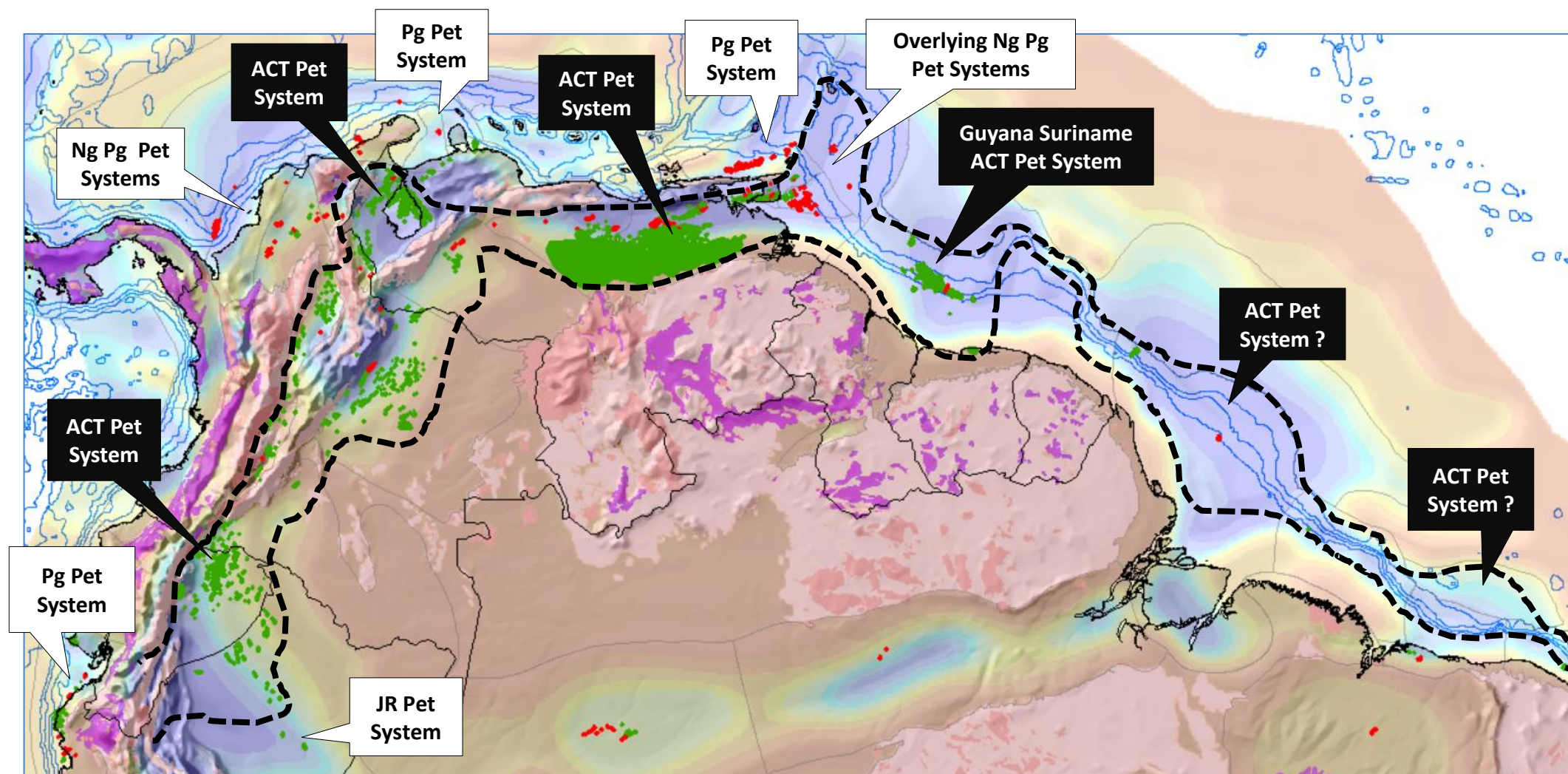


Some Thoughts: N South America



Some Thoughts: Northern S America
 (musings from the desk of a retired geologist)
 The current "Hot" Exploration Area of Guyana-Suriname constitutes part of a very well known and prolific N South American arcuate belt. It stretches from N Peru through Ecuador, Colombia, Venezuela, Trinidad, Guyana, Suriname, Guiana to N offshore Brazil. The western part of the belt is bounded by a complex arc intruded oceanic-continent collisional belt, the northern part bounded by the translational S Caribbean Plate and the eastern part forms part of the Central Atlantic Transform Margin.

The primary SRKs are ACT marine shales and known plays are of Low Cret, Up Cret, Paleog and Neog in age. The first discoveries in the belt were made over a hundred years ago with exploration targeting mostly structural-strat traps. It wasn't until almost a decade ago that companies started to explore for exclusively stratigraphic turbidite plays in the deepwater that a major breakthrough was made which resulted in the recent Guyana Suriname discoveries.

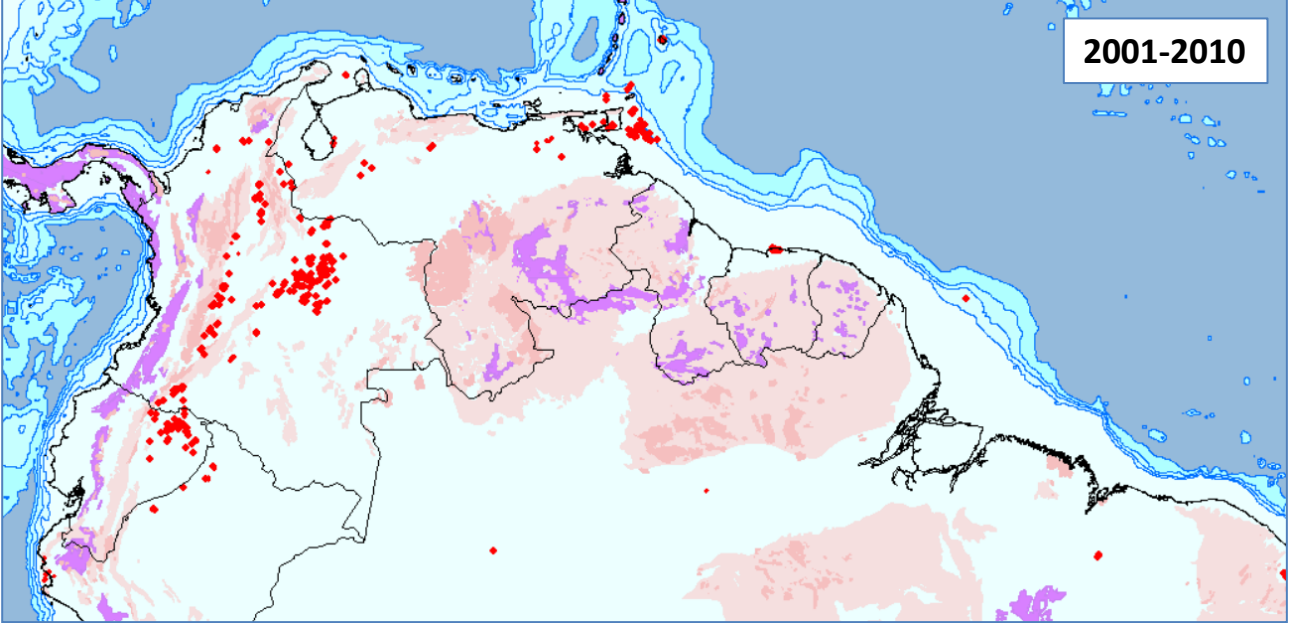
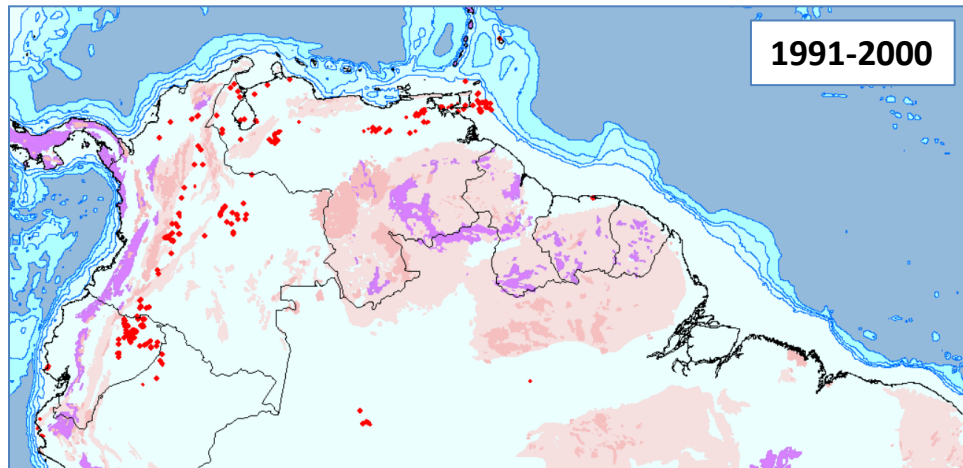
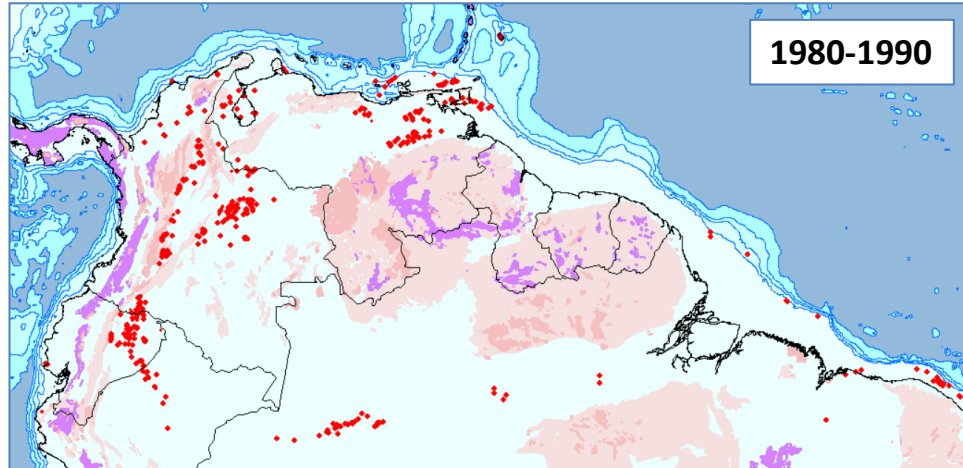
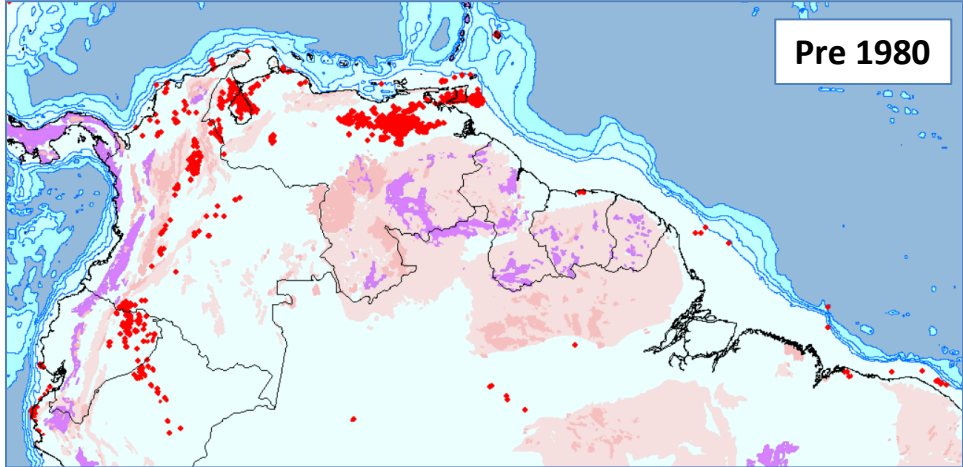
Given the current above ground issues and political situation in some countries, there are still quite a lot of relatively unexplored areas and plays out there that merit a closer look at going forward if there is future acreage access in the area.

Don't forget that this ACT petroleum system is home to the 250 BBO Orinoco Hvy Oil belt !
 By the way.... The reason for the presence of the huge Hvy Oil Belt in Orinoco is likely due to multiple thrust stacked ACT SRKs in the E Venezuela Fold Belt (much like multiple thrust stacked Devonian SRKs in W Canada resulting in the huge Athabasca Tar sand deposits). This makes other global SRK detachment level thrust belt foreland basins quite interesting.

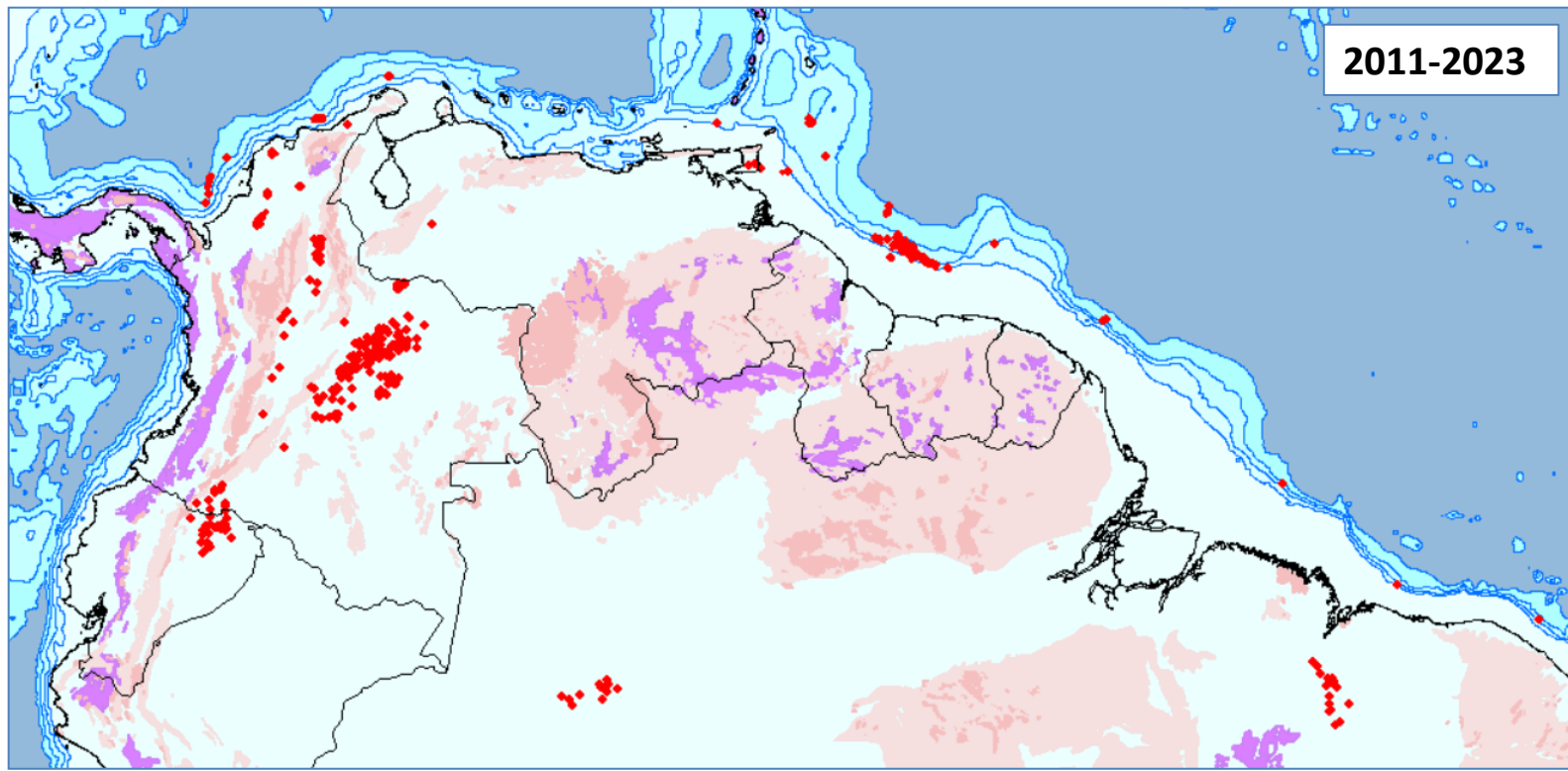
Est Discovered Reserves in the N South American ACT Petroleum System is quite impressive:

Basin	BBOE	Basin	BBOE
Llanos Barinas	11.3	Maracaibo	52.1
M Magdalena	3.7	E Venezuela	276.0 (250 Orinoco Hvy Oil)
U Magdalena	1.0	Trinidad	4.7
Oriente	9.0	Guyana Suriname	15.0
TOTAL 372.8 BBOE			

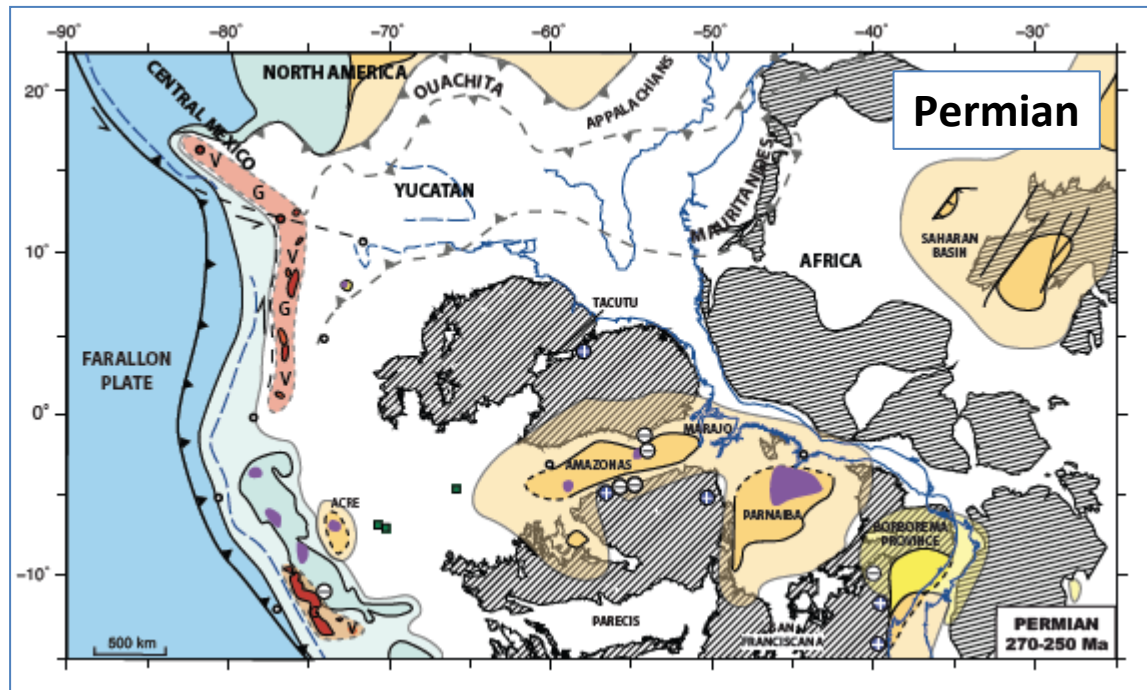
Discovery History



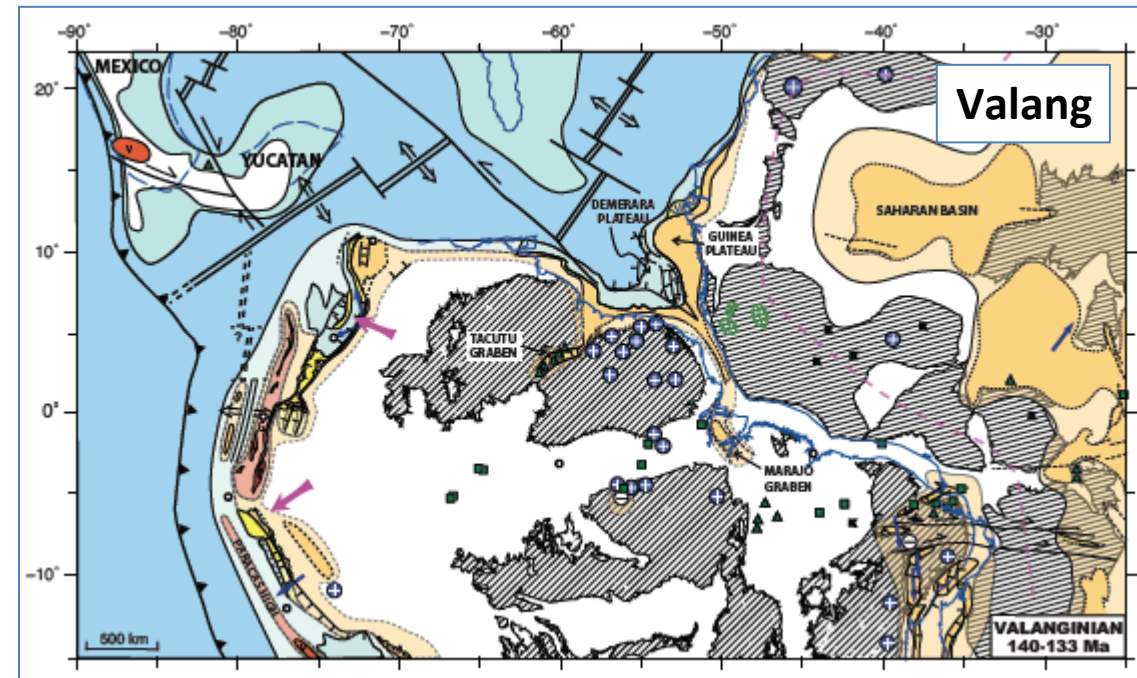
● Disc



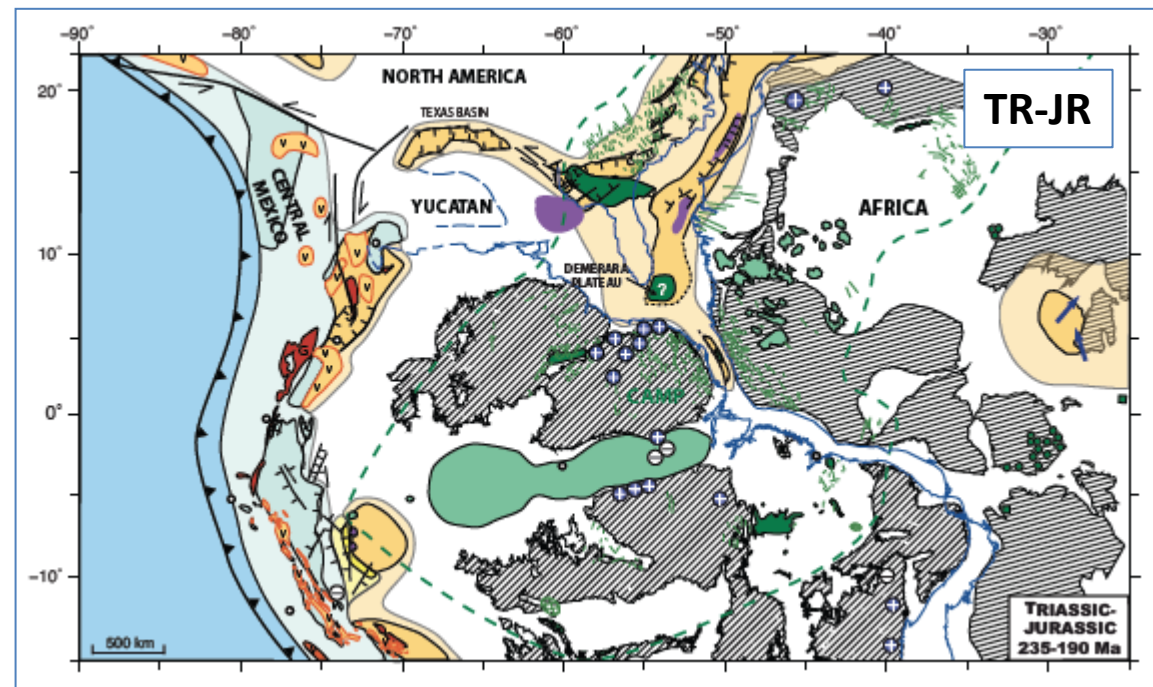
Permian- Aptian Paleogeography (Bajolet, Chardon, Rouby, Dall'Asta, Loparev, Coueffe and Roig 2022)



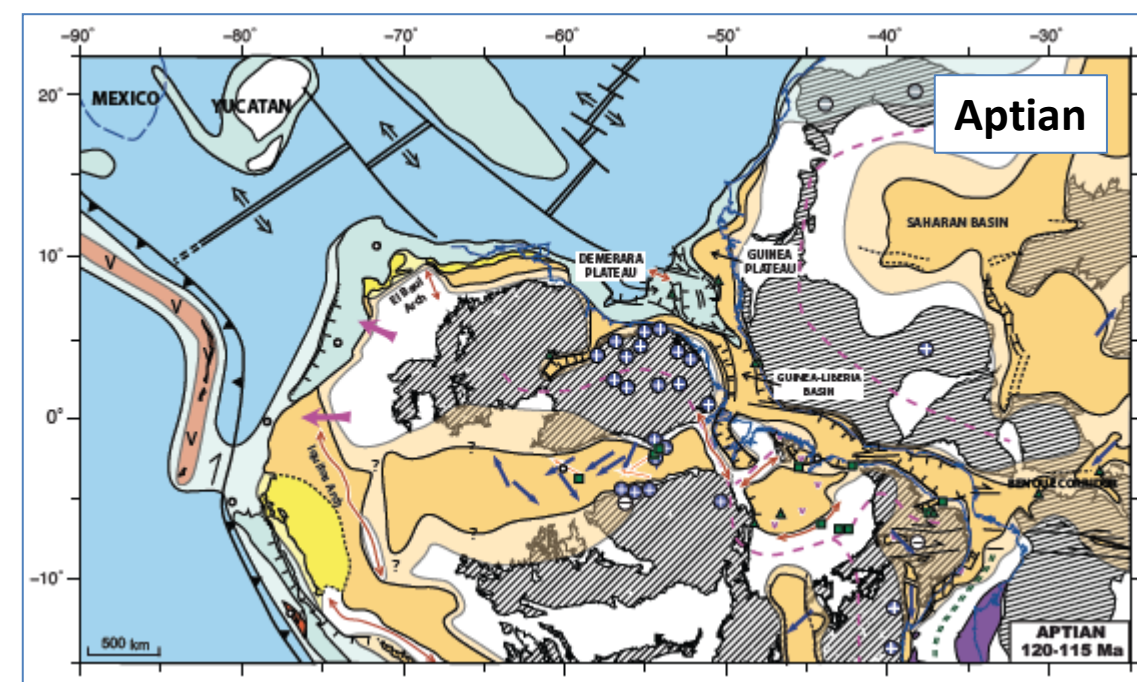
F Bajolet et al 2022



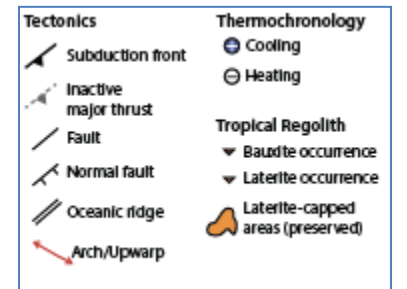
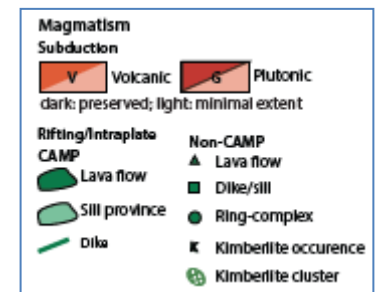
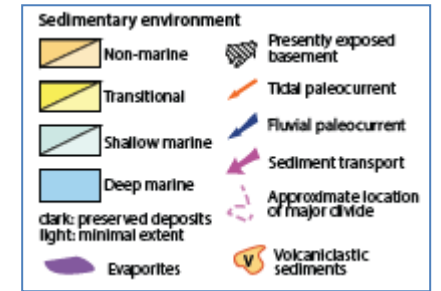
F Bajolet et al 2022



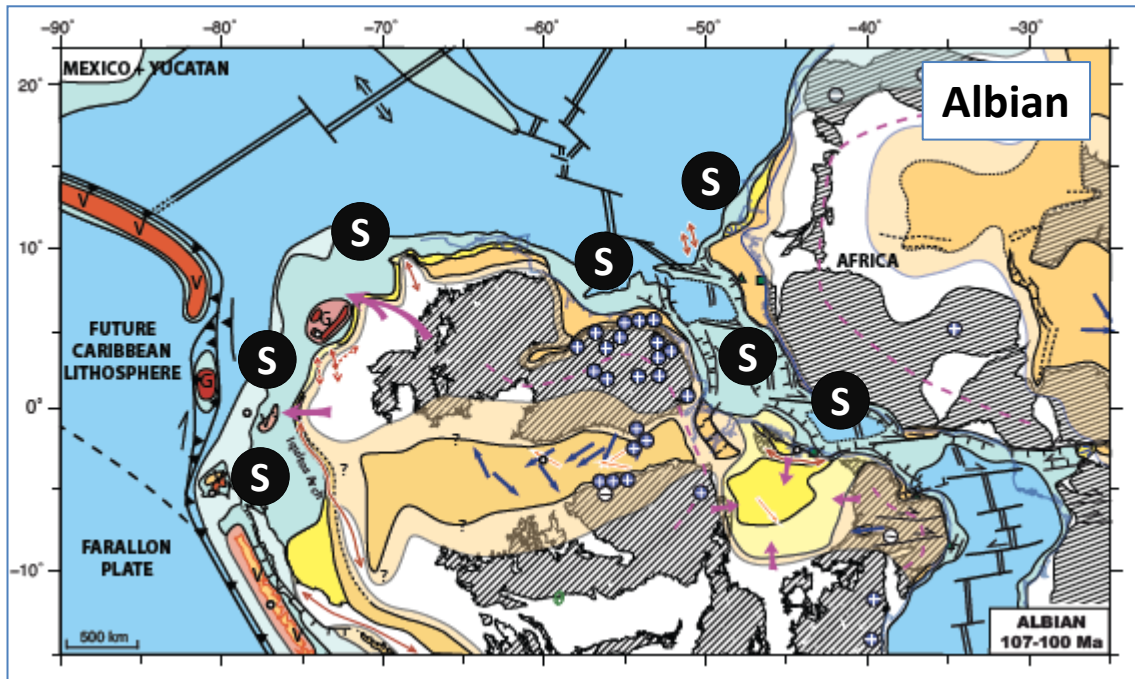
F Bajolet et al 2022



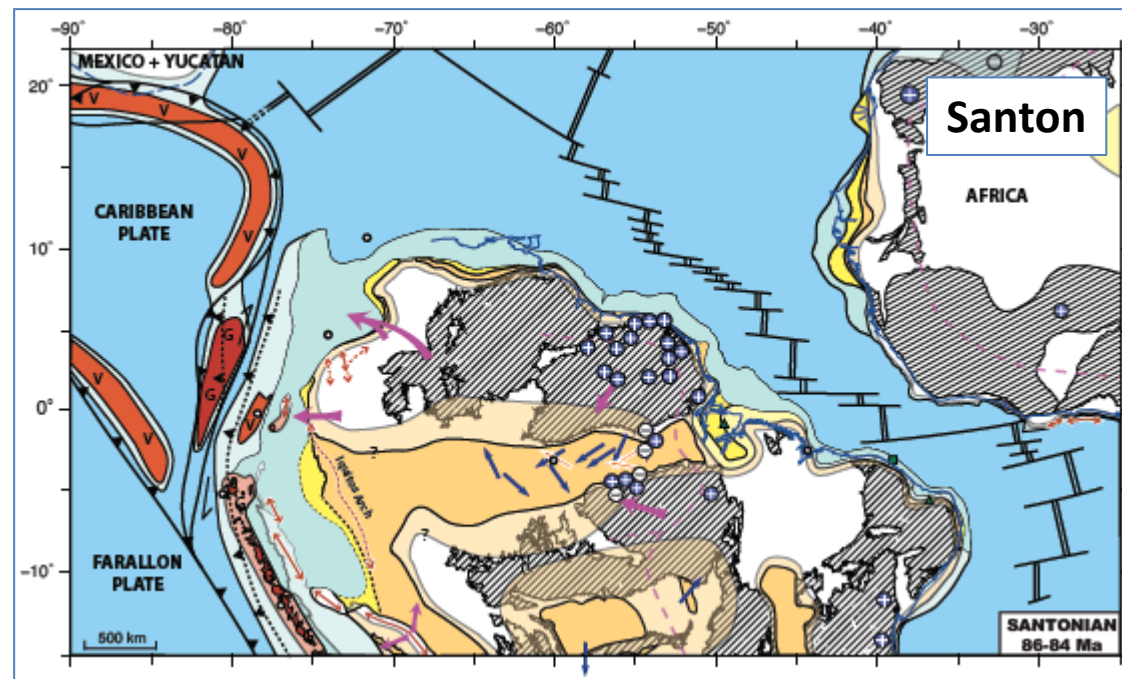
F Bajolet et al 2022



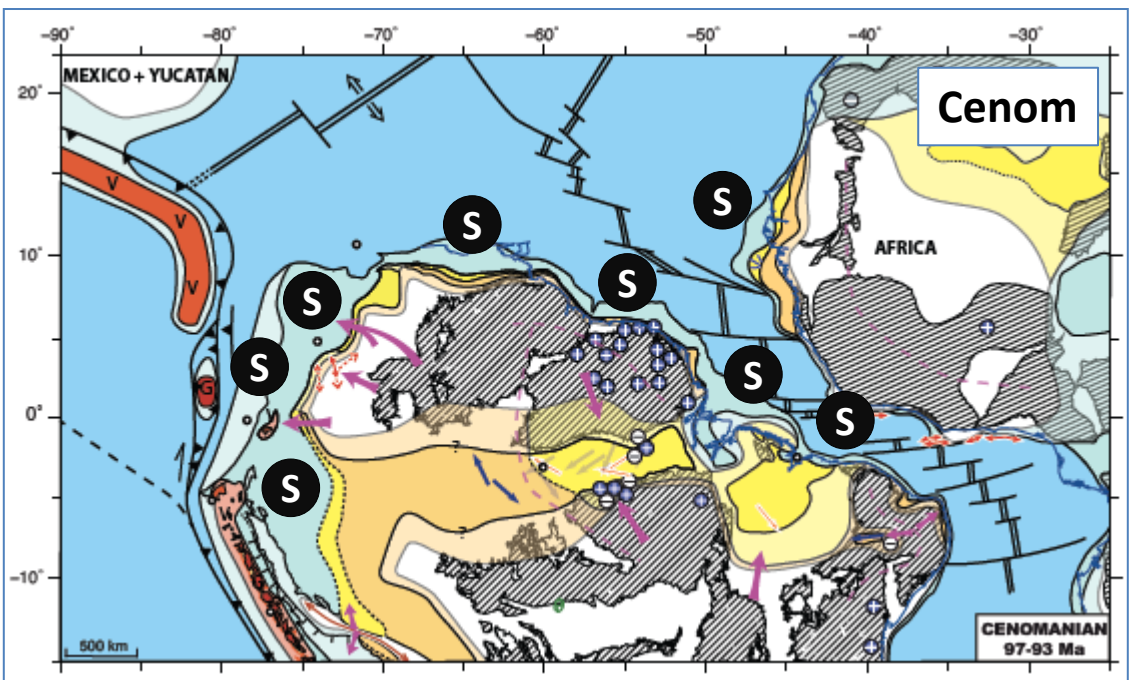
Albian- Maastrichtian Paleogeography (Bajolet, Chardon, Rouby, Dall'Asta, Loparev, Coueffe and Roig 2022)



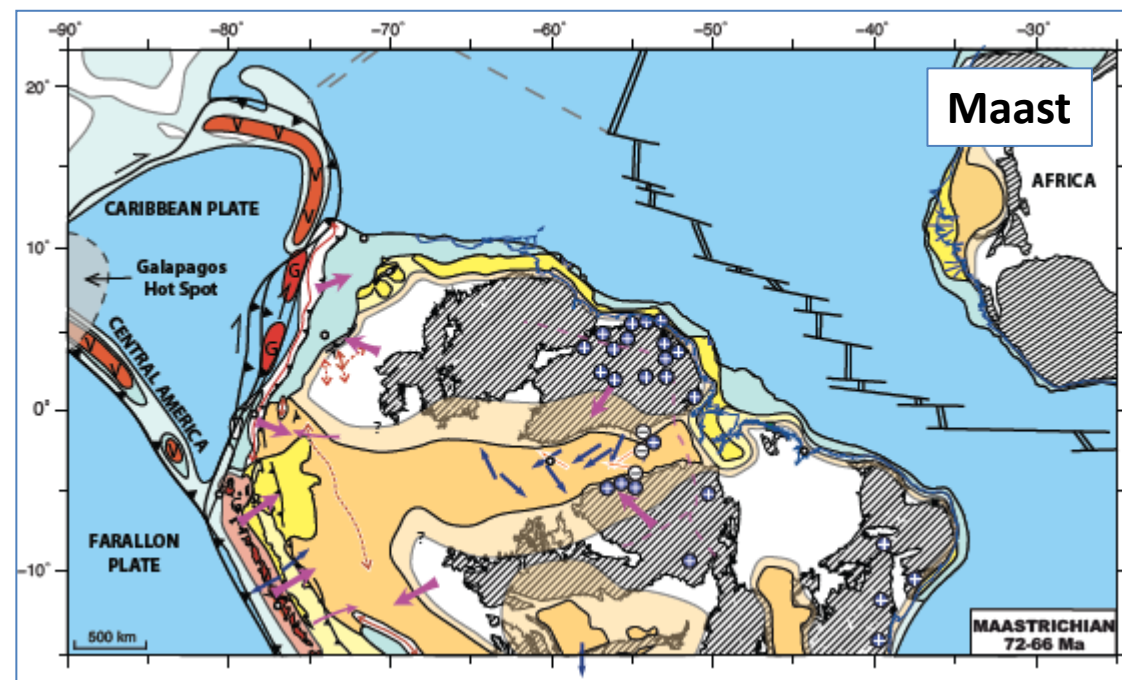
F Bajolet et al 2022



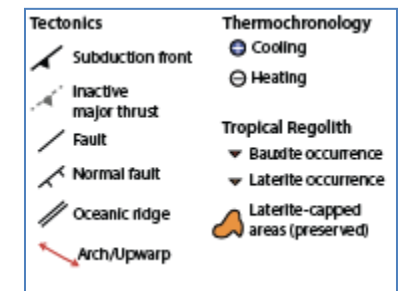
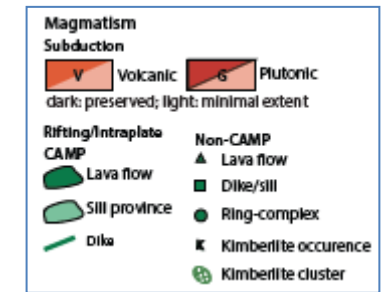
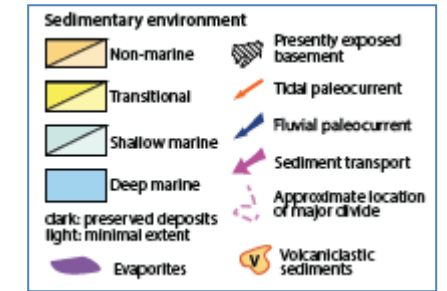
F Bajolet et al 2022



F Bajolet et al 2022

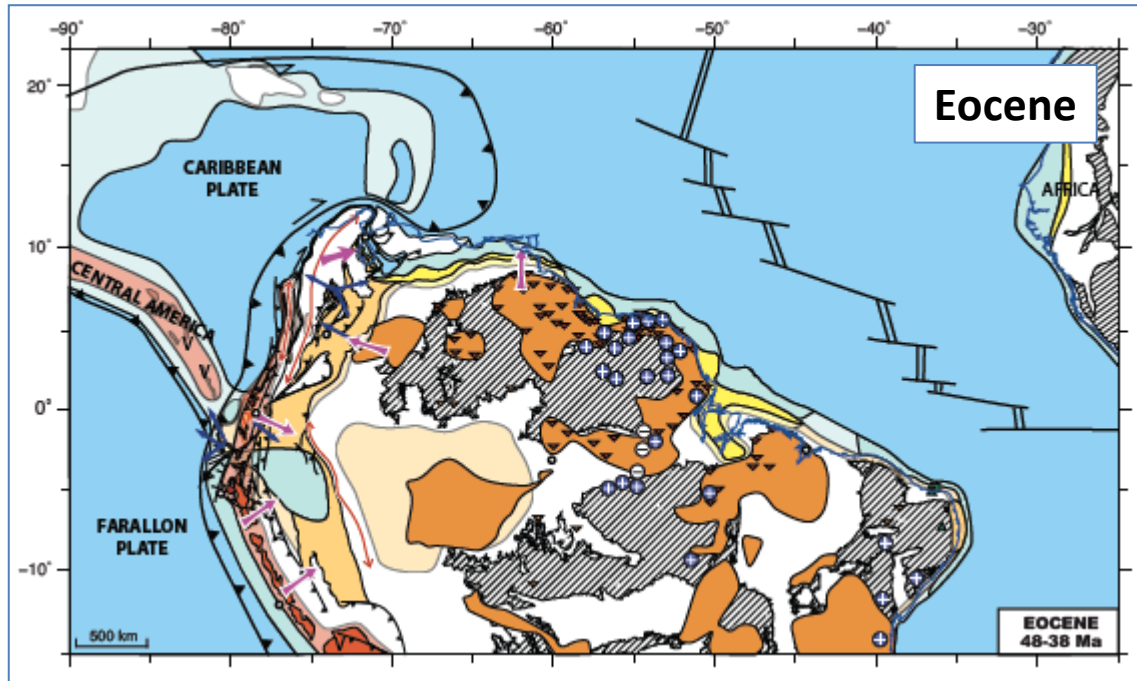


F Bajolet et al 2022

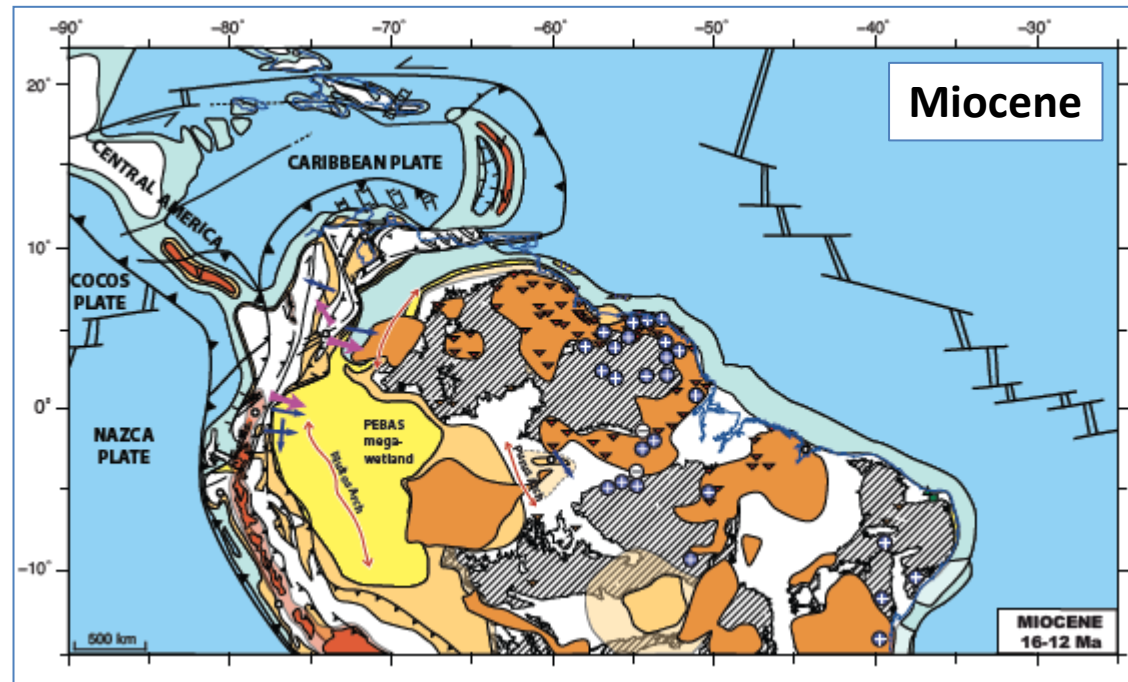


S ACT Source Rocks

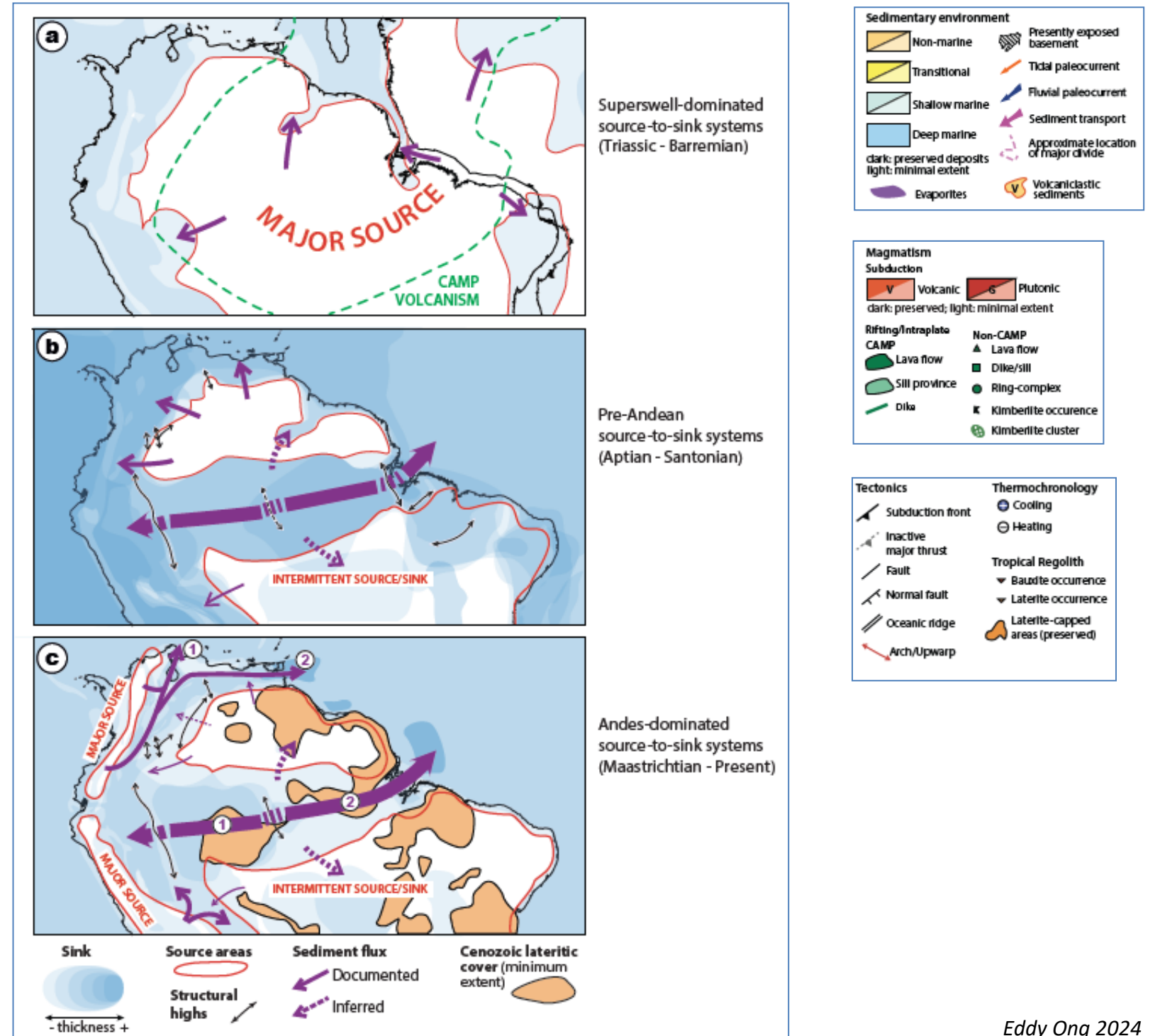
Eocene- Miocene Paleogeography (Bajolet, Chardon, Rouby, Dall'Asta, Loparev, Coueffe and Roig 2022)



F Bajolet et al 2022

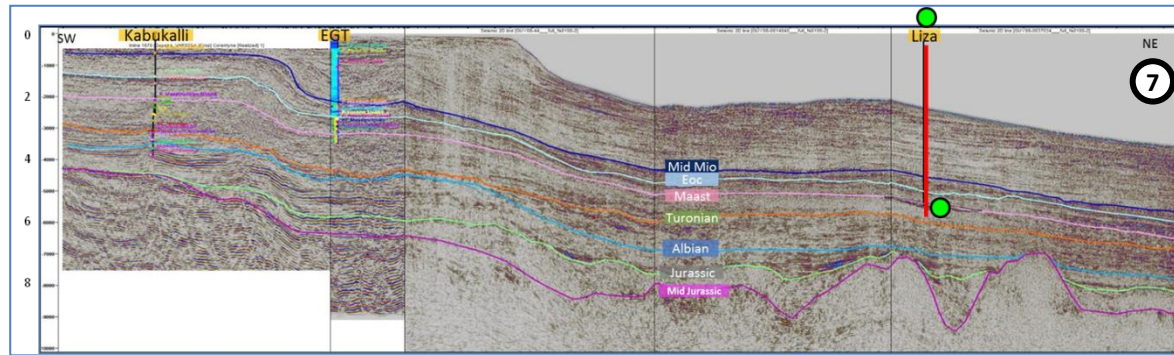
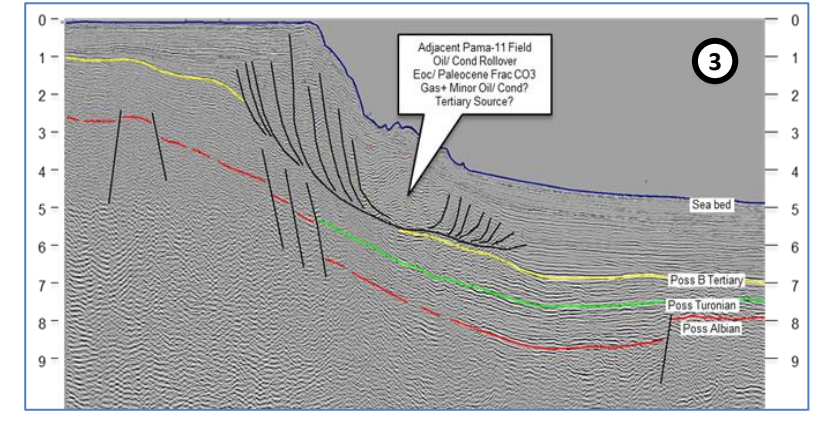
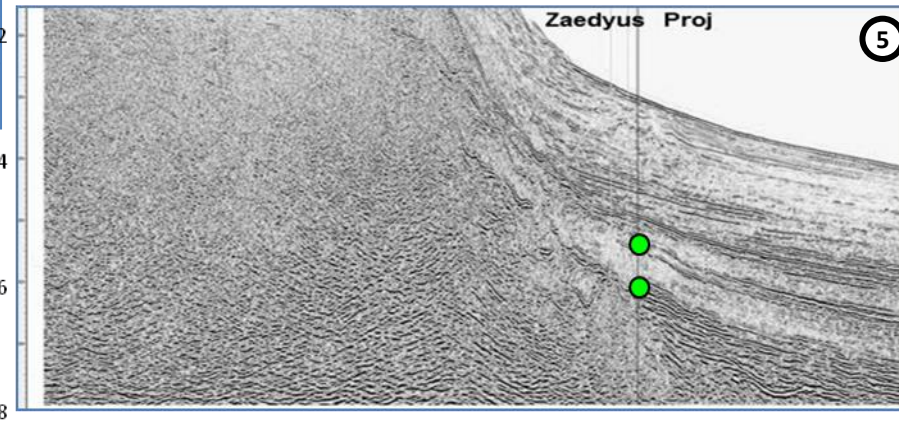
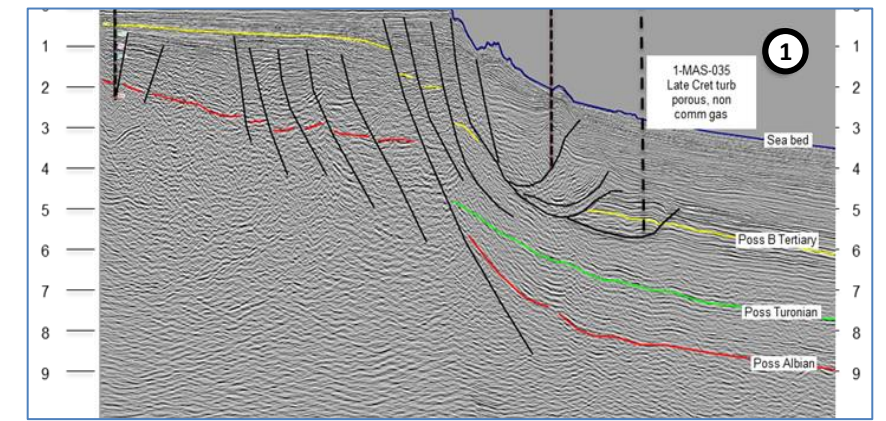
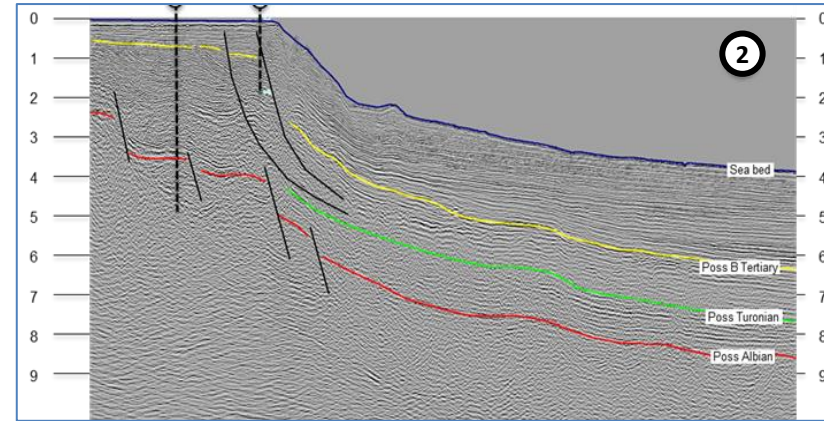
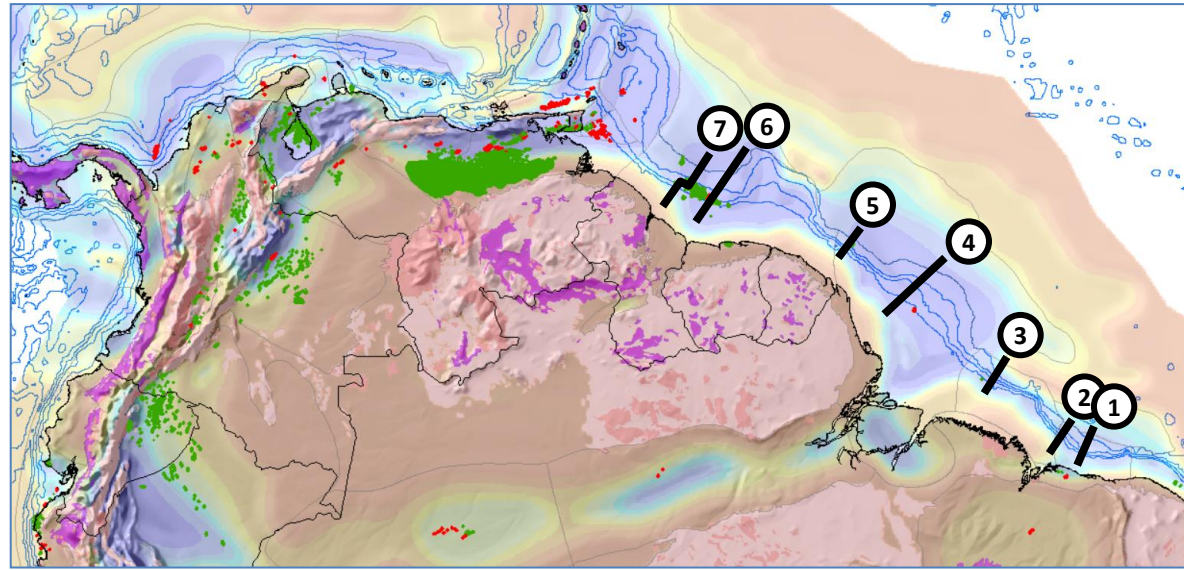


F Bajolet et al 2022

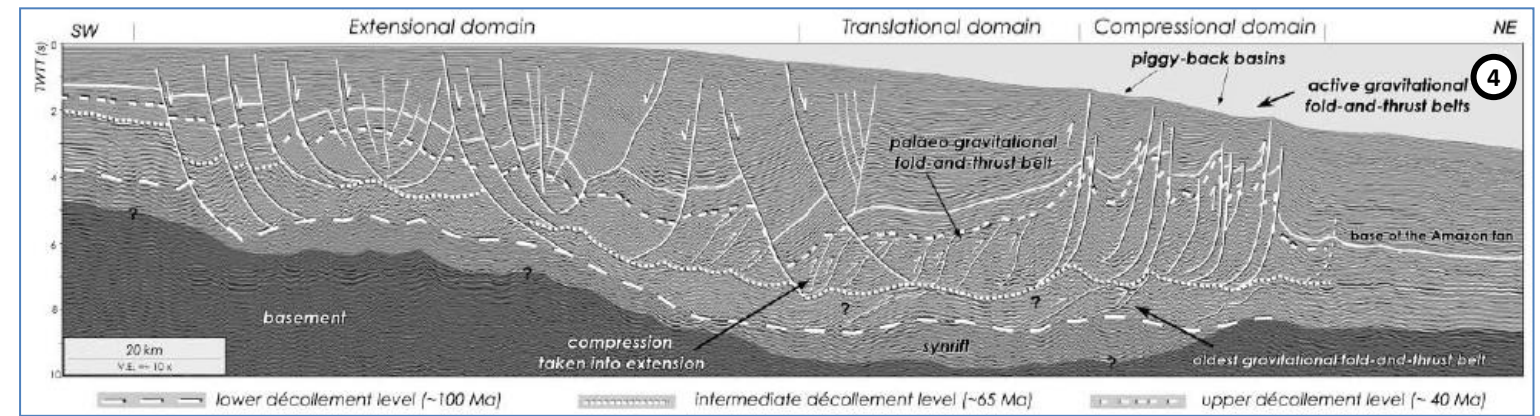
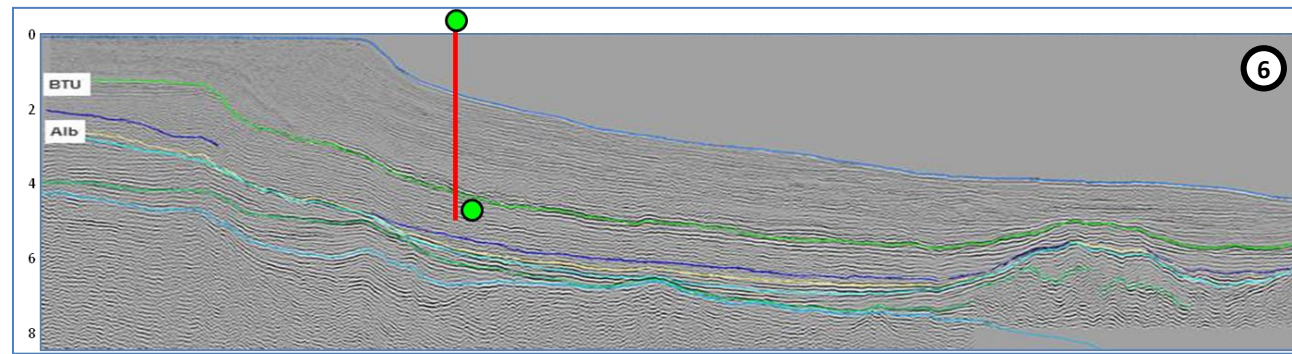


F Bajolet et al 2022

Regional Structural Profiles

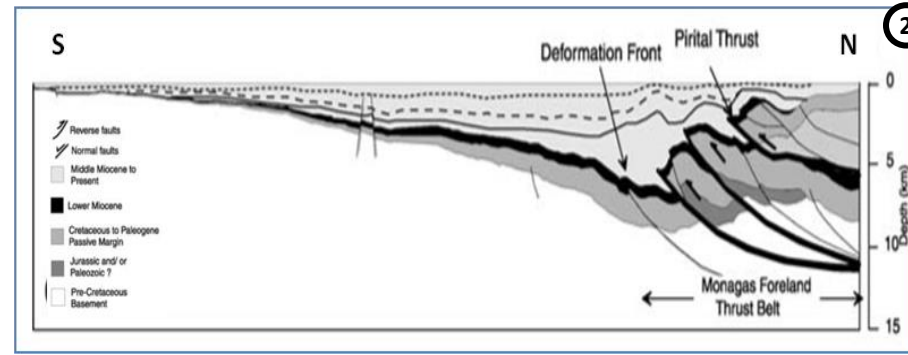
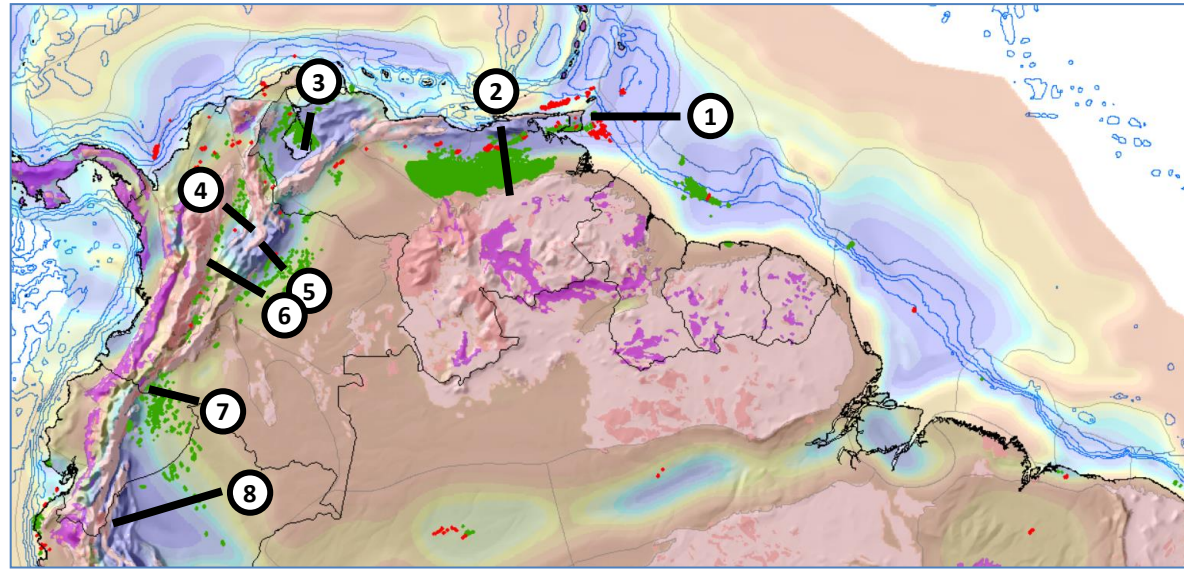


CNPC RIPED

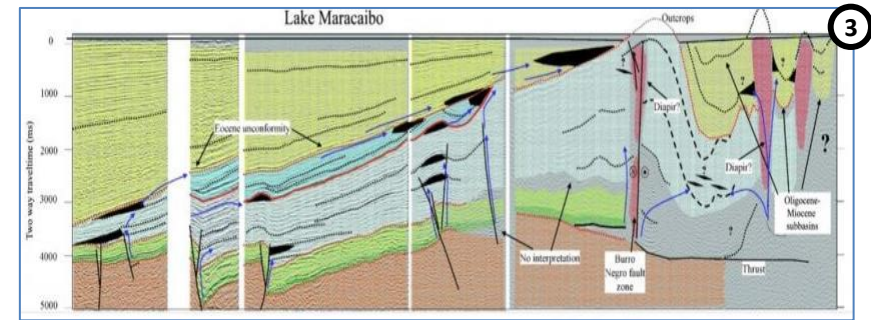
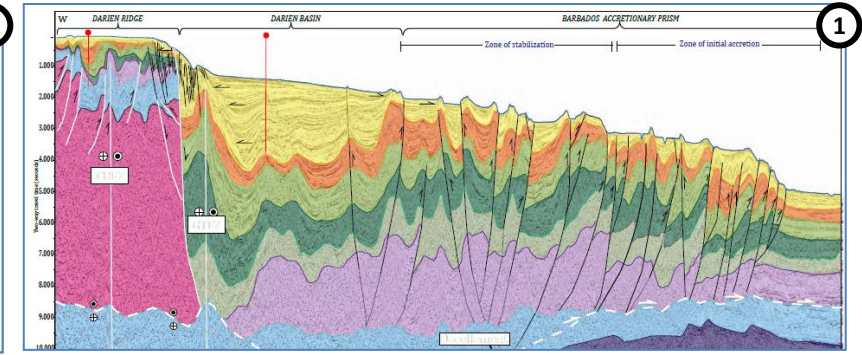


Reis et al 2010

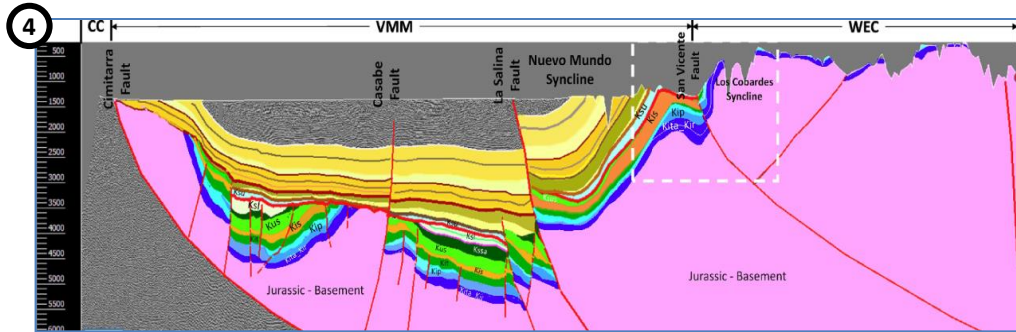
Regional Structural Profiles



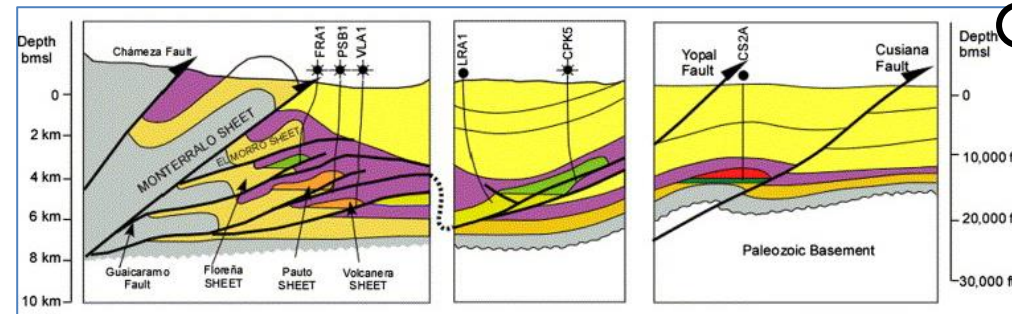
Jacome et al 2003



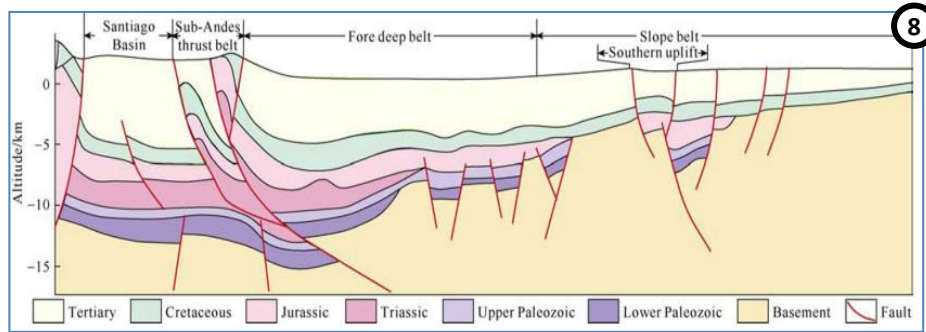
Escalona n Mann 2006



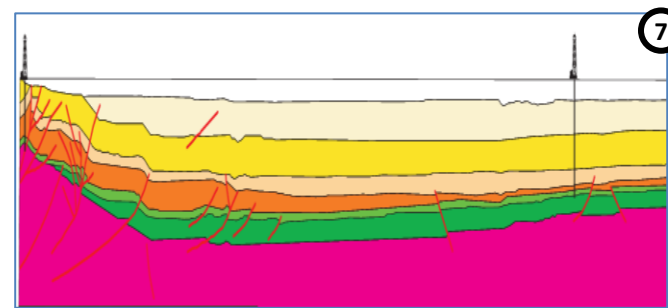
Guerrero et al 2021



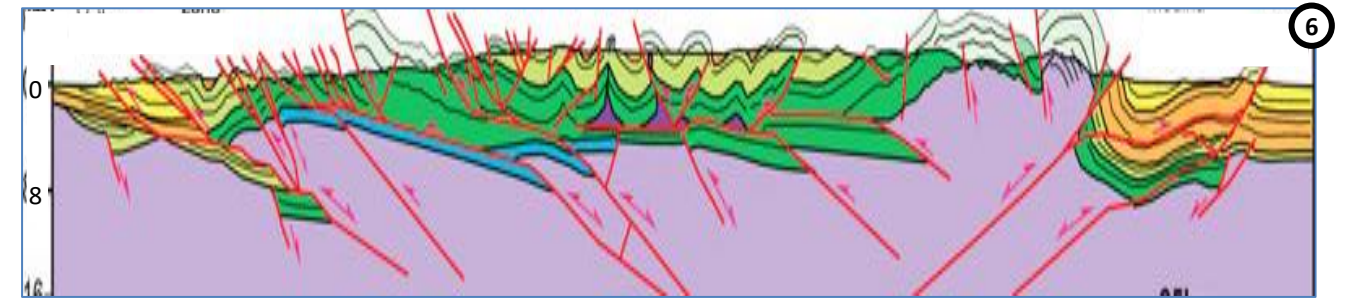
Martinez 2006



Zhongzhen et al 2017

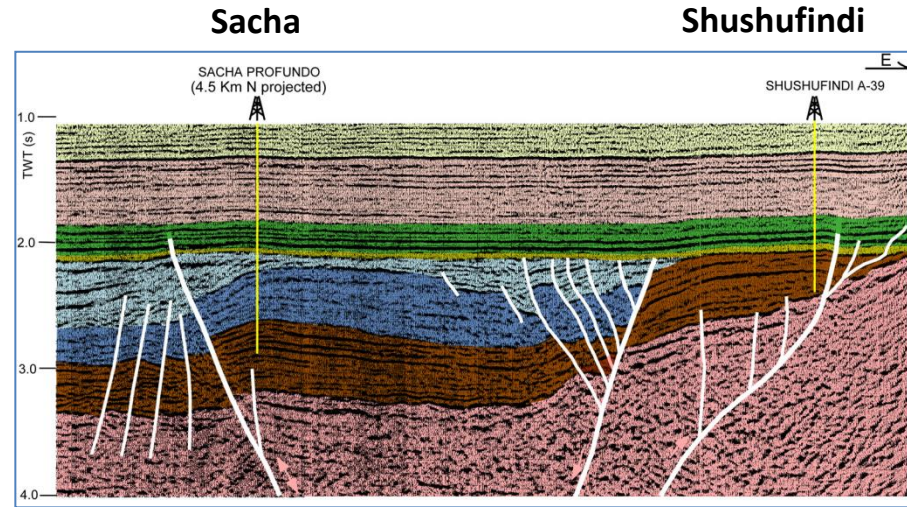


Martinez et al 2014

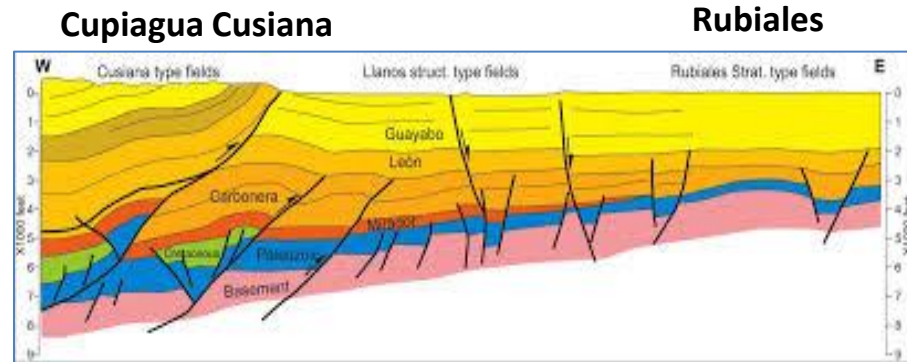


Constantino et al 2021

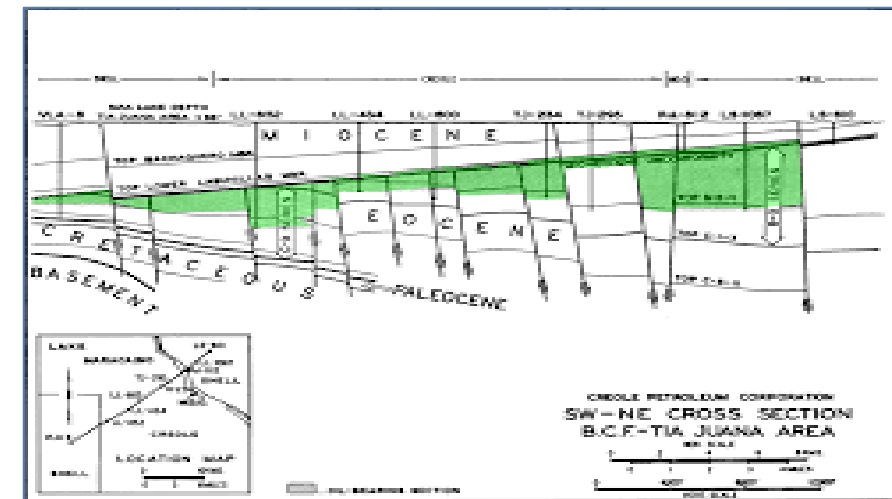
Some of the largest Fields on the ACT Belt



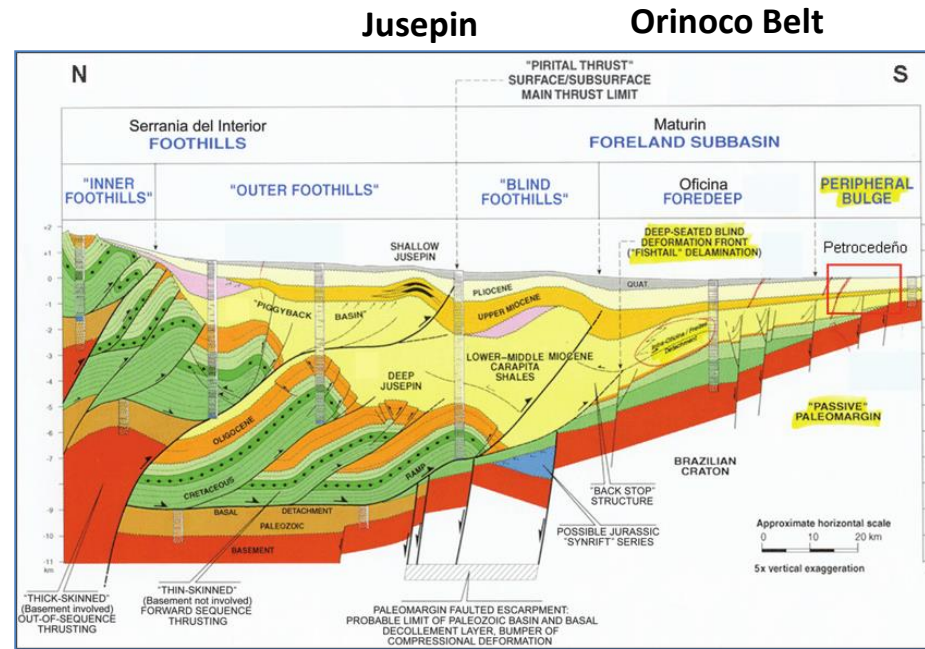
Baby et al 2013



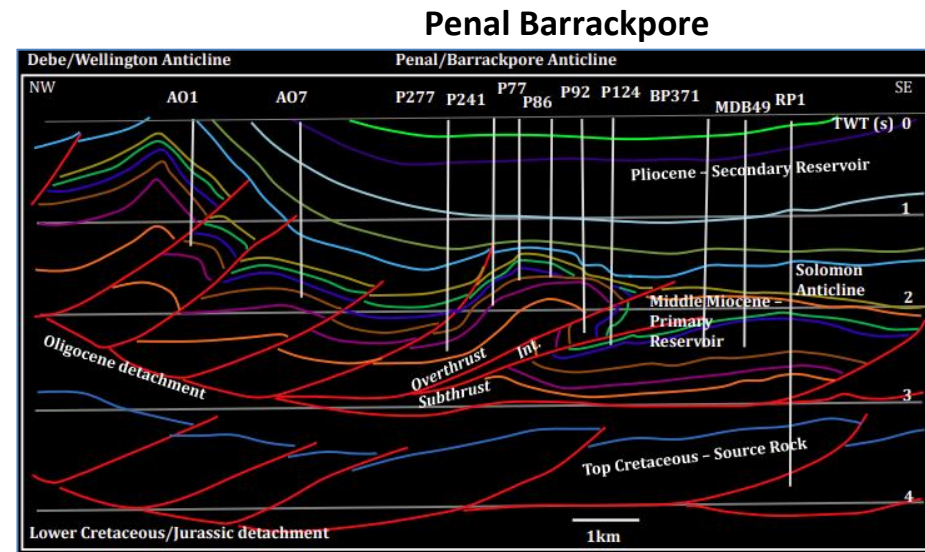
Dasilva et al 2014



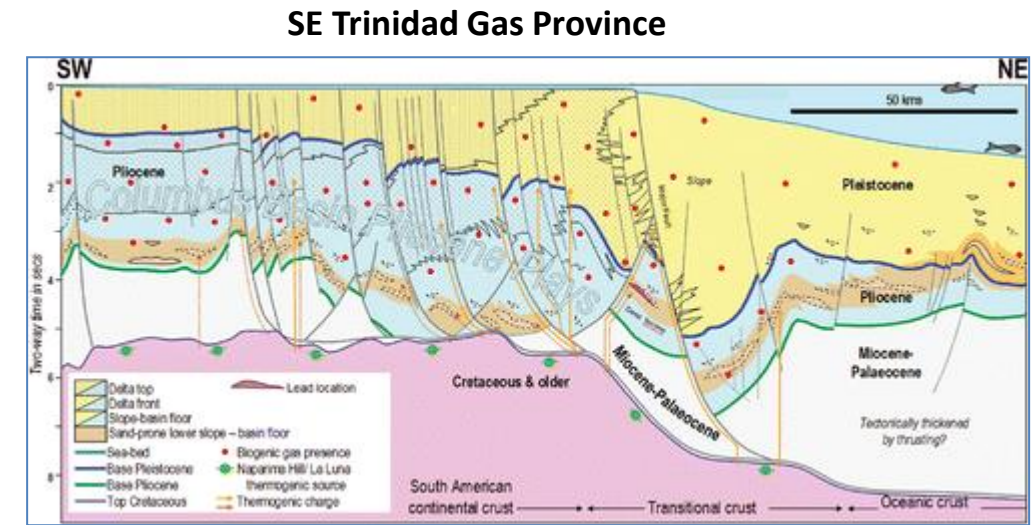
Borger n Lenert 1959



Martinius et al 2013



Moonan 2011

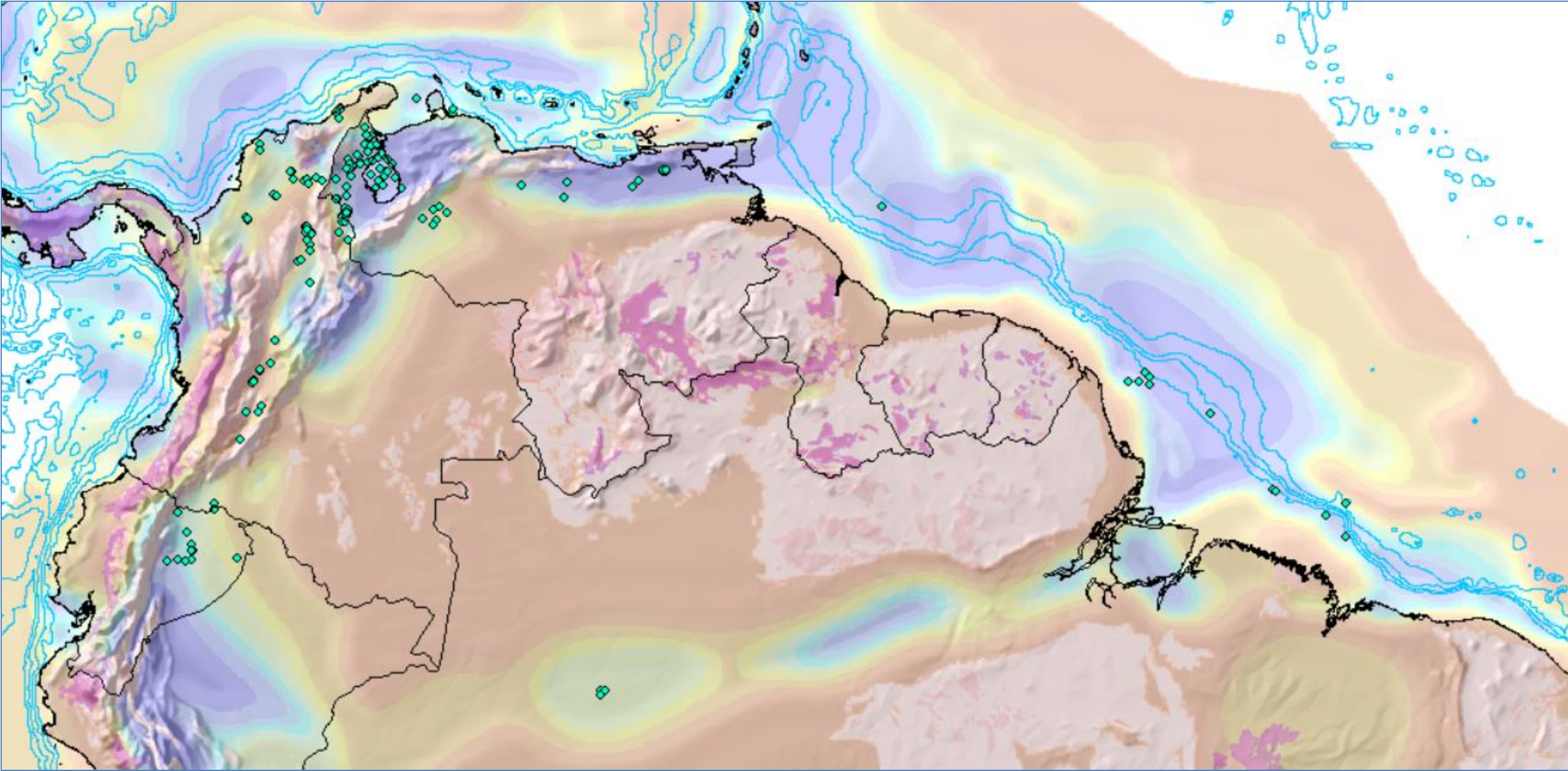


Benfield et al 2017

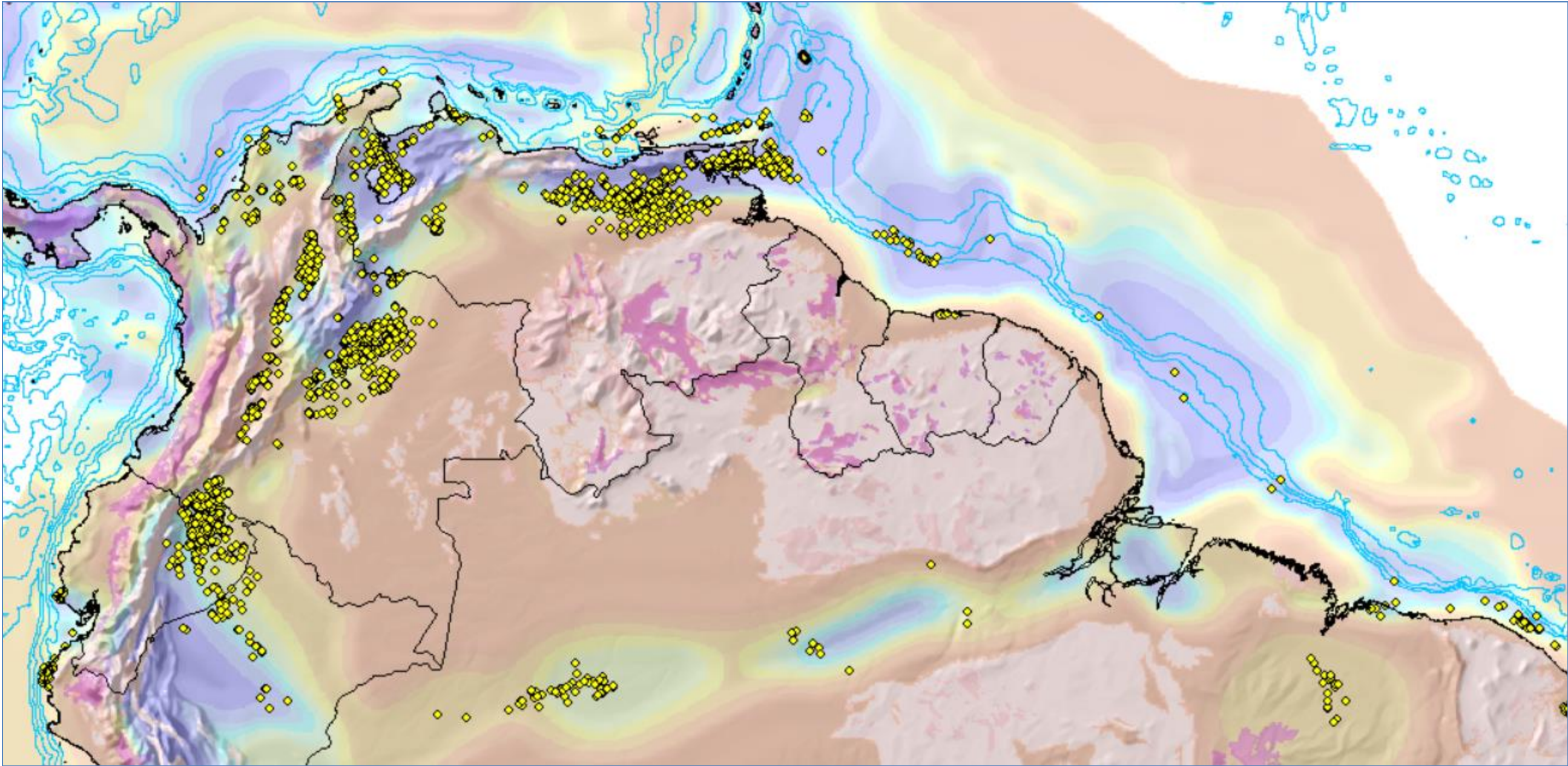


L Price et al 2021

Carbonate Reservoirs

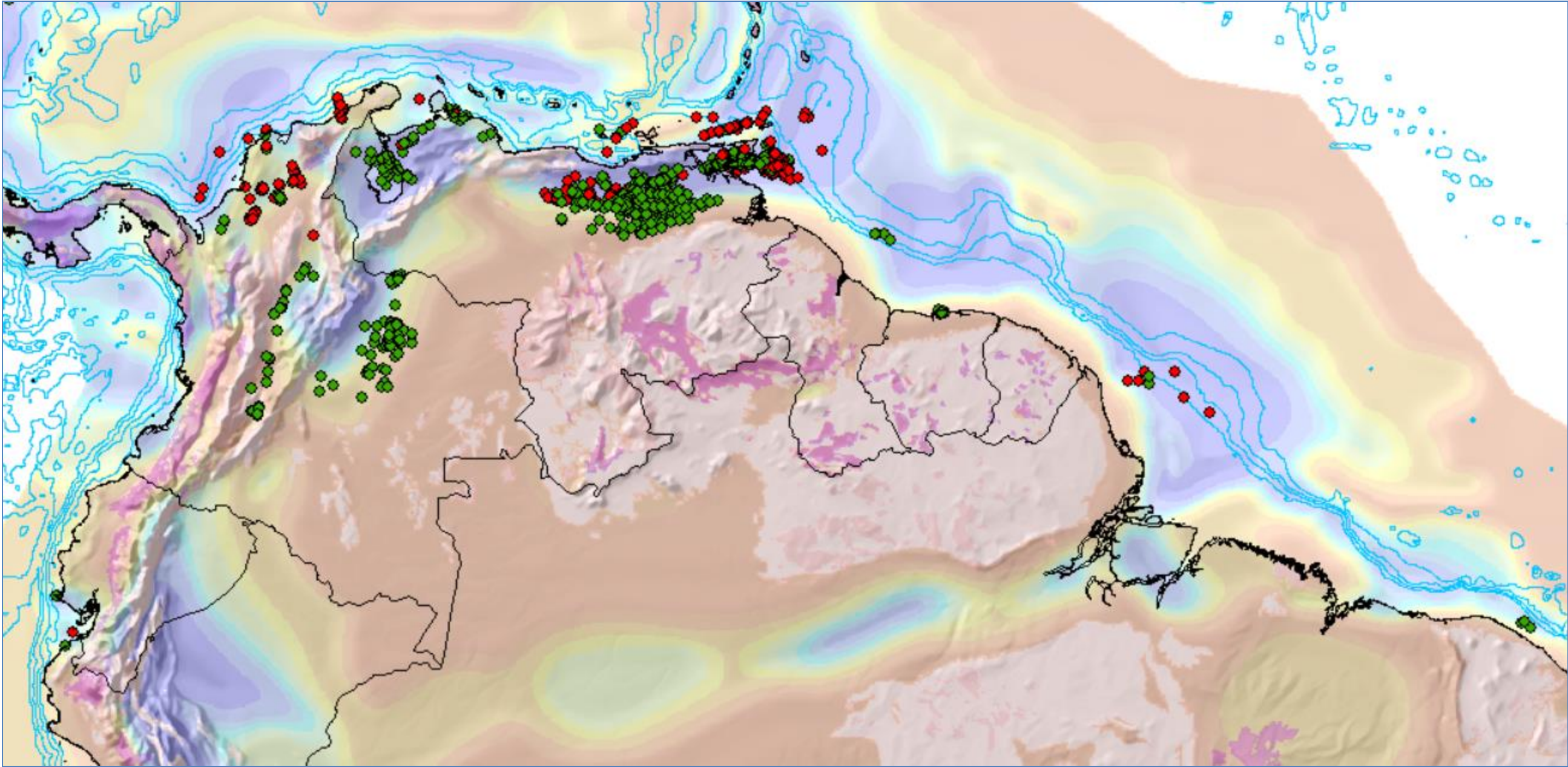


Silici Clastic Reservoirs



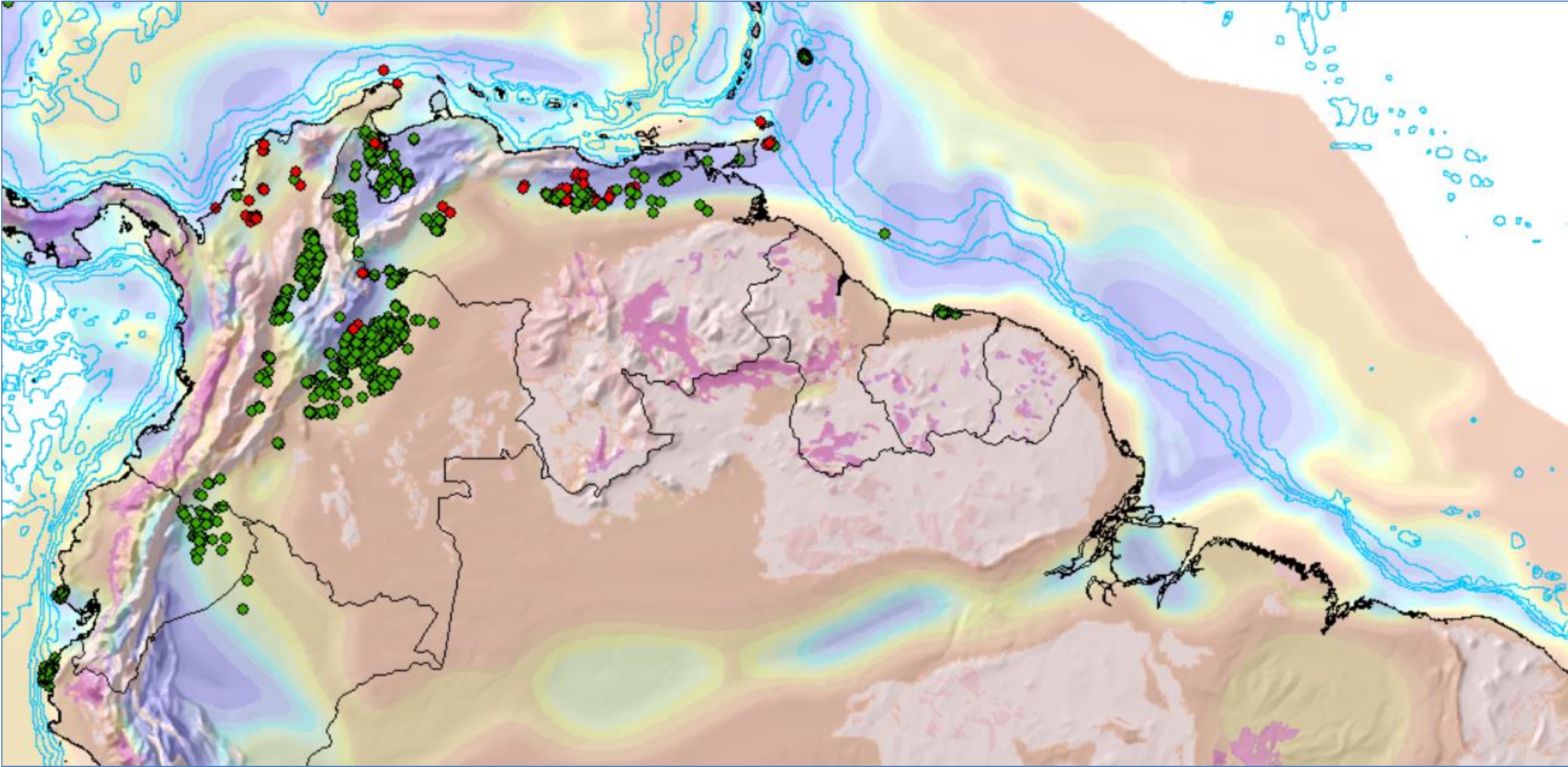
Neogene Reservoirs

Play extension Ideas ?



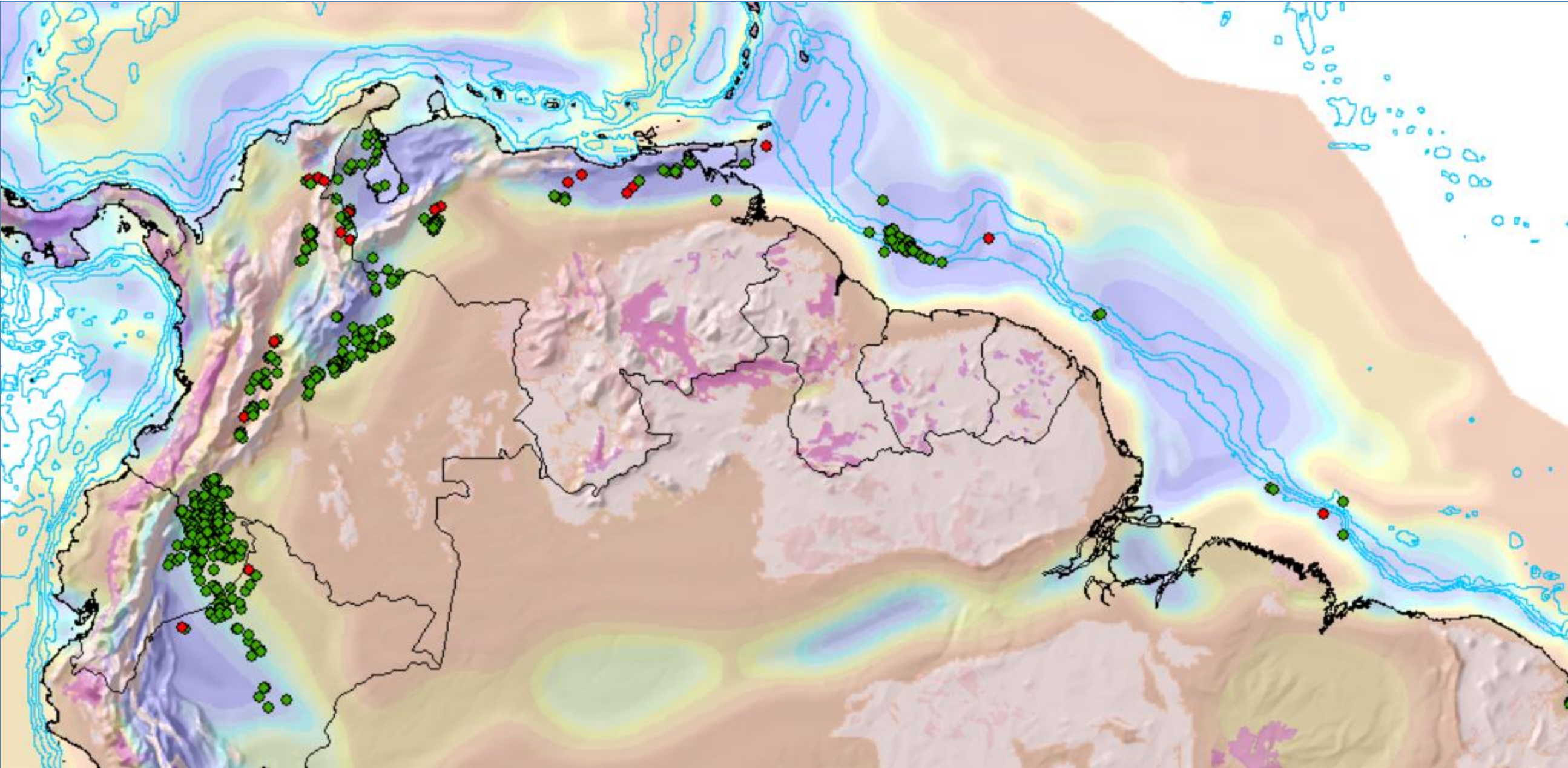
Paleogene Reservoirs

Play extension Ideas ?



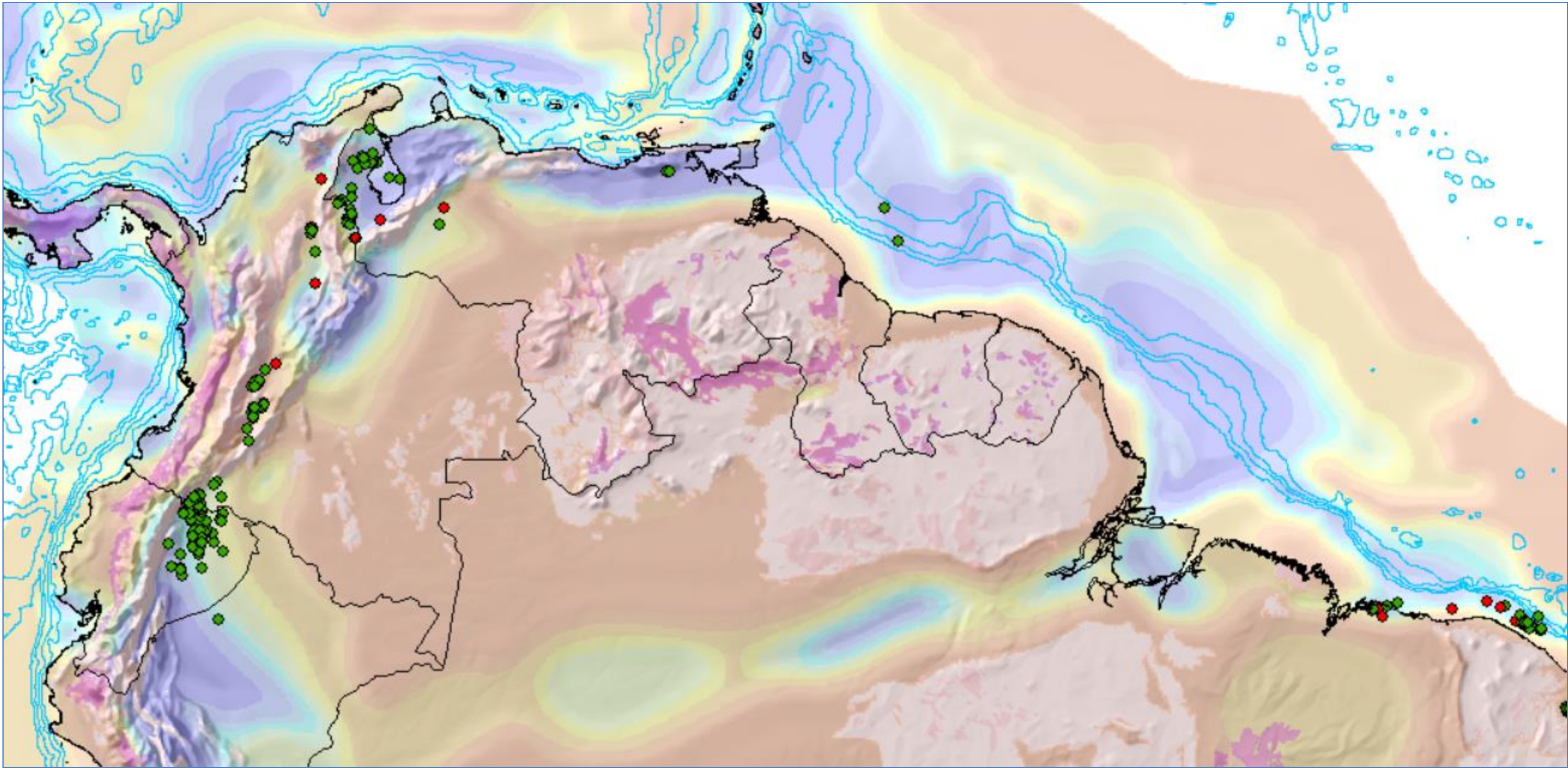
Upper Cretaceous Reservoirs

Play extension Ideas ?

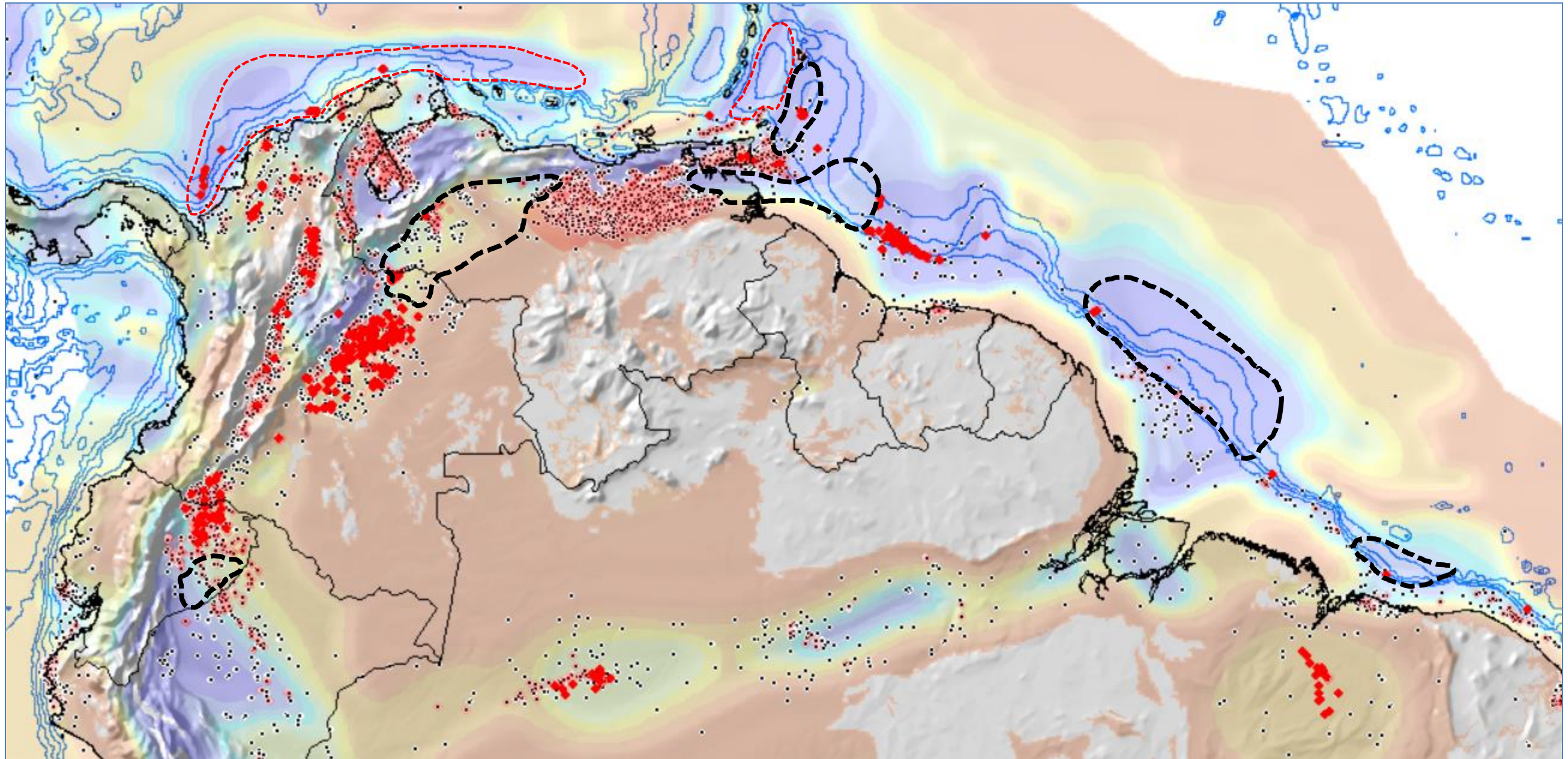


Lower Cretaceous Reservoirs

Play extension Ideas ?

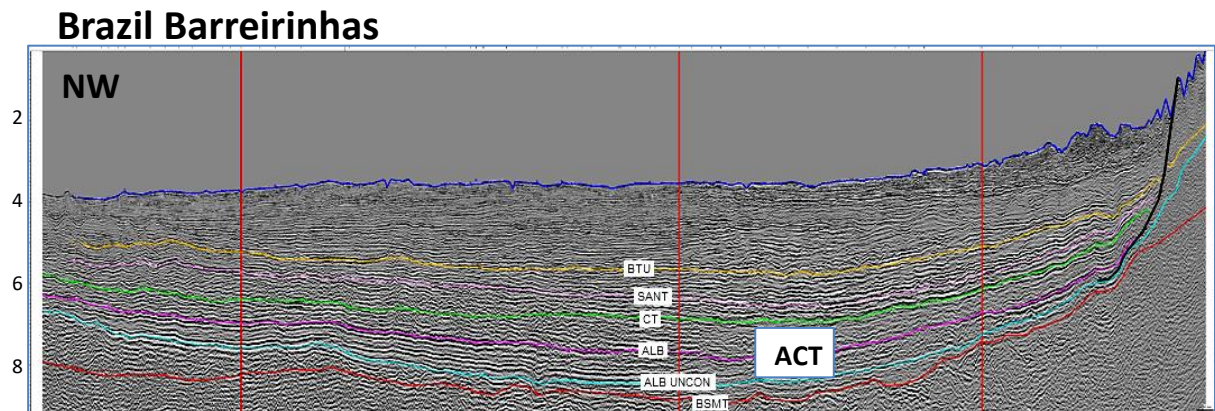
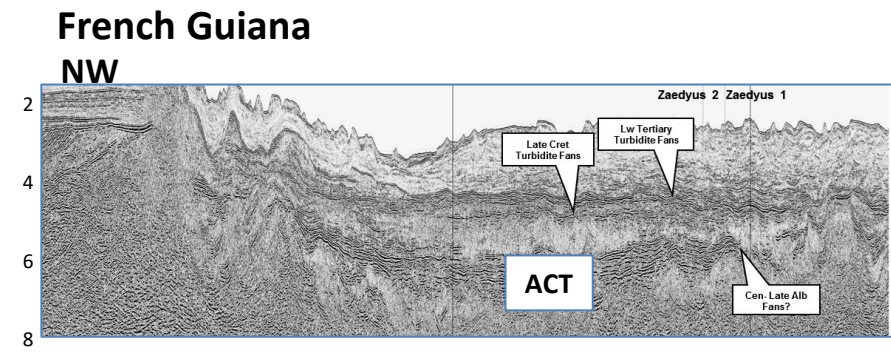
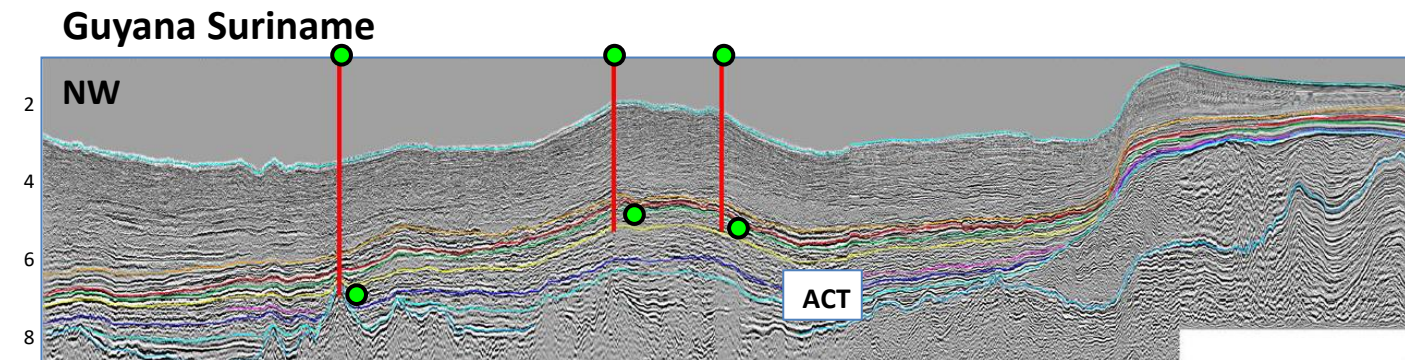
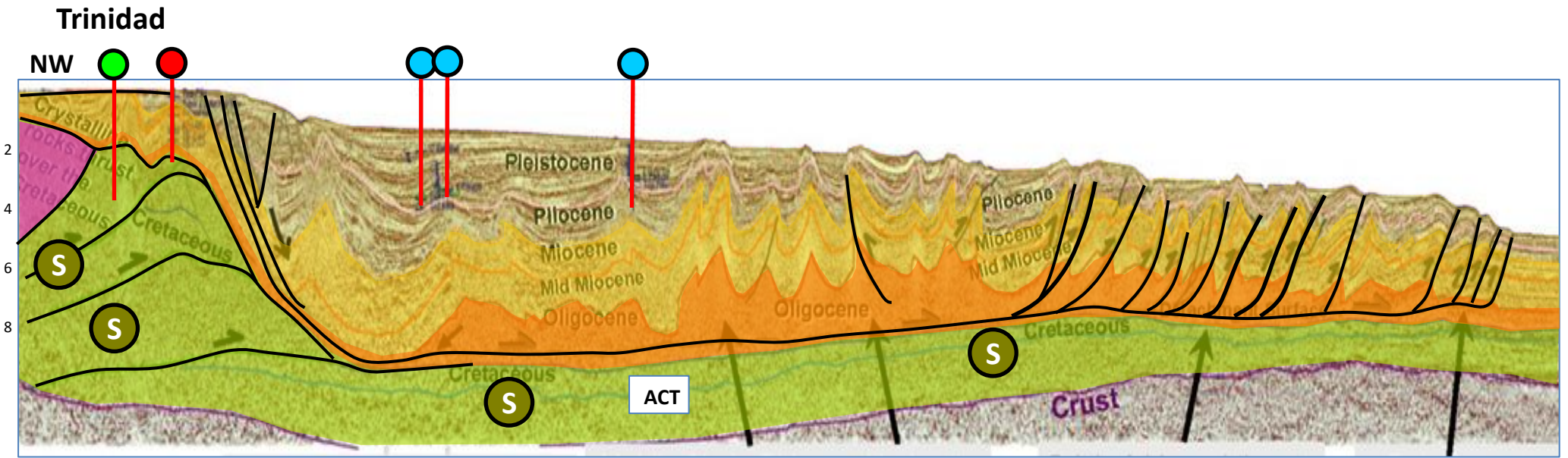


Potential areas to Check out if accesible?



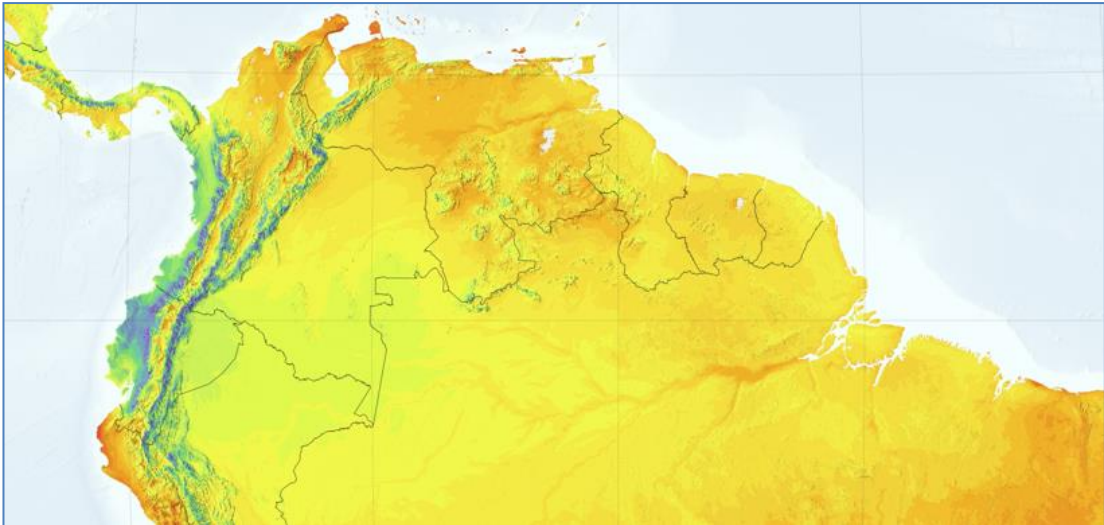
○ Potential ACT areas of Interest ○ Potential non ACT Gas areas of Interest ● 2011-2023 Disc ● Pre 2011 Disc

Some Interesting NW- SE Line Comparisons along the Atlantic Margin



Renewable Potential

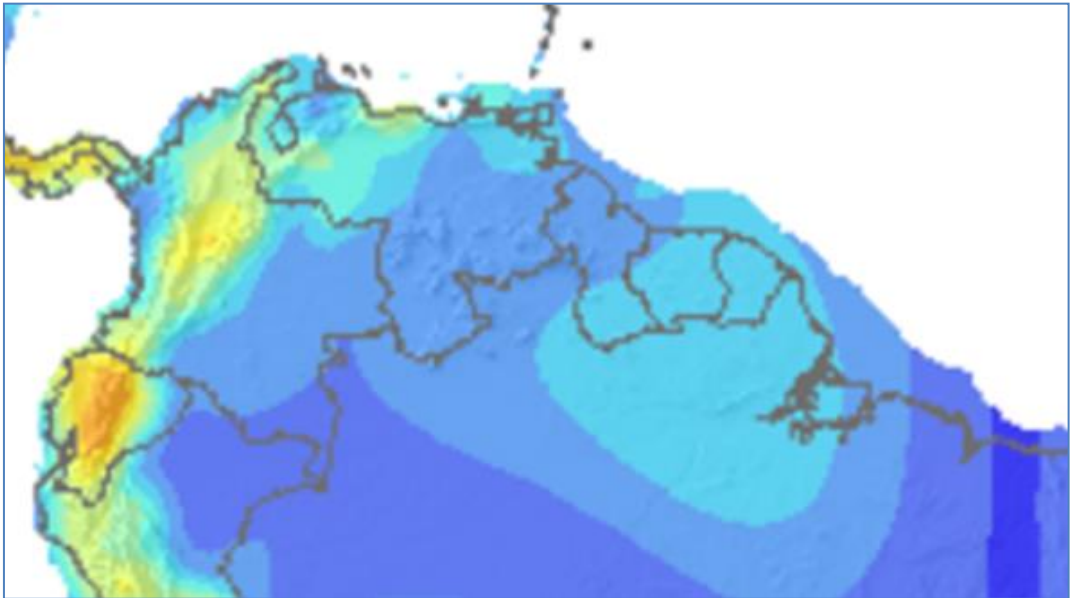
PHOTOVOLTAIC POWER PRODUCTION | SOUTH AMERICA | SOLARGIS



PVOUT: Long-term average of PV power potential, period 1999-2020
 Yearly totals: 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400
 Daily totals: 2.46 2.74 3.01 3.29 3.56 3.83 4.11 4.38 4.65 4.93 5.20 5.48 5.75 6.02 6.30 6.57 kWh/kWp

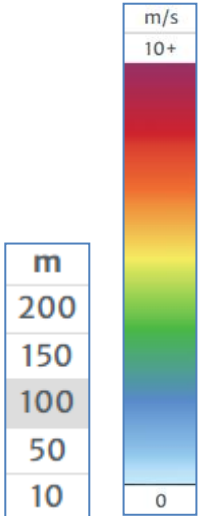
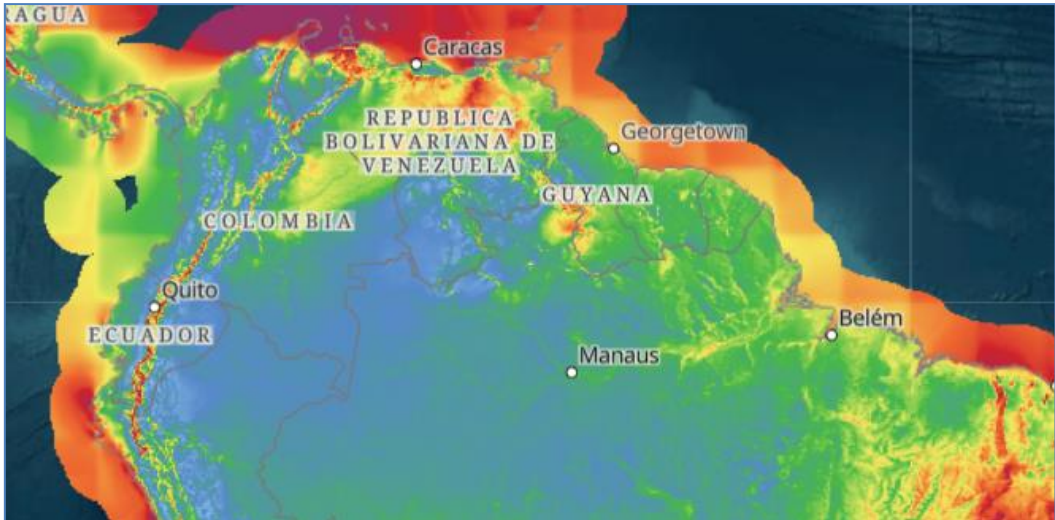
SolarGIS

Geothermal Suitability



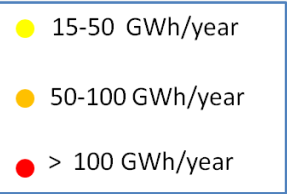
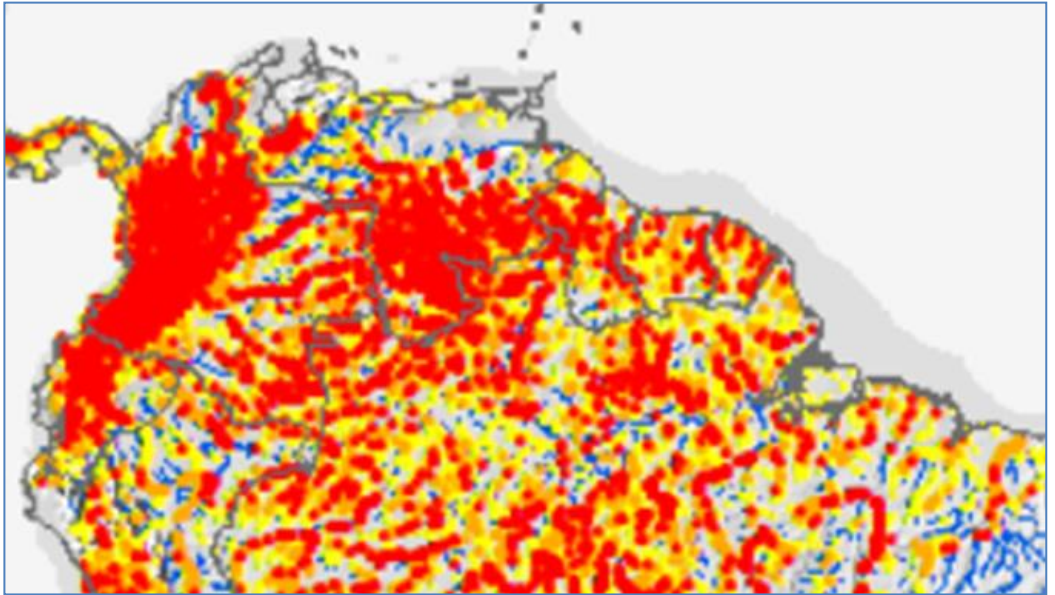
Coro and Trumpy 2020

GLOBAL WIND ATLAS
 GLOBAL SOLAR ATLAS | ENERGYDATA.INFO



Global Wind Atlas

Hydro Power Potential



TU Delft (Hydro Data)