CIMA (+ BSC) updates
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WGSIP24, 27-29 March 2023
ECMWF, UK

CIMA

Recents efforts at CIMA have been driven into:

- immediate weather forecasting
- seasonal predictions and engagement with stakeholders
- predictions of the marine ecosystems

From the first group, a recently-granted 5-yr project (*PREVENIR*) is developing improved weather-scale initialization techniques for the prediction of flash floods over particularly sensitive and vulnerable regions of Argentina. This project is supported by the National Weather Service of Argentina and the RIKEN Center for Computational Science of Japan.

CIMA

From the second group, a couple of ongoing projects are aiming to improve the communication strategies of purely scientific results to the community. One of them is based on the rural regions of northern Argentina and led by Carolina Vera, and the other one is focused over suburban Buenos Aires led by a number of CIMA scientists.

The third group comprises the PronoMar project ("Predicting the Argentine Sea") which explores predictions tools useful for decision makers and fisheries in the Argentina coastal regions.
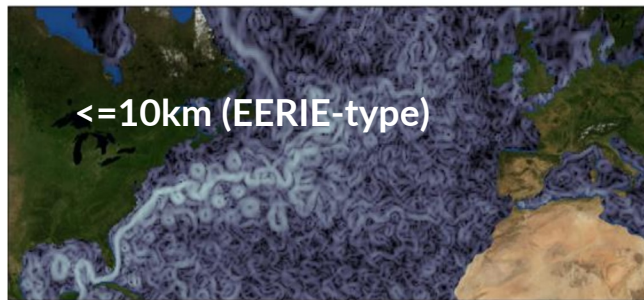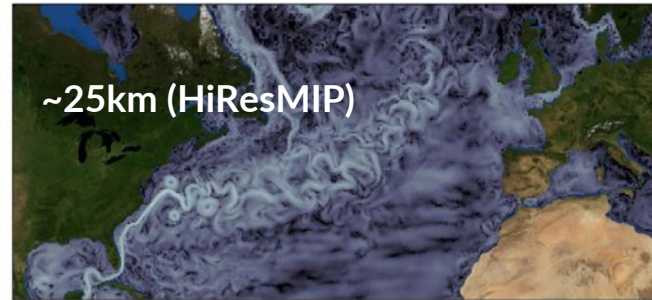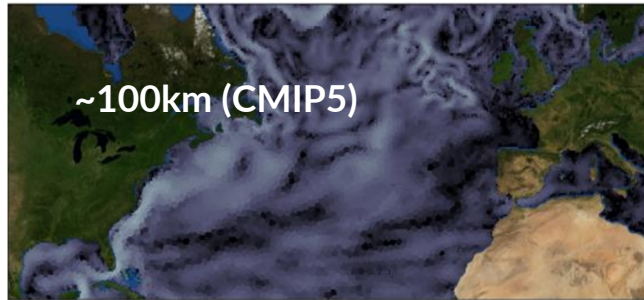
BSC

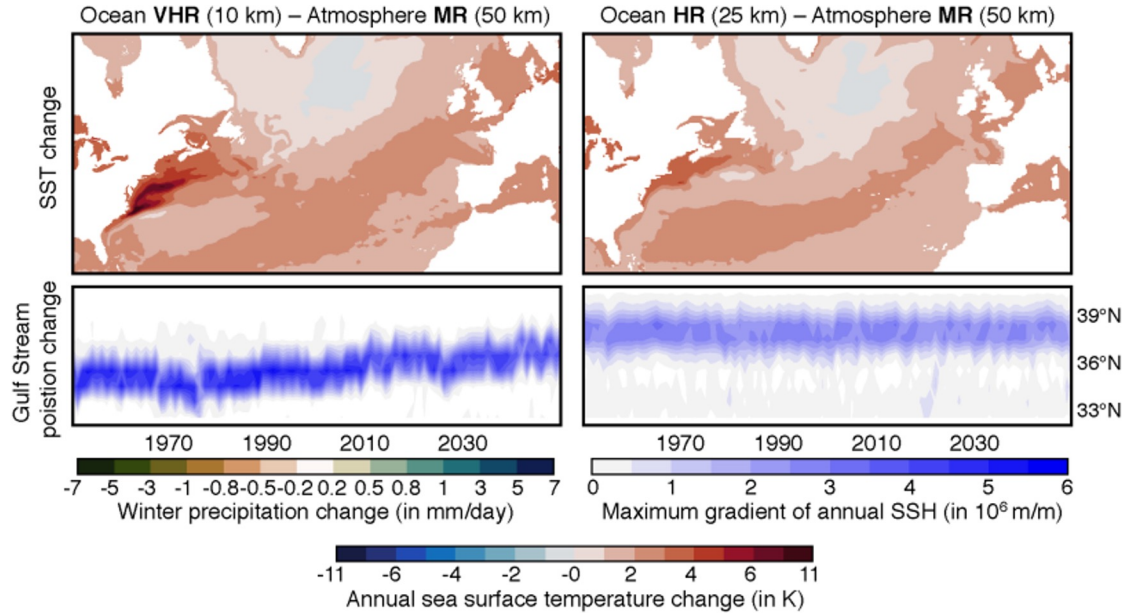One of the many projects currently active at BSC is EERIE, which has kicked-off very recently.

This 4-yr project will look at the potential benefits in ultra-high resolution for the representation of ocean eddies and their impacts on climate.

BSC

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Ocean **VHR** (10 km) – Atmosphere **MR** (50 km)

Ocean **HR** (25 km) – Atmosphere **MR** (50 km)

SST change

Gulf Stream poistion change

39°N
36°N
33°N

1970   1990   2010   2030

1970   1990   2010   2030

-7 -5 -3 -1 -0.8-0.5-0.2 0.2 0.5 0.8 1   3   5   7
Winter precipitation change (in mm/day)

0   1   2   3   4   5   6
Maximum gradient of annual SSH (in 10⁶ m/m)

-11   -6   -4   -2   -0   2   4   6   11
Annual sea surface temperature change (in K)

Moreno-Chamarro et al., 2021

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EERIE's workhorses

	BSC	AWI	MPI-M	UKMO	ECMWF
Model	IFS-NEMO	IFS-FESOM2	ICON-ESM	HadGEM3-GC	IFS
Atmospheric grid (resolution)	TCO1279 L137 (~9 km)	Tco1279 L137 (~9 km)	ICON R2B8 L90 (~10km)	N1280 L85 (~10 km)	Tco1279 L137 (~ 9km)
Ocean grid (resolution)	1/12° L75 (~8 km)	1/4° variable (15 km EQ, 4.5km poles)	ICON R2B8 L90 (~10km)	1/12° L75 (~8 km)	
Updated since CMIP6	Tco grid SI3 sea ice	IFS atmosphere Finite volume ocean	All (new model)	SI3 sea ice Atm conv param	Revised physics, Radiation scheme
EERIE innovations	Reduced precision, GPUs	Variable mesh res, Reduced precision, GPUs	Reduced precision, GPUs	Reduced precision, Stochastic physics, Scale-aware atm conv	Reduced precission