



Ifremer



Part 2: What are the recommended tools, techniques and data sets that are required by GlobCurrent?

What are the essential data for GlobCurrent?

- (i) Which Data for global ocean?
- (ii) Which Data for shelf seas?

MDT
MDT+SLA

SST, Δ SST
OC, Δ OC

σ , $\Delta\sigma$, Doppler
 Δ MSS ($\sim \Delta\sigma$)

SSS, Δ SSS

τ , $\Delta\tau$ (impact on ABL)



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Part 2: What are the recommended tools, techniques and data sets that are required by GlobCurrent (cont)?

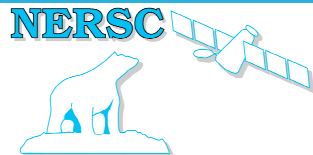
What are the essential QC Tools?

How to estimate uncertainty?

Which analysis and blending tools?

Recommended synergy/blending Techniques?

Gradient detectors,
Lyapunov,
MCC, SQG,
DOPRIM, etc....



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Part 2: What are the recommended tools, techniques and data sets that are required by GlobCurrent (cont)?

How to validate products?

Inter-comparison, models, dedicated field campaigns

Any other issue of relevance for tools, techniques and data sets?



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SYNERGETIC APPROACH to OCEAN DYNAMICS

$$\underline{U} = \underline{U}_{\text{mean}} + \underline{U}'_{\text{pert}}$$

Divergence of \underline{U}

Curl of \underline{U}

Ekman Current

MDT
MDT+SLA

SST, Δ SST
OC, Δ OC

σ , $\Delta\sigma$, Doppler
 Δ MSS ($\sim \Delta\sigma$)

SSS, Δ SSS

τ , $\Delta\tau$ (impact on ABL)

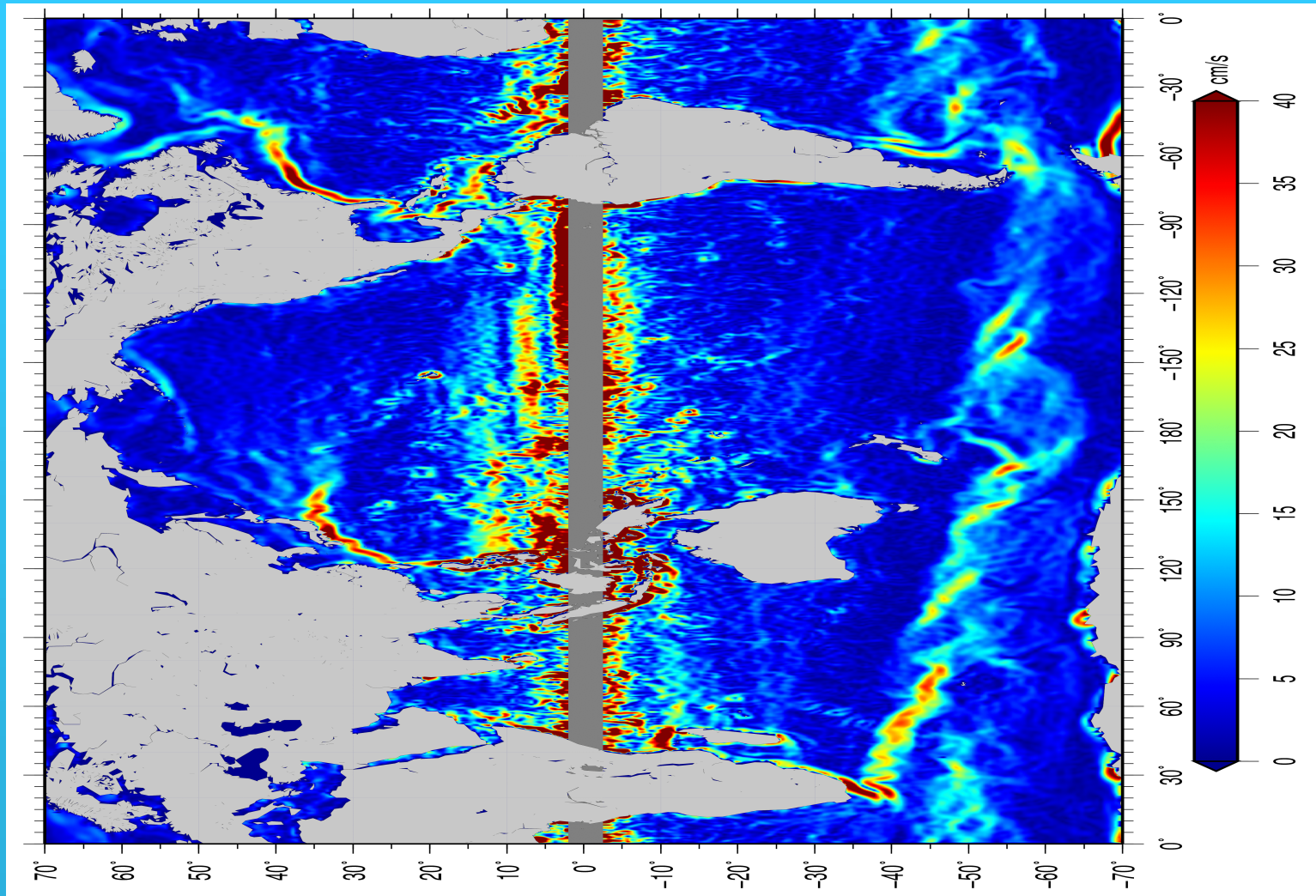
Make a consistent transfer of these fields to 2D surface dynamics and next to 3D upper (500m) ocean dynamics

Develop and apply common tools and methods (gradient detectors, Lyapunov, MCC, SQG, DOPRIM, etc....)



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Geostrophic currents from GOCE



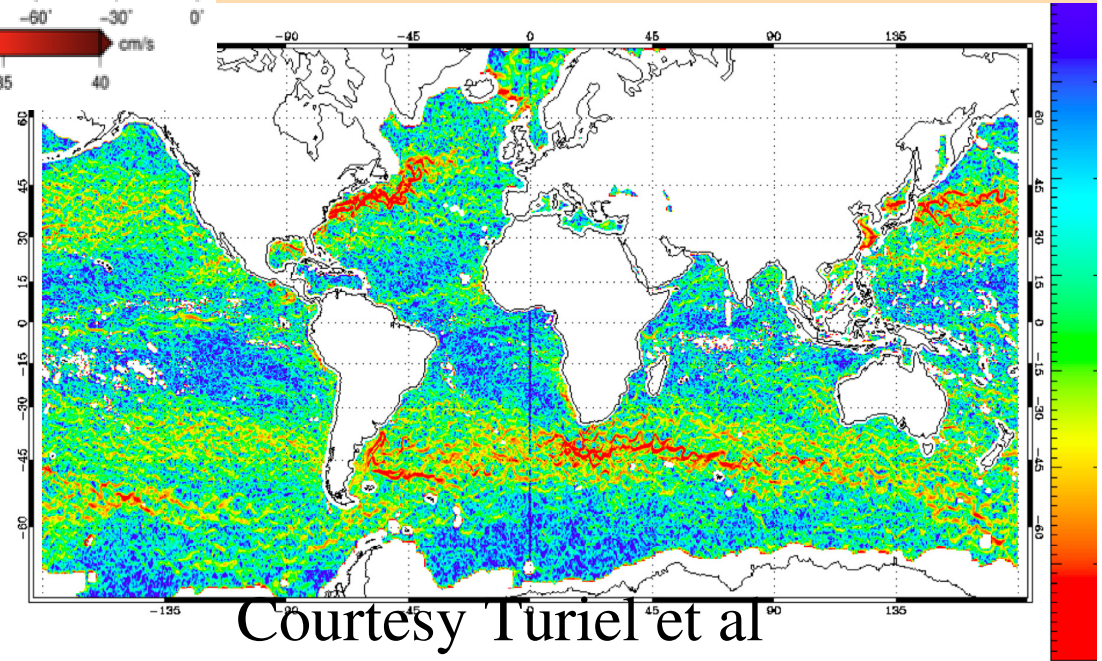
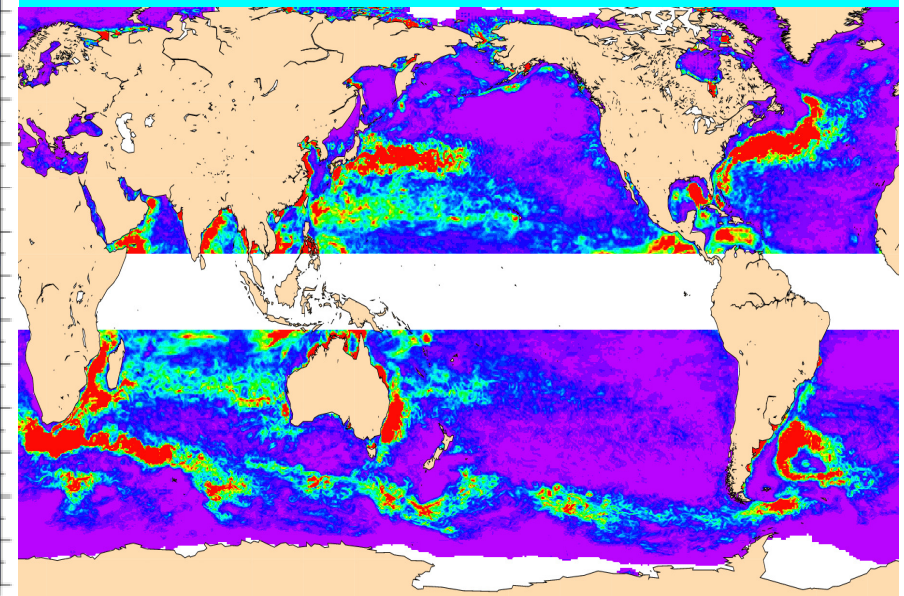
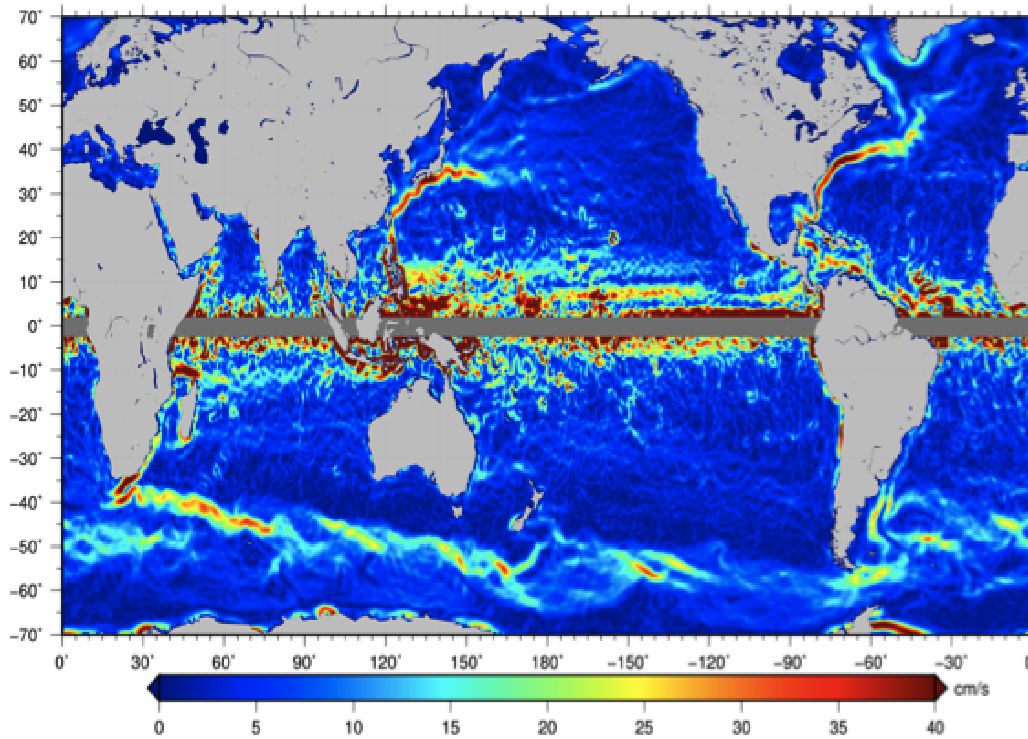
Geostrophic surface current speeds derived from the filtered GOCE_TIM3-

NERSC GLS11 MDT



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LINKS BETWEEN GOCE MSGC AND SST GRADIENTS and EKE (SCALE > 100 - 200 KM)



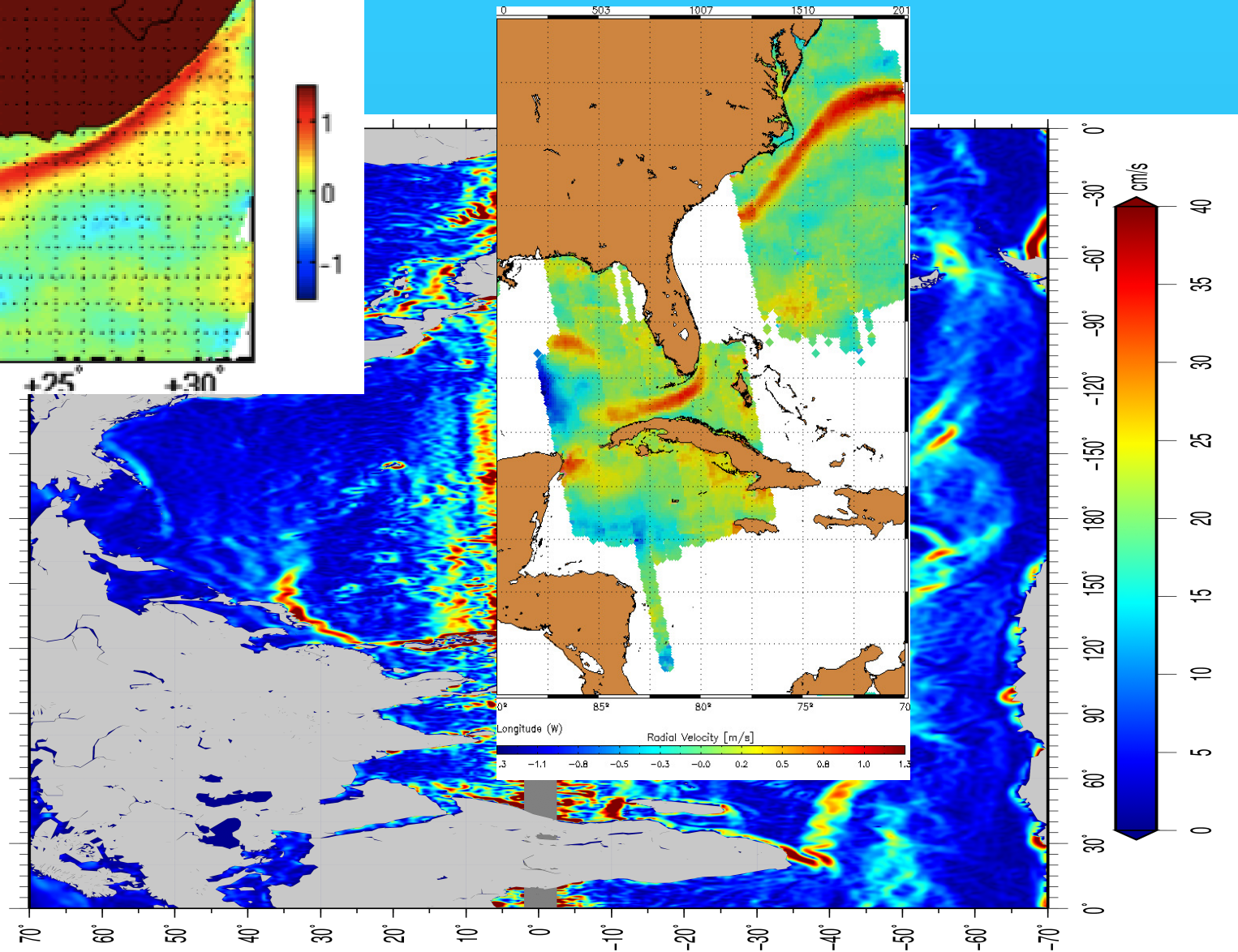
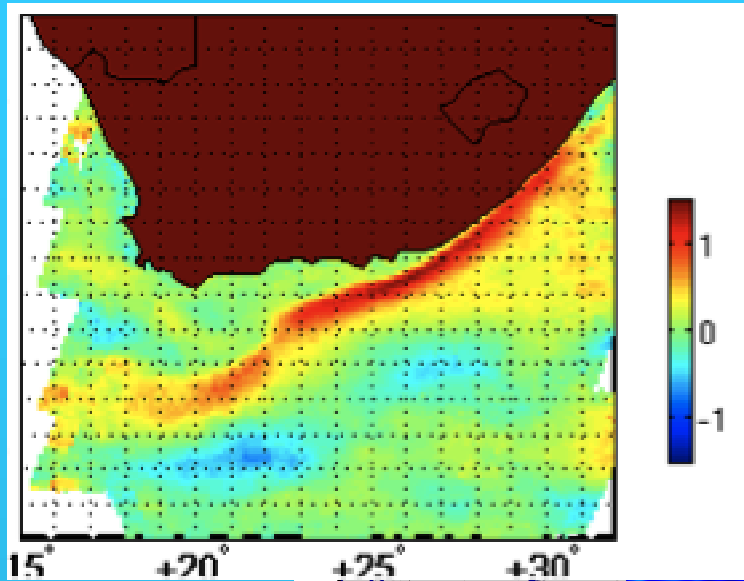
NERSC



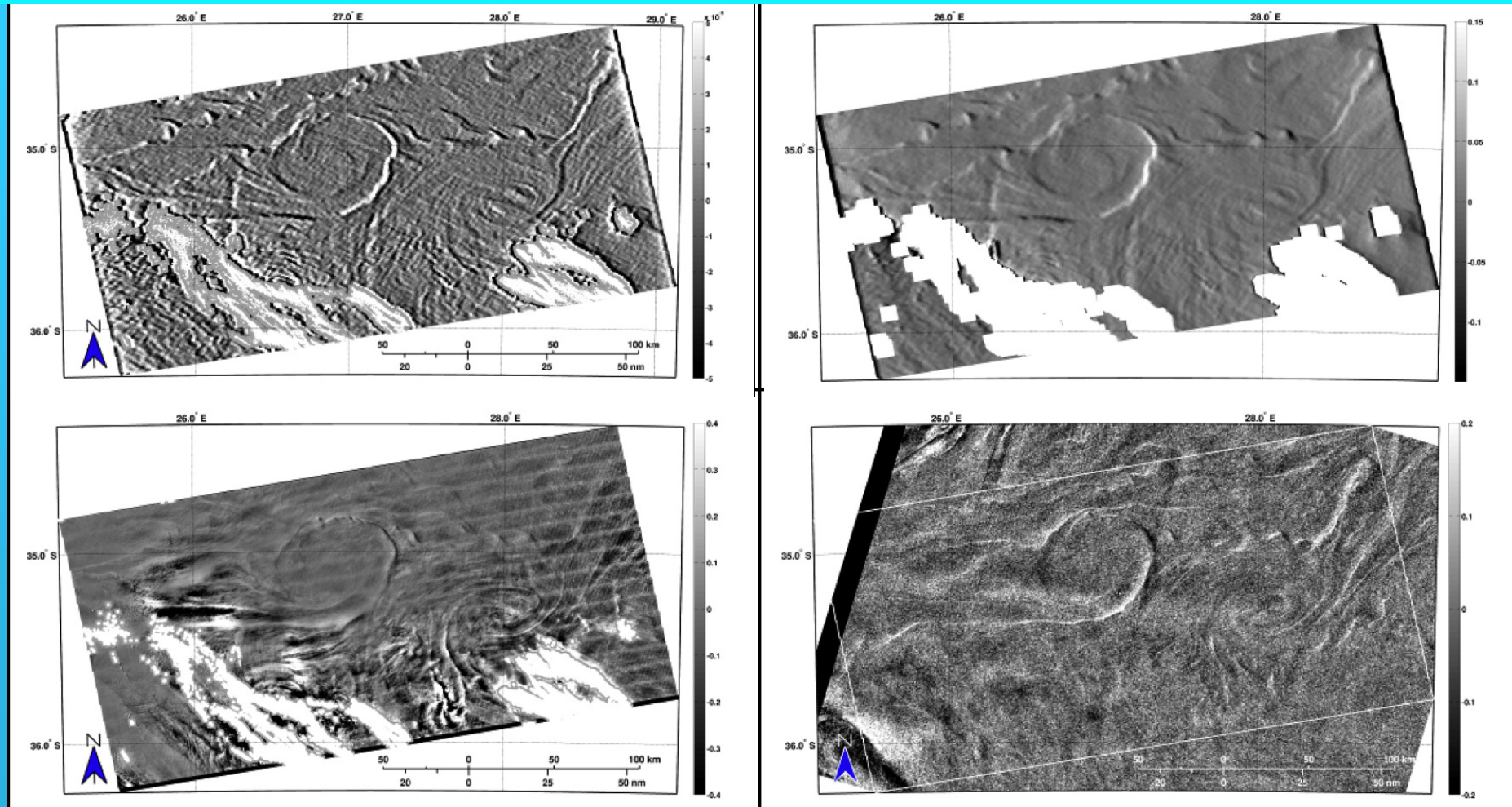
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Courtesy Turiel et al

LINKS BETWEEN GOCE MSGC and ASAR Doppler)



(Upper left) Divergence of the surface current derived from the SST field. Bright (dark) banded areas correspond to the current convergence (div). DOPRIM simulations of contrasts in the MSS (upper right), reflected shortwave signal (lower left) and observed SAR image(lower right)

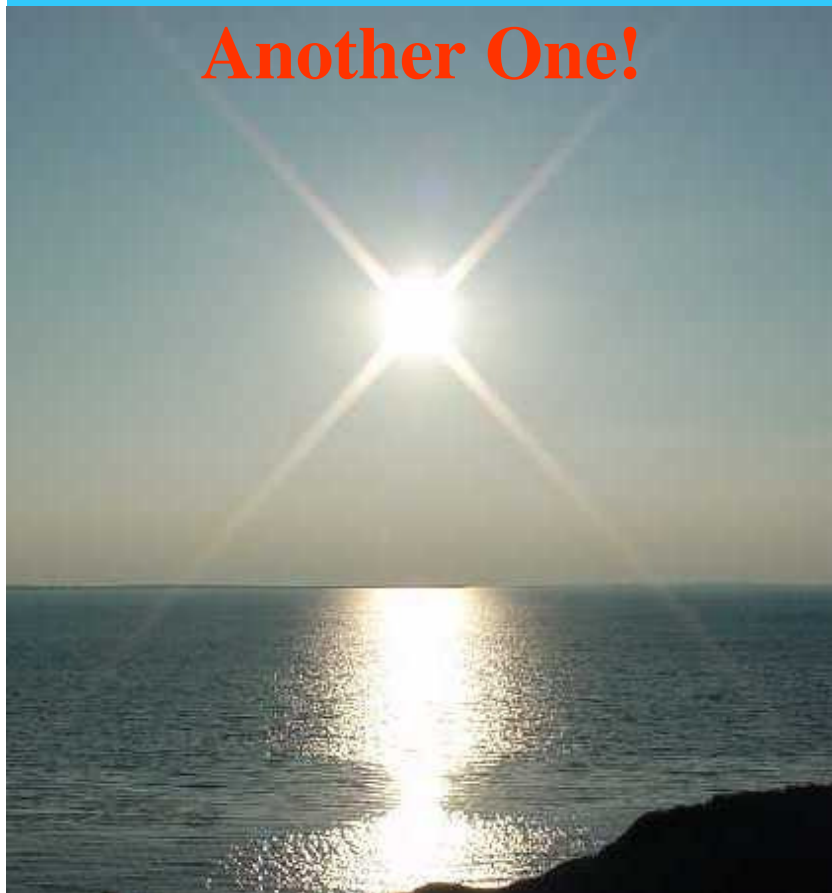


Kudryavtsev, A. Myasoedov, B. Chapron, J.A. Johannessen, F. Collard, 2012 (in press)



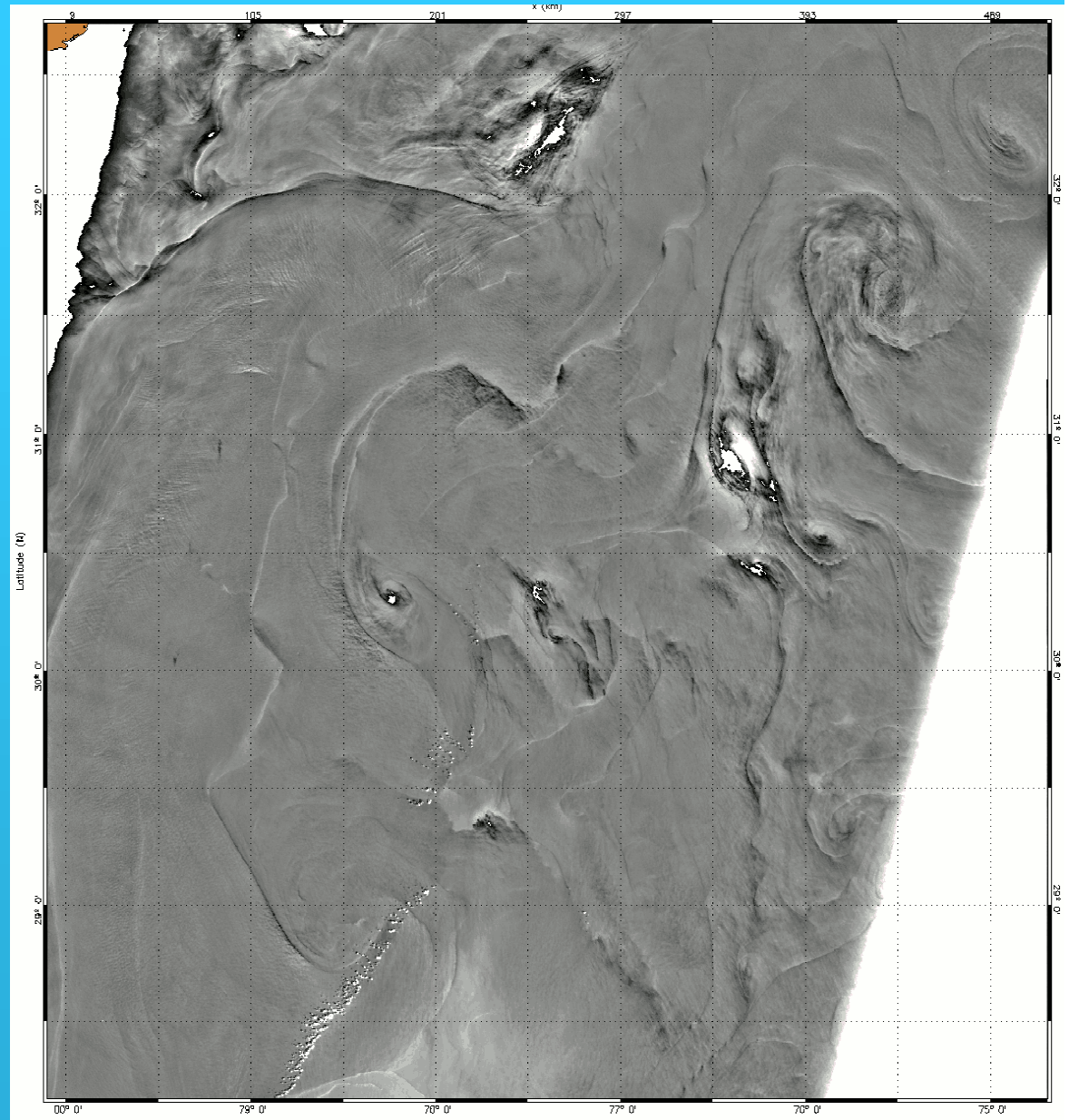
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Another One!



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AVHRR SST AND SUNGLINT



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