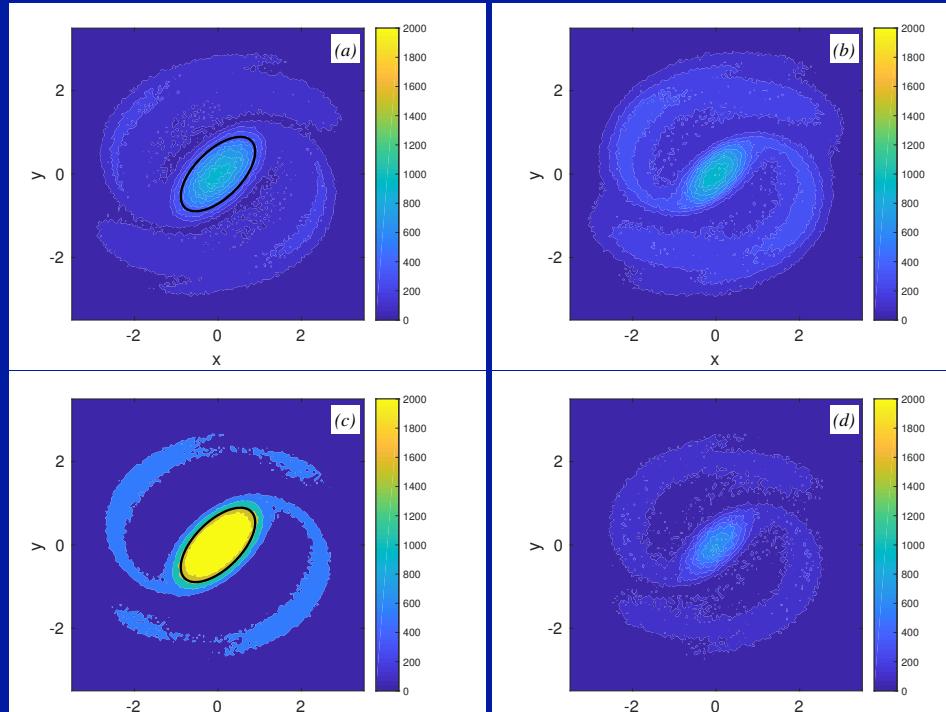


Some Ocean/
Atmosphere Modeling effort
related to EUREC4-OA

Idealized numerical simulations (X. Carton, LOPS, France)

Idealized models (process studies) for vortex-vortex, vortex-river plume, vortex-coastal current interactions, and vortex-atmosphere exchanges

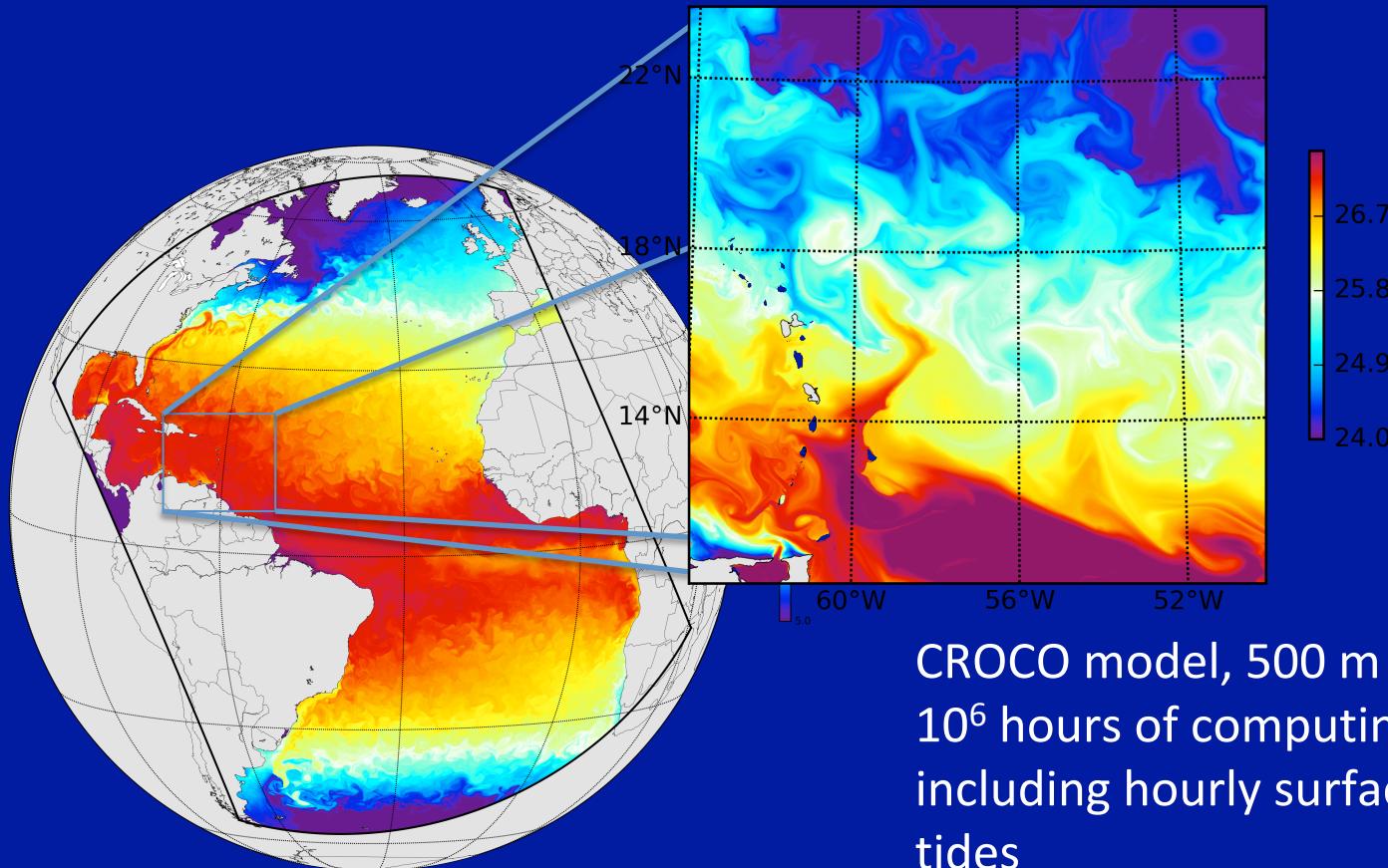


Assessing (sub)mesoscale interactions and processes:

- Vortex/eddy, filaments and fronts structure and evolution
- Eddy interactions with neighboring currents, fronts or plumes
- Fine-scale structure of ocean-atmosphere exchanges above eddies

High Resolution Atlantic Ocean

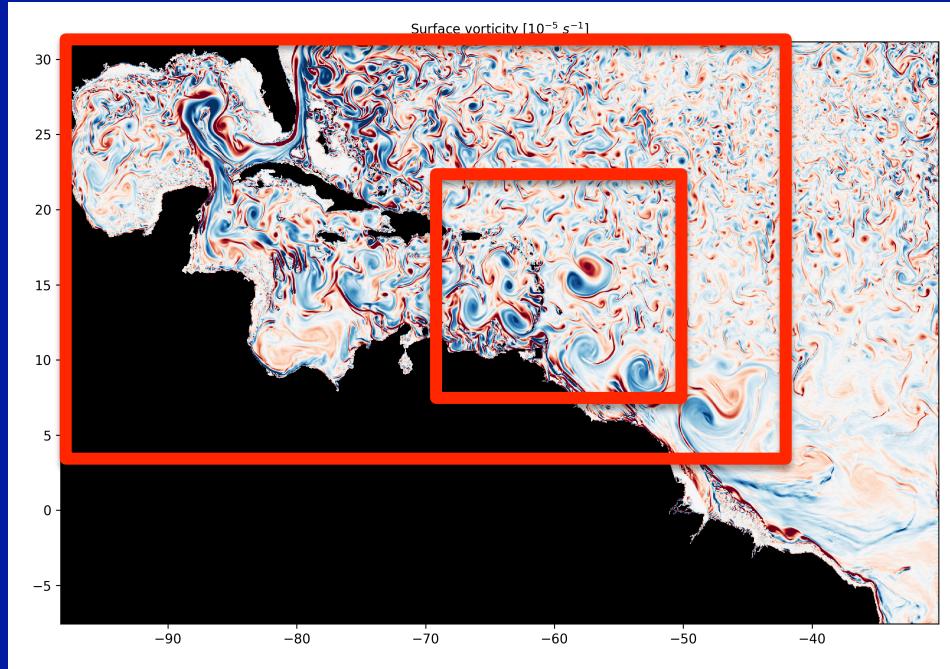
(J. Gula, LOPS, France)



CROCO model, 500 m resolution (20
 10^6 hours of computing time)
including hourly surface forcings and
tides

Assessing ocean scales interactions, energetic budget, ocean BL and
transport of properties mechanisms

Sub/Mesoscale air-sea interactions in the Intra-America Sea (L. Renault and J. Jouanno, LEGOS, J.C. McWilliams, UCLA)



Analysis of ocean-atmosphere simulations that consider different degrees of coupling

Understand role of Thermal and Mechanical Feedbacks in the determination of the dynamic of this region : transport, seasonal variability, eddy properties

Target resolution of the coupled configuration

- Ocean at 1/24 (NEMO; already running), ROMS-CROCO (500m, if proposal is funded)
- Atmosphere at 1/12 and 2km (WRF)
- Waves at 1/12 (WW3)

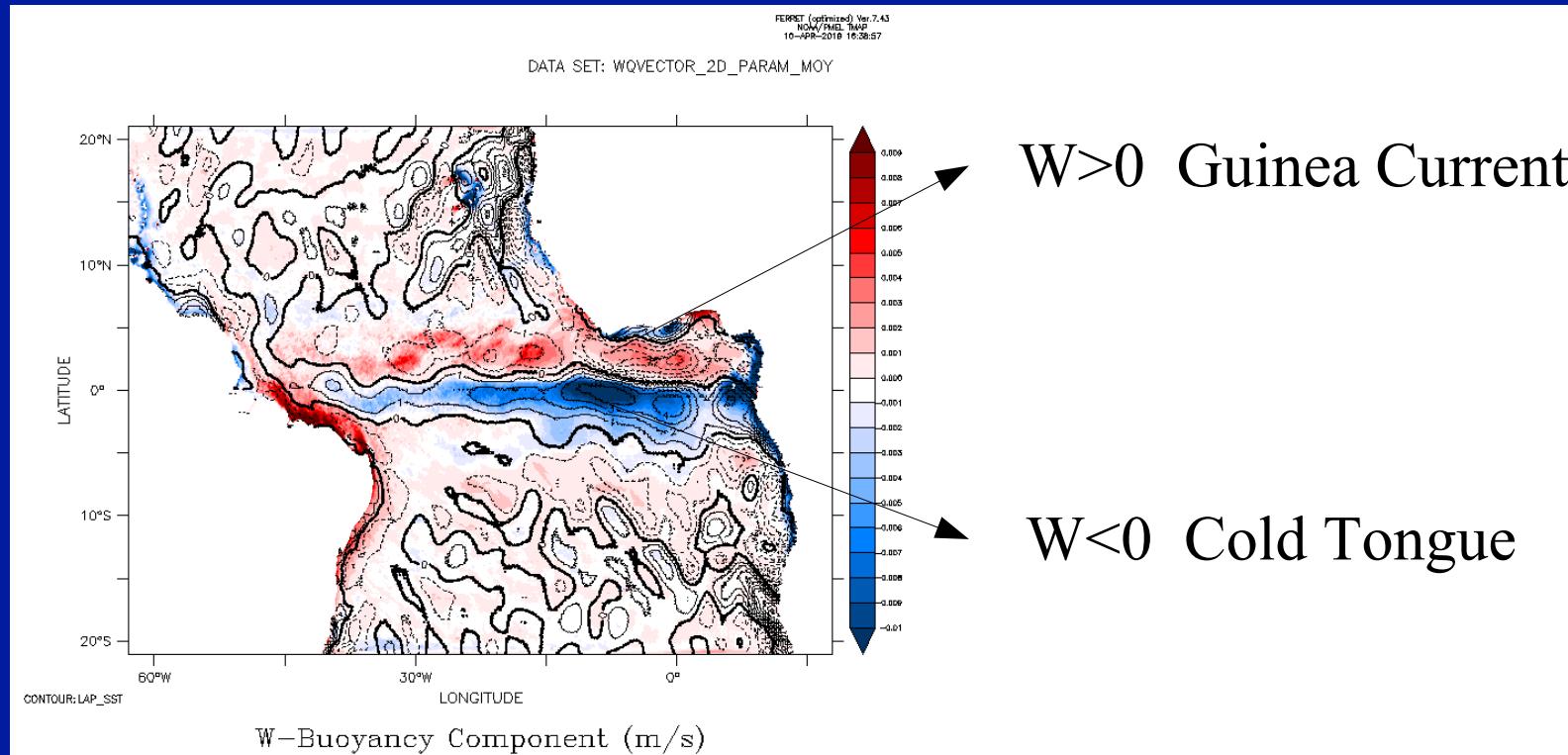
Atmospheric LES coupled to ocean regional model studies

(H. Giordani, MeteoFrance, France)

High Res. Forced & coupled realistic
O-A studies

General interest:
How does SST control vertical motions in the
Atmospheric and Oceanic Boundary
Layers (Link Diabatic Fluxes and Vertical
Velocity)?

Regional modelling with AROME and Meso-NH models or Global modelling with the stretched ARPEGE model Coupled OA simulations with NEMO



A & O LES process studies (J.L. Redelsperger, LOPS, France)

Forced & coupled Realistic coupled O-A(-W)
studies at 100m resolution

General interest:

Interaction of the A & O Boundary Layers at very
fine scale (1m → 1000m) *incl* SST gradient/front
region

Coupled Ocean & Atmosphere LES !!

Ocean LES version of atmospheric Meso-NH has been developped including grid nesting, on line budget, Open/Periodic LBC, ..

