REQUEST FOR ADDITIONAL RESOURCES IN THE CURRENT YEAR FOR AN EXISTING EMI R&D PROJECT

Please submit the completed form via https://www.ecmwf.int/en/support (choose *Software and Computing*, then *Gain access to computing resources (create ticket)*) or send to special_projects@ecmwf.int

Country/Organisation: Greece

Principal Investigator[1]: Vassilios D. Vervatis

Affiliation: Department of Physics, National and Kapodistrian University of Athens

Address: Ocean Physics And Modelling group, Section of Environmental Physics – Meteorology

Project title: Mediterranean Sea Climate Response (MEDCLIM-R)

Project account: **SPGRVER2**

Additional computing resources requested for year		**2026**
High Performance Computing Facility	[MSBU]	+5
Graphics Processing Unit Cluster - A	[GBU]	
Graphics Processing Unit Cluster - B	[GBU]	
Total DHS Data storage capacity	[TB]	+20
EWC resources		
Number of vCPUs	[#]	
Total memory	[GB]	
Storage	[GB]	
Number of vGPUs[3]	[#]	

Continue overleaf

[1] The Principal Investigator is the contact person for this EMI R&D Project

Technical reasons and scientific justifications why additional resources are needed

A comprehensive technical and scientific justification for the additional resources required across the project's remaining lifecycle is detailed in the submitted 2026 progress report.

Resource Request Summary (2026)

- Current 2026 Computational Allocation: 23 MSBU
- Proposed 2026 Computational Allocation: 28 MSBU (Net Change: +5 MSBU)
- Current 2026 Data Storage Allocation: 40 TB
- Proposed 2026 Data Storage Allocation: 60 TB (Net Change: +20 TB)

Justification for Additional Resources (Current Year 2026)

During the initial development and porting phase of our high-resolution 1/36° (~2.5 km) Mediterranean Sea model configuration, we encountered technical bottlenecks that strained our current-year budget.

Specifically, we identified scalability limitations inherent in our initial MPI-only parallelization strategy, resulting in memory-related failures and increased execution times. Resolving these issues required extensive testing to implement a hybrid MPI–OpenMP parallelization strategy. This troubleshooting and recovery process consumed approximately 2 MSBU of unplanned computational overhead.

Additionally, the initial phase required a heavier-than-anticipated resource footprint for porting baseline model data from external HPC facilities and executing mandatory spin-up simulations for ocean physics and biogeochemistry. The additional 20 TB of storage is required to accommodate these datasets and store the initial spin-up outputs without disrupting the ongoing 2026 simulation schedule.