

Creating products and knowledge for the Mediterranean



MARINOMICA PRODUCTS PROVIDING HYDRODYNAMICS / WAVE INFORMATION

PLATFORM VALIDATION AND CAPACITY DEVELOPMENT WORKSHOP: HYDRODYNAMICAL AND WATER QUALITY MODELING BASED ON THE MARINOMICA PLATFORM

Wednesday-Thursday, 14- 15 July 2021

Katerina Spanoudaki

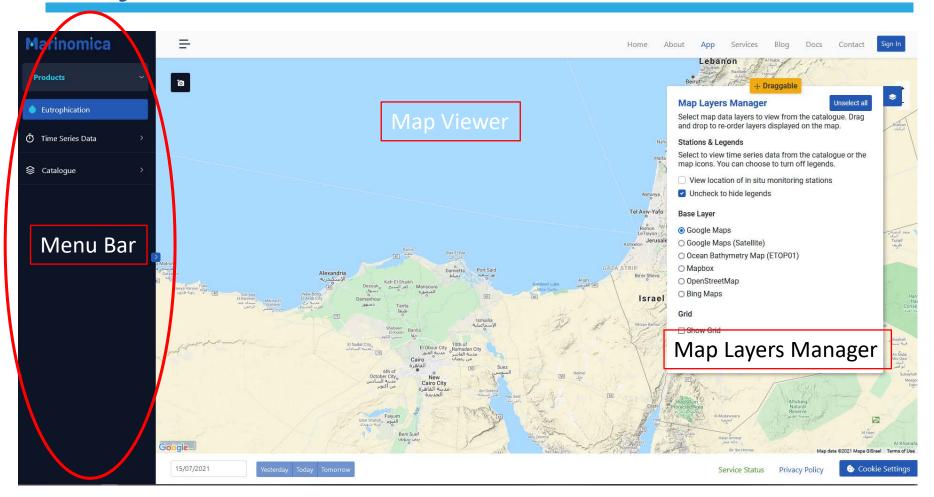
FORTH

kspanoudaki@gmail.com, kspanoudaki@iacm.forth,gr



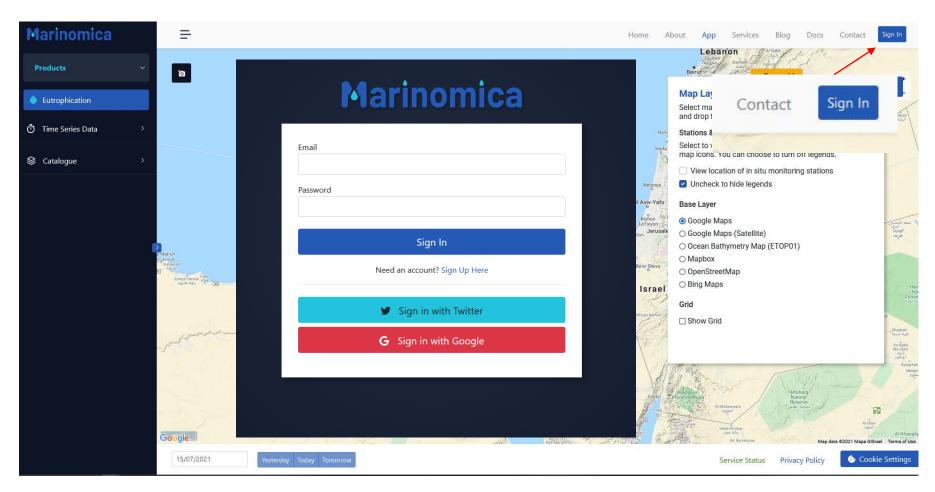
Overview of Marinomica Layout





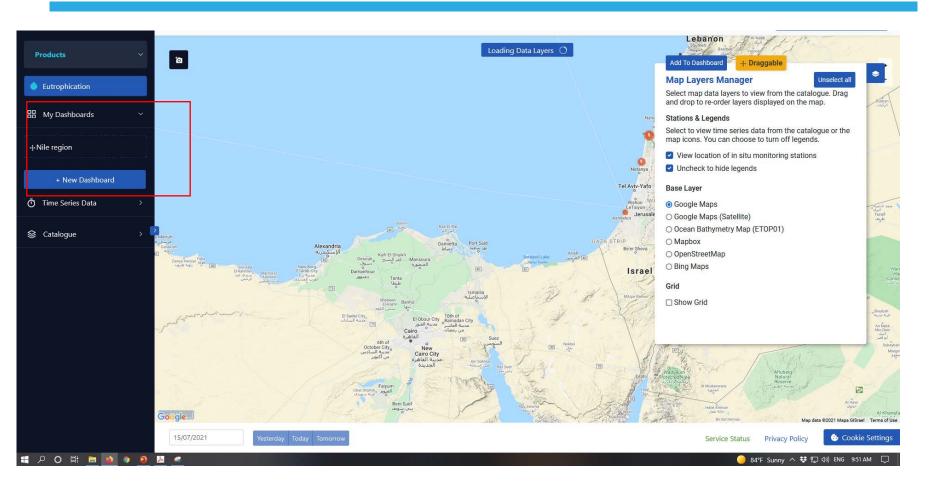
Create a dashboard





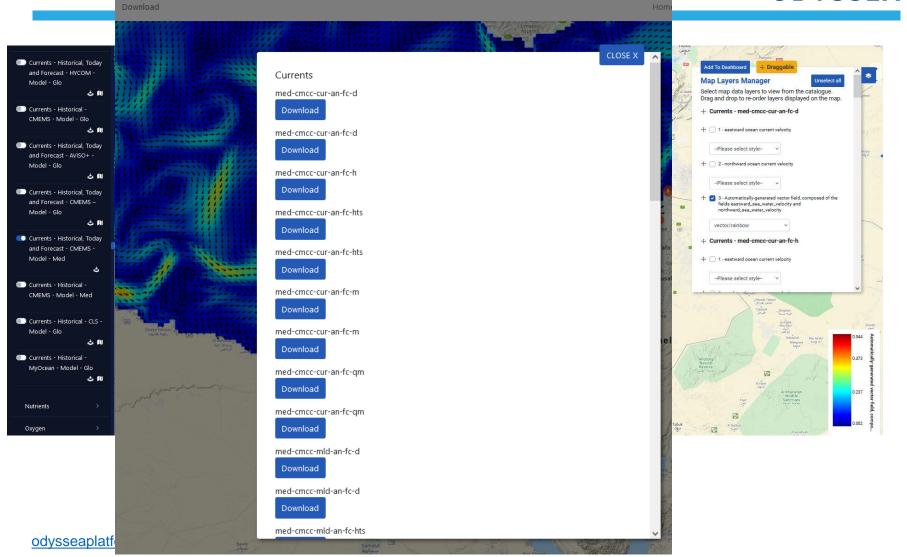
Create a dashboard



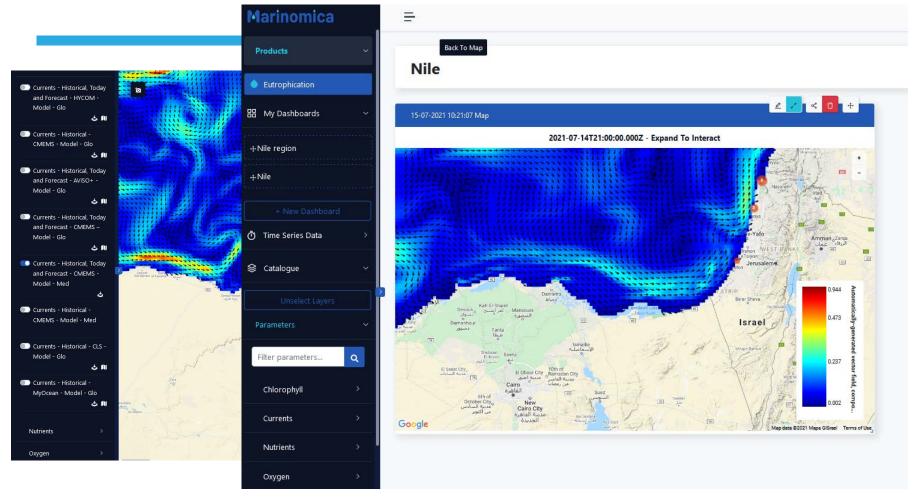




ODYSSEA



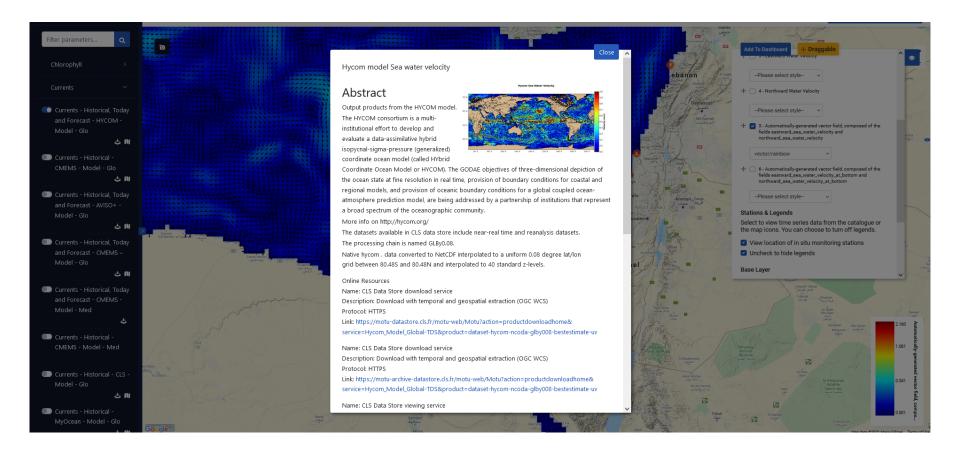












Map Data Layers – Sea Level



ODYSSEA

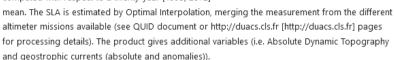
Close

MEDITERRANEAN SEA GRIDDED L4 SEA SURFACE HEIGHTS AND DERIVED VARIABLES NRT

Abstract

Short description:

Altimeter satellite gridded Sea Level Anomalies (SLA) computed with respect to a twenty-year [1993, 2012]



This product is processed by the DUACS multimission altimeter data processing system. It serves in near-real time the main operational oceanography and climate forecasting centers in Europe and worldwide. It processes data from all altimeter missions: Jason-3, Sentinel-3A, HY-2A, Saral/AltiKa, Cryosat-2, Jason-2, Jason-1, T/P, ENVISAT, GFO, ERS1/2. It provides a consistent and homogeneous catalogue of products for varied applications, both for near real time applications and offline studies.

To produce maps of Sea Level Anomalies (SLA) and Absolute Dynamic Topography (ADT) in near-real-time, the system uses the along-track altimeter missions from products called SEALEVEL*_PHY_L3_NRT_OBSERVATIONS_008_*. Finally an Optimal Interpolation is made merging all the flying satellites in order to compute gridded SLA and ADT. The geostrophic currents are derived from sla (geostrophic velocities anomalies, ugosa and vgosa variables) and from adt (absolute geostrophic velicities, ugos and vgos variables). Note that the gridded products can be visualized on the LAS (Live Access Data) Aviso+ web page (http://www.aviso.altimetry.fr/en/data/data-access/las-live-access-server.html [http://www.aviso.altimetry.fr/en/data/data-access/las-live-access-server.html]).

Online Resources

Name: dataset-duacs-nrt-medsea-merged-allsat-phy-l4

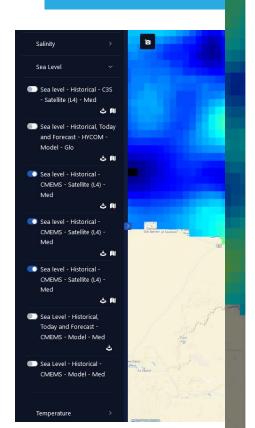
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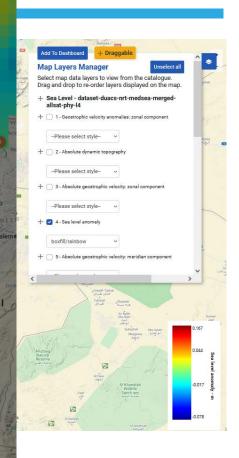
Protocol: MYO:MOTU-SUB

Link: https://nrt.cmems-du.eu/motu-web/Motu?action=describeproduct&

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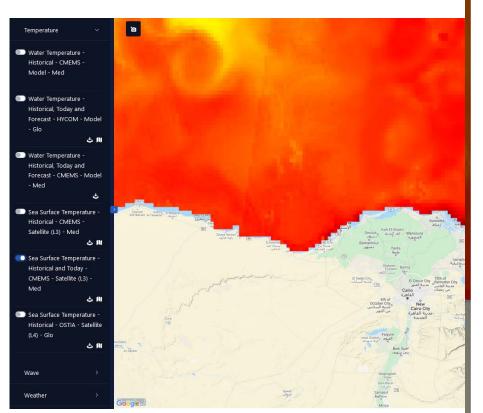
medsea-meraed-allsat-nhv-l4





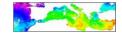
Map Data Layers – Temperature





Mediterranean Sea - High Resolution and Ultra High Resolution L3S Sea Surface Temperature

Abstract



Short description:

For the Mediterranean Sea (MED), the CNR MED Sea Surface Temperature (SST) processing chain provides supercollated (merged multisensor, L3S) SST data remapped over the Mediterranean Sea at high (1/16°) and Ultra High (0.01°) spatial resolution, representative of nighttime SST values (00:00 UTC). The L3S SST data are produced selecting only the highest quality input data from input L2P/L3P images within a strict temporal window (local nightime), to avoid diurnal cycle and cloud contamination. Consequently, the L3S processing is run daily, but L3S files are produced only if valid SST measurements are present on the area considered.

Online Resources

Name: SST_MED_SST_L3S_NRT_OBSERVATIONS_010_012_a

Description:

Protocol: MYO:MOTU-SUB

Link: https://nrt.cmems-du.eu/motu-web/Motu?action=describeproduct&service=SST_MED_SST_L3S_NRT_OBSERVATIONS_010_012-TDS&product=SST_MED_SST_L3S_NRT_OBSERVATIONS_010_012_a

Name: SST_MED_SST_L3S_NRT_OBSERVATIONS_010_012_a

Description:

Protocol: WWW:FTP

Link: ftp://nrt.cmems-du.eu/Core/SST_MED_SST_L3S_NRT_OBSERVATIONS_010_012 /SST_MED_SST_L3S_NRT_OBSERVATIONS_010_012_a

Name: SST_MED_SST_L3S_NRT_OBSERVATIONS_010_012_a

Description:

Protocol: OGC:WMS:getCapabilities

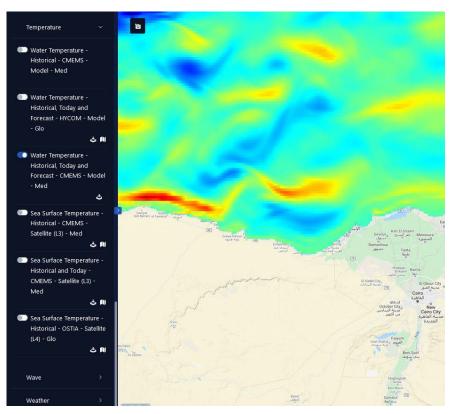
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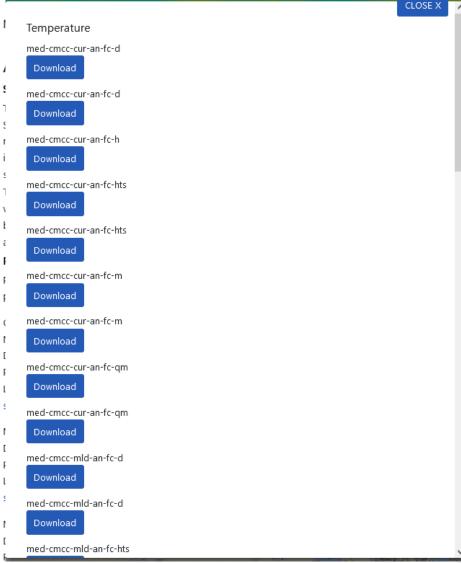
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Description:

Protocol: MYO:MOTU-SUB

Map Data Layers – Temperature





Map Data Layers – Waves



ODYSSEA

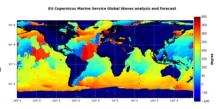
ю Oxygen Phytoplankton Salinity Sea Leve Temperature Wave Waves - Historical, Today and Forecast - CMEMS -Model - Glo Waves - Historical -ECMWE - Model - Glo Waves - Historical - NOAA - Model - Glo Waves - Historical, Today and Forecast - CMEMS -Model - Med Waves - Historical -CMEMS - Model - Med

EU Copernicus Marine Service Global Waves analysis and forecast

Abstract

Short description:

The operational global ocean analysis and forecast system of Météo-France with a resolution of 1/12 degree is providing daily analysis and 5 days forecasts for the global ocean sea surface waves. The time

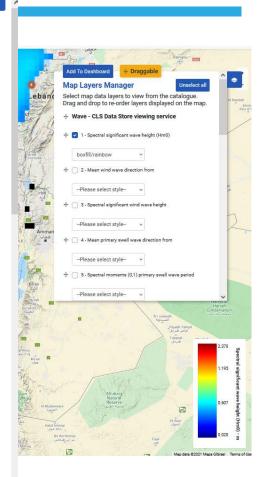


series starts on April 1st, 2015. This product includes 3-hourly instantaneous fields of integrated wave parameters from the total spectrum (significant height, period, direction, Stokes drift,...etc), as well as the following partitions: the wind wave, the primary and secondary swell waves. Detailed description:

The global wave system of Météo-France is based on the wave model MFWAM which is a third generation wave model. MFWAM uses the computing code ECWAM-IFS-38R2 with a dissipation terms developed by Ardhuin et al. (2010). The model MFWAM was upgraded on november 2014 thanks to improvements obtained from the european research project « my wave » (Janssen et al. 2014). The model mean bathymetry is generated by using 2-minute gridded global topography data ETOPO2/NOAA. Native model grid is irregular with decreasing distance in the latitudinal direction close to the poles. At the equator the distance in the latitudinal direction is more or less fixed with grid size 1/10°. The operational model MFWAM is driven by 6-hourly analysis and 3-hourly forecasted winds from the IFS-ECMWF atmospheric system. The wave spectrum is discretized in 24 directions and 30 frequencies starting from 0.035 Hz to 0.58 Hz. The model MFWAM uses the assimilation of altimeters with a time step of 6 hours. The global wave system provides analysis 4 times a day, and a forecast of 5 days at 0:00 UTC. The wave model MFWAM uses the partitioning to split the swell spectrum in primary and secondary swells.

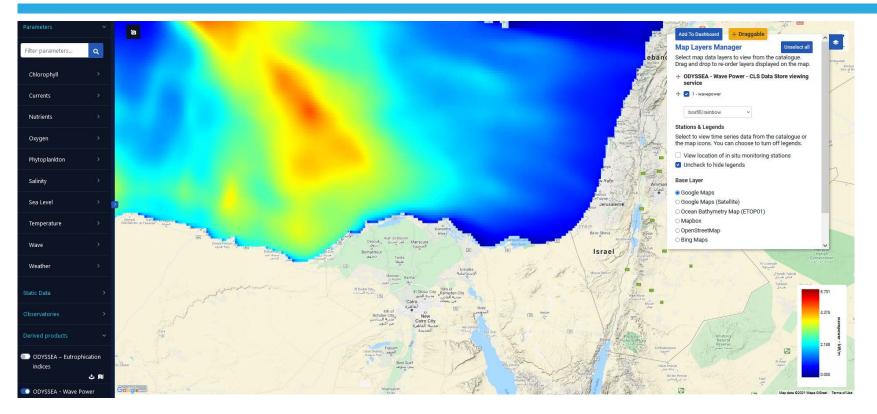
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F. Ardhuin, R. Magne, J-F. Filipot, A. Van der Westhyusen, A. Roland, P. Quefeulou, J. M. Lefèvre, L. Aouf, A. Babanin and F. Collard: Semi empirical dissipation source functions for wind-wave models: Part I, definition and calibration and validation at global scales. Journal of Physical Oceanography, March 2010.P. Janssen, L. Aouf, A. Behrens, G. Korres, L. Cavalieri, K. Christiensen, O. Breivik: Final report of work-package I in my wave project. December 2014.



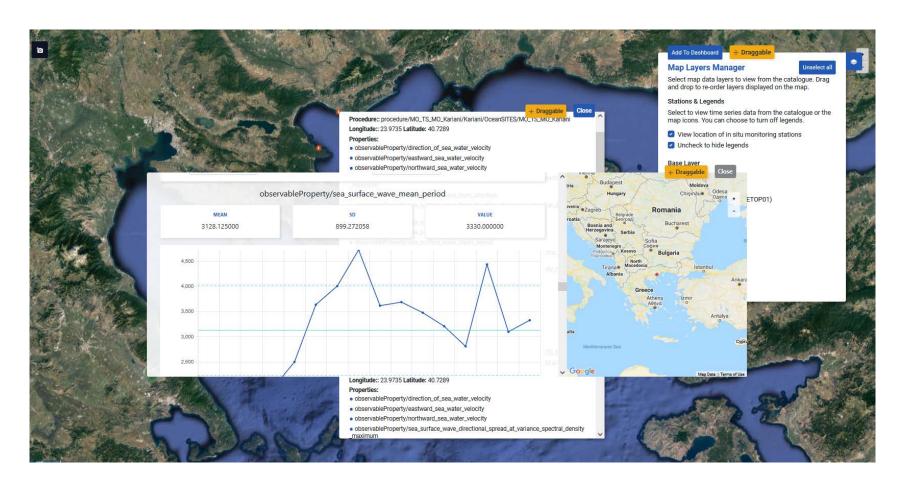
Map Data Layers – Derived products – Wave power





Time series Data





The Observatories



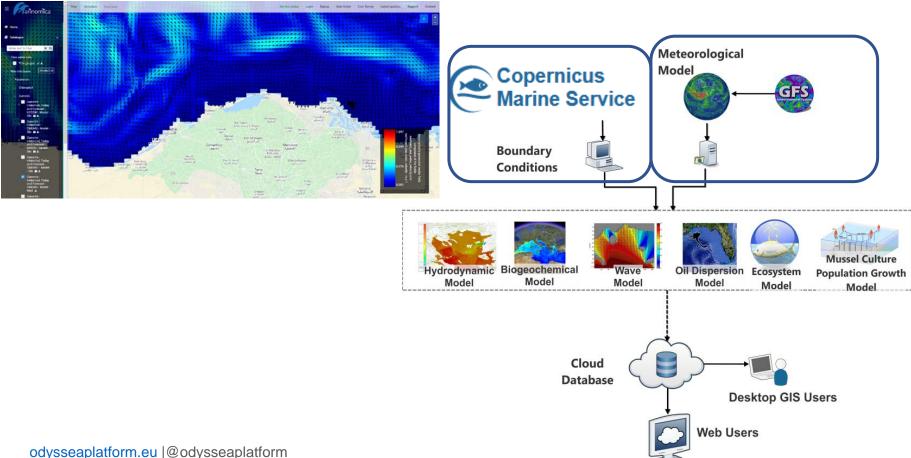
- ✓ A network of 9 observing and forecasting systems covering coastal and shelf zone environments,
- ✓ Diverse systems from Ecologically-vulnerable systems (MPAs) to systems with increased human pressure,
- ✓ Combine monitoring and modeling activities,
- ✓ Produce new datasets with increased spatial and temporal resolution, stored, manipulated, made accessible through Marinomica platform.



The forecasting chain



From CMEMS Med MFC products to coastal high-resolution models



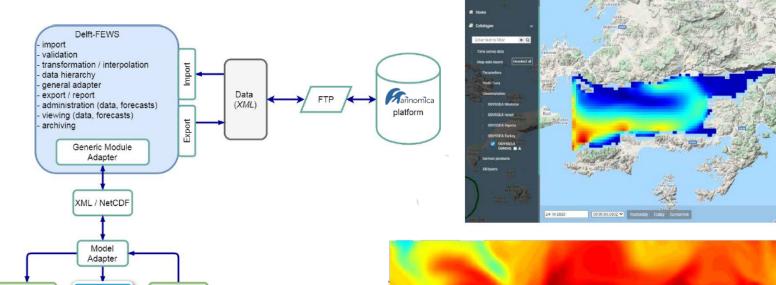
Operational interfaces



Delft-FEWS and AQUASAFE platforms used to import initial and boundary conditions, surface forcing, couple and operationalize

models

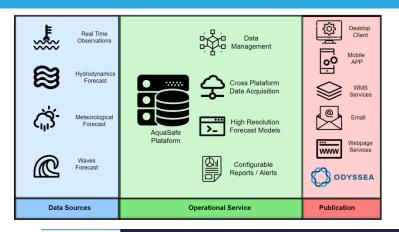
Native format

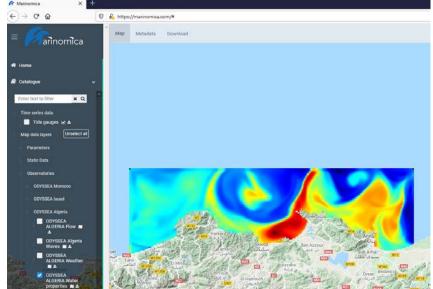


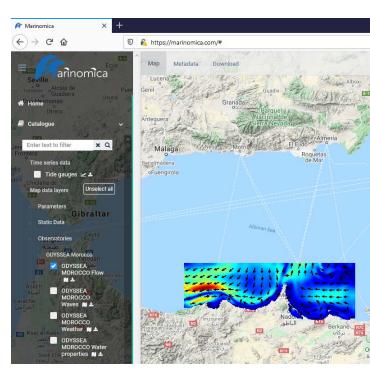
Native format

Operational interfaces









Observatories





Clear Map

Variable

DownI oad	Na me	Description	Standard Name	Long Name	Uni ts
✓	ssh	sea surface height	sea_surface_height	sea surface height	m
✓	u	eastward sea water velocity	eastward_sea_water _velocity	eastward sea water velocity	m s-1
✓	v	northward sea water velocity	northward_sea_wat er_velocity	northward sea water velocity	m s-1

Download

ODYSSEA MOROCCO Flow

Abstract

The Morocco Observatory Forecast System provides regional 2-days forecast regarding ocean hydrodynamics. These forecasts are generated daily by local observatory with a horizontal resolution of 1/120° (~800m).

The system uses the numerical model MOHID to provide the forecast, running a 3D baroclinic model with 12 Sigma (first 19.4m) and 63 Cartesian (until bottom) layers.

The Open Boundary Conditions (OBCs) are defined, by superimposing the Marine Copernicus Global Physics, 0.08 degrees resolution, low frequency solution, with the high-frequency solution (tide) from Global Tide Model FES2014. The atmospheric boundary conditions, for momentum and heat, are imposed using the DWD ICON Europe 7Km Solution and NOAA Global Forecast System 0.25°.

Outputs are provided in hourly base at surface for sea level and currents.

Online Resources

Name: CLS Data Store download service

Description: Download with temporal and geospatial extraction (OGC WCS)

Protocol: HTTPS

 $\label{limit} \begin{tabular}{ll} Link: https://motu-datastore.cls.fr/motu-web/Motu?action=listproductmetadata& service=ODYSSEA_data-TDS&product=dataset-aquasafe-morocco-flow & the control of the con$

Name: CLS Data Store viewing service

Description: Viewing with temporal and geospatial extraction (OGC WMS)

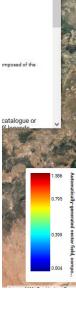
Protocol: HTTPS

Link: https://tds-datastore.cls.fr/thredds/wms/dataset-aquasafe-morocco-flow?service=WMS& version=1.3.0&request=GetCapabilities

Keywords	Source	Modified
Type	References	Date
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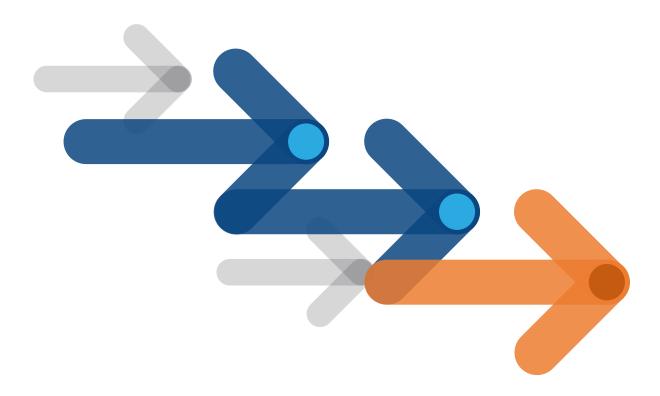
Boundina Box

Bottom left corner: lat: 35.07416534423828/lon:-2.1216650009155273



Questions





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THANK-YOU

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