Pilot site(s): search & criteria

What could be a Cal/Val pilot site in New Caledonia?

- A Cal/Val TIR site in warm waters to prepare for a future hyperspectral mission and for TRISHNA (coastal or continental waters).
  Surface emissivity, which is the main contributor to the thermal infrared calibration error budget, is better controlled on water.

- Should be equipped with already existing in-situ instruments.;

- Should concentrate local attention and monitoring needs and interests;

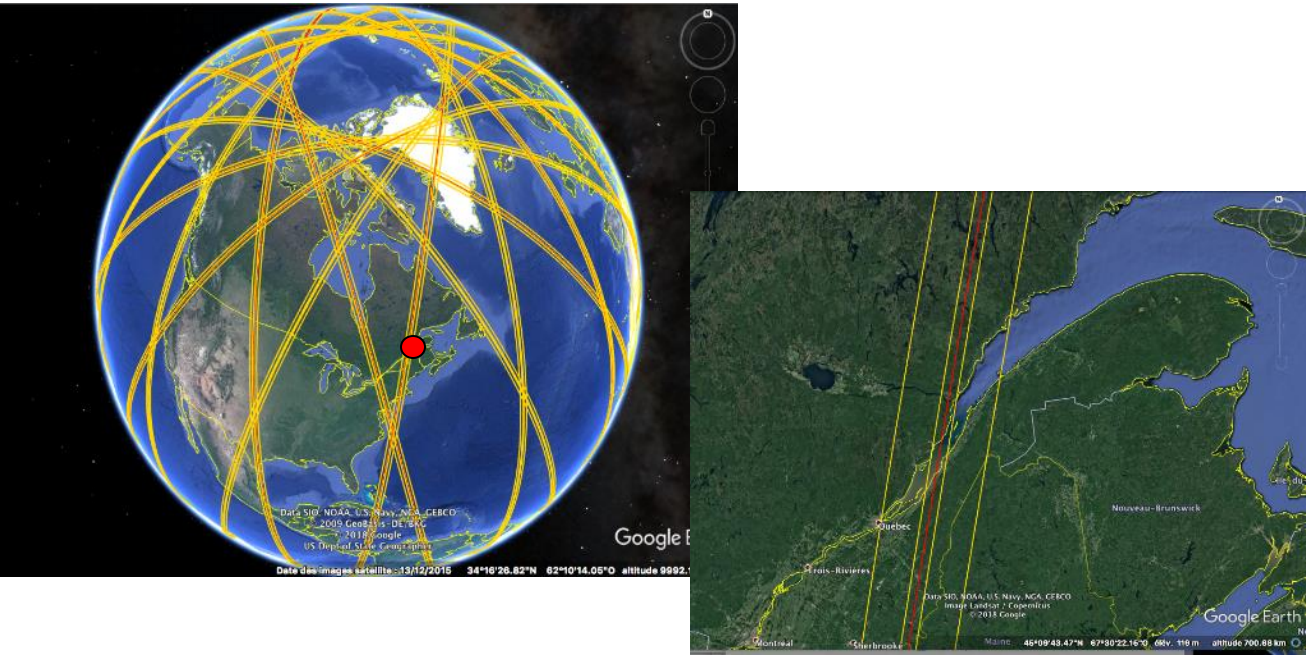
SWOT Cal/Val activities

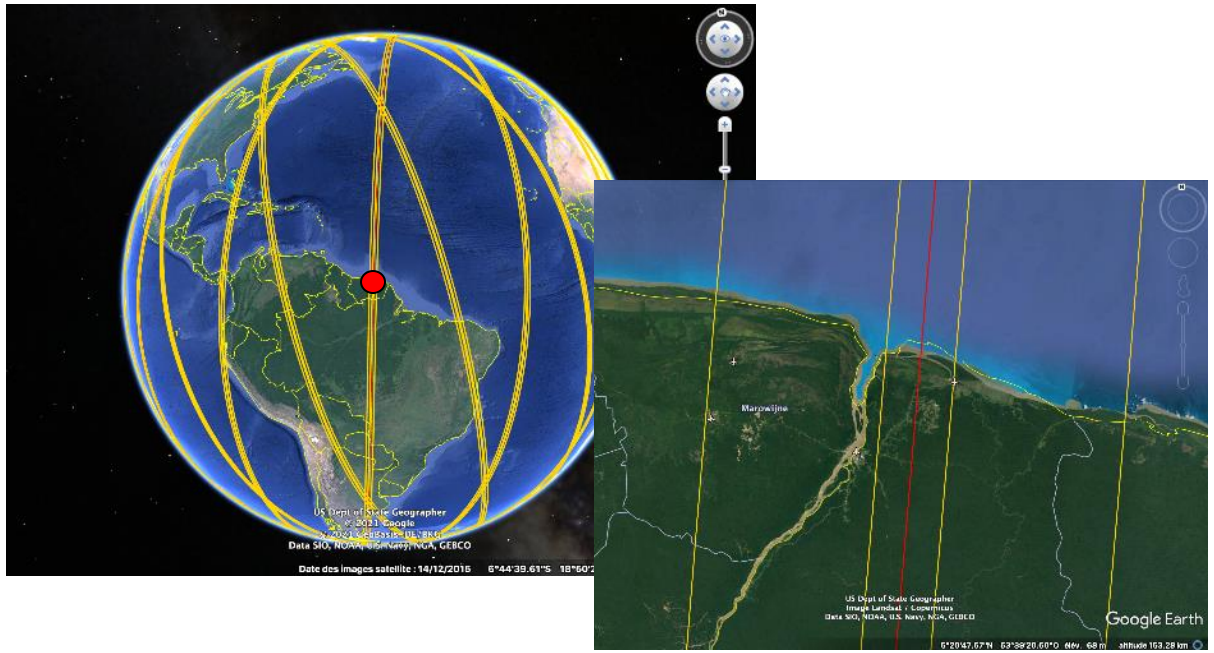
SWOT Pilot Sites for Cal/Val activities

What are the potential CAL/VAL sites for estuaries and coasts ?

Min 2 sites : 1 site in estuary/delta & 1 site in coast (from nearshore to shoreline)

Potential Site CAL/VAL for the Estuaries/Deltas – 1 day orbit





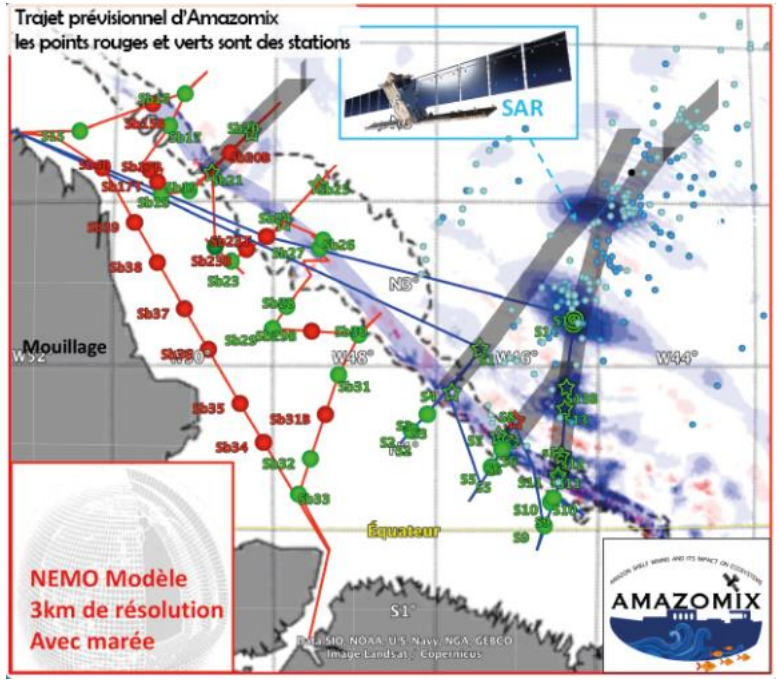
St Lawrence estuary = SWOT hydrology validation sites
Lead: Environment Canada (P. Matte, N. Barnier)
Collaboration: JPL (M. Simard)
M2C Rouen-Caen (B. Laignel, I. Turki)

Maroni estuary: Potential site
Lead: IRD (S. Calmant)

SWOT Pilot Sites for Cal/Val activities

SWOT - Brazil

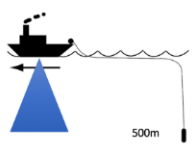
AMAZOMIX (september 2021)

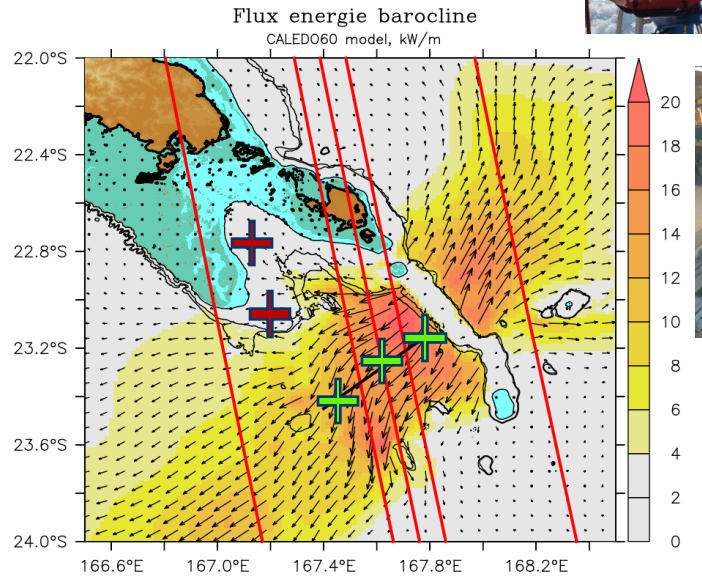


-**Objectives**: understand the interactions between internal tides, the mesoscale and the Amazon plume, and their impact on biodiversity.
-**Cal/val SWOT**

SWOT – New Calédonia

Campaign SWOT-ANTEA (4 legs, 2023)

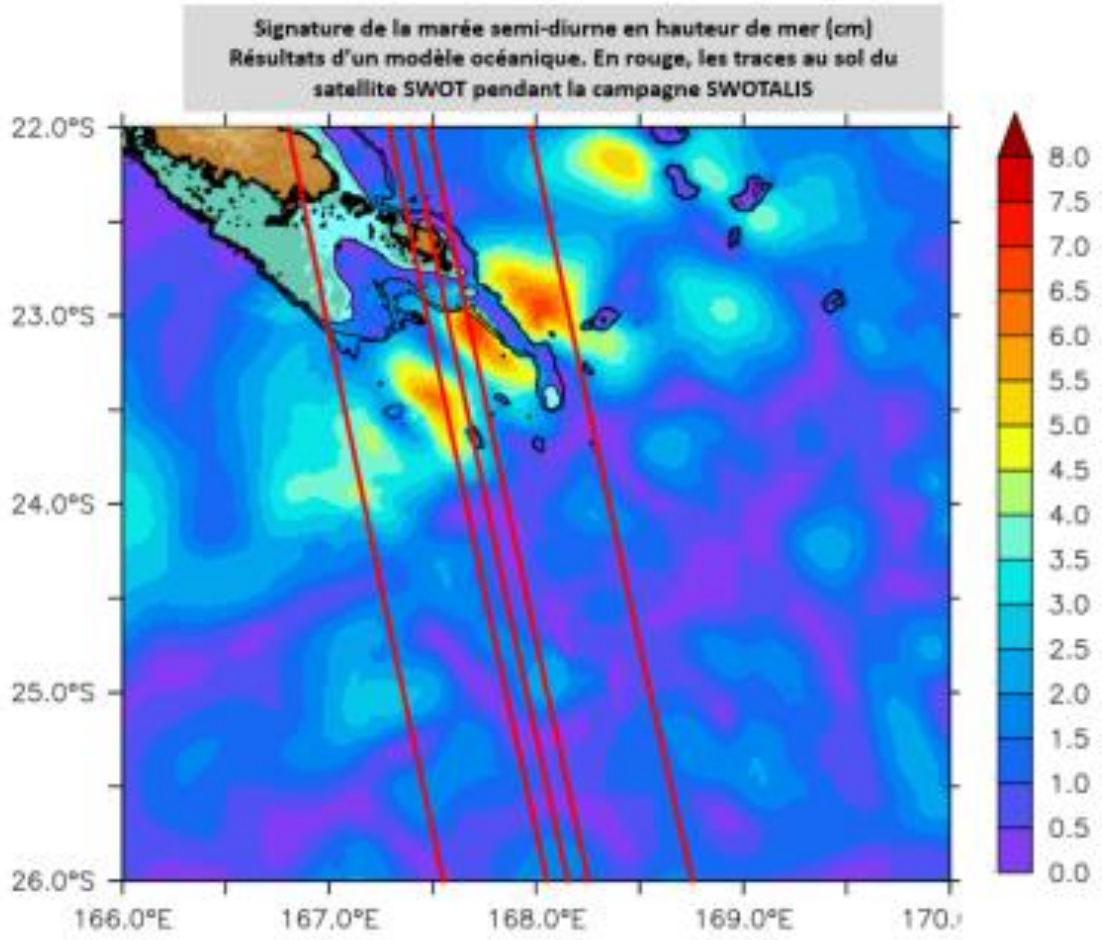




- -Deployment of 3 moorings
  -Repeated radiography with CTD profiler + GPS array
  -5 fixed stations of 48-72h (CTD + VMP)

SWOT Pilot Sites for Cal/Val activities

- **SWOTALIS** campaigns (since 2023, offshore New Caledonian Coast) to better characterize internal tides in relation to SWOT SSH



Adopt-a-Crossover (AdAC):

International program

Multi-sites, multiples dynamics

- **Co-ordination of international program of in-situ measurement campaigns** during 1-day orbit, and after
- Support for ongoing **regional projects** (supported by CNRS /IRD /Ifremer /CNES / Universities) existing models, observations & expertise
- Fine-scale analysis of **existing satellite and in-situ** data

AdAC Consortium: international group **approved by CLIVAR,** to facilitate coordination, & participation of campaigns

https://www.swot-adac.org/

Trishna planned Cal/Val activities

TRISHNA calibration and validation (Cal/Val) in lakes

Recommendation for validation purposes

- Compared to coastal domain, lakes are under studied/ equipped
- Define list of test sites representing different water bodies types
  - Shallow water / Deeper / Very deep and large
  - Various topographies/ environments
  - Range of temperature

- Define a common protocol even if most of the time it is site depending

- Permanent data acquisition from in-situ instruments.
  - Buoys with radiometer and thermal probes
- Frequent validation campaigns.
  - Field survey, boats drawing torrent board (upgraded version with a radiometer/ FLIR
- Possibility to use drones equipped with thermal cameras (spatial variations aspects).

- Cost => budget for instrumentation, field survey and analysis (Man Power)

TRISHNA calibration and validation (Cal/Val) in coastal waters

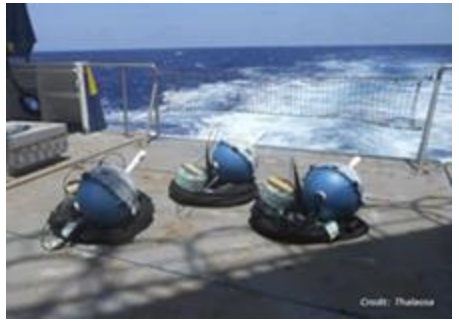
Cal/Val of TRISHNA needs accurate in-situ observations

Parameters :

- Sea Surface Temperature (SST) :
  - Brightness temperatures & SST from radiometers (shipborne or moored buoy if possible)
  - SST from drifters and moorings

- Ocean colour :
  - Chl-a (water samples)
  - SPM (water samples)

Additional Cal/Val sites (with radiometers) are being studied. Possible locations : lagoon on the Mediterranean coast of France, New Caledonia, French Polynesia.



Examples of Fiducial SST reference measurements (FRM)

- *from the International Radiometer Network (ISFRN) data radiometers ISAR and SISTer, https://www.ships4sst.org*
- *HRSST drifters : TRUSTED project, https://www.eumetsat.int/TRUSTED*
- *COAST-HF : https://coast-hf.fr/*

TRISHNA calibration and validation (Cal/Val) in coastal waters

In-situ observations for TRISHNA in New Caledonia

- Sea Temperature from ReefTemps (when vertical T gradient is small)
- Campaigns (ex : MaHeWa project)
- Future acquisitions of SST, chl-a, SPM time series in the NC lagoon (one or several locations) will be valuable
- The capability of installing a radiometer (ISAR) on a moored platform (SWOT/TRISHNA Cal/Val site ?) is being studied.

Location of ReefTemps stations in NC

ReefTemps – French National Observation Service (SNO)

Long-term monitoring of climate change and its effects on the state of coral reefs and their resources in the Pacific region.

To study the large-scale climate and regional and local climatic variations in the coastal domain of the various island states of the South, South-West and West Pacific through time series, mainly of seawater temperature.