Paleohydrology record of the stromatolites of the Bacalar Lagoon: new insight for climate change assessment in the Mexican Caribbean

Nidia Tobón Velázquez
Determine the changes in the composition and Bacalar Lagoon dynamic through the time

Analysis of **sedimentary record of the stromatolites** in order to know the changes in temperature and precipitation (climate change), and the groundwater contribution

Characterize the **present** physic-chemical conditions of the water related to stromatolites growth
Purple sulfur bacteria

Cyanobacteria

Sulfate reducing bacteria

CaCO₃

(Noffke y Awramik, 2013)
Region of interest: Bacalar Lagoon

40 km

5 CENOTES

Cocalitos
Esmeralda
Negro
Azul
Xul-Ha
pH 6.6 - 7.3
Average seawater: $\text{HCO}_3^-$: 140 mg/L

$\text{Cl}^- = 19370$ mg/L

$\text{SO}_4^{2-} = 2780$ mg/L
Water Type $\rightarrow$ Ca-$\text{SO}_4$

Oligotrophic

Homogeneous

High alkalinity $\rightarrow$ stromatolites

No seawater intrusion
- Trace Metals
- Fossil record of organisms (diatoms, ostracodes)
¡Thank you!

Nidia Tobón Velázquez

nidia.tobon@cicy.mx