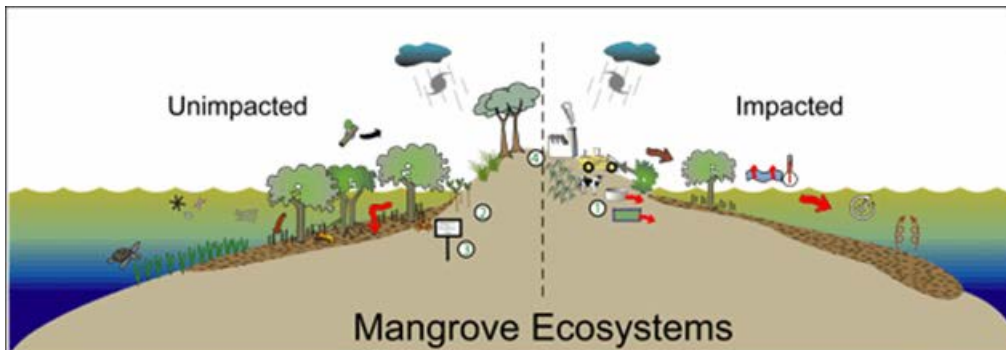


BLUE CARBON IN YUCATAN PENÍNSULA

Dr. Jorge A. Herrera Silveira



Blue Carbon Habitat Distribution Maps

CEC, G.Chmura, F.Short, D.Torio, 2014.

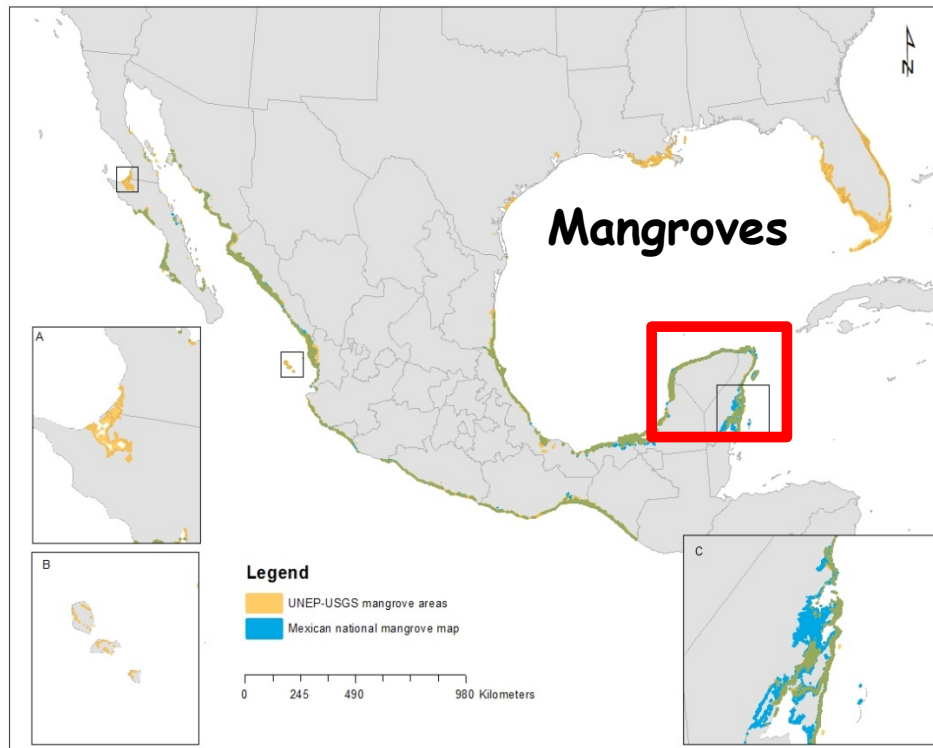


6-7 November 2014

Mexico:

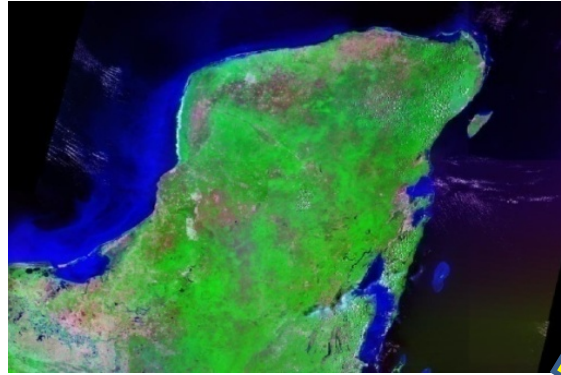
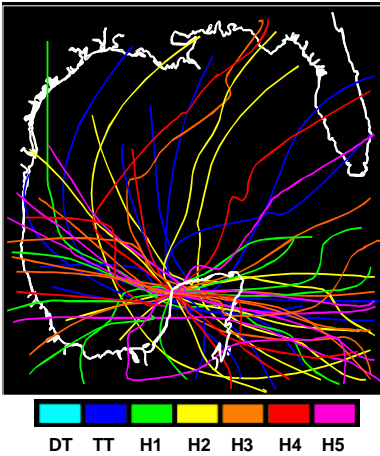
Mangroves: In Yucatan is the largest mangrove cover in the country (417,025 ha)

Seagrasses: Some reports suggest that it is also the area with the highest seagrasses cover (3,500 km²).

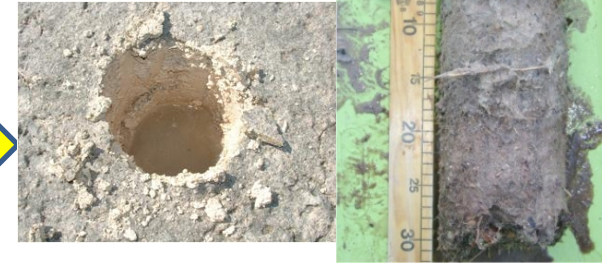


The Yucatan Peninsula has peculiarities in its environmental characteristics.

Hurricanes



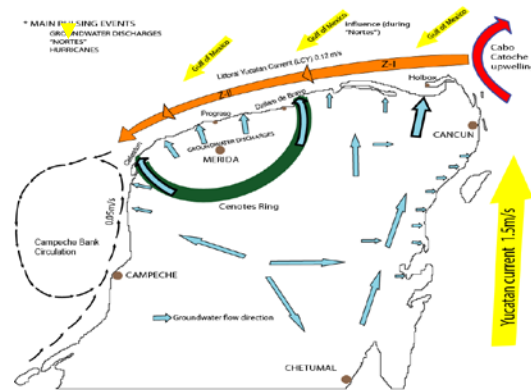
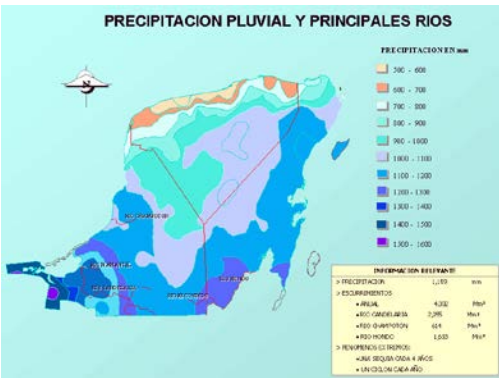
Karstic soil (P ↓)



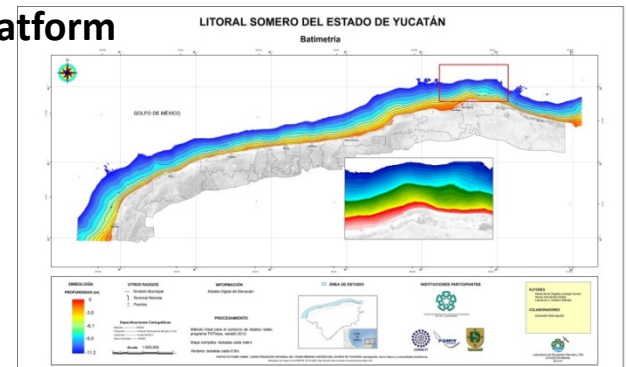
Shallow aquifer



Climatic gradient



Shallow marine environment, flat platform



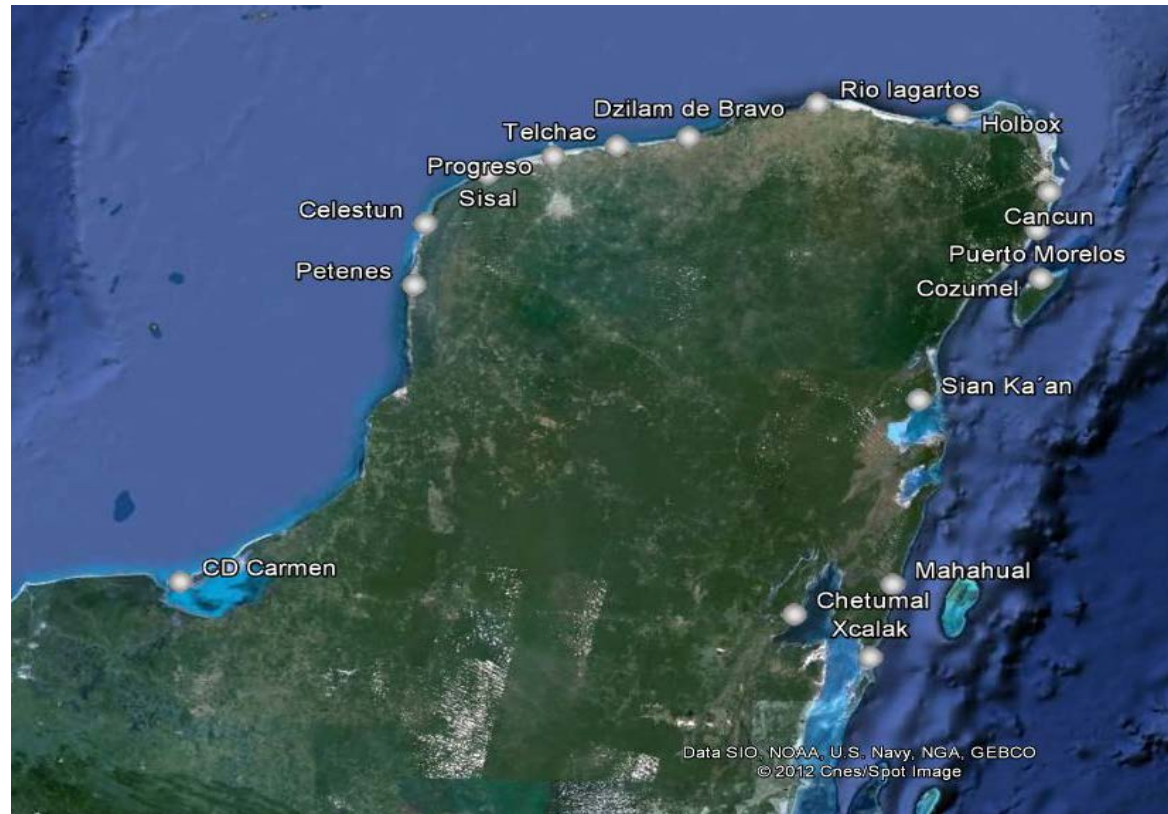
Groundwater and coastal current.
Land-coast "connectivity"

WHERE IS THE DATA AND INFORMATION GENERATING?

MANGROVES: 72 plots of long-term monitoring; 600 plots of rapid assessment, and will continue to do more.

SEAGRASSES: Hundreds of Braun-Blanquet transects and sampling points biomass. Very few of sediments.

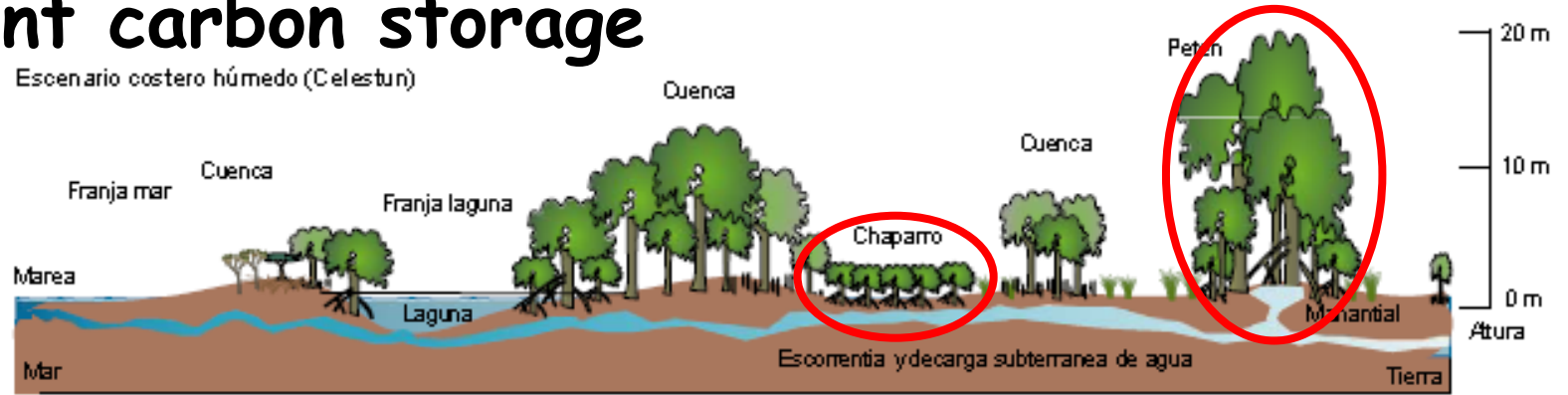
- Both covering**
- environmental gradients
 - human impacts
 - natural impacts



Different mangrove types

II

Different carbon storage

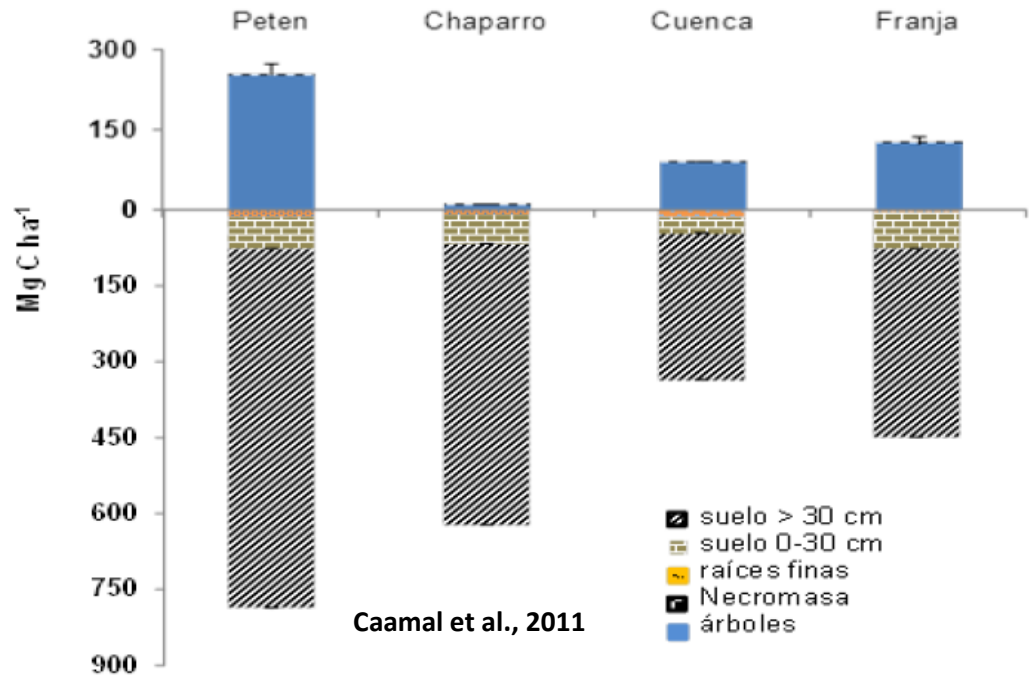


-400-1400 Mg C ha⁻¹

-Other forest

II

400 Mg C ha⁻¹

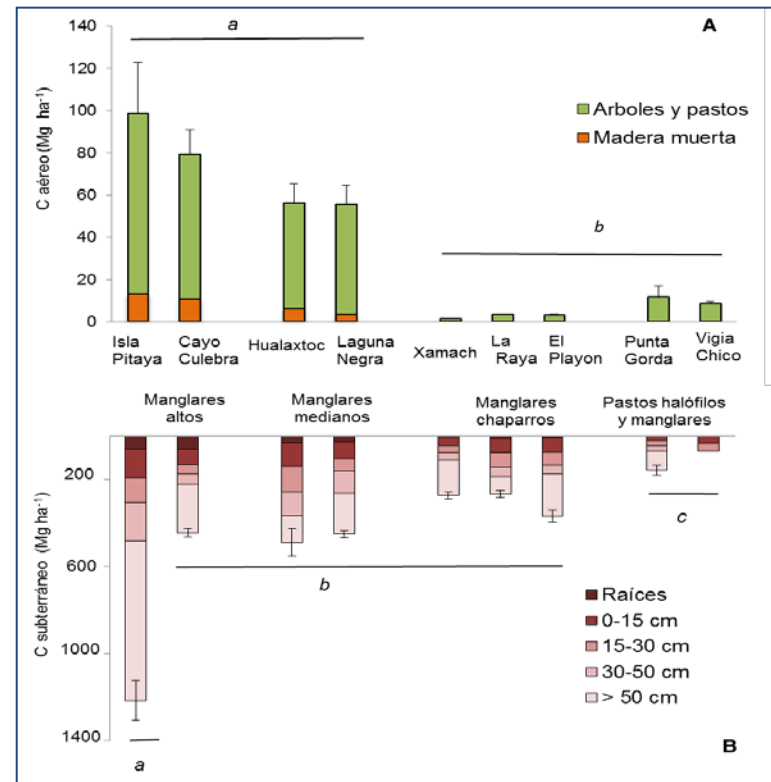
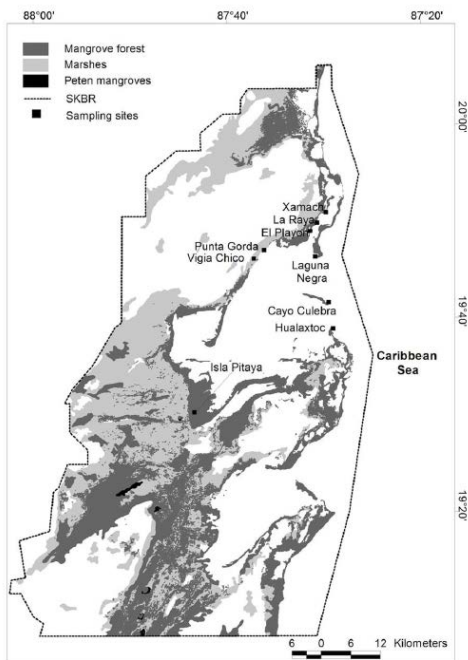


Peten > Dwarf > Fringe > Basin

Carbon Stocks of Tropical Coastal Wetlands within the Karstic Landscape of the Mexican Caribbean

Maria Fernanda Adame^{1,2*}, J. Boone Kauffman^{3,4}, Israel Medina¹, Julieta N. Gamboa¹, Olmo Torres⁵, Juan P. Caamal¹, Miriam Reza⁶, Jorge A. Herrera-Silveira¹

Sian Ka'an Biosphere Reserve (SKBR)



- Huge amounts of carbon stored in a small area of Mexico's coastline.
- SKBR comprises 0.09% of land coverage of the entire country of Mexico,
- Store 18.7 million Mg CO₂e.
- The equivalent of almost half of Mexico's carbon emissions from 2009.

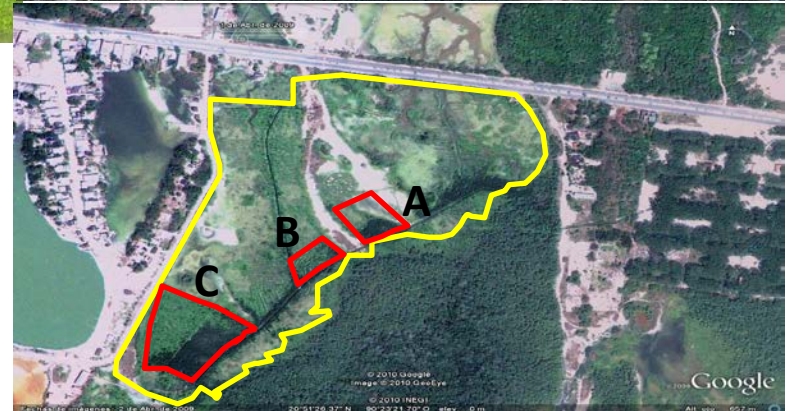
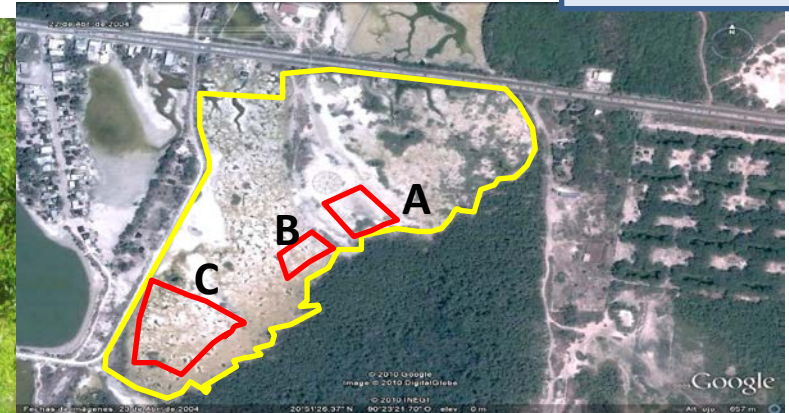
Mangrove restoration and climate adaptation



Febrero-2008



6 -Julio-2011

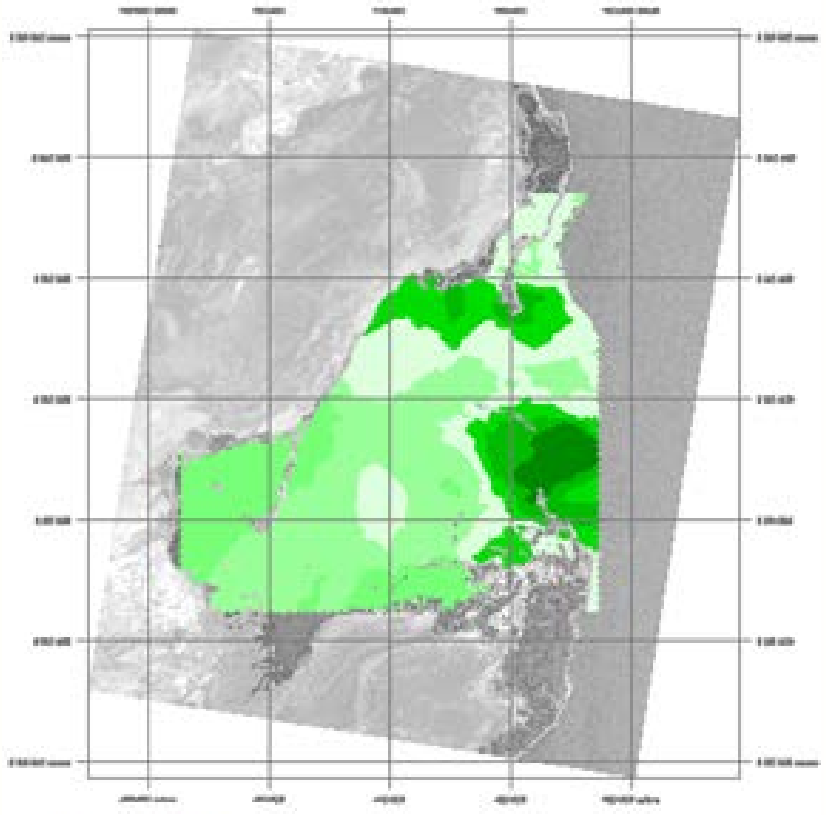


Carbon sequestration in forests that are growing:

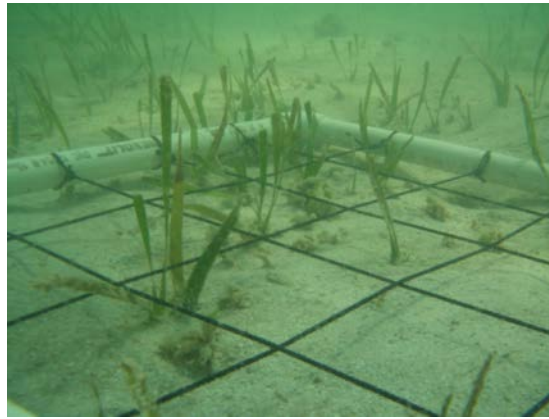
Terrestrial (pinus) = 0.3-4 MgC /ha/y
Mangrove restored = 1-7 MgC/ha/y

Seagrasses Assessment: Lagoons

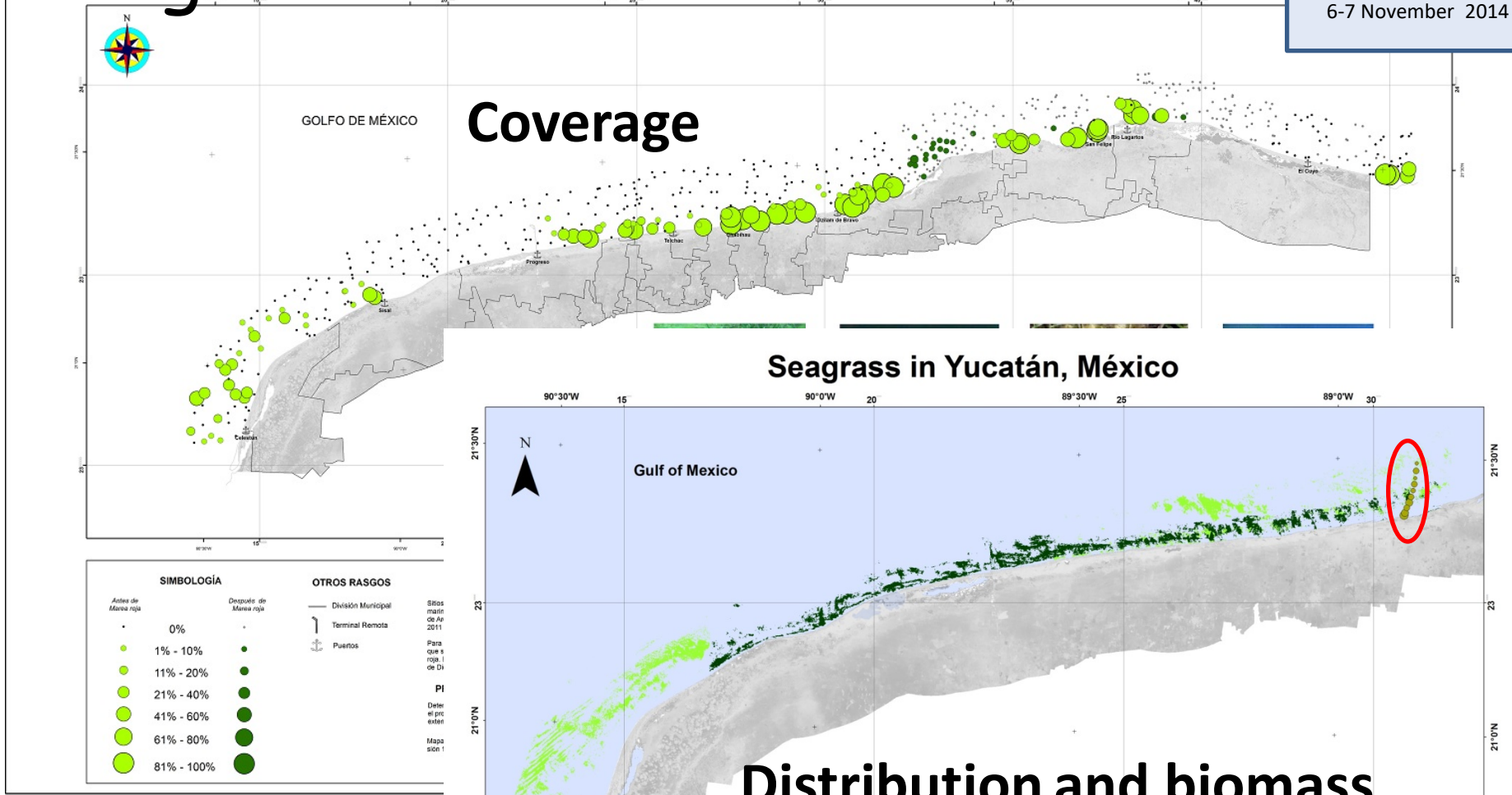
Biomasa de *Thalassia testudinum*
(grPS/m²)



Aboveground biomass
from 120 to 2500 g dw/m²

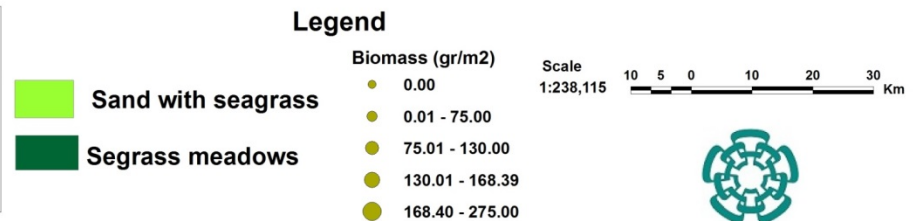
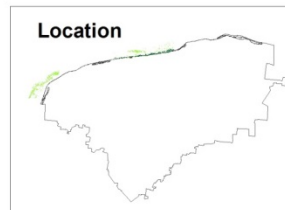


Seagrasses assessments: coast



Liceaga et al., 2013

Aboveground biomass
from 75 to 275 g dw/m²



Final Remarks:

- The Yucatan Peninsula is an important region for Blue Carbon assessments.
- There are more uncertainties in seagrass than mangroves (More data points than plots or polygons)
- Peten and dwarf mangroves type show the highest carbon stores
- Seagrasses beds located in coastal lagoons and bays stores more carbon per unit area than those in marine areas.
- In both cases it is likely that hydrological conditions (hydroperiod in mangroves and water movements in seagrasses beds) are determining their carbon storage potential.
- According to actual diagnosis, conservation and restoration are some of the main actions for the mitigation and adaptations of the America's coasts under the climate change context.

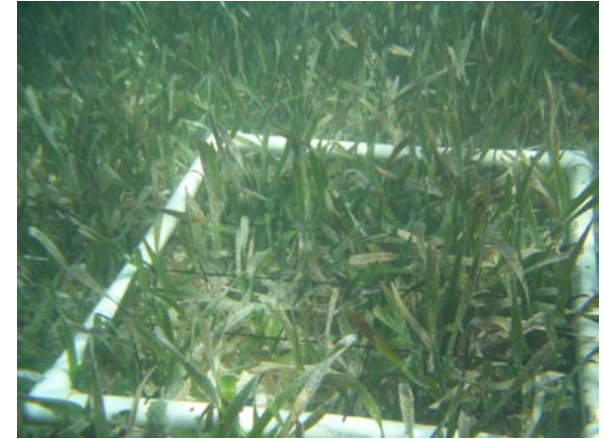


6-7 November 2014

THANK YOU

Questions and Complaints

jherrera@mda.cinvestav.mx



WORK TEAM.

Jorge Herrera, Claudia Teutli, Francisco Comín, Arturo Zaldívar, Juan Caamal, Sara Morales, Leonardo Arellano, Teresa Andueza, Johnny Valdez, Javier Ramírez, Octavio Cortes, Laura Carrillo, Eunice Pech, Cristian Kantum, Julieta Gamboa, Fernanda Adame, Israel Medina, Ma. De Los Angeles Liceaga, Héctor Nuñez.