

Climate and Oceanographic Summary, Great Australian Bight 2017 - 14

Kirsten Rough – 6th February 2017

Summary:

The Sea Surface Temperatures across the Great Australian Bight through the month of January were cooler than those of the previous 5-years, but are continuing to warm progressively.

The sea floor temperatures are starting to show marked contrast to surface temperatures in areas that are influenced by the upwelling.

The upwelling has had 2 significant pulses through this past week and continues to show as cold water at the sea surface along the Bonney coast of the South East of SA, western Kangaroo Island, and along the coastal fringe of lower and western Eyre Peninsula.

CSIRO Aerial Survey SBT sightings from 1st January 2016 to date (tonnage per longitude):

128°	129°	130°	131°	132°	133°	134°
0 tonnes	0 t	35 t	230 t	1,017 t	1,140 t	6,430 t

Sea Surface Temperature and SBT Habitat:

Habitat distribution for SBT in the GAB over the past week is shown in Figure 1. The areas with the highest preference values continue to expand, including the Young Rocks to Rocky Island area. This situation is forecast to persist through February and start contracting late March.

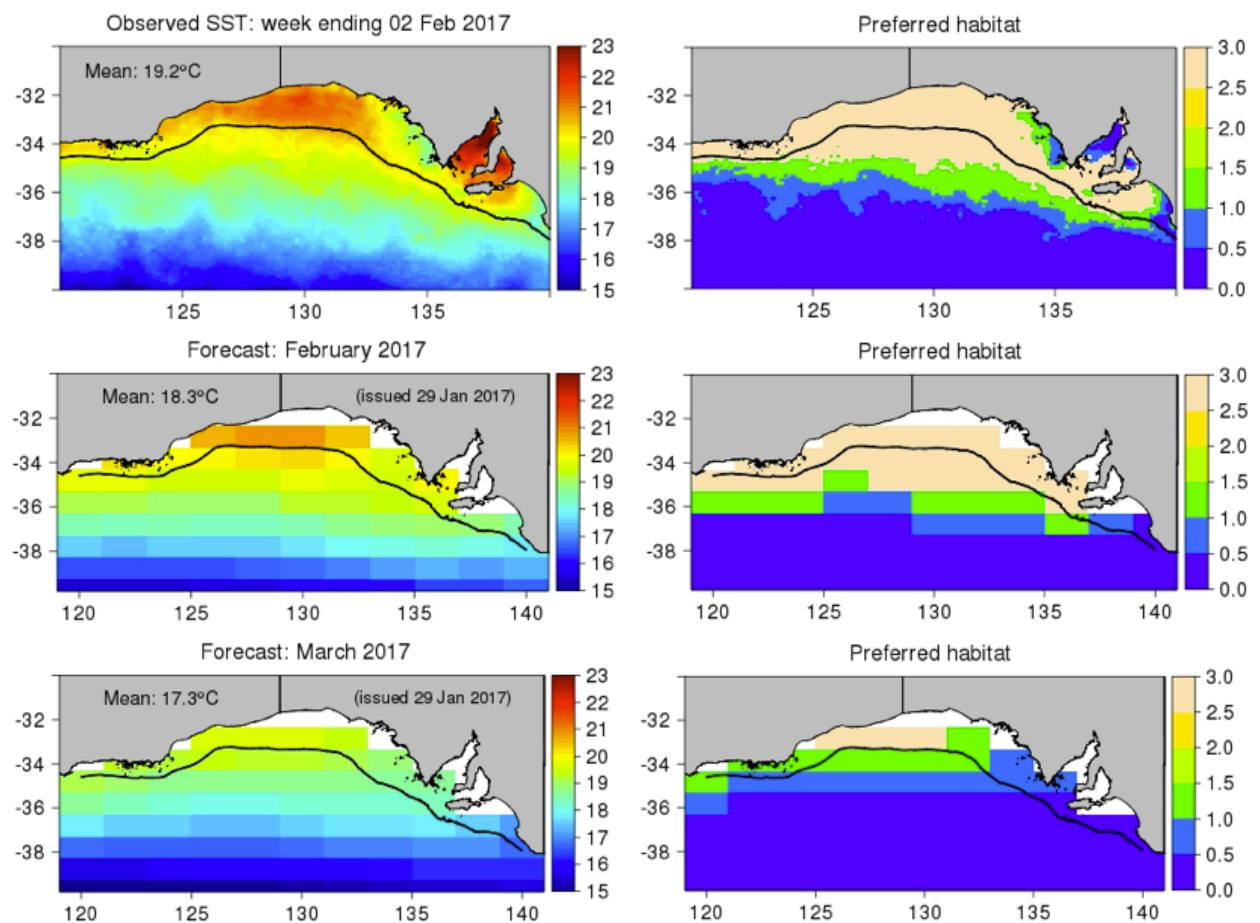


Figure 1: Sea Temperature and SBT Habitat distribution for the week ending 2nd February 2017 (top); forecasts for latter half of February (middle) and late March (bottom) (CSIRO 2017).

The broader GAB area continues to warm progressively with a small amount of warmer water feeding around the southwest corner of Western Australia (Figure 2). Sea Surface Temperatures through January 2017 were cooler than those of the previous 5-years (Figure 3)

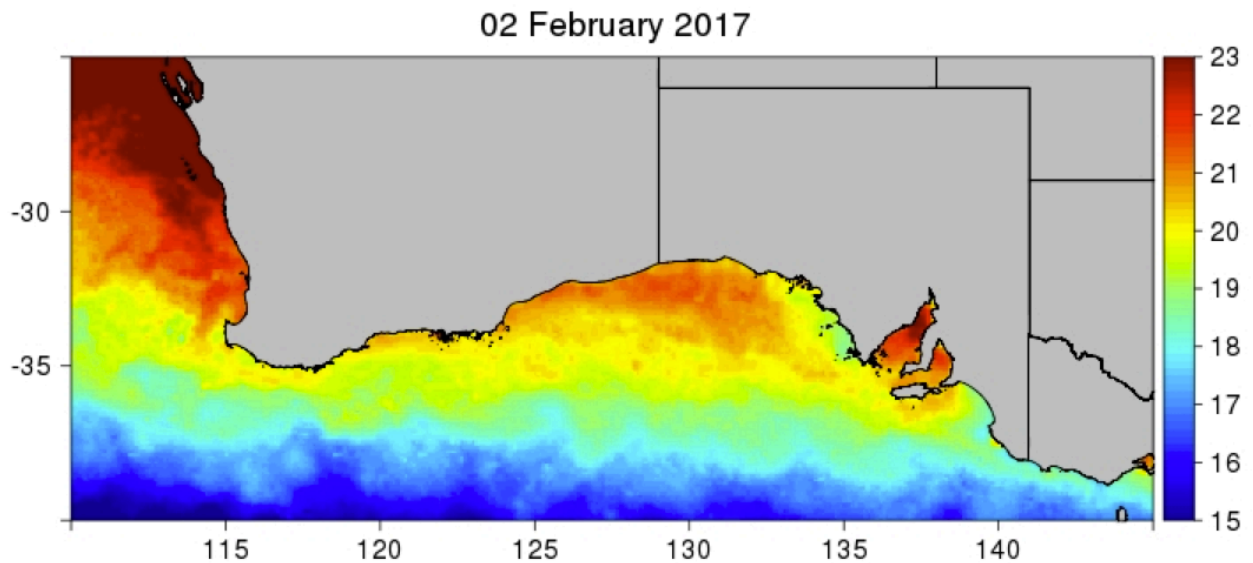


Figure 2: Sea Surface Temperature across southern Australia over the past week (CSIRO 2017).

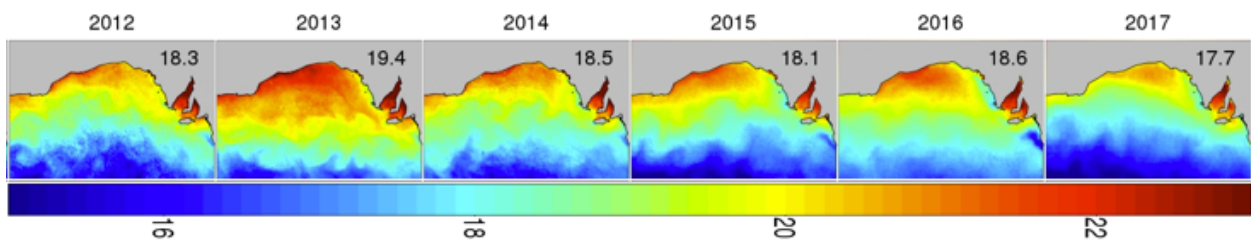
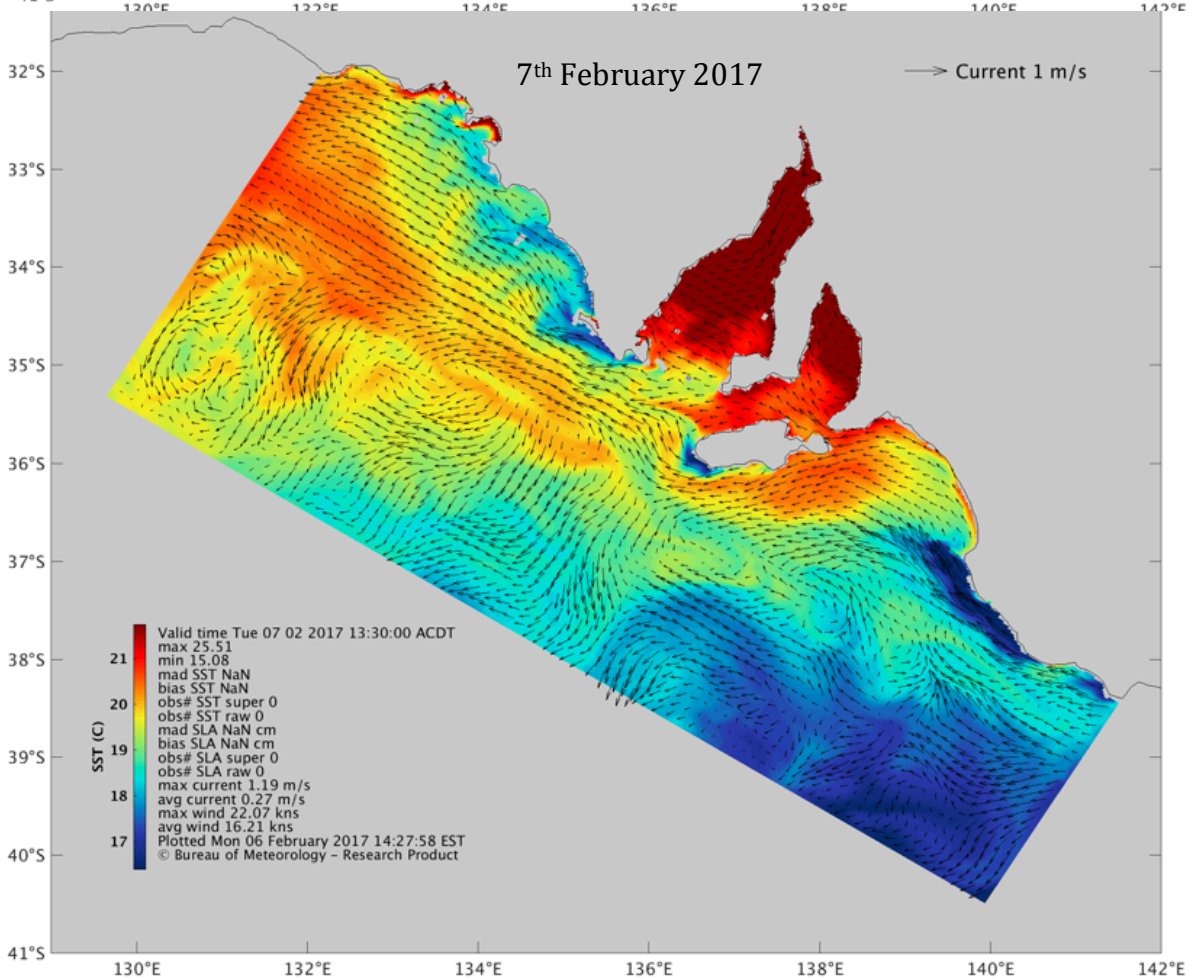
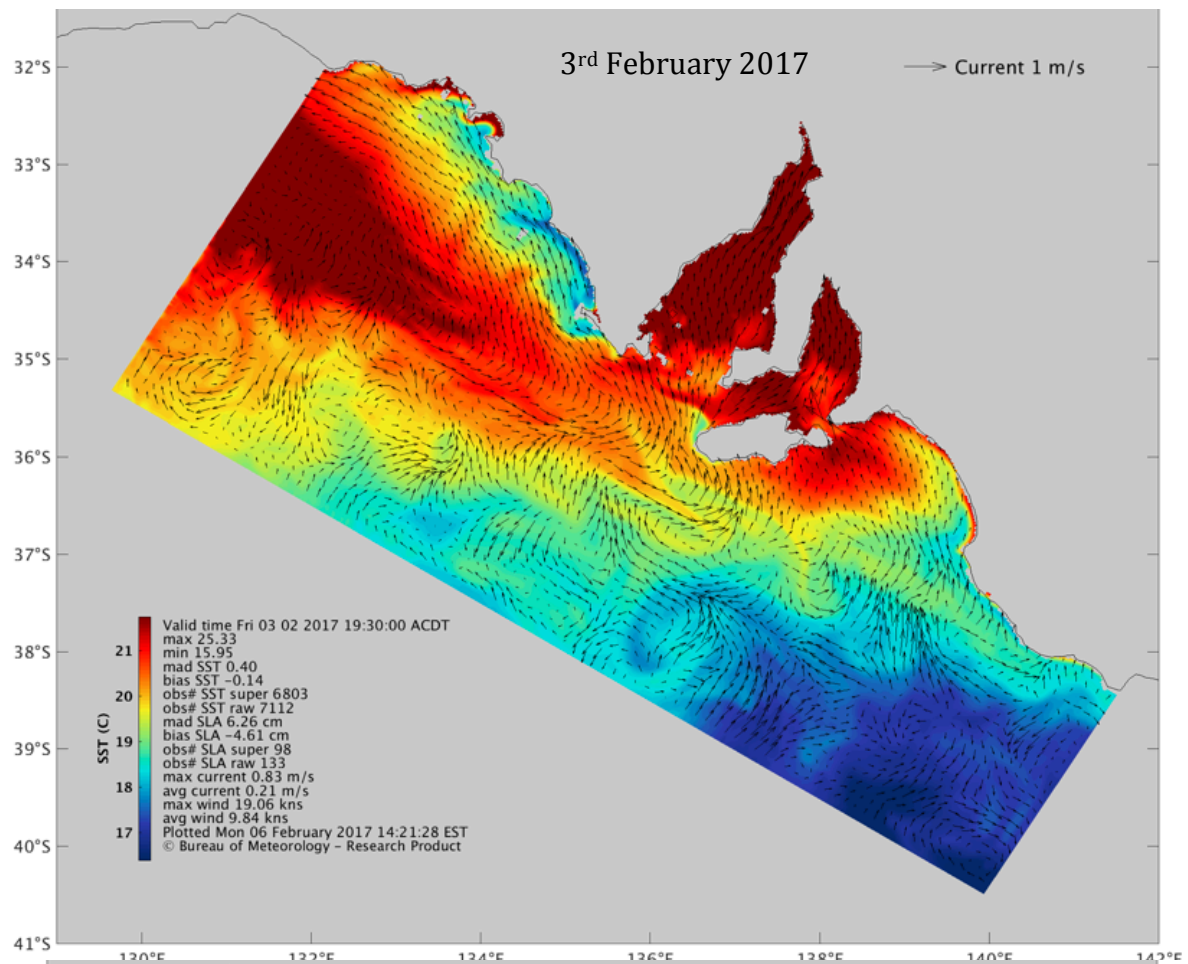


Figure 3: Comparison of SST images for the month of January from 2012 to 2017 (CSIRO 2017).

A series of 'now-cast' and 'short-term forecast' images of sea surface temperatures from the e-SA Marine Project are shown in Figure 4. This indicates warming continuing in the western/central GAB and the Gulfs, with surface temperatures responding to prevailing weather conditions (eg image 3rd Feb). Also evident is cold water at the surface through the Bonney upwelling area (SE SA), western Kangaroo Island and along the coastal fringe of lower and western Eyre Peninsula, extending all the way to Ceduna.



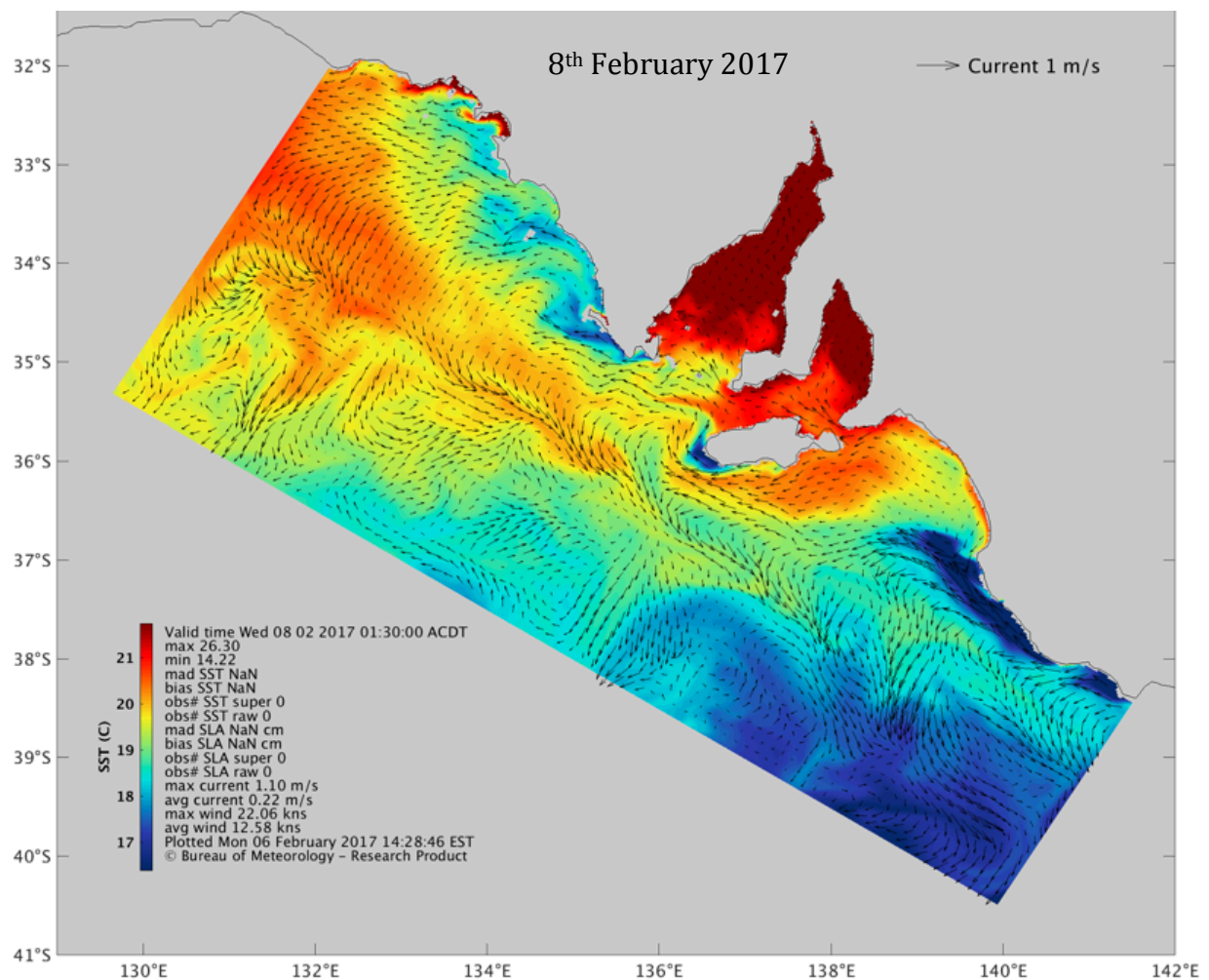


Figure 4: Now-cast (3rd February) and Short-term forecasts of Sea Surface Temperature for the 7th and 8th February 2017. Please note that the temperature scale for this map ranges from 16 to 22°C. Also shown: water currents (black arrows) wind direction (white arrows) and information on the average and maximum water current and wind speeds for the sea area outlined (SARDI-BoM 2017).

Sea Floor Temperature:

The most recent plot of sea-floor temperature is shown in Figure 5. The warmest areas continue to be the shallow Gulfs and Sanders Banks area. The upwelling continues to have a pronounced influence on sea-floor temperatures in the South East and in the “Kangaroo Island Pool” area below Lower Eyre Peninsula.

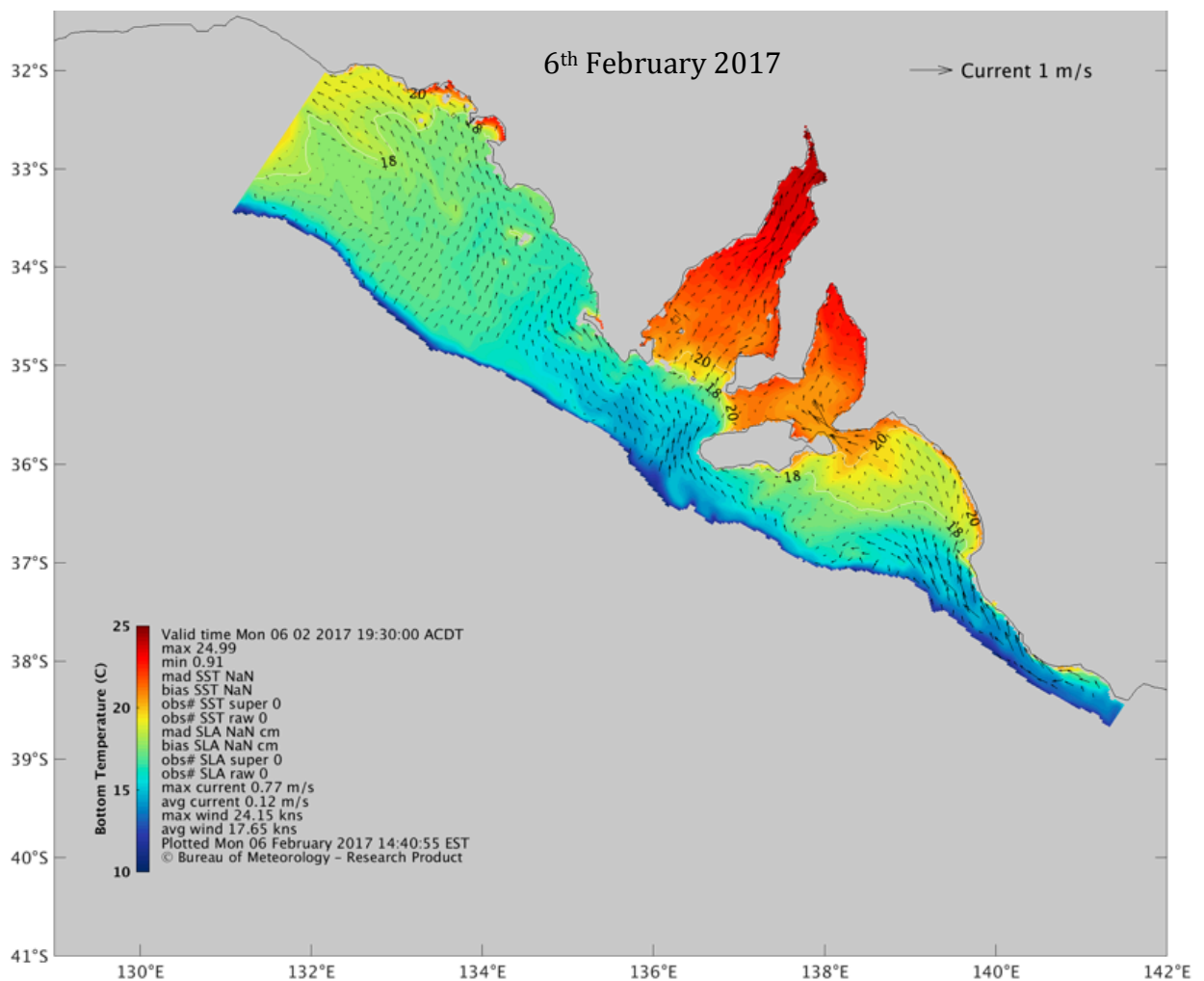


Figure 5: Temperature at the Sea Floor on 6th February 2017 taken from the draft e-SA Marine Project. Black arrows indicate water currents, and information on the average and maximum water current and wind speeds for the sea area outlined are listed in the legend (SARDI-BoM 2017).

SST Western Australia and East Coast:

The recent sea surface temperatures of regions adjacent to Western Australia and the East Coast of Australia are shown in Figure 6.

The warm waters of WA are contracting and continue to be positioned northwards of Shark Bay with limited advancement towards Cape Leeuwin. Warm water continues to push southwards along the east coast of Australia with strong eddies out from NSW and adjacent to Bass Strait.

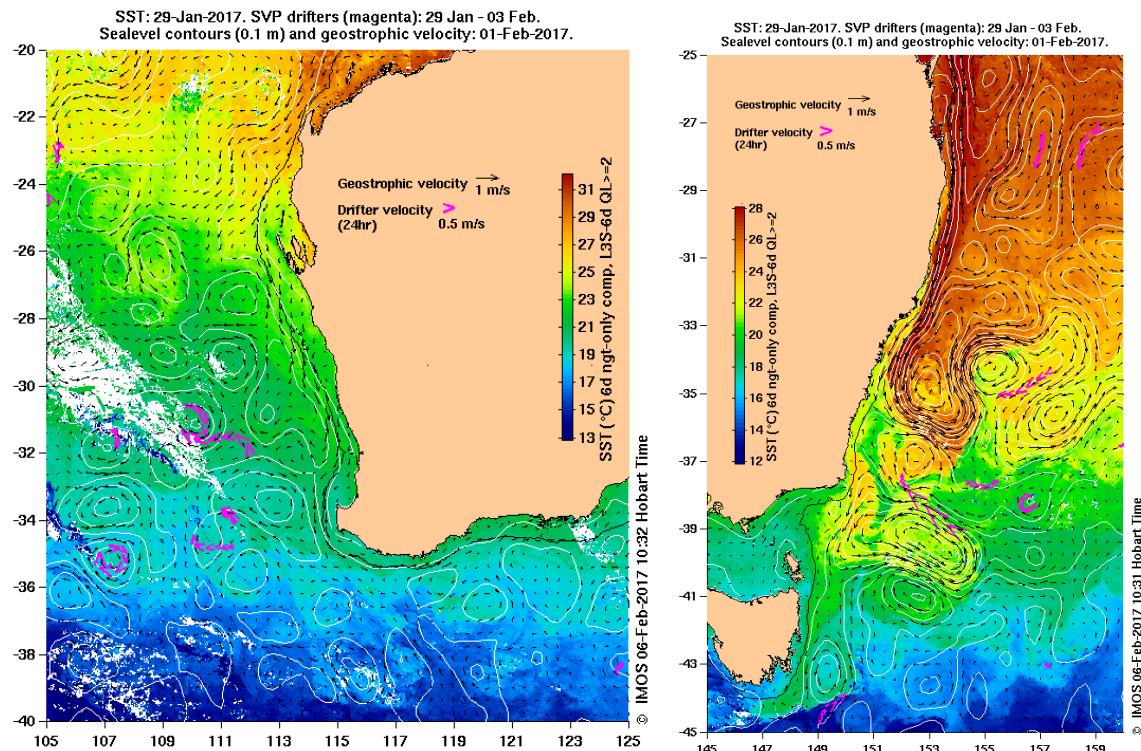


Figure 6: Sea Surface Temperatures adjacent to the west coast (left) and the east coast (right) of Australia over the past week (IMOS 2017). Please note that the temperature scales differ between the two images; the WA image ranges from 13 to 31°C and the NSW/Tas image ranges from 12 to 28°C.

Chlorophyll/productivity levels:

A single snapshot from an individual satellite pass is shown in Figure 7. Chlorophyll levels are increasing in the Sanders Banks area, and a large patch of krill was associated with the isolated patch adjacent to the cursor.

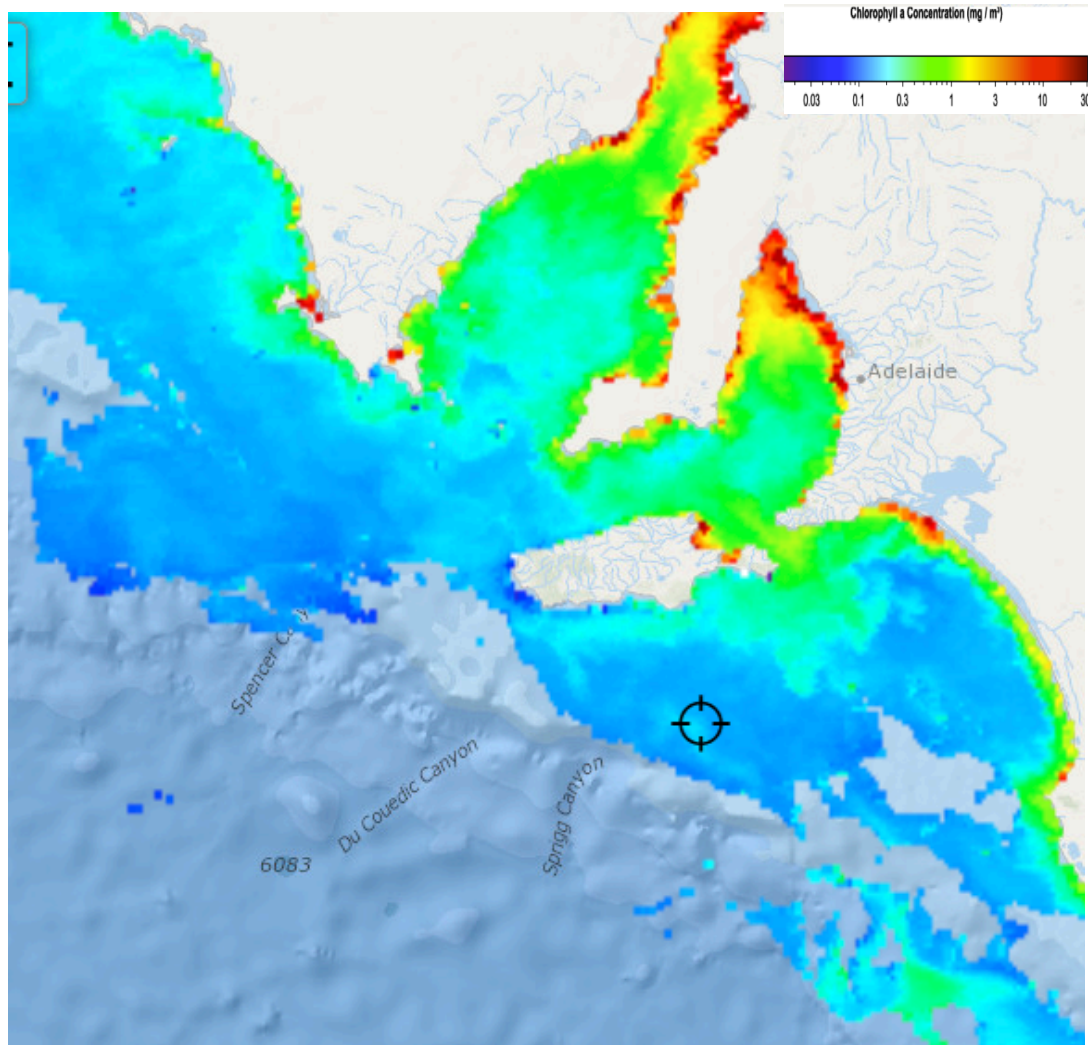


Figure 7: Chlorophyll plot from the 3rd February 2017, the grey areas are due to cloud cover (FishTrack 2017).

Further Information:

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Useful Websites:

<http://www.cmar.csiro.au/gab-forecasts/index.html>
http://godae.bom.gov.au/oceanmaps_analysis/files/sarom_rt_sst_nowcast.gif
<http://oceancurrent.imos.org.au/index.php>
<http://www.bom.gov.au>

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