

## MARIVELES REEF

7°58'37.82"N, 113°54'46.93"E

### **Geographic area**

Mariveles Reef is an oceanic coral atoll that has developed on top of a seamount in the southern part of the Spratlys and is shaped like an hour glass. It is located less than 170NM northwest of the island of Borneo and around 180nm southwest of the island of Palawan. The closest shallow geographic feature is Erica Reef, 13.5NM northwest. The atoll extends close to 10km along its northeast-southwest axis and from 600m to over 3km along its southwest-northeast axis.

### **Land area above water**

There are no above-water land areas in the 21 March 2013 satellite image that was captured when the sea level was 23cm above Mean Sea Level, or in the 8 March 2015 satellite image (viewable on Google Earth) although several areas appear to be very shallow and possibly awash.

### **Human infrastructure**

Several man-made structures have been constructed in the middle of the southwest-facing side of the reef flat, close to the southeastern tip of the northern lagoon. Several buildings can be observed on a 25m by 25m area located on the northeastern edge of an artificial harbour surrounded by a visible seawall. A man-made channel in the reef flat connects the harbour with the open sea. The harbour measures 90m by 70m and is 3.3m deep. The channel is 20m long and has the same depth.



### **Intertidal and submerged area**

The aerial coverage of this atoll is 18.75km<sup>2</sup>, comprising a reef flat of 12.33km<sup>2</sup>, two lagoons of 4.59km<sup>2</sup> and 0.38km<sup>2</sup> from north to south and a reef slope of 1.45km<sup>2</sup>. The reef flat surrounds a lagoon in the northwestern and southeastern part of the atoll and is narrow in the middle. The shallowest part of the reef flat is a 200m-wide band adjoining the reef slope that is coral/seagrass/algae dominated and is 1-1.4m deep, except in two areas where it is less than 1m deep. Any part of the reef flat that is less than 1.40m is expected to uncover at Lowest Astronomical Tide. The sandy back reef along the lagoon is 2-3m deep. Another characteristic of the reef flat is the presence of 50cm high sand ridges in the back reef that is north of the southern lagoon. They stretch towards the southeast for 1.5km, making this area resemble corrugated iron. The same ridges are visible in the 8 March 2015 satellite image. The lagoons are characterised by a dense reticulate reef system. The northern lagoon is 6-8m deep; the smaller southern lagoon is around 5m deep. The reef slope is generally narrow all around, particularly on the western side (where it does not exceed 30m), suggesting a particularly steep reef slope. The eastern side is generally 50-100m long. Pronounced spurs and grooves are visible throughout.

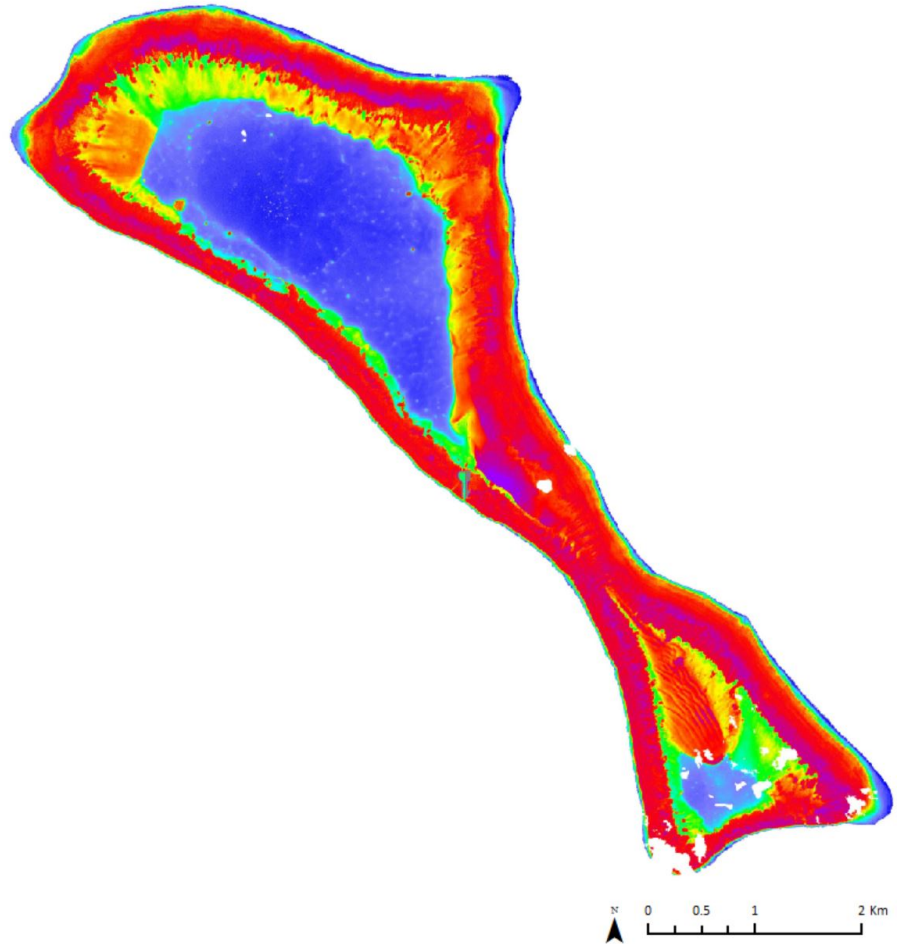
There are no clear dredging marks visible in the 21 March 2013 image but in some areas, the reef looks degraded and localised tracks can be observed in the coral/seagrass/algae cover. More such tracks likely to have been caused by human activities are visible in the 8 March 2015 satellite image. Distinctive areas of seagrass/algae/cyanobacteria are also visible.

# MARIVELES REEF

7°58'37.82"N, 113°54'46.93"E

Derived from WorldView-2 satellite data captured on 21 March 2013 [Sea Level: +23cm]

## Bathymetry Map

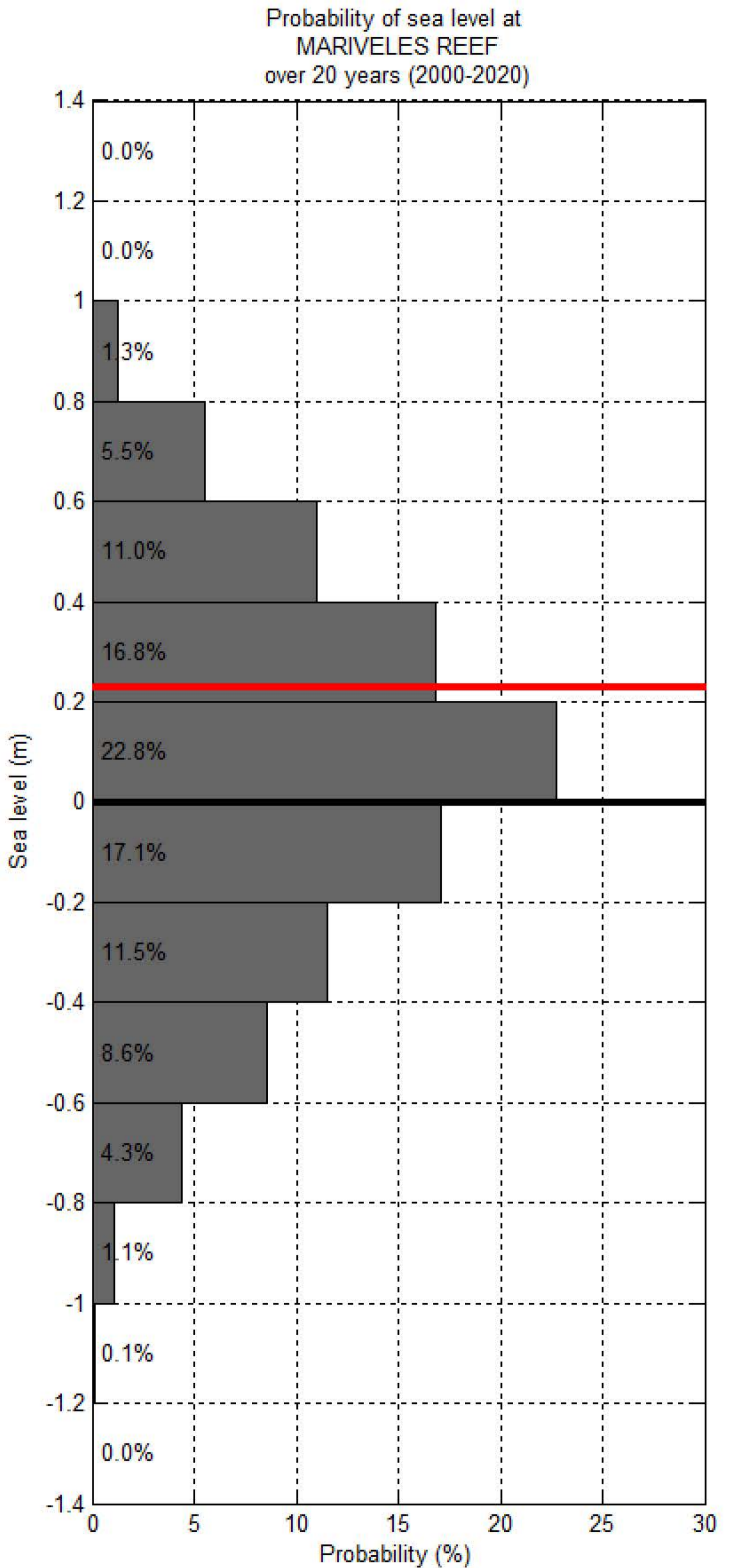
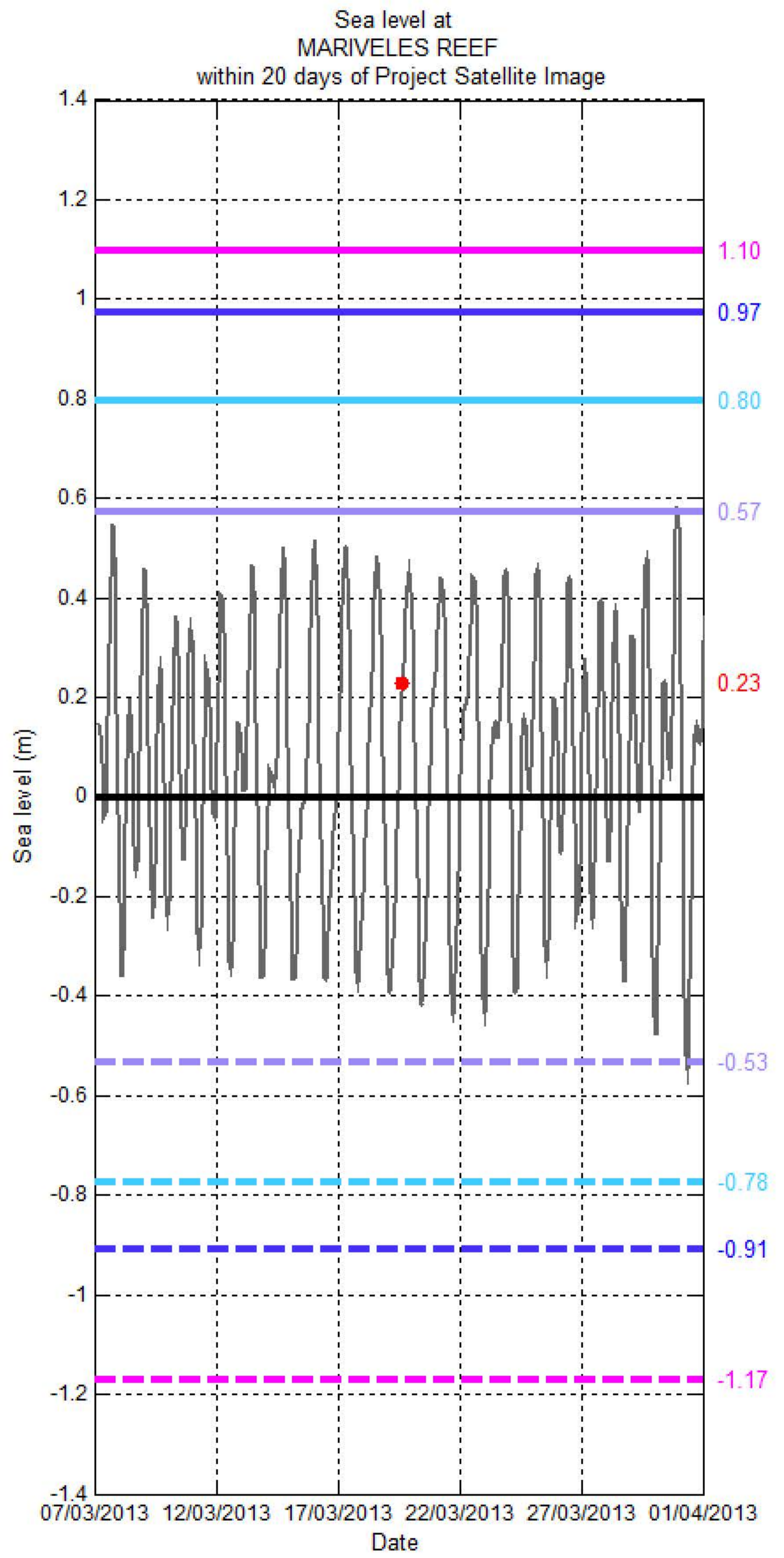
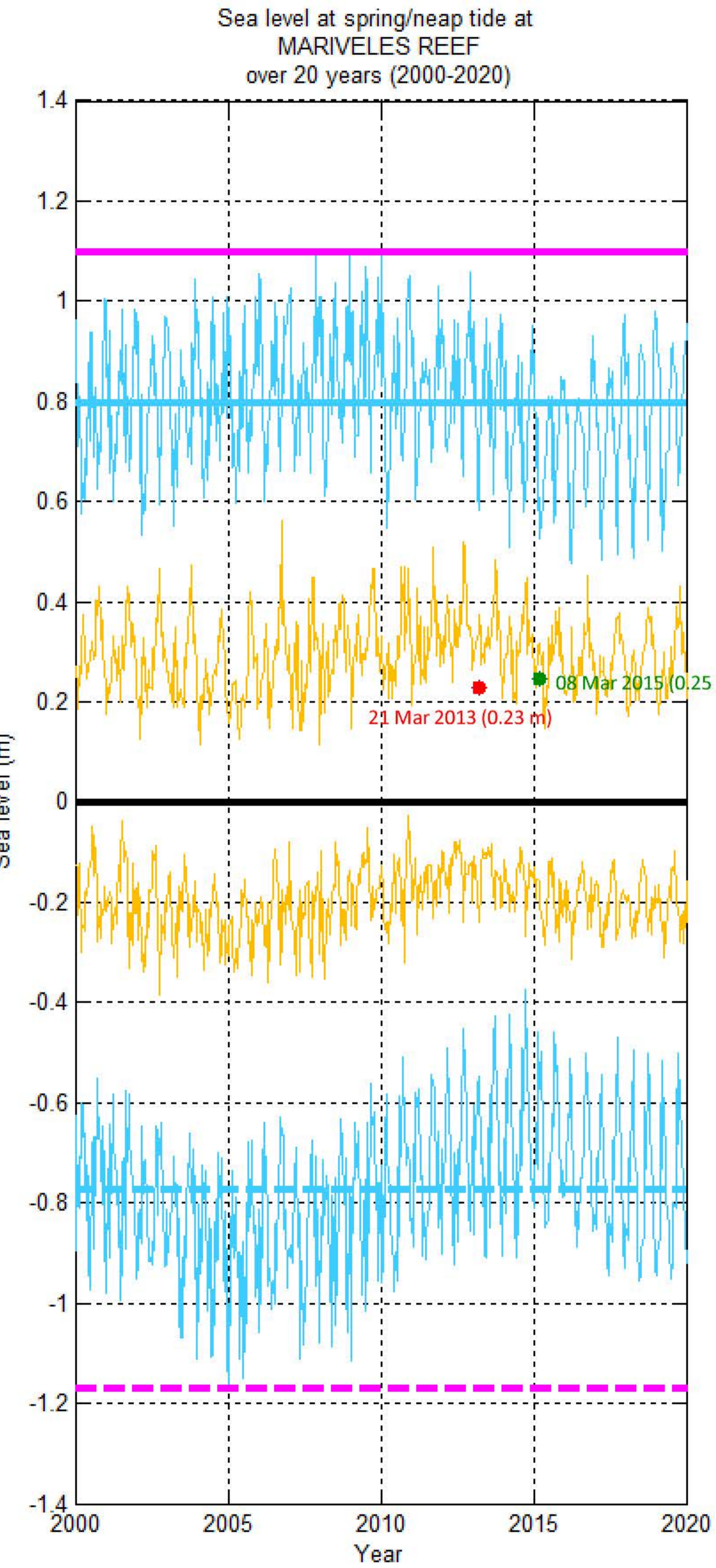


## Habitat Classification and Land Cover Map



# Sea level (SL) at MARIVELES REEF

[7°58'37.82"N, 113°54'46.93"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