



Considerações Sobre a Formação dos Recifes de Manoel Luiz

Plataforma Continental
Maranhão

Gilberto Tavares de Macedo Dias
Rafael Cuellar de Oliveira e Silva
João Regis dos Santos Filho



WORKSHOPS
DO
PGGM

*Edição
Amazônica*

2020

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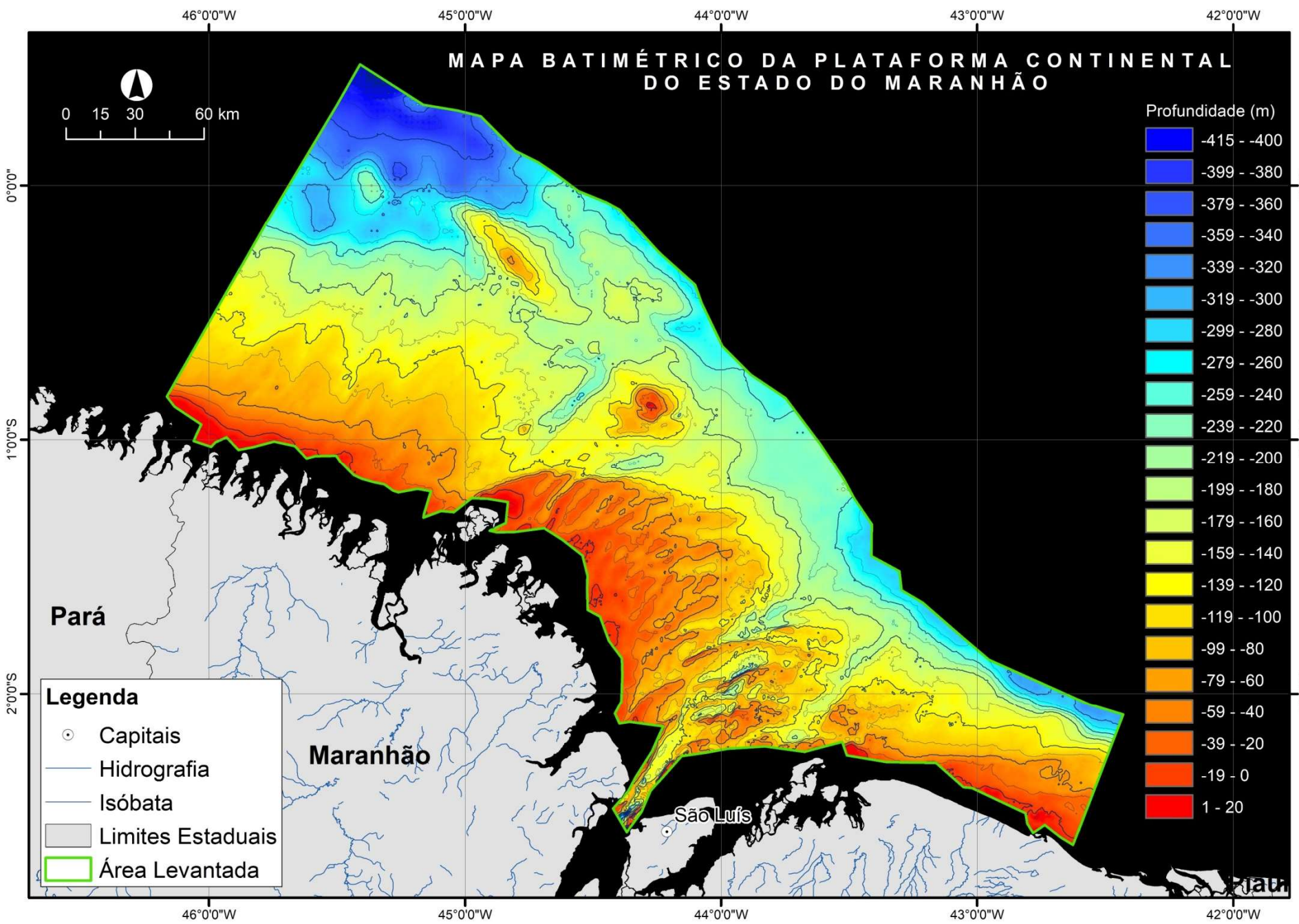


- **Introdução**

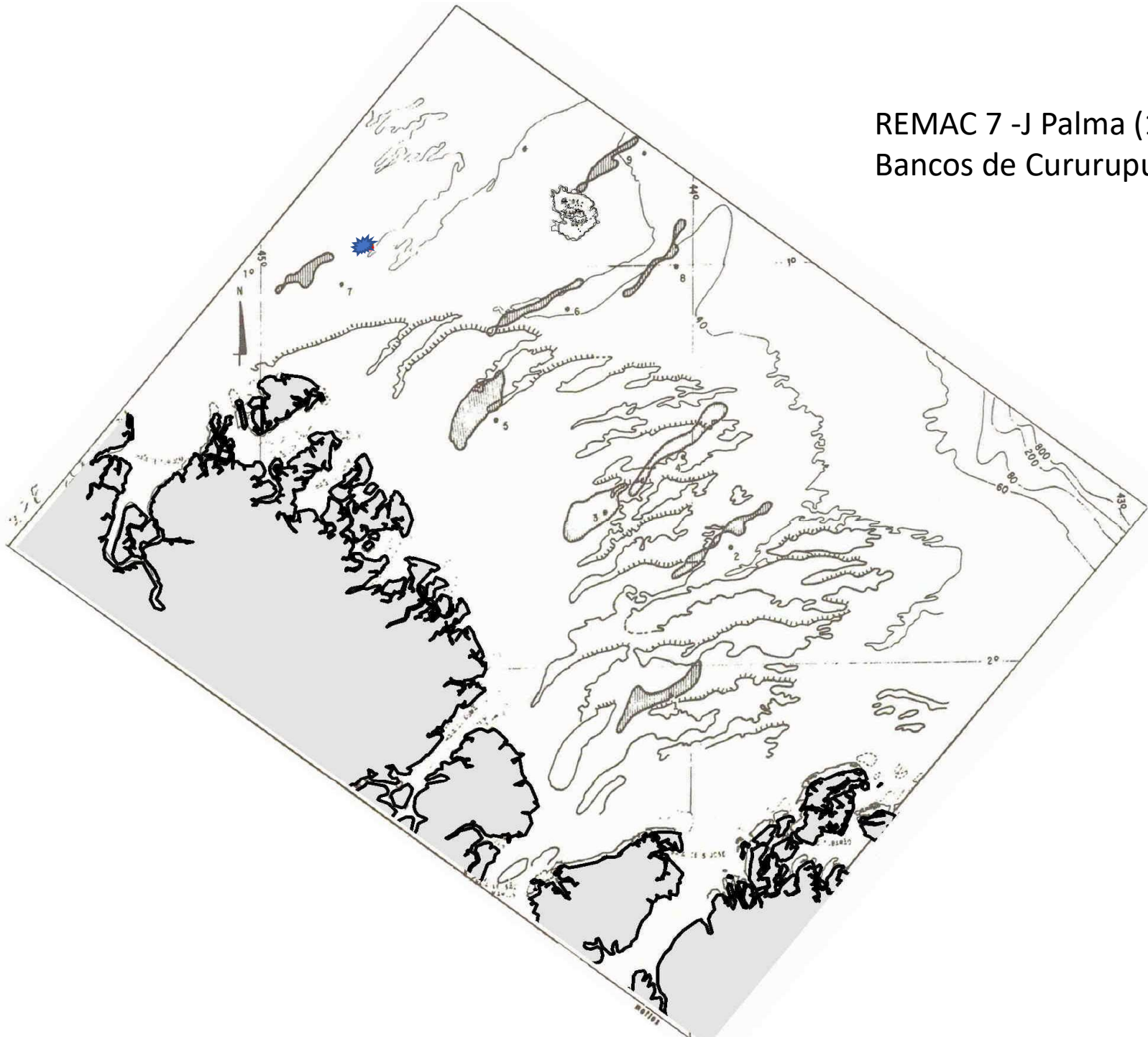
Os recifes de Manoel Luís estão localizados a 100 milhas náuticas ao Norte de São Luís, Maranhão.

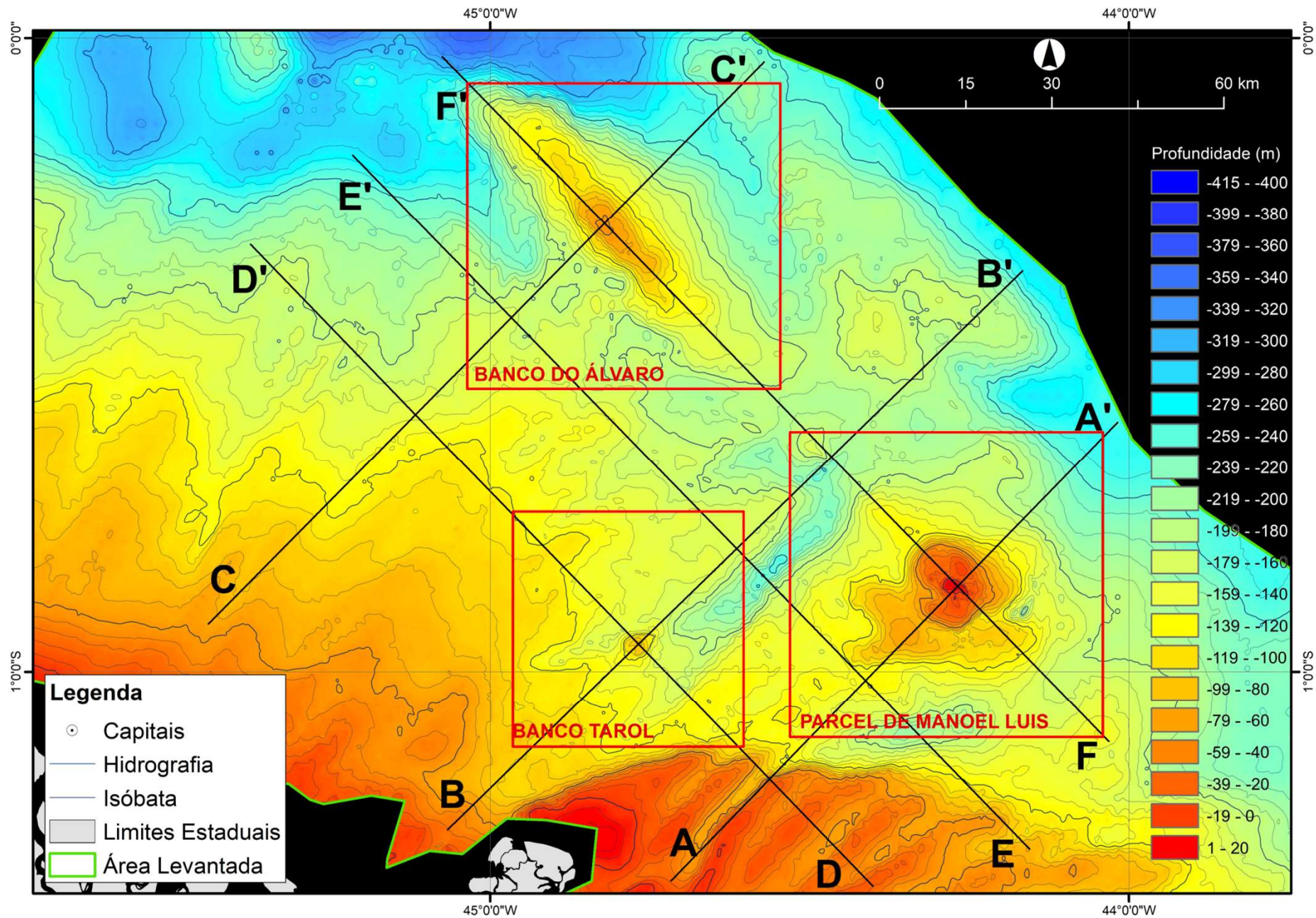
A região nunca foi mapeada em detalhe, devido à grande concentração de pináculos recifais que oferecem muito perigo à navegação

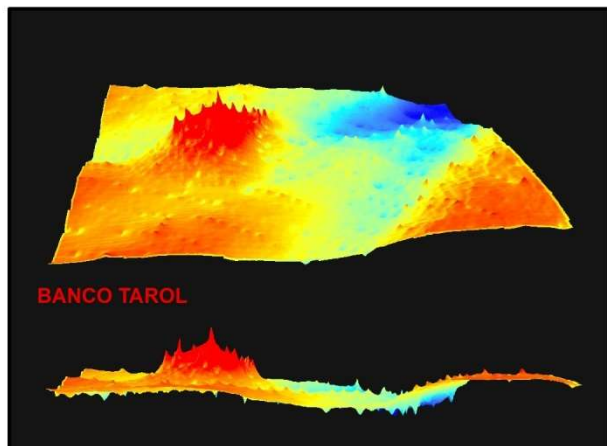
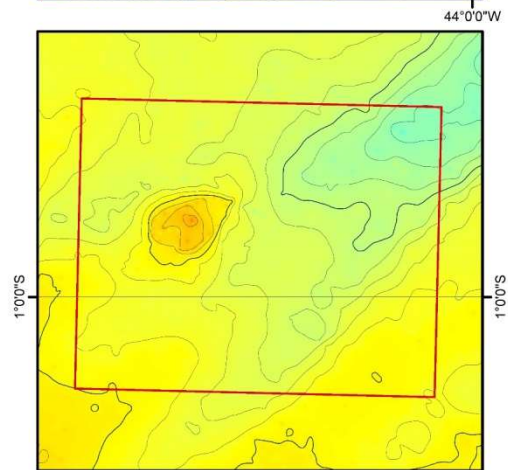
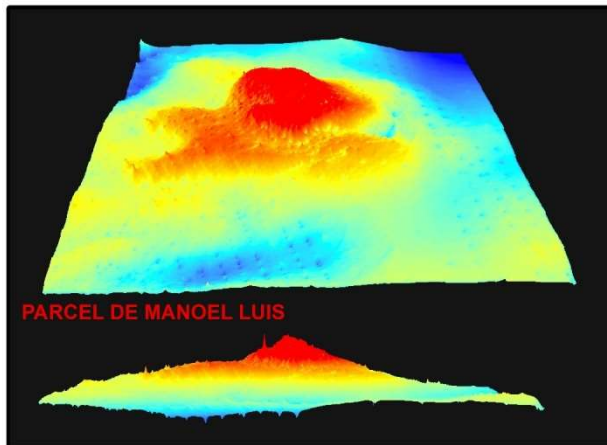
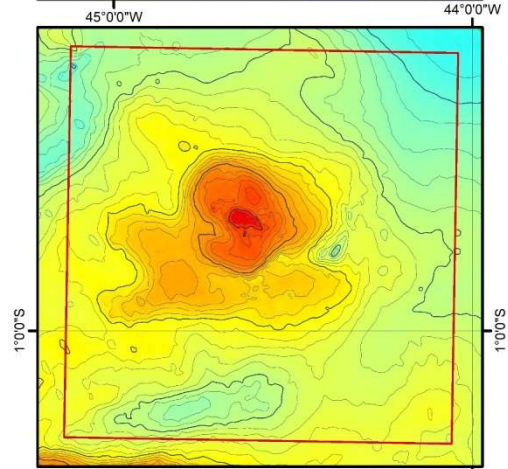
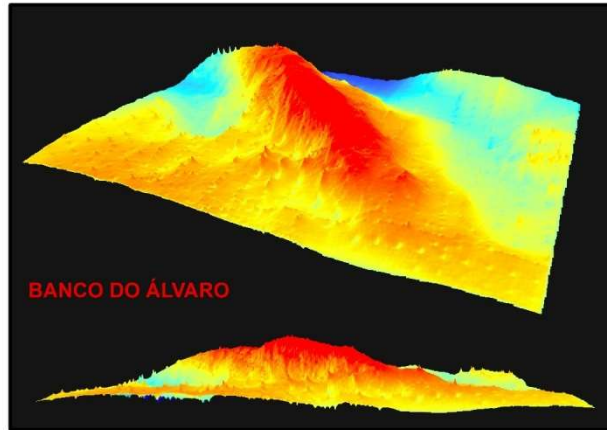
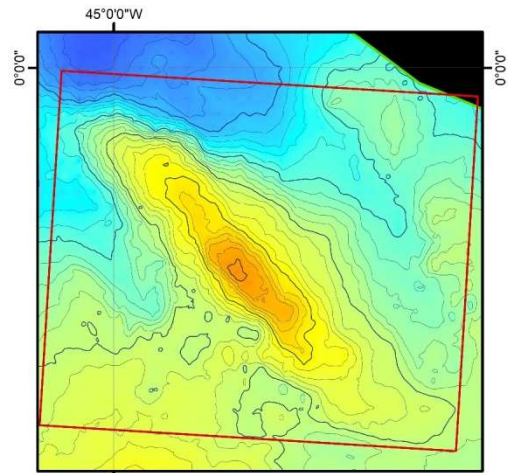
MAPA BATIMÉTRICO DA PLATAFORMA CONTINENTAL DO ESTADO DO MARANHÃO

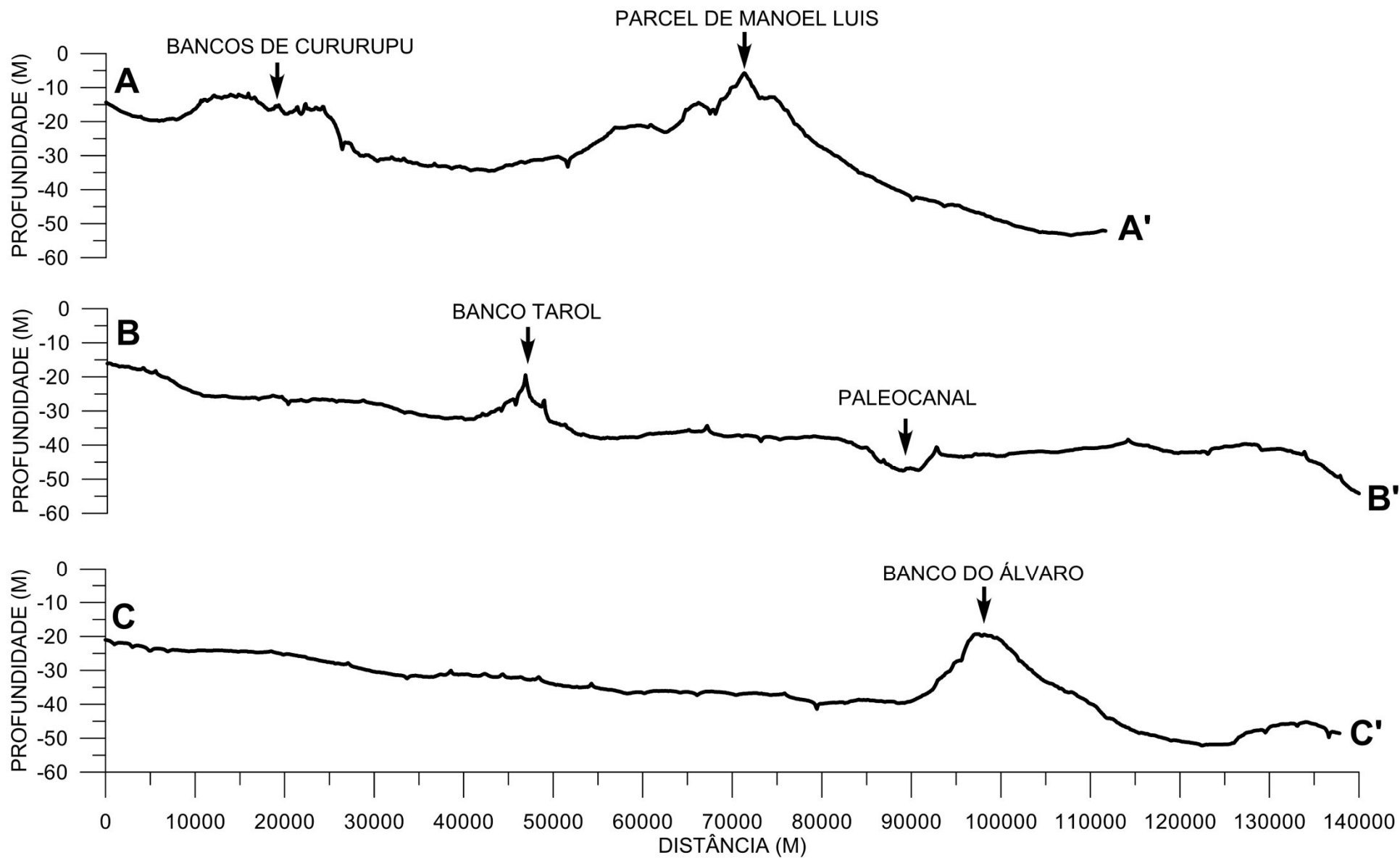


REMAC 7 - J Palma (1979)
Bancos de Cururupu









- As coordenadas geográficas destes recifes ficaram desconhecidas dos navegadores, durante mais de 300 anos.
- Só foram registradas em 1820, pelo hidrógrafo francês Almirante Barão de Roussin

Objetivos

- Desvendar a verdadeira configuração da morfologia recifal, através de imagens georreferenciadas do satélite WorldView-3 Obtidas em junho de 2018
- Descrever e discutir os resultados da campanha preliminar de campo onde foram obtidos registros de sonar de varredura lateral e filmagens por câmera à deriva (drop cam)

LE
PILOTE DU BRÉSIL
OU
DESCRIPTION DES CÔTES
DE L'AMÉRIQUE MÉRIDIONALE

COMPRISES
ENTRE L'ÎLE SANTA-CATHARINA ET CELLE DE MARANHÃO

AVEC LES INSTRUCTIONS NÉCESSAIRES
POUR ATERRIR ET NAVIGUER SUR CES CÔTES

PAR M. LE B^{ON} ROUSSIN

CONTRE-AMIRAL,

MEMBRE DU CONSEIL D'AMIRAUTÉ, COMMANDEUR DE L'ORDRE ROYAL DE LA LÉGION D'HONNEUR
CHEVALIER DE SAINT-LOUIS ET DE SAINT-WOLODIMIR DE RUSSIE

COMMANDANT L'EXPÉDITION HYDROGRAPHIQUE
ENTREPRISE PAR ORDRE DU ROI ET EXÉCUTÉE EN 1819 ET 1820

SUR LA CORVETTE *LA BAYADÈRE* ET LE BRICK *LE FAVORI*

PUBLIÉ EN 1837, SOUS LE MINISTÈRE DE M. LE C^{OS} DE CHABROL DE CROUZOU
PAIR DE FRANCE





La seconde vigie, marquée sur nos cartes du Brésil, est celle de Manoel-Luiz

Indubitable pour tous les navigateurs du pays, d'après les naufrages multipliés qu'elle occasionnait chaque année

Baron de Roussin

Nota: Manoel Luiz foi o primeiro navegador que fez menção à existência deste perigo à navegação

A imagem programada do satelite WorldView3

were obtained on 06/09/2018 in Bundle Mode (PAN + 8 MS), Standard Mode, with RPC / RPB data PAN, R, G, B, NIR1, NIR2, Red Edge, Yellow and Coastal.

Radiometric

Angle of acquisition between Nadir and 35° off-nadir.

The spatial resolution of the raw image in the panchromatic mode is 0.3 m and in the spectral mode is 1.2 m (PAN 30 cm and MS 120 cm).

The orthorectification was performed based on SRTM 30 m. data. According to company information, the accuracy of WorldView satellites will not exceed 5 meters average error, in 90% of cases.

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579000

580000

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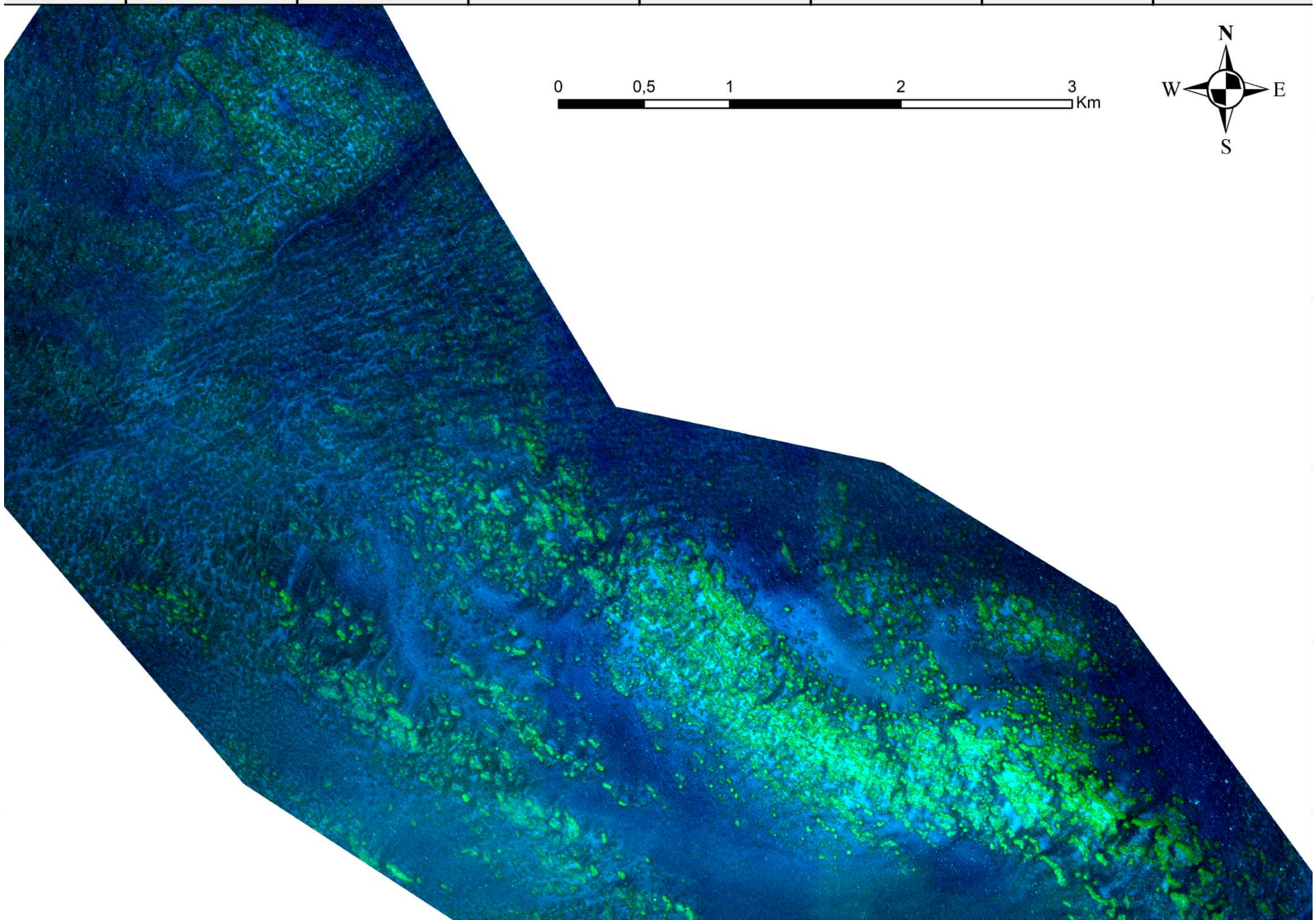
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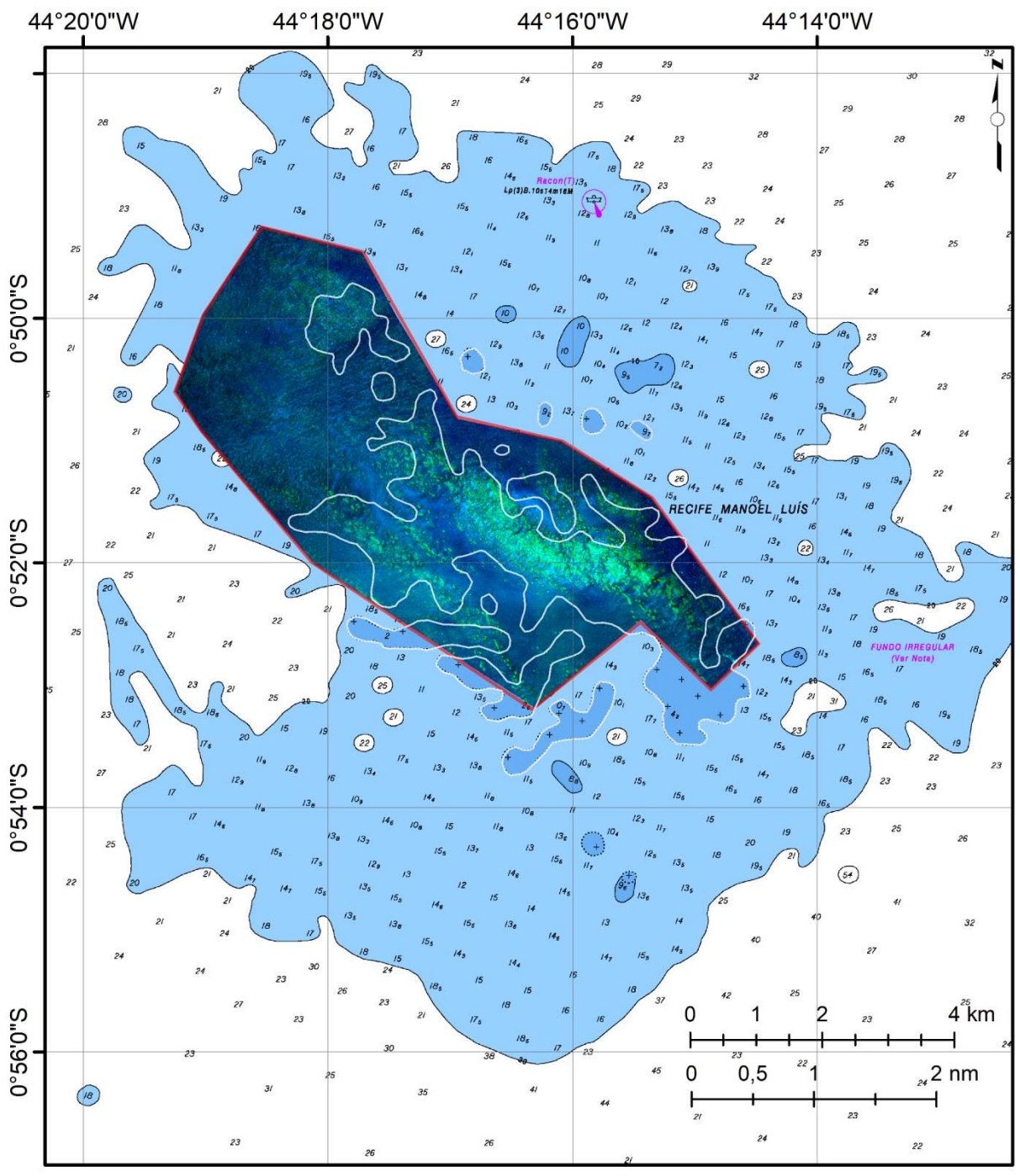
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“Os recifes que nós exploramos possuem 1,65m a 4,95m, na baixamar.

No entanto encontramos 14, 18 e 22 m na base do recife. Pode então aparecer subitamente este perigo”.

“As arrebentações (brisants), movimentos instantâneos da água que se eleva, têm aparência do movimento de uma baleia”

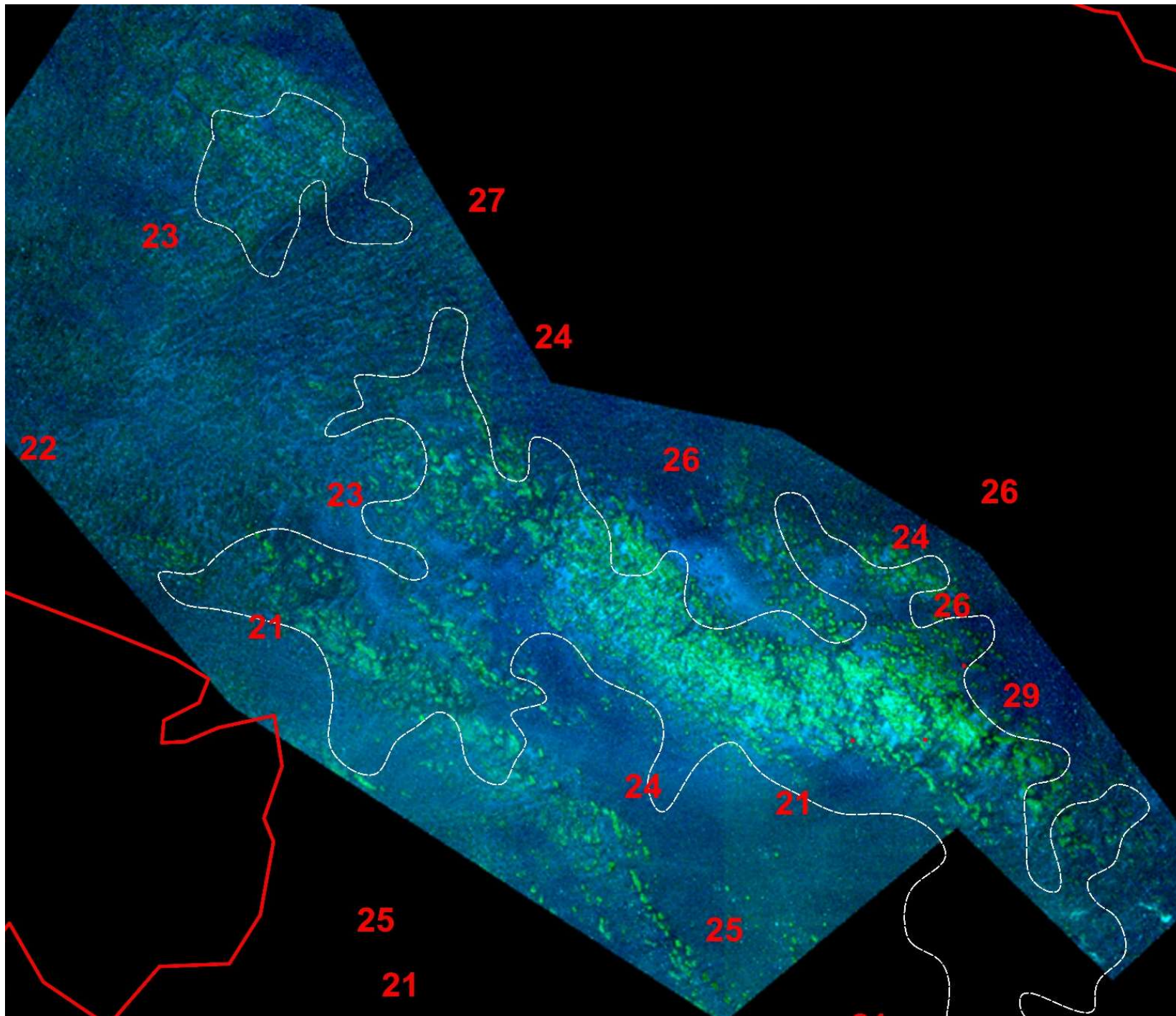
Barão de Roussin

Condições de Marés

Na lua cheia (maré de sizígia), nós mostramos que o mar sobe e desce sobre os rochedos de ML em média 12 pés (~4 m), fica cheia em 5 horas.

A **preamar** dura 6 horas e flui a 0,6 milhas/hora para **SW**.

A **baixamar** flui para **NE** durante o mesmo tempo e com a mesma velocidade.



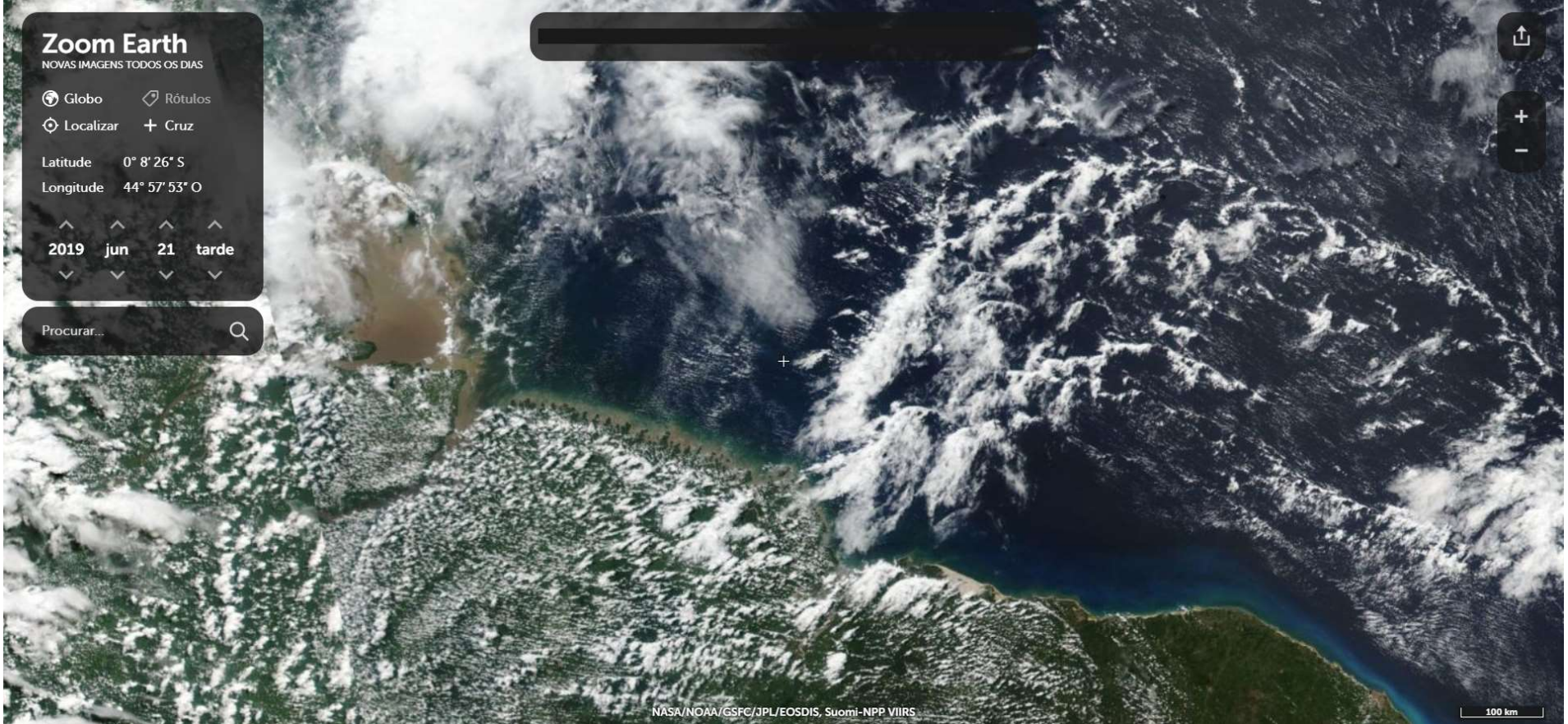
Zoom Earth
NOVAS IMAGENS TODOS OS DIAS

Globo Rótulos
Localizar + Cruz

Latitude 0° 8' 26" S
Longitude 44° 57' 53" O

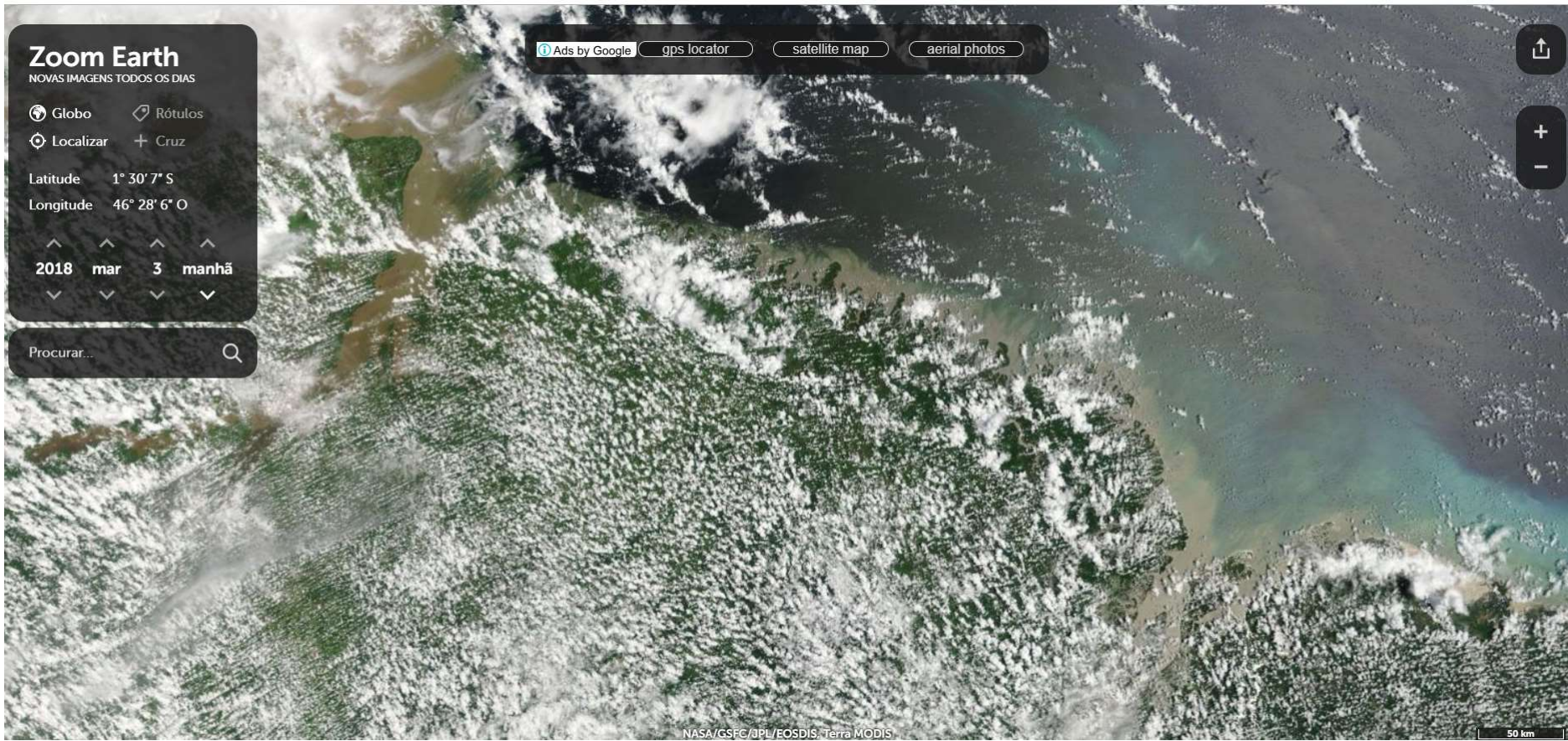
2019 jun 21 tarde

↑
+
-



NASA/NOAA/GSFC/JPL/EOSDIS, Suomi-NPP VIIRS

100 km



Zoom Earth

NOVAS IMAGENS TODOS OS DIAS

Globo Rótulos

Localizar + Cruz

Latitude 1° 30' 7" S

Longitude 46° 28' 6" O

2018 mar 3 manhã

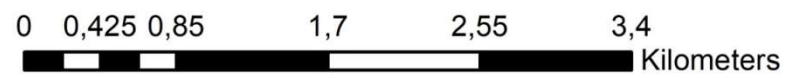
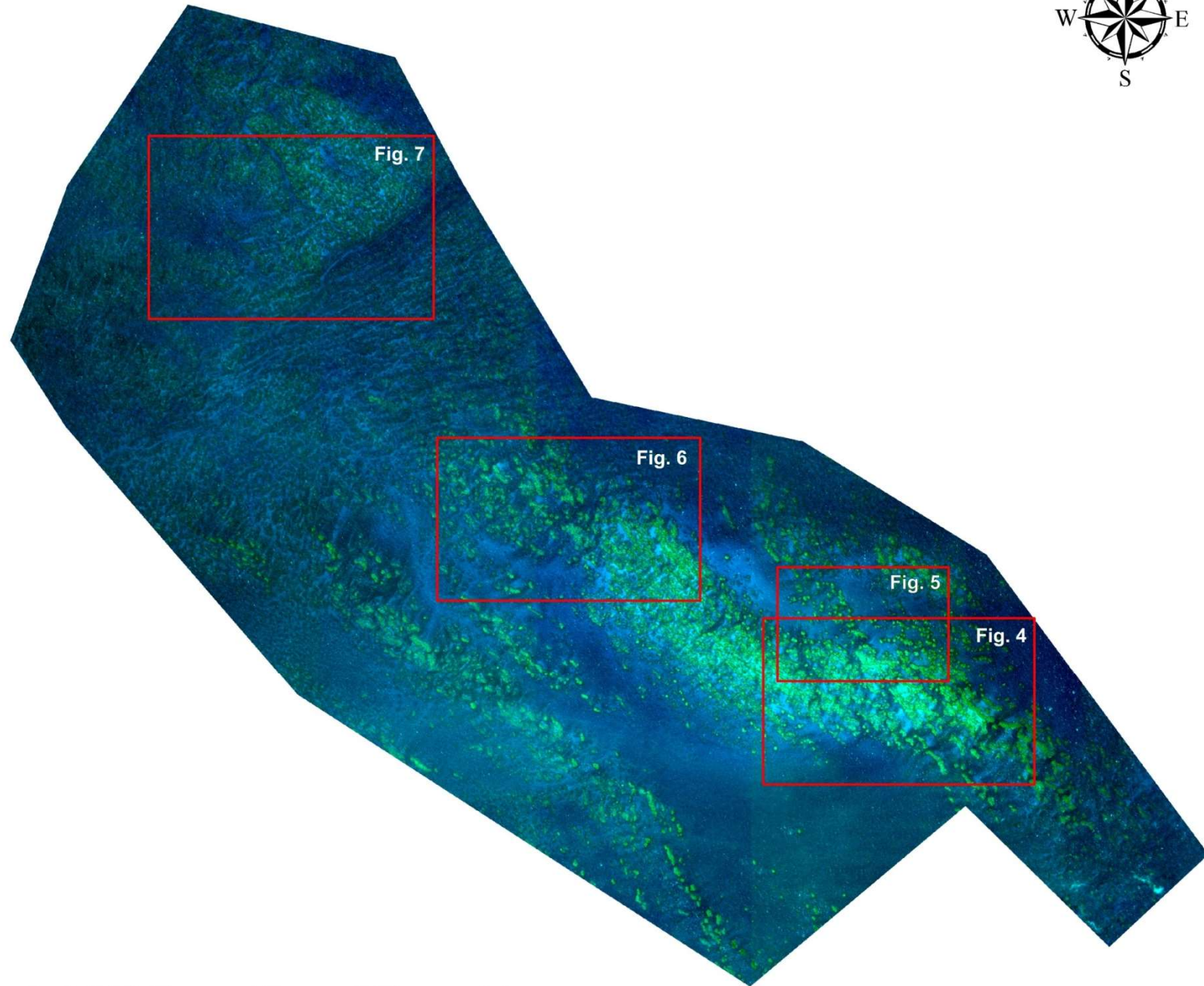
Procurar...

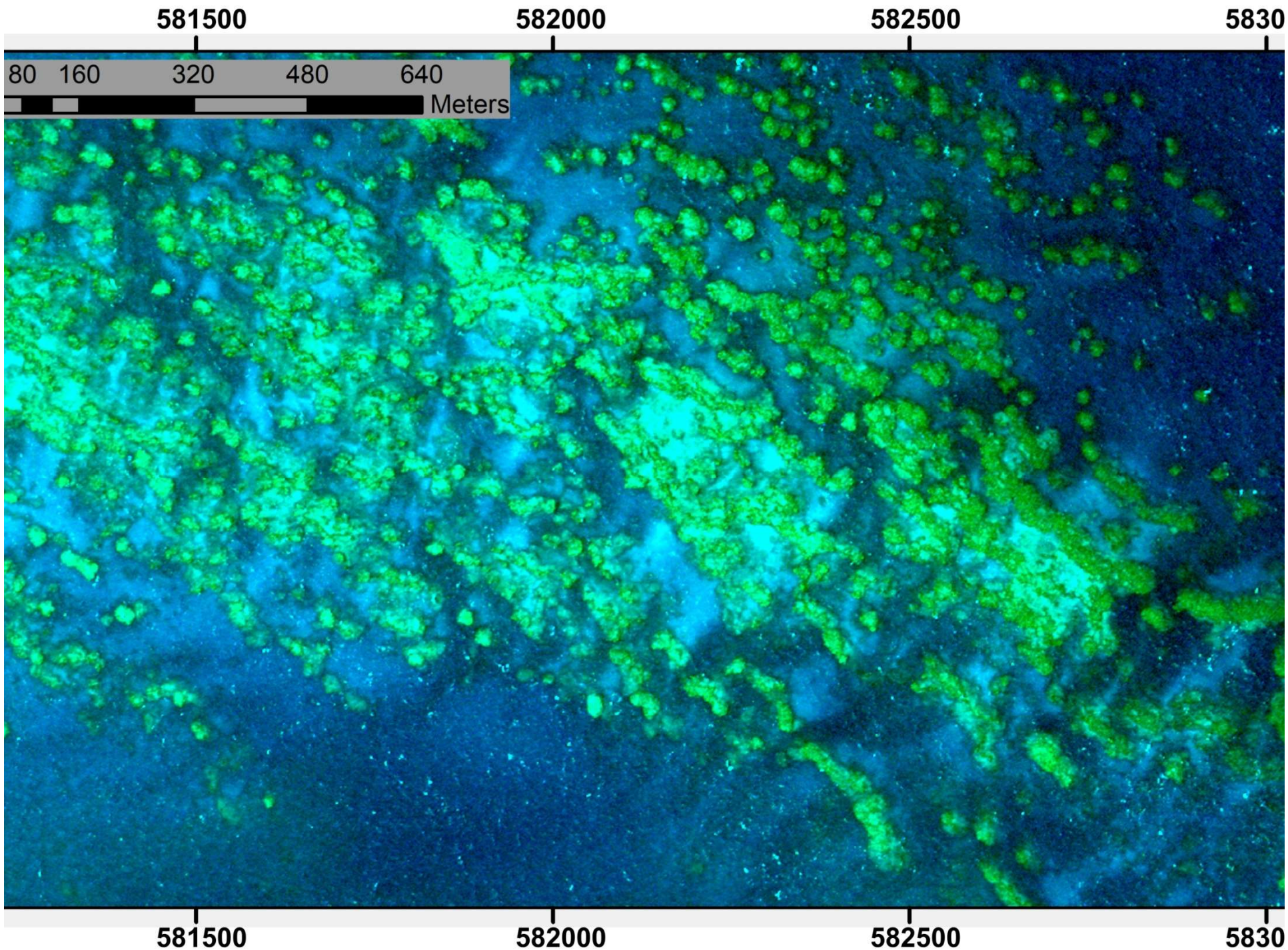
Ads by Google gps locator satellite map aerial photos

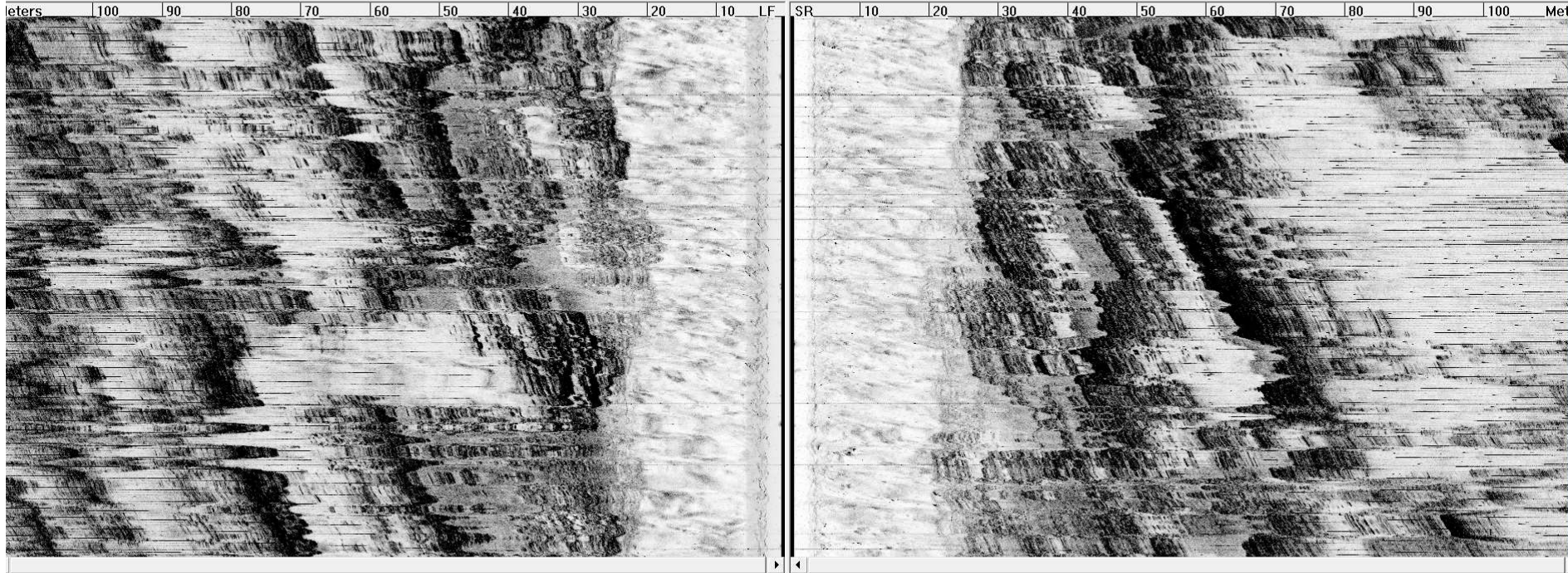
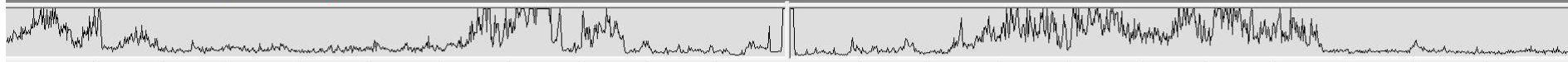
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NASA/GSFC/JPL/EOSS/DIS, Terra MODIS

50 km



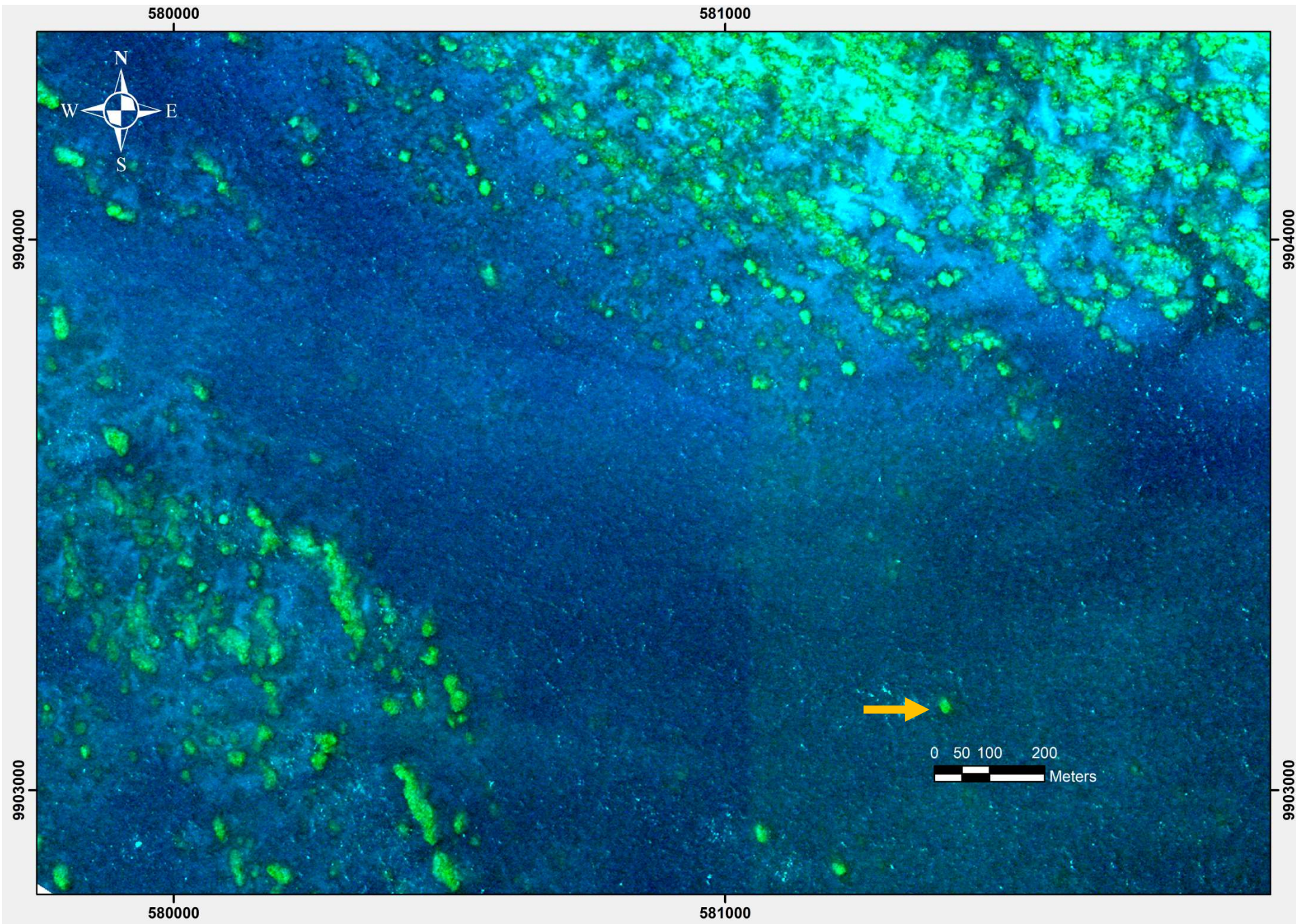


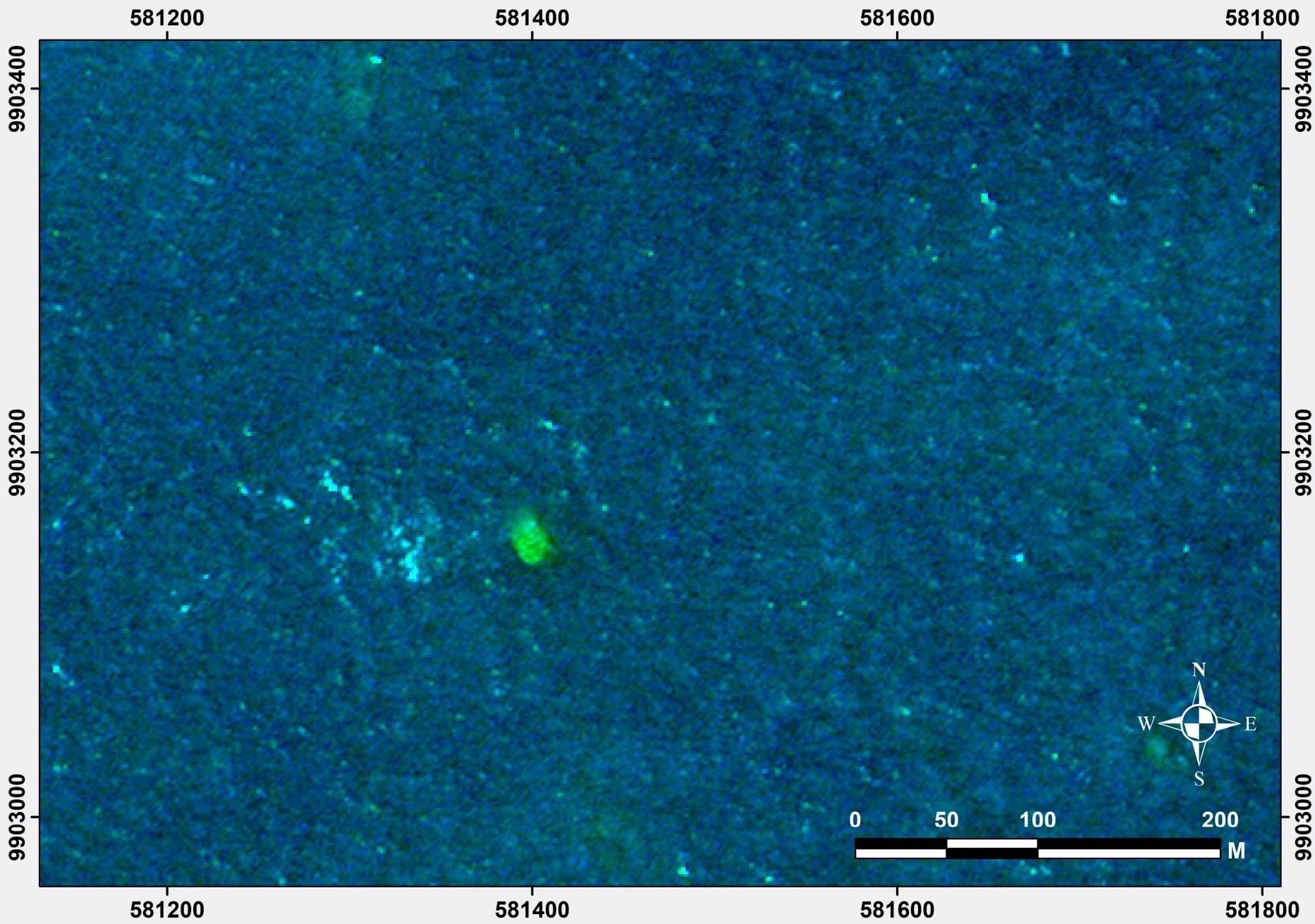


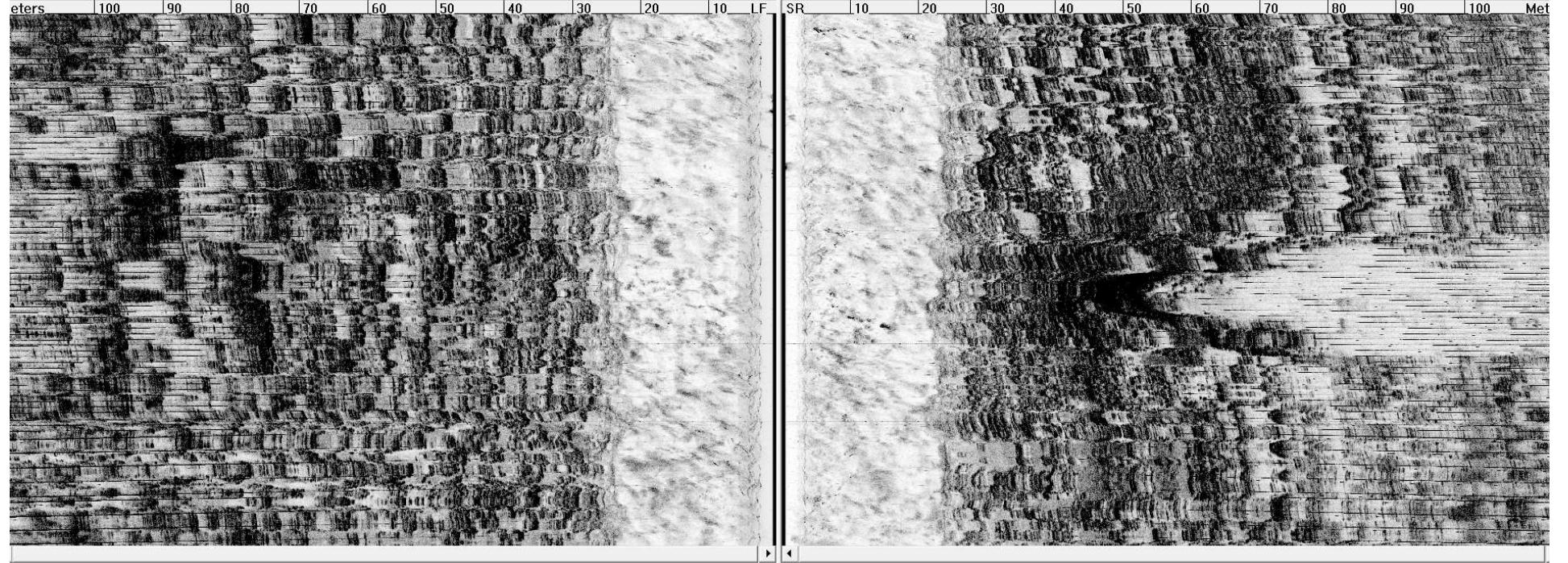
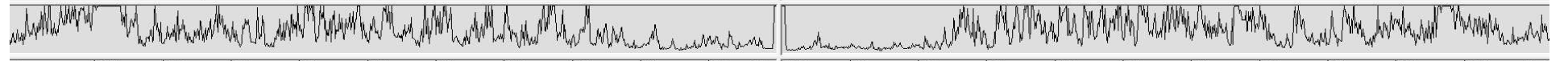
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▶ || ■ << <<< >>> >> 4% Complete Speed: 11







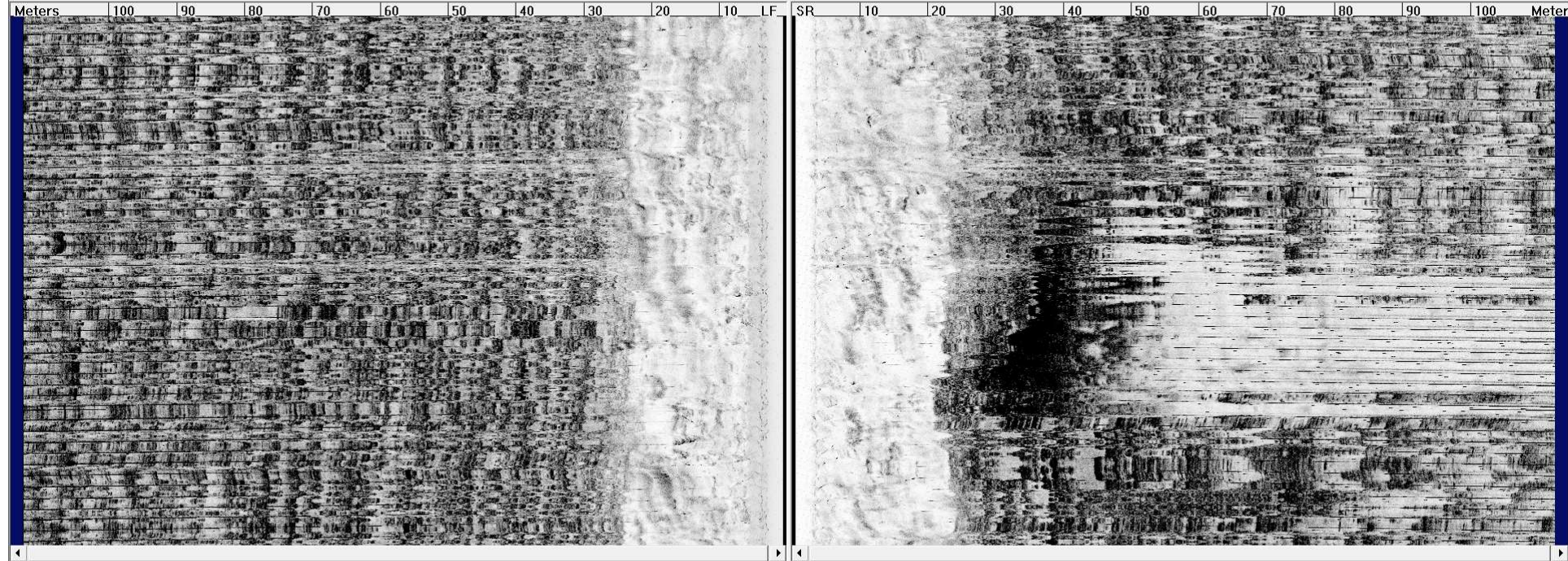
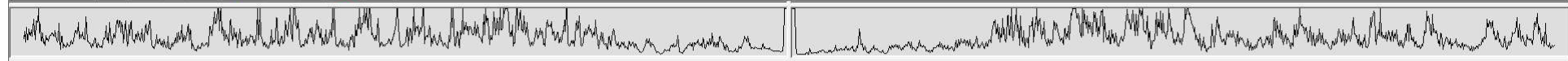
Playback File:

Record File:

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▶ || ■ << << >> >> 24% Complete
Speed: 7

|| ■ << >> ●



Towfish Control | Video Gains | Display | Disk | Bottom Track | Grids | Printer | Status

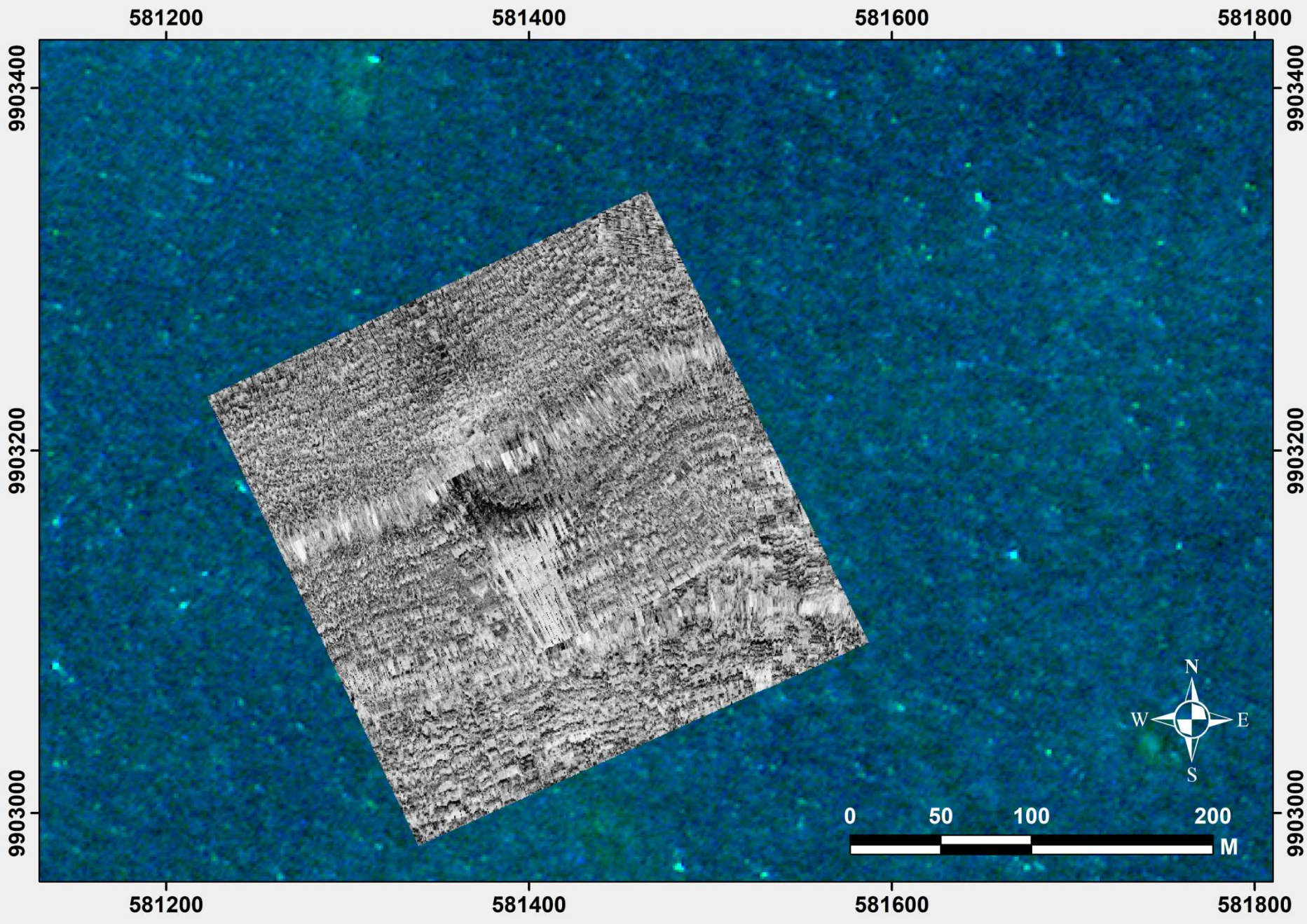
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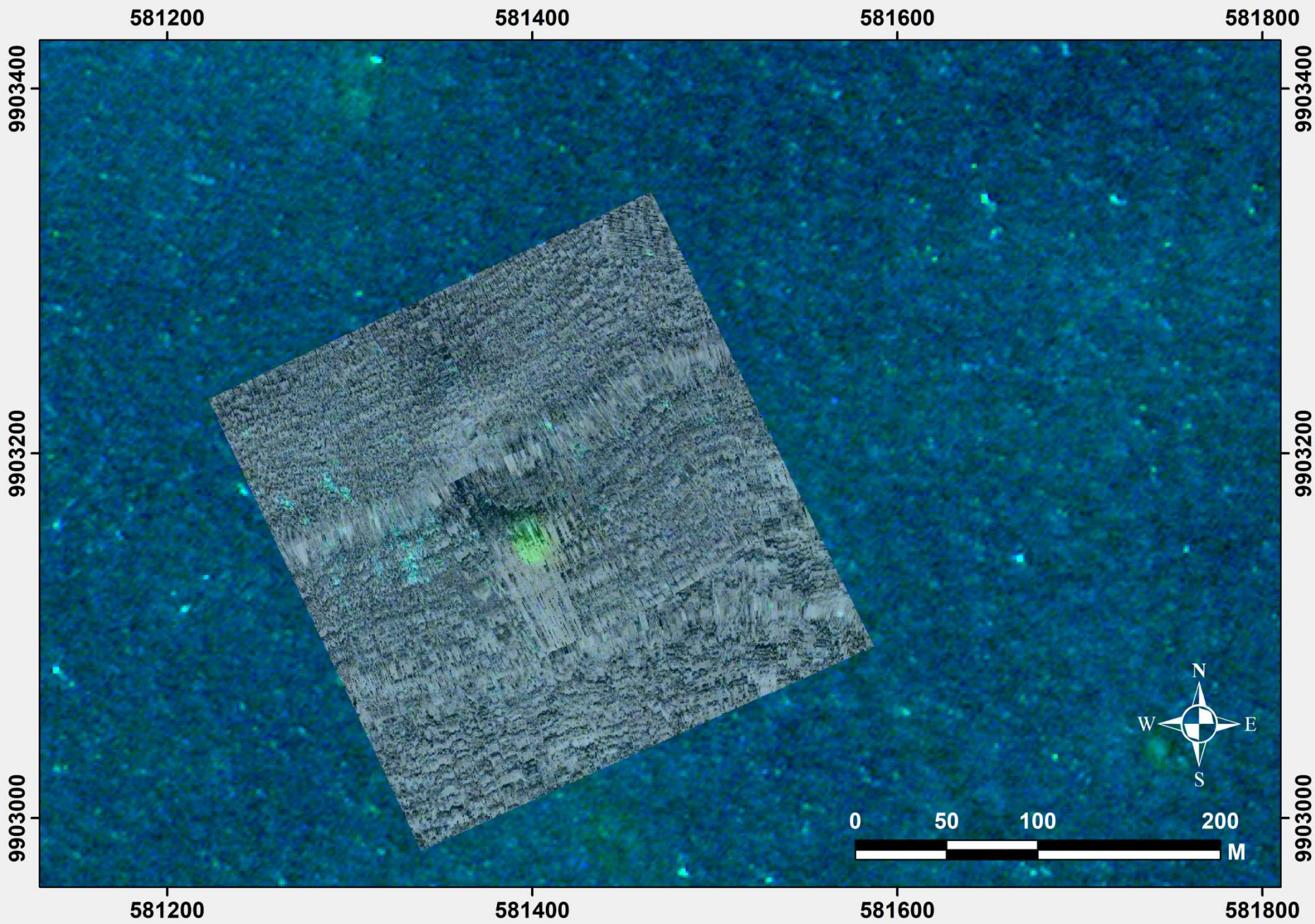
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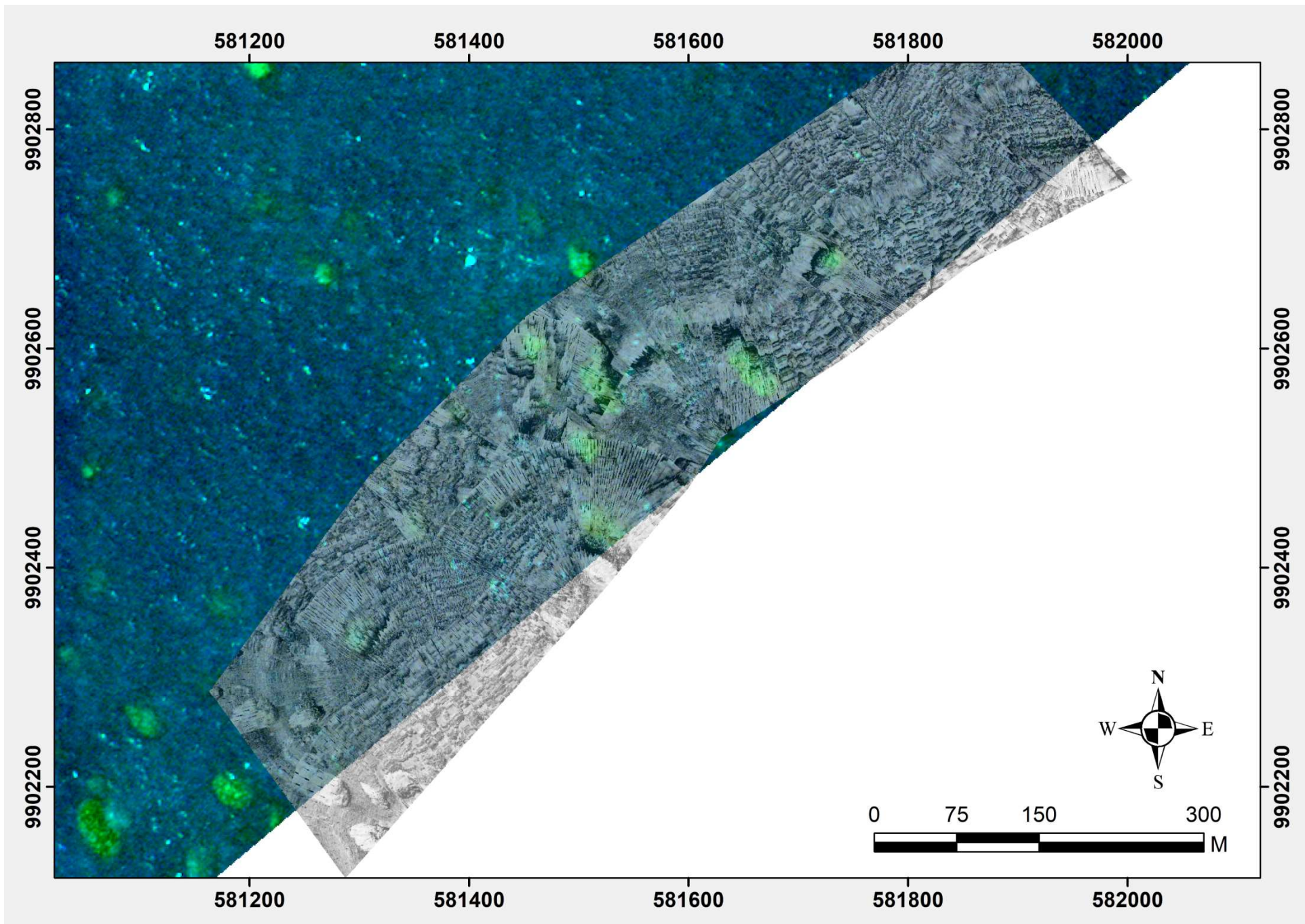
▶ || ■ ◀◀ ▶▶ 31% Complete
Speed: 6

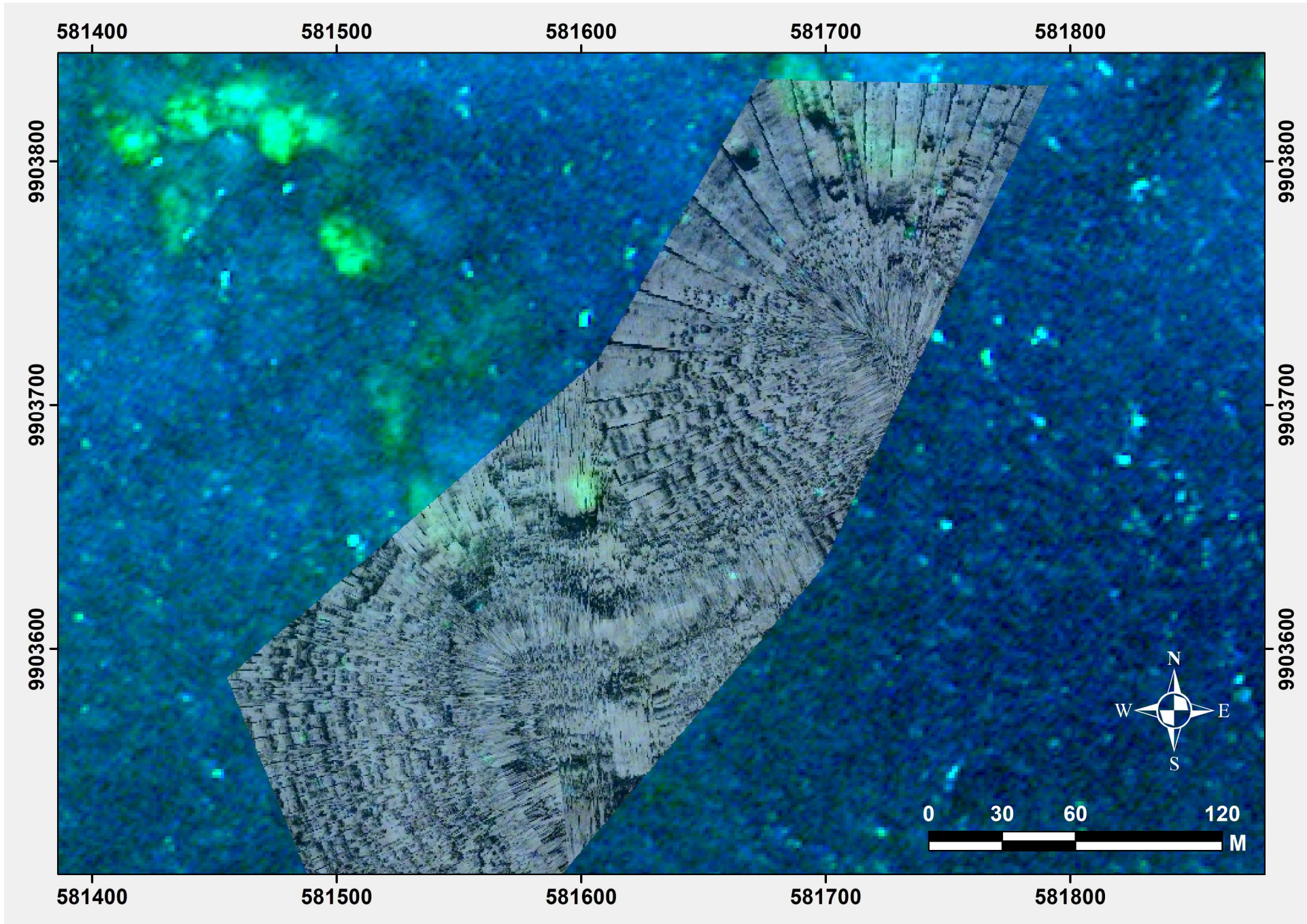
|| ■ ◀▶ ●

Ping: 44702 Lat: 0: 52.5269 S Lon: 44: 16.0816 W Course: 65 Speed: 2.7 Date: Mar. 27, 2019 Time: 19:32:07 Altitude: NA
Cursor: Ping: 44078 Mark: 0 Record Dir: Not Found





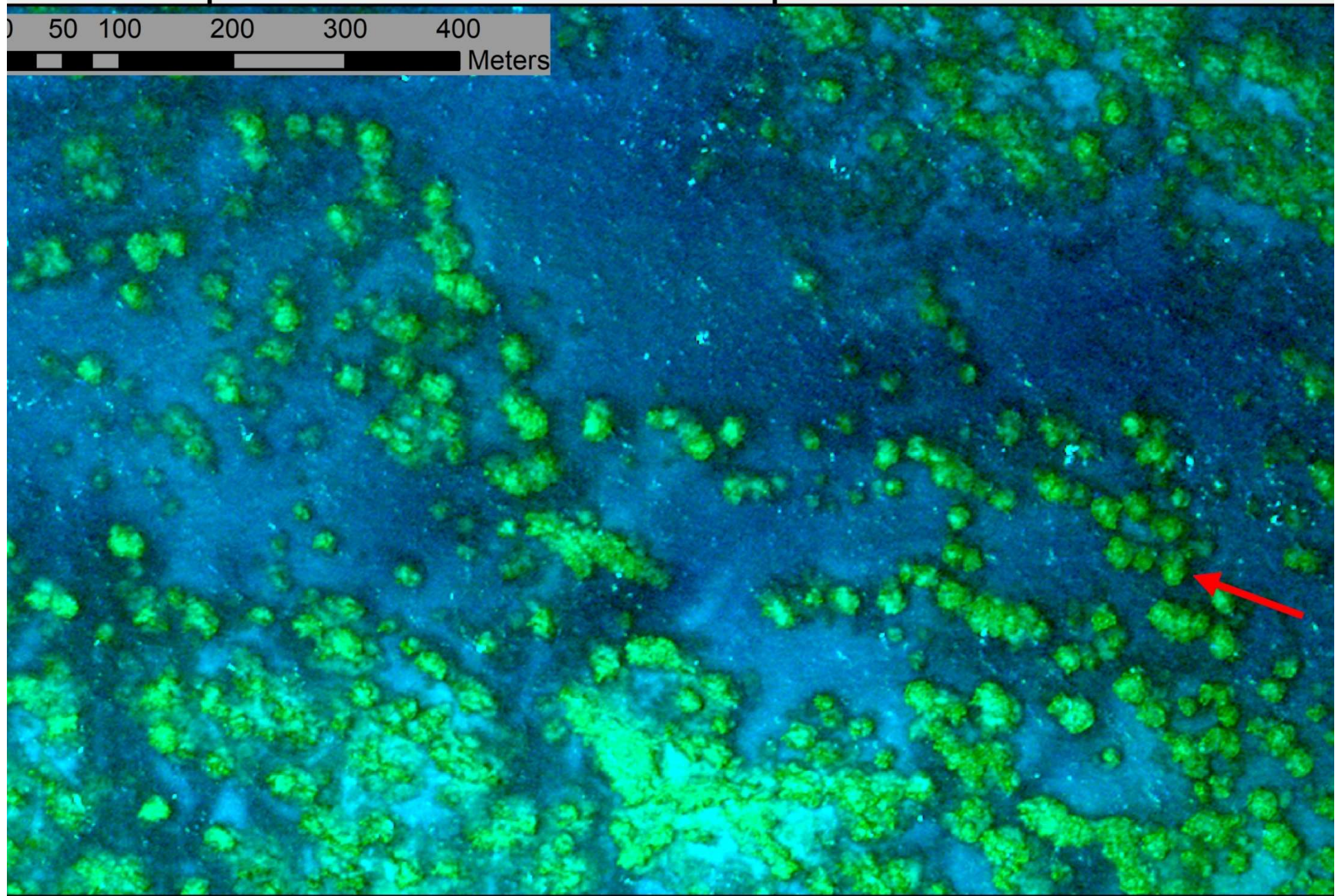
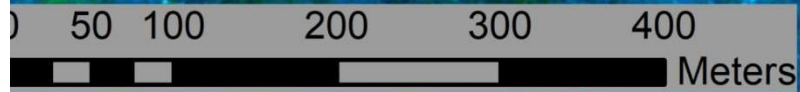




581500

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EdgeTech Discover - 4100 - RESTRICTED -

File View Configuration Control Help

Meters 100 90 80 70 60 50 40 30 20 10 10 SR 10 20 30 40 50 60 70 80 90 100 Meter

Towfish Control Video Gains Display Disk Bottom Track Grids Printer Status

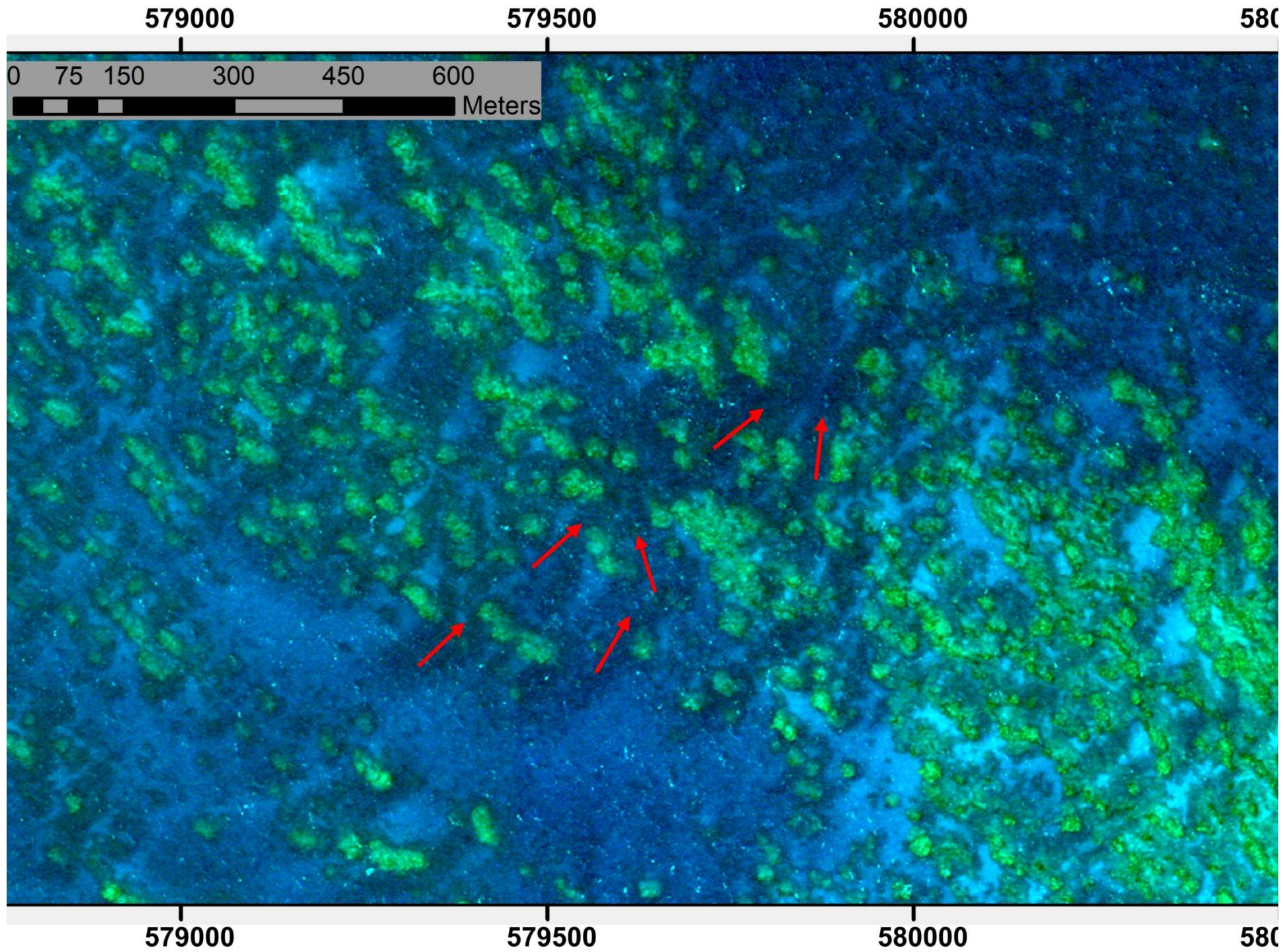
Playback File: 20190327190829.jf Browse ... Record File: Browse ...

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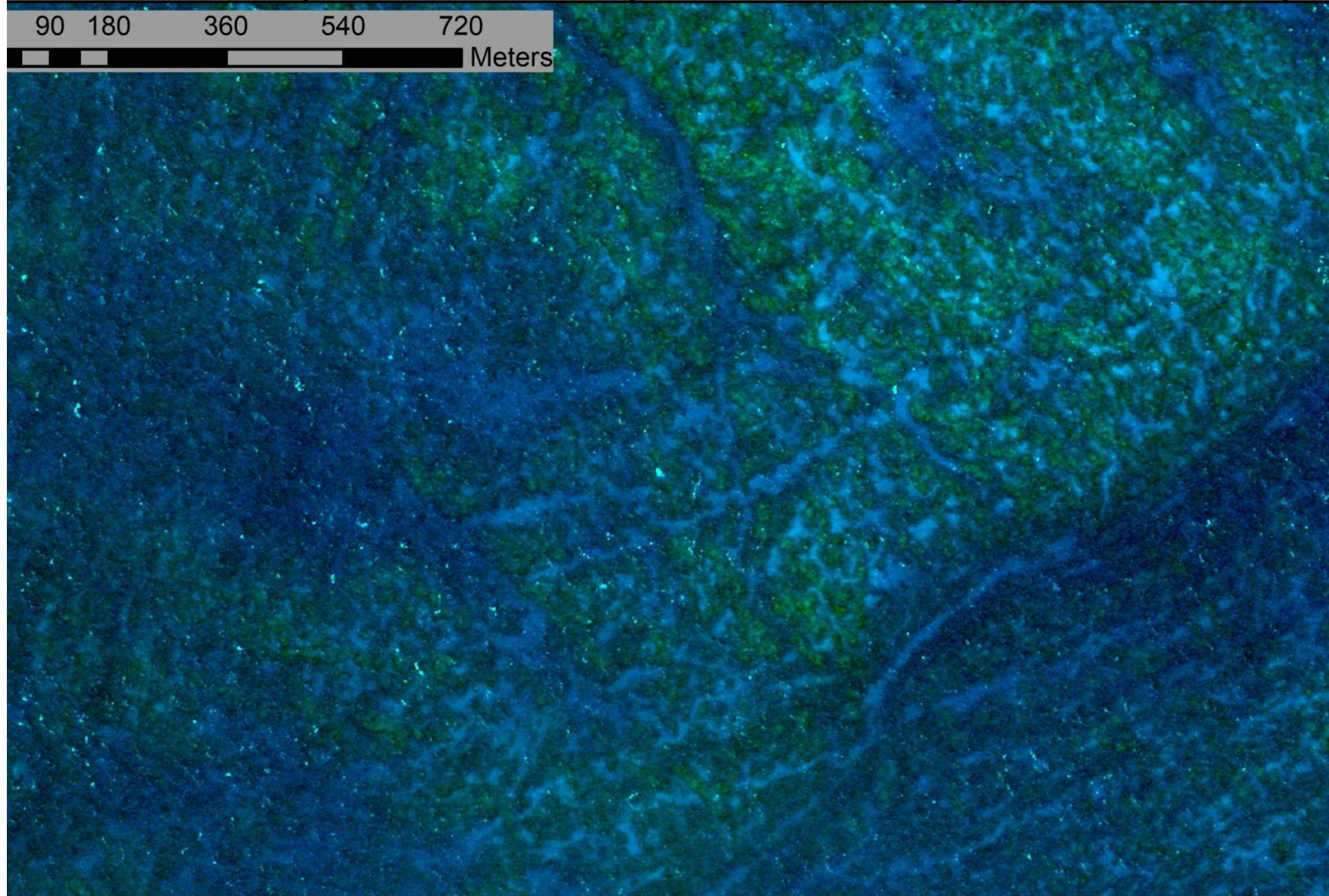
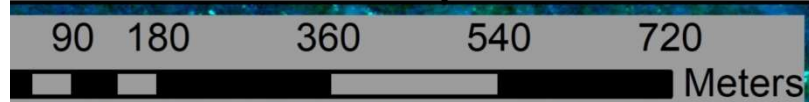
70% Complete
Speed: 4

Ping: 56571 Lat: 0 52.9137 S Lon: 44 16.0569 W Course: 310 Speed: 2.7 Date: Mar 27, 2019 Time: 20:01:48 Altitude: NA
Cursor: Ping: 55922 Mark: 0 Record Dir: Not Found

Lat 00 52.91
Lon 44 16.06



577000 577500 578000 578500



577000 577500 578000 578500

Momento Brasil | Parcel Manuel Luís



Trilogia Dives Brasil Documentario



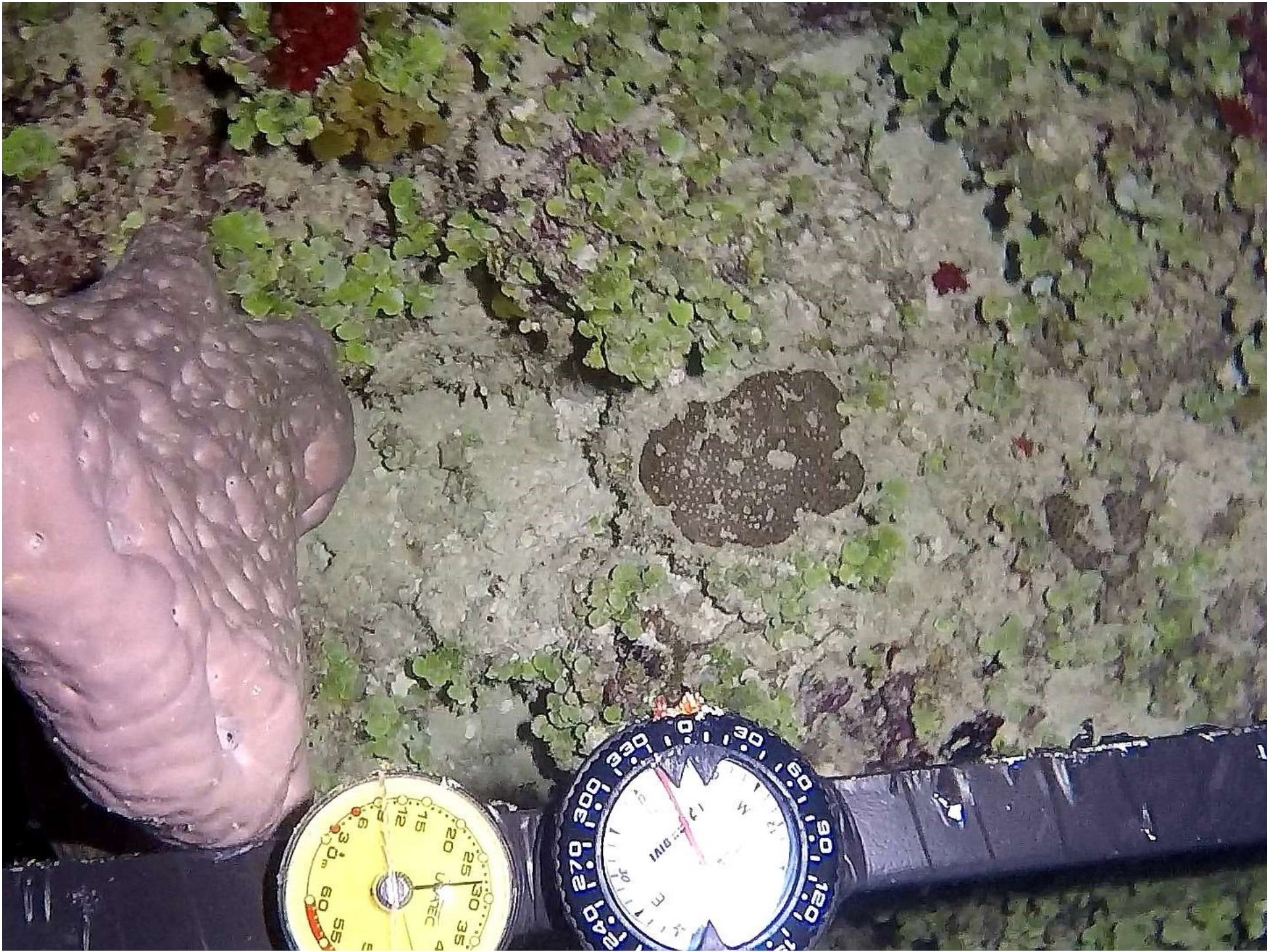
















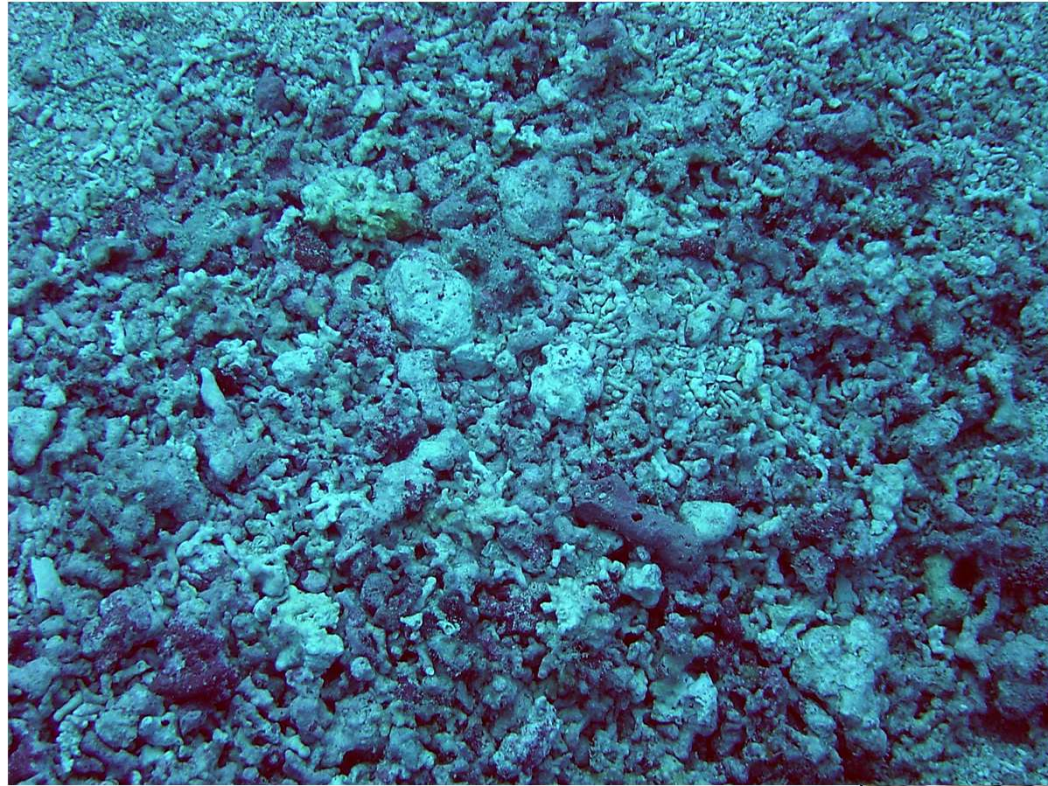


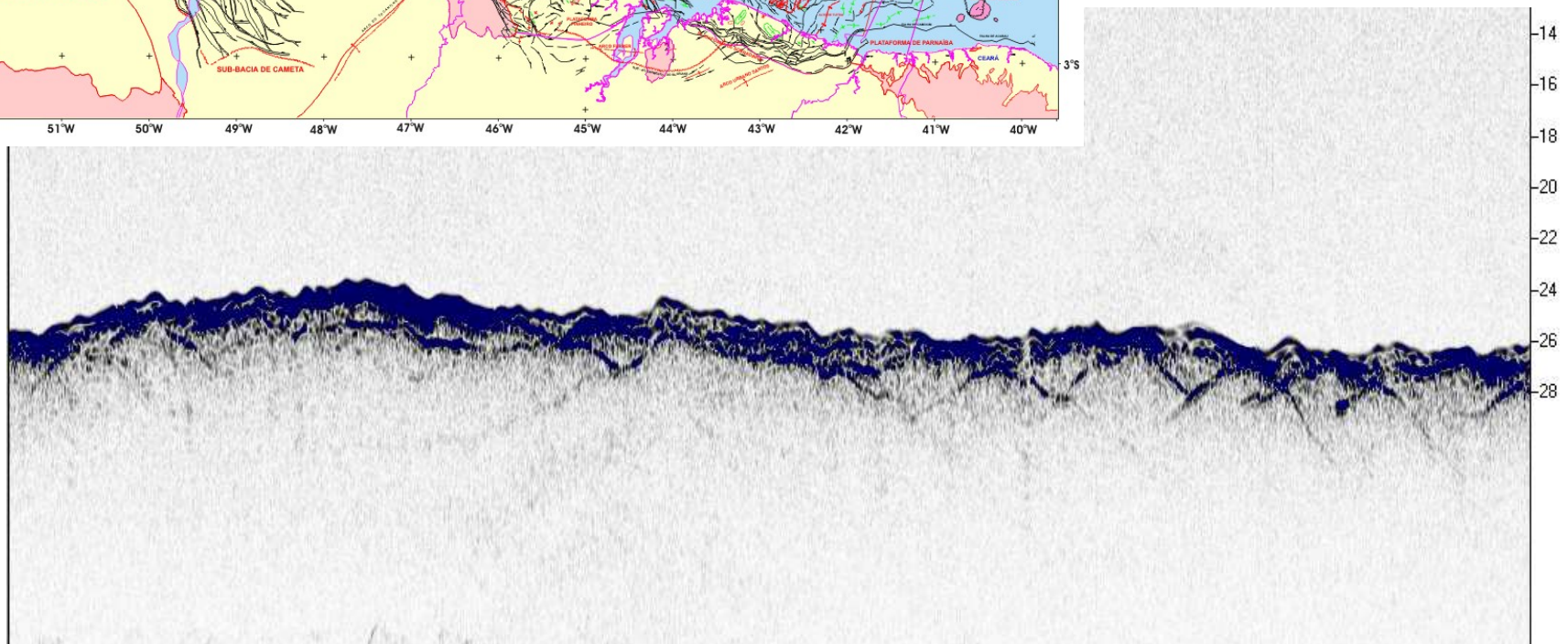
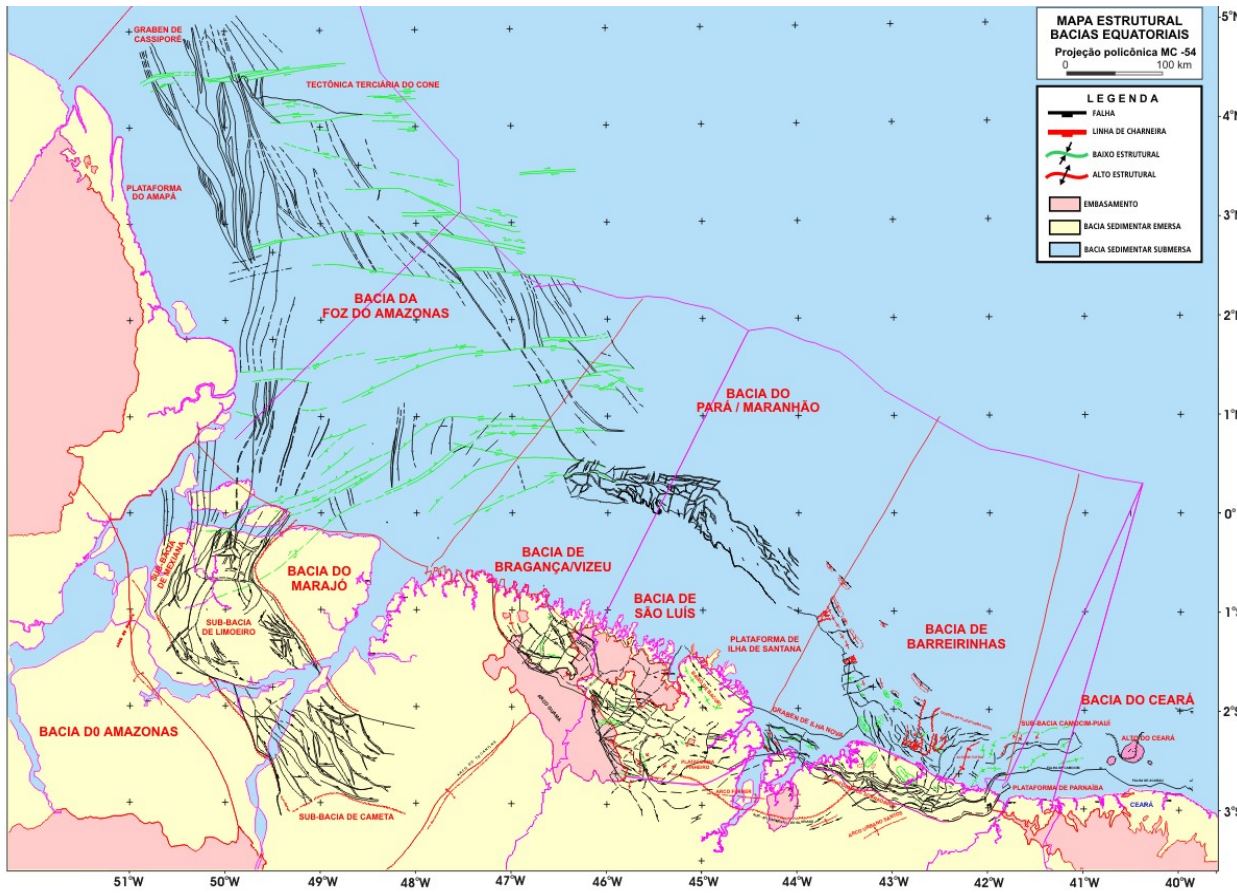


Gulf Live Rocks

“All of our live rock comes from our personal Federal Aquaculture Lease site located 10 miles offshore in the Gulf of Mexico. All of our rock was planted on the ocean floor in 1994”







CONCLUSÕES

A maioria das referencias considera os recifes de Manoel Luiz como sendo coralinos, porem os corais existentes não são formadores de recifes

Os recifes de Manoel Luiz são cobertos por crostas de algas calcarias que ainda não foram identificadas nem mapeadas em detalhe.

Registros sonográficos e sísmicos mostram relação entre altos do embasamento rochoso e a ocorrência de fundos de algas calcarias. Difícil explicar a variedade de facies carbonaticas em áreas tão próximas

Resultados obtidos já permitem planejar a realização de mapeamentos dos GEOHABITATS visando contribuir para o Plano de Manejo desta magnifica reserva ambiental de características únicas.

Obrigado!



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