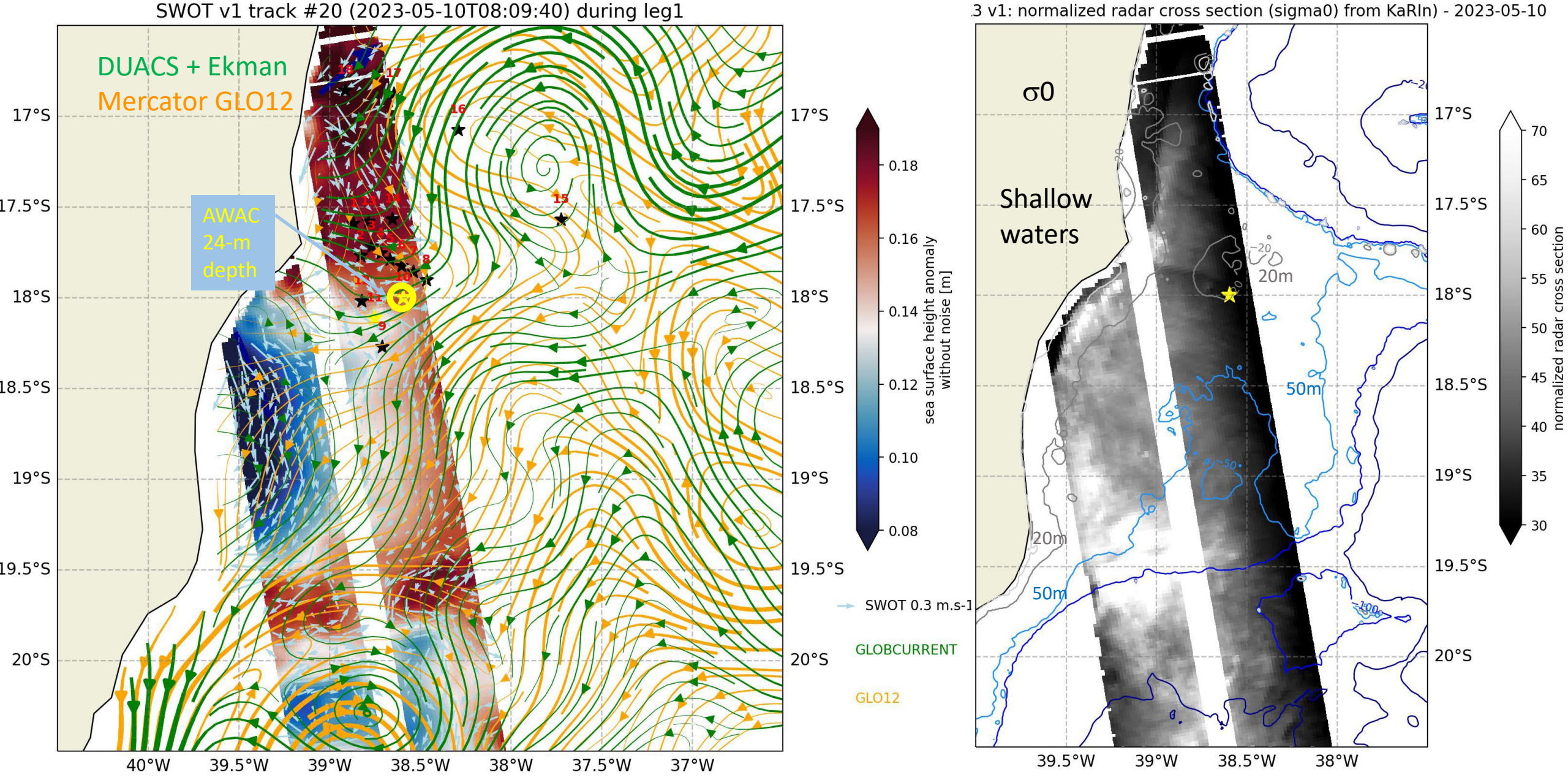
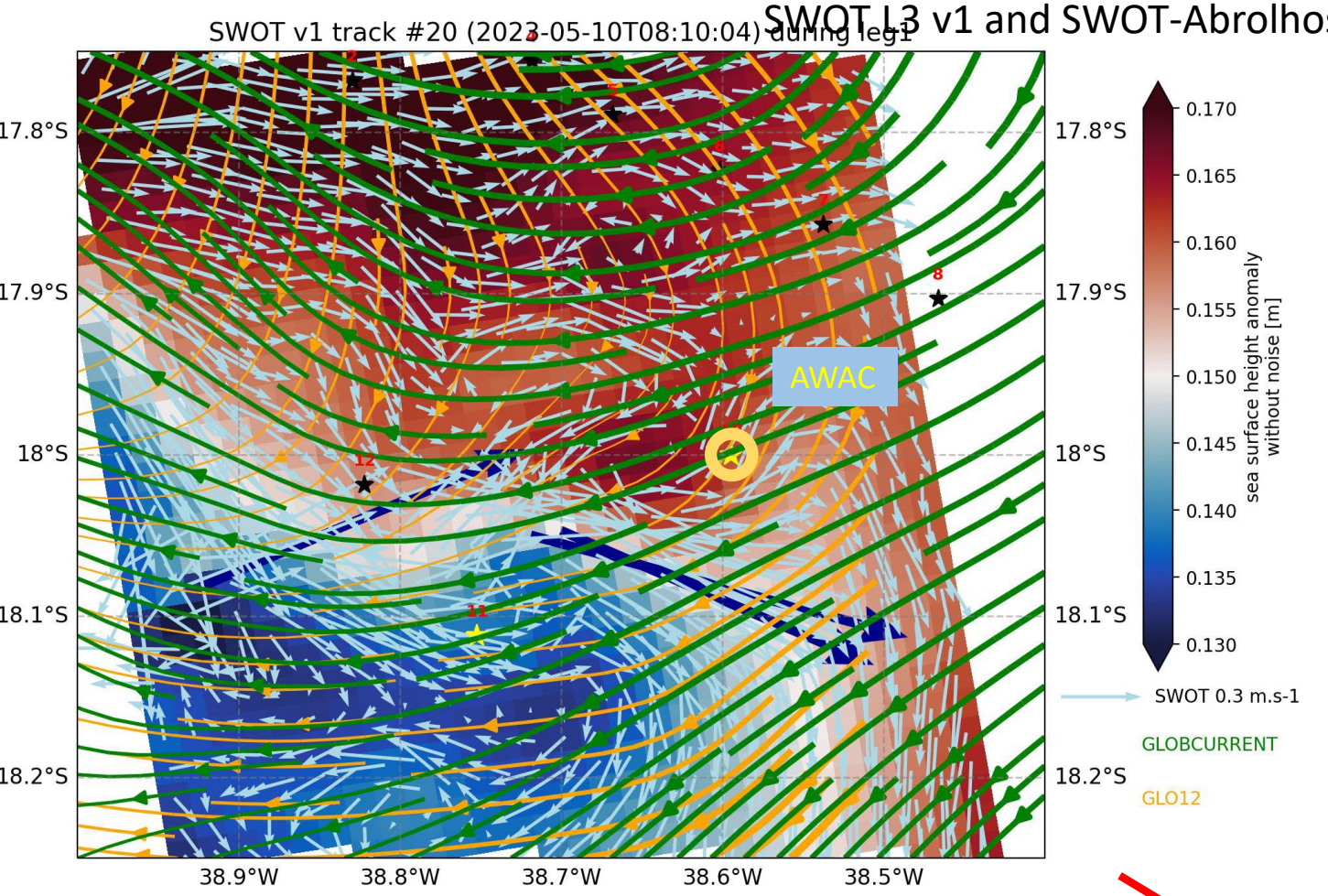
SWOT L3 v1 and SWOT-Abrolhos Campaign



SWOT L3 v1 and SWOT-Abrolhos Campaign



SWOT #20 pass – CalVal

Superimposed to DUACS+Ekman and Mercator GLO12

Ciencias do Mar IV: university training ship at UFPE

3 one week legs May 2023 (Calval)

1 week leg in September 2023 (Science)

- Ship mounted ADCP
- TSG
- CTD casts
- AWAC and ~~S4~~ moorings (25-m depth)

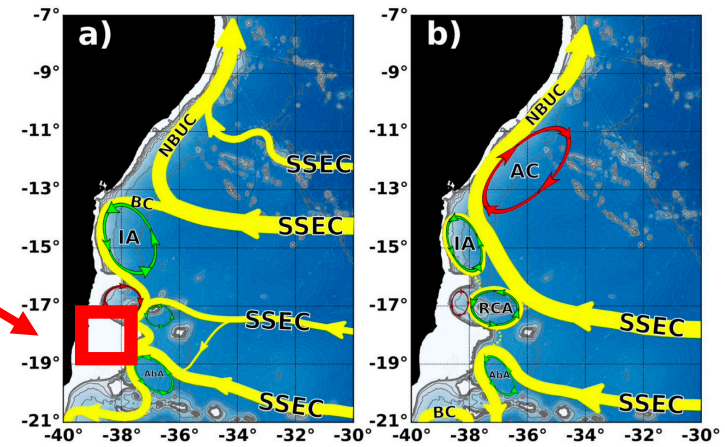
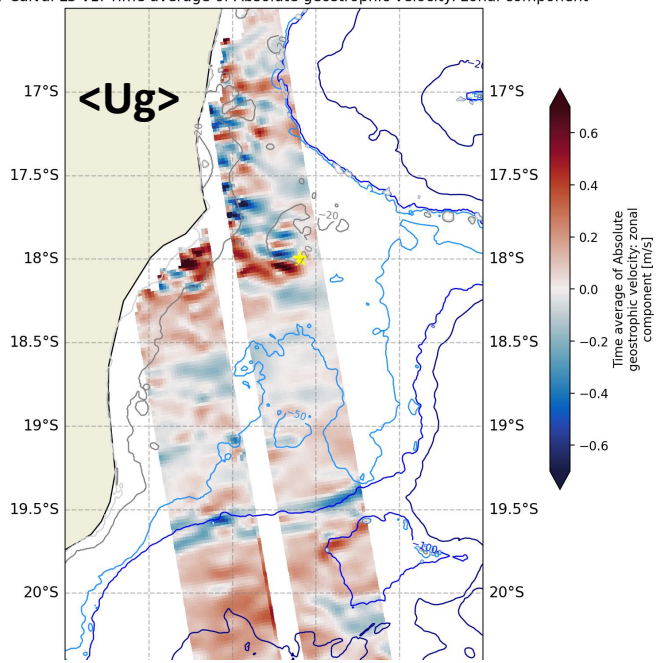
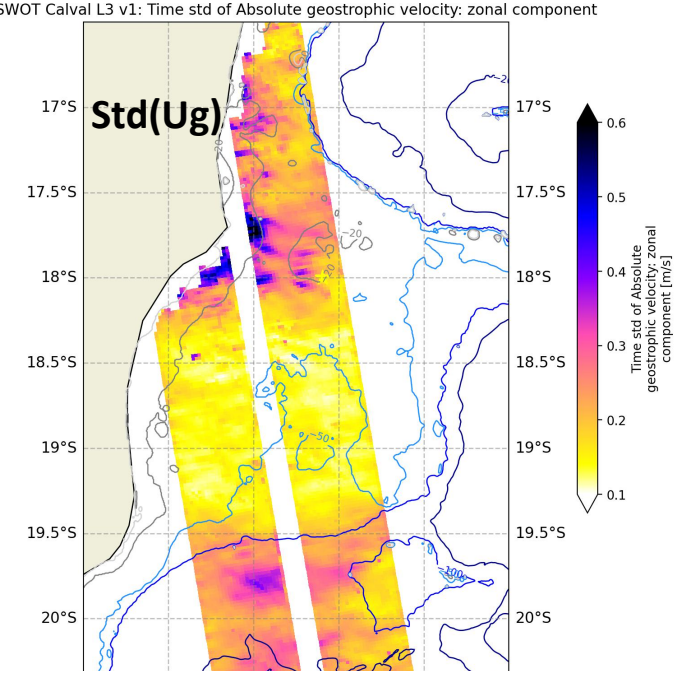


Figure 12. Schematic representation of the multi-banded SSEC and the associated mesoscale activity in the: (a)

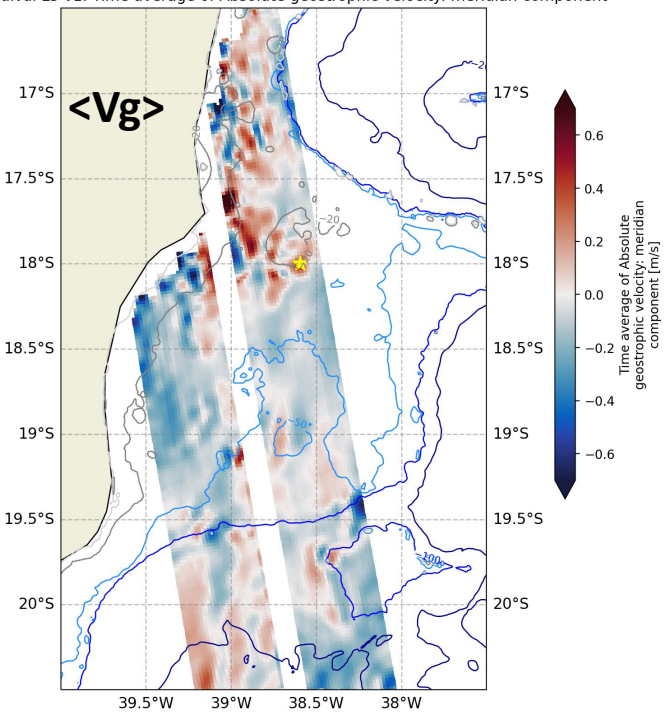
SWOT Calval L3 v1: Time average of Absolute geostrophic velocity: zonal component



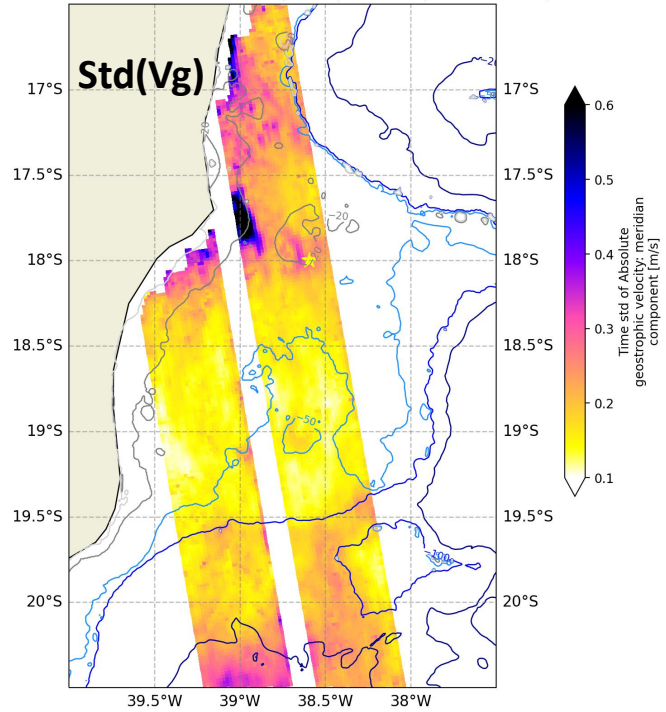
SWOT Calval L3 v1: Time std of Absolute geostrophic velocity: zonal component



SWOT Calval L3 v1: Time average of Absolute geostrophic velocity: meridian component

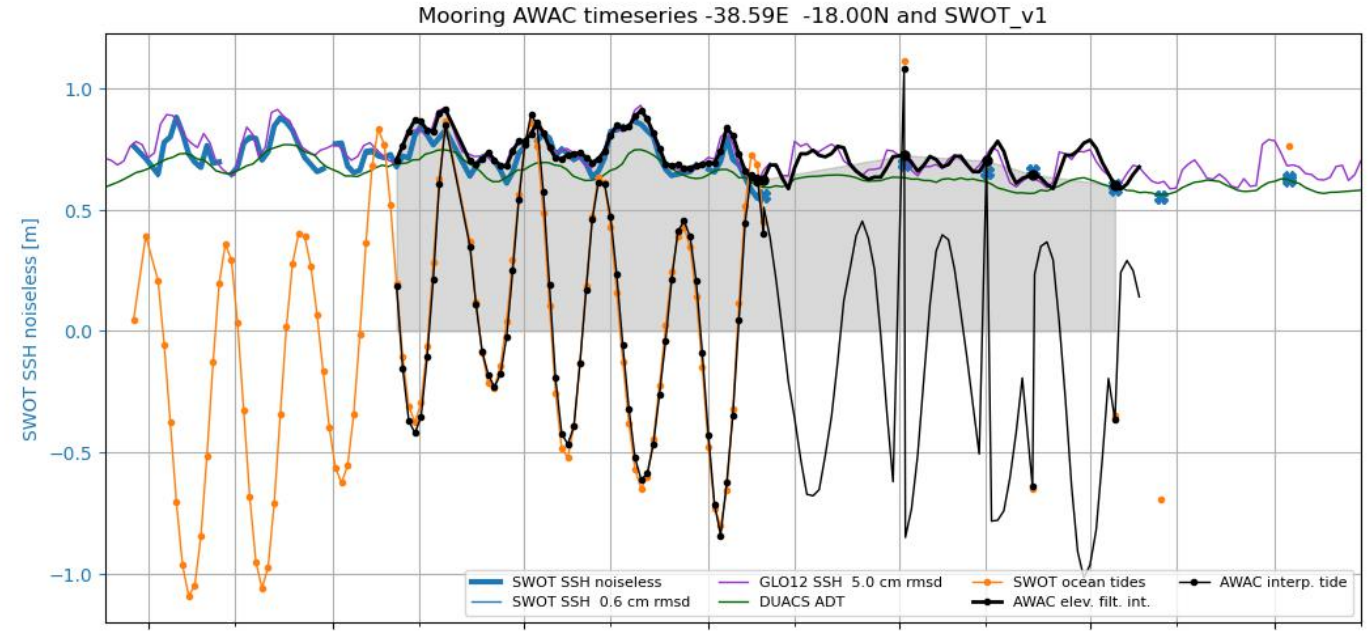


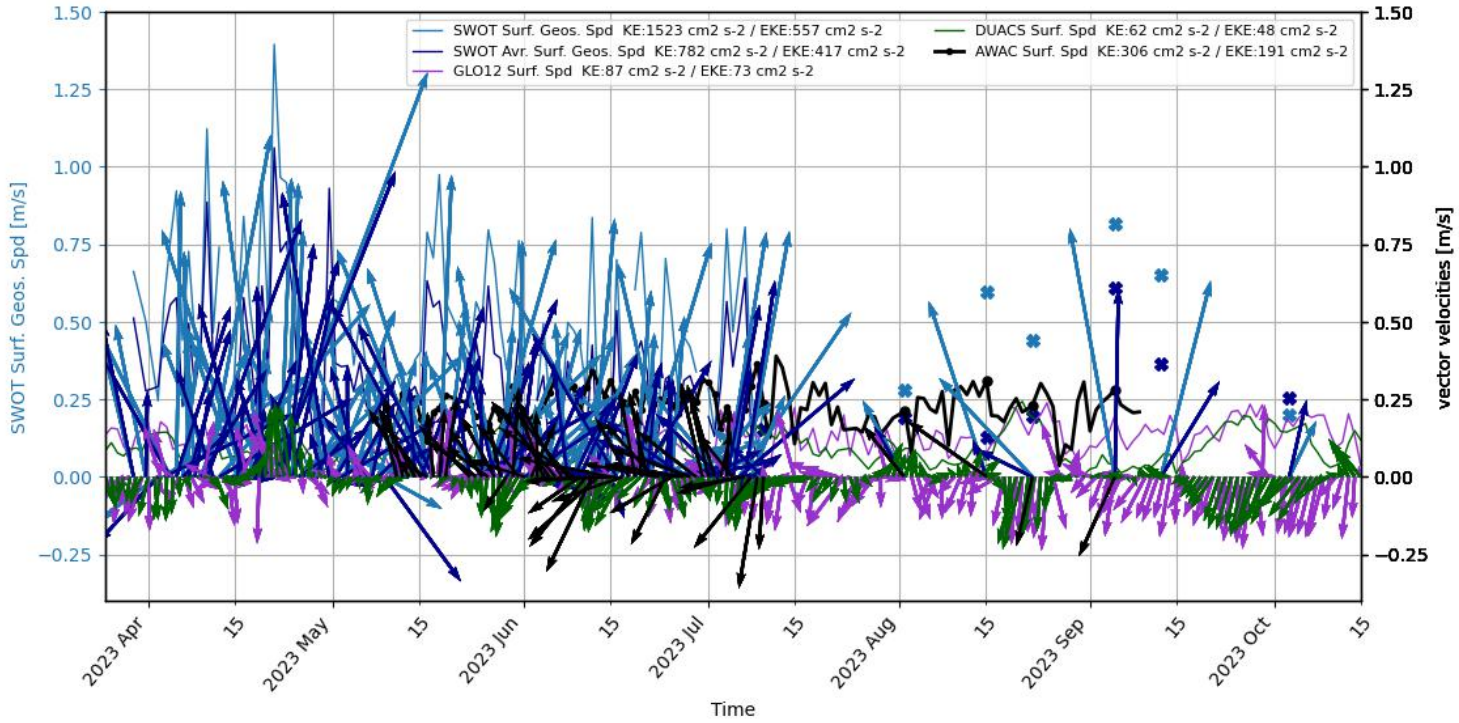
SWOT Calval L3 v1: Time std of Absolute geostrophic velocity: meridian component



What represents the Ug and Vg estimates in L3 products ?

- Small scales patchy patterns along the coast
- Few structured patterns “following” the know bathymetry





SSH: overall consistency at weekly scales: SWOT, AWAC, GLO12:

- **First analysis give at AWAC position, over 4 month: cx=0.9 and 4.5 cm rmsd for 1-day filtered SSH**

Tides:

- qualitative agreement between AWAC high-pass data and FES2022 tidal correction given in SWOT L3 data
- **FES2022: Very good agreement on most diurnal and semi-diurnal components (analysis by D. Allain, F. Lyard at LEGOS)**

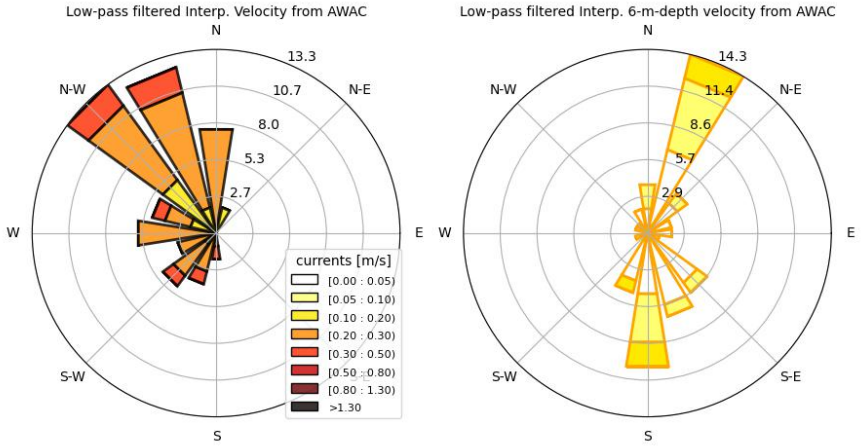
Velocities (Geostrophy ????):

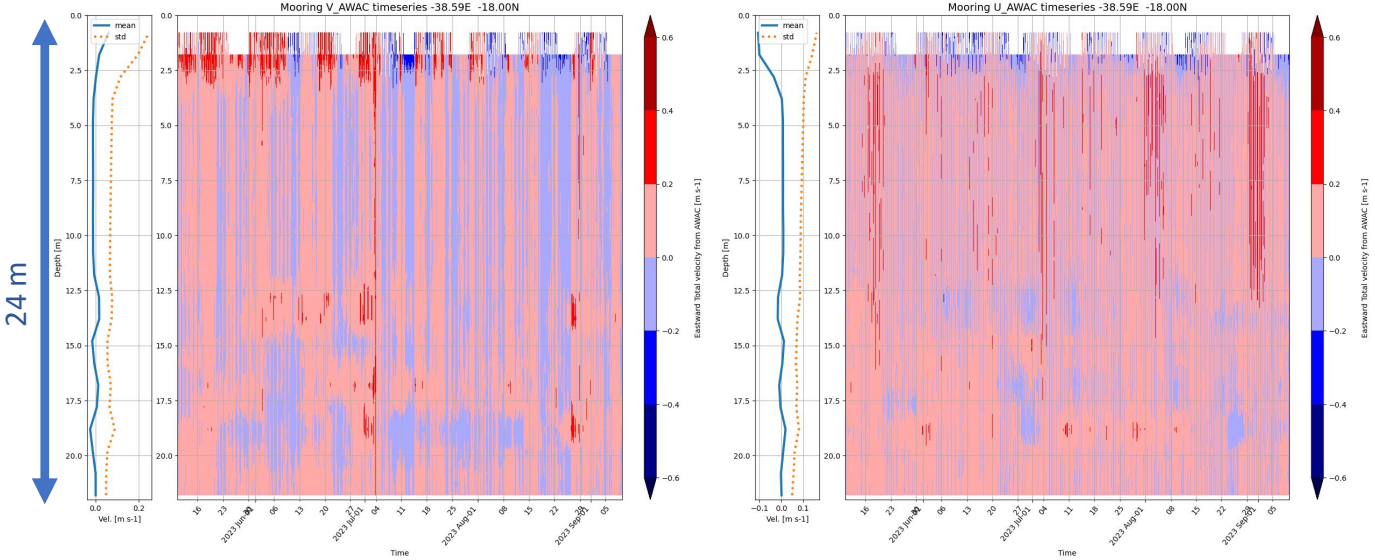
- The physical content of SWOT Ug/Vg is not yet clear
- strong discrepancies of SWOT, GLO12 and DUACS against AWAC surface velocities
- **SWOT velocity with large noise wrt to AWAC (surface and 6-m-depth): ~20 cm/s rmsd**
- **Meridional component noiser than zonal**

SWH: very preliminary comparison with AWAC, CFOSat:

- **AWAC & SWOT: cx 0.8**

Analysis at AWAC mooring location of SWOT v1 data





Sea Level	DUACS daily		GLO12 daily		AWAC filtered			
	cx	RMSD	cx	RMSD	cx	RMSD		
SWOT	0,71	7,16	0,86	5,04	0,91	4,54		
DUACS			0,75	6,67	0,82	9,79		
GLO12					0,96	2,09		
Zonal Component	**DUACS geostrophic**		**GLO12 total**		**AWAC total detided**		**AWAC 6m total detided**	
SWOT geostrophic	-0,05	13,52	-0,08	14,02	0,00	23,75	-0,13	16,03
DUACS geostrophic			-0,04	6,18	-0,19	14,37	-0,14	5,59
GLO12 total					0,26	12,57	0,49	5,33
Meridional component	**DUACS geostrophic**		**GLO12 total**		**AWAC total detided**		**AWAC 6m total detided**	
SWOT geostrophic	0,30	34,36	0,22	34,33	0,07	29,65	0,14	29,98
DUACS geostrophic			0,22	12,77	0,44	23,37	0,19	11,21
GLO12 total					0,69	15,06	0,85	6,84