Throughflow project
Network Training Activity 3
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Shallow marine environments and the ITF

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A brief summary of the Indonesian work:

- 17 TF sections: TF51, 52, 56, 57, 59, 60, 76, 78, 79, 101, 126, 127, 128, 129, 130, 131, 153
- 20 sedimentary logs of the carbonate bodies, drawn with SedLog
- about 345 m logged carbonates
- 193 samples for thin sections
- about 1200 pictures of outcrops and beds

Preliminary data analysis….

	Carbonate facies with no *in situ* corals	Packstones/ rudstones with large benthic forams and/or *Halimeda*	Carbonate facies with dominantly platy corals	Carbonate	Carbonate	Framestone	Framestones	Alternating	Terrigenous facies with platy corals	Terrigenous facies with bioclasts	Coal	Complete sequence (visible terrigenous at the base and on top)
Pliocene												
Messinian												
Tortonian												
Serravalian												
Langhian		TF51	TF51 TF57						TF51 TF57	TF57	TF51 TF57	TF51 TF57
Burdigalian	TF52 first TF52 second TF52 third TF59 TF76 first TF76 second TF126 TF128 TF130	TF78 first TF78 second TF79 TF101 TF127 TF128 TF130 TF153	TF52 first TF52 second TF52 third TF56 TF59 TF60 TF76 first TF79 TF101 TF128 TF130 TF153						TF52 second TF56 TF59 TF60 TF76 first TF76 second TF78 first TF78 second TF79 TF101 TF126 TF128 TF130 TF153	TF52 second TF56 TF60 TF76 second TF78 first TF79 TF126 TF127 TF128 TF130 TF153	TF56	TF52 second TF52 third TF60 TF79 TF126 TF128 TF130
Aquitanian												
Oligocene												

Carbonates without *in situ* corals

Carbonates with *in situ* corals

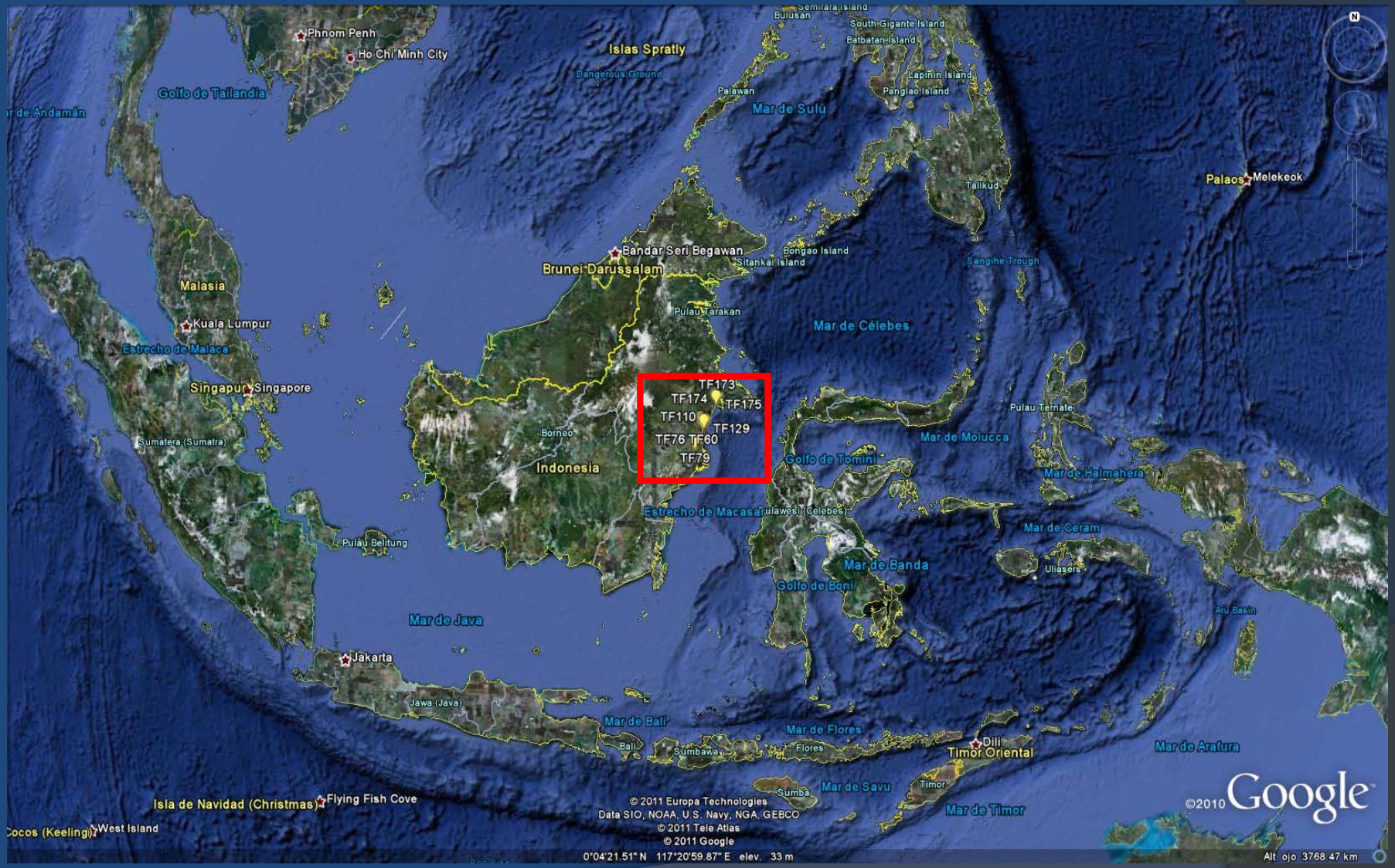
Framestones

Alternating terrigenous and carbonates

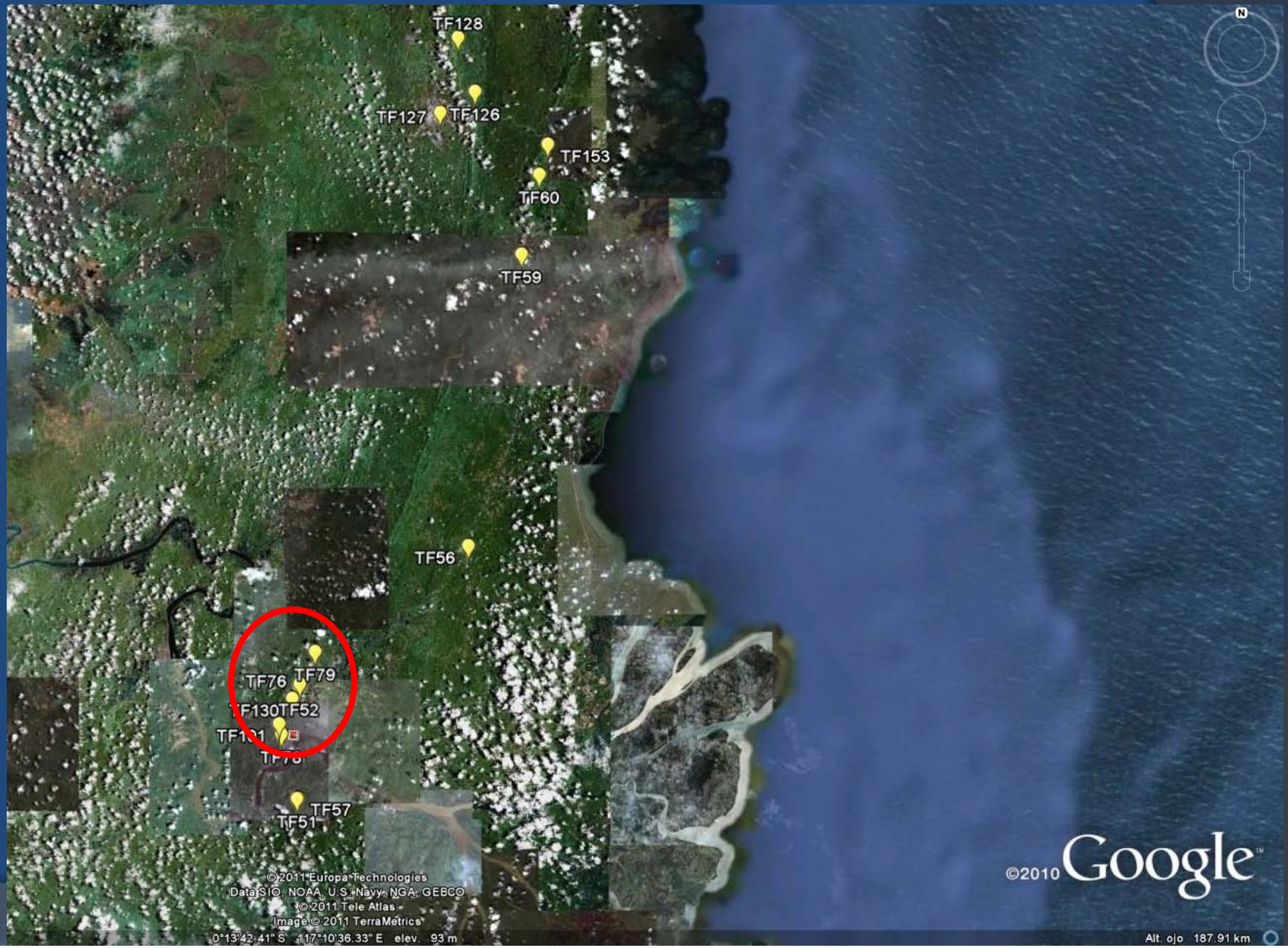
Terrigenous with *in situ* corals

Terrigenous without *in situ* corals

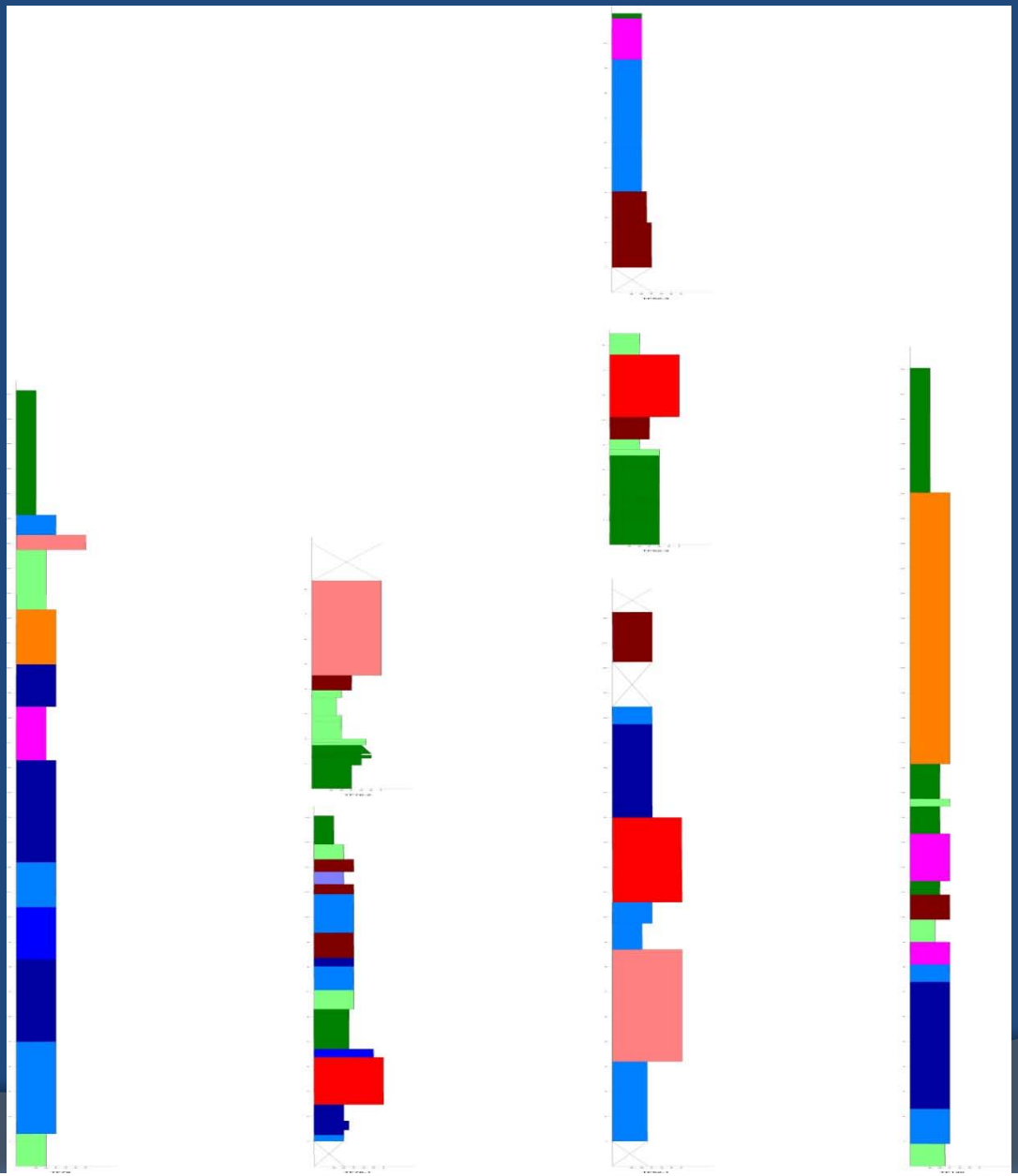
Preliminary data analysis….



Preliminary data analysis….



Batu Putih Ridge



Carbonates without *in situ* corals

Carbonates with *in situ* corals

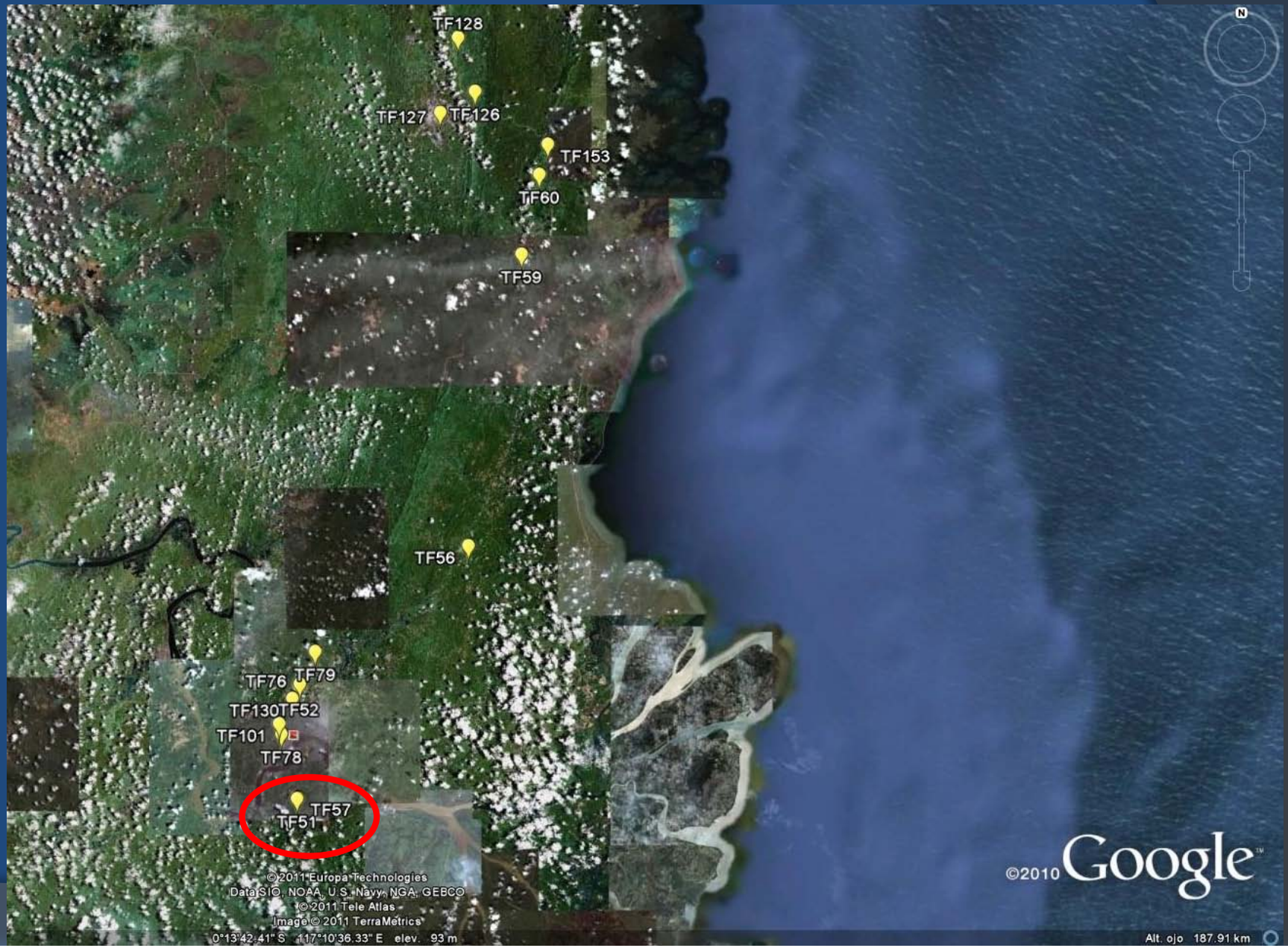
Framestones

Alternating terrigenous and carbonates

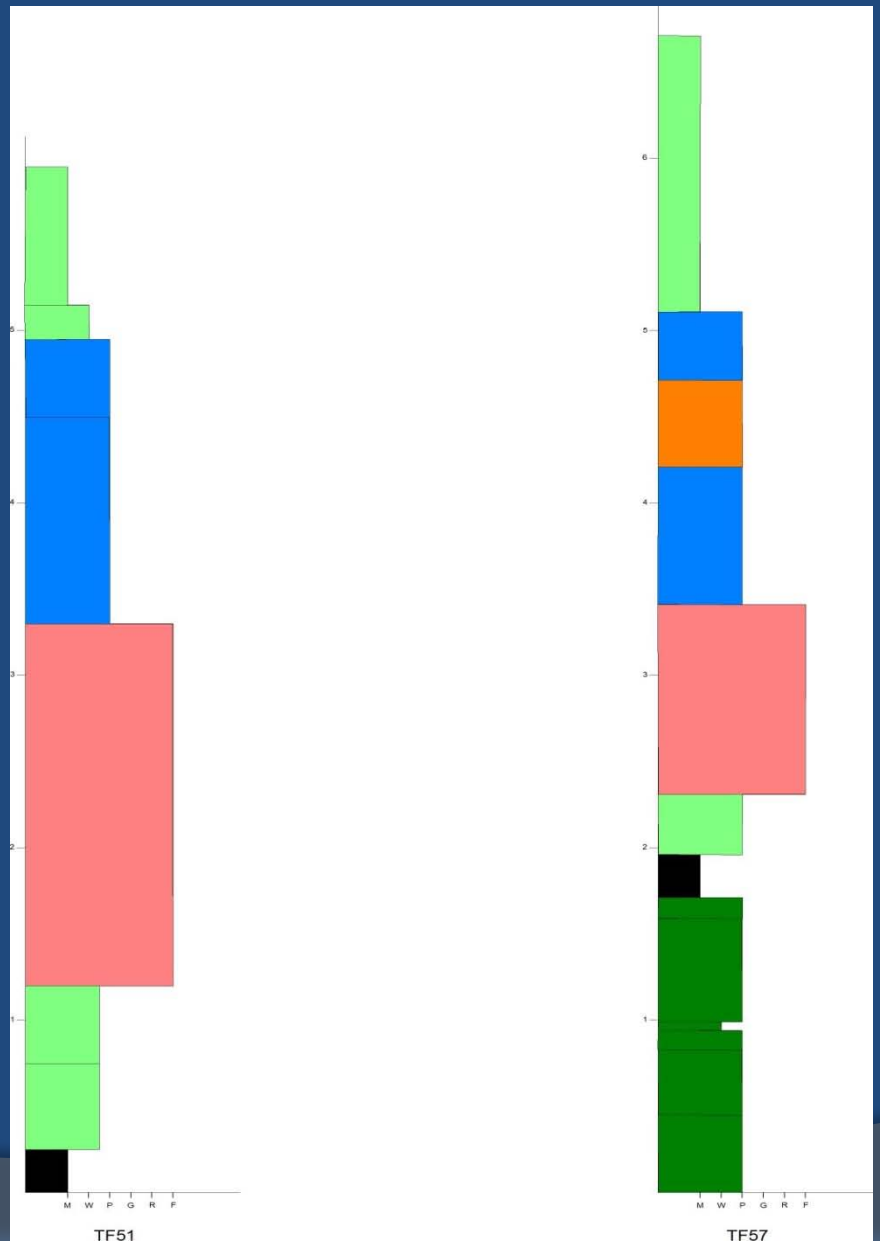
Terrigenous with *in situ* corals

Terrigenous without *in situ* corals

Preliminary data analysis….



Stadium section



Carbonates without *in situ* corals

Carbonates with *in situ* corals

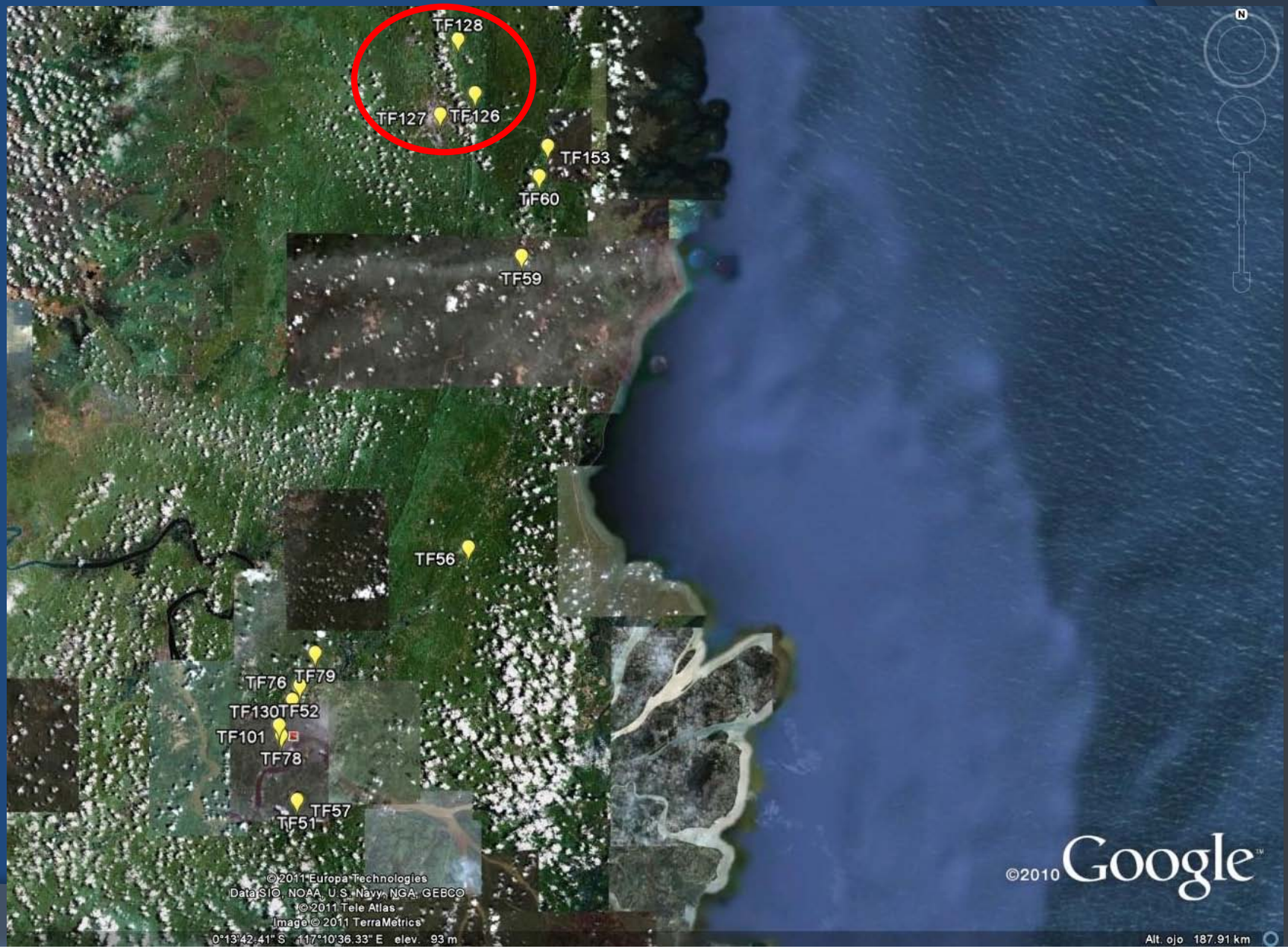
Framestones

Alternating terrigenous and carbonates

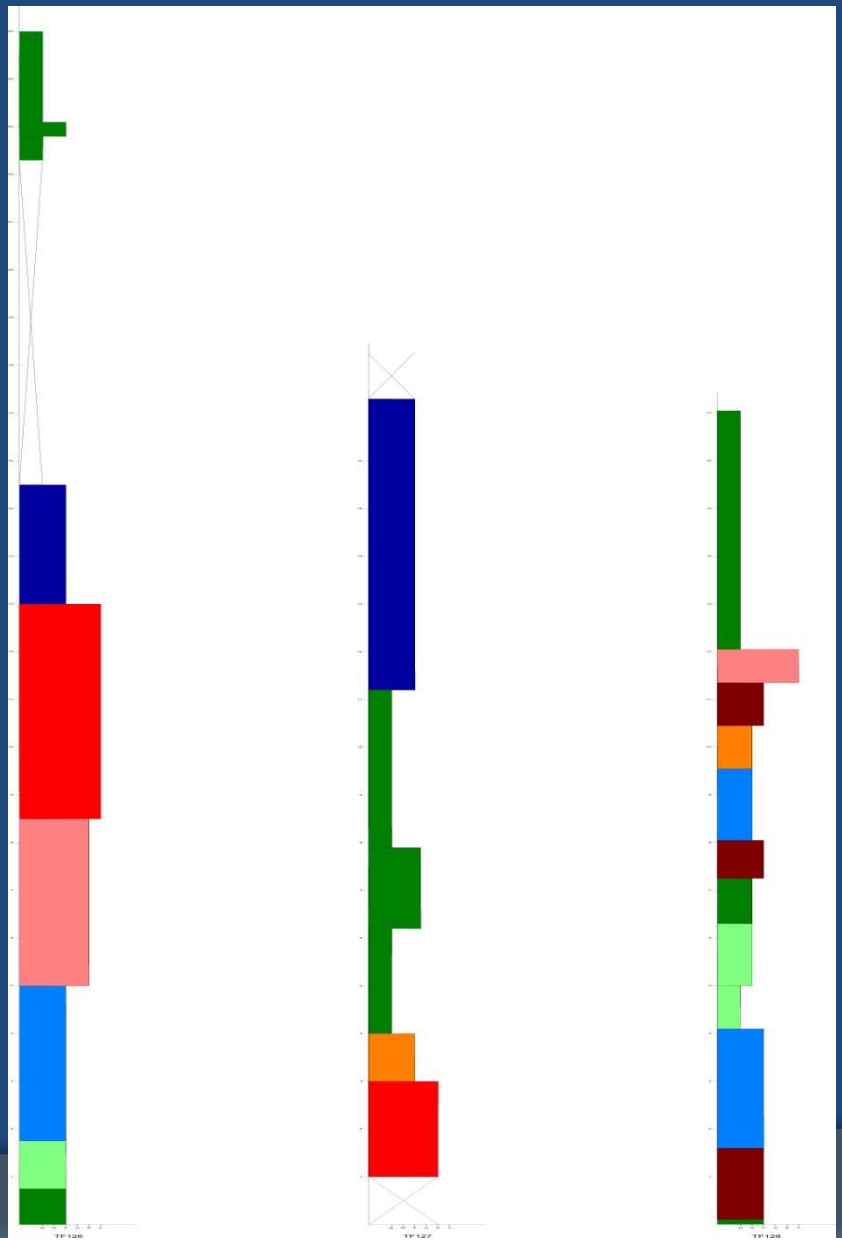
Terrigenous with *in situ* corals

Terrigenous without *in situ* corals

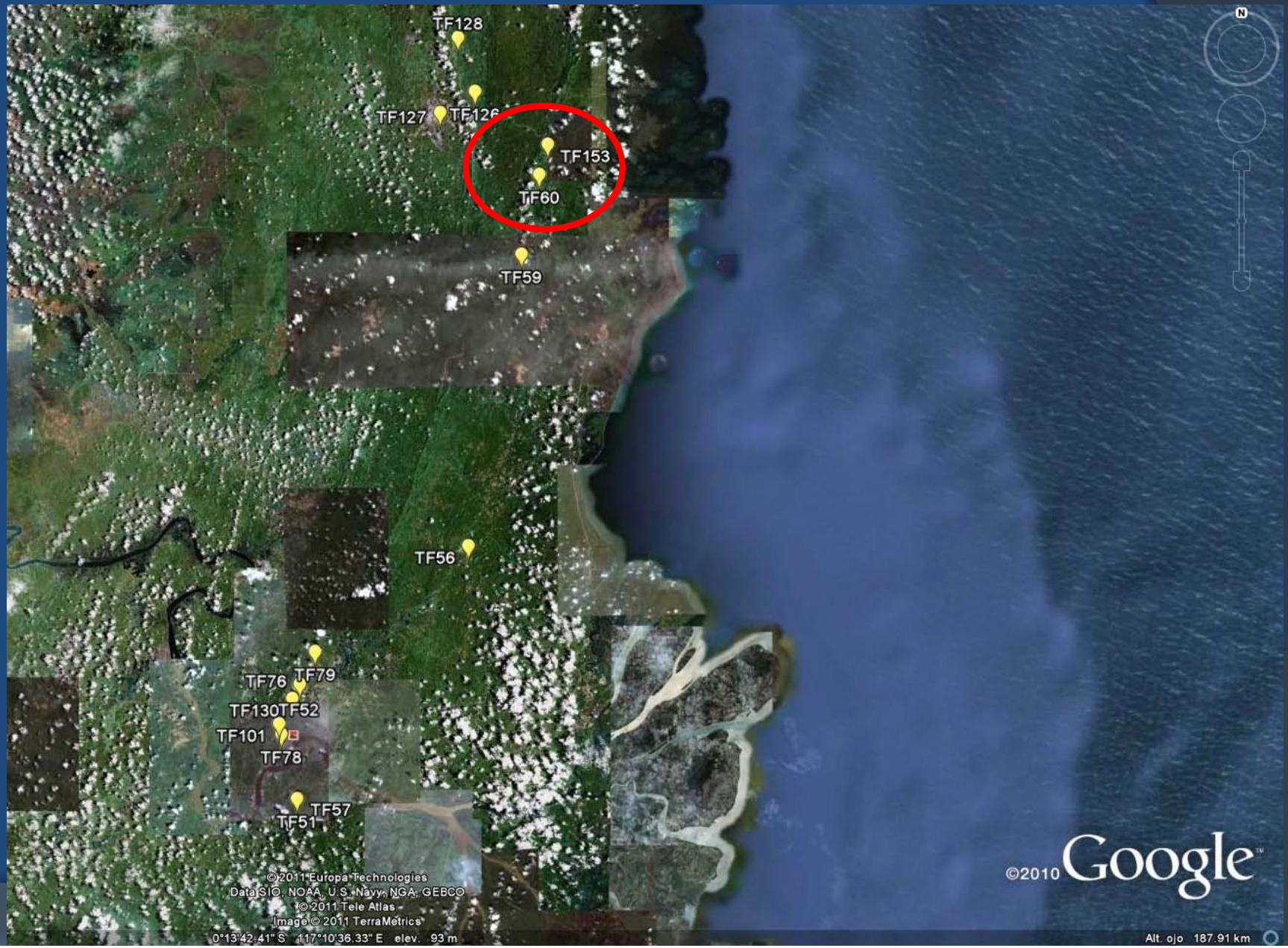
Preliminary data analysis….



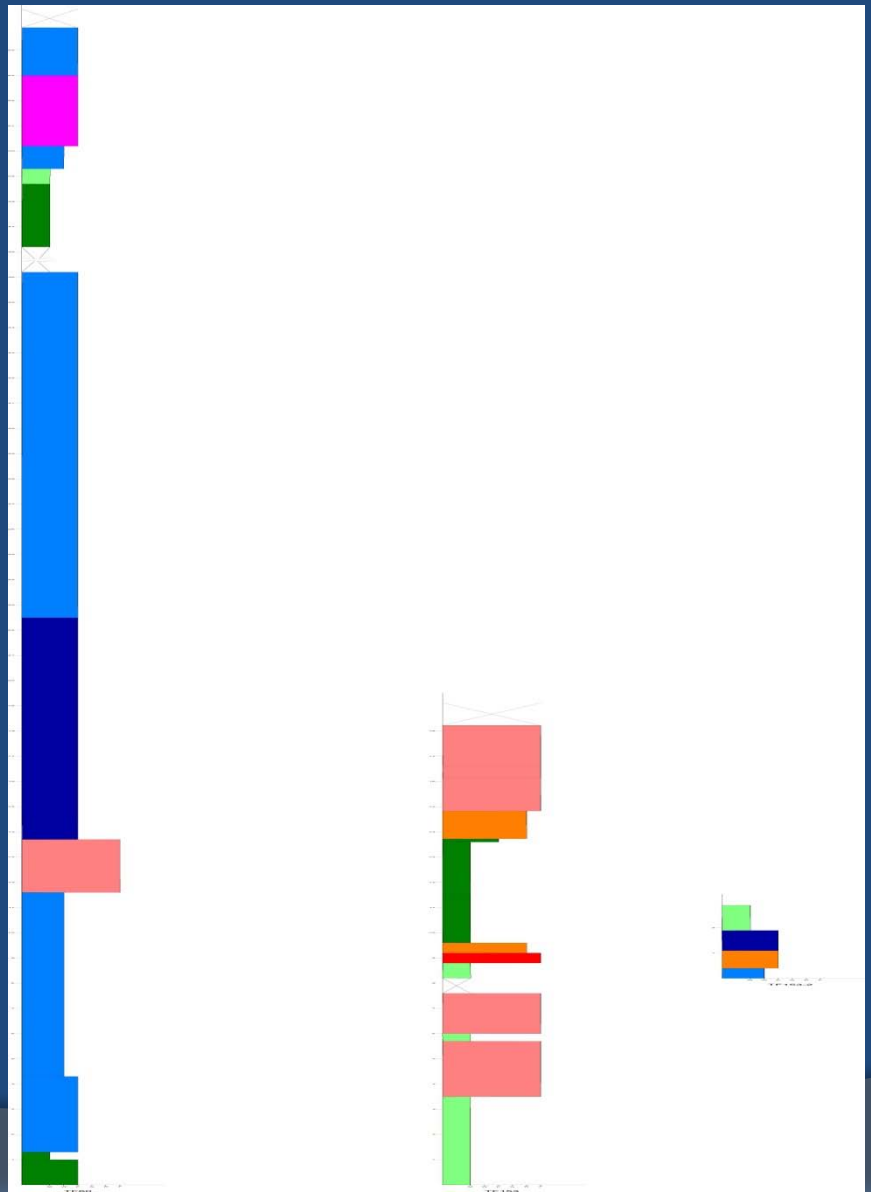
Bontang mine



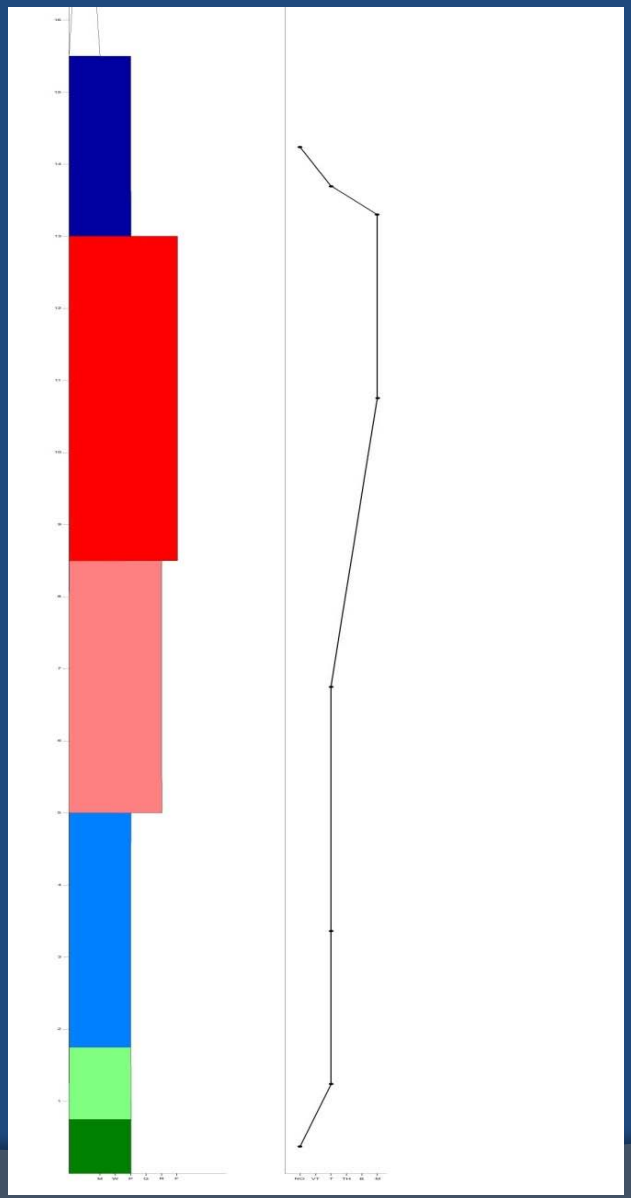
Preliminary data analysis….

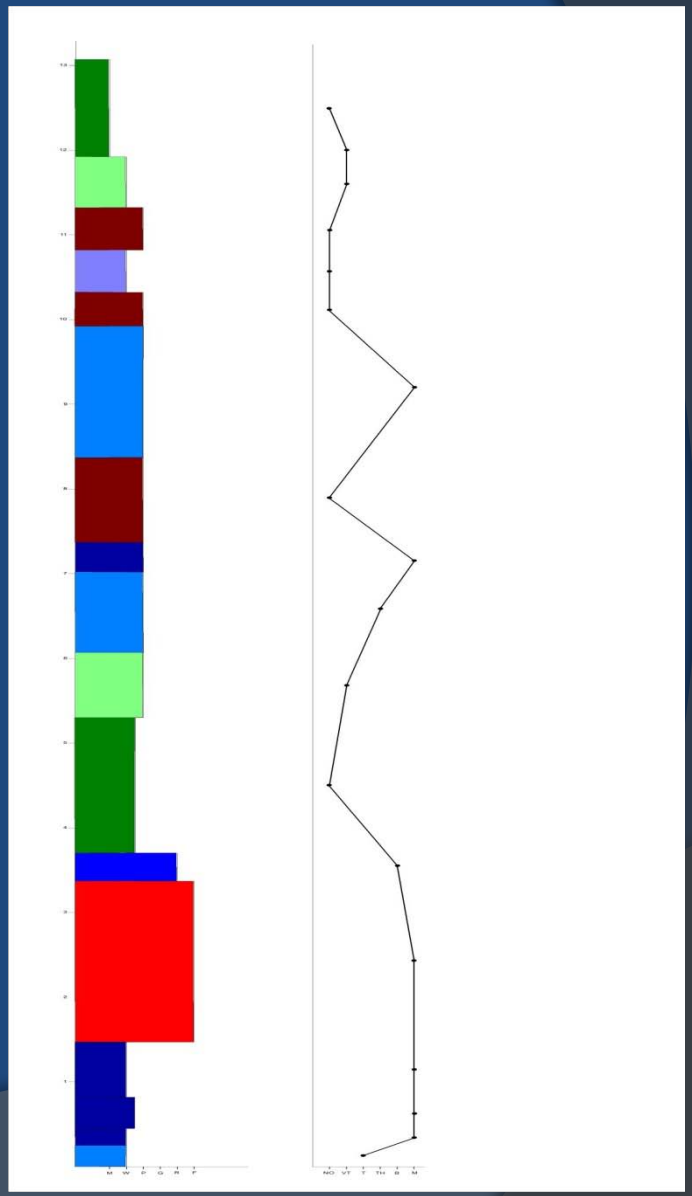


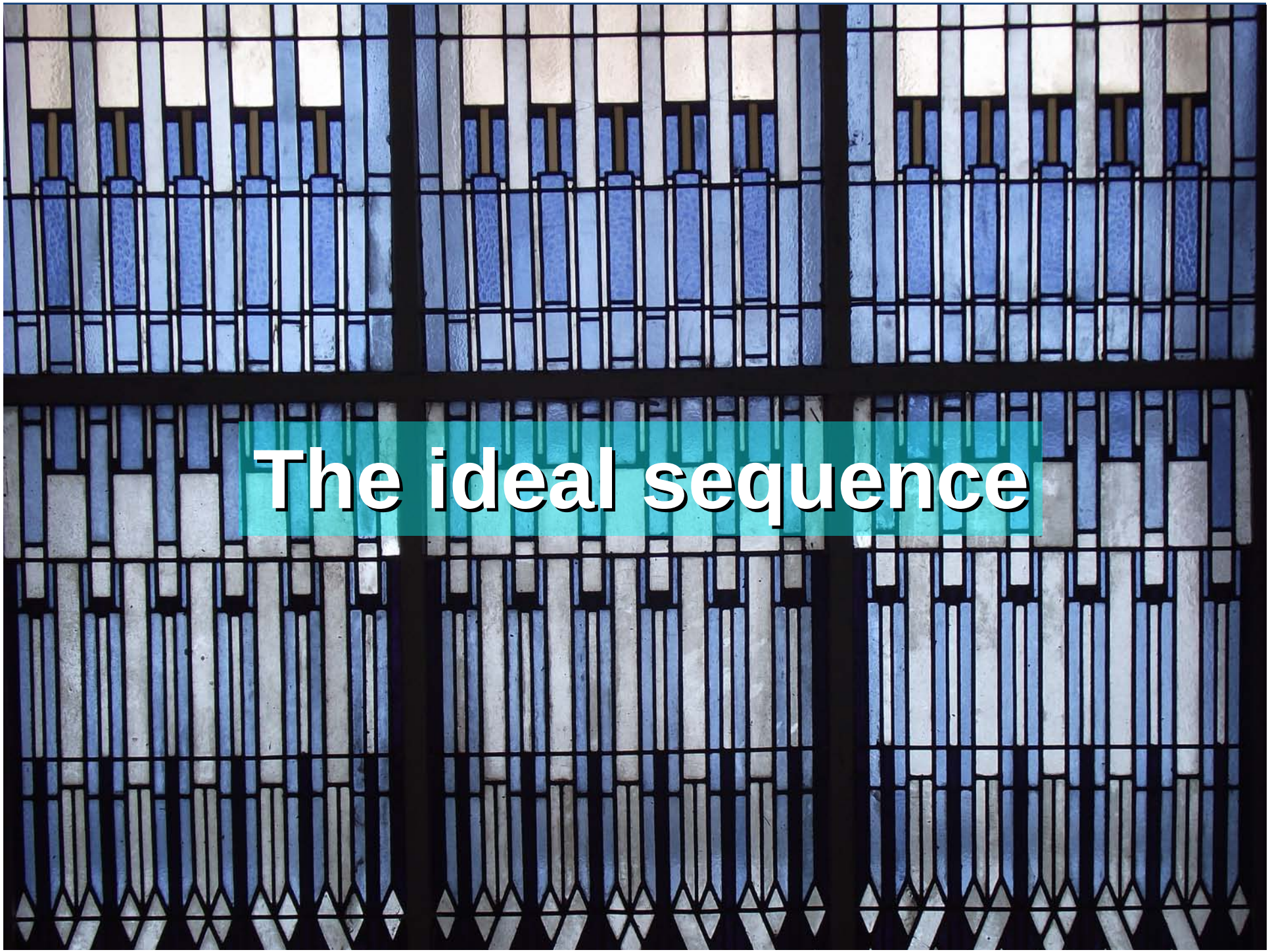
“The ridge + Rainy section”

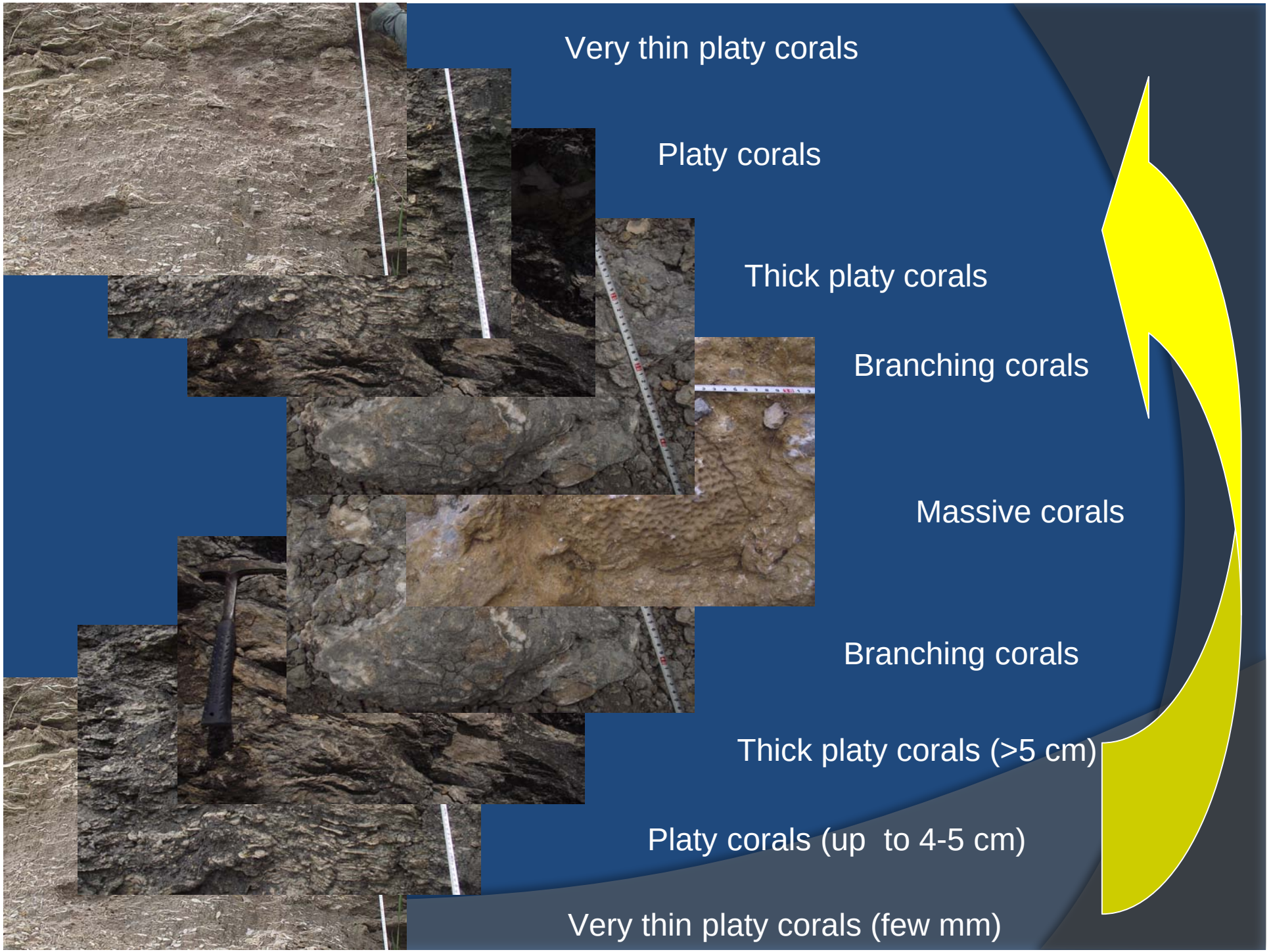


Variations in coral morphologies

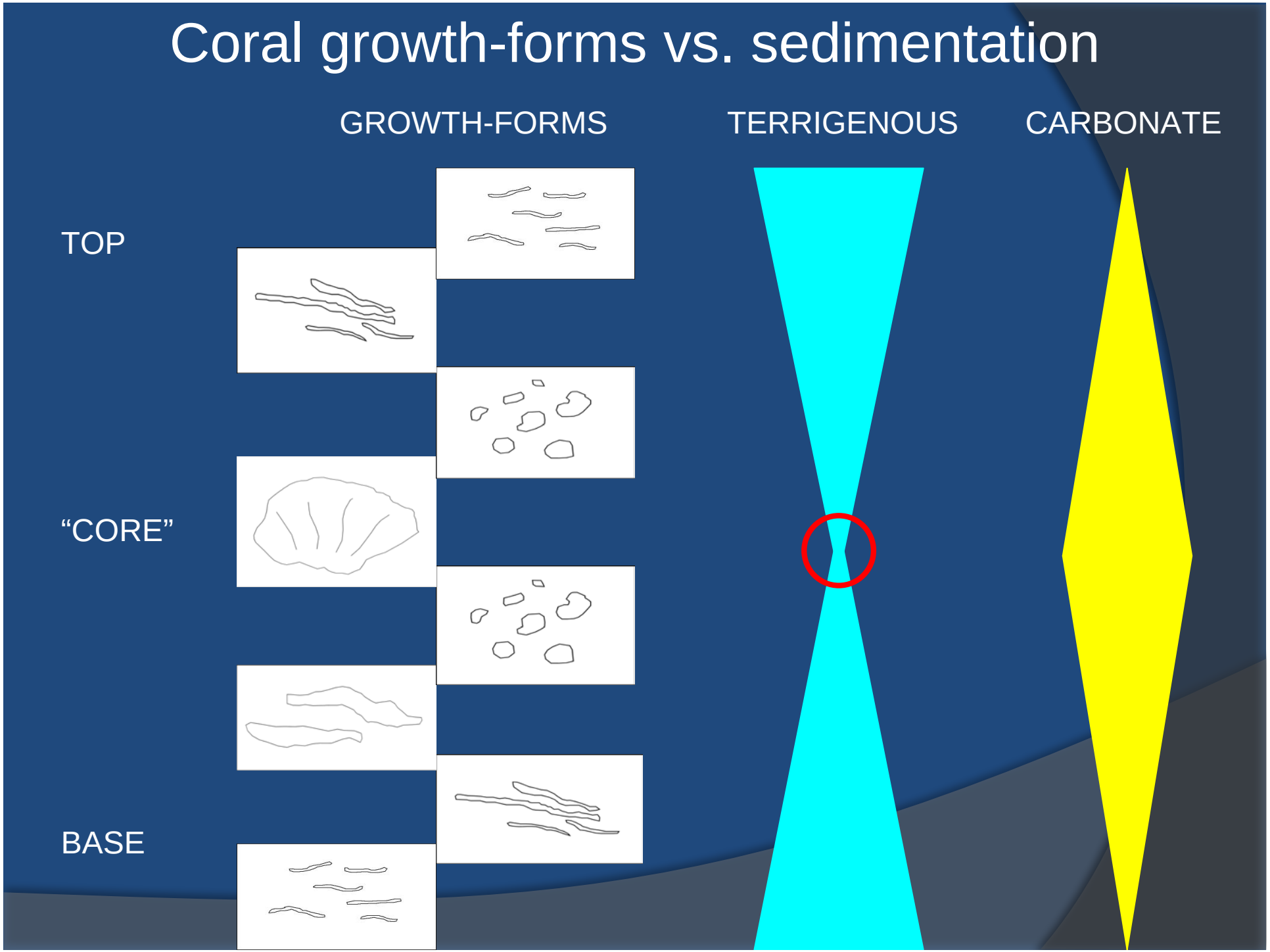





The ideal sequence


Very thin platy corals
Platy corals
Thick platy corals
Branching corals
Massive corals
Branching corals
Thick platy corals (>5 cm)
Platy corals (up to 4-5 cm)
Very thin platy corals (few mm)

Coral growth-forms vs. sedimentation



Conclusions

- Scattered carbonate bodies (<1%, Wilson 2005) in a big deltaic complex active since Early Miocene (Moss & Chambers, 1999).
- Limited thickness (up to tens of meters) and variable lateral continuity (up to few km – Batu Putih Ridge).
- Carbonate sedimentation is strongly controlled by carbonate producer biota; further study will be focused on the main factors which controlled the general evolution ➔ relative sea level? Water turbidity?.....
- Common evolution pattern:
  - base: terrigenous with very thin platy corals
  - increasing coral thickness and decreasing terrigenous content up to the central part of the body (framestone with massive and/or platy corals)
  - upper part showing a decrease in coral thickness and carbonate content
  - top: terrigenous with very thin platy corals
  - “marginal facies”: more abundant bioclastic packstones and/or large benthic forams/*Halimeda* packstones/rudstones.
- “True” reefs (can we apply the classical zonation scheme for the clear water reefs)?