EMI R&D PROJECT PROGRESS REPORT

All the following mandatory information needs to be provided. The length should *reflect the complexity and duration* of the project.

Reporting year	01/01/2026 - 30/06/2026
Project Title:	Regional coupled model simulations over the Med-CORDEX domain (RECOMED)
Computer Project Account:	spgrkara
Principal Investigator(s):	John Karagiorgos
Affiliation:	National and Kapodistrian University of Athens, Greece
Name of ECMWF scientist(s) collaborating to the project (if applicable)	Vassilios Vervatis, Rushit Dallenga, Sarantis Sofianos
Start date of the project:	01/01/2026
Expected end date:	31/12/2028

Computer resources allocated/used for the current year and the previous one

(if applicable)

Please answer for all project resources

		Previous year		Current year	
		Allocated	Used	Allocated	Used
High Performance Computing Facility	(units)			20M	~5.4M
Data storage capacity	(Gbytes)			30K	~7.7K (scratch+perm)

Summary of project objectives (10 lines max)

The primary objective of this project is to conduct a comprehensive set of high-resolution, fully coupled regional simulations for the Mediterranean region, using the NKUA MedX-CM modelling framework: WRF/NEMO/WW3/Noah-MP/PISCES/HD; OASIS coupler. The planned simulations include an evaluation experiment for the period 1980-2020 driven by the ERA5 atmospheric reanalysis, as well as historical (1960-2014) and future climate projections (2015-2100) forced by a selected CMIP6 global climate model under the SSP1-2.6 and SSP3-7.0 scenarios. These simulations will contribute to the Med-CORDEX Phase 3 coordinated multi-model ensemble, supporting the assessment of Mediterranean regional climate variability, change, and associated marine processes.

Summary of problems encountered (10 lines max)

Minor compilation issues resolved with the help of the ECMWF Support Portal.

Summary of plans for the continuation of the project (10 lines max)

The plan for the current year is to complete the evaluation simulation (forced by ERA5) and systematically assess coupled model performance against a comprehensive set of observational datasets. In parallel, preparatory work will continue for the selection and implementation of the CMIP6 driving model for historical and future simulations. After successful validation, production runs for both historical and scenario periods will be initiated.

List of publications/reports from the project with complete references

Karagiorgos, J., Vervatis, V., and Sofianos, S.: Representing bio-optical interactions in a coupled modelling framework for the Southern European Seas, EGU General Assembly 2026, Vienna, Austria, 3–8 May 2026, EGU26-8355, https://doi.org/10.5194/egusphere-egu26-8355, 2026.

Summary of results

If submitted **during the first project year**, please summarise the results achieved during the period from the project start to June of the current year. A few paragraphs might be sufficient. If submitted **during the second project year**, this summary should be more detailed and cover the period from the project start. The length, at most 8 pages, should reflect the complexity of the project. Alternatively, it could be replaced by a short summary plus an existing scientific report on the project attached to this document. If submitted **during the third project year**, please summarise the results achieved during the period from July of the previous year to June of the current year. A few paragraphs might be sufficient.

The project has been running for approximately six months, and no major scientific results have been produced yet. During this initial phase, the main effort has focused on porting the full modelling system to the ATOS HPC infrastructure, including transferring all source codes and datasets and successfully compiling the coupled framework from scratch. Current work is centered on reproducing key experiments previously conducted on our former HPC system, including the ocean/biogeochemistry model spin-up and sensitivity experiments examining the interaction between ocean physics and biogeochemistry through light-chlorophyll feedback processes. These steps are essential to ensure the consistency and reproducibility of the modelling setup before moving on to the full production simulations.