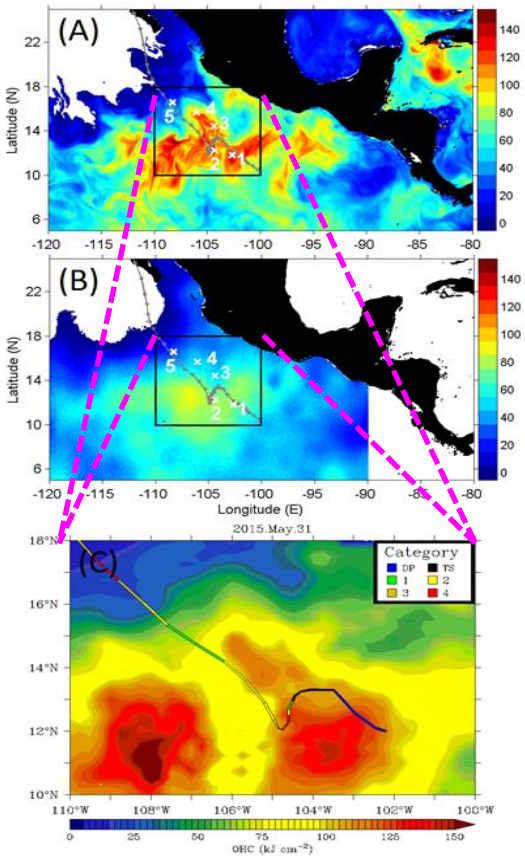
validations needed

Example for Hurricane Blanca (2015)

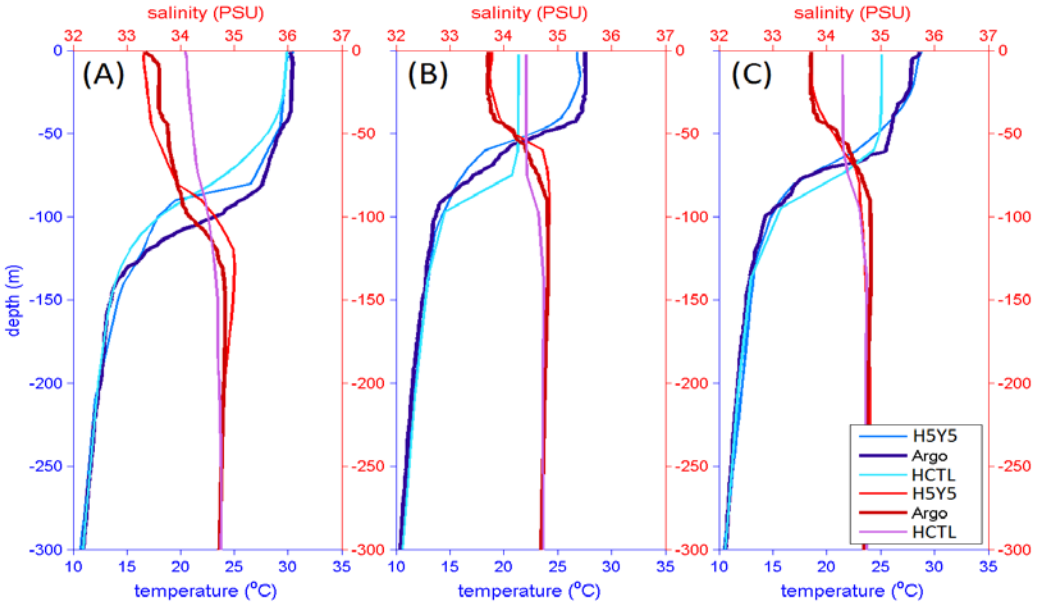
Example 1:

Pre-storm OHC for HYCOM (A), POM (B) and satellite product (C)



Example 2:

T/S profiles for pre- (A), in- (B) and post-storm (C)



Temperature (°C)	Salinity (PSU)
HYCOM	HYCOM
Argo	Argo
POM	POM

Observations are needed in order to improve physics and model skill

1. Initial Conditions

1) current

a) SST

b) Mixed layer – depth and T/S

c) Mesoscale features – cold/warm core, eddies, thermal fronts

2) future

waves – surface and internal waves

freshwater in the surface layer – river and precipitation

2. Forecasts

a) Air-sea interaction processes associated with the SL and PBL physics in the atmos; and SL and ML physics in the ocean.

- *SST feedback – convection*
- *Momentum feedback - Winds-currents, and Waves-currents*
- *Heat flux feedback – sea spray*

b) Ocean mixing processes

Improve mixing physics by having better representation of processes due to hurricane winds, *surface waves, internal waves*, shear instability, double diffusion and freshwater input.