

Provision of regionally refined altimetry derived products are very useful for oceanic scientific cruises. In the recent past years the Ssalto/DUACS system contributes to provide such service and products, mainly based on altimeter measurements. This activity is performed with the support from CNES and in coordination with the TOSCA program.

Role of CNES/CLS :

Before the cruise: Provide useful information for cruise design: position and date of passage of specific altimeter tracks, position of eddies and front through the provision of Satellite based ocean information

During the cruise: Facilitate operational access to existing products that can contribute to the cruise activity (Altimeter Level3 and Level4 Ssalto/DUACS; other CLS products).

After the cruise: Provide specific regional products for post cruise data analysis: altimeter product (Level3 PEACHI; Level3 and Level4 Ssalto/DUACS; other CLS products)

TOSCA *
CNES program

2011: **KEOPS-2**
(<http://keops2.obs-vlfr.fr>)

2014: **MYCTO-3D**

2015: **SPURS1**
(<http://spurs.jpl.nasa.gov/>)

2016: **OSCAHR**
(<http://mio.pytheas.univ-amu.fr/OSCAHR/>)

2016: **SEAQUEST**
(<http://mio.pytheas.univ-amu.fr/SEAQUEST/>)

2016: **OUTPACE**
(<https://outpace.mio.univ-amu.fr/>)

2016: **CASSIS-MALVINAS**
(<http://www.cima.fcen.uba.ar/malvinascurrent/>)

Scientific cruises



*Terre Solide, Océan, Surfaces Continentales, Atmosphère

Which specific regional products can be provided ?

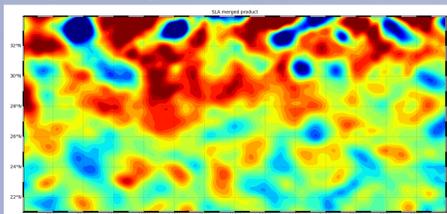
Altimeter Level2 products:

High resolution SLA along selected tracks can be processed specifically with up-to-date standards

Altimeter Level3 and Level4 Ssalto/DUACS products :

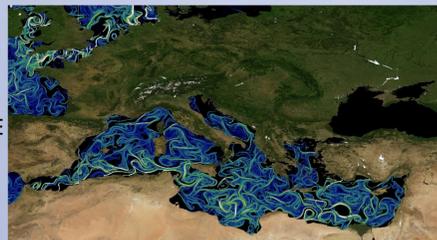
Ssalto/DUACS processing can be optimized specifically for the region considered using up to date altimeter standards & best quality mapping.

- Along-track 1Hz SLA and ADT
- gridded SLA and ADT
- gridded geostrophic currents

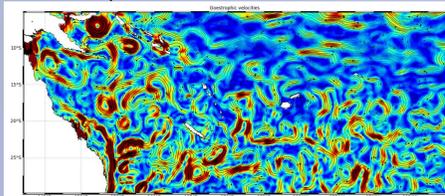


SLA and ADT gridded

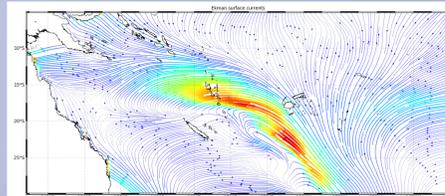
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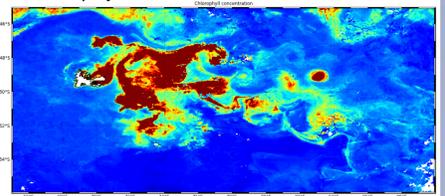
Geostrophic currents



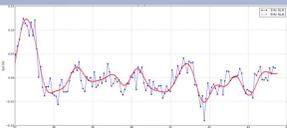
Ekman surface currents



Chlorophyll concentration



High-resolution SLA and ADT along-track



Feedbacks from users are crucial for us:

- Feedbacks on products usefulness and accuracy on specific areas contribute to improve the global product
- Promotion through papers and contribution to Aviso+ newsletters

See also poster "Comparison between high resolution altimetric products and in situ observations to guide oceanographic cruise" for OUTPACE application example.

Other CLS products:

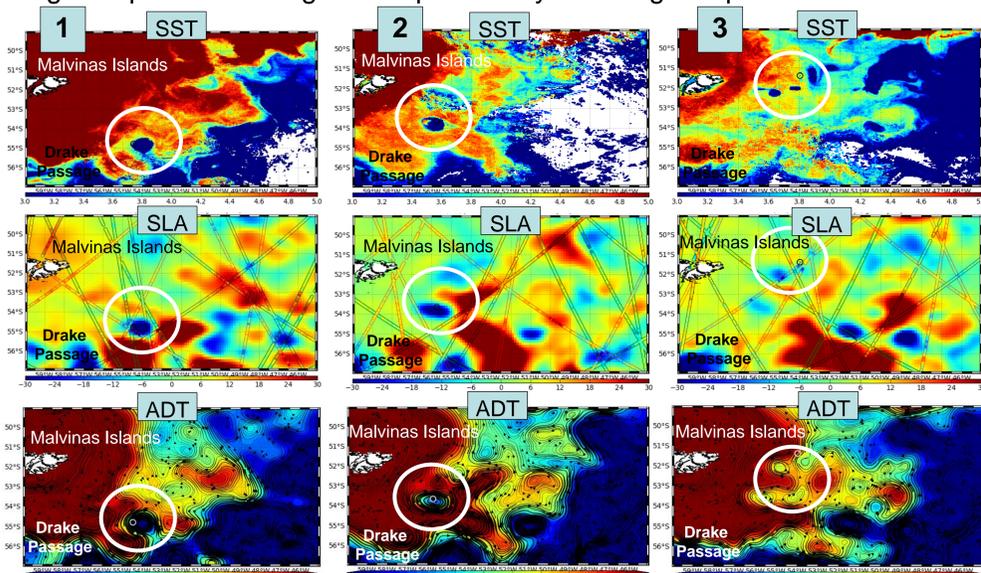
CLS specific products can be delivered :

- Composite maps of SST and chlorophyll concentration
- Ekman surface current component

→ All the products are distributed on Aviso+ ftp

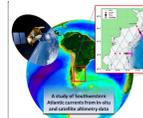
Malvinas Plateau: a hot spot for dissipation and mixing

Regional product manages to capture eddy breaking into pieces



- 1) A 100 km diameter eddy detaching from the PF. 5 satellite tracks cross the eddy.
- 2) Eddy loses intensity, no satellite track crosses the eddy.
- 3) Eddy breaks into two small eddies (50 km diameter). Regional product captures these small eddies.

Artana, C., Ferrari, R., Koenig, Z., Saraceno, M., Piola, A. R., & Provost, C. (2016). Malvinas Current variability from Argo floats and satellite altimetry. *Journal of Geophysical Research: Oceans*. DOI:10.1002/2016JC011889.



CASSIS-MALVINAS:

EOF analysis of the regional AVISO gridded SLA and in situ mooring data in the Brazil Malvinas confluence region

- Similar analysis with global product (see poster by Ferrari et al.)
- Altimeter regional product better than global AVISO SLA.
- 01/08/15: Altimeter regional gridded product: front over the moorings.
SST (CLS): front located north of the moorings.

Excellent performance of operational Mercator global-ocean (1/12°) model

