

# Exercise Package for CSM-Carbonate Crash Course

This package should take you about 2 hours to complete. The goal is not for you to become a carbonate expert but to help you think with your “carbonate cap” on. The exercises are designed to prepare you for more complicated problems. The idea is to force you to think and collaborate with your peers as you would in an asset team in an oil and gas company. I give the same exercises to oil and gas professional across the globe who take my courses so they have not been “dumped-down” just because you are students!

Part I. Modern carbonate depositional environments

Part II. Seismic data and the identification of platform type

Part III. Correlating log data

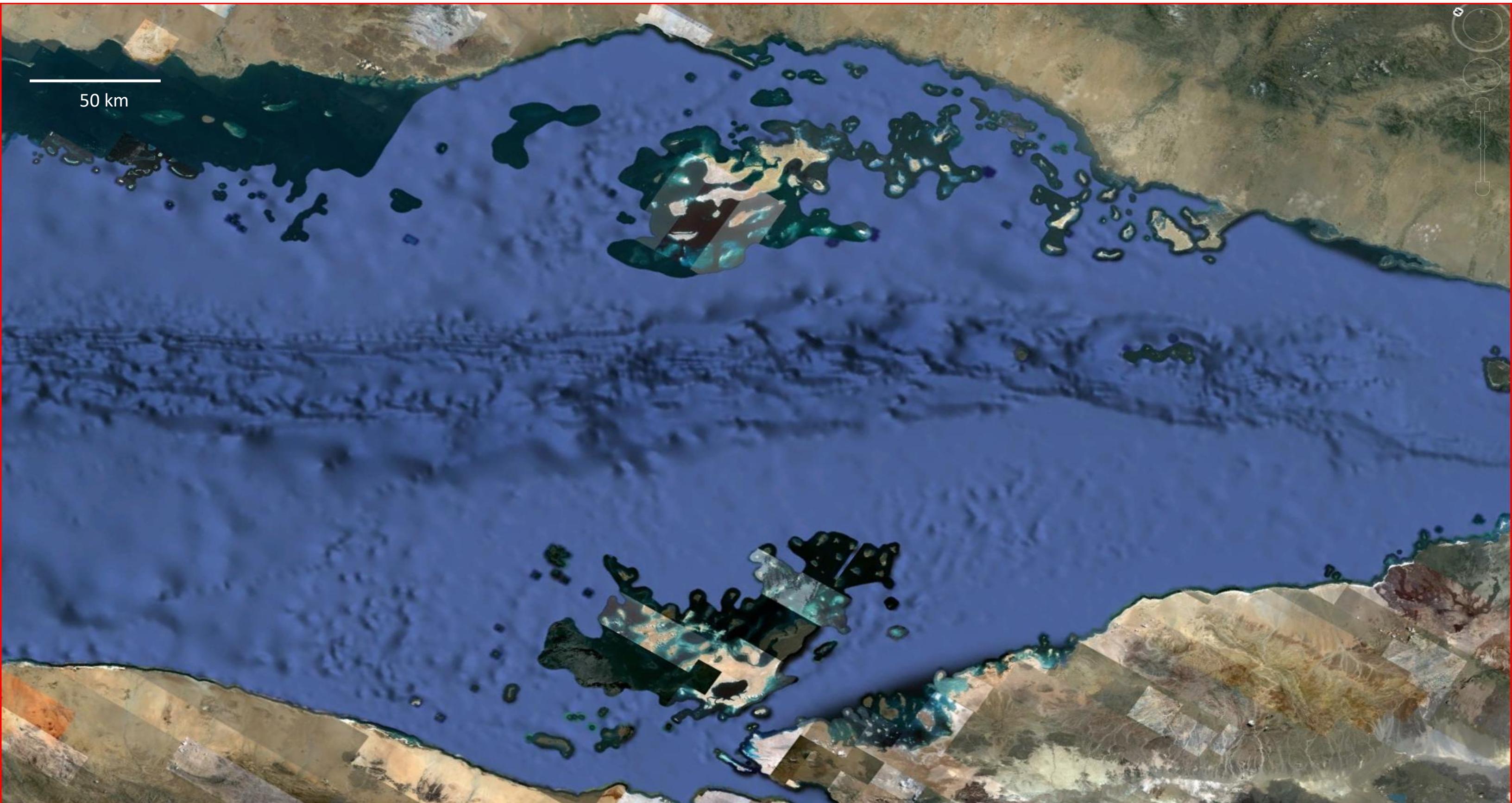
Part IV. Core Data

Part V. Thin Section Data

# Red Sea between Eritrea and Saudi Arabia

Where are the carbonates? What kind of carbonate platforms are these?

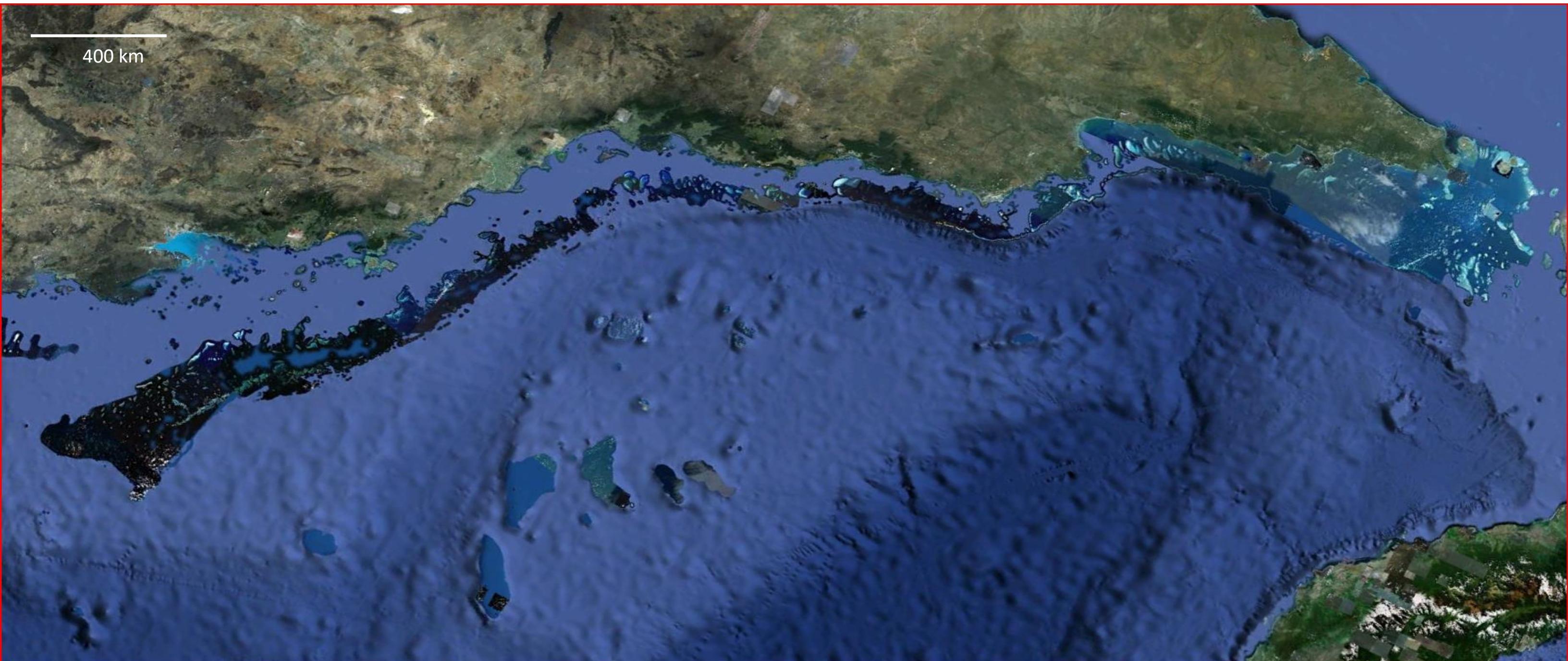
Google Earth Image



# East coast of Australia

What kind of carbonate platform is this? Where are potential reservoir facies?

Google Earth Image

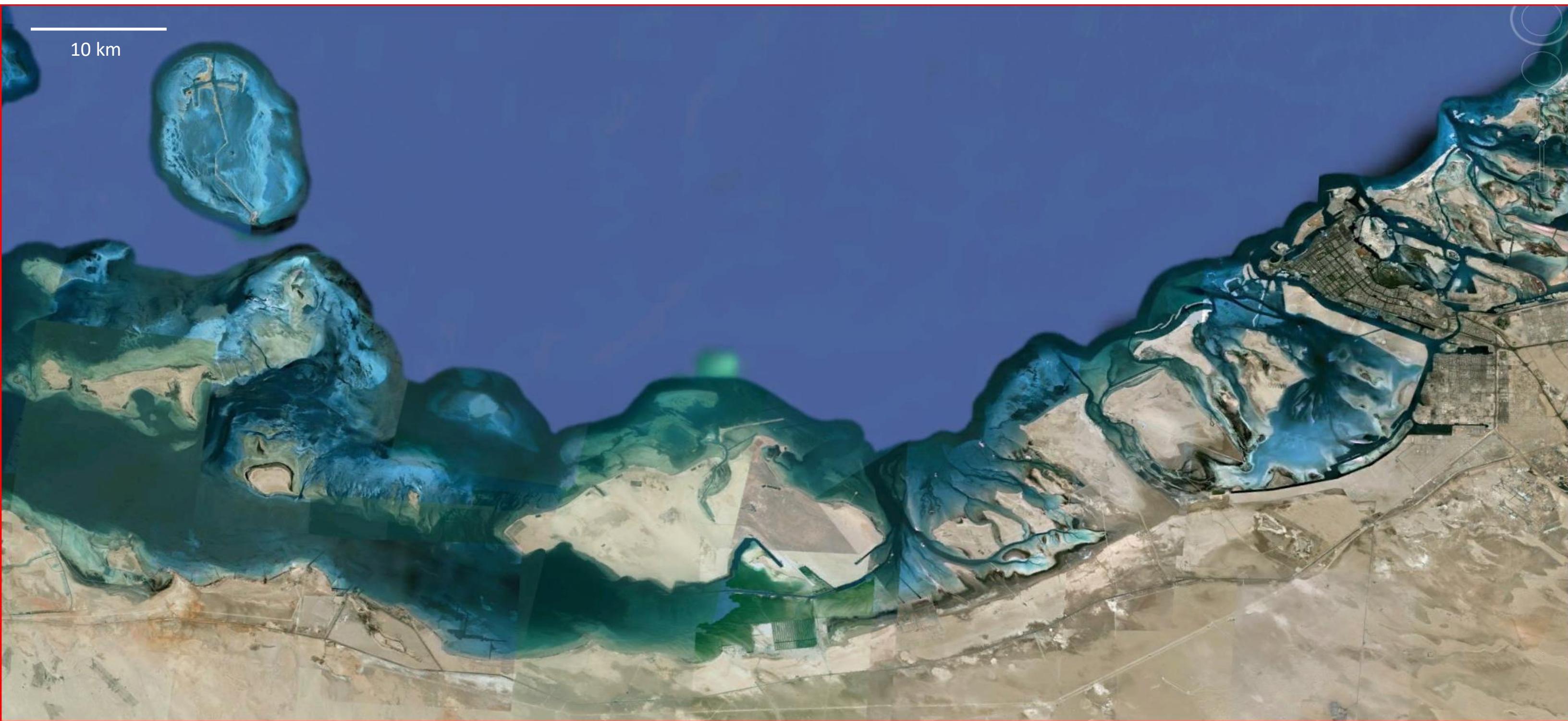


# Persian Gulf along the United Arab Emirates

What kind of carbonate platform is this?

What kind of temperatures and salinity would you expect here?

Google Earth Image



# Persian Gulf along Qatar

What kind of carbonate platform is this?

If you were geosteering in a formation that had “ooid shoals” what would be some concerns?

Google Earth Image

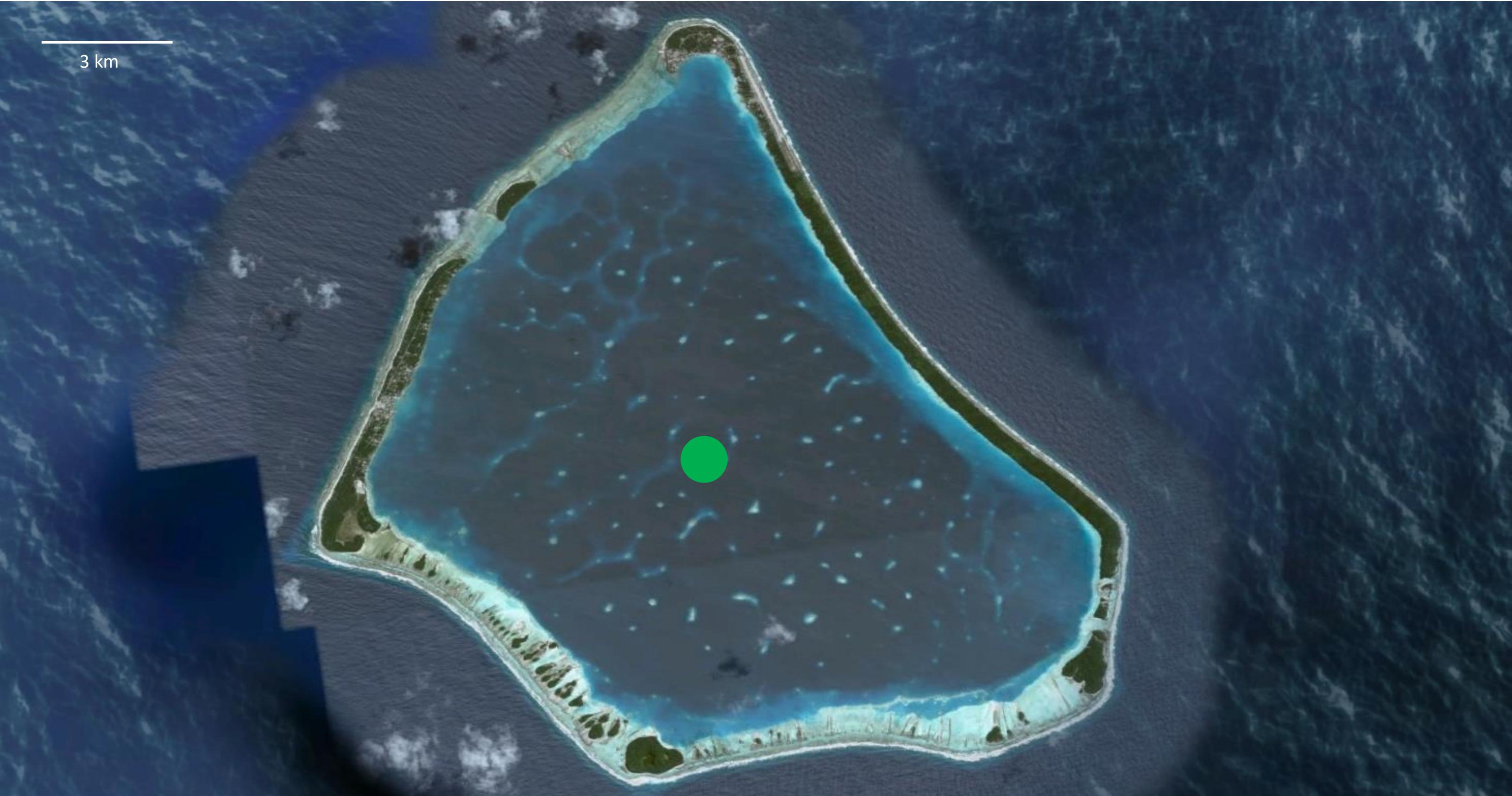


# Manihiki Island, South Pacific

What kind of reef is this? Would you drill the proposed well if this were an ancient build up?

Google Earth Image

3 km



# The Bahamas

What kind of carbonate platform is this? Where are potential reservoirs located?

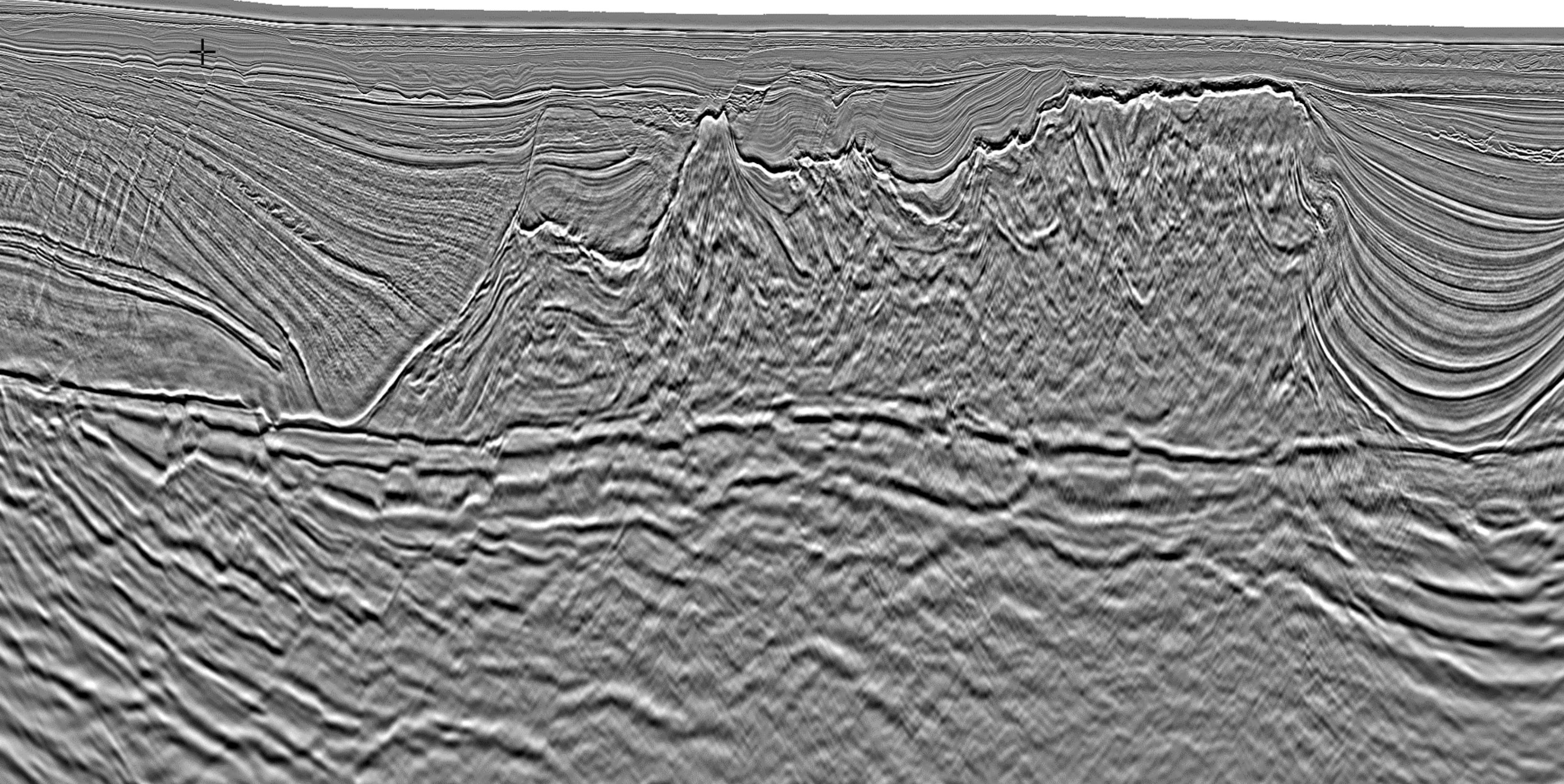
Google Earth Image

100 km



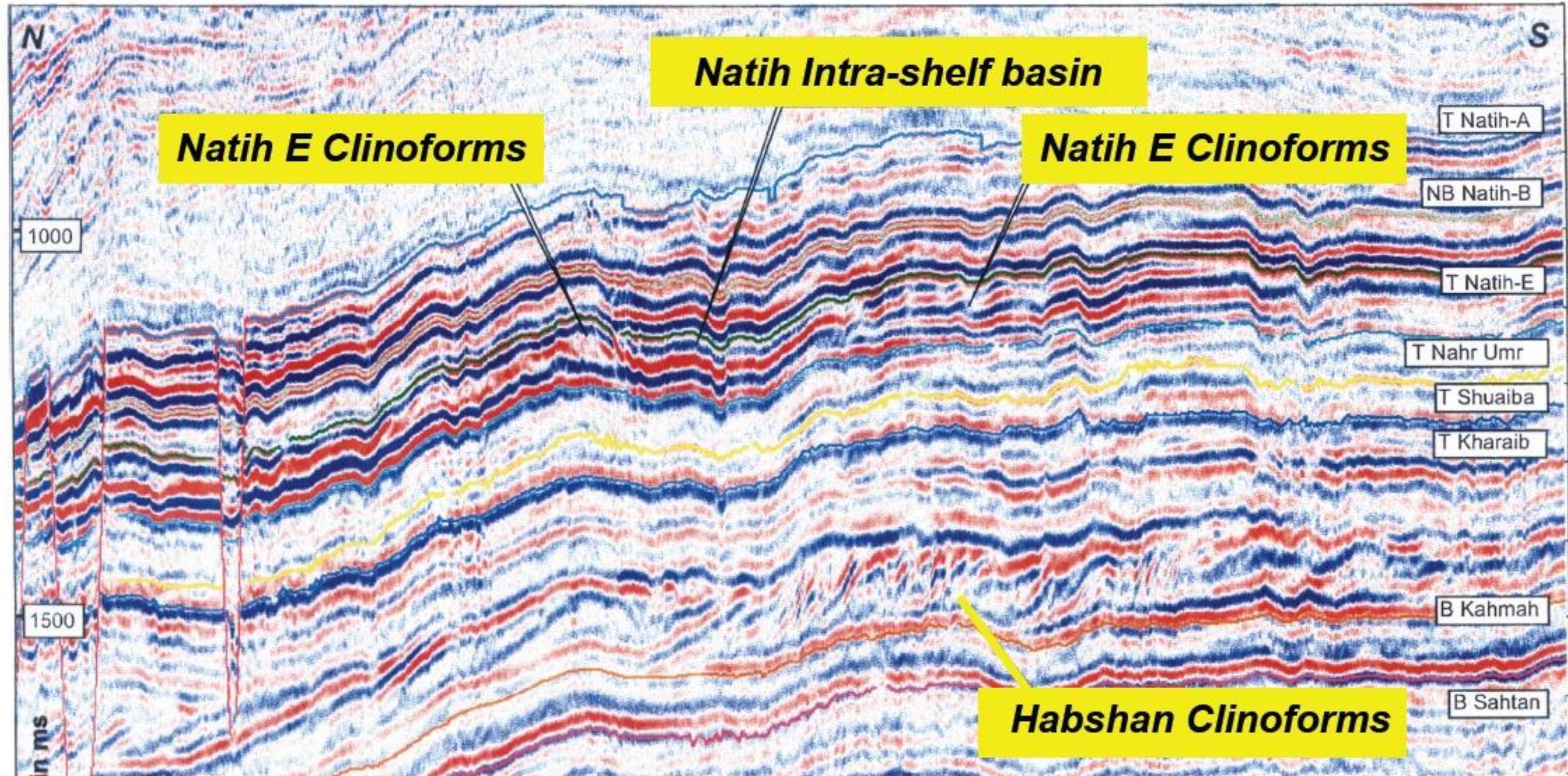
# Pre-Salt of Brazil

What kind of carbonate platform is this? Where should one drill?



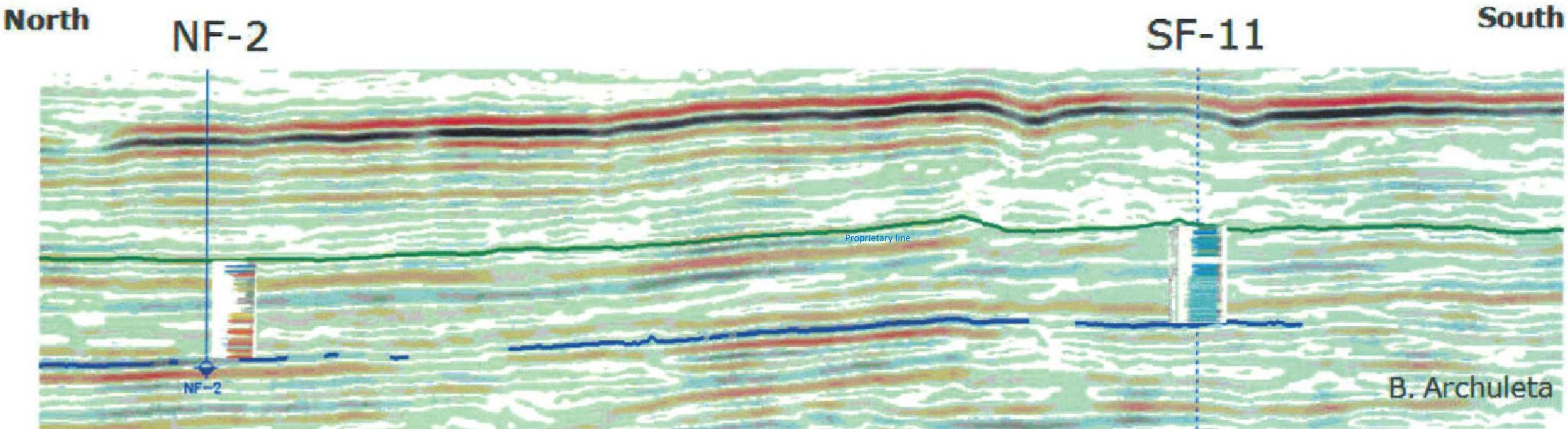
# An example from Oman

This line has been vertically exaggerated about 300 times? What kind of carbonate platform?



# An example from Kuwait

This line has been vertically exaggerated about 30 times? What kind of carbonate platform?



# An example from China

What kind of carbonate platform is this? Why was Liuhua 4-1-1 drilled at that location?

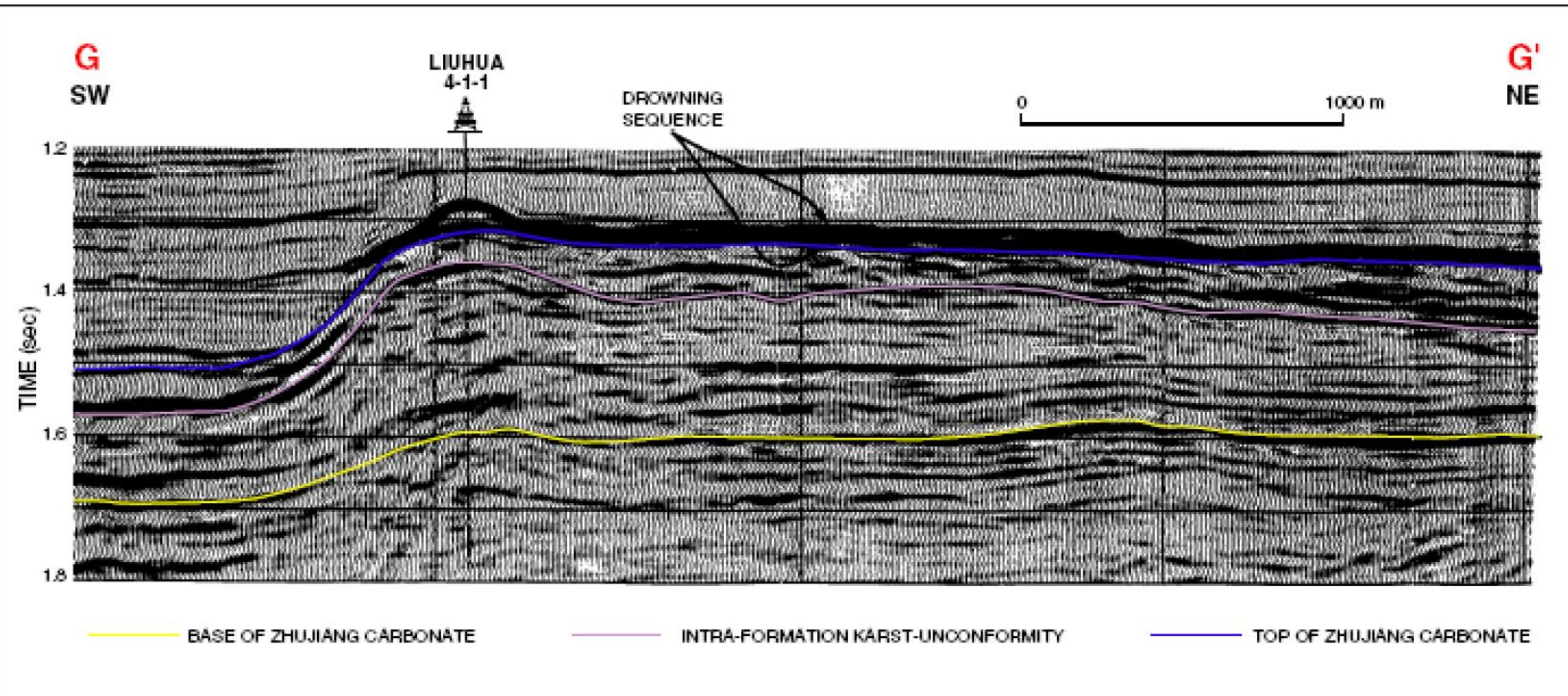
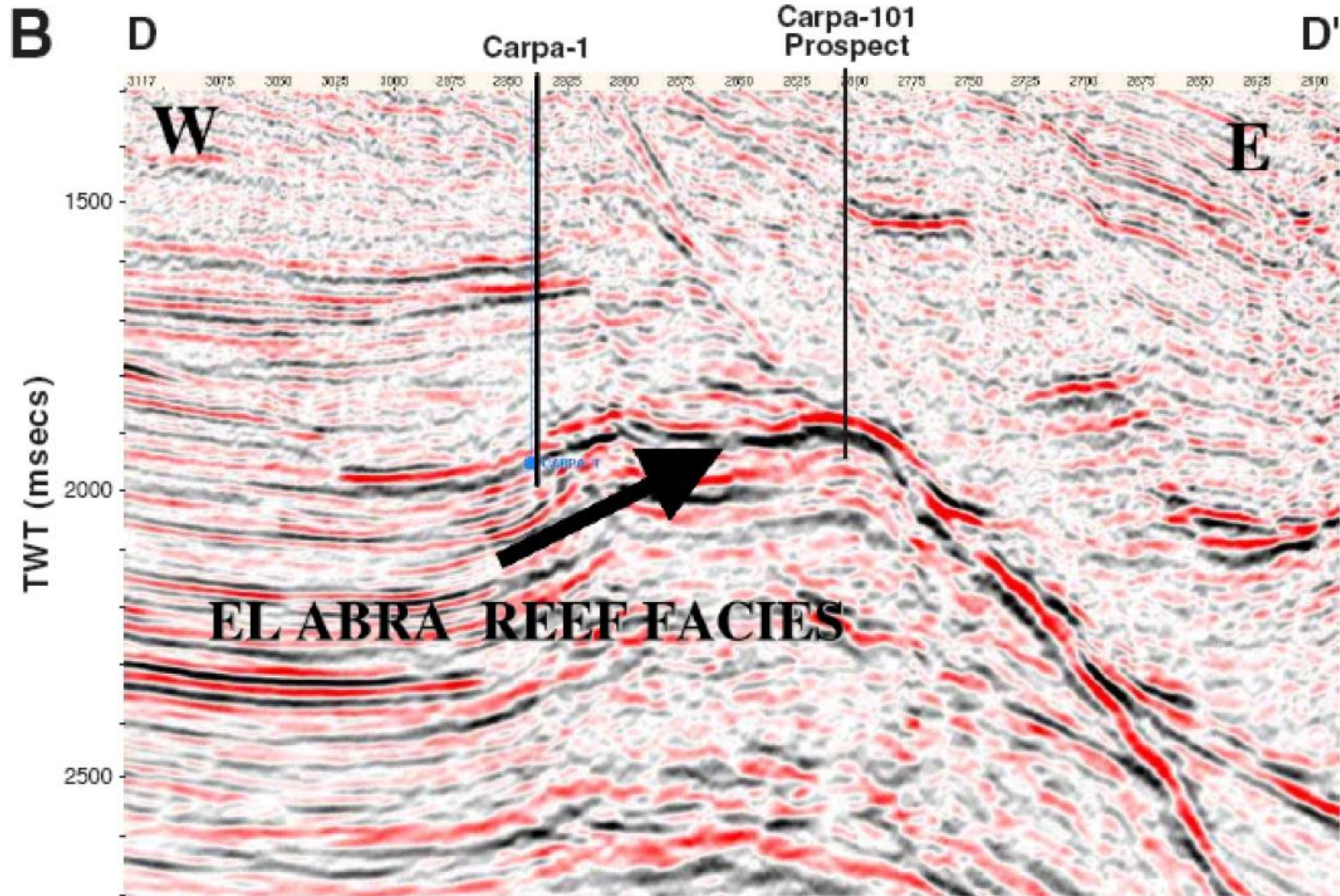


Figure 17 – SW-NE seismic section G-G' through well LH 4-1-1 showing the geometry and sequence development of the Liuhua Platform (Erlich et al., 1990).  
See Fig. 16 for location of the section.

# An example from Mexico

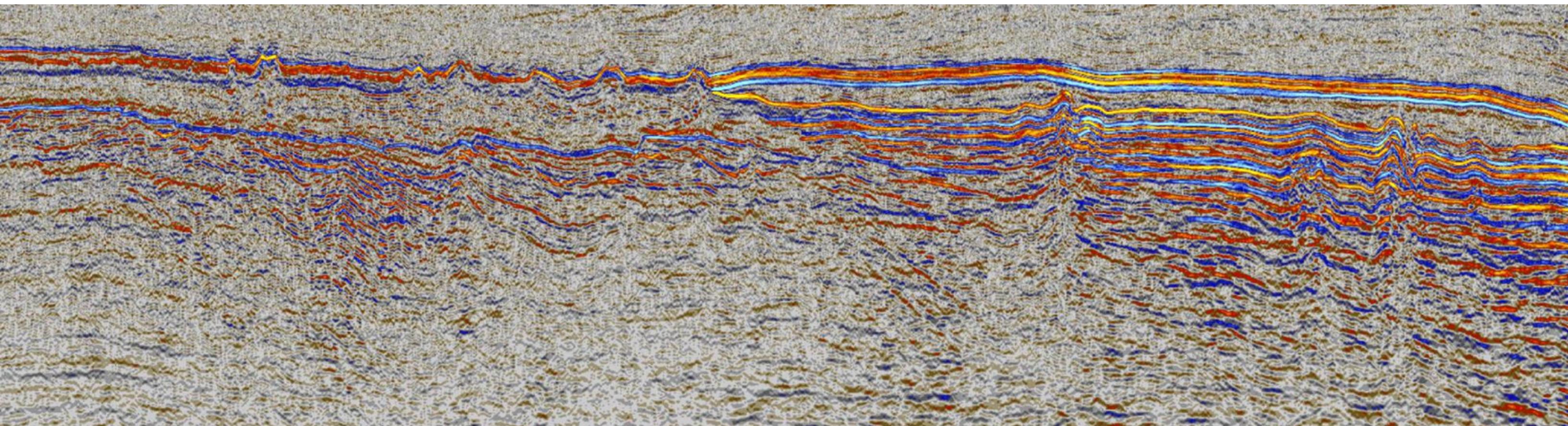
What kind of carbonate platform is this? Why was Carpa-1 drilled at that location?



Vinegra and Catillo-Tejero, 1970

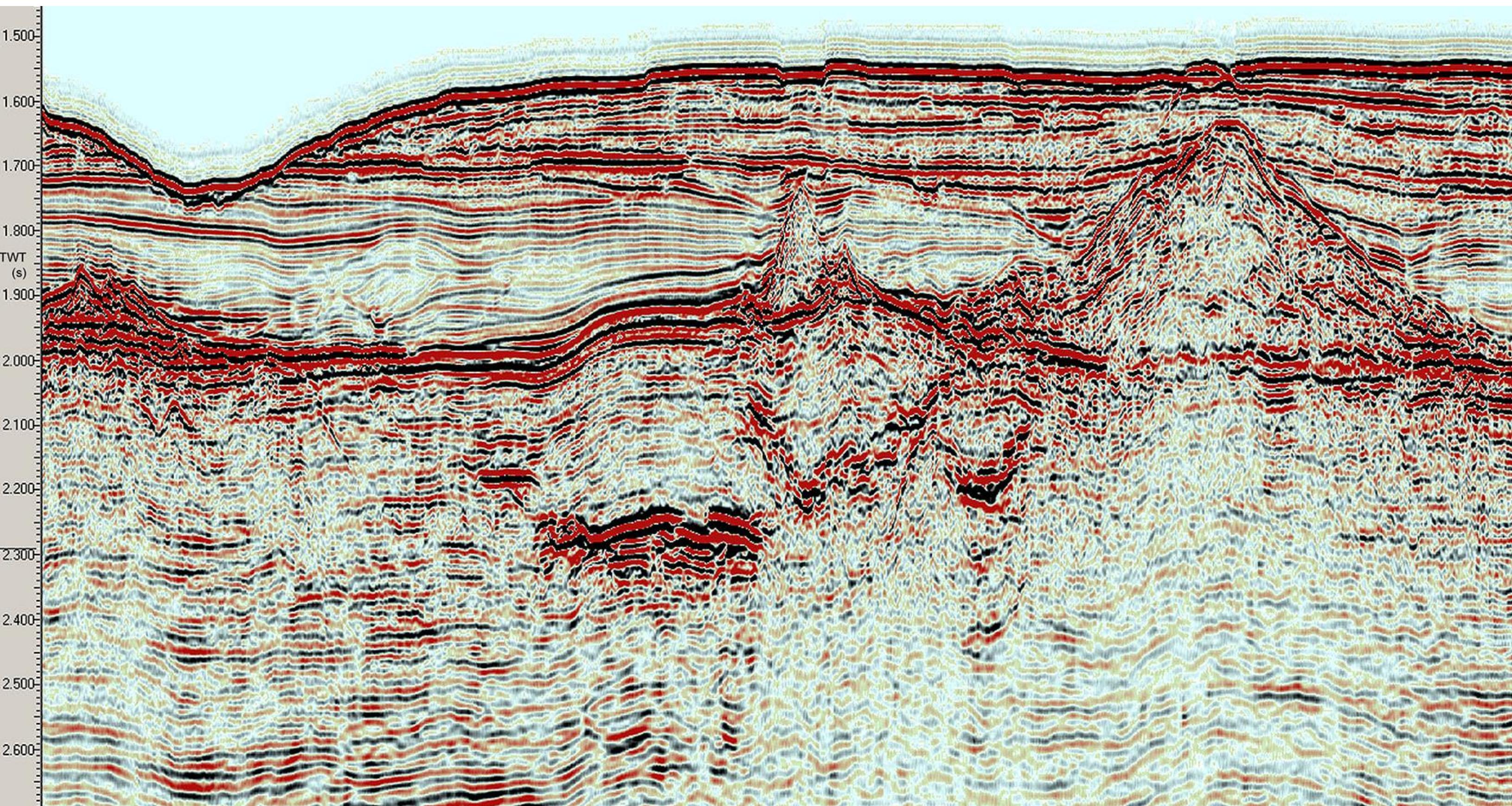
# An example from Norway

What kind of carbonate platform is this? Where would you drill and why?



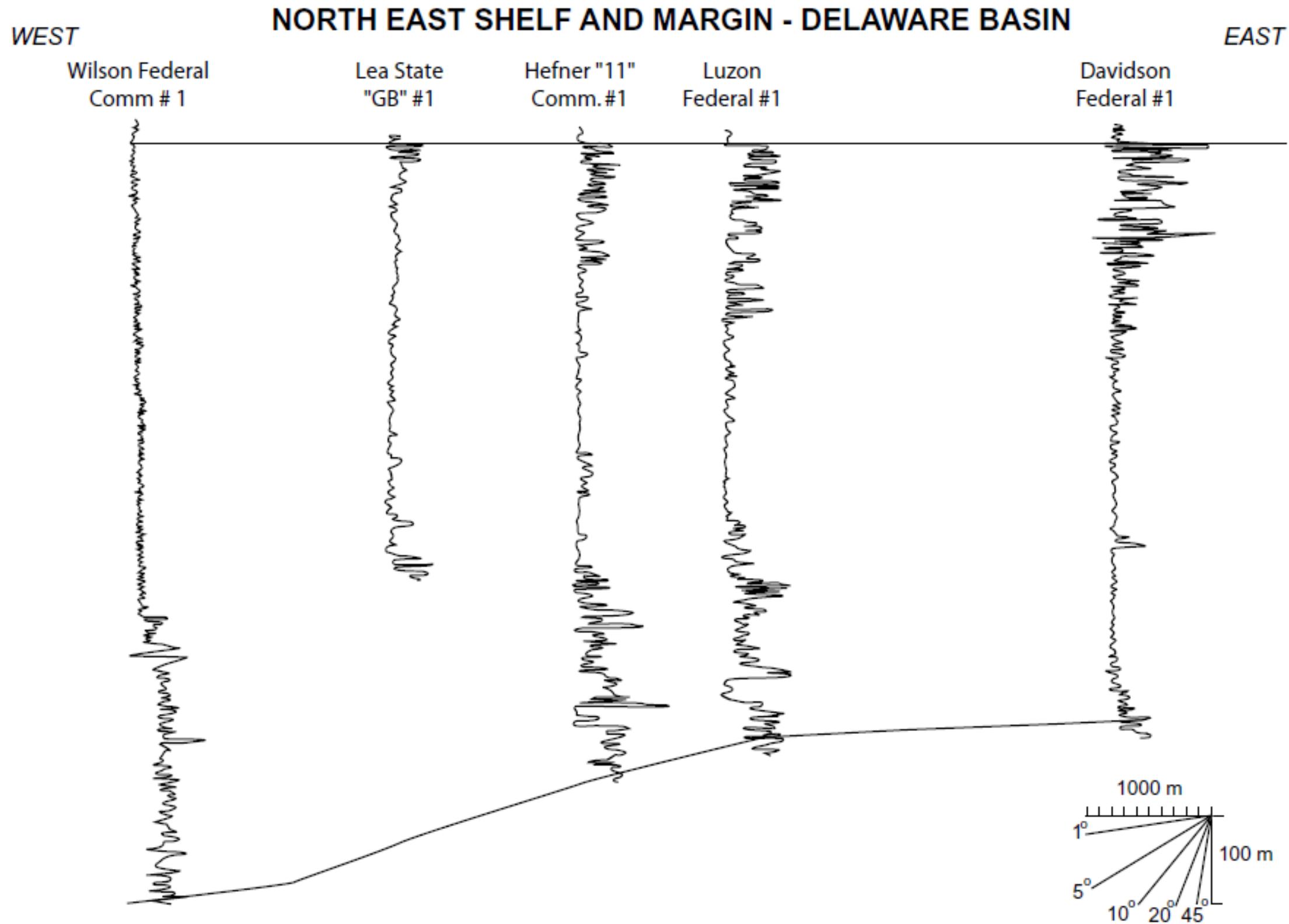
# Proprietary Example

Would you drill these carbonate mounds? Why or why not?



# An example from the Permian Basin

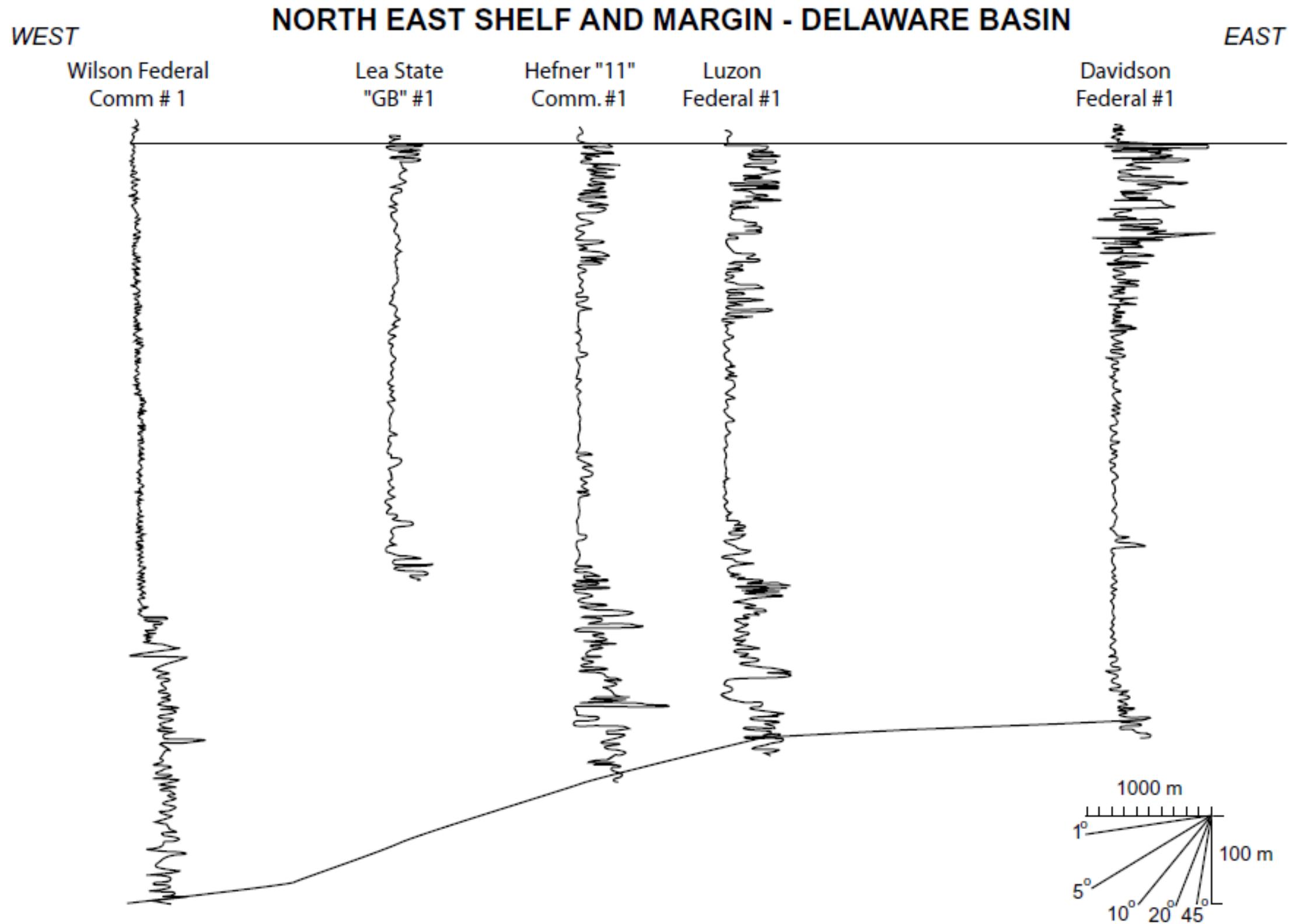
# Lithocorrelate these logs (match log patterns)



Christopher G. St. C. Kendall, October 2005 (after Harris and Saller, 1999)

# An example from the Permian Basin

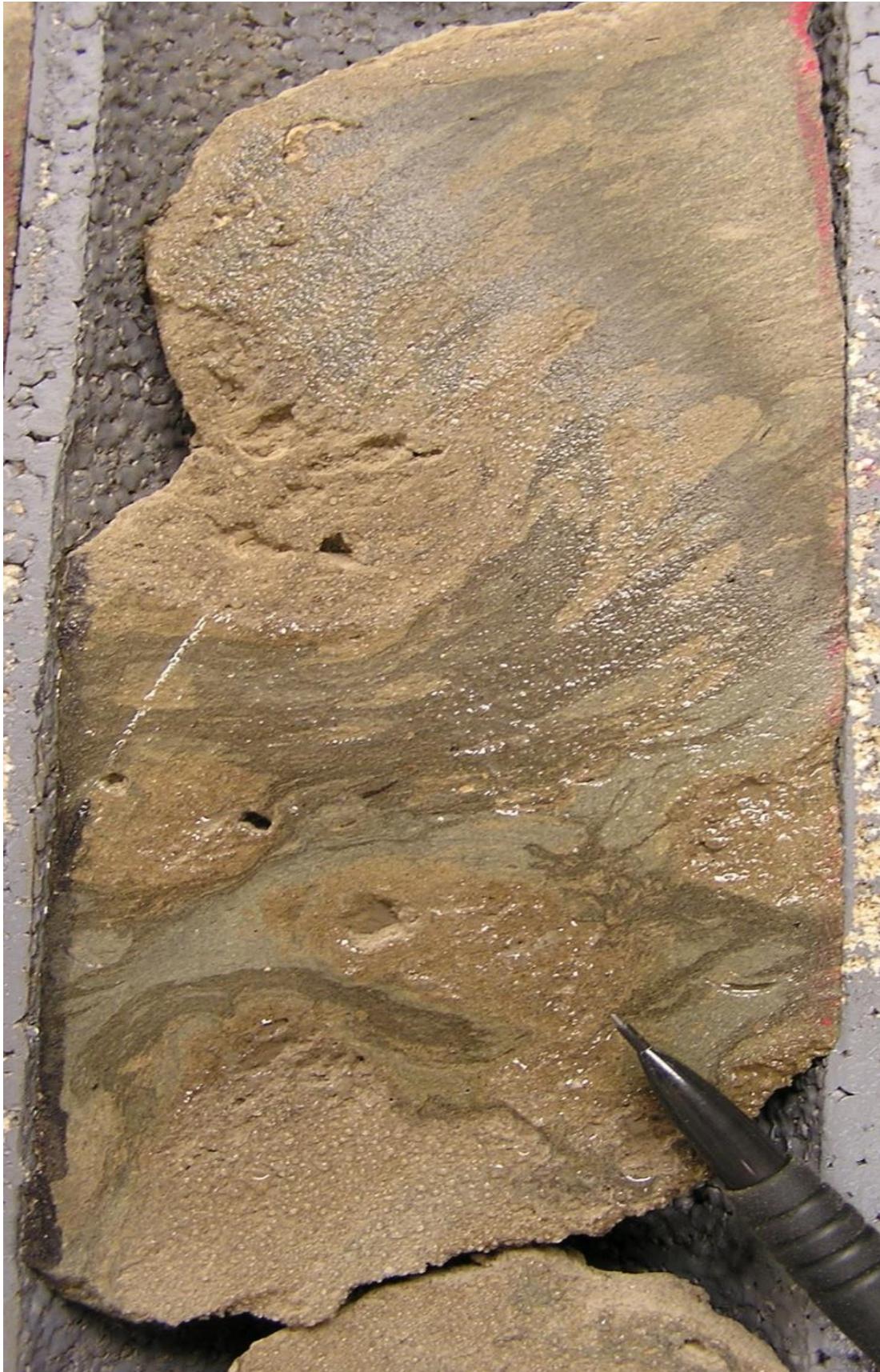
# Chronocorrelate these logs (match cycles)



Christopher G. St. C. Kendall, October 2005 (after Harris and Saller, 1999)

# Examples from Angola

What kind of pores are these? What kind of porosity-permeability graph would you get for this?



# Examples from the Williston Basin, USA

What kind of pores are these?

