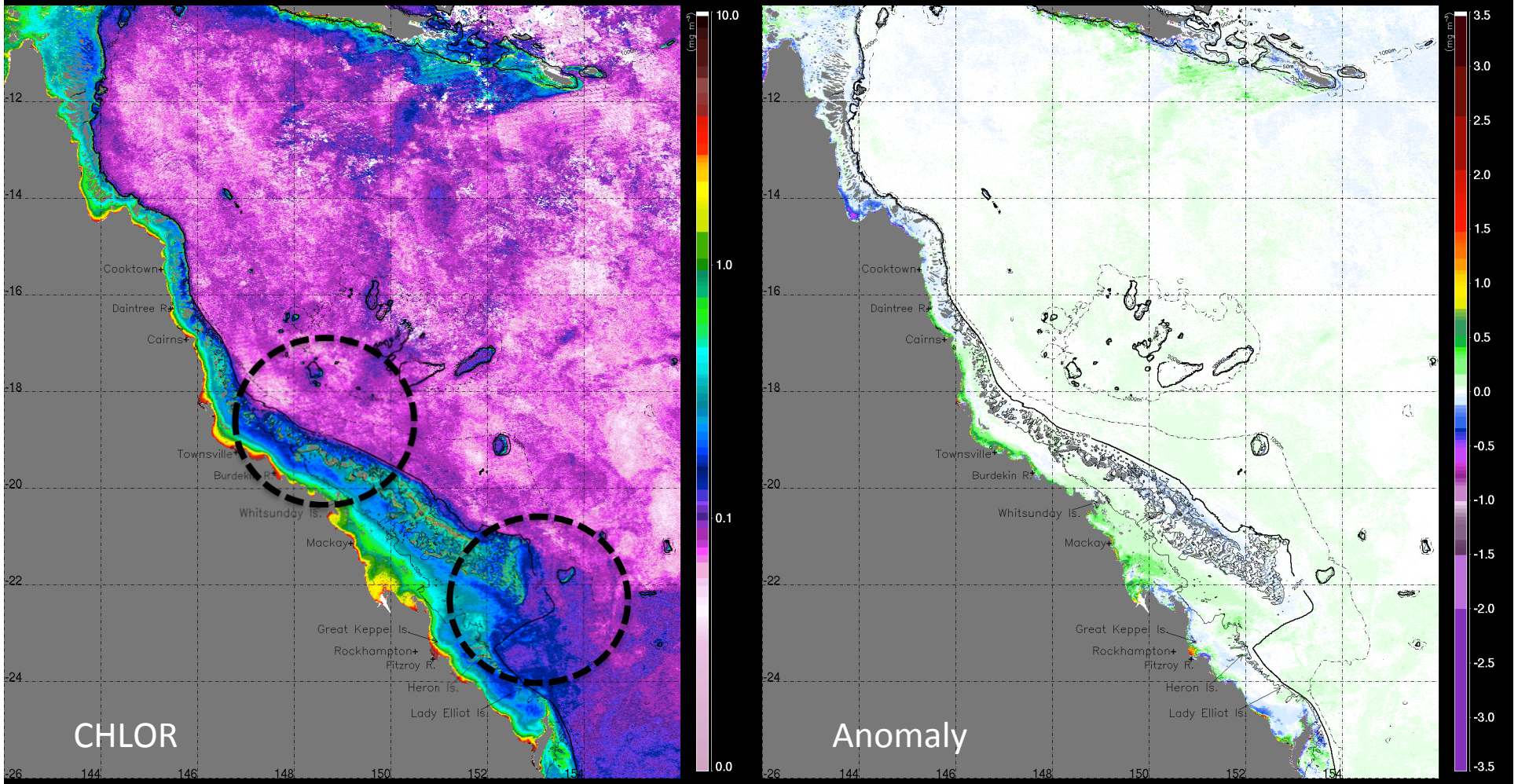
Southern GBR MODIS SST: October 2012



Note:

- Negative anomalies present on the inner reefs during October.
- Clearly defined EAC flowing southward along the GBR shelf, leading to neutral conditions for the outer reefs of the S-GBR.

MODIS Chlorophyll-*a* concentration: October 2012



Note:

- Slight positive anomalies present on the inshore reefs south of ~16°S.
- Mostly average conditions for the Torres Strait areas.
- Intrusions of low chlorophyll EAC waters into the central GBR, and the Capricorn & Curtis Channels less apparent than in previous month.

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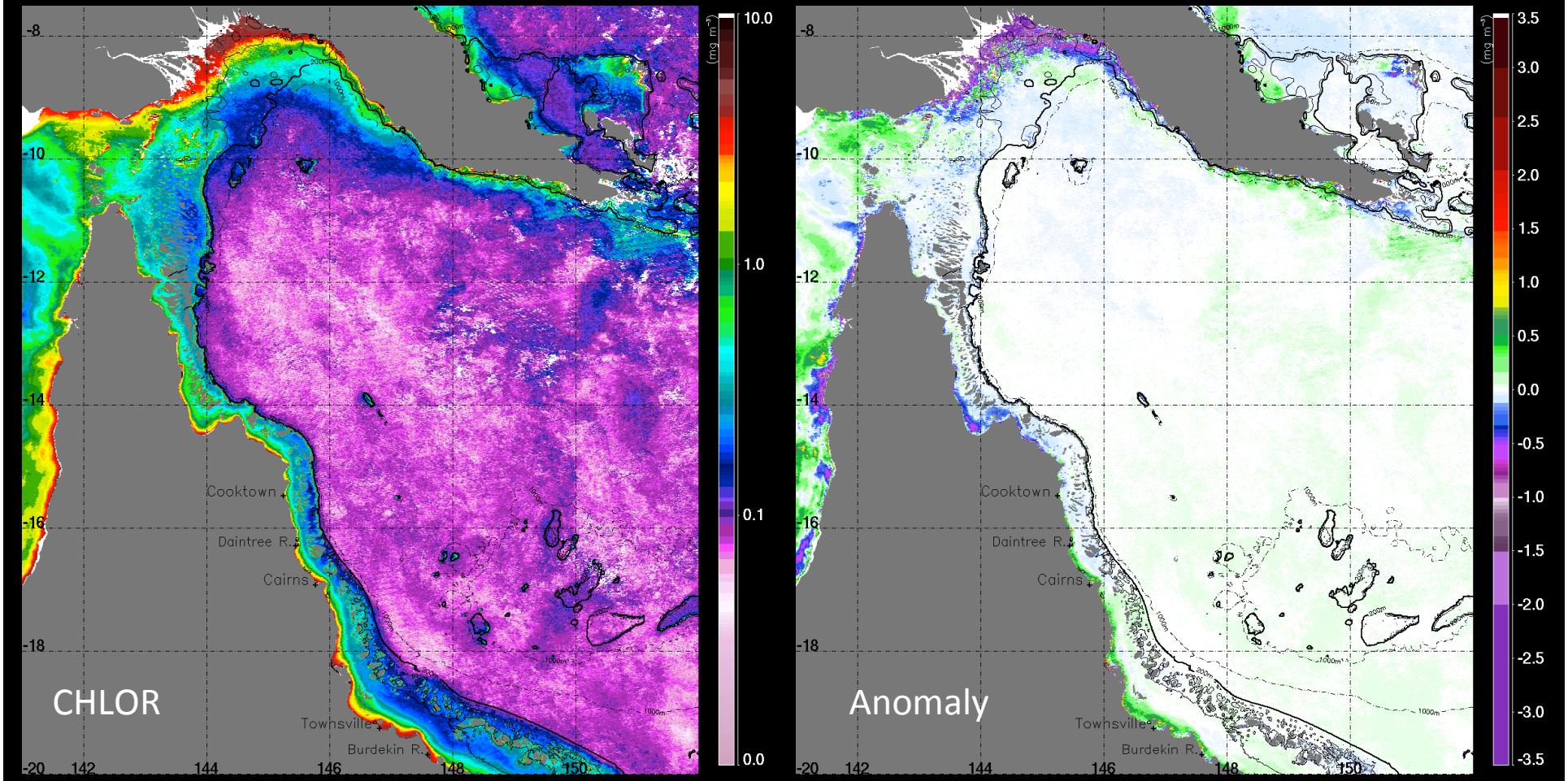
Torres Strait / far northern GBR
Chlorophyll-*a* concentration
October 2012



Note:

- High chlorophyll signal in the Fly River, Papua New Guinea, likely due primarily to sediment outflow
- Negative anomalies infer lower than average outflow

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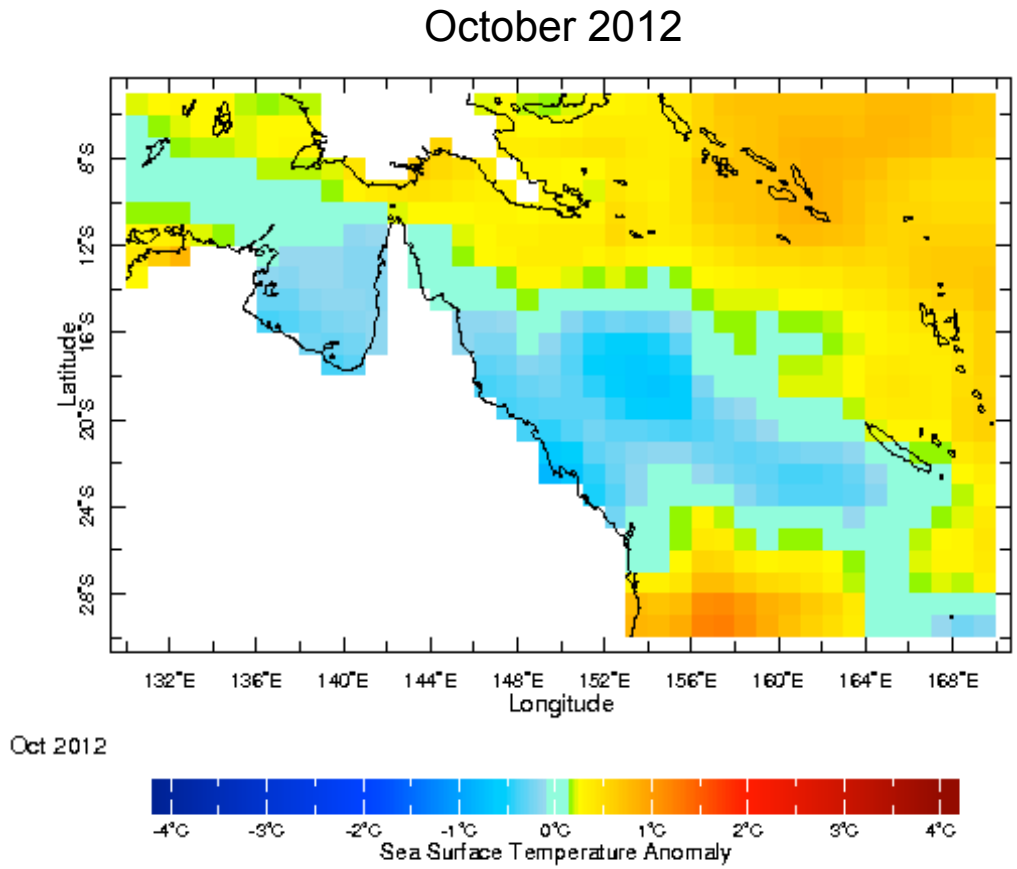
NOAA NCEP EMC CMB GLOBAL Reyn_SmithOIv2 monthly SSTA: Sea Surface Temperature Anomaly data



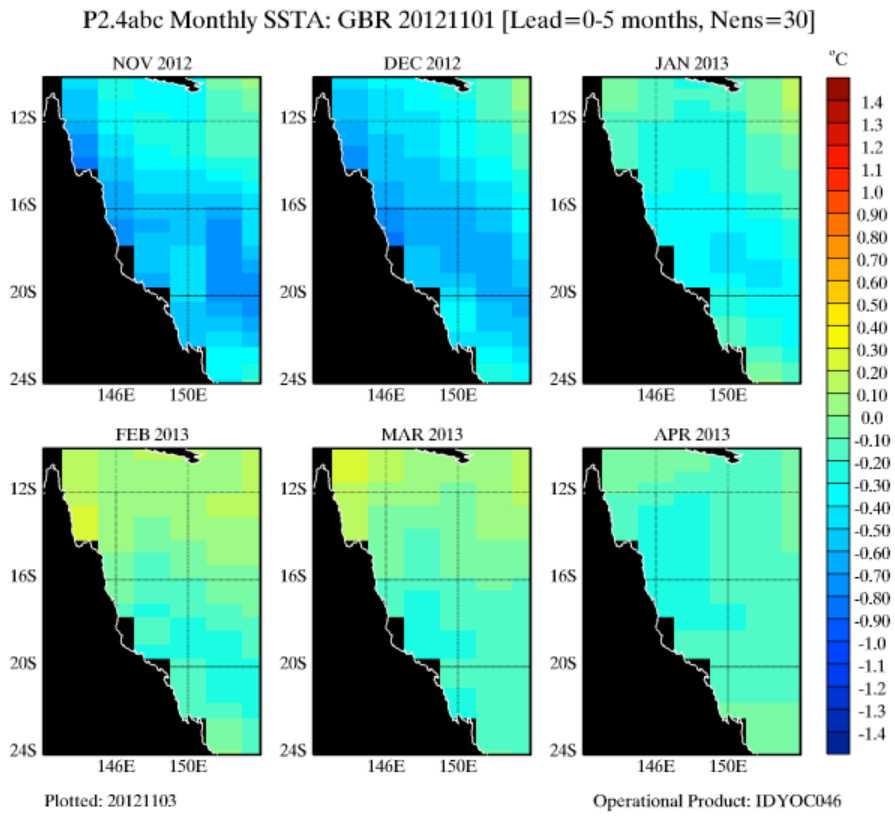
Note:

- Coincident with the MODIS SST data, Reynolds SST anomaly data shows a pattern of lower than average temperatures for most of the inner GBR, and average conditions for the Torres Strait during October 2012.

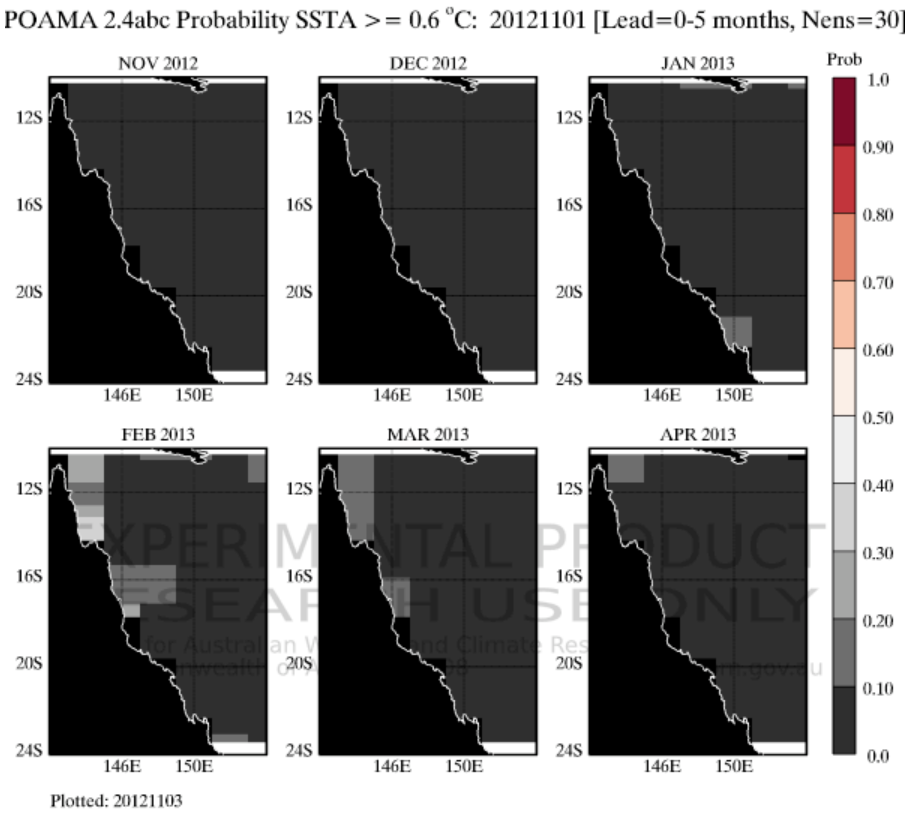
http://iridl.ldeo.columbia.edu/SOURCES/.NOAA/.NCEP/.EMC/.CMB/.GLOBAL/.Reyn_SmithOIv2/

Great Barrier Reef SST Anomaly Forecast (POAMA-2)

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



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



Note:

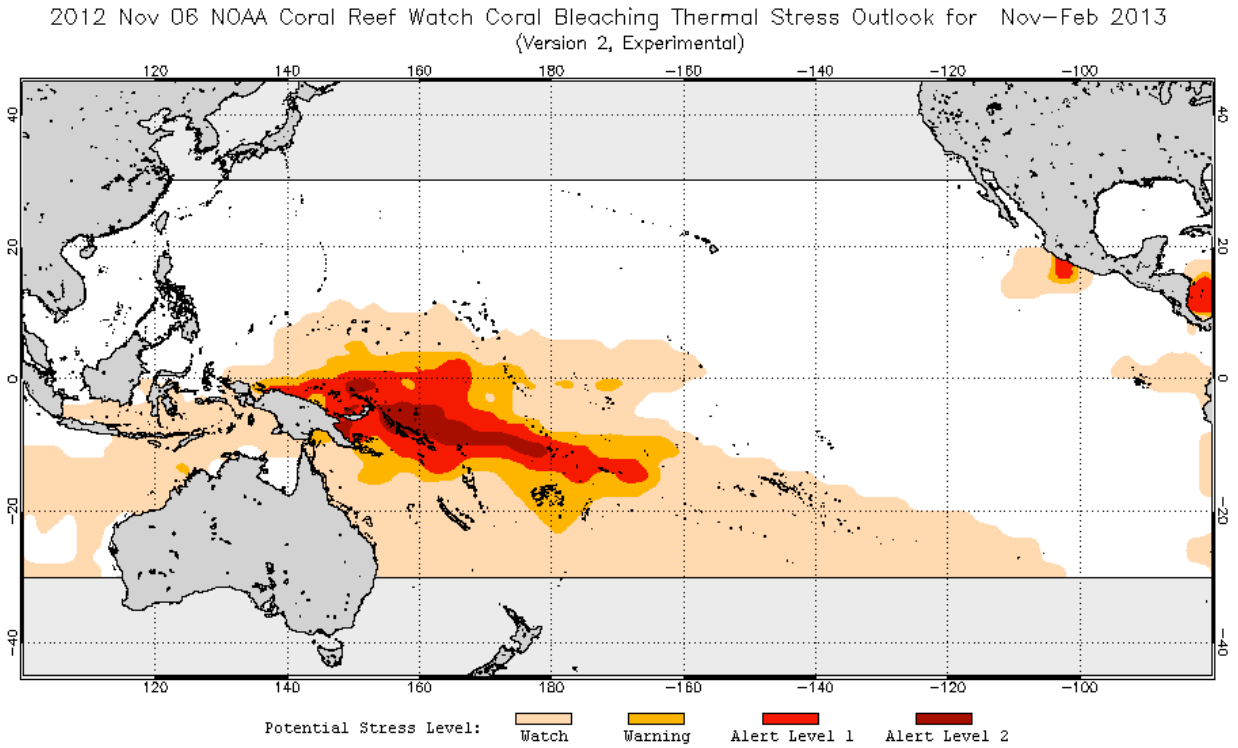
- POAMA is currently forecasting mostly below average conditions until April 2013, with a forecast of lower temperatures for November and December compared to previous months.

NOAA Coral Reef Watch

Coral Bleaching Thermal Stress Outlook

(Version 2, experimental)

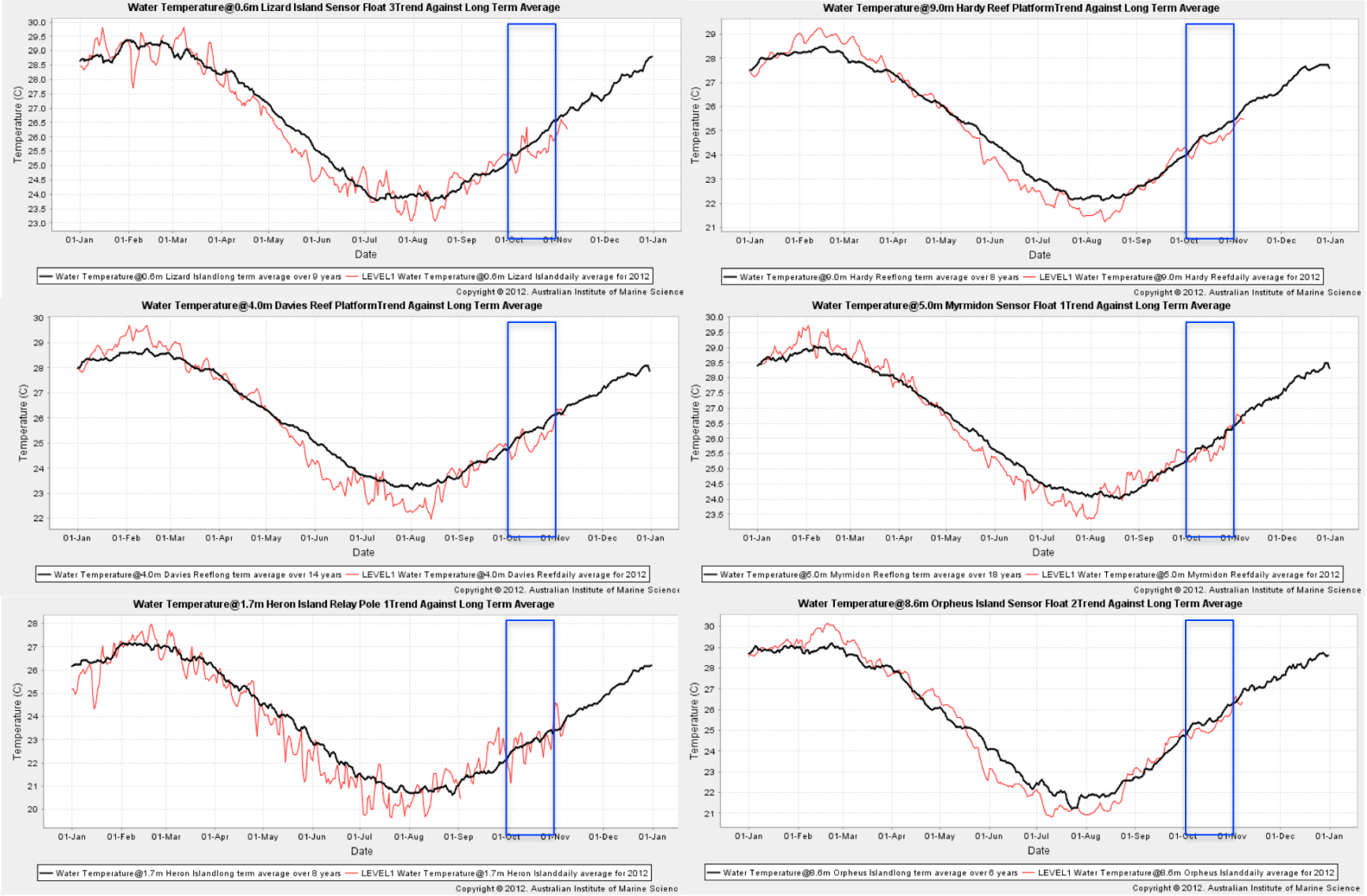
Outlook for November 2012 to February 2013



Note:

- Similar to previous month, the NOAA Coral Reef Watch forecast continues suggesting 'Watch' south of PNG, including the whole Torres Strait and GBR regions. This is in contrast to the POAMA SST anomaly forecast.

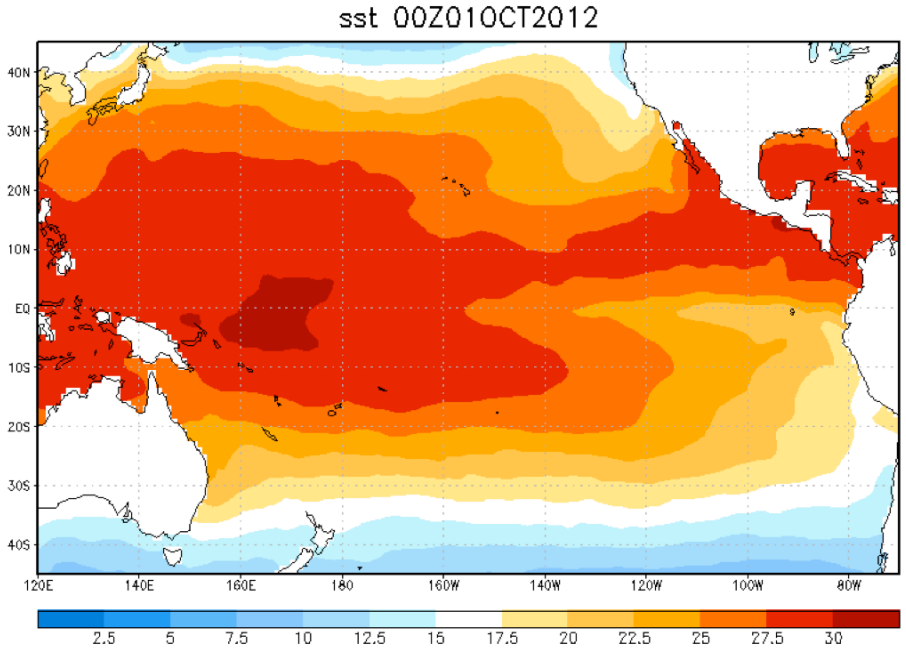
Weather Observing System: AIMS Data Centre



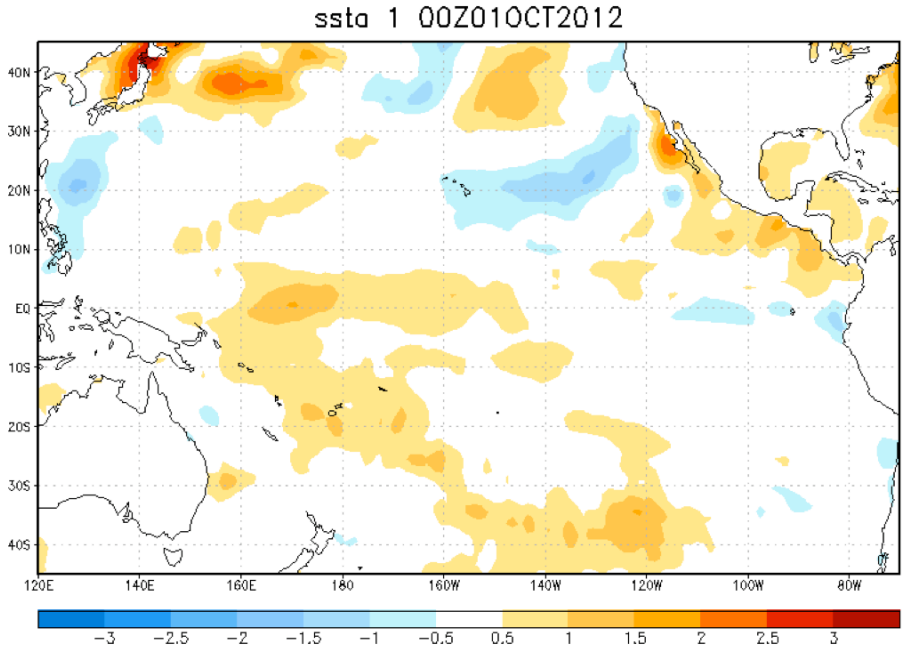
- Most of the AIMS weather stations show below average temperatures for October, especially towards the end of the month; with a few showing temperatures as average.

NOAA Optimum Interpolation Sea Surface Temperature Analysis:

OI SST: OCTOBER 2012



OI SST ANOMALY: OCTOBER 2012



Note:

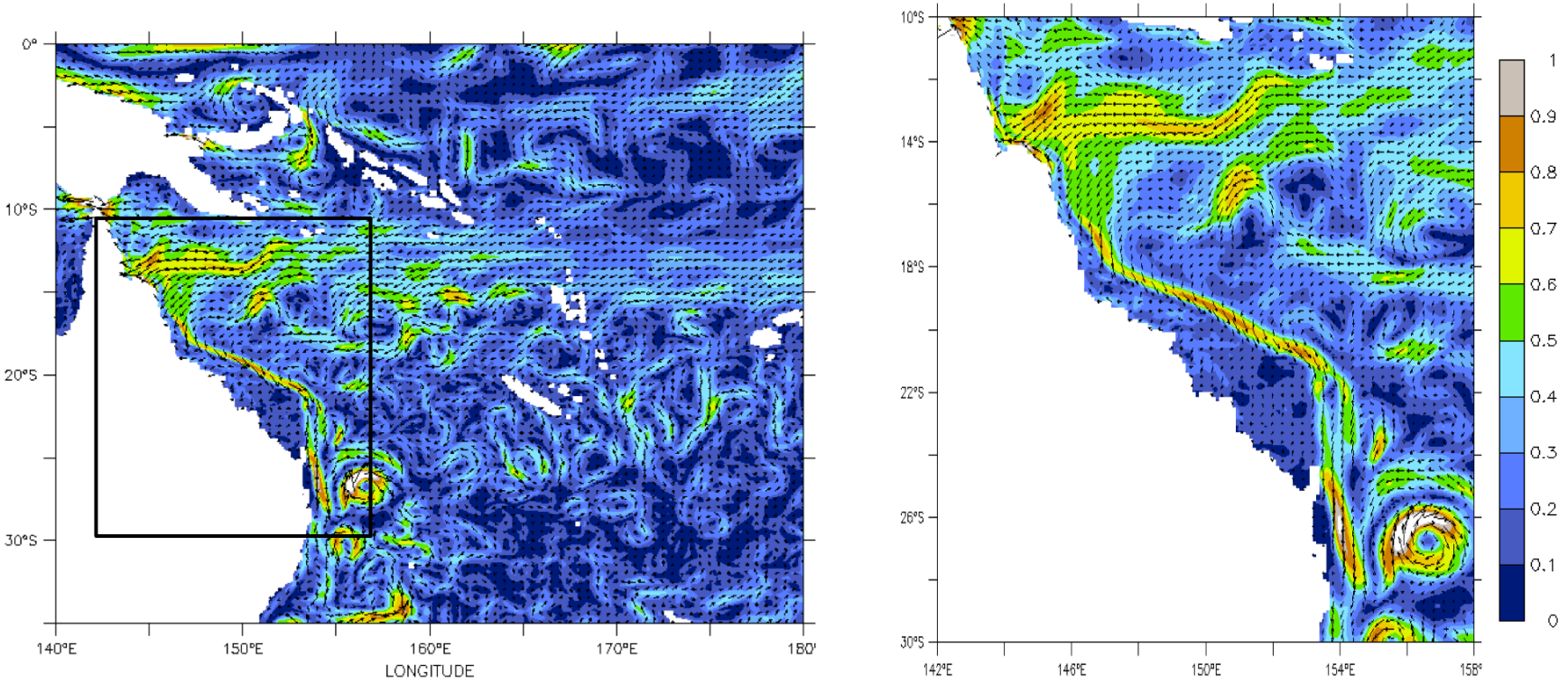
- Relatively weak positive SST anomalies remained along the equatorial Pacific during October.

http://www.emc.ncep.noaa.gov/research/cmb/sst_analysis/

OceanMAPS 15m Depth-Average Currents

October 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.

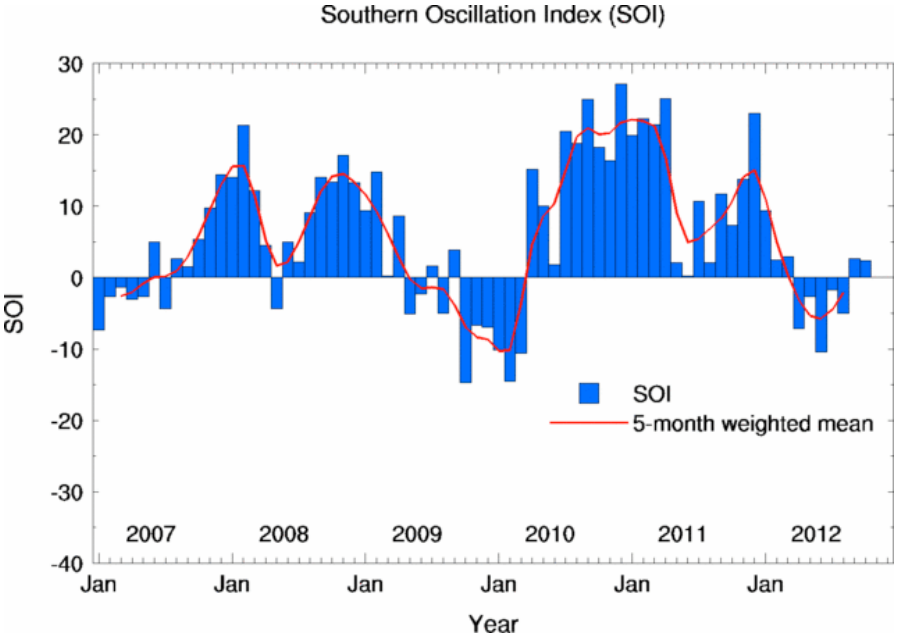


Behind Real Time analysis
15 m Depth-Averaged Currents (m/s).

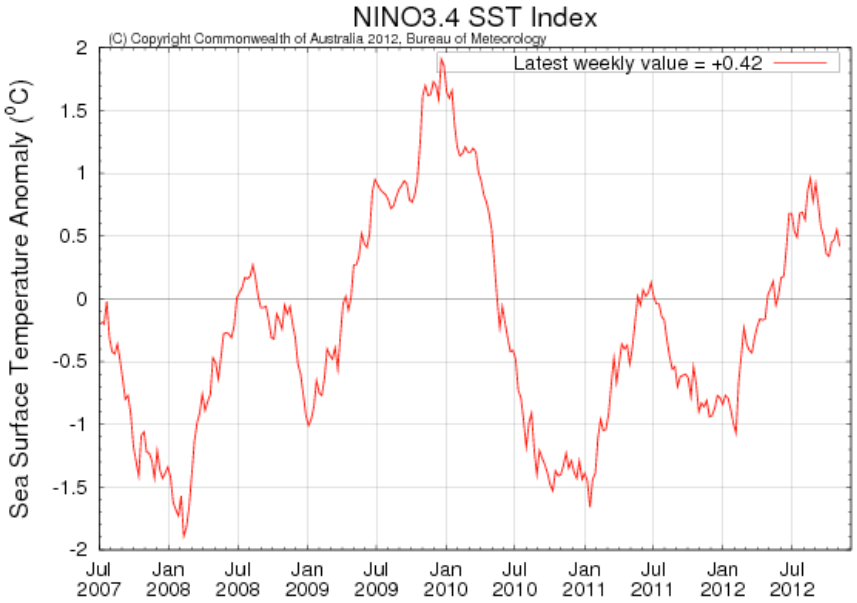
Note:

- Strong inflow of SEC waters impacting the N-GBR region.
- A very strong EAC clearly apparent along the GBR shelf-edge south of ~17°S, becoming particularly intense just south of Fraser Is
- Strong eddy activity off SE Queensland

ENSO index



Negative SOI = El Niño



Positive Nino 3.4 index= El Niño

Note:

• Weak El Niño-like conditions continued during October, with the positive SST anomalies for the equatorial Pacific reflected in the positive Niño 3.4 SST index. Atmospheric conditions however, indicates an ENSO-neutral state (neutral SOI index).