

# Workshops do PGGM – Edição Amazônica

51ª Reunião Anual do Programa de Geologia e Geofísica Marinha (PGGM)

5º Workshop de Geologia e Geofísica Marinha

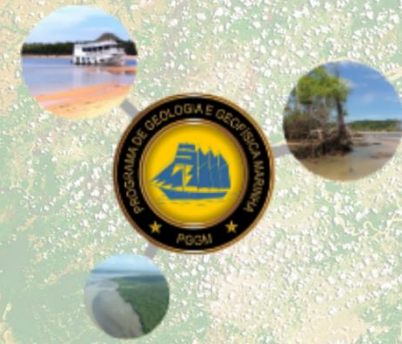
3º Workshop de Hidrografia Portuária e Petrolífera

1º Workshop de Sistemas Costeiros

Workshop de Oceano Profundo

## Estratigrafia e Evolução da Planície Costeira do Maranhão

Prof. Leonardo Gonçalves de Lima  
UFMA-Departamento de Oceanografia



WORKSHOPS  
DO  
PGGM

*Edição  
Amazônica*

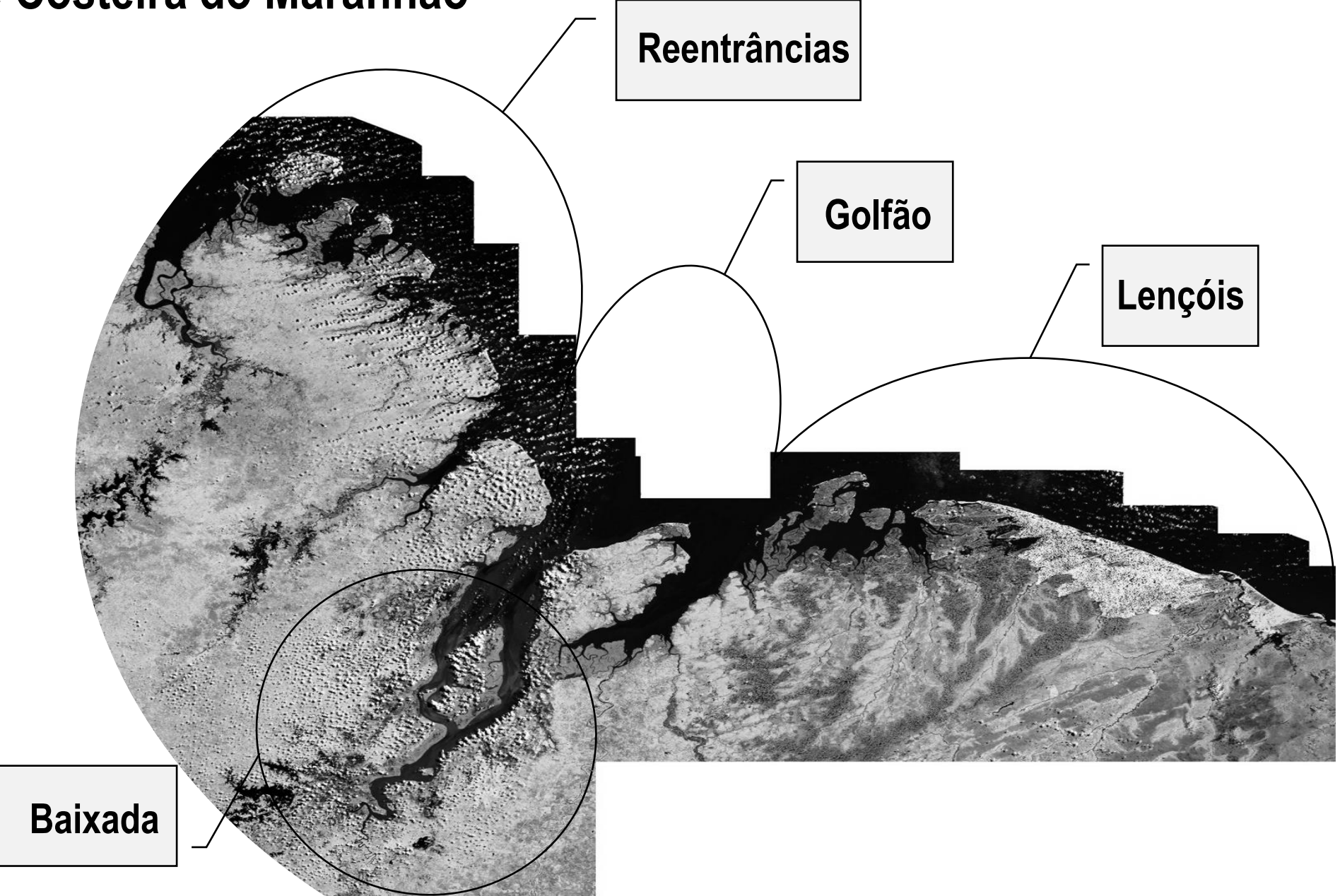
2020

MACAPÁ - AP

ORGANIZAÇÃO



# Planície Costeira do Maranhão



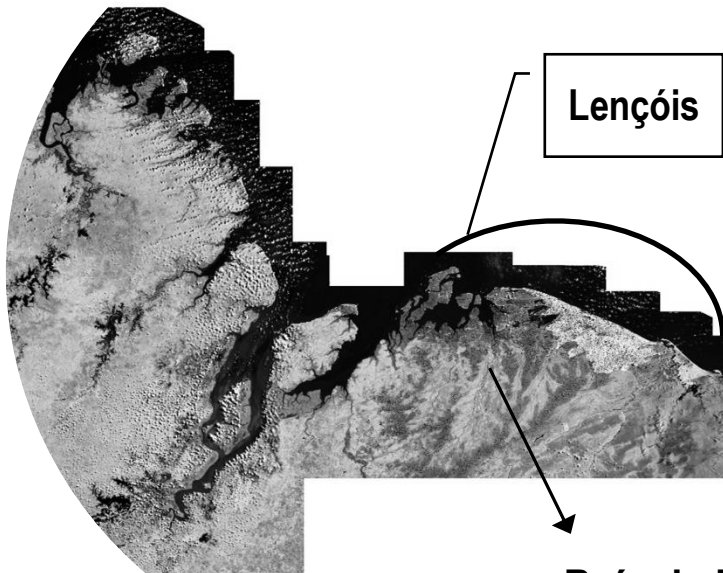
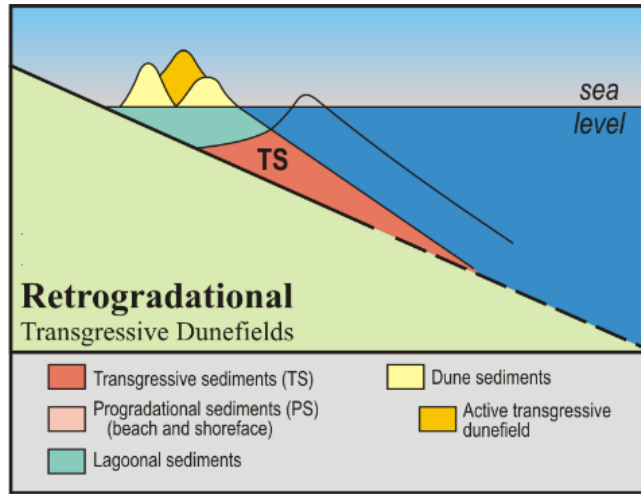


# Métodos

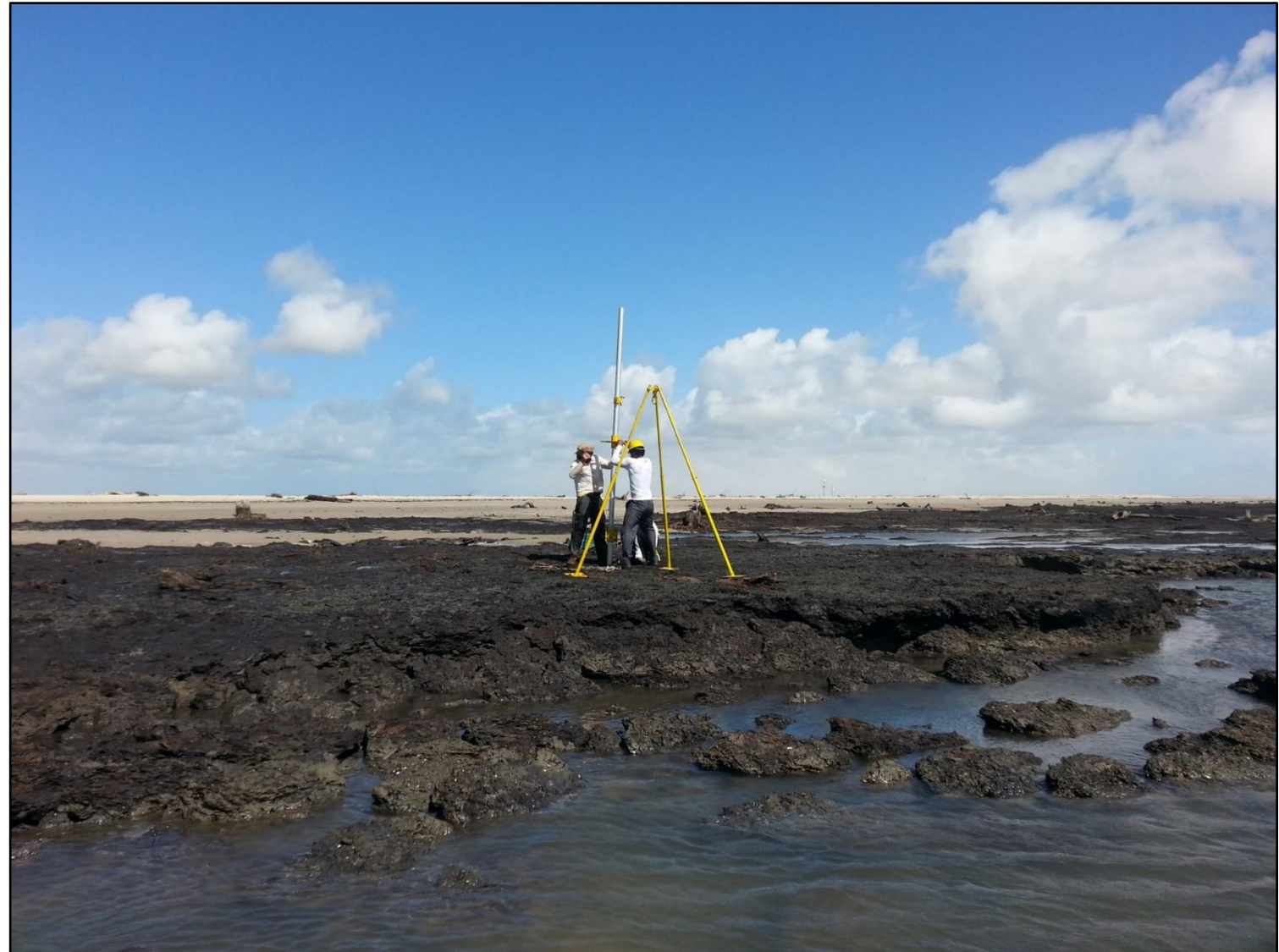
- Levantamento de Campo
- Sondagem
- Datação 14C



# Paleomangues

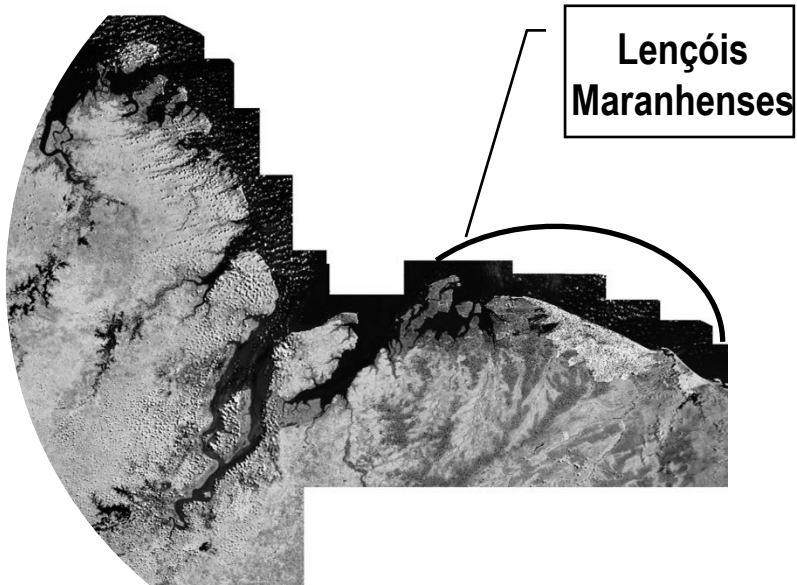
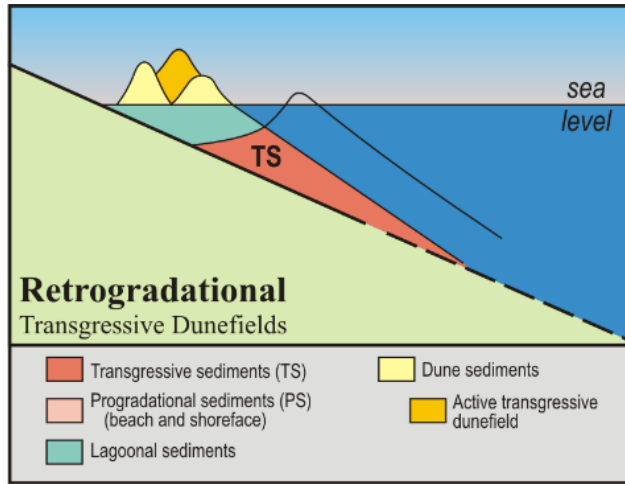


Baía do Tubarão



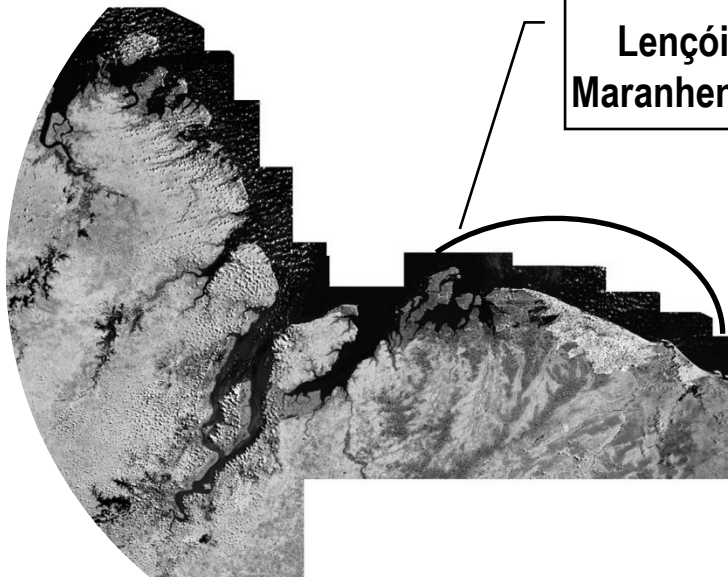
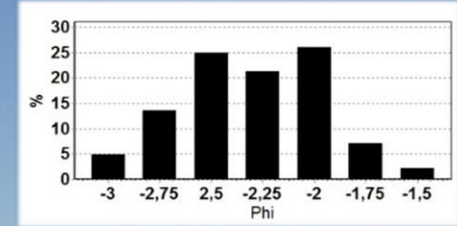
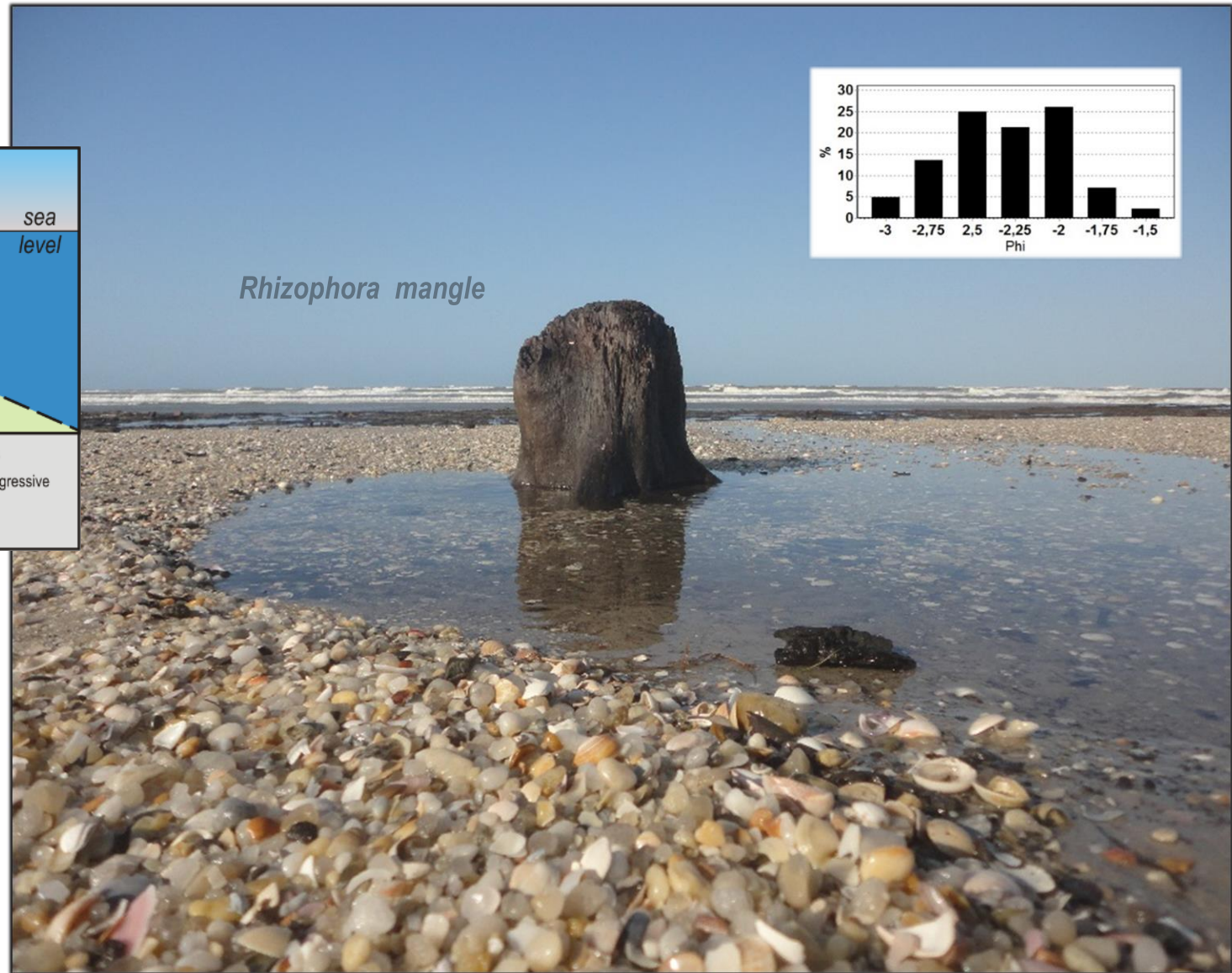
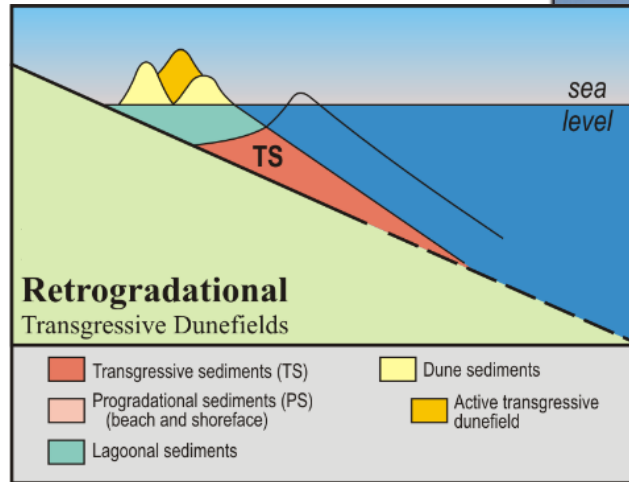


# Bioclastos





# Vales Incisos

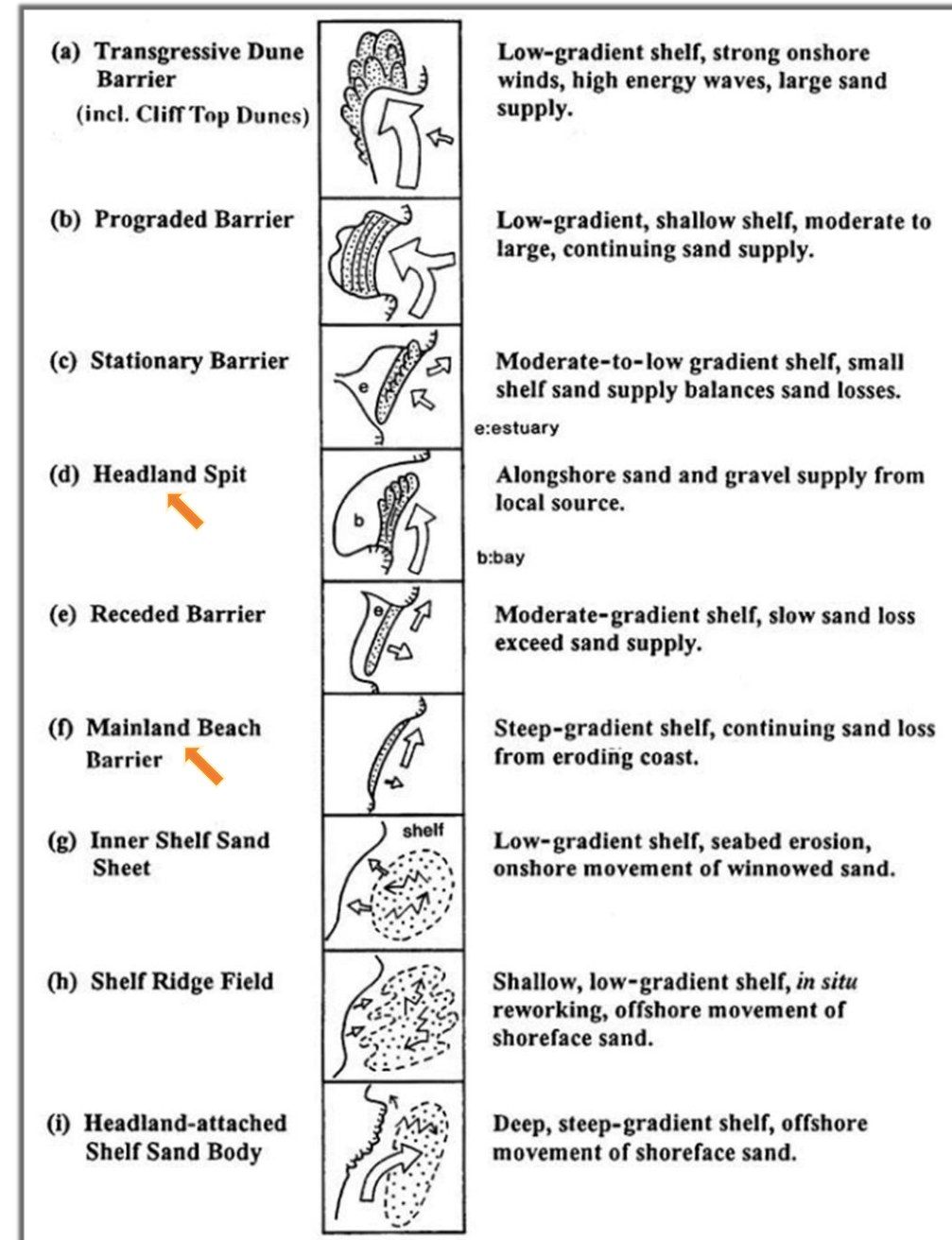


**Lencóis Maranhenses**



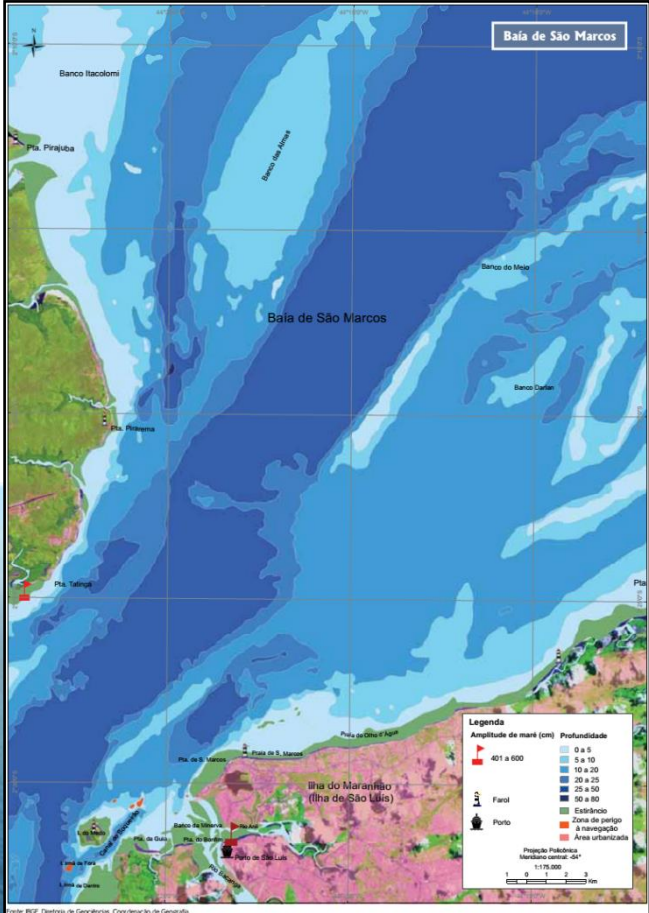
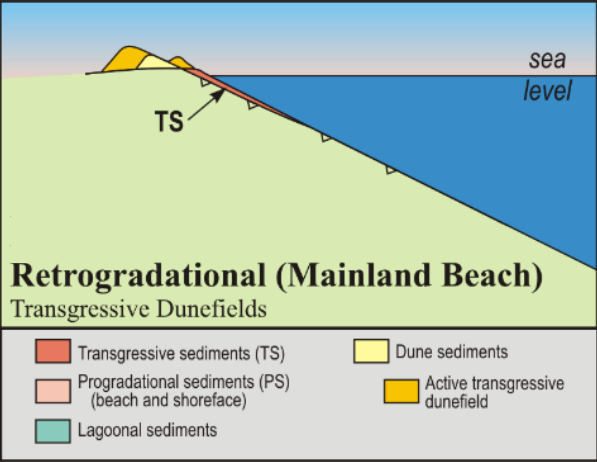
## Sistemas de Barreiras Costeiras na Ilha do Maranhão

- (i) **Barreiras de Praias Anexadas** que se caracterizam por uma topografia antecedente rasa, geralmente aflorante, onde há perda contínua de areia pela costa erodida;
- (ii) **Barreiras de Esporões Arenosos ligadas a promontórios** que se caracterizam por um sistema laguna-barreira-esporão ancorado longitudinalmente a promontórios. Este último morfotipo desenvolve-se onde existe brusca variação de orientação da linha de costa ou onde a topografia antecedente é mais resistente à erosão marinha. Além disso, este morfotipo origina-se de um amplo transporte de sedimentos via deriva litorânea, cujo prolongamento é geralmente interrompido pelo efeito conhecido como espigão hidráulico, junto a elevados prismas de maré nas desembocaduras fluviais.





# Barreiras Costeiras Anexadas ao Continente (Mainland Beach Barrier)



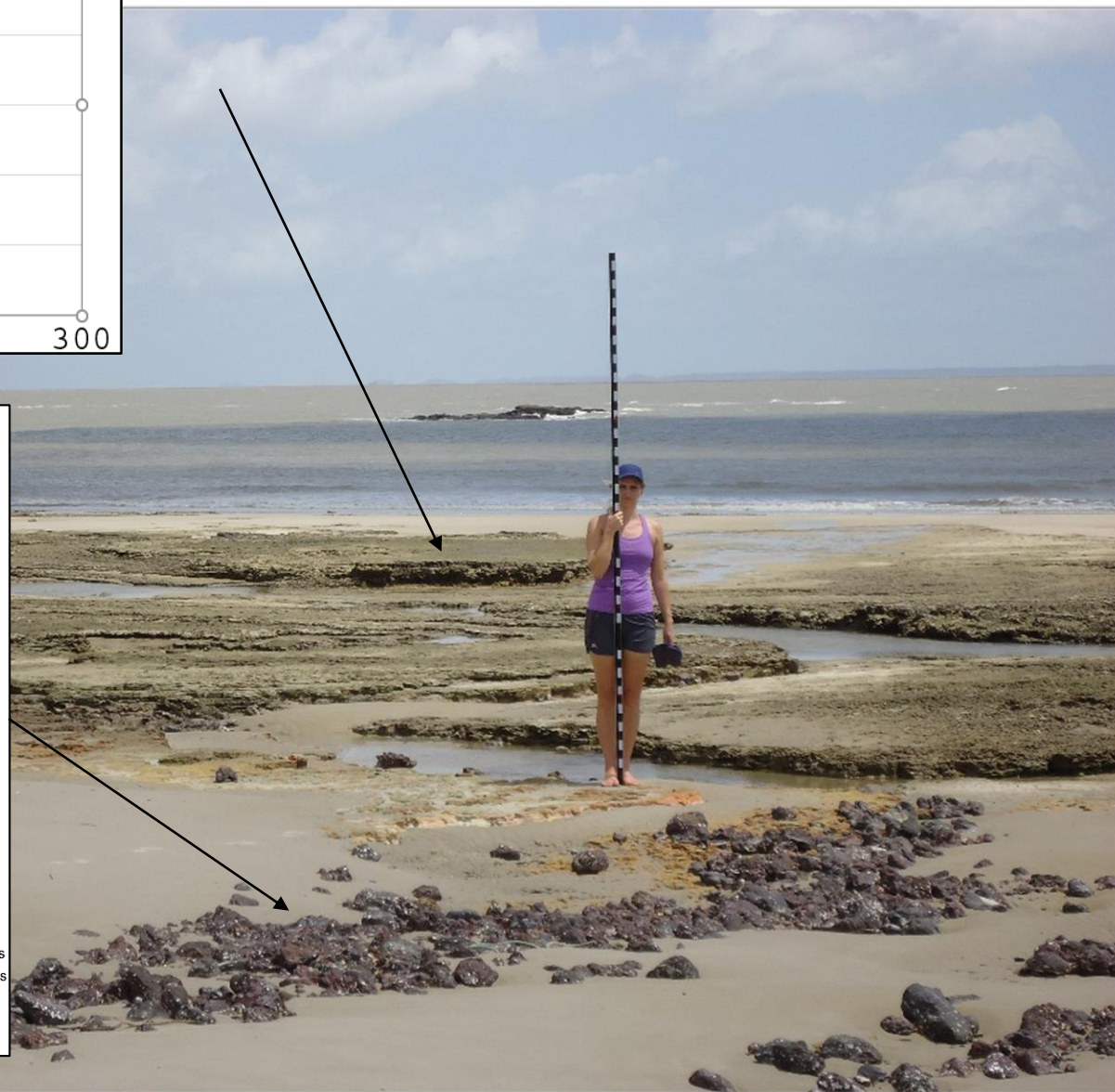
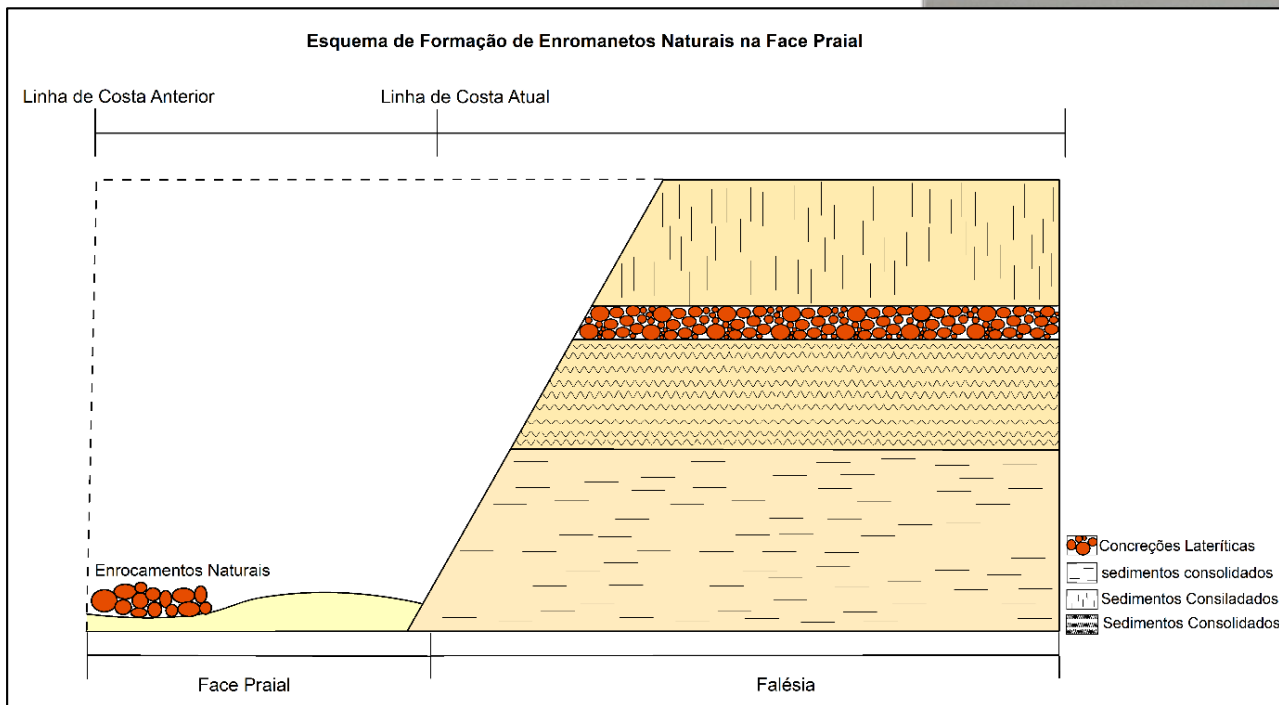
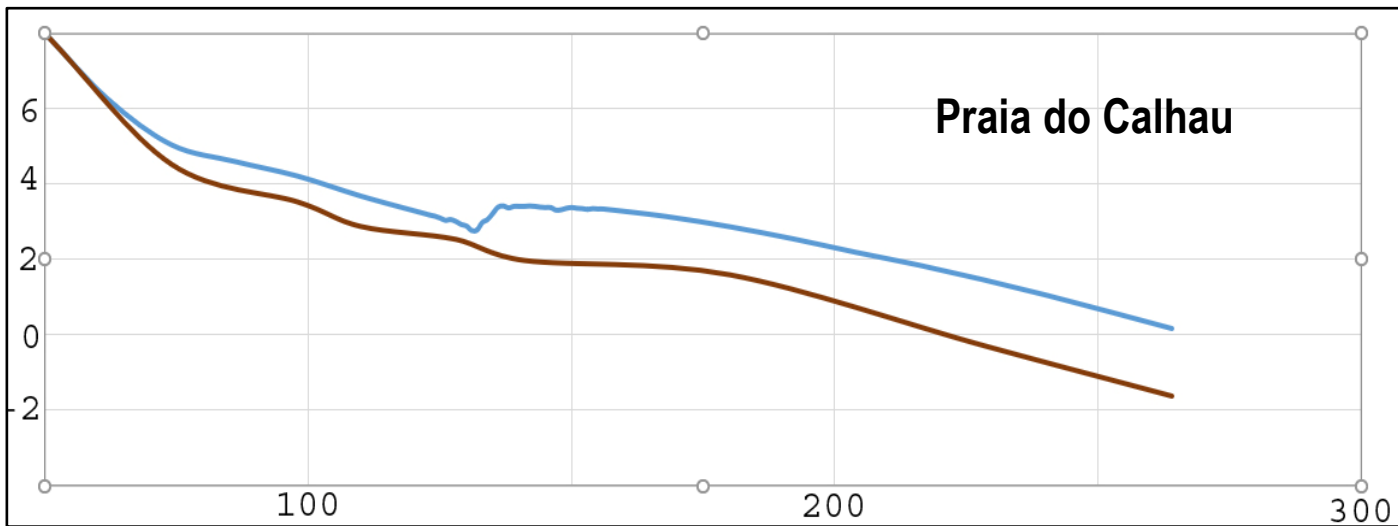
Golfão



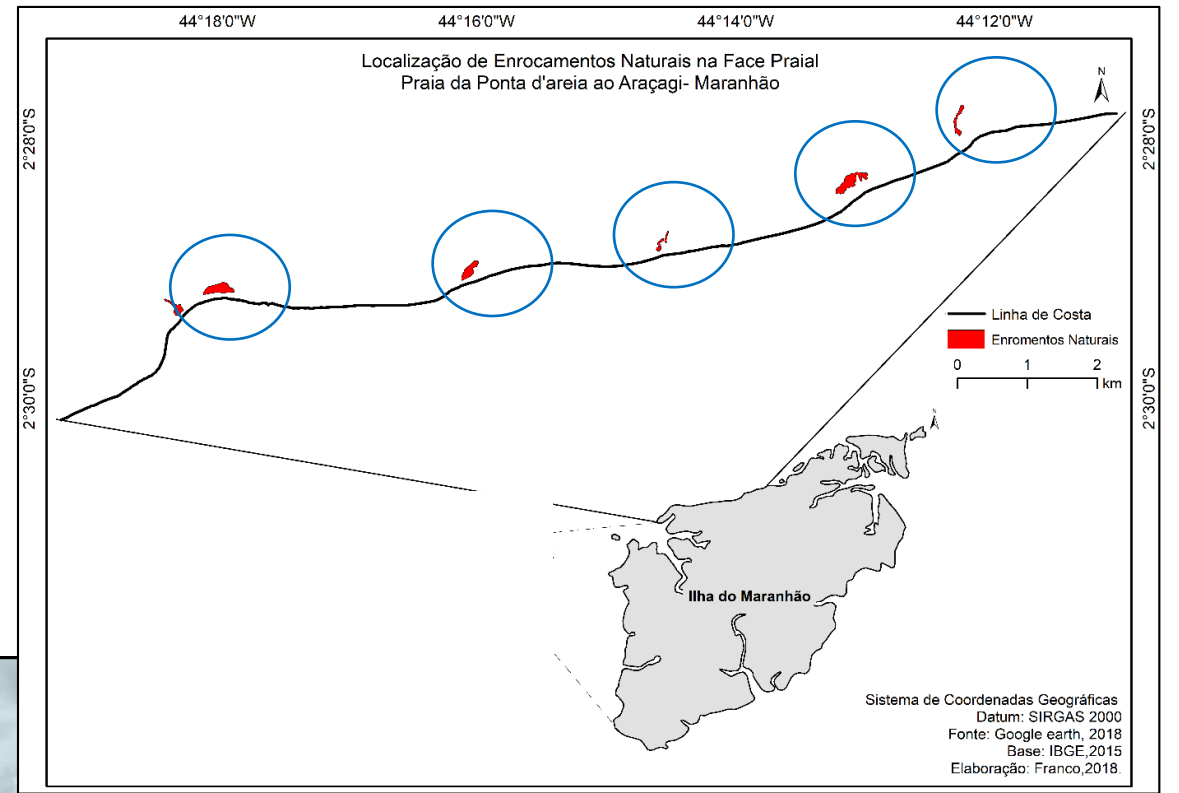
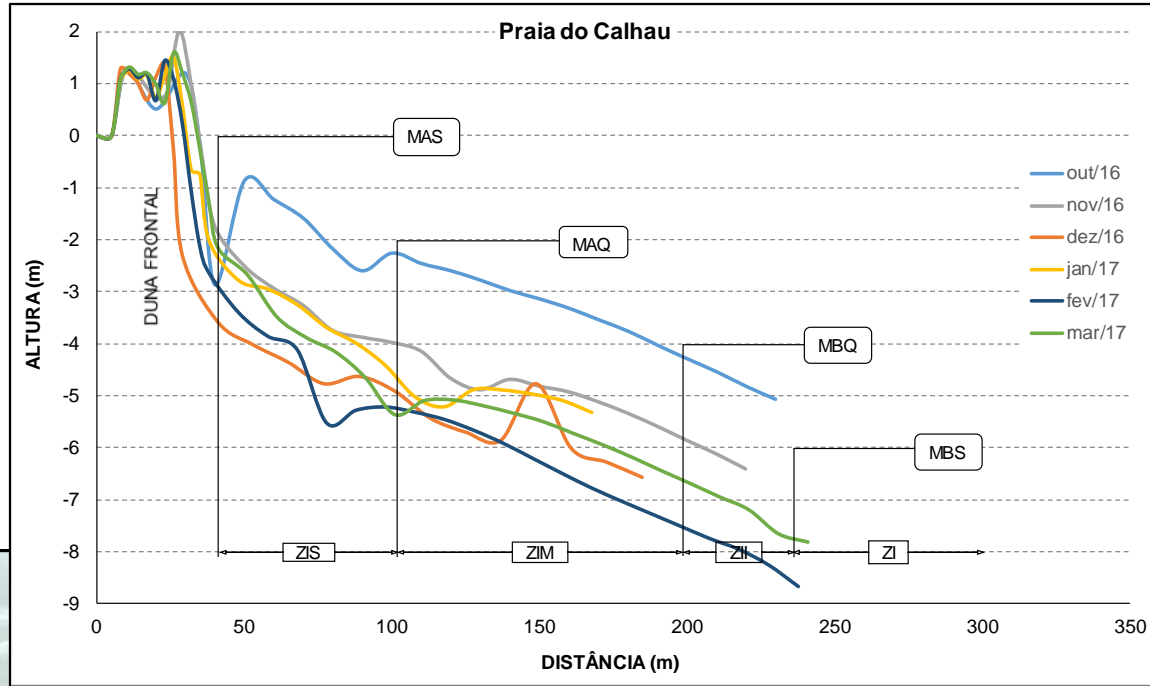




# Barreiras Costeiras Anexadas ao Continente (*Mainland Beach Barrier*)

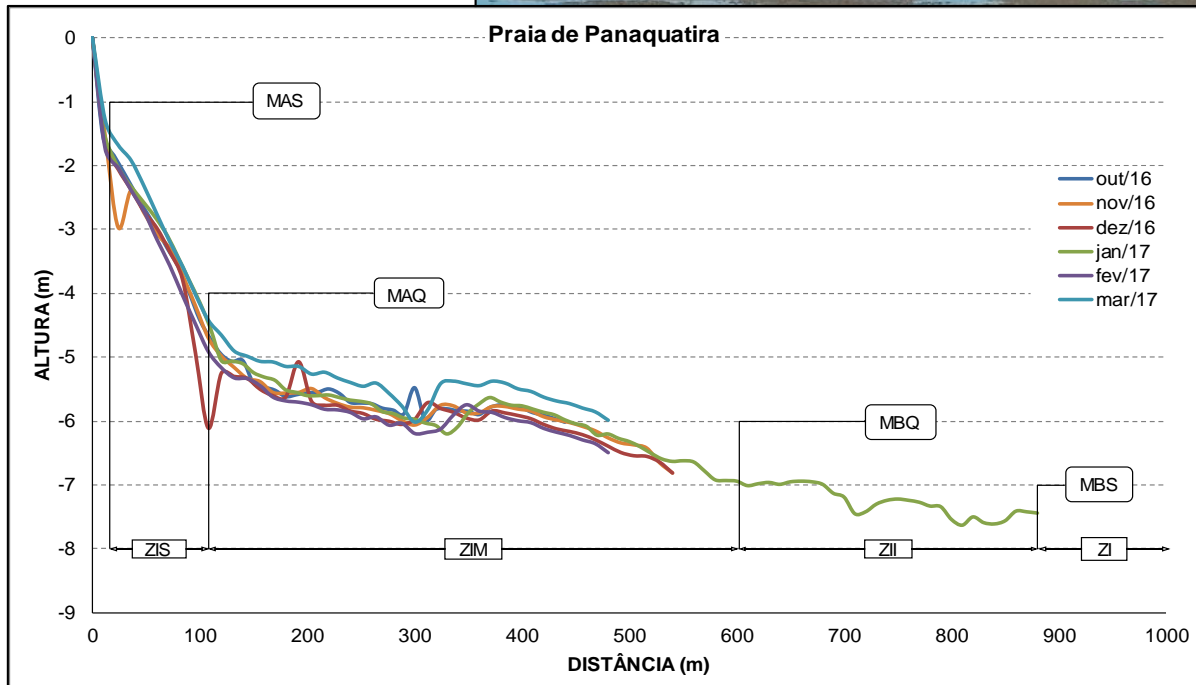
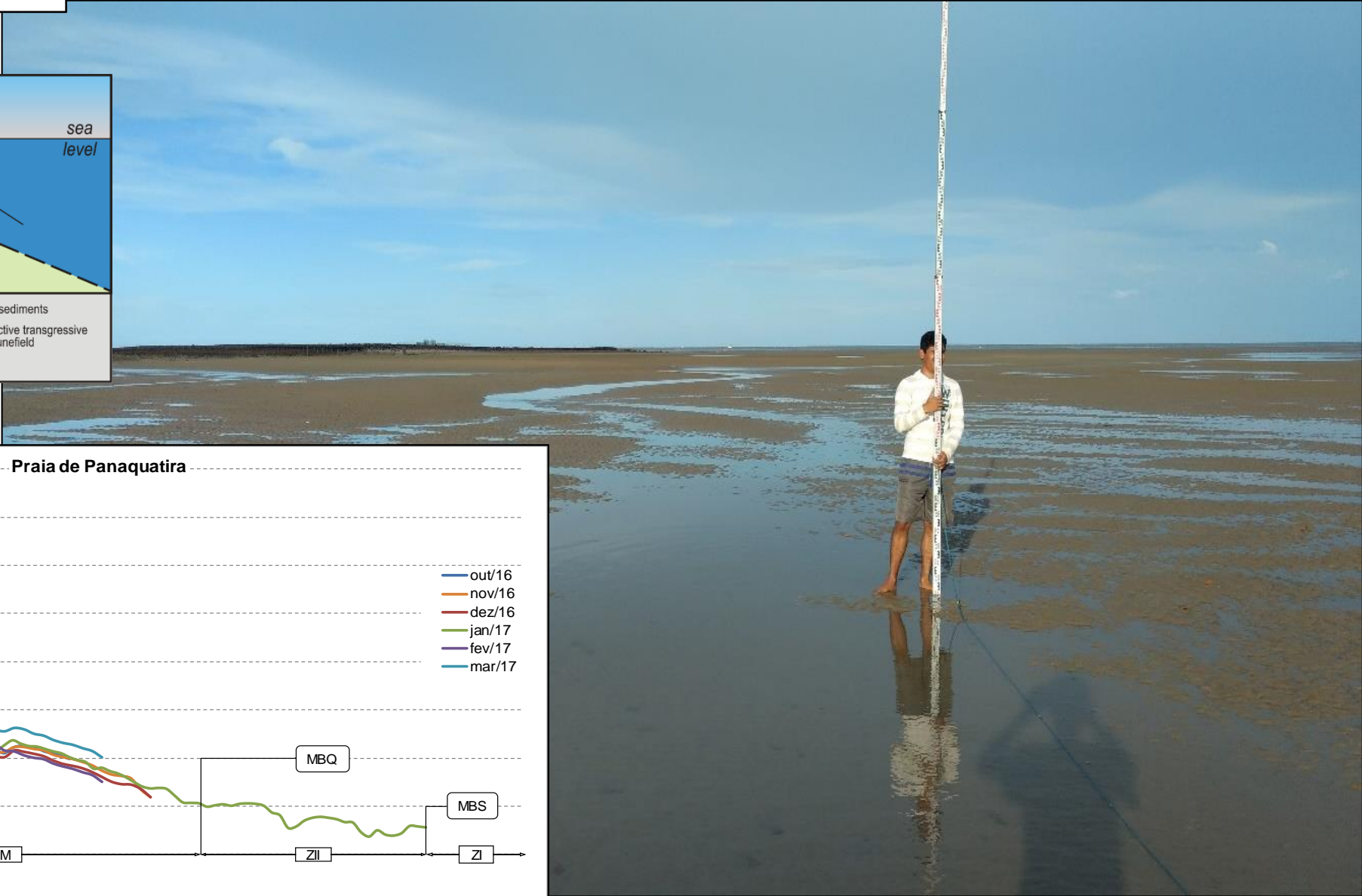
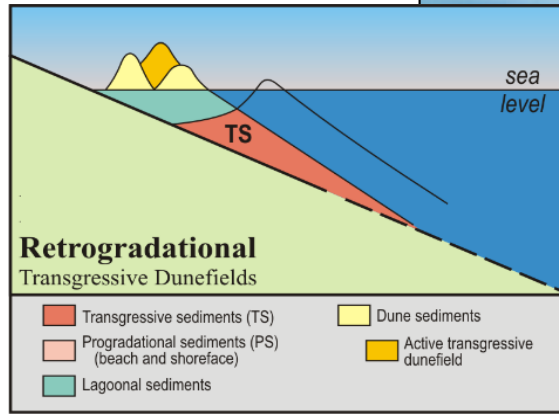


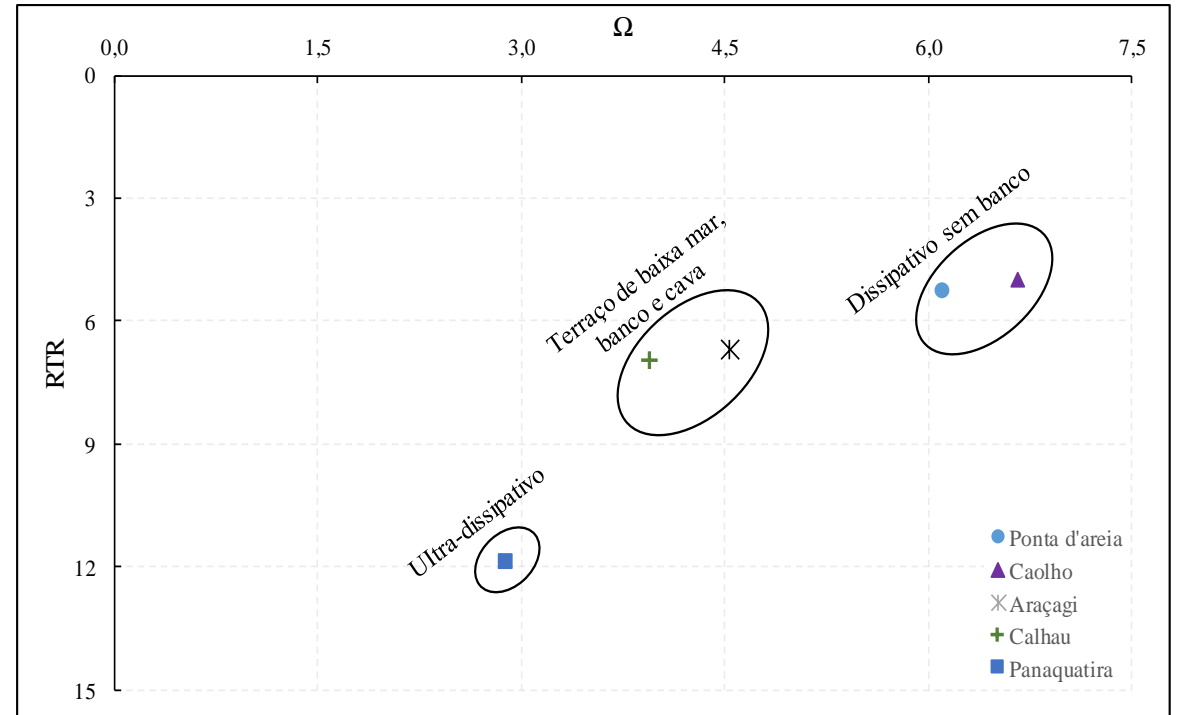
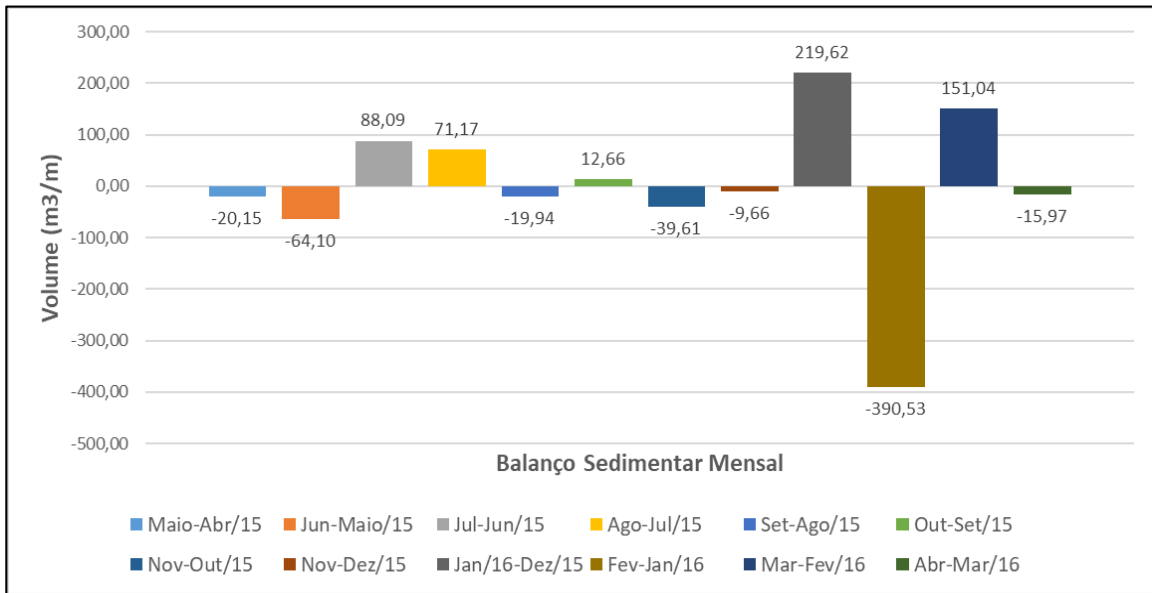
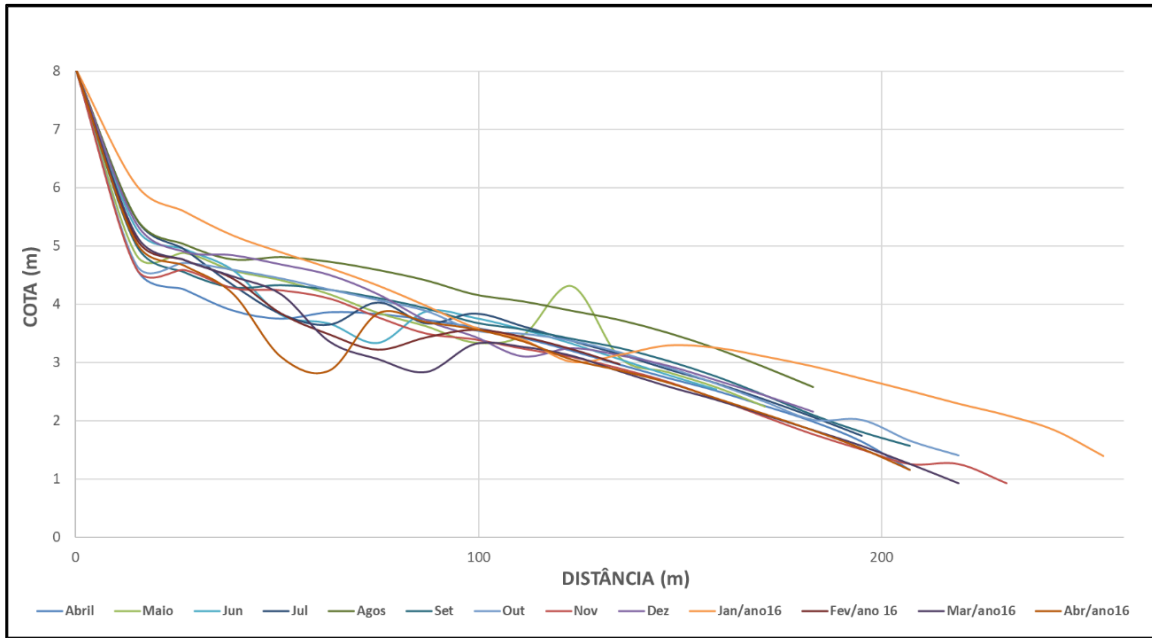
# Espigões Costeiros Naturais





# Terraços de Maré



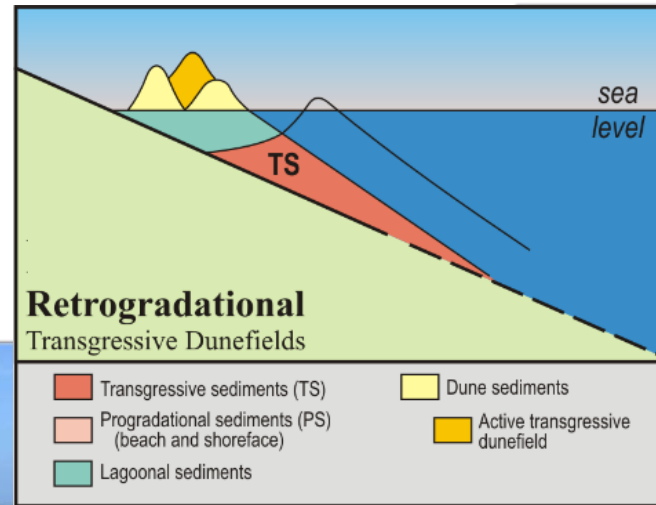


# Morfodinâmica Costeira



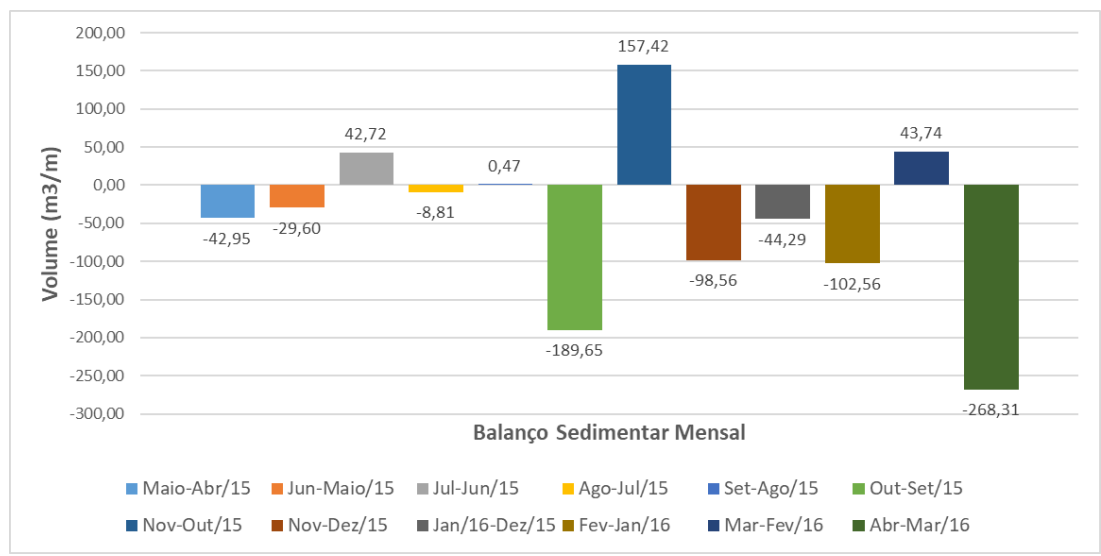
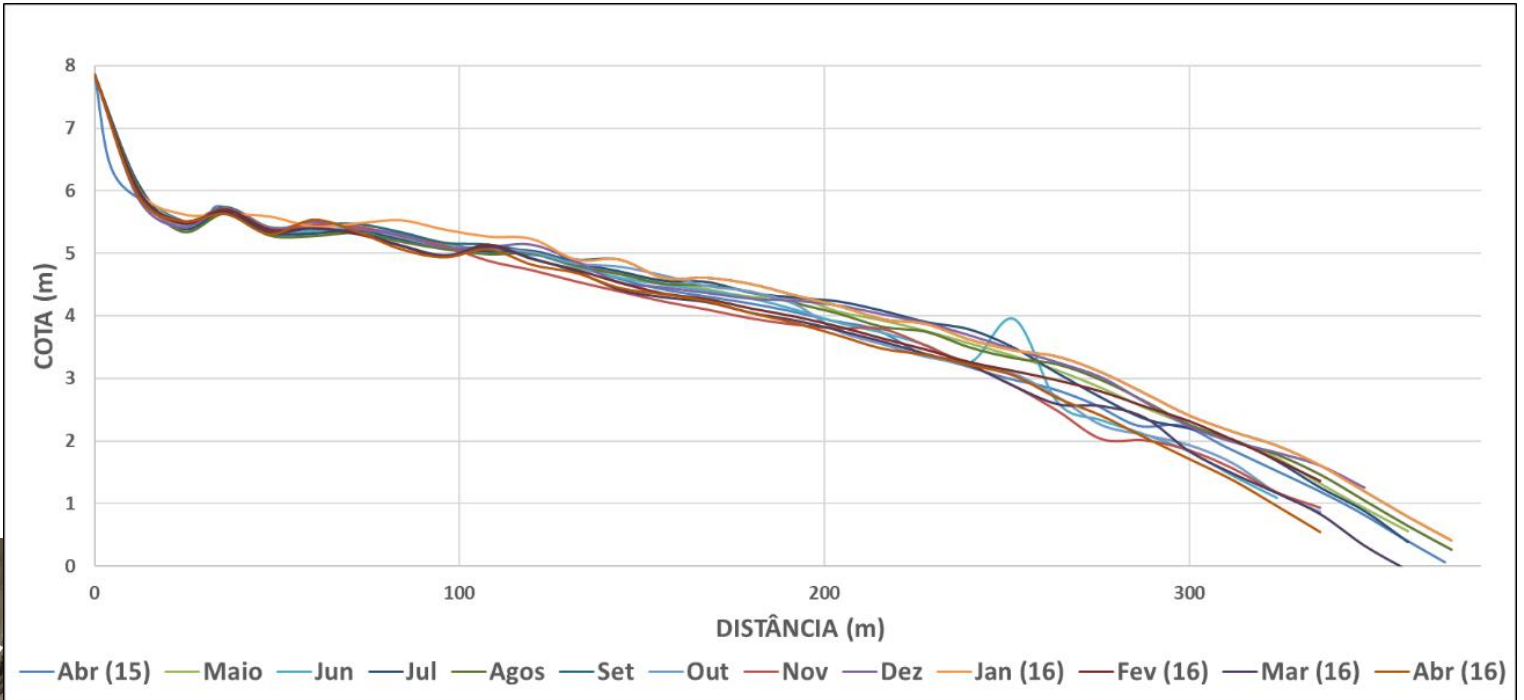
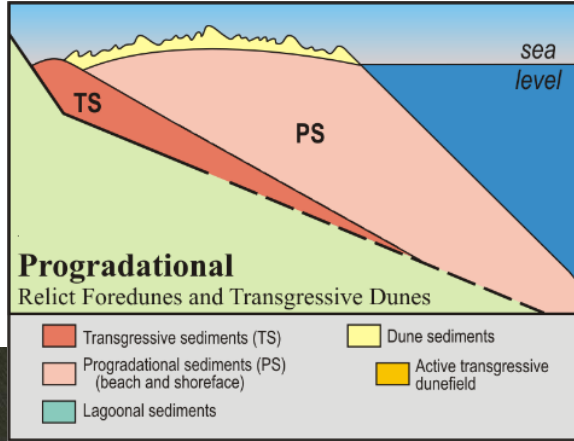


# Esporões Arenosos Conectados a Promontórios (Headland Spit Barrier)



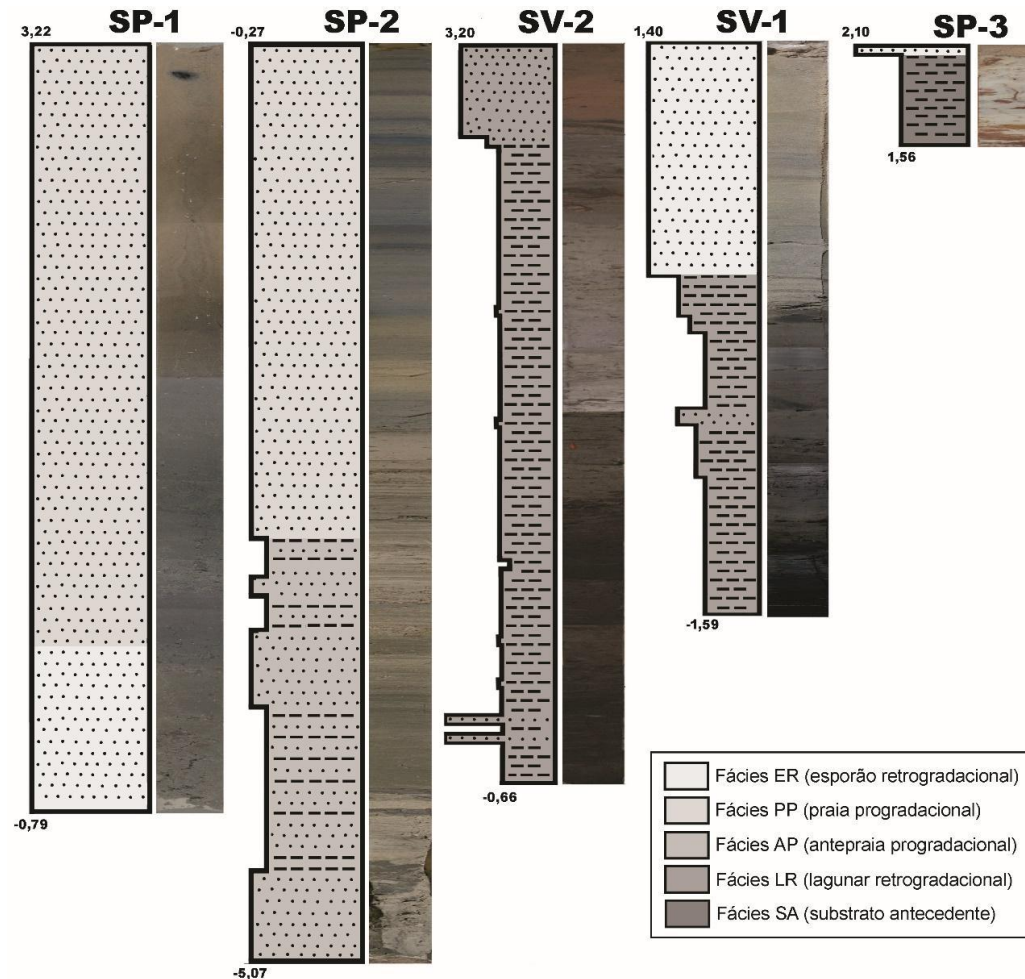


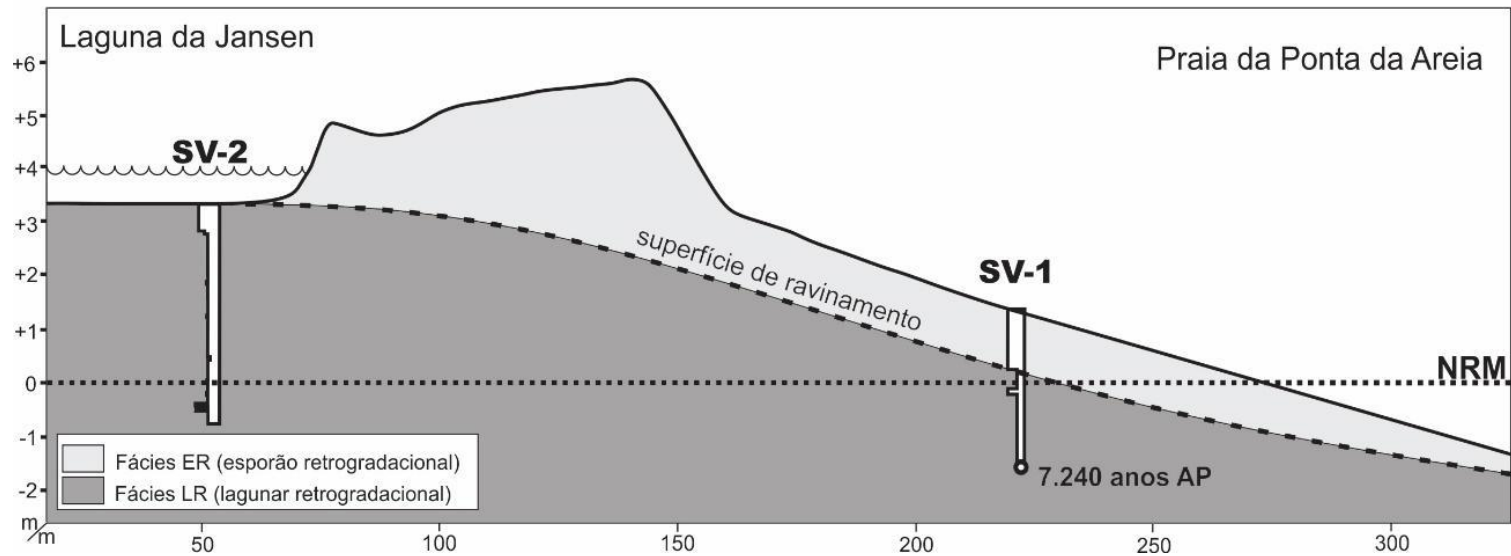
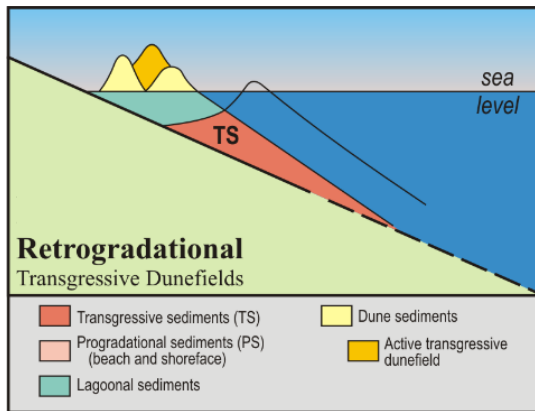
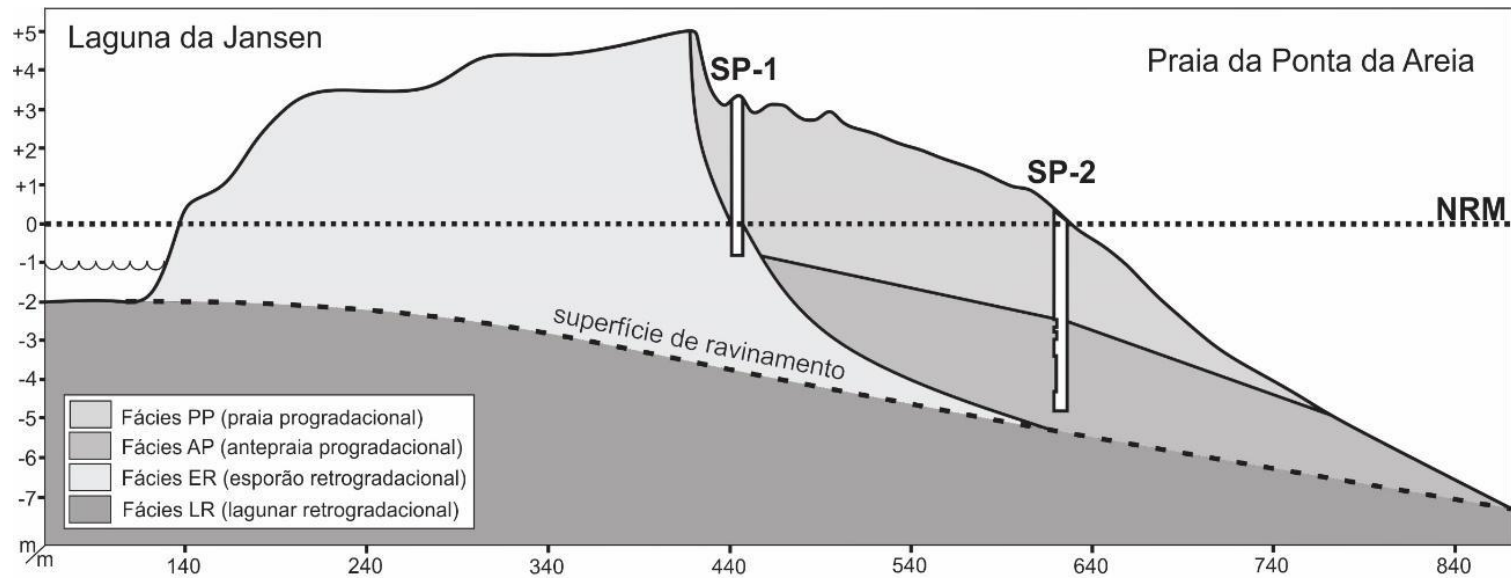
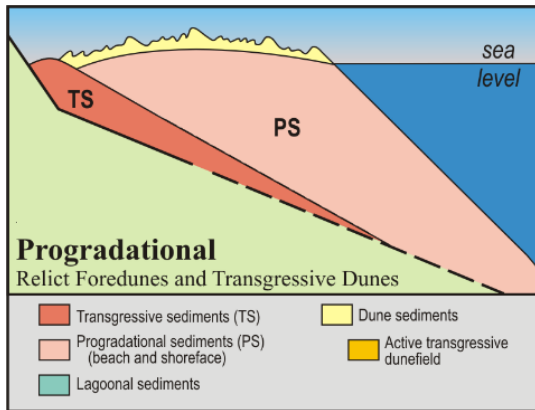
# Espigão Costeiro



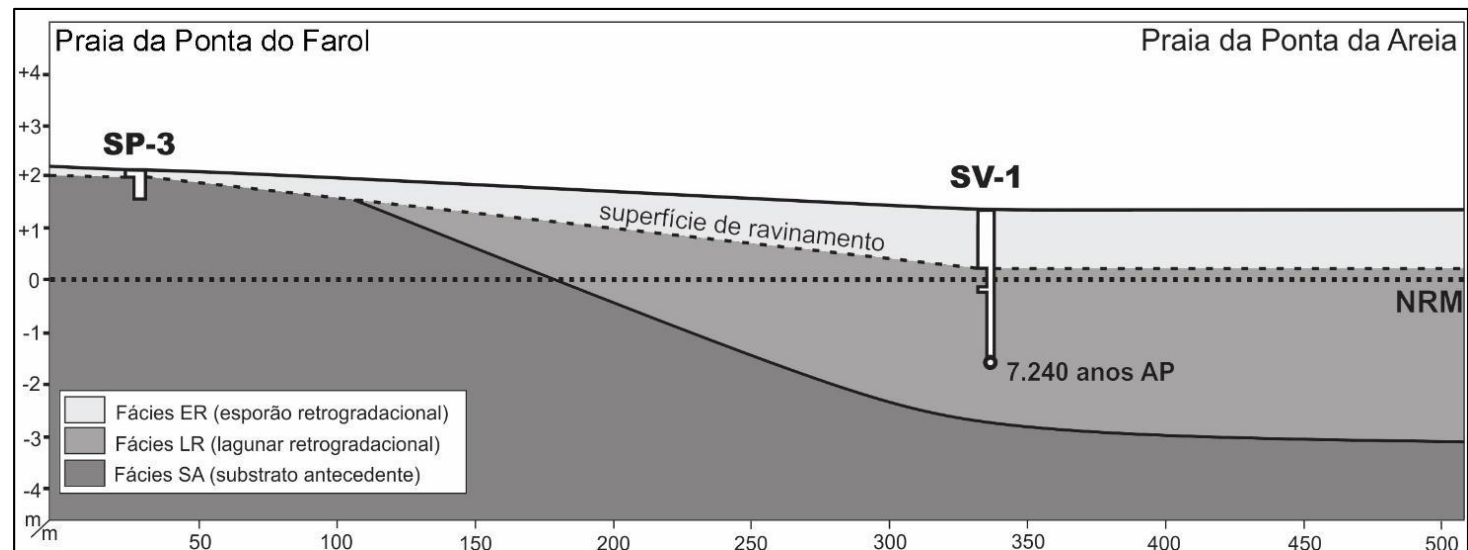
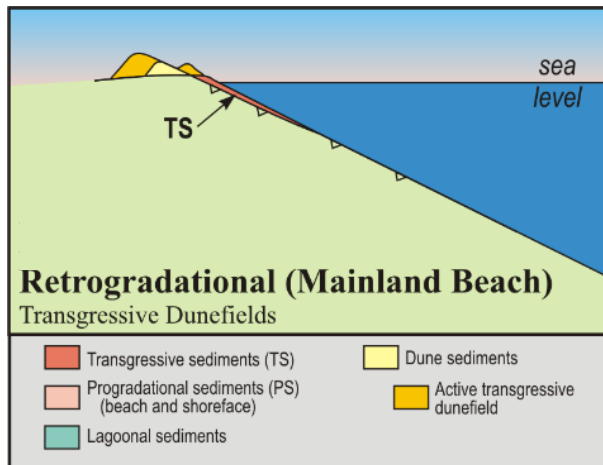


# Estratigrafia e Evolução de um Esporão Arenoso em Ambiente Macromaré: Ponta da Areia - São Luís - Maranhão - Brasil

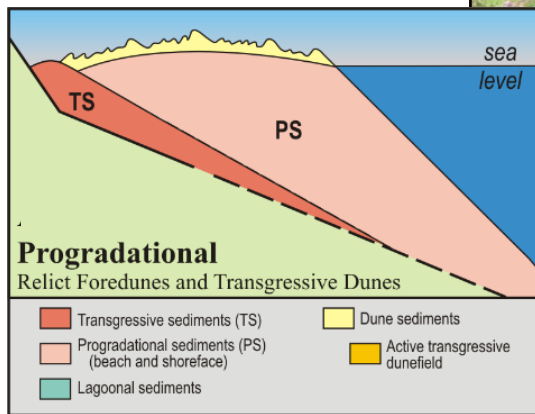




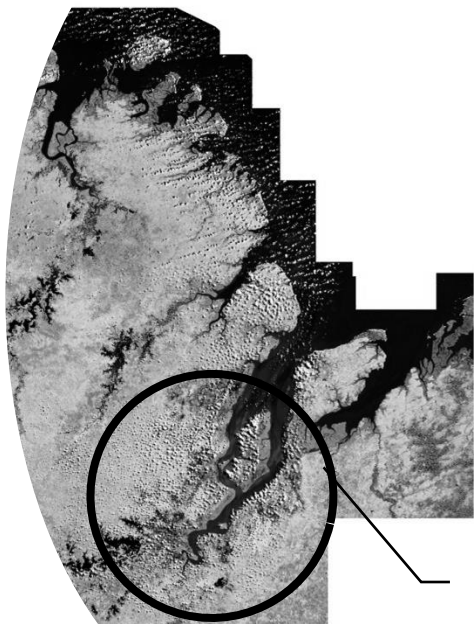
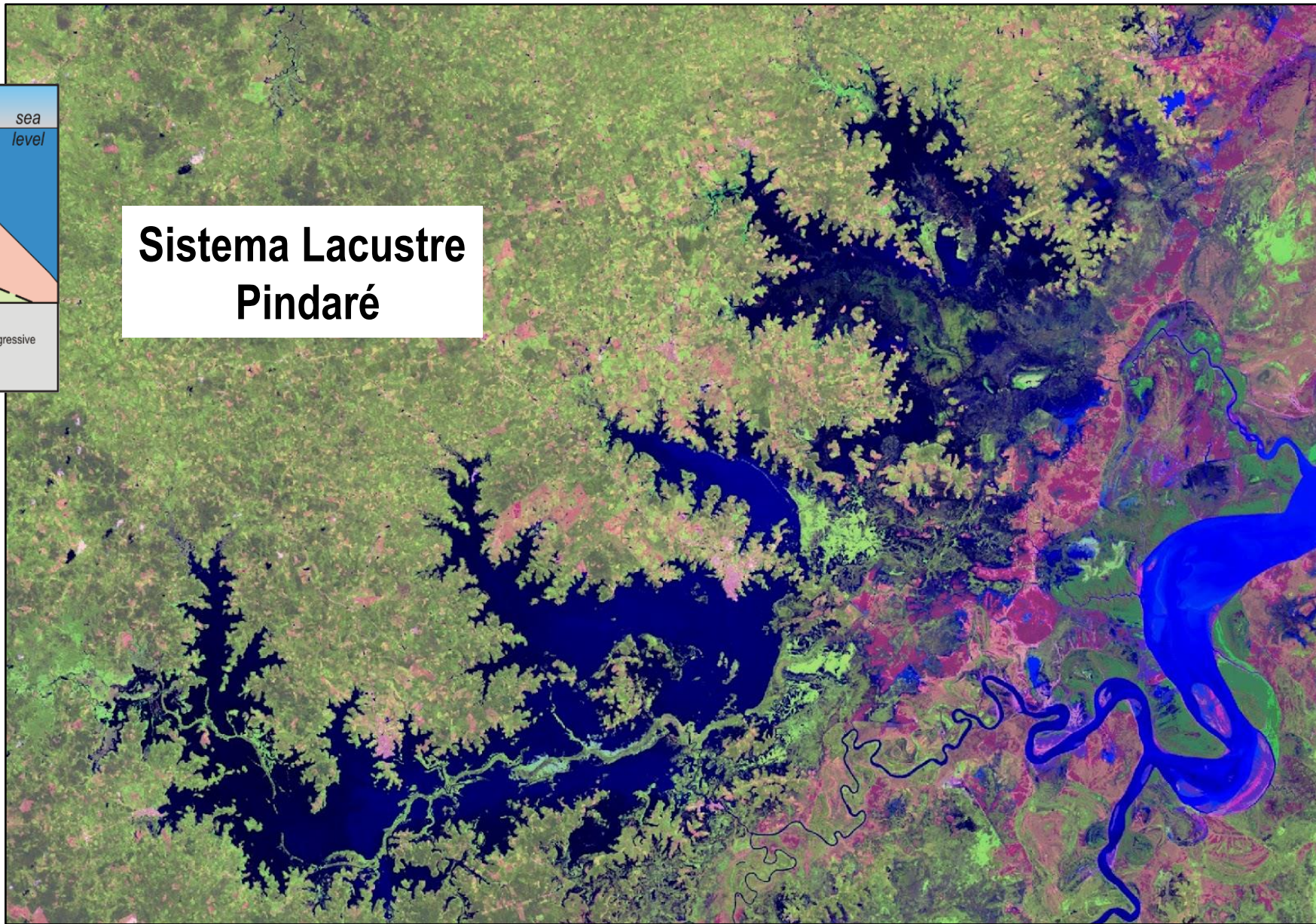








# Sistema Lacustre Pindaré



**Baixada**





# Terraços



## CENOZÓICO

### Quaternário Holoceno

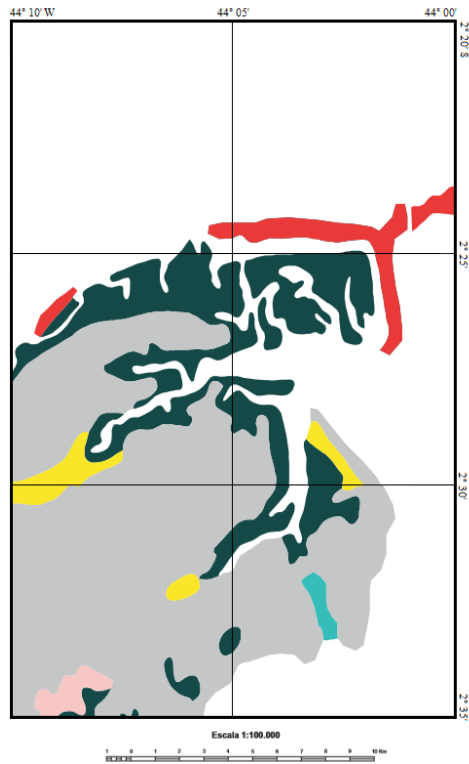
- Qta Depósitos aluvionares
- Qtm Depósitos de mangue
- Qfms Depósitos flúvio marinhos
- Qlml Depósitos marinhos litorâneos

### Quaternário Pleistoceno

- Qmg Depósitos de argila adensada com areias

### Terciário Paleogeno-Neogeno

- Tb Grupo Barreiras



PROJEÇÃO UNIVERSAL DE MERCATOR





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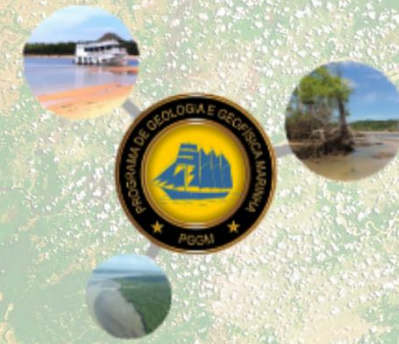
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Workshop de Oceano Profundo



## LEOG – LABORATÓRIO DE ESTUDOS EM OCEANOGRAFIA GEOLÓGICA

Coordenador: Prof. Leonardo Gonçalves de Lima [lima.leonardo@ufma.br](mailto:lima.leonardo@ufma.br)



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