

PATTLE ISLAND (CRESCENT GROUP)

16°32'20.42"N, 111°36'40.3"E

Geographic area

Pattle Island is located on the southeastern part of a reef platform located on the western side of Crescent Group, a submerged atoll in the western part of the Paracels. The reef flat of Pattle Island is just over 140NM southeast of the island of Hainan and 170NM northeast of Vietnam's mainland. The closest shallow geographic features in the Crescent Group are the reef flats of Robert Island and that of Quanfu Island and Yagong Island, both less than 2NM, northeast and south, respectively. Outside the Crescent Group, the closest shallow geographic feature is Discovery Reef, over 16NM south. The reef platform of Pattle Island extends 4.6km along its northeast-southwest axis (and may connect at greater depths with the reef slope of Quanfu Island and Yagong Island) and over 1.6km along its northwest-southeast axis.



Land area above water

Pattle Island is the largest and only vegetated above-water land area of this reef platform. It extends over 800m from west to east and 400m from north to south, with an overall surface area of

0.31km², of which 0.22km² is vegetated (71% of the above-water area). It is surrounded by a narrow (10-20m) beach of white sand. Sedimentary rock formations, which can also be observed along the northern and northwestern shores, are mostly above water, although some are partly intertidal. Human infrastructures can be observed, including roads bordered by palm trees. Several sand banks are visible on the southern part of the reef flat, with above-water sections, the largest of which is 160m long by 80m wide. Based on the assumption that the 18 February 2013 satellite image was captured when the sea level was 16cm above Mean Sea Level, it is expected that the sea level increases by 60cm at Mean High Water Spring, at which stage of the time cycle it covers the sand banks partly if not entirely. Based on other images viewable on Google Earth, where visible sand banks have a different shape and location than in the 2013 satellite image, the sand banks on the reef flat of Pattle Island appear to be dynamic under the combined effect of astronomic tides, storm surges and wind-waves.

Human infrastructure

In the 18 February 2013 satellite image, around 40 man-made structures can be counted on Pattle Island. They are mostly located along a geometric road network that connects them together. Palm trees arranged in rows are also visible along the roads and between buildings. Areas of cultivation and community centres can also be observed. A 150m-wide artificial harbour surrounded by seawalls has been constructed on the south-facing side; it is 3-4m deep and connects to the open sea through a 50m-wide and 330m-long man-made channel of the same depth, which cuts through the reef flat.

Intertidal and submerged area

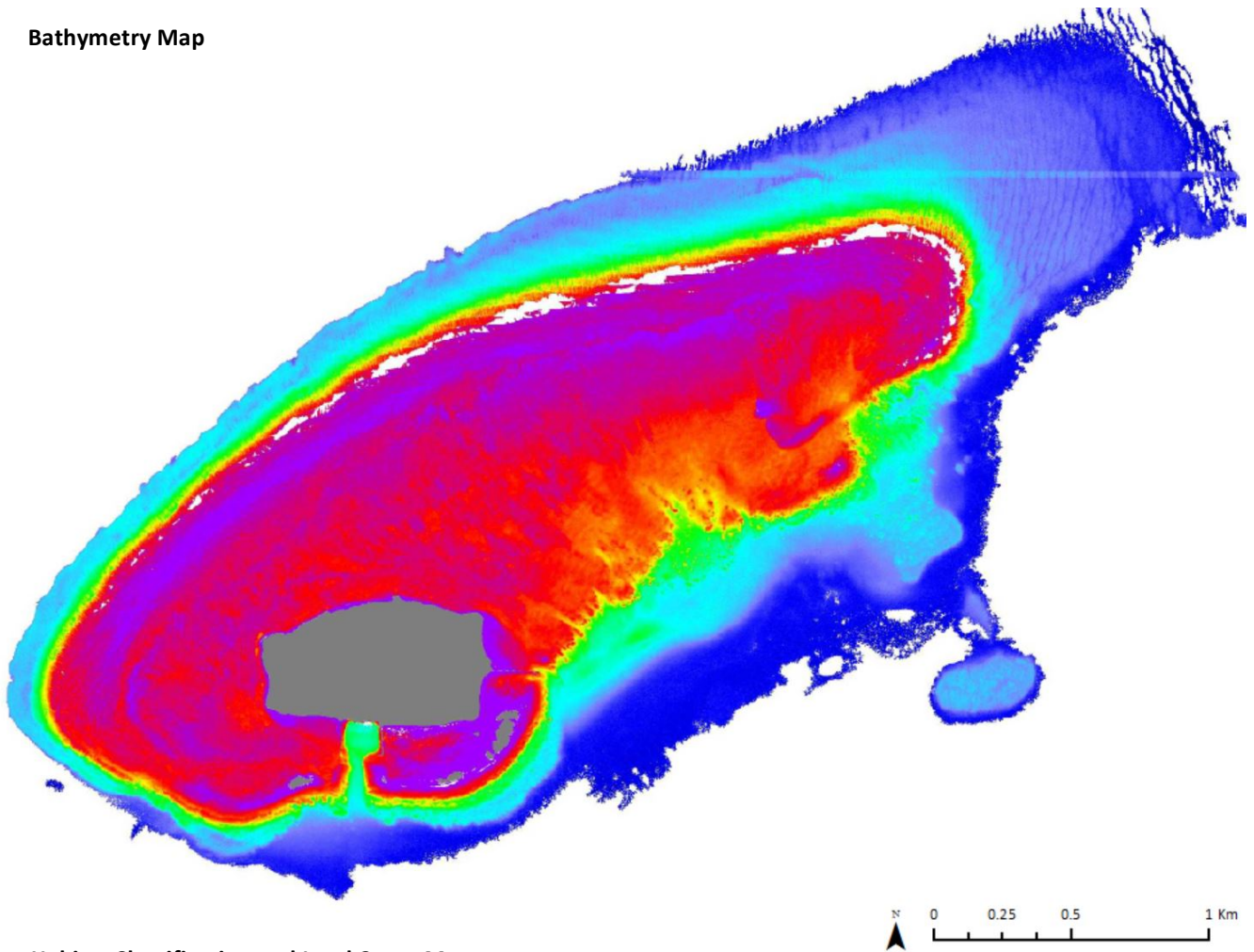
The aerial coverage of the reef platform is 6.14km²; the reef flat covers 3.57km² and the reef slope covers 2.56km². Most of the reef flat is 0.8-1.4m deep at Mean Sea Level (MSL), except areas that surround the sand banks as well as some parts of the outer part of the reef flat (especially along the northwest-facing side), which are shallower. It is expected that the parts of the reef flat that are less than 1m deep at MSL will be exposed at Lowest Astronomical Tide. The reef slope extends 50-250m off the reef flat, except on the northeastern side. Pronounced and regularly-spaced spurs and grooves are particularly visible off the northwestern, northern and northeastern sides.

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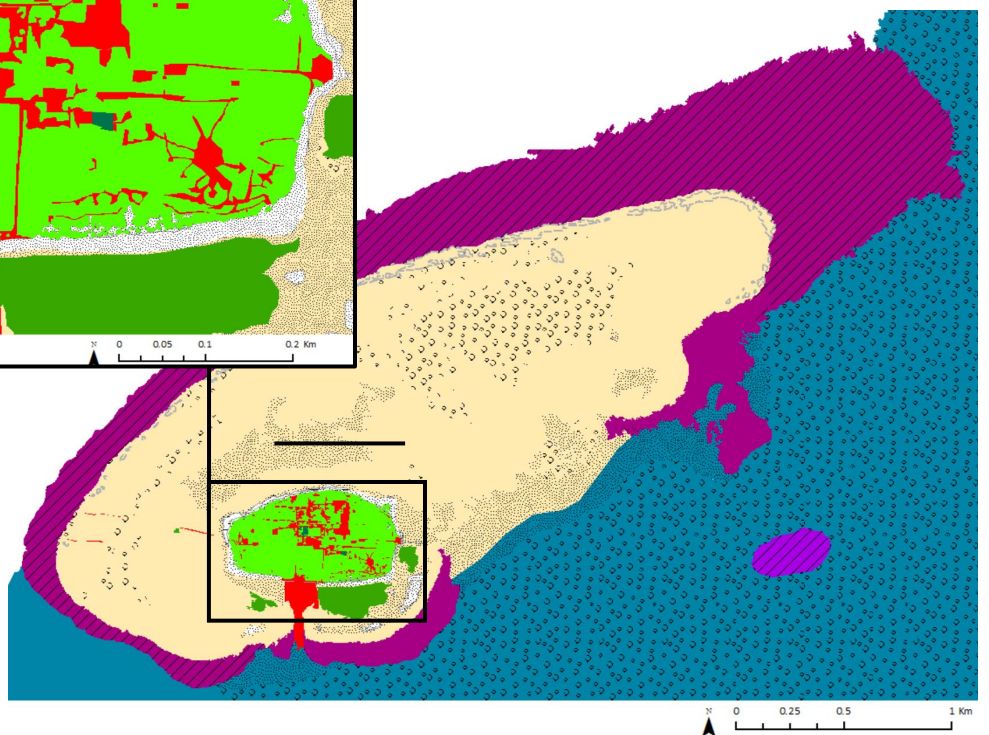
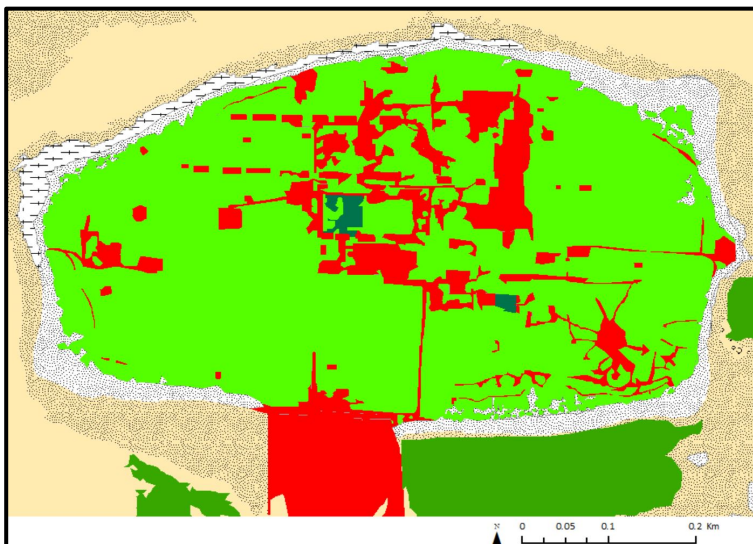
16°32'20.42"N, 111°36'40.3"E

Derived from GeoEye-1 satellite data captured on 18 February 2013 [Sea Level: +16cm]

Bathymetry Map



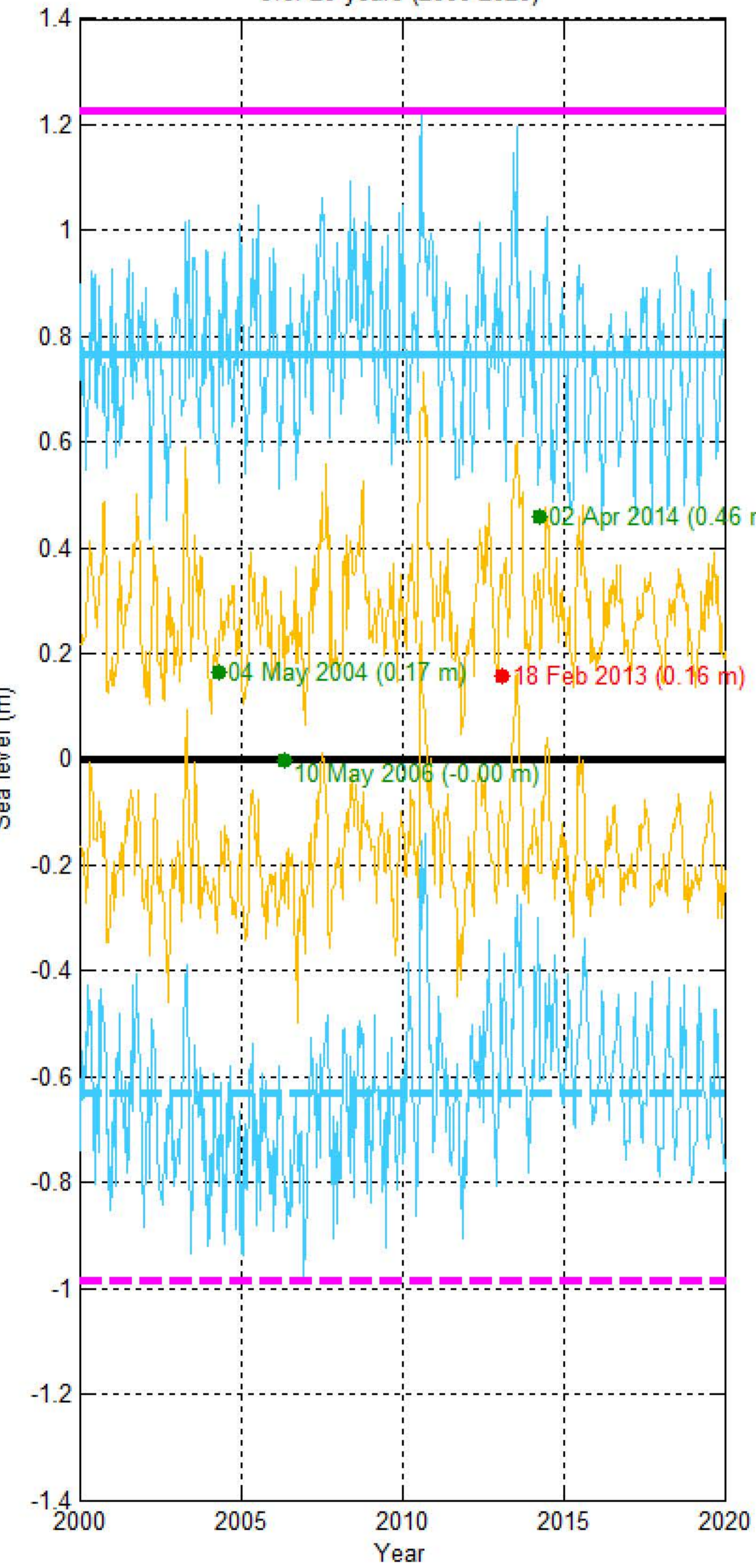
Habitat Classification and Land Cover Map



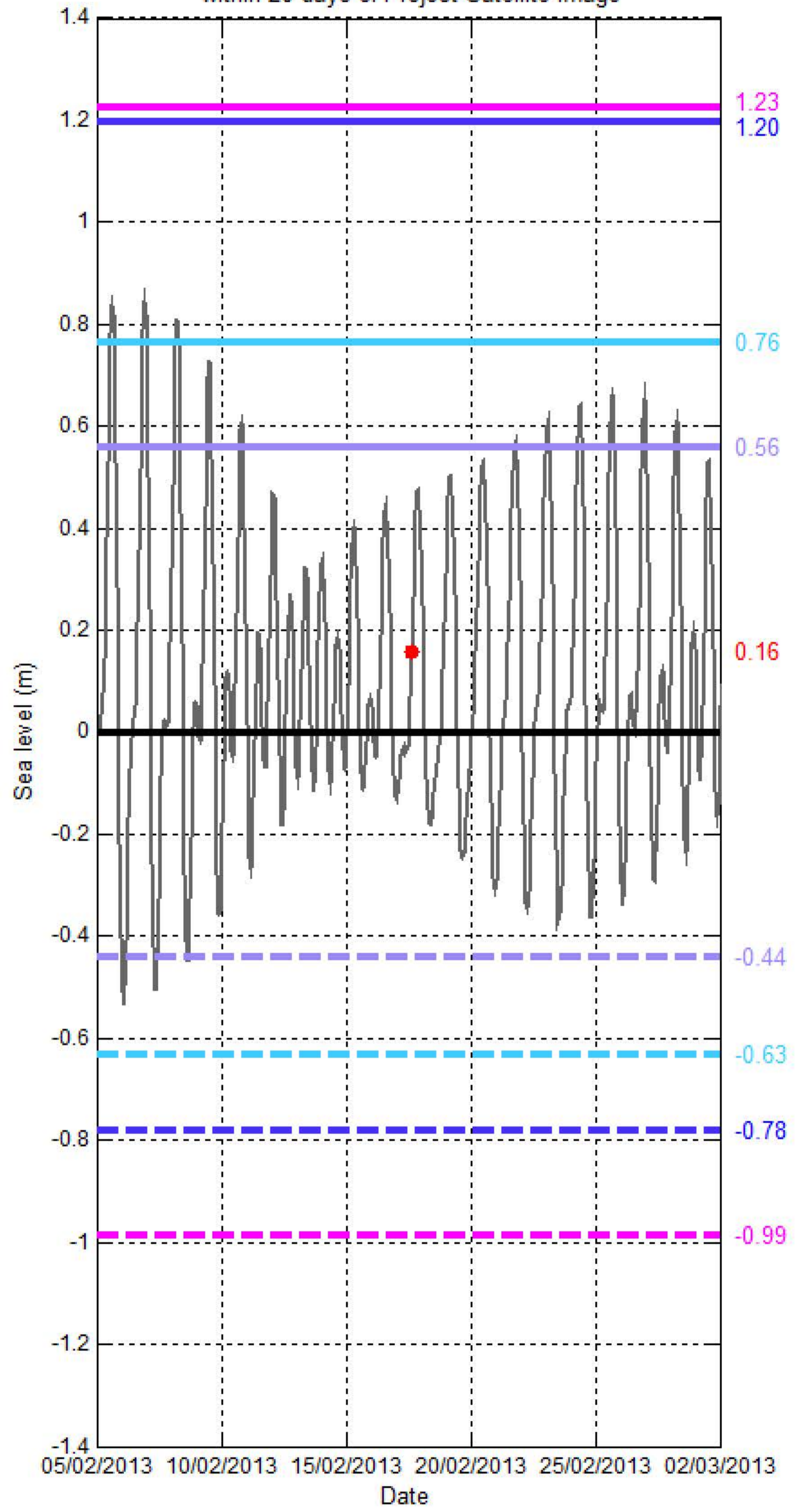
Sea level (SL) at PATTLE ISLAND (CRESCENT GROUP)

[16°32'20.42"N, 111°36'40.30"E]

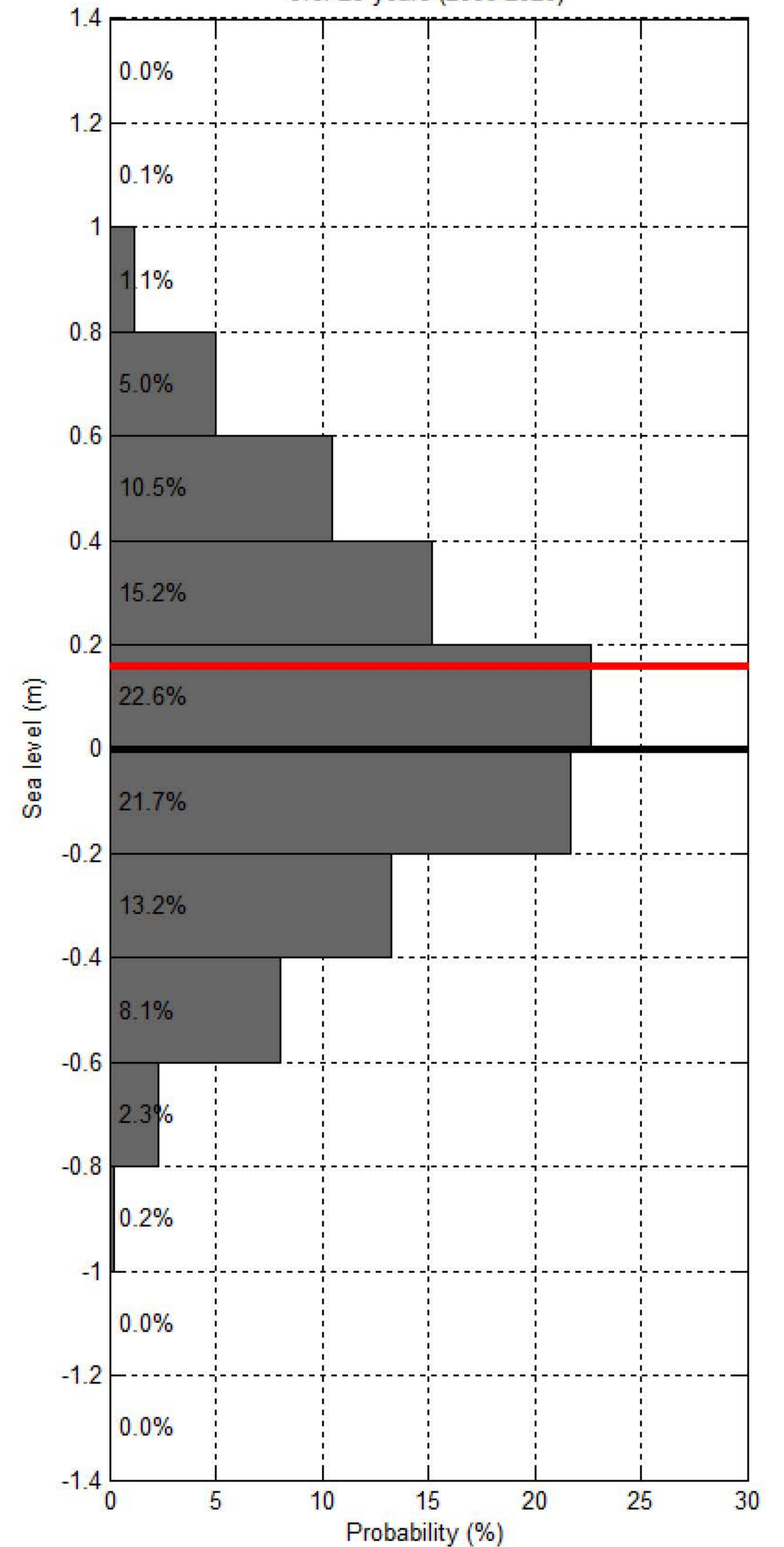
Sea level at spring/neap tide at CRESCENT GROUP- PATTLE ISLAND over 20 years (2000-2020)



Sea level at CRESCENT GROUP- PATTLE ISLAND within 20 days of Project Satellite Image



Probability of sea level at CRESCENT GROUP- PATTLE ISLAND over 20 years (2000-2020)



- 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