
EGI Call for use cases

Survey response 1

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EGI Call for use cases

Title of the use case	Biogeochemical Climate Projections across the NW Mediterranean Sea
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Objectives of the use case (scientific and computing objectives separately)	<p>Scientific objectives: this activity takes place in the context of my Ph.D. thesis development. The provisional title of the thesis is: "Dynamic impact of climate scenarios on marine primary production in the NW Mediterranean Sea", whose main objective is to analyse and quantify the changes in marine primary production in the NW Mediterranean Sea across the top priority IPCC's Shared Socio-economic Pathways.</p> <p>Computing objectives: store and process the files from my climatic simulations (approx. 100TB of data).</p>

Beneficiaries* of the use case and expected impact, (incl. contribution to Open Access and FAIR) and estimated number of users of the setup. *Who will use or benefit from the envisaged compute setup? A specific team, or a broader group of users? Researchers, policy makers? From which countries and institutes? - Please characterise and estimate the number of these beneficiaries.

The results of our simulations and research method will allow us to analyze which are the most effective strategies for mitigation and adaptation to climate change for the Catalan sea. Moreover, we will also be able to provide detailed data in space and time thanks to our new configuration of the offline biogeochemical component of the regional ocean model ROMS. This is essential, not only for the management of marine resources but also for the medium-term impacts on the Blue Economy sector, especially concerning living marine resources. Therefore, the project will present valuable information on the strengths and weaknesses of the current blue economy in the area, helping to better plan for resource management in a changing environment.

This simulations will be analyzed by a research team (5 people) and can be potentially presented to policy makers from Catalonia, Spain or France, and other research groups that are interested on the files and results or our model configuration. Estimation of beneficiaries: at least 20 people, but more if they are finally used by policy makers.

Description of the technical environment that is already used (institutional cluster, grid, cloud computing, HPC, data storage, data repositories, data management systems, data discovery services, etc...)

This data was previously stored on the "Gaia" cluster at the Institut de Ciències del Mar, and on the "Catz" cluster at Dalhousie University (Nova Scotia, Canada). However, we currently do not have the computational capacity that these simulations require on a climatic scale. The simulations were produced using the HPC MareNostrum from the Barcelona Supercomputing Center (approx. 100TB). The Universitat de Barcelona does not own any cluster nor data storage system.

Description of the requested EGI services, technical support and training required with as many details as possible - topics, functionalities, capacity (number of nodes, CPU, RAM, storage), location, etc...

Storage: 100000 GB (100 TB)

Number of processors needed for each job: desirable 24 but can work with less

Scientific applications, platforms and datasets to be used in the context of the use case

ANACONDA/ANACONDA3, HDF5, NETCDF, CONDA, BASH, JUPYTERLAB, NETCDF-C, NETCDF-FORTRAN, slurm, SCIPY, XARRAY, CMAKE, WGET.

Compilers: GCC, OPENMPI, INTEL, MVAPICH2

Expected timeline for implementation and use of the EGI services

1 year.

Additional requirements and comments

None.

Relevant websites and/or social media channels