The **CYC⌒FOS** new Web GIS

Cyprus Coastal Ocean Forecasting and Observing System

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Outlines

➢ CYCOFOS forecasting
models domains, configuration
➢ Web GIS structure

CYCOFOS has been developed during *MFSPP*, back in 1999 and it was the 1st coastal system provided operational forecasts in March 2002. Since then, **CYCOFOS** periodically is improved.

CYCOFOS became a component of *MONGOOS and EuroGOOS* for hydrodynamical downscaling at sub-regional and coastal scales in the Eastern Med Sea, acting as intermediate user of the Copernicus Marine Service in the Med Sea – CMEMS Med MFC.
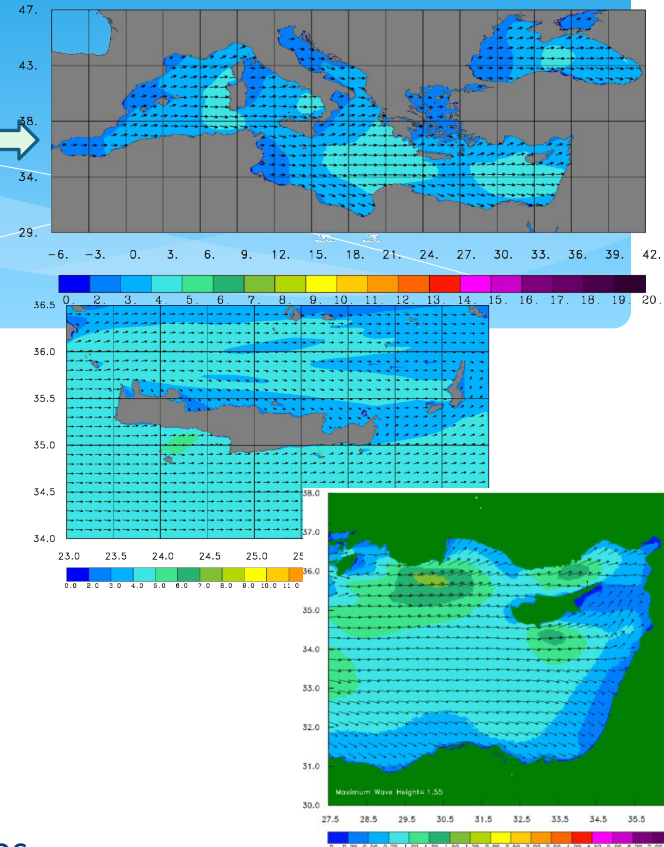
The new CYCOFOS hydrodynamical models
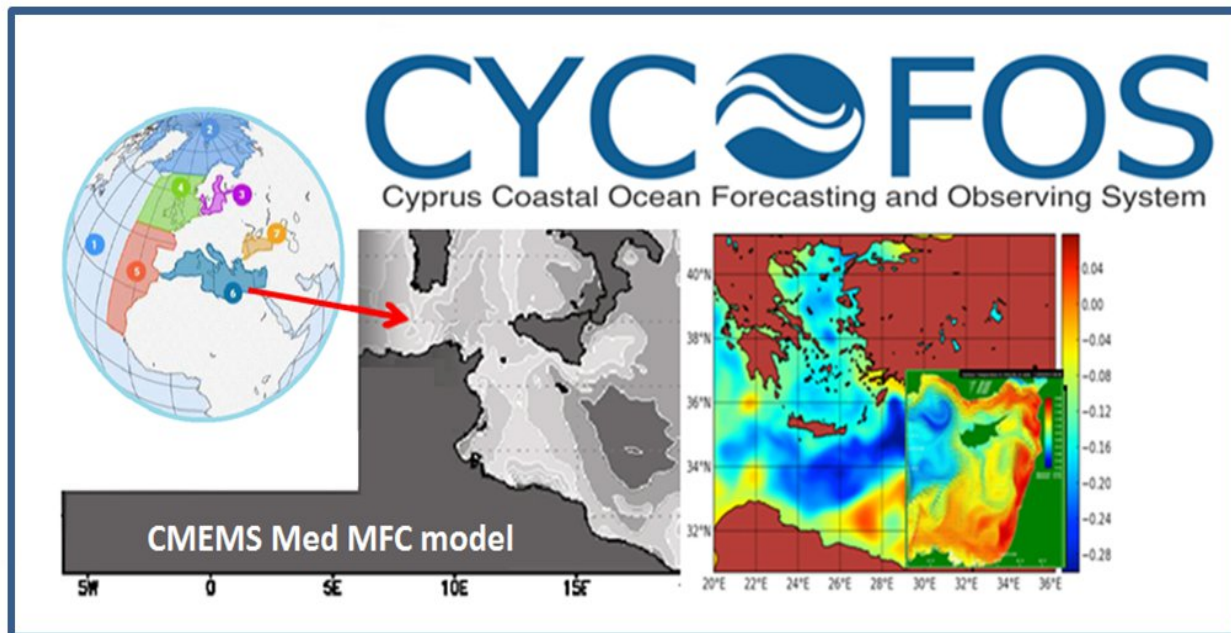
The new CYCOFOS wave model

CYCOFOS regional
- wave forecast in the entire Mediterranean and Black seas
Resolution: 5 km

CYCOFOS Sub-regional
- for wave forecast in sub-regional (Cretan, Levantine)
Resolution: 1/60 degrees ~ 1.8 Km

CYCOFOS use the new ECMWF WAM CY46R1 parallel version including a number of new options/features:

An additional source of short-wave dissipation is introduced to represent the dissipation of short waves due to longer breaking waves.

Nesting domain running in parallel.

Wave-Current interaction using Copernicus Med MFC sea surface currents and provide the surface drag coefficient for flow models.

Extreme values estimation (maximum expected wave height and period).

The new CYCOFOS models configurations

CYCOFOS hydrodynamical models (POM)	Eastern Mediterranean	Levantine basin	CYCOFOS wave model (WAM)	Mediterranean & Black Sea
Model's domain	29N – 47N, 6W – 42E	31N – 37 N, 30E-36E	Model's domain	29N – 47N, 6W – 42E
Horizontal Resolution	2 km	600m	Horizontal Resolution	0.05 x 0.05 degrees
Vertical layers	30 sigma layers	30 sigma layers	Frequencies	25, range 0.0417 - 0.54764 Hz logarithmically spaced)
Initial/lateral boundaries	CMEMS Med MFC or NOAA	CYCOFOS East Med.	Directions and time steps	24 (equally spaced) 120 sec
Surface fluxes	SKIRON or ECMWF	SKIRON or ECMWF	Surface fluxes	SKIRON wind
Forecasting details	Daily: 6 hourly for 5 days, in netcdf file	Daily: 6 hourly for 5 days, in netcdf files	Forecasting details	Daily: hourly for 5 days , in netcdf files

CYCOFOS provides forecast to the HERMES project coastal domains in the East Med Sea and Black Sea

CYCOFOS WEB GIS structure

CYCOFOS FTP temp, salinity,currents	CYCOFOS FTP Wave	CMEMS & SKIRON FTP Fluxes
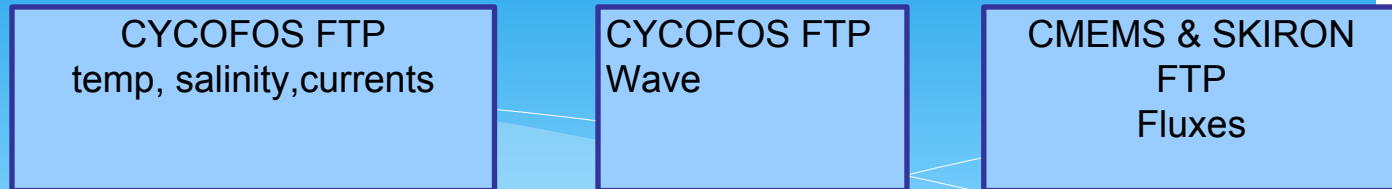
download scripts

SERVER

XML

php scripts → **Forecast visualization files** ← **python scripts** ← **Forecast netCDF files**

User Interface

CYCOFOS forecasting parameters

Region	Parameters		
Mediterranean Sea, Black Sea	Wave	Date, time	
	Wind	Date,time	
Levantine basin, East Med Sea, HERMES coastal domains	Wave	Date,time	
	Wind	Date, time	
	Current	Date, time	depth
	Temperature	Date, time	depth
	Salinity	Date,time	depth

CYCOFOS WEB GIS interface

http://cycofos.orioncyprus.org/cycofos.htm
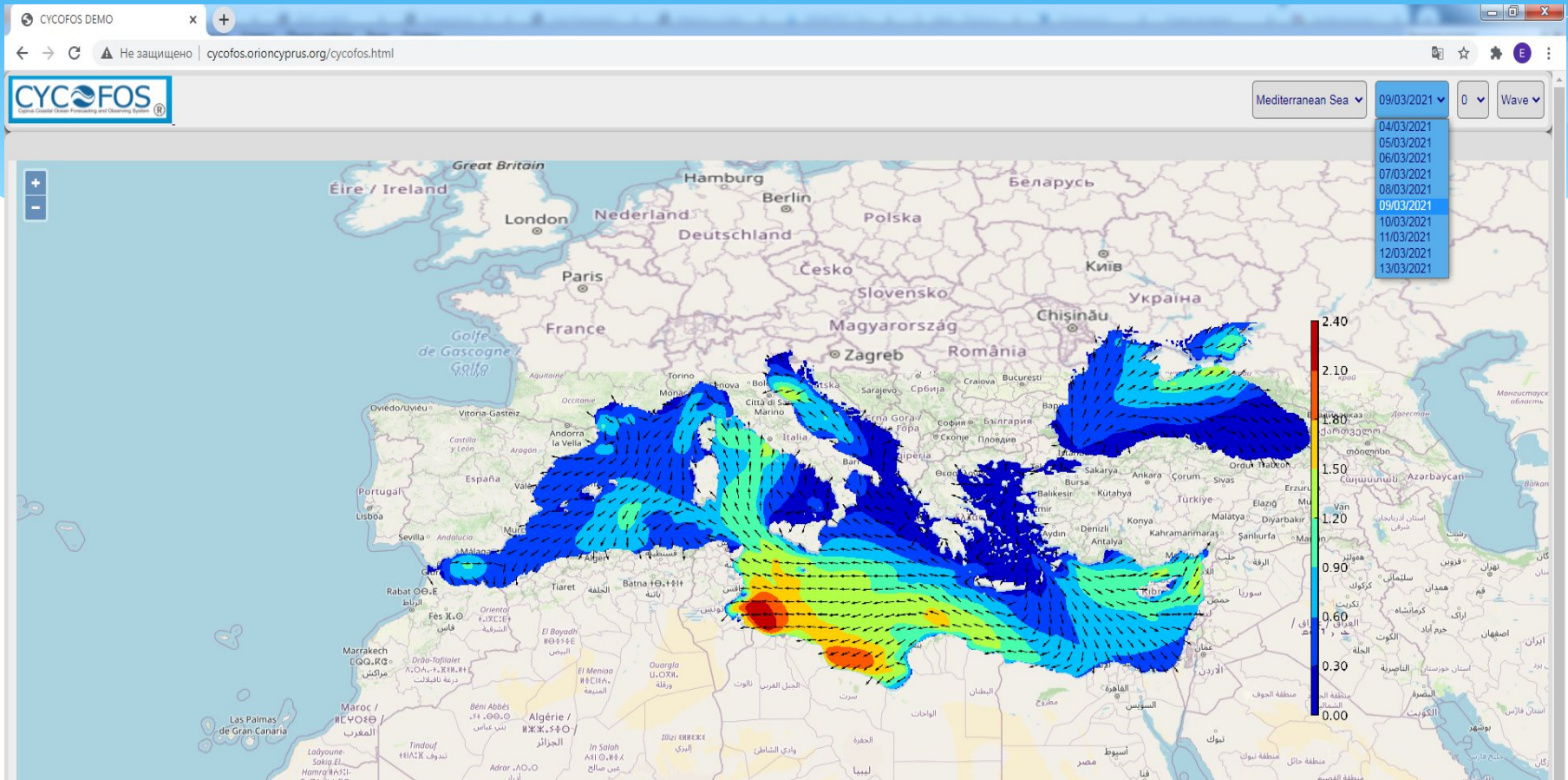
Wave forecast for Mediterranean Sea on March 9, 0 hour

CYCOFOS WEB GIS interface
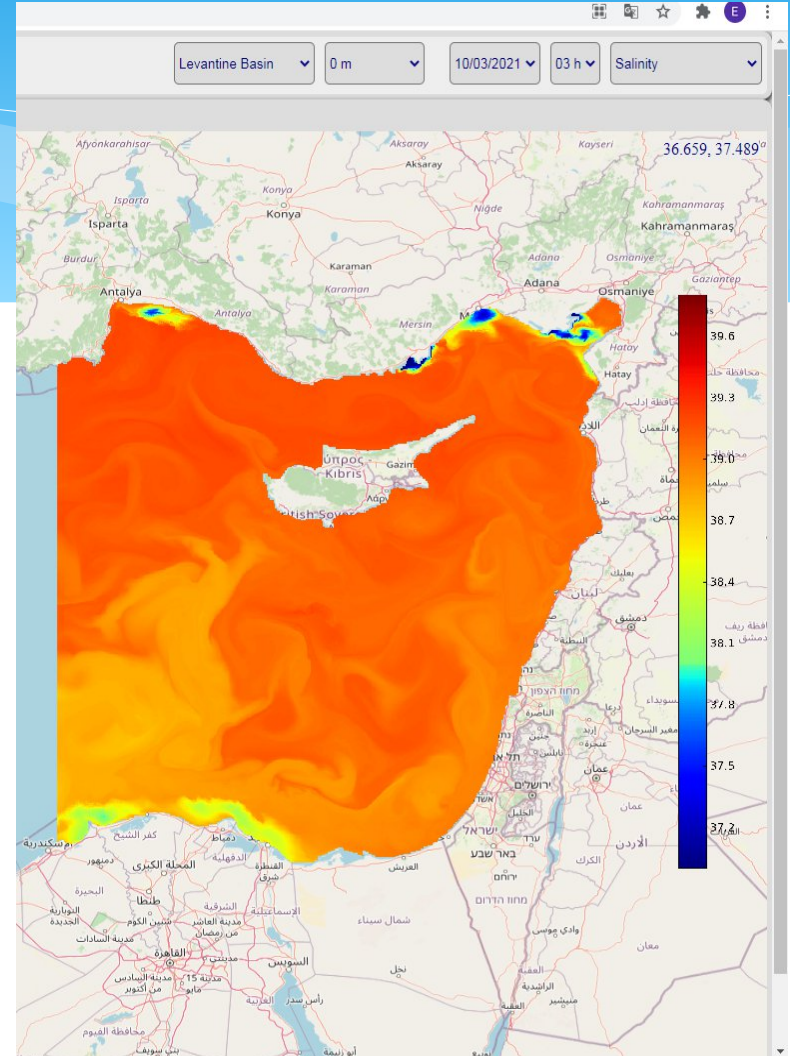
http://cycofos.orioncyprus.org/cycofos.htm
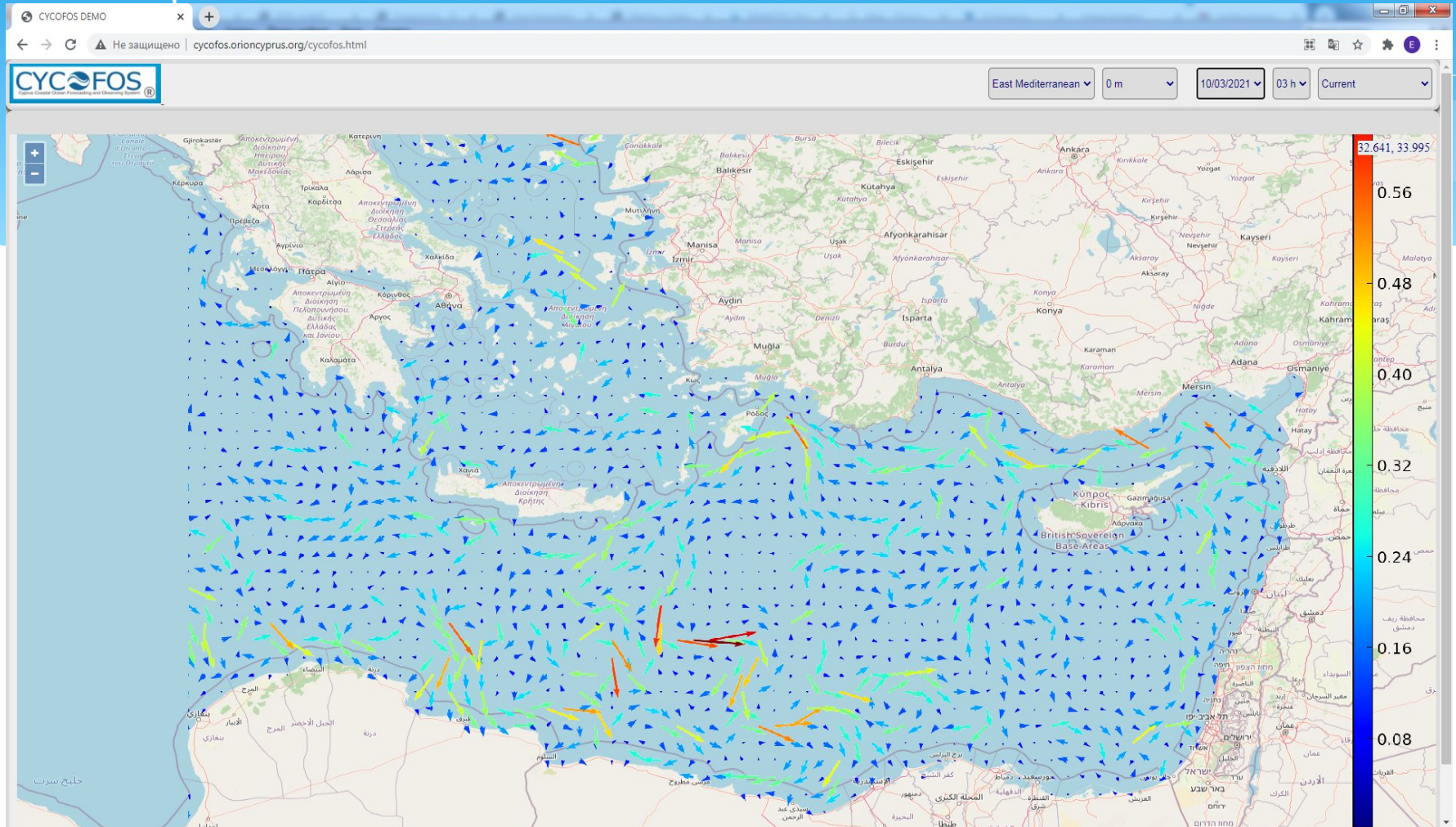
Current forecast for East Mediterranean Sea on March 10, 03 hour at 0 m depth

CYCOFOS WEB GIS interface

http://cycofos.orioncyprus.org/cycofos.htm
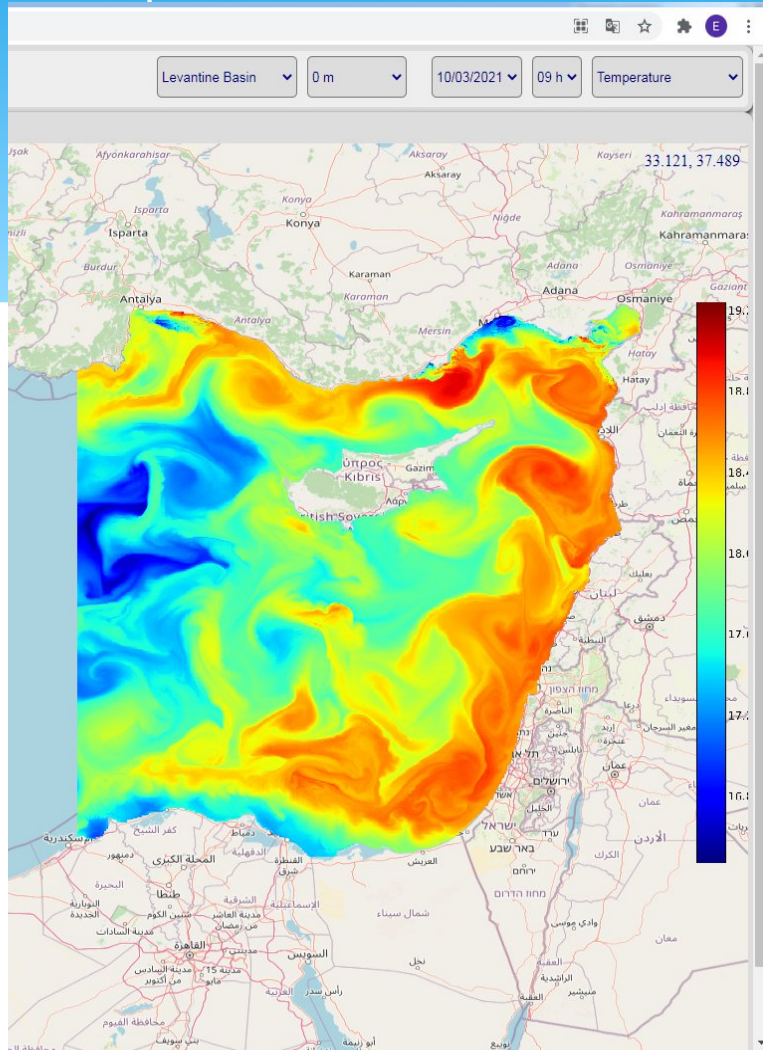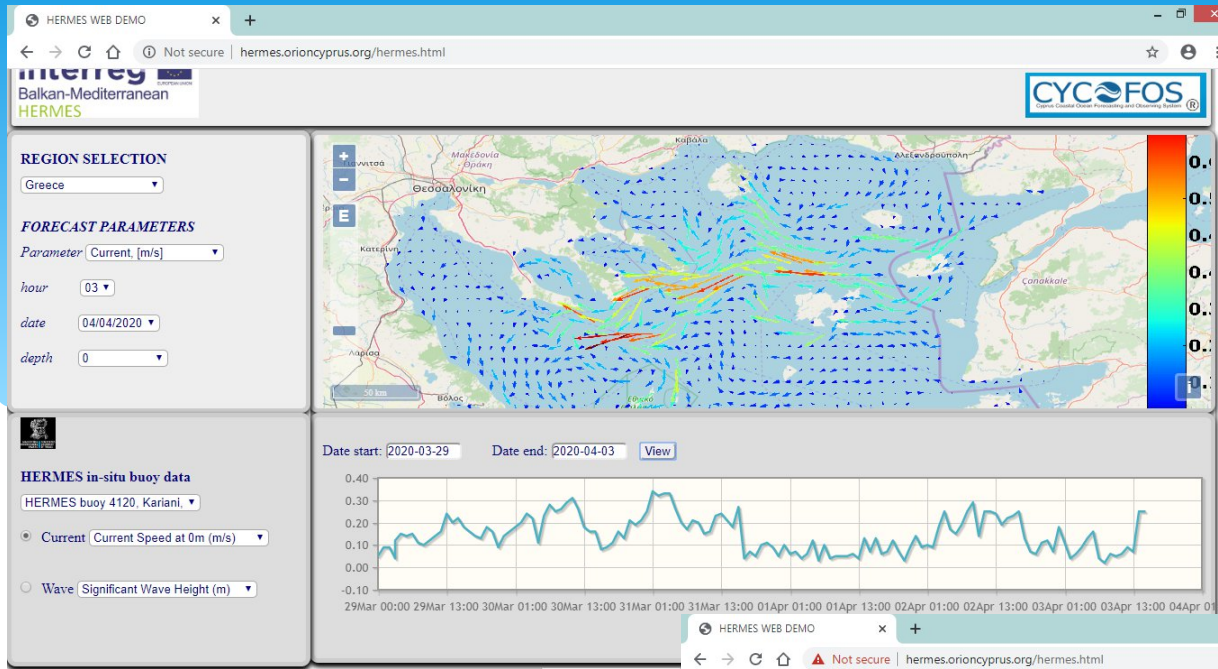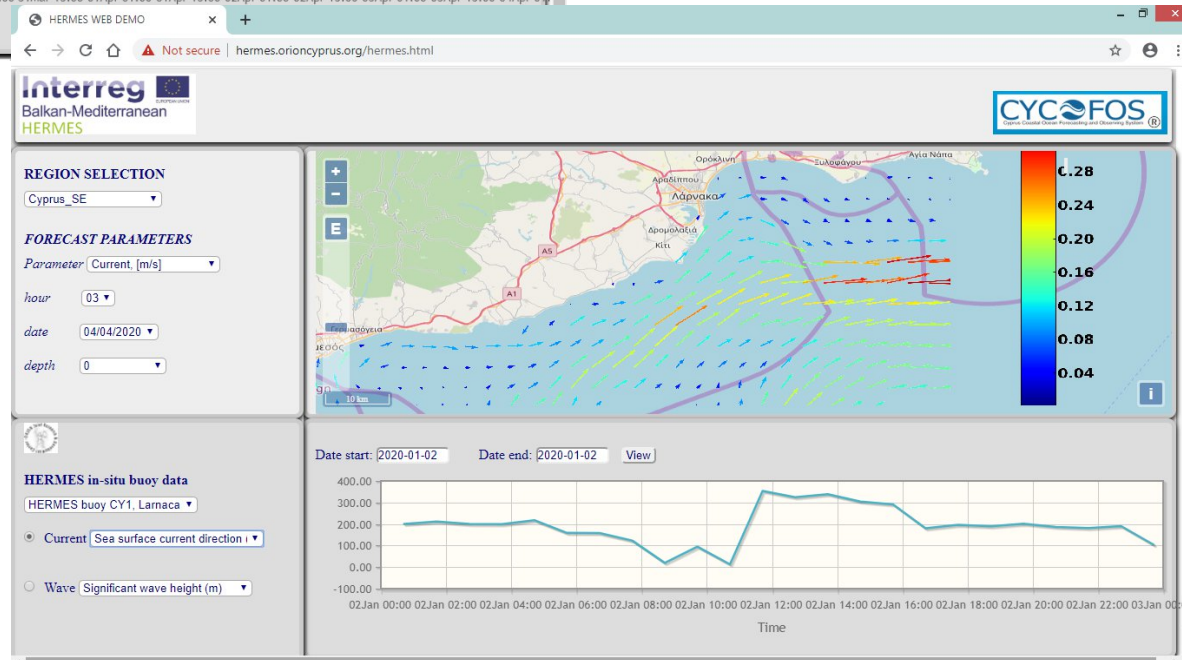

Temperature and Salinity Levantine Sea on March 10, 09 and 03 hour at 0 m depth

CYCOFOS for HERMES project domains

Example of the HERMES Web GIS visualization of the CYCOFOS forecasting data in the North Aegean and the SE coastal zone of Cyprus

THANK YOU FOR YOUR ATTENTION!