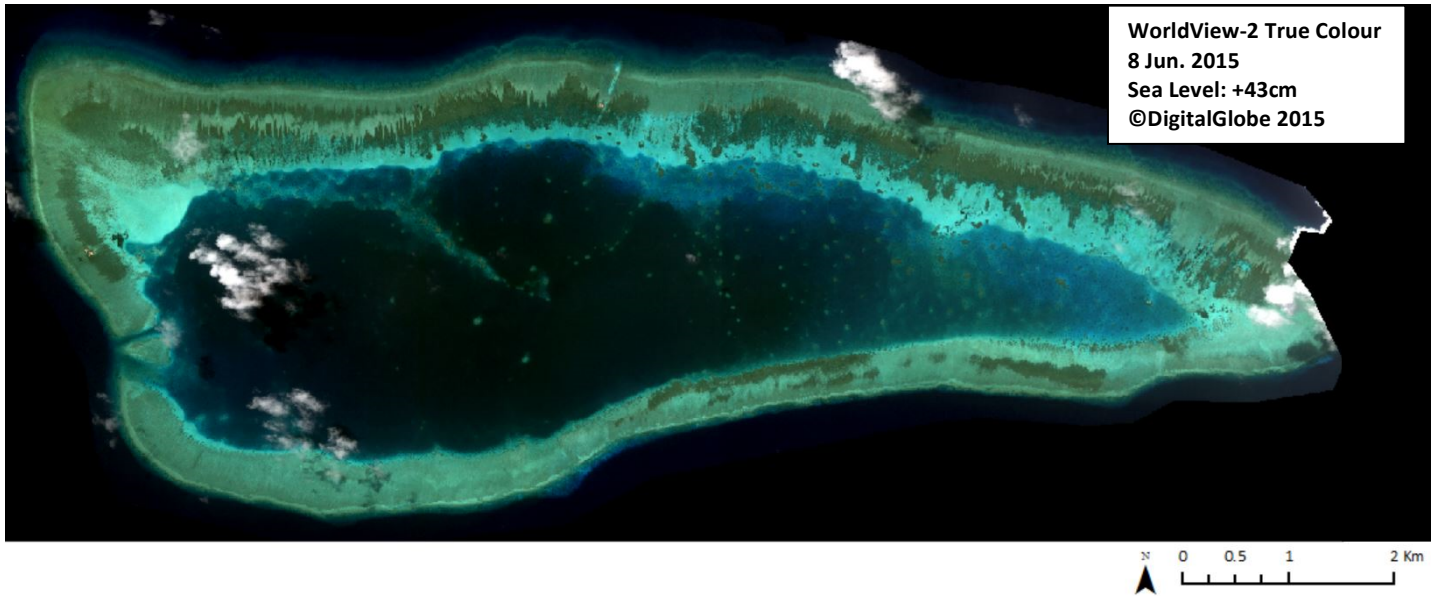


EAST REEF

8°49'33.67"N, 112°35'44.05"E

Geographic area

East Reef is an oceanic coral atoll that developed on top of a seamount in the western part of the Spratlys. It is sometimes referred to as one of the London Reefs, along with Central Reef and West Reef, although they do not appear to be geographically connected to each other. Nautical charts indicate that they stand on separate seamounts and that the seabed between them is more than 1500m deep. This atoll is located more than 250NM from mainland Vietnam (to its west) and the islands of Palawan and Borneo (to its east). The closest shallow geographic features are Central Reef (just over 12NM northeast) and Cuarteron Reef (around 10NM east). The overall atoll is shaped like a triangle, the height of which is on the west-east axis and measures 13km; the base is on the western side along the north-south axis and measures around 4km.



Land area above water

There are no visible above-water land areas in the 8 June 2015 satellite image. However, the eastern tip of the reef flat (a 1.2km by 1.1km area) is hidden by clouds and could not be examined. The 24 November 2014 satellite image made available on Google Earth suggests that there may be an 150m by 15m sand bank along the southeastern edge of the reef flat, which could be partly above water. This image is estimated to have been captured when the sea level was just below Mean Sea Level so that this area is likely to be fully submerged when the sea level increases by 80cm to reach Mean High Water Spring.

Human infrastructure

Four man-made structures can be observed (based on 24 November 2014 and 8 June 2015 satellite images). They are grouped in three locations: two are connected together and constructed on the western side of the reef flat, the third on the northern side of the reef flat and the fourth on the eastern side of the reef flat. They are all similar: a circular tower of 10-15m diameter constructed on a wider circular base with a 35 to 40m-long diameter. All but one also have two jetties that extend out for around 15m from opposite sides of the tower. One 170m-long by 25m-wide man-made channel is visible in the 8 June 2015 satellite image (but not in the 24 November 2014 satellite image) on the outer part of the northern reef flat towards the third tower. It is 3-3.5m deep (instead of 2-2.5m of water depth on the surrounding reef flat). Two 200m-long stretches of non-accessibility devices have been placed on each side of the channel, along the edge of the reef flat. Another 130m-long by 4m-wide irregular track appears to have been built to link the western tower to the lagoon.

Intertidal and submerged area

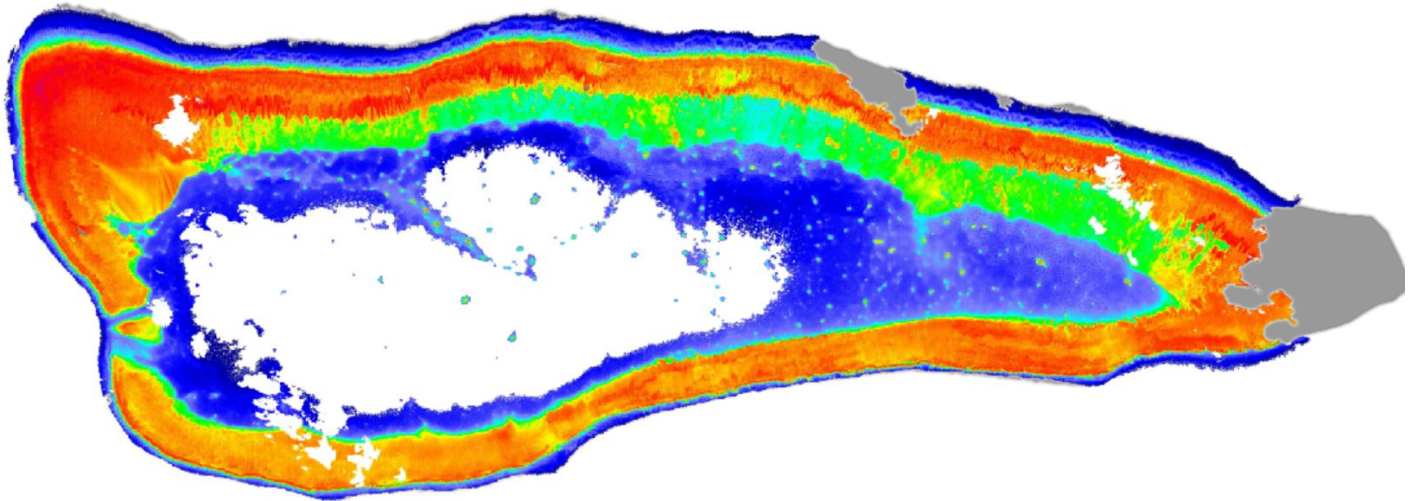
The aerial coverage of this atoll is 42.88km². The reef flat is a 28.5km-long band that surrounds the central lagoon and is 18.03km². It is composed of a shallow part (1.5-2m) along the seaward edge of the reef flat that is generally coral/seagrass/algae-dominated and is 400m wide. The northern side of the reef flat also includes a deeper (2-4m) and mostly sandy back reef that is 300-400m wide and slopes into the lagoon. Small patches are expected to uncover at Lowest Astronomical Tide on the northern side, in particular around the west and eastern tips as well as towards the centre. The overall reef slope has an aerial coverage of 5.72km². It extends generally 300m seaward off the northern side of the reef flat where pronounced spurs and grooves are visible, many of which are more than 1m high. The reef slope is narrow off the western and southern sides, generally 100-150m at the most. The aerial coverage of the lagoon is 19.14km². It is 5-7m deep all around. A reticulate reef system dominates the eastern half of the lagoon and can be seen in patches in the northwestern part. Numerous coral reef heads and knolls of varying size are also visible throughout. Some dredging marks are visible around the northern tower. Distinctive areas of seagrass/algae/cyanobacteria can also be observed (99,000m² total).

EAST REEF

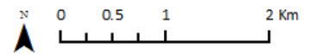
8°49'33.67"N, 112°35'44.05"E

Derived from WorldView-2 satellite data captured on 8 June 2015 [Sea Level: +43cm]

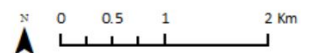
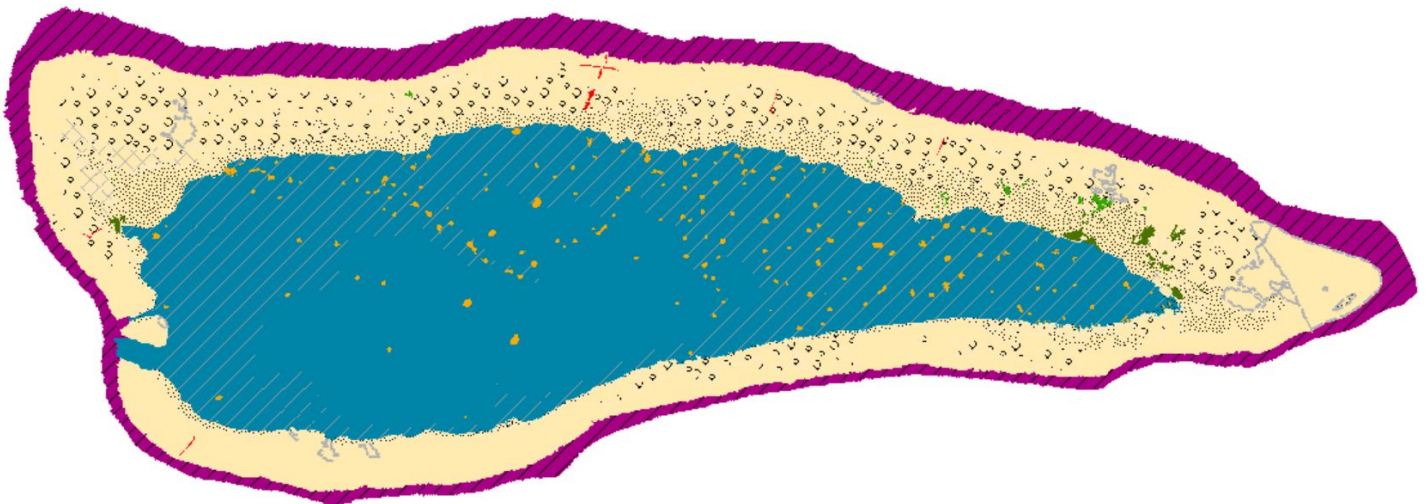
Bathymetry Map*



* Areas in grey show the outer boundary of the feature where bathymetry could not be calculated due to cloud cover, waves or other factors.

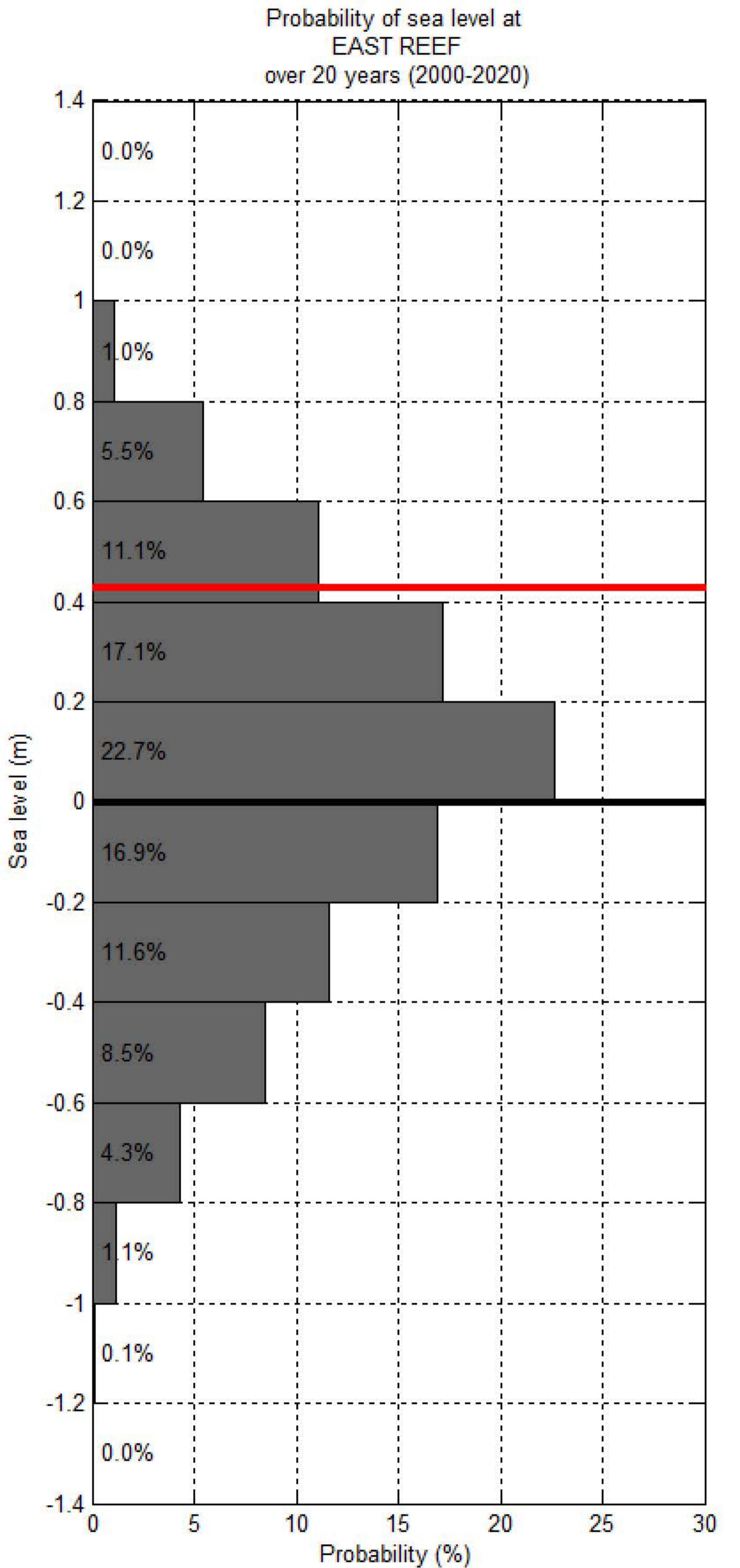
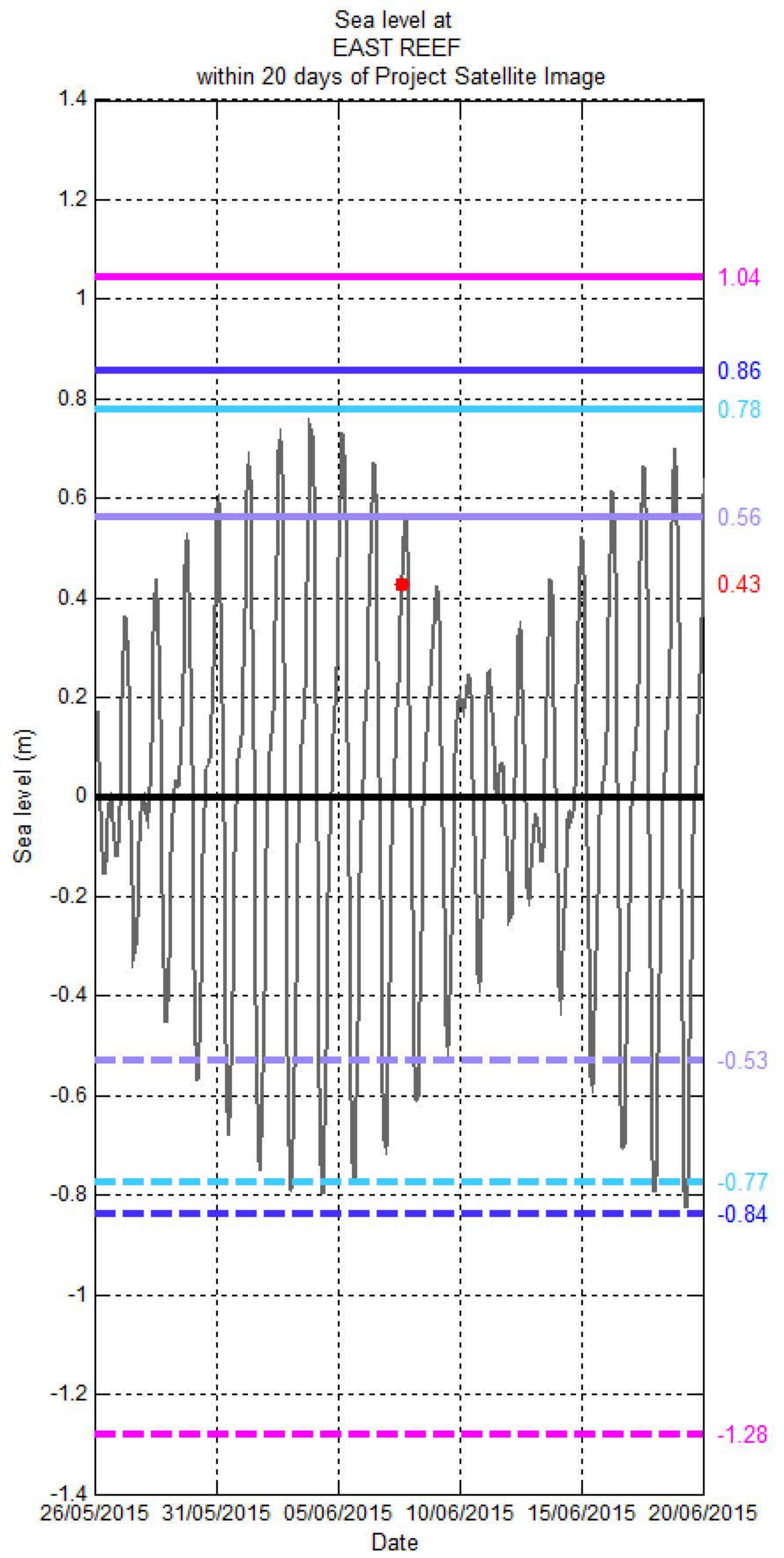
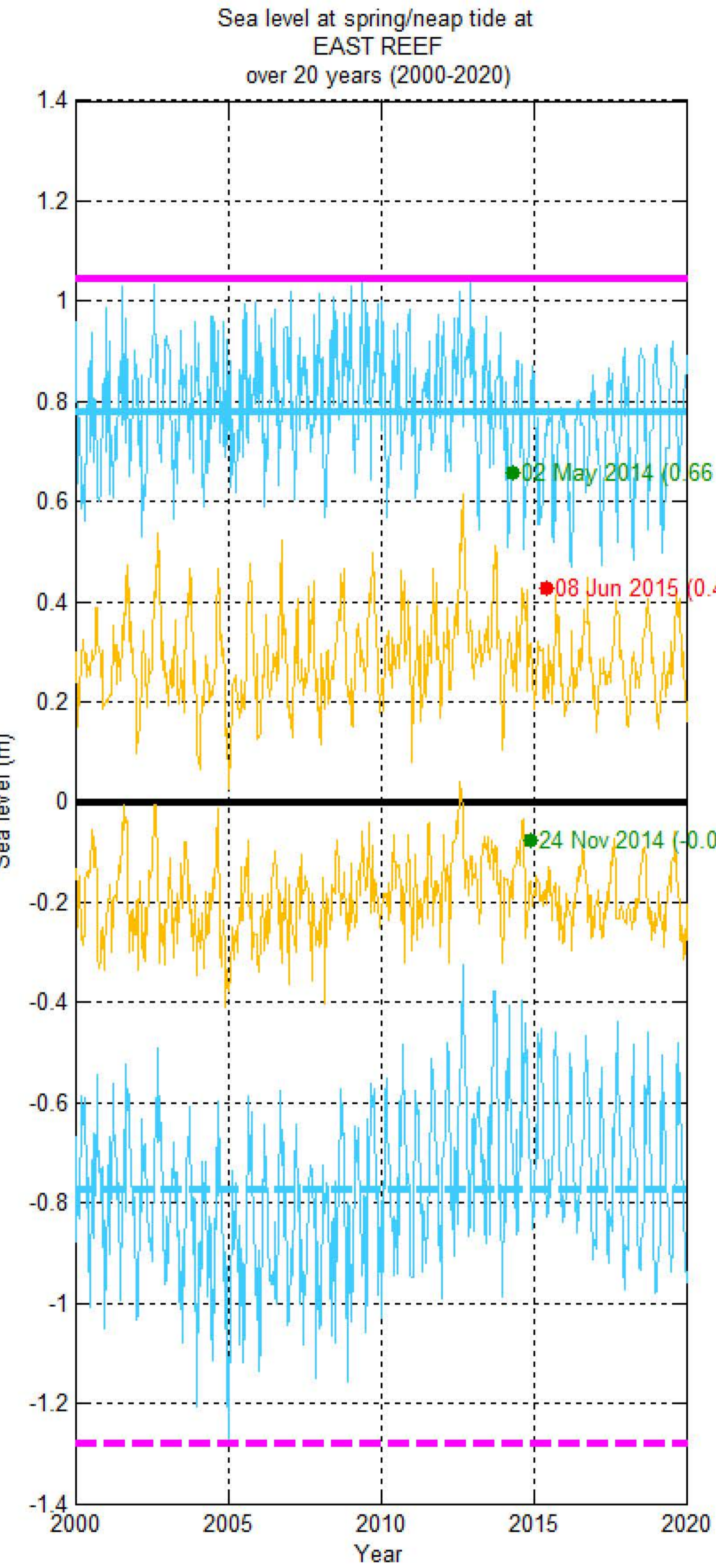


Habitat Classification and Land Cover Map



Sea level (SL) at EAST REEF

[8°49'33.67"N, 112°35'44.05"E]



— Hourly sea level
 — SL at spring tide
 — SL at Mean High Water Spring
 — SL at highest tide of the year
 — SL at Mean Higher High Water
 — SL at Highest Astronomical Tide
 ● Project Satellite Image
— Mean Sea Level
 — SL at neap tide
 — SL at Mean Low Water Spring
 — SL at lowest tide of the year
 — SL at Mean Lower Low Water
 — SL at Lowest Astronomical Tide
 ● Google Earth and Landsat satellite images