

Conceptualization of Sediment Transfers Between Macrotidal Estuaries and Coastal Seas

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AGU FALL
MEETING

Ifremer – DYNECO/DHYSED + EPOC

SCIENCE
is SOCIETY





CONTEXT

Sediment fluxes along the land-sea continuum

- Changes of estuary morphology and associated habitats
- Transfers of nutrients and pollutants

OBJECTIVES

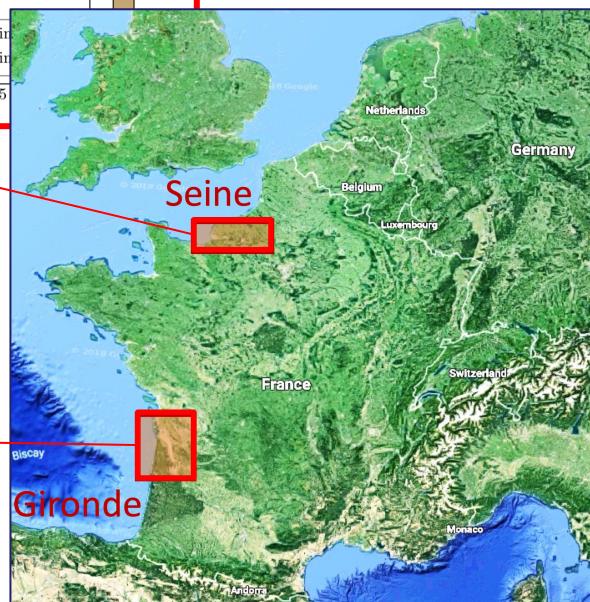
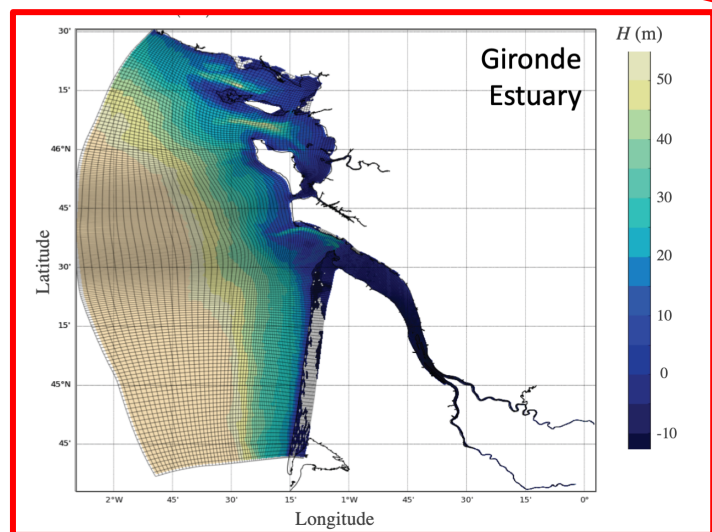
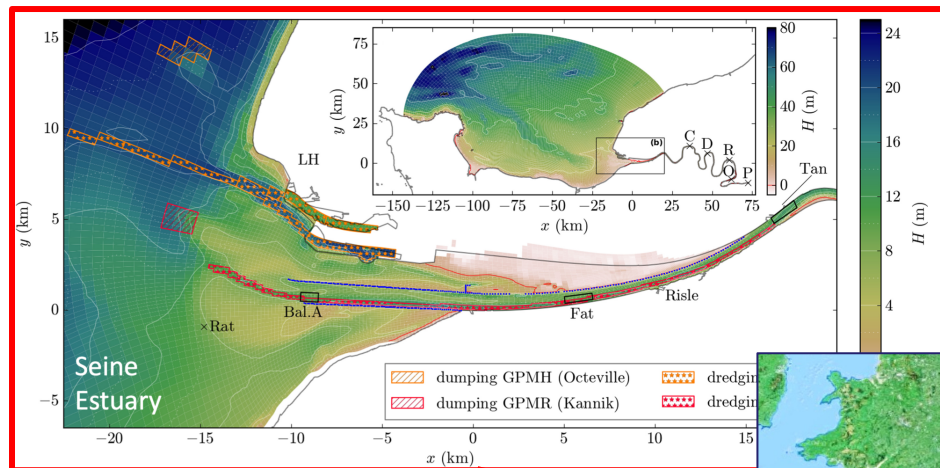
Unravelling the responses of estuarine sediment fluxes (mud + sand)

- To meteorological conditions (river discharge + waves)
- To anthropogenic pressures (deepening + narrowing)
- For different estuaries (beyond site-specific analyses)





NUMERICAL MODELING OF MACROTIDAL ESTUARIES



Wave Watch III[®]
(waves)

+

MARS3D-curvilinear
(hydrodynamics)

+

MUSTANG
(sediment)

eros./depos., consolidation, flocculation,
multi-layer, multi-class (mud+sand+gravel)



SEDIMENT FLUX CONCEPT

- Wave events
→ Mud export to the sea
- Moderate to large river flows
→ Mud import within the estuary
- Estuary deepening and narrowing
→ Mud import within the estuary

