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: Italy / Politecnico di Torino

Principal Investigator[1]: Catello Leonardo Matonti

Affiliation: Politecnico di Torino

Address: Corso Duca degli Abruzzi 24, 10129 Torino (TO), Italy

Project title: Climate impacts of space-based geoengineering: EC-Earth simulations for optimal non-uniform radiative forcing by a Planetary Sunshade System

Project account: spitmato

Additional computing resources requested for year		**2026**
High Performance Computing Facility	[SBU]	**10,000,000**
Graphics Processing Unit Cluster - A	[GBU]	—
Graphics Processing Unit Cluster - B	[GBU]	—
Total DHS Data storage capacity	[GB]	**20,000**
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

An additional 10,000,000 SBU are requested to complete the 2026 scientific programme of the Special Project. During the current allocation, a substantial amount of computing time was necessarily devoted to development, testing and validation of the new solar-attenuation implementation in IFS, as well as to debugging coupled AOGCM integrations, restart procedures and numerical-stability issues. These activities were required to establish a reliable production configuration for physically based, non-uniform solar geoengineering forcing. The relevant code paths and workflows are now stabilised and ready for the remaining production simulations.

The additional resources are primarily needed to complete the final transient SSP2-4.5 Planetary Sunshade space-based solar geoengineering scenario to test the reversibility of the climate response in the fully coupled EC-Earth3 system. Resources are also required for the associated CMOR/NetCDF post-processing, diagnostics and quality control of the large model output generated by these integrations.

A further scientific objective is to implement and test an additional solar-geoengineering forcing scheme in which the reduction of incoming solar radiation is deliberately weighted toward selected latitude bands (equatorial or high-latitude/polar regions) rather than applied with the present global-coverage configuration.