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

Please email the completed form to special_projects@ecmwf.int.

MEMBER STATE: ……Italy…………….…………………………………...…

Principal Investigator[1]: … Dr. Francesco Graziosi (EC-JRC), ………………….……
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Project title: Extend and improve CH4 flux inversions at global and European scale based on ERA5 reanalyses.……
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Project account: ECJRC

Additional computer resources requested for	2023
High Performance Computing Facility (units)	5,000,000
Data storage capacity (total) (Gbytes)	2500

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[1] The Principal Investigator is the contact person for this Special Project

Continue overleaf

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Technical reasons and scientific justifications
why additional resources are needed

To perform our inversion analysis we consumed more computing resources than we planned. Indeed, in order to find the best setting of the model system we investigated several options, running numerous model simulations and inversion computations. Particular attention was (and it is still) dedicated to find best bias correction of satellite retrievals. For these reasons we already consumed all the SBU allocated for the year 2023. Moreover, we planned to run an high resolution inverse model with the aim to assess the methane emissions from hotspots, with better accuracy than that achieved by the current global inversion system at 3° x 2° lat - long spatial resolution. To do this, we need to dedicate particular attention to simulating the dispersion from receptors located in complex topography (the mountain stations). To achieve acceptable model performance (namely low uncertainty in the emissions), simulating the atmospheric dispersion over complex topography, requires an improve in the spatial and temporal resolution of the simulations which implies an increase in computational resources. Furthermore, to run the high resolution model system, driven by high resolution wind field, a larger amount of storage capacity is desirable.