



**EMBASSY OF NICARAGUA
THE HAGUE**

5 April 2007

Sir,

I have the honour to refer to your letter of 29 March 2007 sent in relation to the case concerning Maritime Delimitation between Nicaragua and Honduras in the Caribbean Sea (Nicaragua v. Honduras), by which you inform me that the President has granted the Honduran Government's request for a postponement of the time-limit for the written reply of both Parties to Judge ad hoc Gaja's question and has fixed the new time-limit for Thursday 5 April 2007.

The question formulated by Judge Gaja to both Parties was as follows:

“May Logwood Cay and Media Luna Cay be currently regarded as islands within the meaning of Article 121, paragraph 1, of the United Nations Convention on the Law of the Sea?”

Nicaragua gave a preliminary reply to this question during the public sitting held on 19 March 2007. Nicaragua's answer at that point was as follows:

“63. In accordance with information presently available to the Government of Nicaragua, the cays of Logwood and Media Luna are now submerged and cannot be regarded as islands within the meaning of Article 121, paragraph 1, of the United Nations Convention on the Law of the Sea.

64. This information coincides with the statement made by the Government of Honduras in its Counter-Memorial. In it Honduras stated that “the original Logwood Cay and Media Luna Cay are both now submerged”(CMH, Vol. 1, p. 14, par. 2.3, footnote 2).”

Honduras for her part, during the public sitting held on 22 March 2007, addressed Judge Gaja's question by referring to certain charts and also by using a new satellite image (PS3.7) for the first time in this second round of oral pleadings in an attempt to demonstrate that these cays were islands. Pointing to the image referred to as PS3.7, Honduran Counsel stated:

“That is the Arrecifes and on the very southern tip of that reef you see a white spot, and that is Cayo Palo de Campeche, as shown on the British chart. So this image of January 2003 is consistent with the latest United



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Kingdom and United States charts that show Media Luna Cay and Cayo Palo de Campeche (Logwood Cay) as islands. The answer to the question, therefore, appears to be that both features were above water when this satellite image was taken, and they were not, at least at that moment, submerged.”(CR 2007/13, p. 45 par. 21)

Although the imagery is in the public domain, or can be easily purchased from data suppliers, the processing and interpretation of such data requires specialist knowledge and computer software and is thus not publicly available. This late submission of evidence by Honduras has prompted careful analysis by Nicaragua. Nicaragua has several satellite scenes that cover the cays taken at different times. However, so as not to confuse the Court further, the technical advisers of Nicaragua, the UK Hydrographic Office, purchased the identical image to that used by Honduras and carried out a detailed interpretation in order to evaluate the graphics presented by Honduras.

The opinion of the technical advisers of Nicaragua is appended to this letter together with the 14 graphics to which reference is made by them. Enclosed are also 17 additional copies of this material.

Some general observations are prompted by this analysis:

1. The satellite image used by Honduras cannot be used to distinguish if a reef is above water or up to 20 meters below water.
2. The keys are in closer proximity to the Nicaraguan mainland based on the information deduced from the satellite image produced by Honduras (see figure 4 of the annexed graphics and paragraph 9 of the opinion appended to this letter). Honduras is seemingly unaware of this fact as well as of the general situation of the area in dispute including the small cays and other features.
3. The largest scale chart of the area, Chart BA2425, relied upon by Honduras and Nicaragua is based on old surveys and shows both Logwood and Media Luna Cays as islands. These cays have been shown unchanged since the first edition of the chart produced from data gathered in the original surveys conducted from 1830 and 1843. Recent field evidence put forward by Honduras herself in her Counter Memorial (p.14, footnote 2) suggests that they no longer exist and should have been removed from the chart.
4. It is also revealing that Honduras, which has introduced various elements of proof concerning other cays in the area, has not offered any document capable of establishing the existence of both features as islands. This is all the more revealing that Logwood, if assimilated with Palo de Campeche, is the only maritime feature mentioned in the Honduran Constitution before 1982. Had these features still existed as islands, there can



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be no doubt that Honduras would have introduced photographs and other elements of proof to that effect, as it did for four cays in the area.

5. In accordance with UNCLOS Article 5, charted features have been used to define a territorial sea baseline that was used to construct a provisional equidistance line. Such use of features charted on nautical charts is not conclusive proof of their actual existence, which would require a hydrographical survey.
6. The absence of any indication of dry land on the infra-red satellite imagery, including that presented by Honduras during the second round of the oral pleadings, indicates that Logwood and Media Luna Cays are most unlikely to exist as islands above water, especially above high tide as is required by UNCLOS article 121.1. This lack of any indication of dry land on the infra-red satellite imagery is also applicable to the other small cays in the vicinity of Logwood and Media Luna Cays indicated on chart BA 2425, and therefore these cannot be regarded as islands under UNCLOS Article 121, par. 1.

In conclusion, the answer of Nicaragua to the question by Judge Gaja is that Logwood and Media Luna Cays cannot be currently regarded as islands within the meaning of Article 121, par. 1 of the United Nations Convention on the Law of the Sea.

Accept, Sir, the assurances of my highest consideration.

Carlos J. Argüello Gómez
Agent
Republic of Nicaragua

**His Excellency
Mr. Philippe Cuvreur
Registrar
International Court of Justice
Peace Palace
The Hague**



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**Appendix of the opinion of the technical advisers of Nicaragua on the Question
concerning Logwood and Media Luna Cays
4 April 2007**

Question from Judge Gaja:

“May Logwood Cay and Media Luna Cay be currently regarded as islands within the meaning of Article 121, paragraph 1, of the United Nations Convention on the Law of the Sea?”

1. This answer is based on the assumption that Logwood and Media Luna Cays are those as marked on the Admiralty chart 2425.
2. The comments here review the data shown on the chart, and information available from satellite imagery, including the data in the graphics shown by Honduras during the second round of oral pleadings and identified as PS3 7.2 and PS3 7.3.

Chart data

3. Nicaragua has relied upon data shown on the current edition of BA2425. This is the largest scale chart (1:144,000) of the area and thus according to UNCLOS Article 5 defines the normal territorial sea baseline. This chart shows both the position and name of Logwood and Media Luna Cays. It also shows a very large number of other small cays and drying reefs in the general area of the dispute. Chart 2425 was produced from data gathered during the original surveys from 1830 to 1843. A new edition was produced on 29 June 1917 and a large correction was added on 23 August 1929 in which data from US Government surveys in 1927 were incorporated into the chart. From that date, there have been no new editions of the chart and the chart image shows a continuous record of 31 small corrections since that date. Small corrections are alterations to a chart that can be achieved by hand or by the addition of a small block that can be glued in place by the user. Such corrections are clearly incorporated into the base record of the chart as they arise, so reprints of the chart to meet market demand are correct, but the corrections remain recorded on the chart for the life of that edition of the chart so that a complete history of the information displayed on the chart can always be determined. Small corrections of the sort that are recorded in the bottom left margin of the chart are generated by local maritime authorities, local surveys and from notices raised by mariners navigating in the area, or comprise the addition of cautionary notes



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4. to the chart¹. On receipt of data suggesting a correction to the chart, checks on the validity of the information and impact on navigational safety are conducted by hydrographic experts before the data is added to the chart. None of these corrections affects the cays in question and they have been plotted in the same positions for over a hundred years.
5. In accordance with the provisions of UNCLOS Article 5, 13 and 15 all features with a charted low waterline that are shown as islets or cays and all features within 12M of the coast or islands that are shown with a charted low waterline as low tide elevations have been accepted at face value from the current edition of the large scale chart of the area and treated as features providing acceptable base points for the purpose of calculating a provisional median line.
6. There has been evidence heard that some of the cays among the group generally described in proceedings as the disputed islands, may not now exist. The fact that features thought no longer to exist remain clearly marked on a current UKHO chart is not at all surprising. The removal or addition of any feature from a chart is not undertaken lightly and no such action will be contemplated without the supporting evidence of a rigorous hydrographic survey. In the case of the cays in question, their disappearance from view as drying islets makes little or no difference to the presence of reefs on which they rest and, so, little difference to the safety of navigation in the area. It is thus unlikely that an expensive hydrographic survey will be mounted to show the features no longer exist.
Satellite Imagery
7. Honduras' two graphics² show the same data at different scales but show the same information. The data have been processed using the visible bands of the satellite. As can be seen they give an excellent view of the reefs and other features in the area because the data penetrate water up to a maximum depth of about 20m. These images do not distinguish between areas above water and totally submerged reefs. It is not clear how Honduras Counsel reached the conclusion that these features "were above water when this satellite image was taken".

¹ For example the latest correction to BA2425 can be got from the website:

<http://www.nmwebsearch.com/>

To accompany Notice to Mariners 5058/2006

On Chart 2425

CAUTION: SATELLITE-DERIVED POSITIONS

Positions obtained from Global Navigation Satellite Systems, such as GPS, are normally referred to WGS84 Datum. The differences between satellite-derived positions and positions on this chart cannot be determined; mariners are warned that these differences MAY BE SIGNIFICANT TO NAVIGATION and are therefore advised to use alternative methods of obtaining positional information, particularly when navigating close to the shore or in the vicinity of dangers.

² PS3 7.2; PS3 7.3.



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8. If one looks closely at Bobel Cay on PS3 7.2 one can see a small black spot which is the cay itself; the white area is all underwater. As they stand these illustrations do not indicate which are islands.
9. The two graphics presented by Honduras are based on a Landsat ETM scene acquired on 12 January 2003, at 09:41 local time (15:41 GMT). All Landsat scenes are acquired at the same local time so there is no opportunity to acquire data at the low tides required to define the low water line. Analysis of the tidal data at the time of Landsat acquisition using the Admiralty Total Tide programme³ (Figure 3) shows that the tide at that time and date was about 0.2m above chart datum measured at Cape Gracias a Dios, the nearest tidal reference station. Mean Higher High Water is 0.5m above chart datum for this location, which is the level used to define dry land – or islands under Article 121/1 of UNCLOS. The cays in question (Media Luna and Logwood) are less than 30M from Cape Gracias a Dios, the closest point on the Nicaraguan mainland (Media Luna is about 25.8M and Logwood about 27.5M; the closest, Bobel, is about 26.5M – Figure 4). The tidal range at the cays is therefore likely to be similar or less than that at Cabo Gracias a Dios though no detailed tidal information is available.
10. Careful processing of the raw satellite data can provide much useful information. Honduras have used only the visible wavelengths which penetrate up to 20m of water. Landsat also contains several infra-red bands. These have zero penetration of water so can be used to distinguish between those areas above and those below water.
11. Figure 5 shows the same area as PS3 7.1 and has been processed in a similar way. Use of the visible wavelengths has produced a realistic true-colour picture that shows considerable detail of the shape and nature of the reefs. Figure 6 shows the same area but using the infra-red band 7 only. It is clear that the submerged reef is no longer visible. Clouds and their shadows can still be seen as can, even at this scale, the cays at Bobel, Port Royal, Savanna, and South. Scattered small clouds, as seen in the north of this scene, can make the positive identification of cays difficult. Without careful analysis, this can result in clouds being mistakenly identified as “false” cays but will not lead to genuine cays or islands being missed.
The same analysis of PS3 7.2 can be seen in Figures 7 and 8.
12. As these figures are rather too small scale to see detail, enlargements of each of the cays has been done. The imagery used has a resolution of 30m – that is the image is composed of “pixels” each of which is 30m square. Much smaller features however will be identifiable if they have high contrast – that is a small but bright rock above water will influence the average brightness of that pixel. The images are a little blurry

³ <http://www.ukho.gov.uk/amd/TotalTideSDK.asp>



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because of the high degree of enlargement – but this does not affect the information presented.

13. Figure 9 shows a comparison of the visible and infrared processing for Logwood Cay as identified by Honduras in PS3 7.1. This cay is also shown on the chart BA2425 but due to inaccuracies in the chart is plotted approximately 1km to the northeast of the satellite-derived position. (This is consistent with warnings about positions on the chart.). The left-hand (visible) image shows the detail of the submerged reefs in the area. The brighter areas in general are shallower, and this can be used as a qualitative measure of water depth. The right hand image shows the infra-red band (Band 7 of Landsat). This band has no water penetration so can be used to distinguish areas above and below water. Nothing can be seen on this image. On this basis there is no part of Logwood Cay that is above water at the time of this satellite image. As the tide at the time this image was acquired was not a high tide (see para 9 above), no part of Logwood Cay can thus be considered an island.
14. The same analysis has been done for Half Moon/Media Luna Cay. Figure 10 shows the extent of the submerged reef – over a mile long. However, based on the infrared data, no part of this can be considered to be above water – not even at the relatively low tide at the time of satellite data acquisition. The chart shows a larger cay in the southwest and five smaller islands. None of these appears on the infrared imagery.
15. As a contrast, and to confirm the methodology used, the same processing has been carried out for the four cays whose existence is not in doubt. Figures 11 to 14 show the analysis of the cays – Bobel, Port Royal, Savanna and South (Sur). These cays are clearly visible above water on the infrared data; the submerged cays are not. The data are less clear for Port Royal (Figure 12) where cloud has obscured part of the cays.
16. This analysis effectively disproves the presence of land above water at Logwood and Media Luna Cays, and hence their status as islands.

Conclusion

17. Logwood and Media Luna Cays can not be regarded as islands under UNCLOS Article 121, paragraph 1.

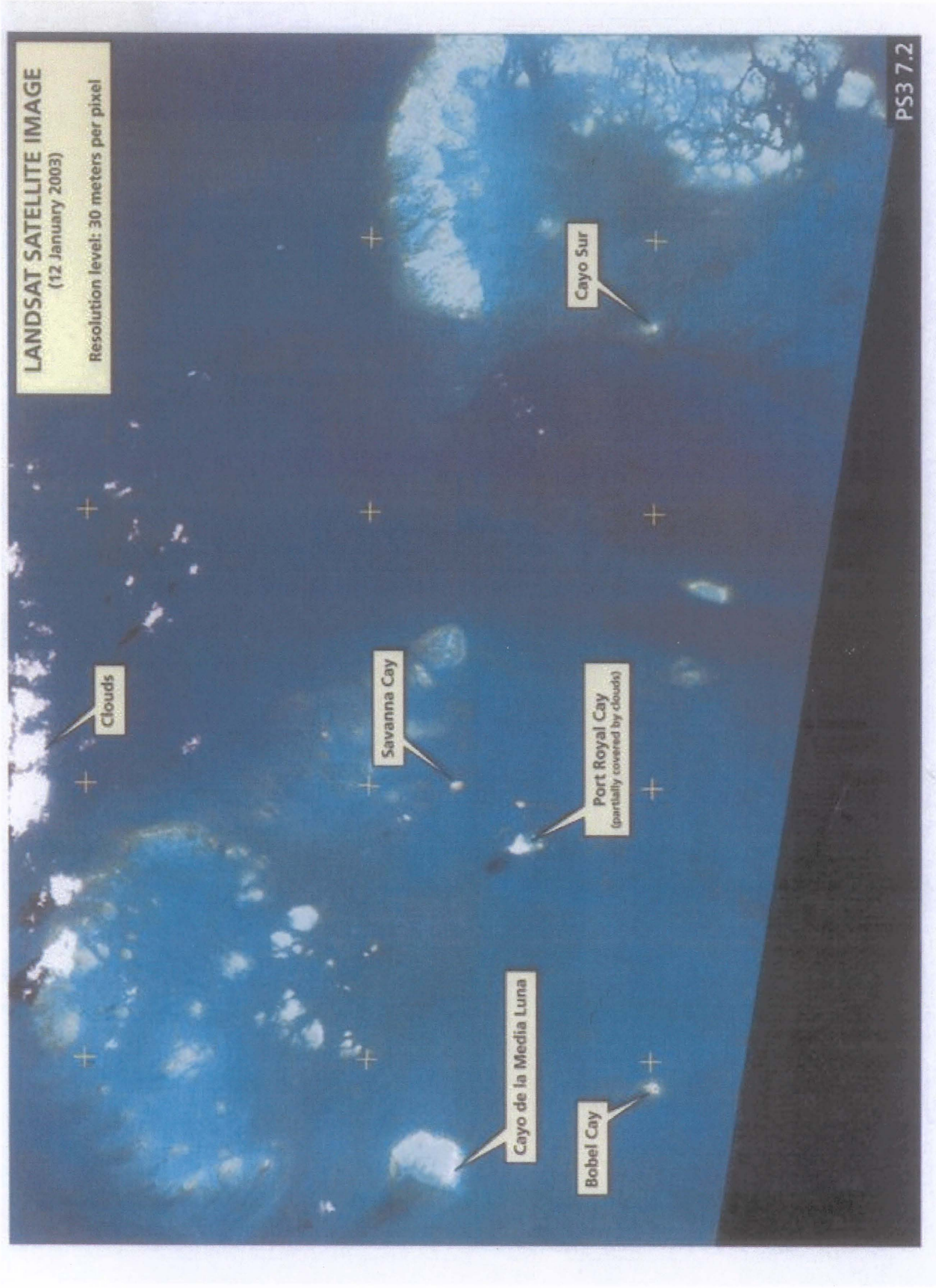


Figure 1

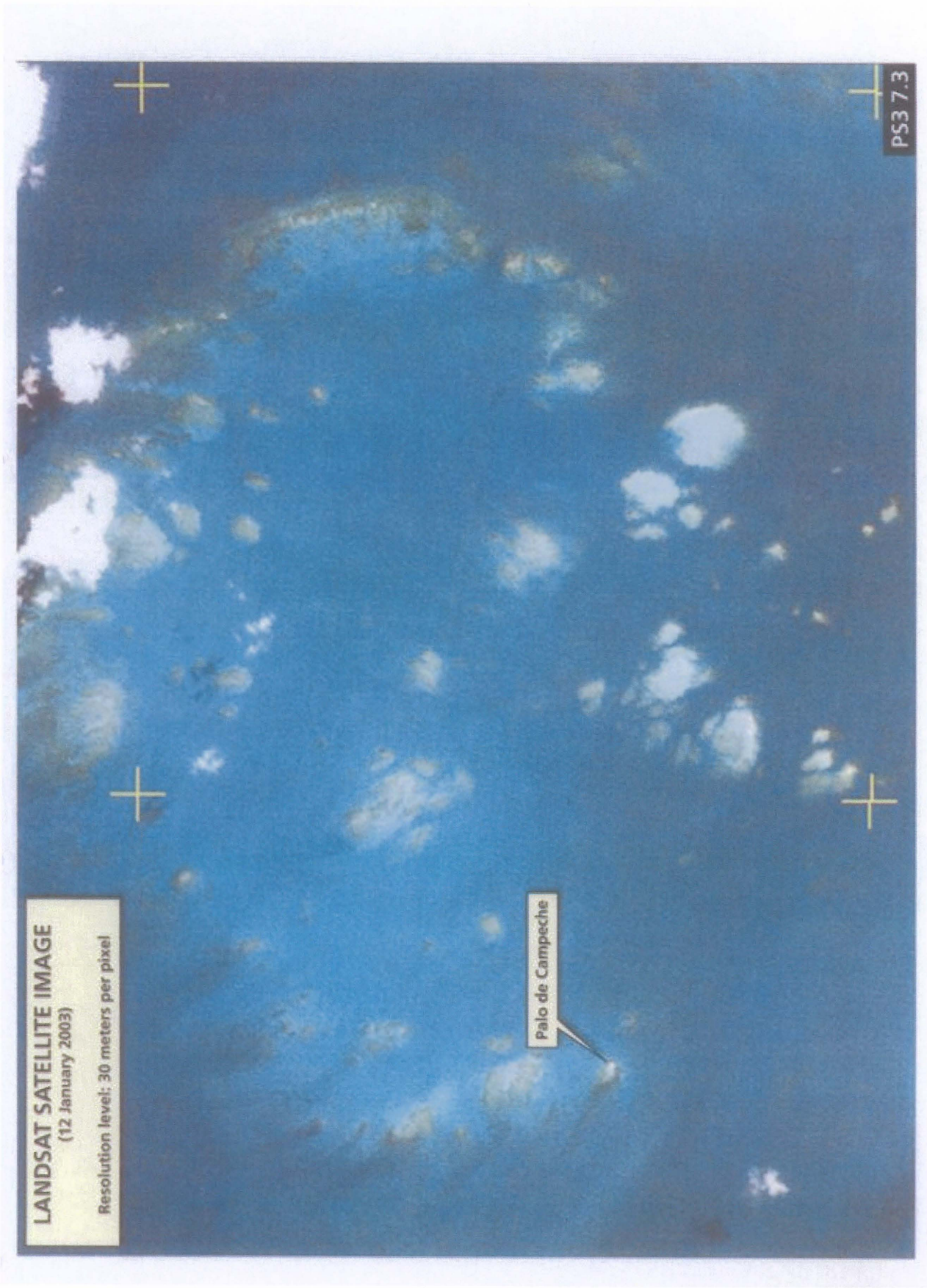
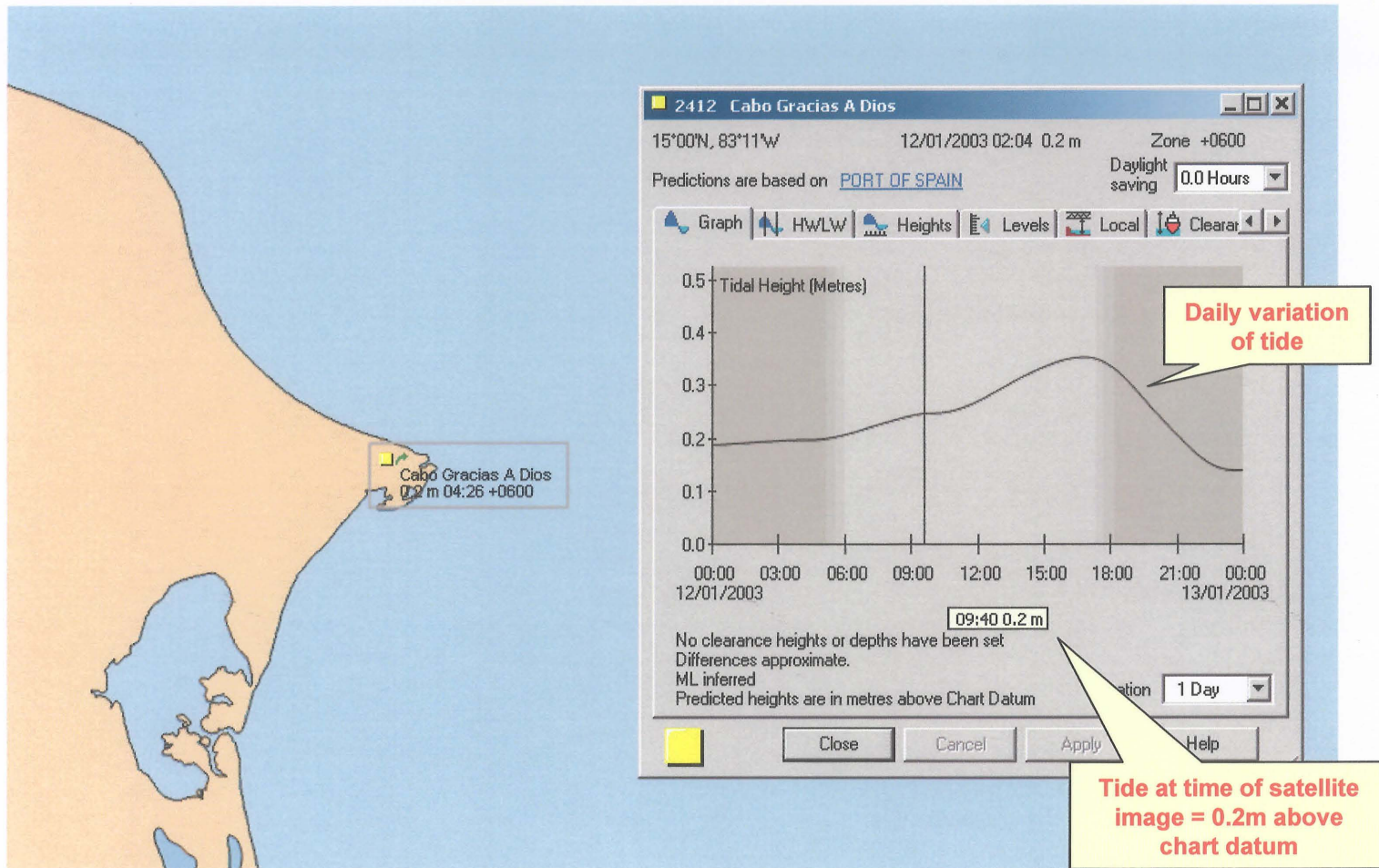


Figure 2

Tides at Cape Gracias a Dios



Screen dump from Admiralty Total Tide: a global tidal prediction programme for the area of Cape Gracias a Dios for 12 January 2003..

Figure 3

Proximity of Cays to Cape Gracias a Dios –
the nearest tidal prediction station

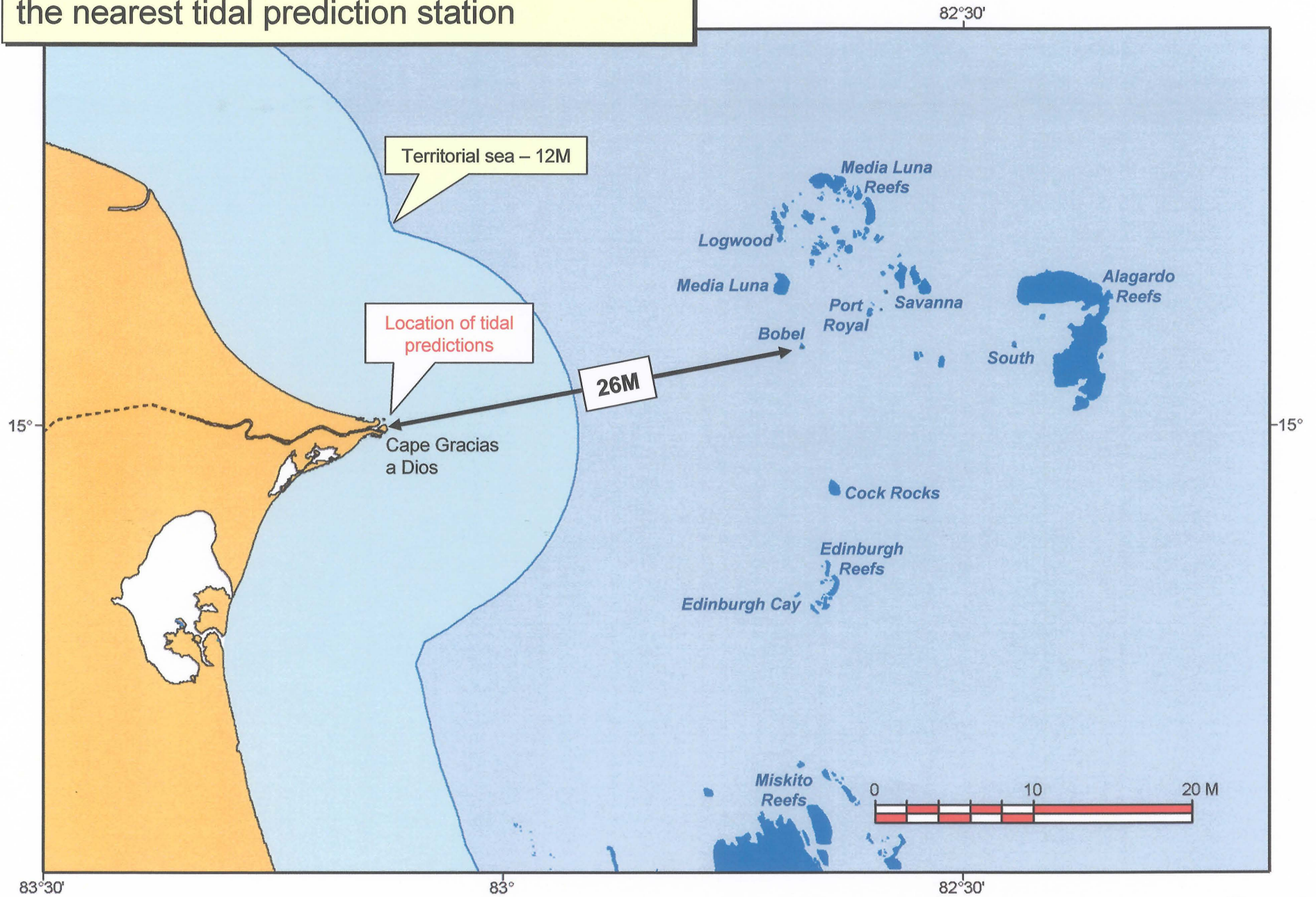


Figure 4

Regional view of cays

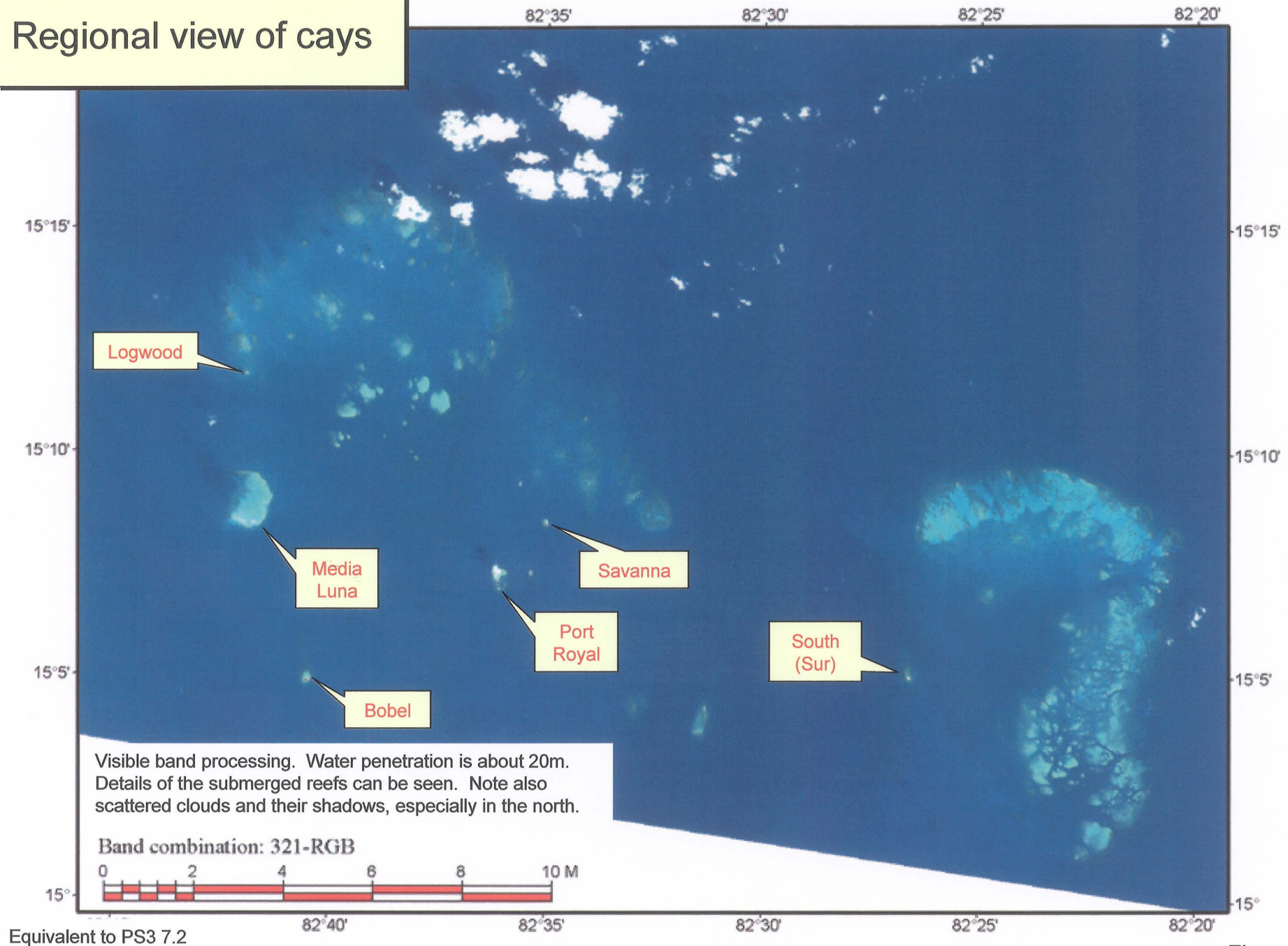


Figure 5

Regional view of cays – infra-red

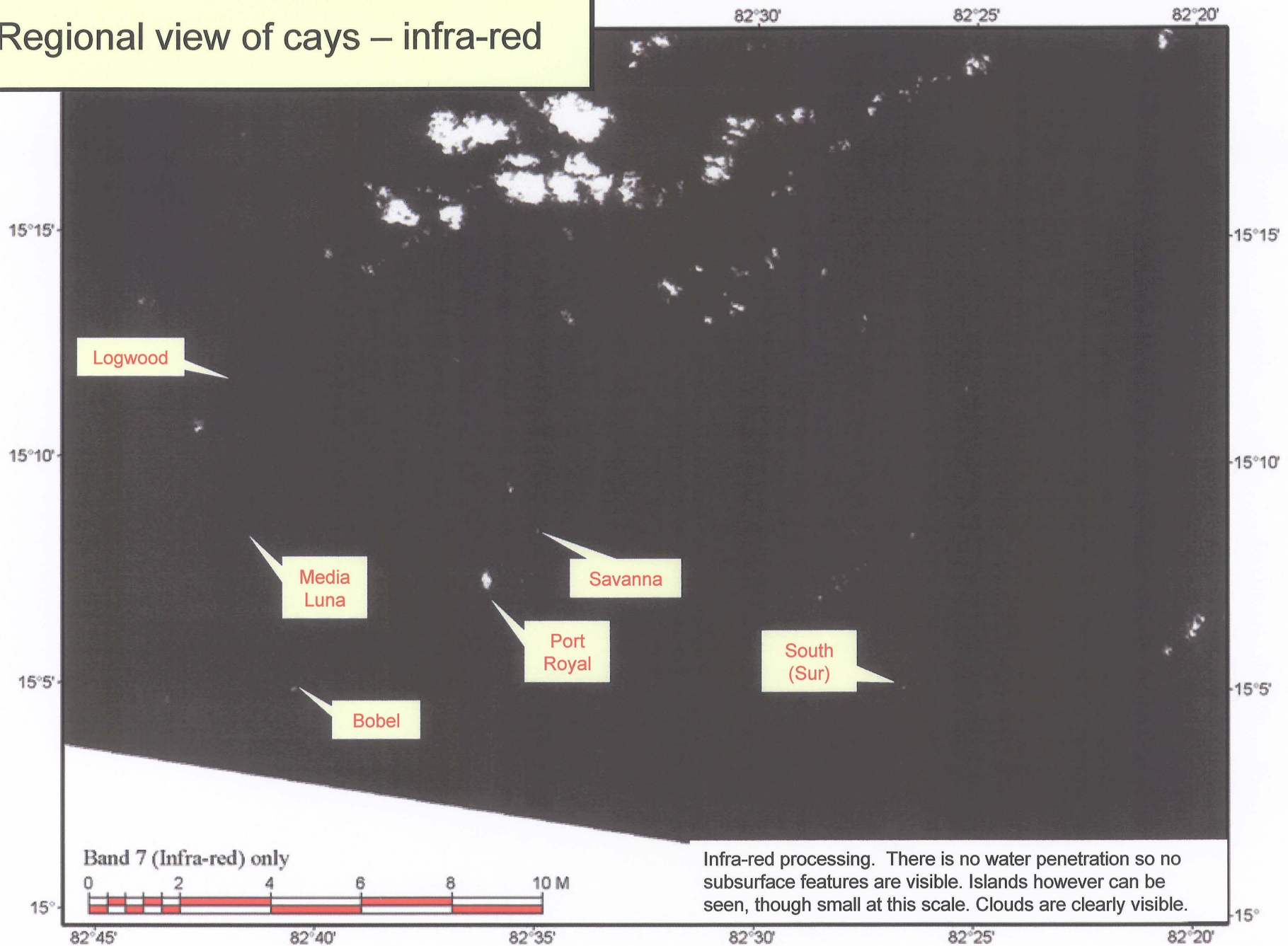
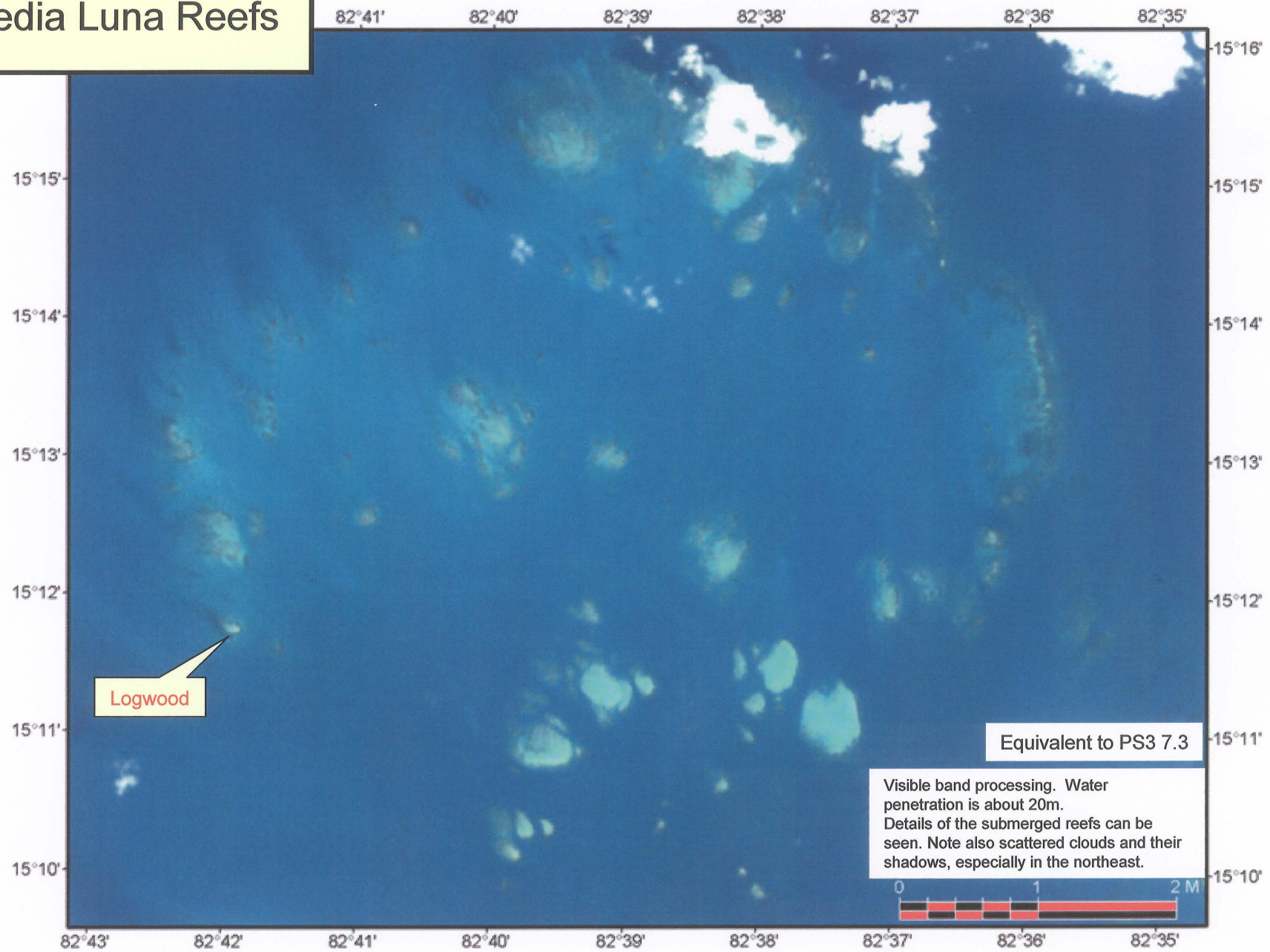


Figure 6

Media Luna Reefs



Band combination: 321-RGB

Figure 7

Media Luna Reefs – infra-red

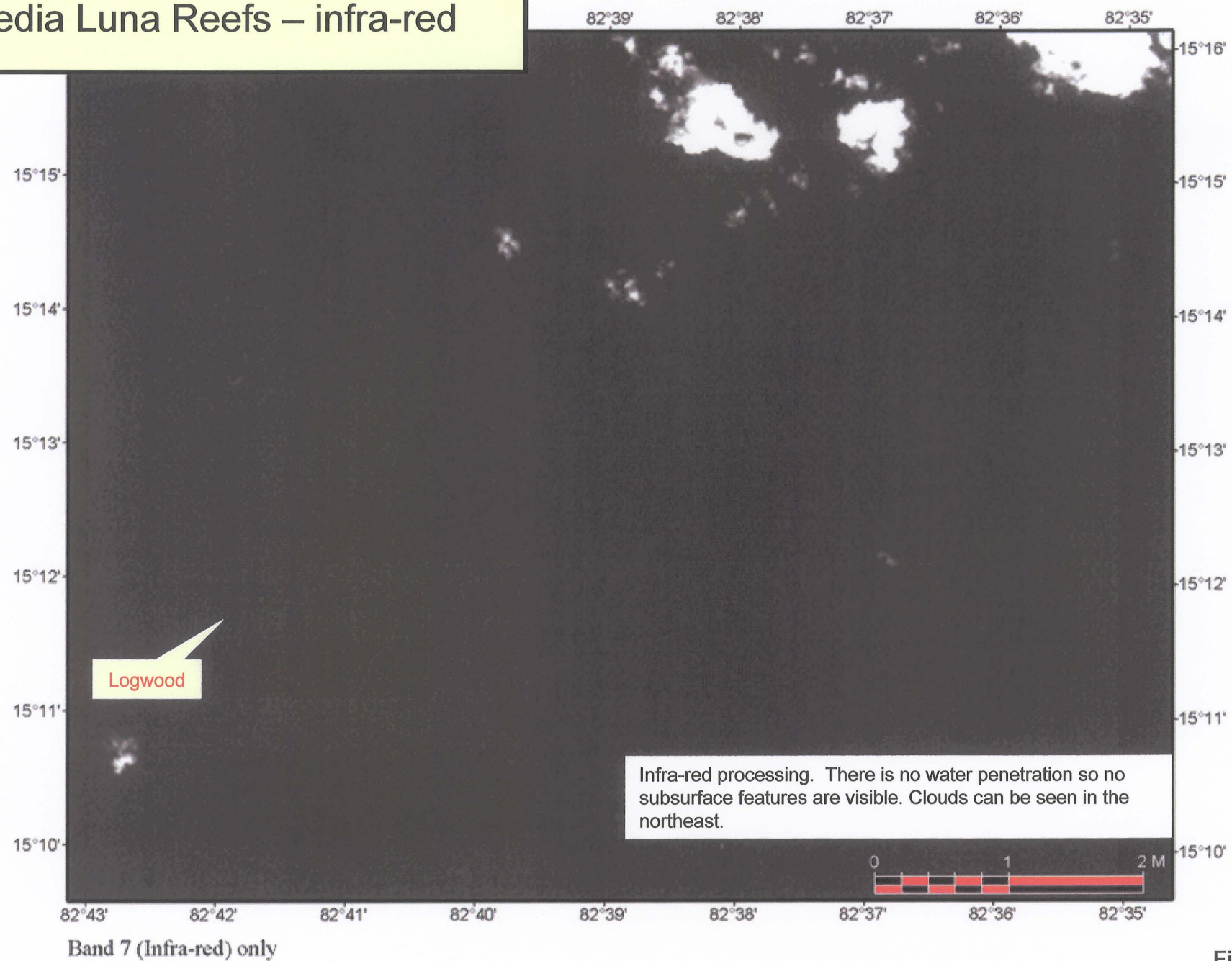
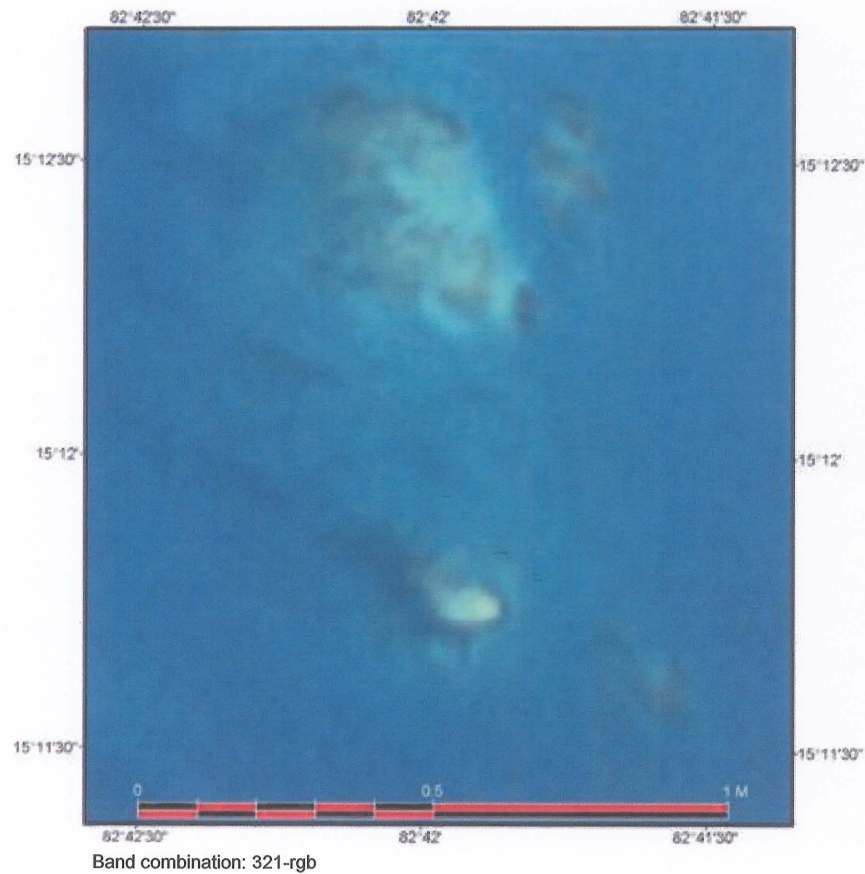
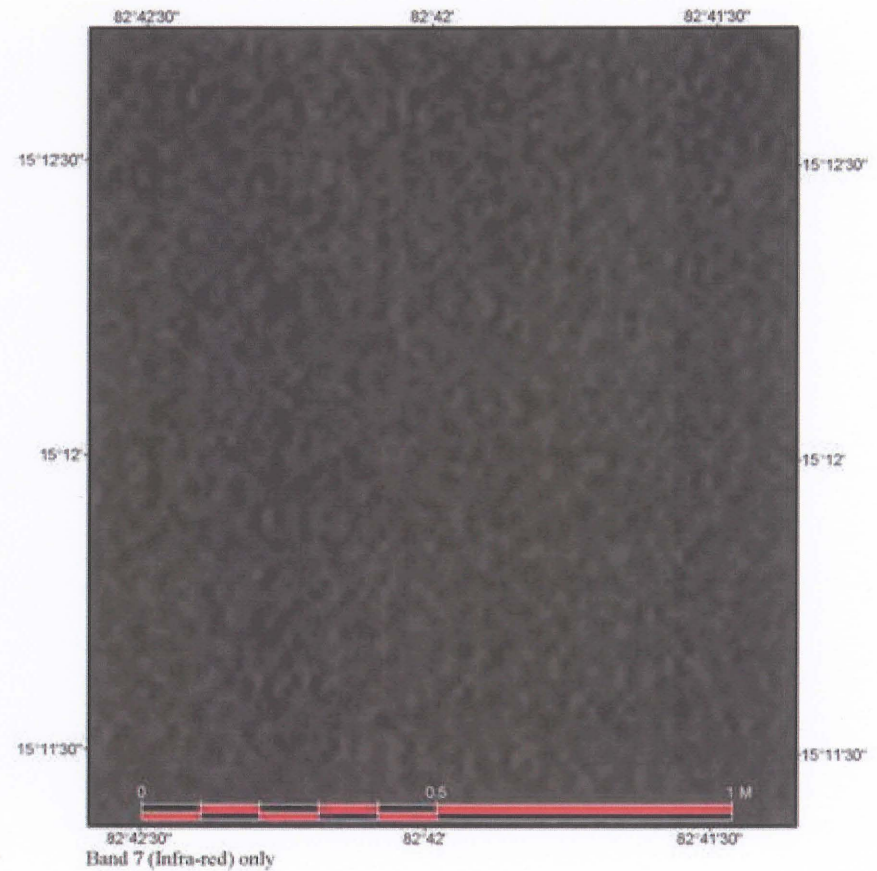


Figure 8

Logwood Cay



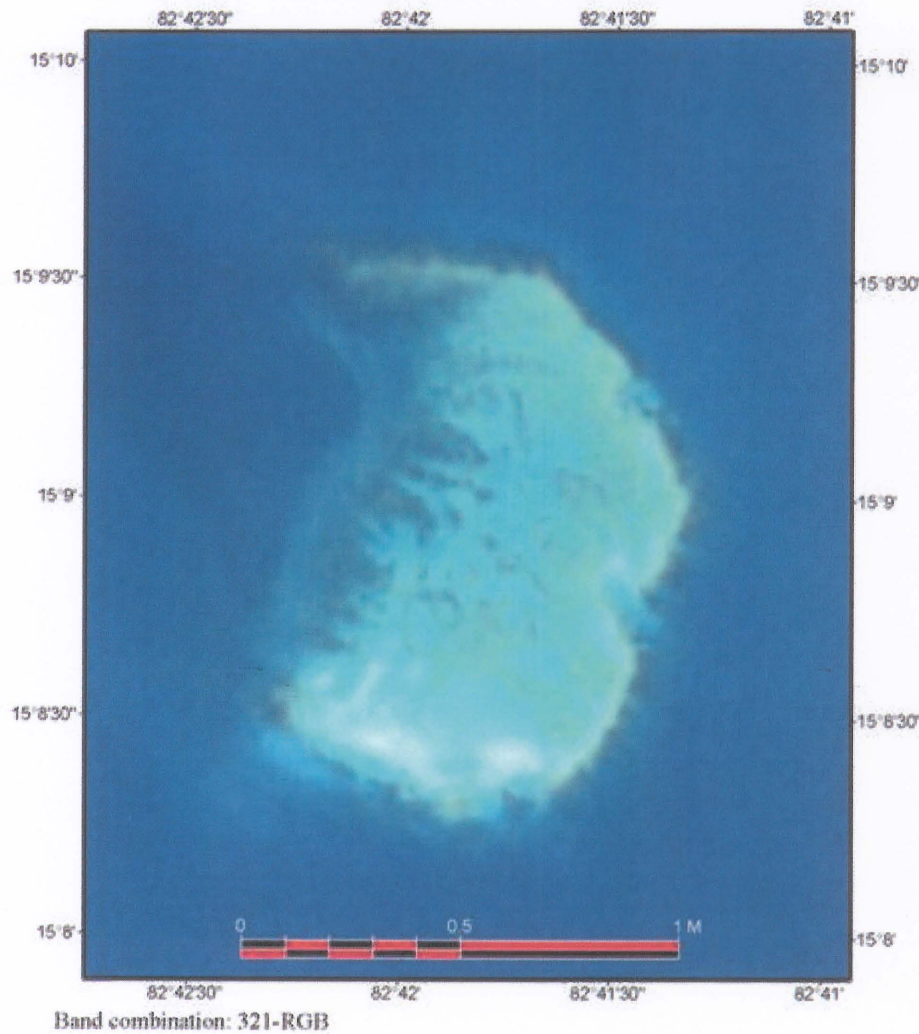
Visible band processing. Water penetration is about 20m. Details of the submerged reefs can be seen.



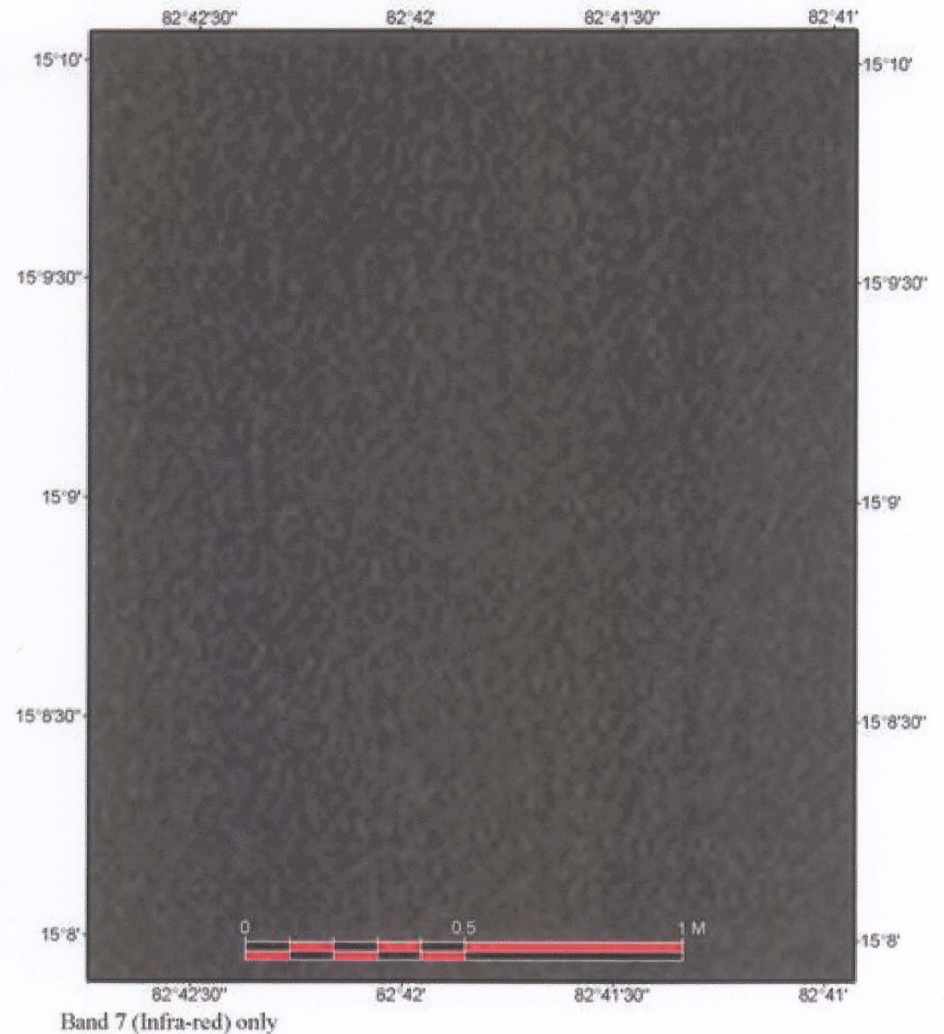
Infra-red processing. There is no water penetration so no subsurface features are visible. There are no features visible above water.

Figure 9

Media Luna Cay



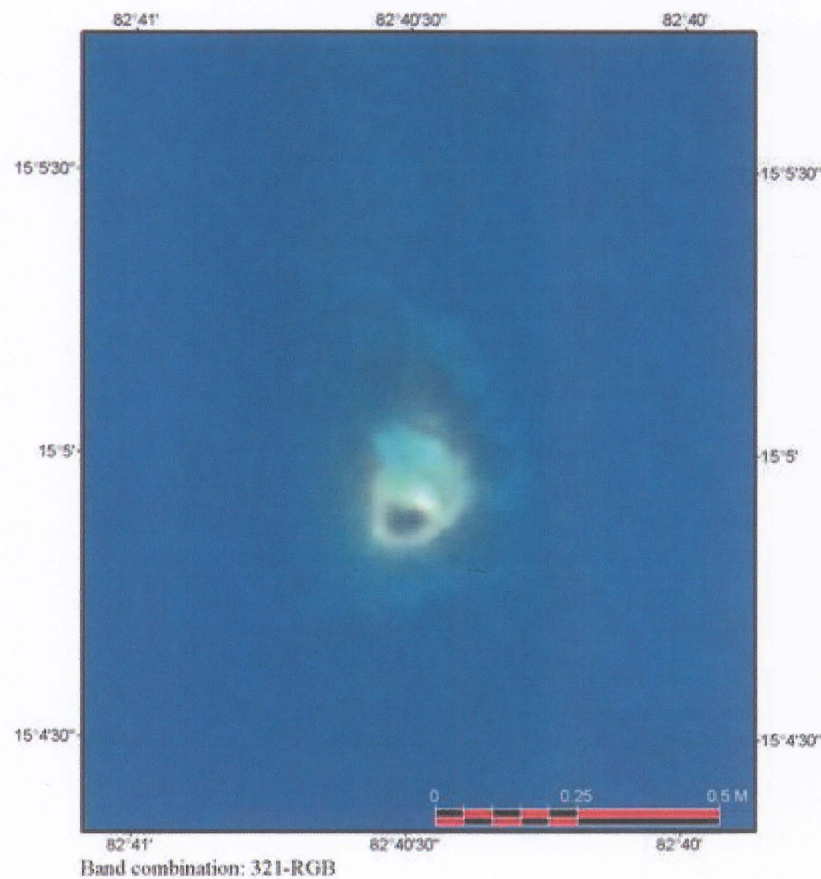
Visible band processing. Water penetration is about 20m. Details of the submerged reefs can be seen.



Infra-red processing. There is no water penetration so no subsurface features are visible. There are no features visible above water.

Figure 10

Bobel Cay



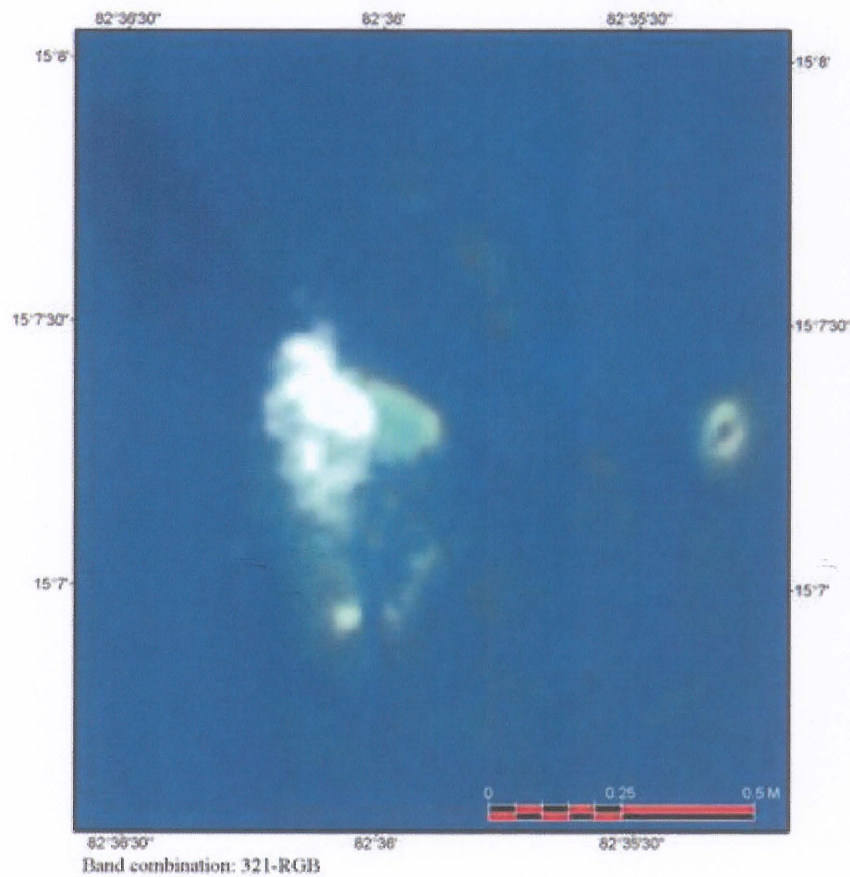
Visible band processing. Water penetration is about 20m. Details of the submerged reefs can be seen. The darker area corresponds to vegetation.



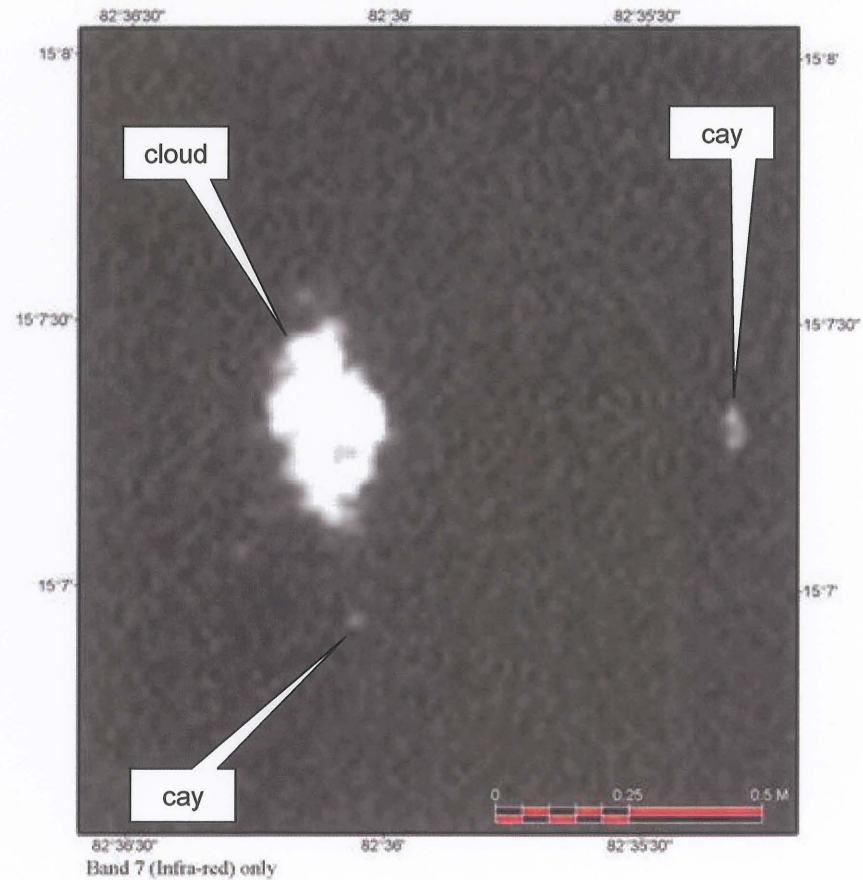
Infra-red processing. There is no water penetration so no subsurface features are visible. The cay is clearly visible above water.

Figure 11

Port Royal Cays



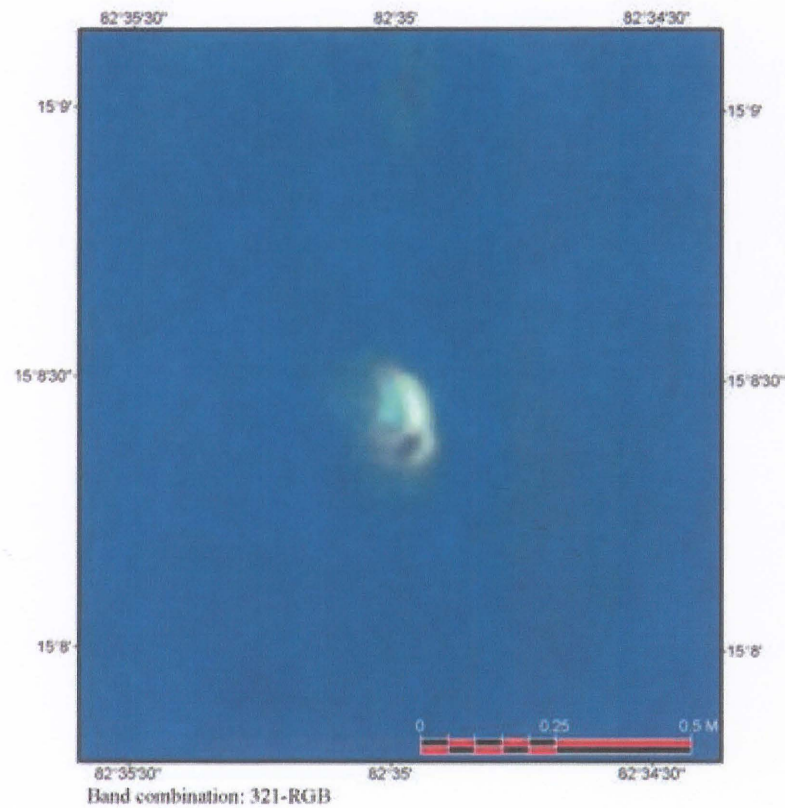
Visible band processing. Water penetration is about 20m. Details of the submerged reefs can be seen. Partly obscured by cloud.



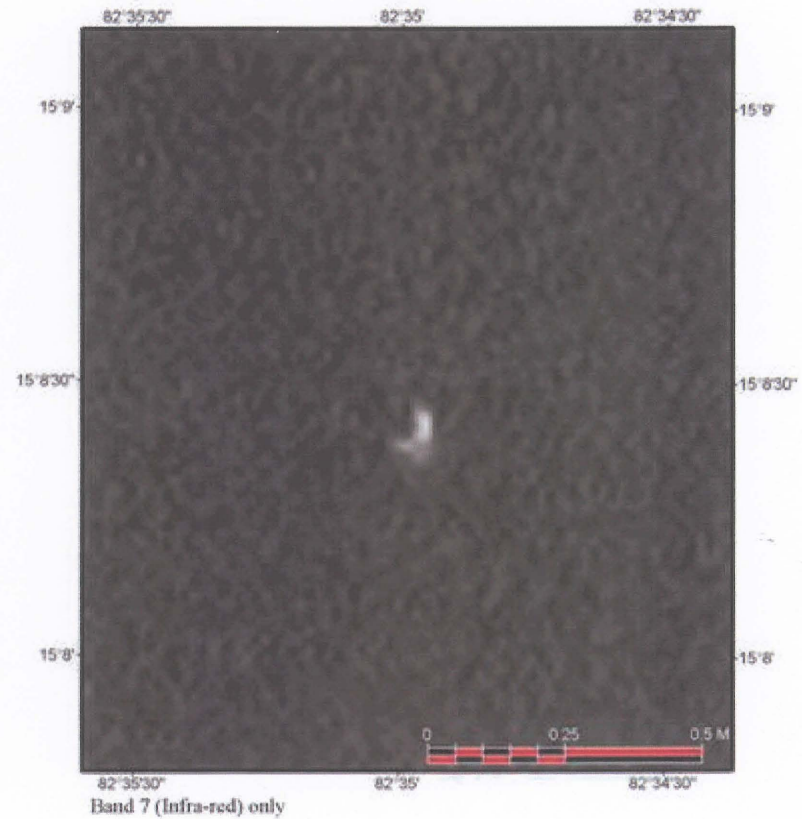
Infra-red processing. There is no water penetration so no subsurface features are visible. The cays are clearly visible above water. Partly obscured by cloud.

Figure 12

Savanna Cay



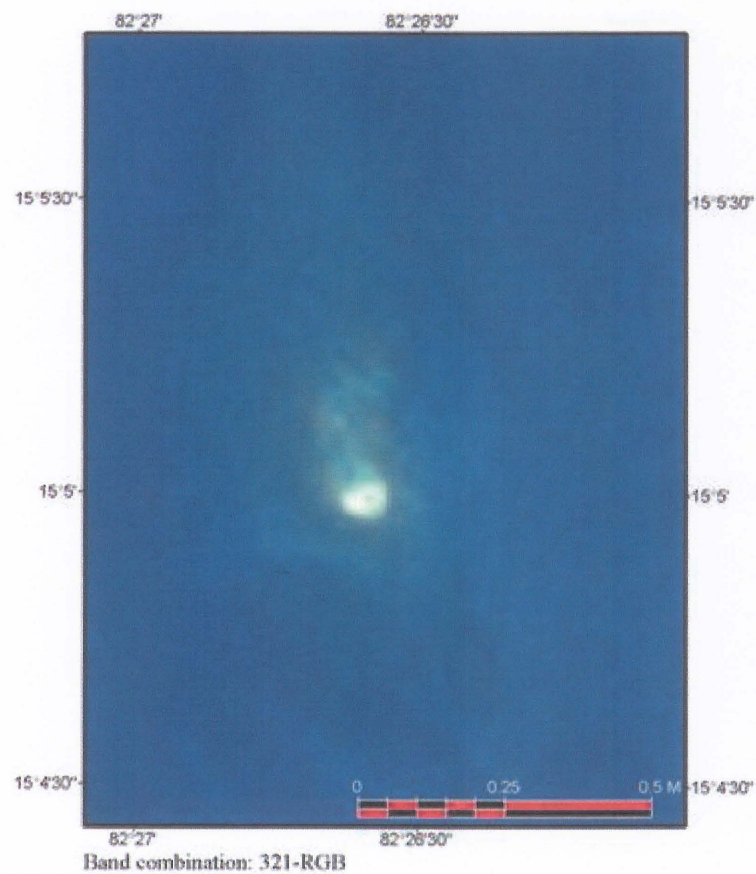
Visible band processing. Water penetration is about 20m. Details of the submerged reefs can be seen.



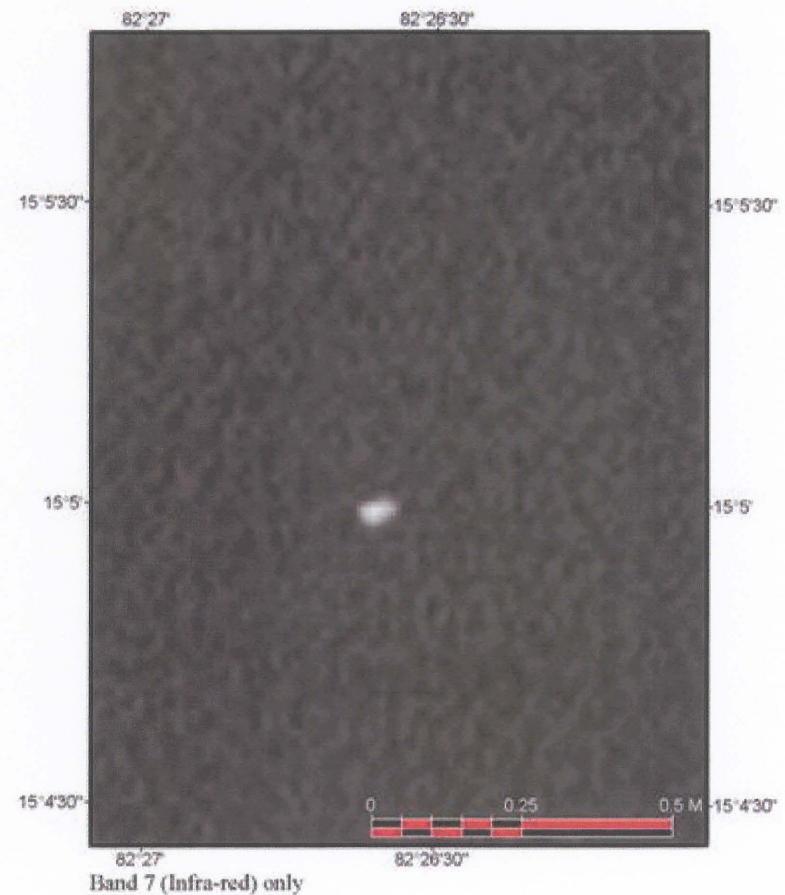
Infra-red processing. There is no water penetration so no subsurface features are visible. The cay is clearly visible above water.

Figure 13

South (Sur) Cay



Visible band processing. Water penetration is about 20m. Details of the submerged reefs can be seen.



Infra-red processing. There is no water penetration so no subsurface features are visible. The cay is clearly visible above water.

Figure 14