REQUEST FOR ADDITIONAL RESOURCES IN THE CURRENT YEAR FOR AN EXISTING SPECIAL PROJECT

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MEMBER STATE: ……IT……

Principal Investigator[1]: ……Annalisa Cherchi……..……

Affiliation: …CNR-ISAC……..……

Address: ……..……
…via Gobetti 101 Bologna (Italy)……..……

Project title: Investigations of climate change in post-CMIP6 EC-Earth3 simulations over the Mediterranean climate regions

Project account: **SPITCHER**

Additional computing resources requested for year		**2024**
High Performance Computing Facility	[SBU]	3712800
Total DHS Data storage capacity	[GB]	30500
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 Special Project

Technical reasons and scientific justifications why additional resources are needed

The main objective of this special project is to investigate the climate change response over the Mediterranean climate regions (MCRs), particularly sensitive and vulnerable to subtropical drying expansion, using a post-CMIP6 version of EC-Earth3 and considering newly available climate scenarios with the most recent climate policies. To this aim the main set of experiments to be performed are an historical simulation and a couple of future projections based on future scenarios that will be available within the HE project OptimESM ("Optimal high resolution Earth System models for exploring future climate changes", project ID 101081193). These two scenarios reflect emissions that realize the Paris Agreement and assumes delayed mitigation actions that overshoot the Paris target before returning to it at some later time, respectively.

In SPITCHER, the historical experiment was planned for this year (2024), with a submitted request of 5000000 SBU based on an estimate of 29000 SBU per year of simulation. We started the simulation in March and we realized that the resources needed to produce one year of simulation with the actual configuration is larger than expected. In fact, for the 96 years (1850-1945) done so far we used almost all the resources requested for 2024. According to this we are requesting (as shown in the table below) additional resources for 2024 counted as 3712800 SBU to complete the historical simulation. The completion of the historical simulation and the integration of the analysis done so far is compulsory to investigate the climate change response over the MCRs, and it mandatory to start the projections based on the newly available scenarios planned for 2025.

The estimate of the additional resources we are requesting for 2024 are detailed in the table below:

Experiment name	Description	SBU/ year	Total years	requested SBU
Hist (to be completed)	1946-2014	52000	68	3536000
5% buffer				176800
Total				3712800

The estimate considers 52000 SBU per year of simulation with 68 years left to complete the historical simulation (1946-2014) plus a 5% buffer to account for failing jobs and/or technical issues. No additional resources are required for the storage compared to the original request: the 30500 GB (total accumulated data storage) already allocated in the special project for 2024 is enough to store the whole historical simulation.