Synergies SWOT – Ocean Color

Some examples from on-going work at LOCEAN

- SWOT CalVal : is the ~1-10km signal from the ocean ? How SSH can inform on (a)geostrophic submesoscale processes ?

- Fine scale studies : dynamics, life cycle, and biogeochemical effect of submesoscale features

PhD project Alex Nalivaev
M2 project Chloé Goret
Francesco d'Ovidio, CNRS LOCEAN-IPSL

M2 Chloé Goret
(very) fine scales in the Mediterranean sea
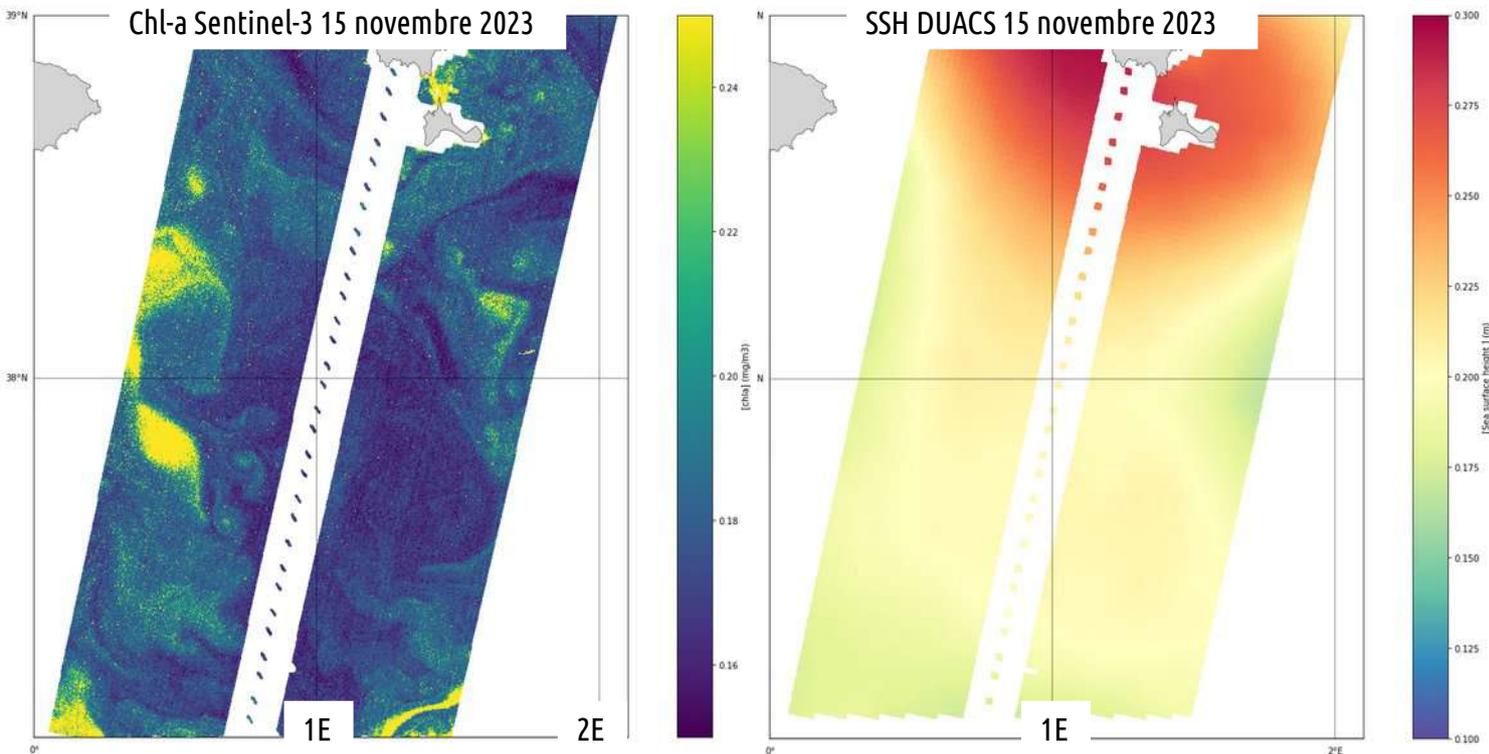
Chl-a Sentinel-3 15 novembre 2023

SSH DUACS 15 novembre 2023

M2 Chloé Goret
(very) fine scales in the Mediterranean sea

Most of the submesoscale features have a signature on the SSH and sigma0
Few hours of S3-SWOT mismatch lead to spatial incoherence
Possibility with SWOT to follow their life cycle at daily interval (fast-sampling phase) !
Strong interest for 250m maps

Chl-a Sentinel-3 15 novembre 2023

SSH DUACS 15 novembre 2023

SSH SWOT 15 novembre 2023
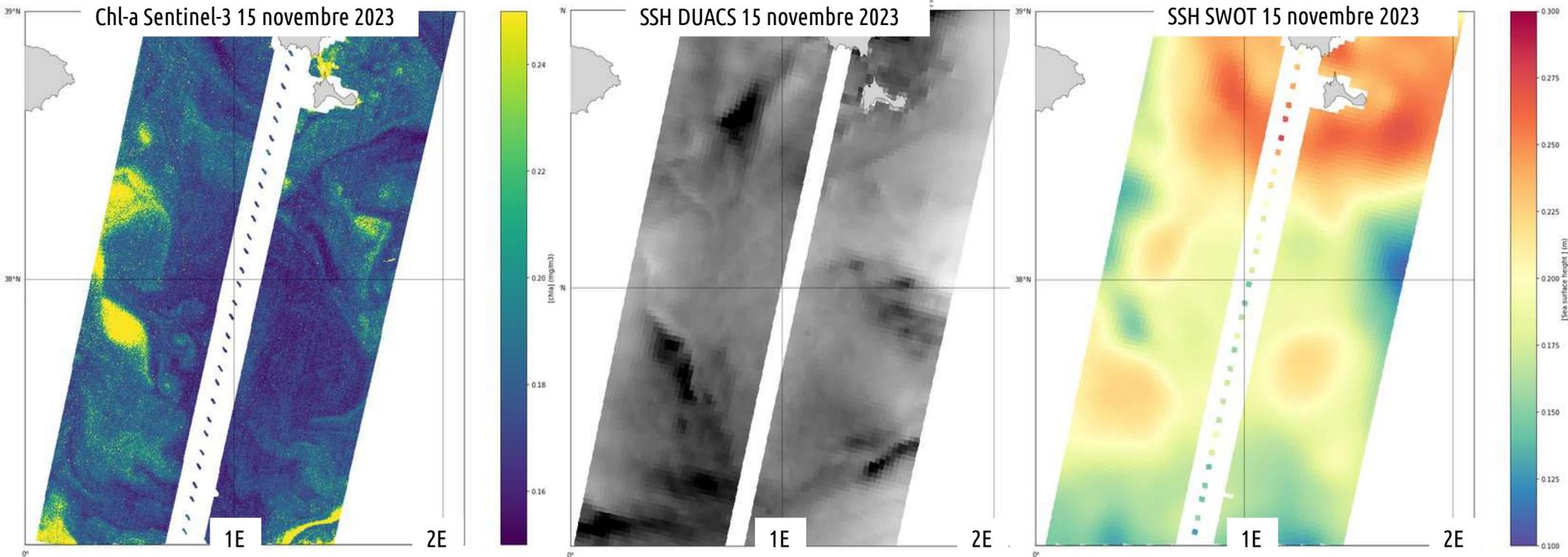
M2 Chloé Goret
(very) fine scales in the Mediterranean sea

Most of the submesoscale features have a signature on the SSH and sigma0
Few hours of S3-SWOT mismatch lead to spatial incoherence
Possibility with SWOT to follow their life cycle at daily interval (fast-sampling phase) !
Strong interest for 250m maps

PhD Alex Nalivaev
# Coast-to-large iron delivery from Kerguelen glacier (ANR MARGO, PI : S. Blain)

Surface chlorophyll concentration on 20240214_nrt from CLS remote sensing data

[chl] (mg/m3)
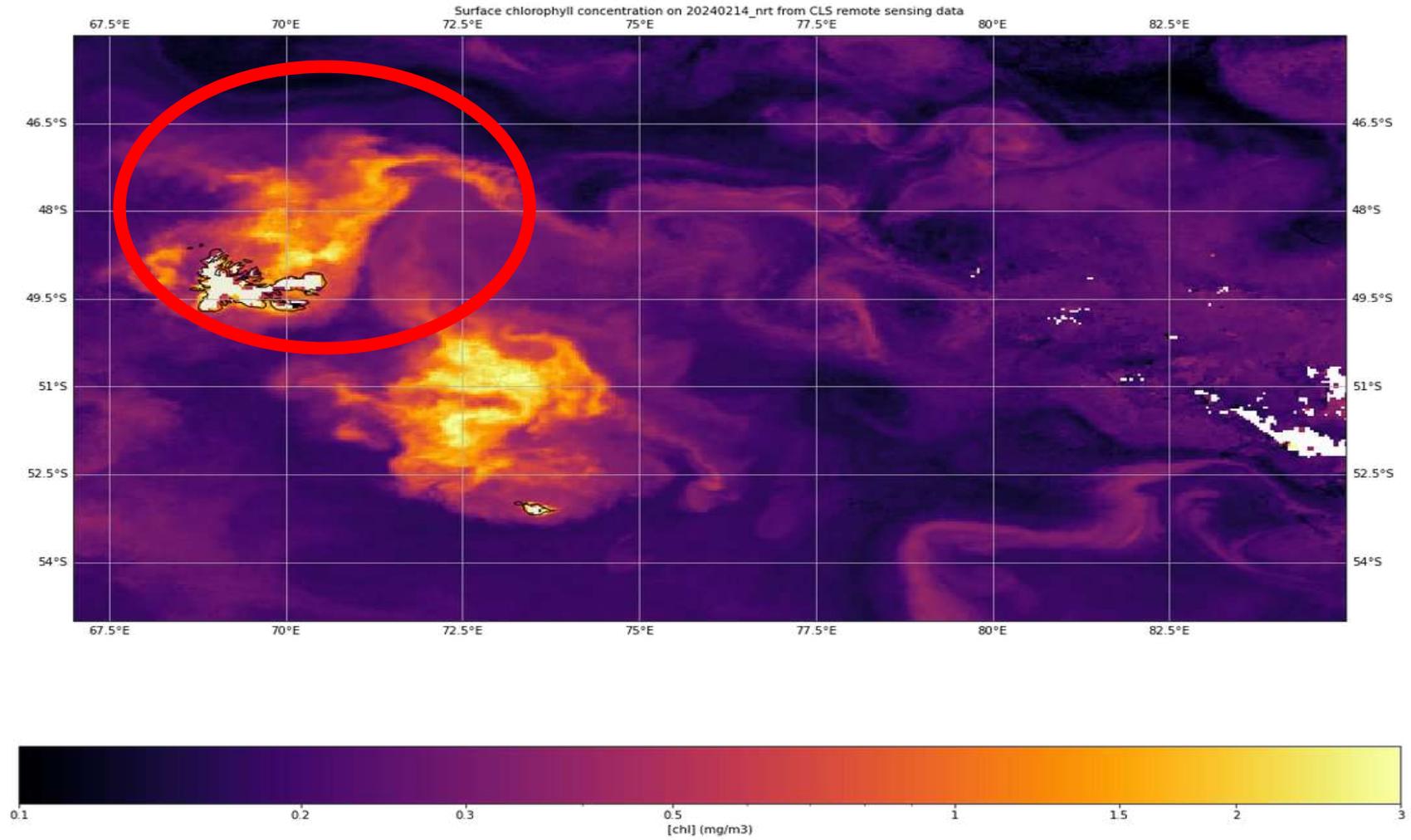
PhD Alex Nalivaev
NE connection visible in S3, absent in DUACS,.. possibly (MDT?) present in SWOT !

Surface chlorophyll concentration on 20240212_S3A from Sentinel3 remote sensing data

Superposition of SWOT and background CLS velocity fields on 20231015
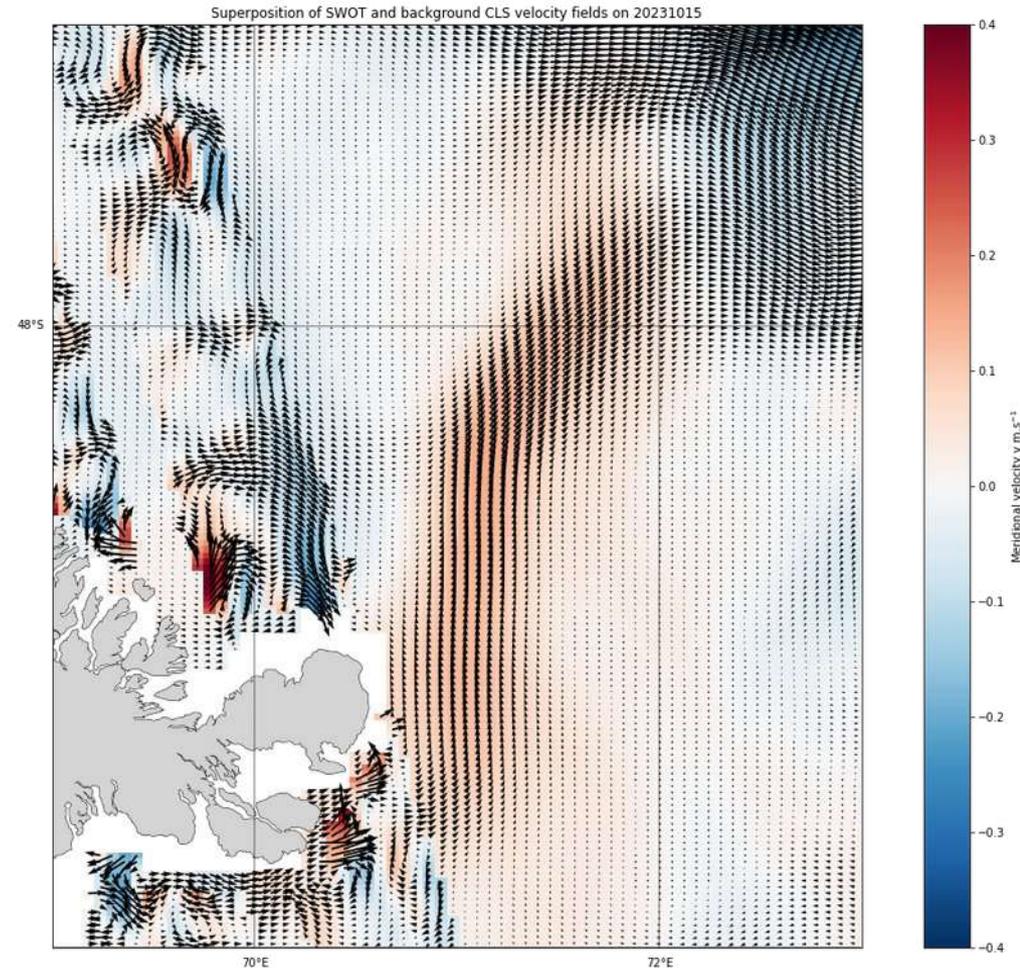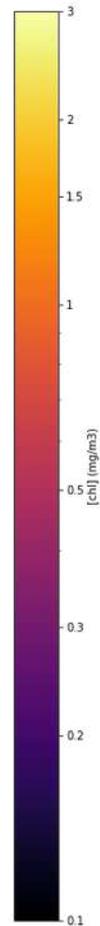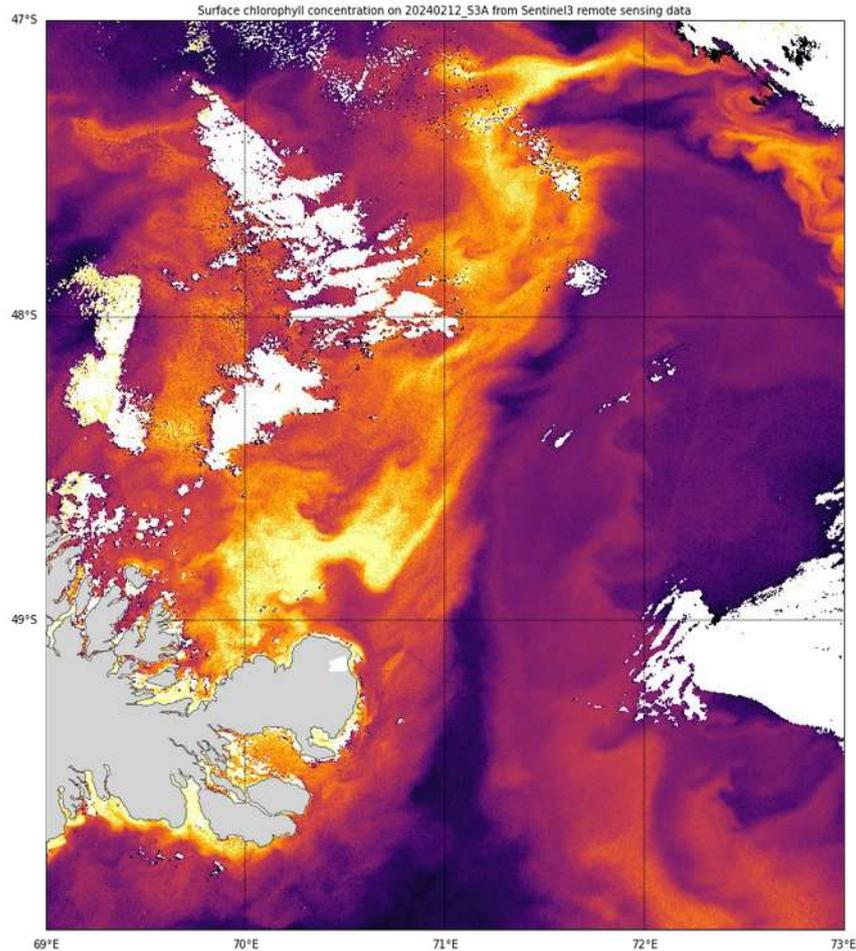
PhD Alex Nalivaev

Tracking swaths critically useful for in situ campaigns (thanks for the tool!)
SWOT analysis to come..
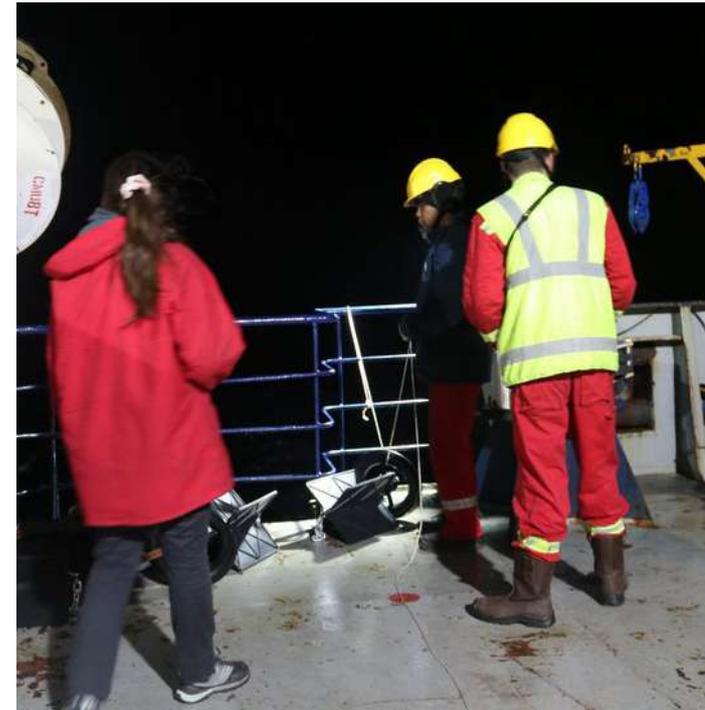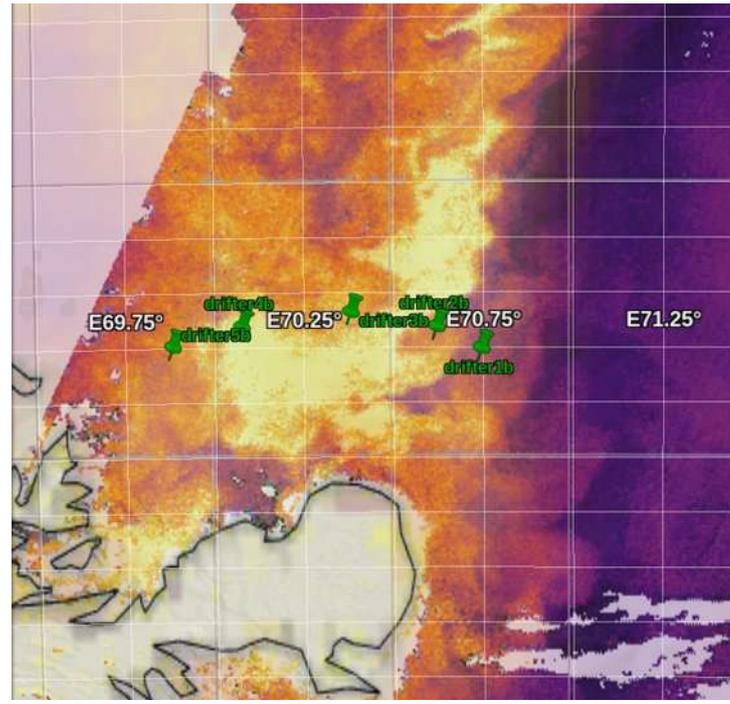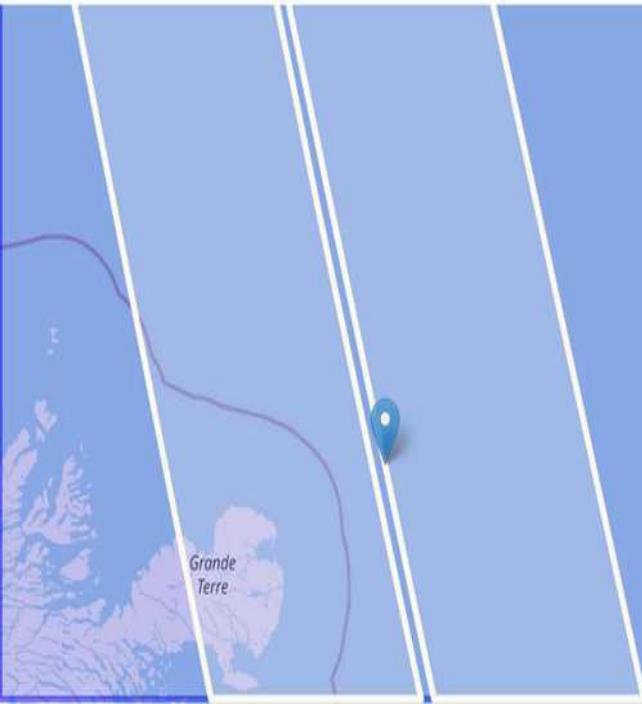
PhD Alex Nalivaev
Are on-swath Lagrangian methods feasible during the Science Phase ? Or only on MIOST-like products ?

Latitude advection (SWOT swath only), backward advection during 14 days starting from 2023-10-24