

The Role of Fine-Scale Circulation in Shaping the Nutricline Unveiled at the SWOT era.

Insights from BioSWOT-Med

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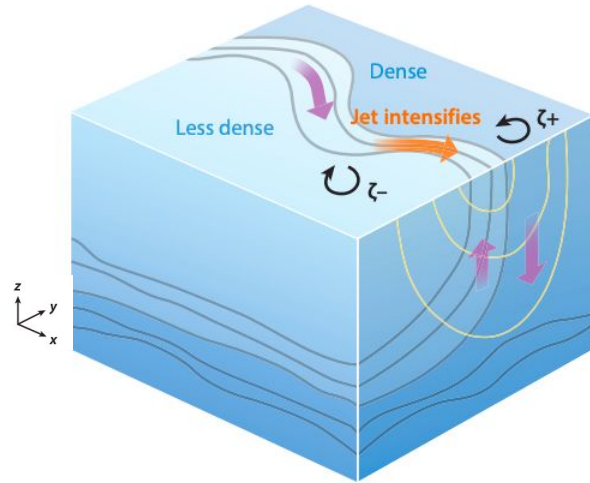
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2025 SWOT Science Team Meeting

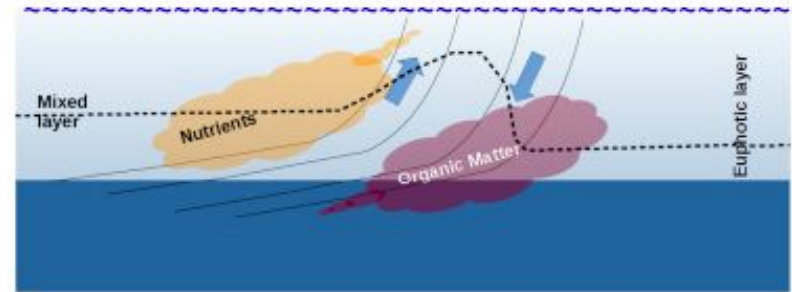
Arcachon, Octobre 15



How fine-scale circulation influences the distribution of nutrients and its supply to the photic layer...

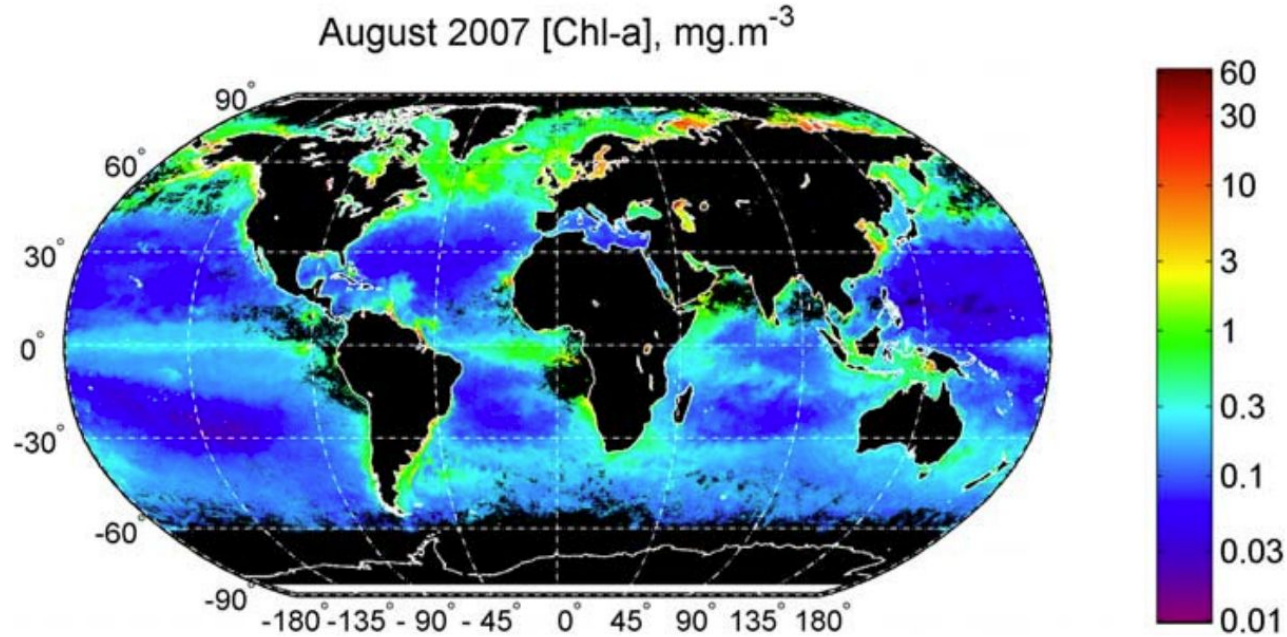


Complex 3D Fine-Scale Frontal Current Field
Mahadevan et al., 2016

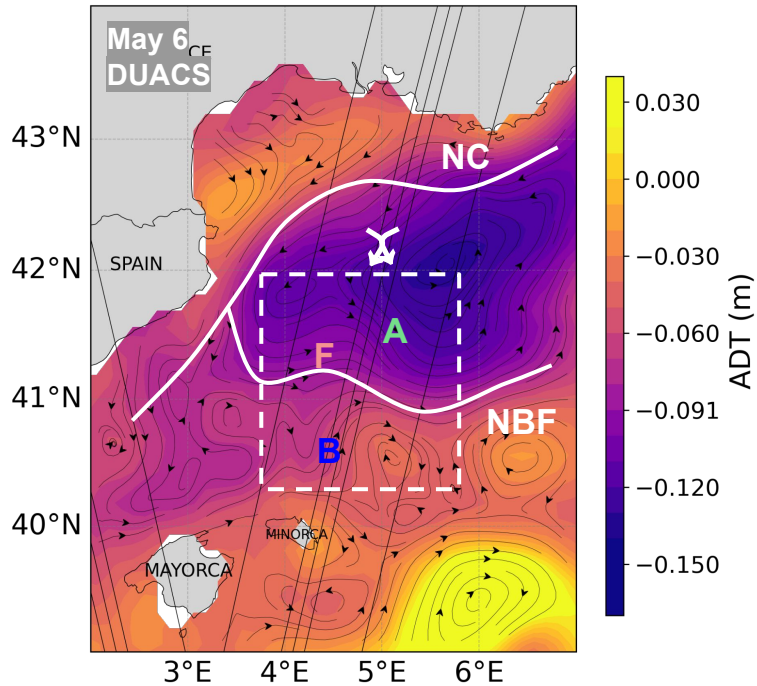


Fine-scale advection and diffusion impacting biogeochemistry
modified from Levy et al., 2012

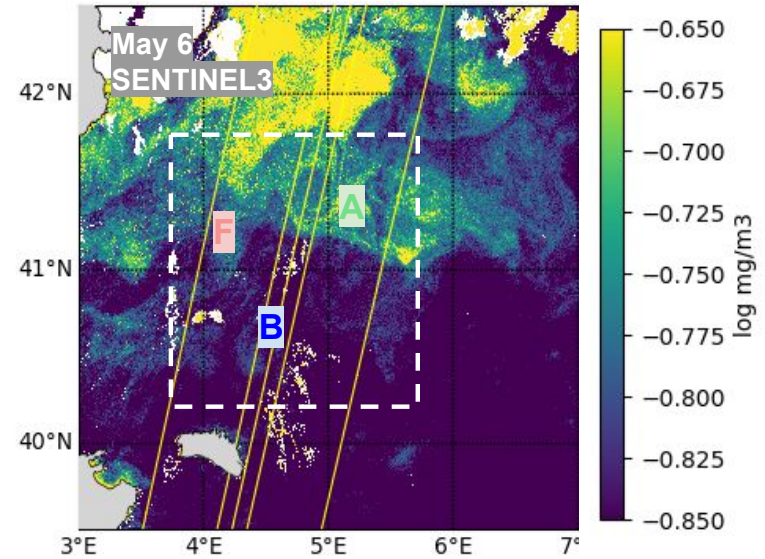
... in oligotrophic regions



Characterising the North Balearic Front



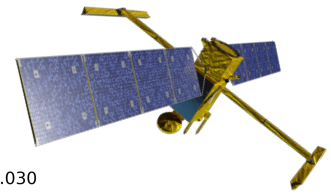
DUACS NRT L4 vDec2021



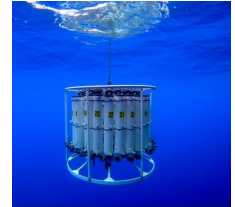
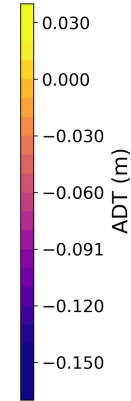
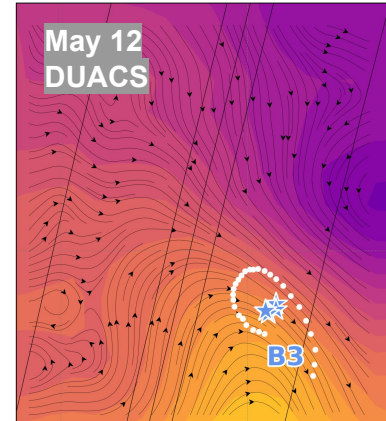
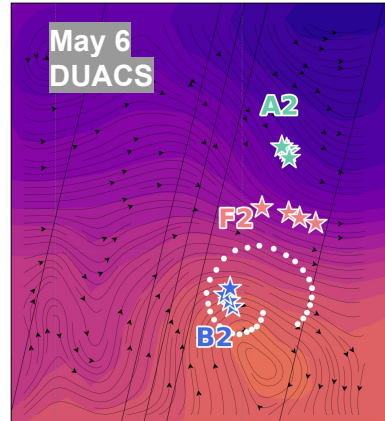
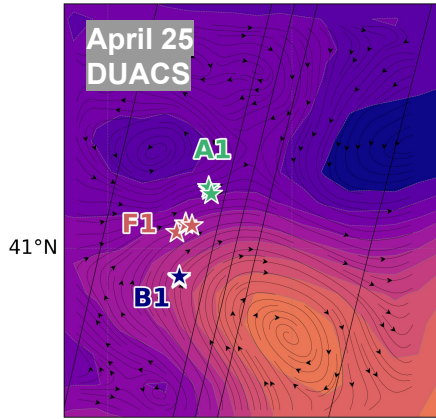
Chlorophyll-a

SWOT's Revolution!

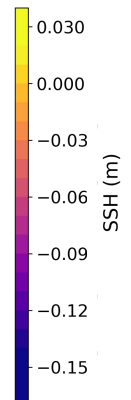
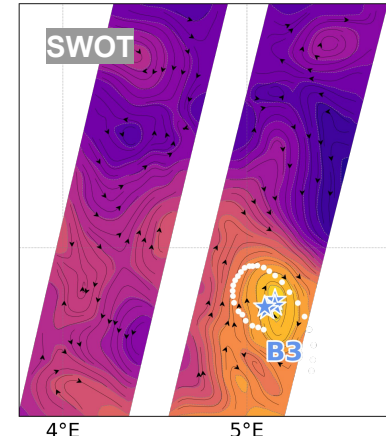
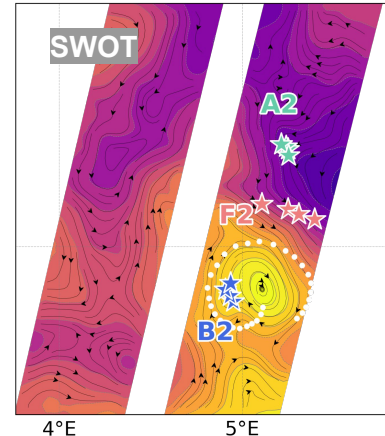
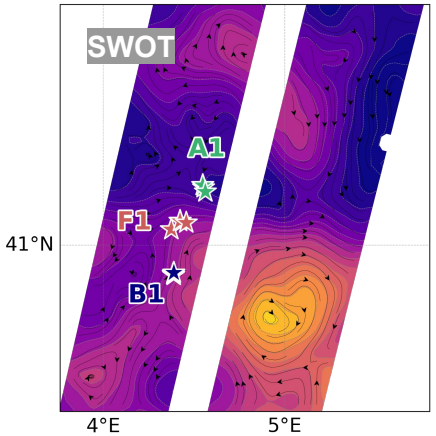
DUACS NRT L4 vDec2021
SWOT_L3_LR_SSH_Expert v2.0.1 ('mdt' + 'ssha_filtered')



4/9



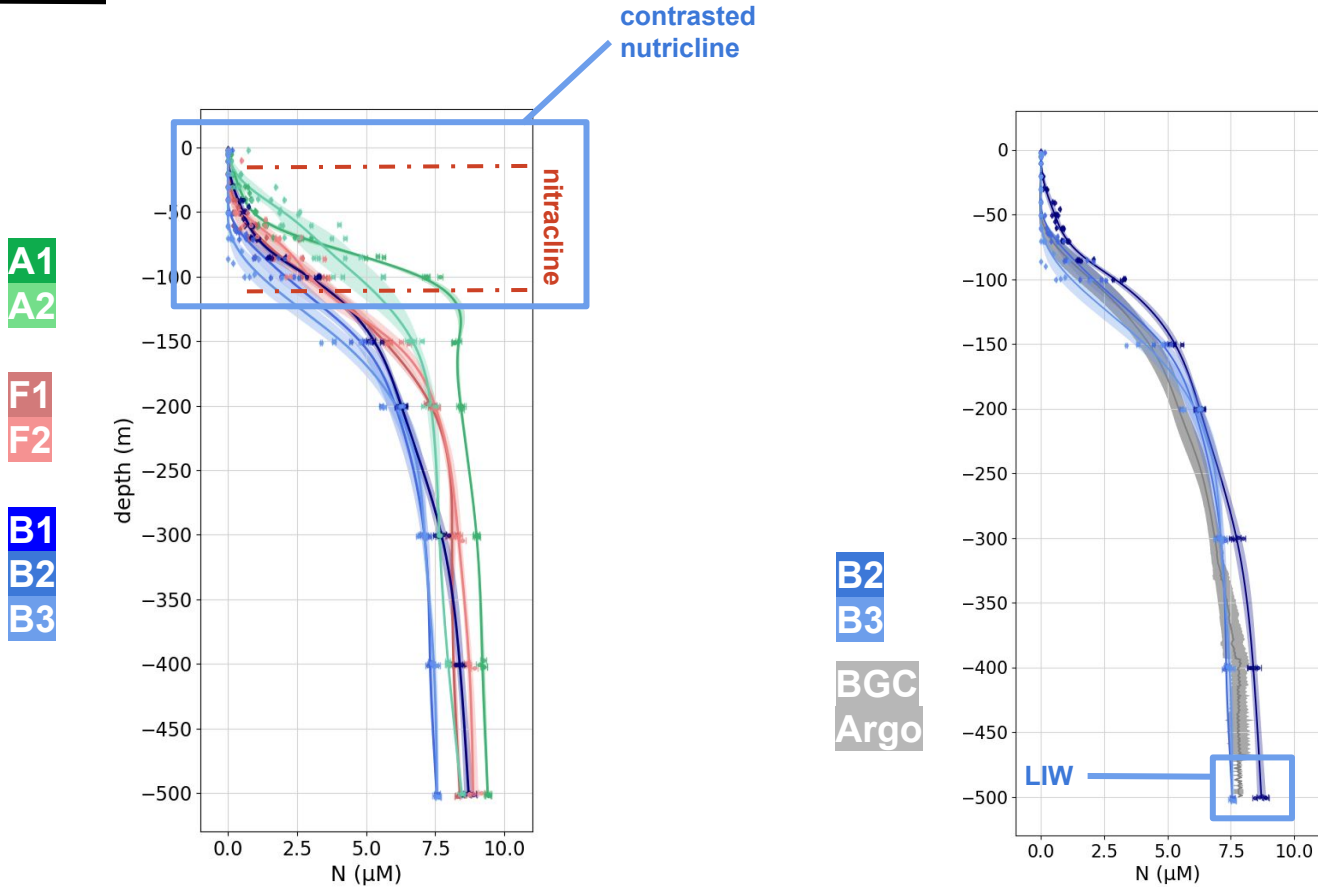
28 Niskin N and P
vertical profiles



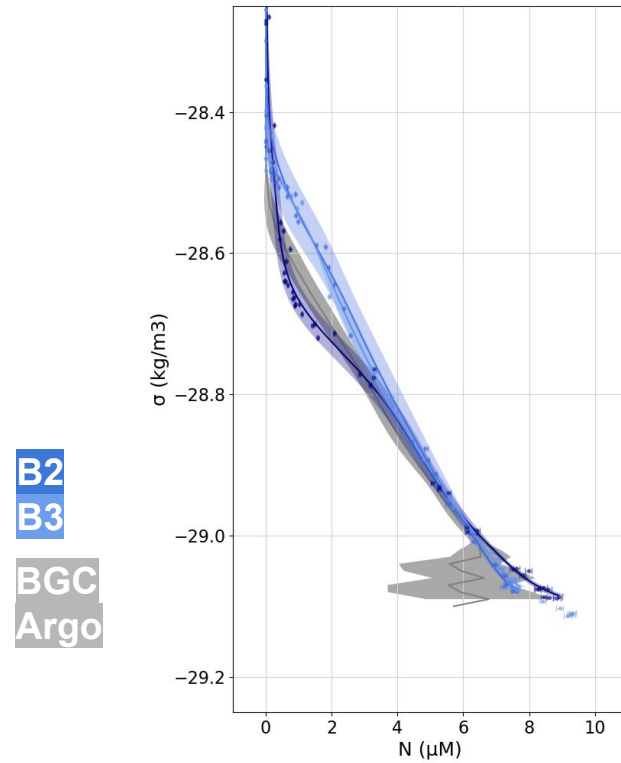
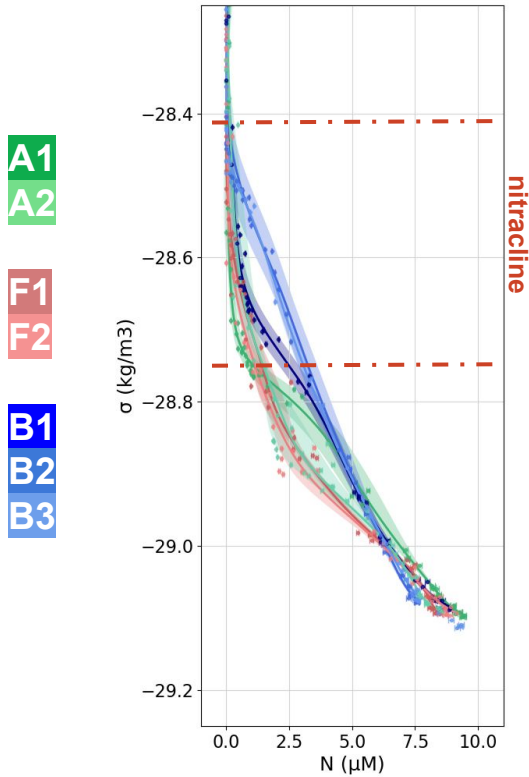
55 BGC-Argo float
N profiles



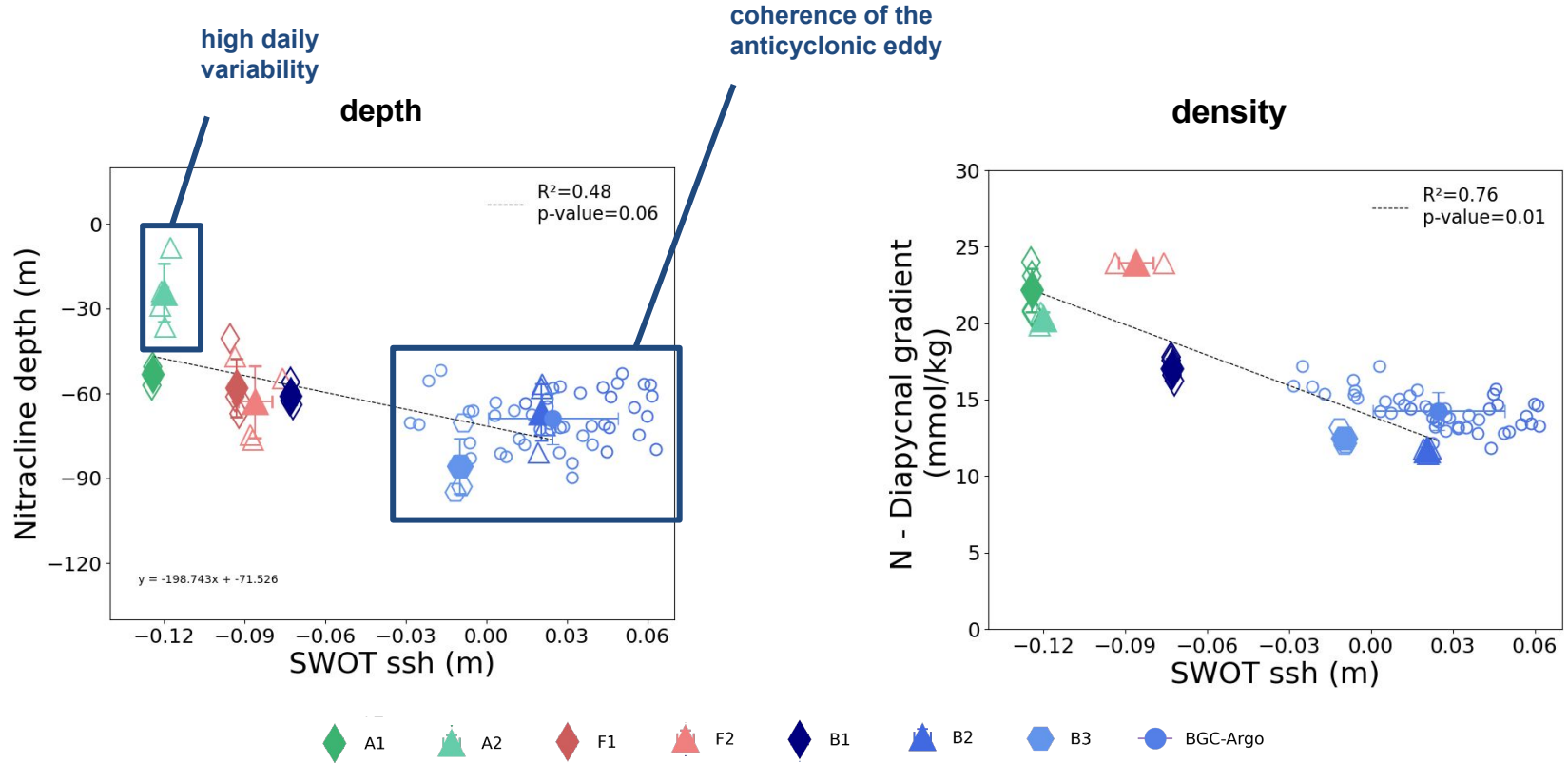
Multiscale nitrate distribution variability



Multiscale nitrate distribution variability



Relation SWOT ssh / local nutricline



Similar results for phosphates

Perspectives

- **Publication** of results (*Joël et al.* soon submitted to GRL)
- **Explore physical and biogeochemical coupling during BioSWOT Med**
 - collab LEGOS - Symphonie / ECO3M-S models
- **Relation SWOT SSH - nutricline** in the rest of the Mediterranean basin and in other **oligotrophic regions?**
 - BGC-Argo, WOA, SWOT-AdAC consortium cruises, etc. **during / after CalVal**
 - M2 Internship starting Jan. 26

