

SPECIAL PROJECT PROGRESS REPORT

All the following mandatory information needs to be provided. The length should *reflect the complexity and duration* of the project.

Reporting year2025.....

Project Title: ...Investigating the origin of model biases in the representation of the stratosphere
.....

Computer Project Account: ...SPITSERV.....

Principal Investigator(s): ...Federico Serva.....
.....

Affiliation: ...Consiglio Nazionale delle Ricerche, Italy.....

Name of ECMWF scientist(s) collaborating to the project ...N/A.....
(if applicable)

Start date of the project: ...2025.....

Expected end date: ...2025.....

Computer resources allocated/used for the current year and the previous one (if applicable)

Please answer for all project resources

		Previous year		Current year	
		Allocated	Used	Allocated	Used
High Performance Computing Facility	(units)	N/A	N/A	8 000 000	0
Data storage capacity	(Gbytes)	N/A	N/A	10 000	0

Summary of project objectives (10 lines max)

...The objective of this Special Project is to investigate the effects of correcting model errors in the representation of the upper-atmosphere by nudging to observations. The focus will be on the possible improvements on surface climate in seasonal to decadal experiments.

Summary of problems encountered (10 lines max)

...The starting of the simulations was postponed to first identify the model version to be used. First simulations are expected to be carried out in summer 2025. Following insightful exchanges with the EC-Earth and OpenIFS community, the most likely choice will be using the latest version of OpenIFS, which is expected to better support experimentation.

Summary of plans for the continuation of the project (10 lines max)

...The first simulations with OpenIFS are planned to explore the flexibility for different configurations (e.g., changing the vertical resolution) and initialization times. This last aspect should be facilitated thanks to the Data Hub, which can provide initial conditions based on ERA5. Next, an evaluation of the output and definition of additional diagnostics will be performed, taking into account results of previous Special Projects. Due to time constraints (the project ends in 2025), longer simulations tackling underlying mechanisms will possibly be undertaken in the context of a next Special Project.

List of publications/reports from the project with complete references

...No publications are available yet

Summary of results

If submitted **during the first project year**, please summarise the results achieved during the period from the project start to June of the current year. A few paragraphs might be sufficient. If submitted **during the second project year**, this summary should be more detailed and cover the period from the project start. The length, at most 8 pages, should reflect the complexity of the project. Alternatively, it could be replaced by a short summary plus an existing scientific report on the project attached to this document. If submitted **during the third project year**, please summarise the results achieved during the period from July of the previous year to June of the current year. A few paragraphs might be sufficient.

...No results to present here as simulations have not yet been started. After consultation with experts at ECMWF, it is foreseen to carry out simulations with the last version of OpenIFS. Exploration of the associated resources indicates a good degree of flexibility for the project purposes.