Object - Context

— Deploying an operational hydrodynamic model suitable to represent the local dynamic of the coastal region from Pasaia to Donosti
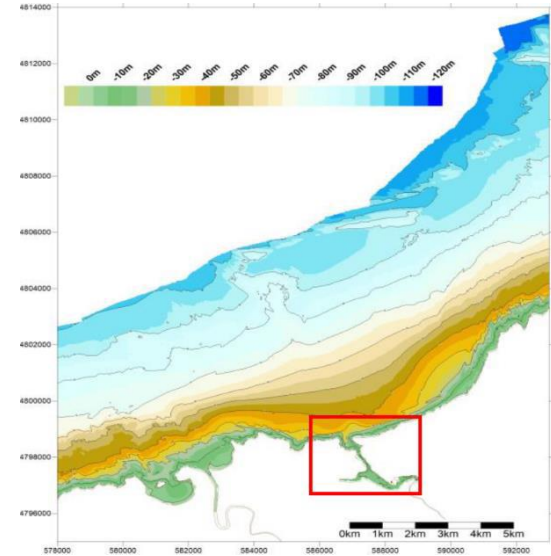
Development of the hydrodynamic model

___

○ **Computation code : MOHID Water**

• Open source & free code

• Hydrostatic, Boussinesq, finite volumes

• Parallelised computation and modular structure

• Many applications and references at coastal scale

• Importante community of users around the world

• For 15 years, Rivages Pro Tech has been among the active members of the user's community and co-developers of the code

http://www.mohid.com/

Development of the hydrodynamic model
Computation domains : MOHID 3D

⇛ **DOWNSCALLING APPROACH**

- 4 nested computation grids with structured mesh (rectangulars)

- Spatial resolution from 2.2km (G0 grid) to 100m (G3 grid)

- Adaptive vertical layers number and thickness (from 500 m to 1 m) to adjust to targeted processes scale when approaching the shoreline

| Mohid – G0 domain | Mohid – G1 domain | Mohid – G2 domain | Mohid – G3 domain |
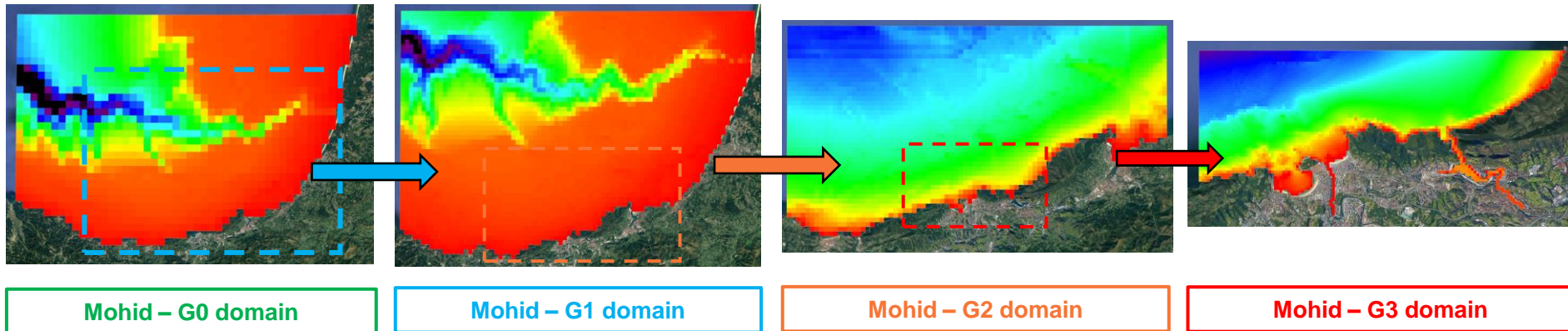
Development of the hydrodynamic model
Input data

First simulation to develop the model from 12/09/2022 to 22/09/2022

- Bathymetry:
  - SHOM data (res 100m) + AZTI data (res 5m)
- Offshore forcing :
  - CMEMS IBI PHY
- Atmospheric :
  - Wind : Météo France Arome model
- Hydrology :
  - Local river flow timeseries (Adour, Bidassoa, Deba, Orio, Urola & Urumea)

Produit MNT bathymétrique de façade Golfe du Lion – Côte d'Azur (source SHOM)

Produit Litto3D Alpes-Maritimes (source SHOM))

suez rivages

Development of the hydrodynamic model
Results G2 & G3 grids

Vitesse (m/s) et direction du courant - 17/09/2022 04:00