

## THITU ISLAND (THITU REEFS)

11°03'17.70"N, 114°17'08.60"E

### **Geographic area**

Thitu Island is located on the shallow reef platform that marks the eastern tip of Thitu Reefs' western atoll, in the northwest of the Spratly. The closest shallow geographic features are Meiju Reef, 1NM east and Sandy Cay 1, 1.5NM northwest. The reef flat on which Thitu Island is located measures close to 2km long along its southwest-northeast axis and 1.5km along its northwest-southeast axis.



GeoEye-1 True Colour  
23 May 2011  
Sea Level: +54cm  
©DigitalGlobe 2011

### **Land area above water**

Thitu Island is the only above-water area of Thitu Reefs that is covered with terrestrial vegetation and built-up. It measures 760m along its west-east axis and 600m along its north-south axis (0.40km<sup>2</sup>). It is surrounded by a narrow (15-30m) beach of white sand. The vegetation is primarily located in the northern part of Thitu

Island, where it is dense. Overall, it covers 48% of Thitu Island. Another visible characteristic is the darkness of the soil visible in barren areas.

### **Human infrastructure**

In the 23 May 2011 satellite image, over 45 buildings can be observed as well as around 20 man-made structures of different sizes. They have been constructed in close proximity to each other along two roads that lead to the beach. A 1.3km runway is clearly visible in all the satellite images available. It protrudes over the reef flat on both sides of Thitu Island and may be partly unsealed in the middle. In the 15 February 2015 satellite image, the most evident change is the construction of additional roads, a few clearings and buildings through the vegetated area.

### **Intertidal and submerged area**

The surface area of the reef flat is 1.88km<sup>2</sup>. It is mostly 1.4-1.6m deep at a moderate high tide, when the sea level is 54cm above Mean Sea Level. It is therefore expected that some areas will uncover at Lowest Astronomical Tide, when the sea level is expected to decrease by 1.62m. The reef slope is narrow (less than 100m) and expected to be steep off the southern, southeastern and eastern sides of the reef flat. It is longer in the north, where it extends over 300m, and even longer on the northwestern and southeastern sides where it connects to the main ring of the atoll. Spurs and grooves are visible throughout. A wreck can be observed on the lagoon side (west) of Thitu Island, on the outer edge of the reef flat. Several small fishing vessels are visible, on the water as well as pulled up on the beach. Numerous dredging marks and human-made tracks are visible in the 2011 satellite image. These and additional ones are visible in the 2015 satellite image. Distinctive patches of seagrass/algae are visible, totalling 0.50km<sup>2</sup>. They appear to have increased in 2015.

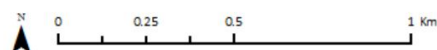
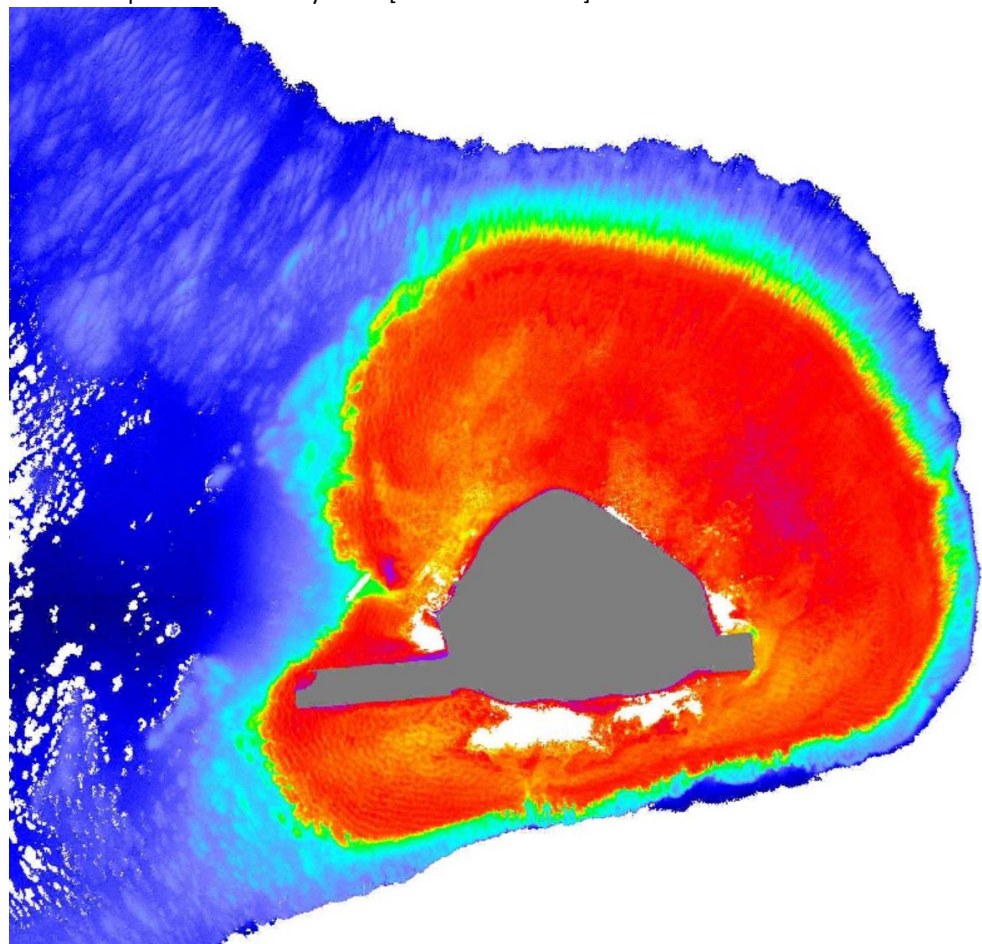


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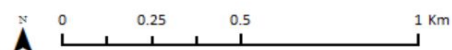
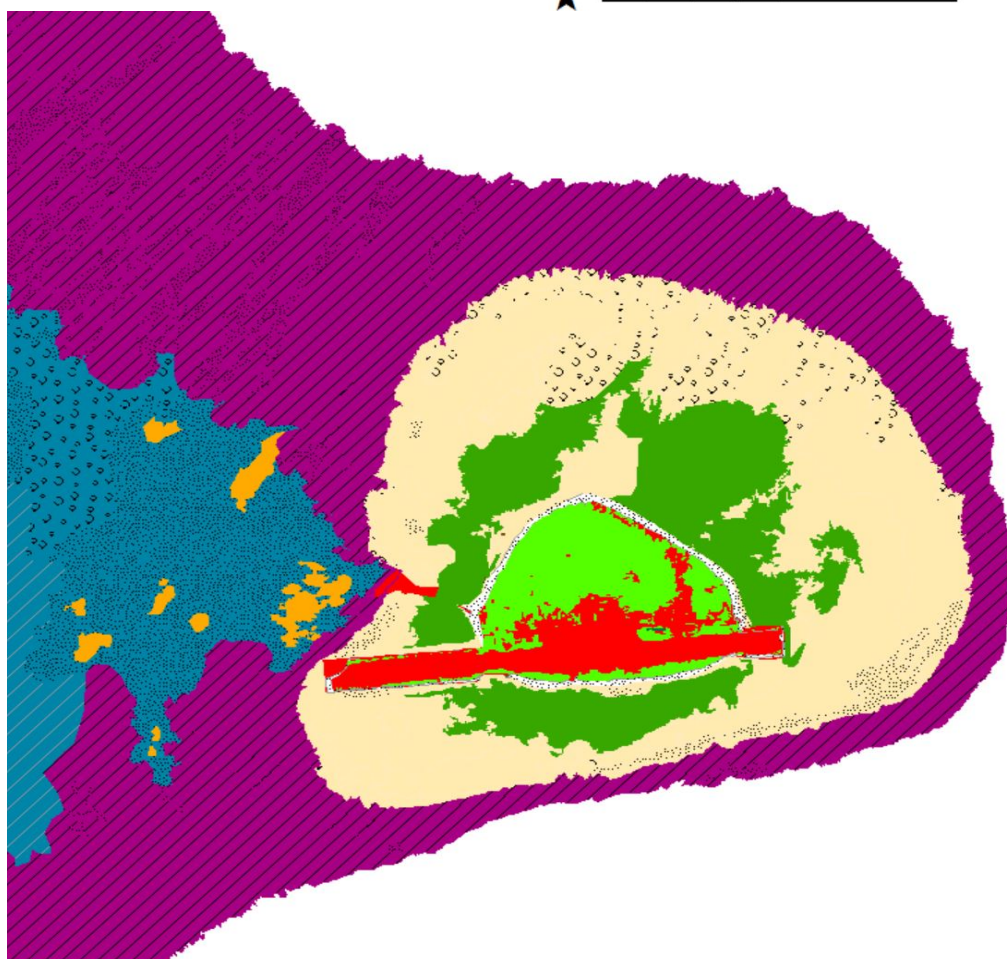
11°03'17.70"N, 114°17'08.60"E

Derived from GeoEye-1 satellite data captured on 23 May 2011 [Sea Level: +54cm]

### Bathymetry Map



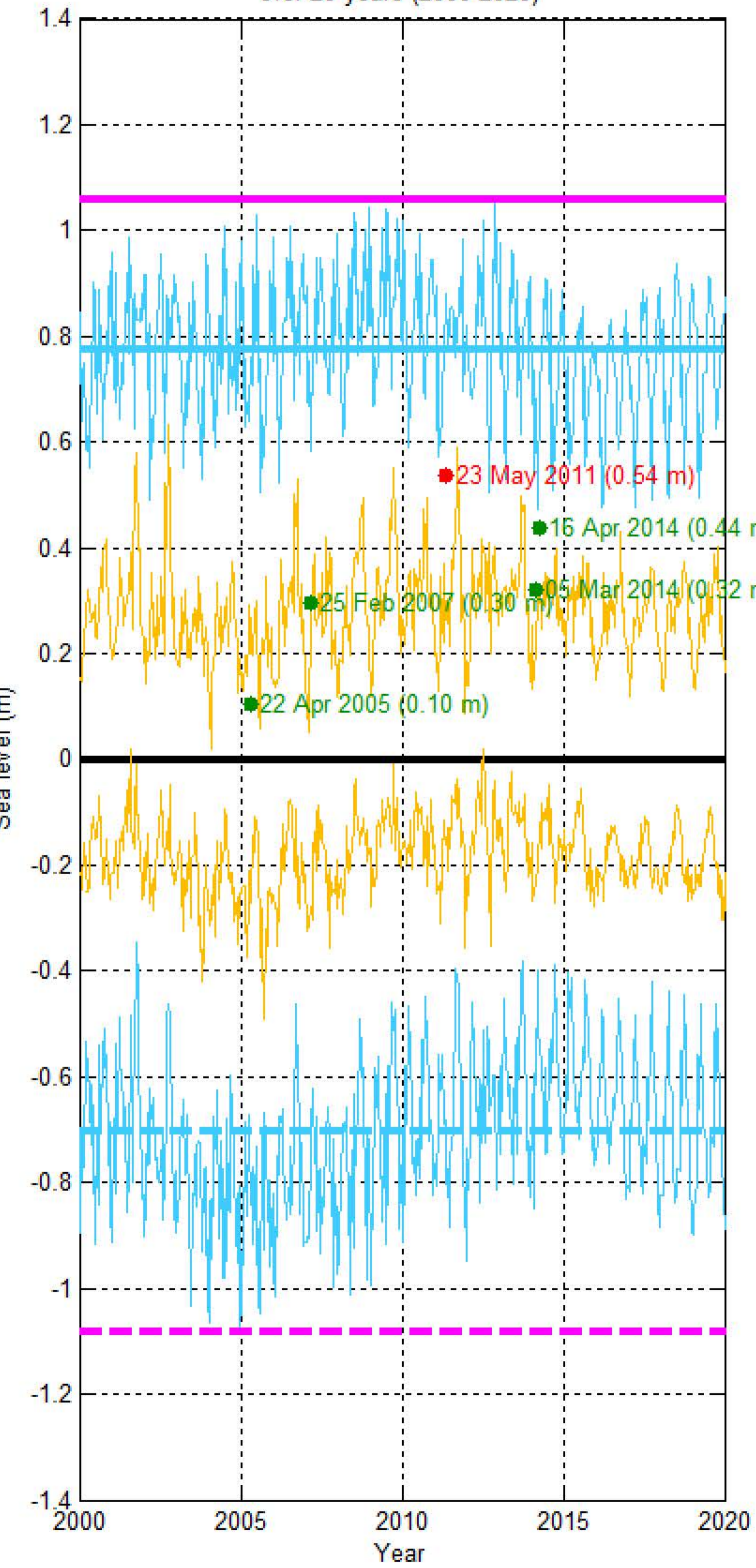
### Habitat Classification and Land Cover Map



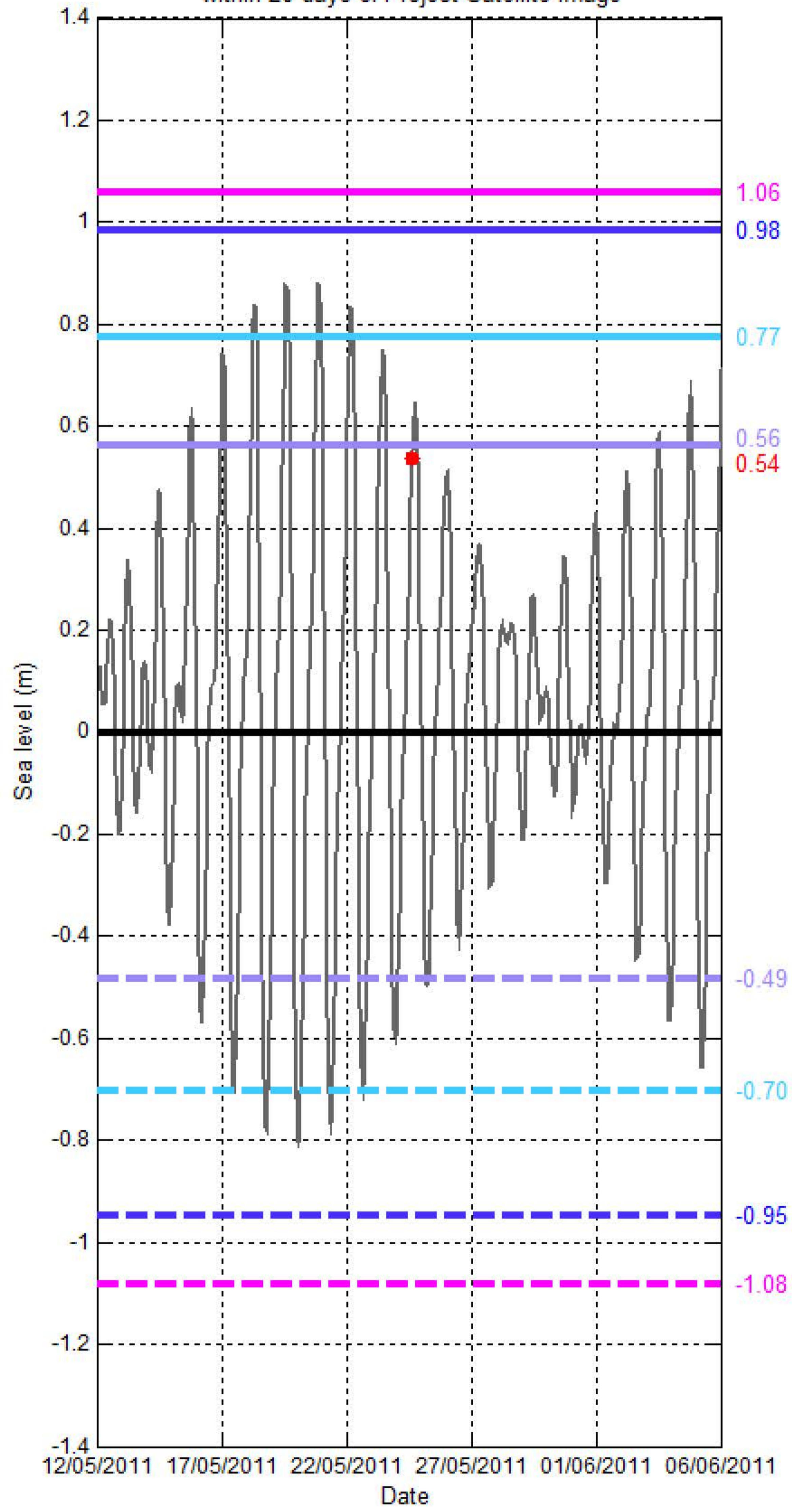
# Sea level (SL) at THITU ISLAND (THITU REEFS)

[11°03'17.70"N, 114°17'08.60"E]

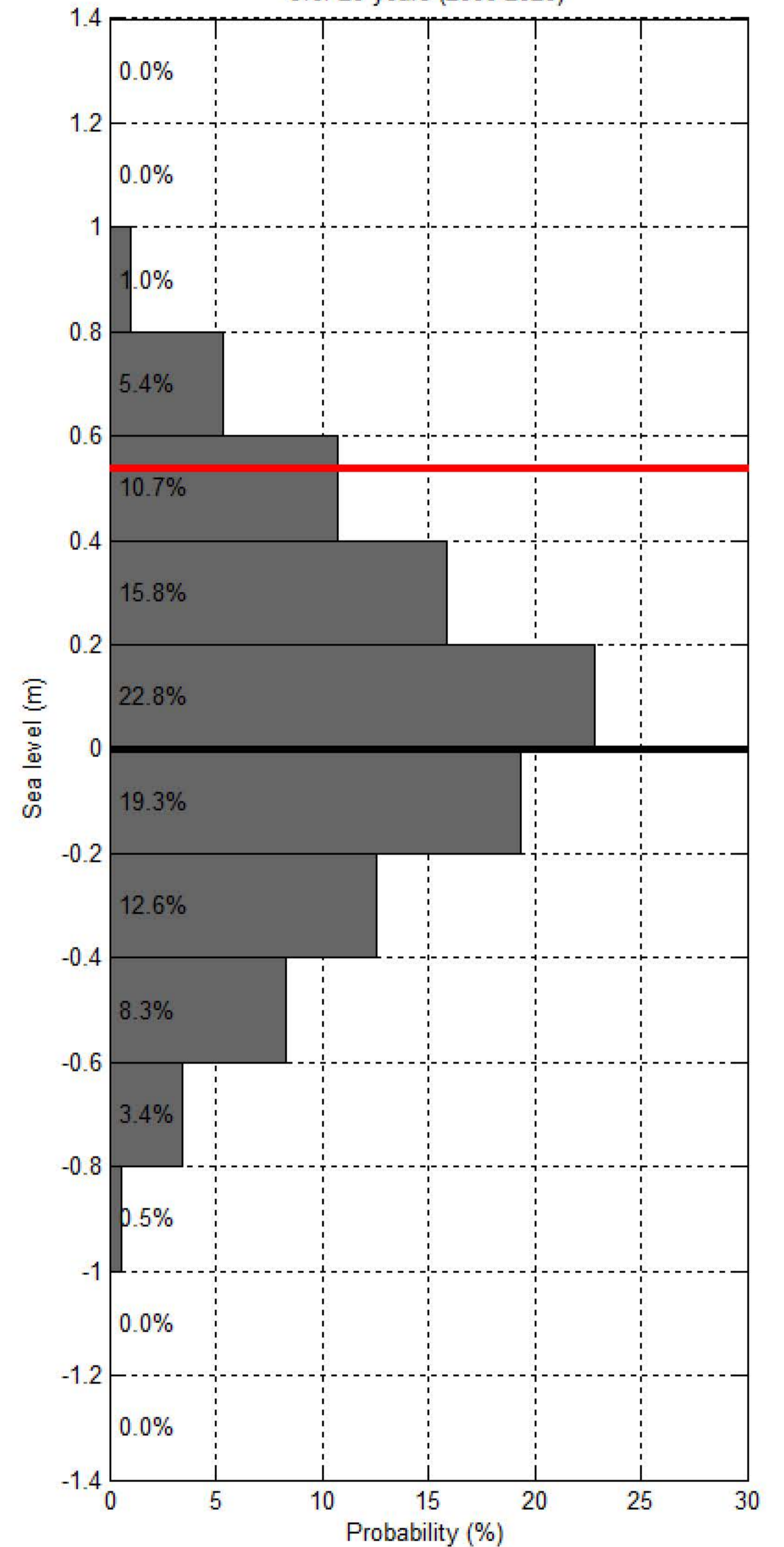
Sea level at spring/neap tide at THITU REEFS - THITU ISLAND over 20 years (2000-2020)



Sea level at THITU REEFS - THITU ISLAND within 20 days of Project Satellite Image



Probability of sea level at THITU REEFS - THITU ISLAND over 20 years (2000-2020)



— Hourly sea level   
 — SL at spring tide   
 — SL at neap 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 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