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

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MEMBER STATE: Denmark

Principal Investigator[1]: Ulas Im

Affiliation: Aarhus University, Department of Environmental Science

Address: Frederiksborgvej 399, 4000, Roskilde

Project title: Perturbed Parameter Ensembles using the OpenIFS 48r1 atmospheric model in frame of the CleanCloud project

Project account: **SPDKULAS-2026**

Additional computing resources requested for year		**2026**
High Performance Computing Facility	[SBU]	45 000 000
Total DHS Data storage capacity	[GB]	
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

In the original proposal, we have used an estimation of around 200 simulations, and by assuming 2 days per a year simulation on one node, 200 simulations amount to 21 000 000 SBUs. We have applied for 25 000 000 SBUs to be on the safe side, such as additional parameters that can come in later in the ensemble design or repeating some simulations due to technical reasons.

However, due to delays in other partners of the CleanCloud project, we decided to run both the pre-industrial and present day simulations, which double this estimate. Finally, because the OpenIFS cy48 model is still under development, we have made many tests to make sure that the model runs properly. In addition, a major bug has been detected and fixed in late December 2025, in the version we have used to conduct our initial simulations, which requires that we repeat all the simulations. We have used all the remaining SBUs from the 2025 project and completed almost half of the present day simulations, so there is still the other half of present-day simulations, plus the full set of preindustrial simulations. These test simulations showed that one single simulation uses about 325 000 SBUs, which for the two sets of simulations, we calculate that the additional 45 000 000 SBUs would suffice to complete these simulations.