Laboratoire de Morphodynamique Continentale et Côtière
UMR CNRS 6143 M2C

How can SWOT Observations improve Coastal and Estuarine Dynamics: from English Channel to Seine bay ?

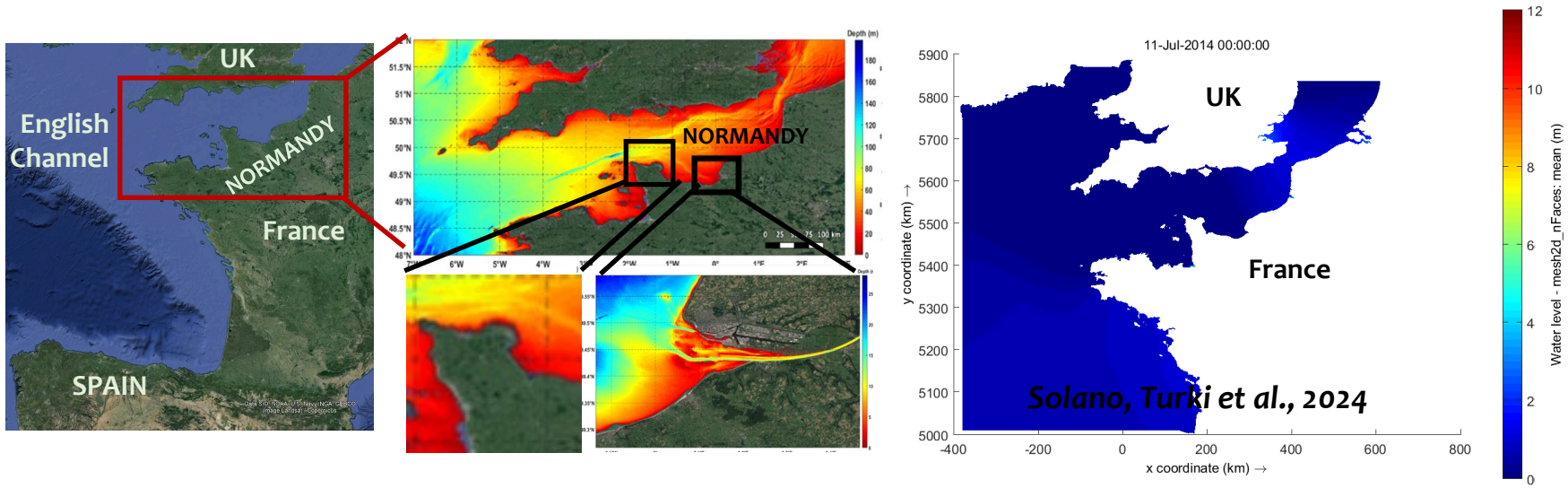
SURFACE WATER & OCEAN TOPOGRAPHY

Framework Tosca Programs : SWOT3MC - SWOT4COST

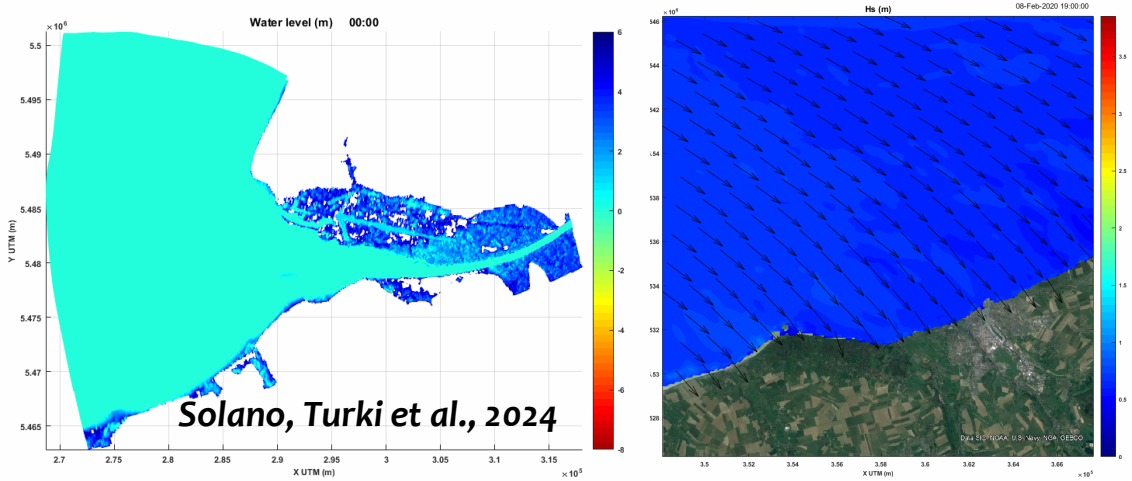
✓ **Contribution of SWOT for:**

1. Monitoring hydro-morphodynamics.
2. Enhancing the numerical modelling for estimating changes in regional-local scales.
3. Investigating the tidal wave deformation in interaction with river flow in estuaries

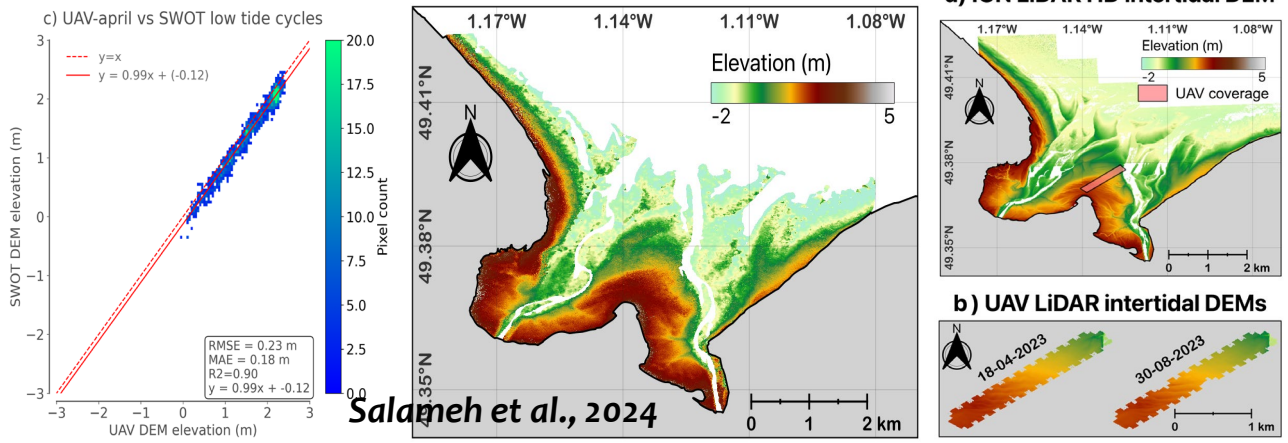
✓ **Development of Combining approaches: Multi-sensors – Models – AI - Statistical methods**

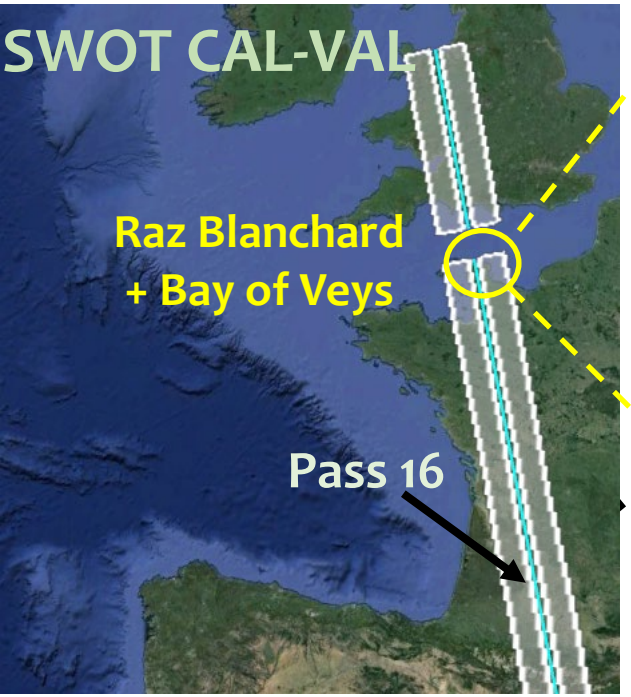


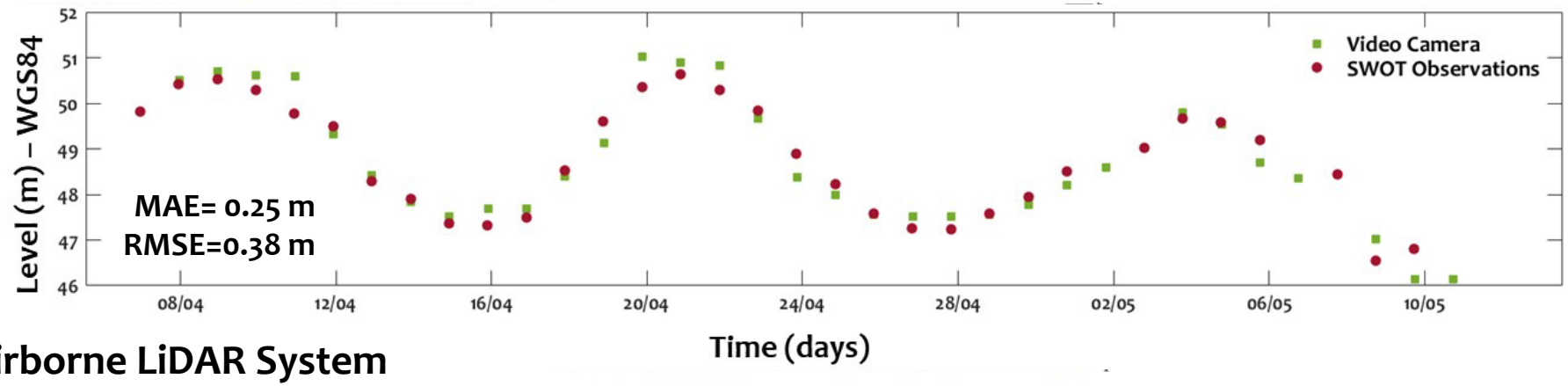
Coastal Flooding: Seine Estuary + Normandy Coasts : phase and depth-resolved Modelling



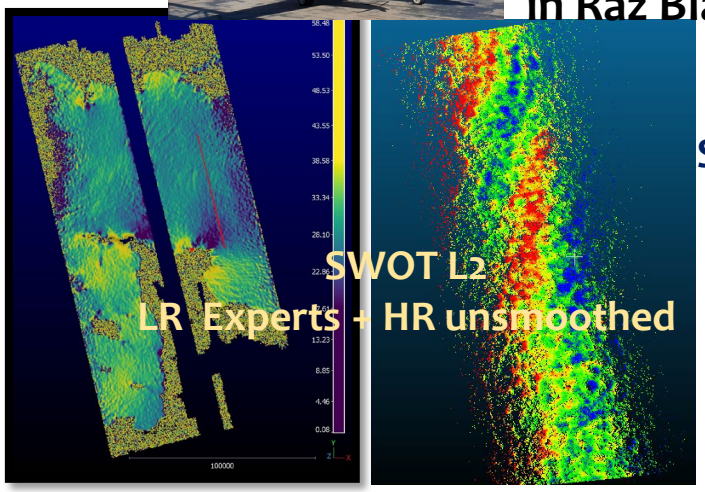
Coastal Morphology: Bay of Veys; Monitoring intertidal topography using SWOT PIXC + Validation against LIDAR Data







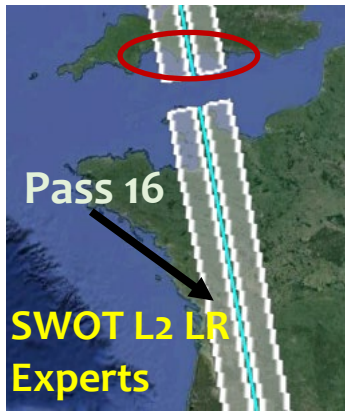
Airborne LiDAR System in Raz Blanchard and Bay of Veys

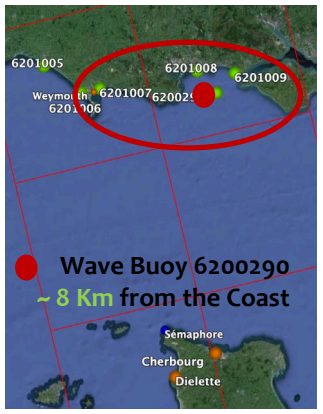


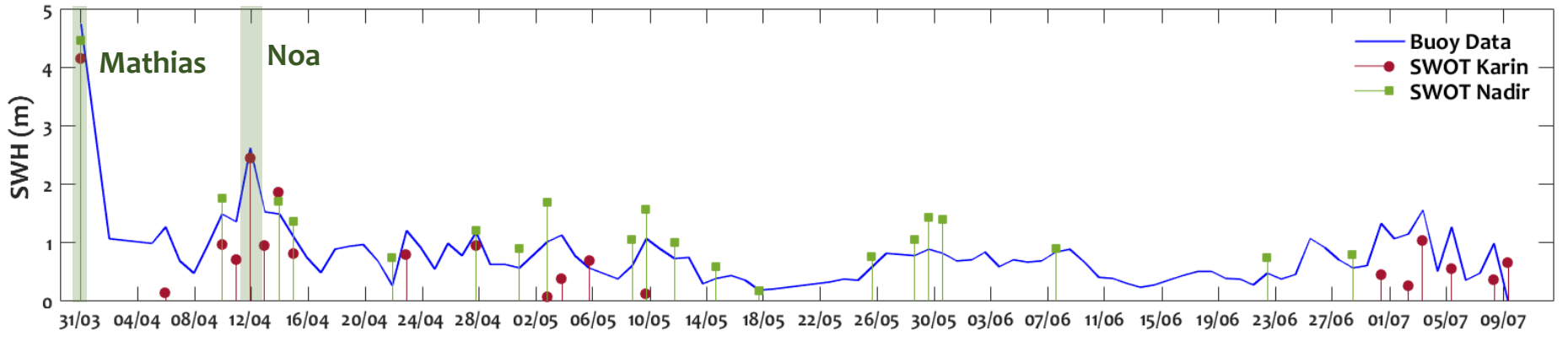
SSH SWOT L2 LR Unsmoothed pre-cal (Point Cloud Normals Inclinaison in degrees, neighborhood of 1.5 km) and **LiDAR data** (in red)

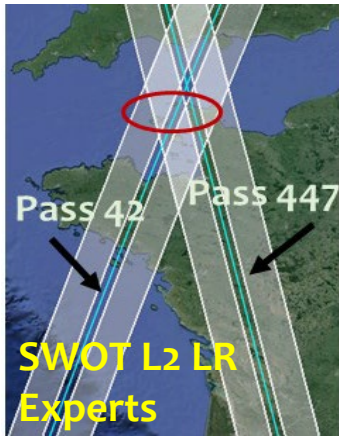
Further Challenges:

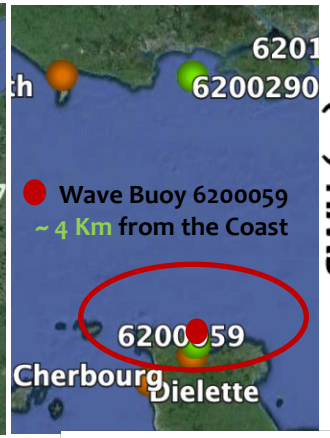
- ✓ **High frequency waves + Spectrum**
- ✓ **Topo-bathymetric airborne LiDAR.**

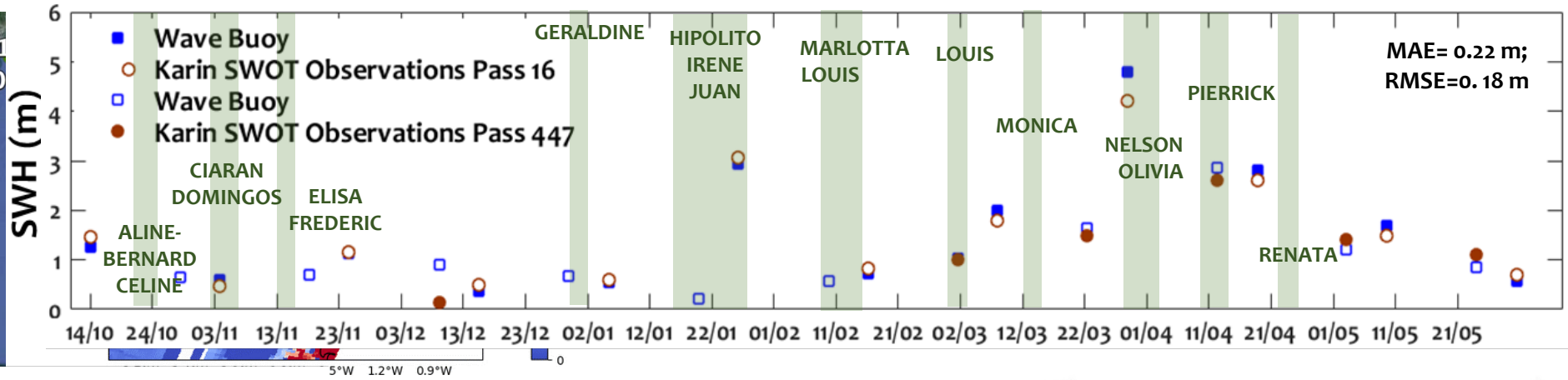












Distribution of Absolute Difference SSH

Error

Distribution