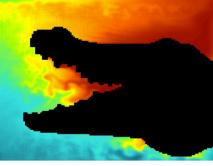
CROCO – training 2022



Introduction to ocean models



Ocean models









Beach, lagoon, estuary

Coast, continental shelf, regional

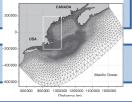
Offshore, ocean

Finite elements

Coherens, Telemac ...

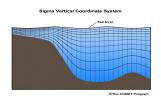
Finite Volumes

FVCOM, MIKE3, MOHID...



MITgcm

Finite Differences



Sigmas coordinates MARS3D, CROCO, ...



Finite Differences

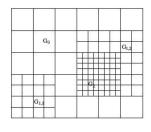
Z coordinates

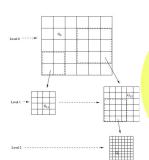
Isopycnal or hybrid coordinates HYCOM

NEMO, ...

Choice of an ocean model

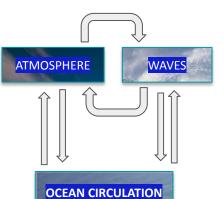






Zoom? (Agrif : Adaptative Grid Refinement In Fortran)

Modules? (Biology, Sediments, ...)



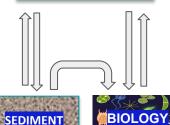


Interest

Community (France, USA, ...)

Available computing resources

Coupling available? (atmosphere, waves, ...)









How does it work?



Préprocessing

- Bathymetry
- Initial condition
- Boundary conditions
- Forcing (atmosphere, wave, rivers...)

- Parameters ...



Hydrodynamic model

Equations
3D Navier Stokes
2D Saint Venant

Option : Coupled model

Compilation (ifort, gfortran)
Execution

OUTPUTS

Confrontation to in-situ data, calibration, validation

Post processing

(python, matlab ...)

What about CROCO?





Coastal and Regional Ocean COmmunity model