

# 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 year** 2025.....

**Project Title:** The role of forest management and land-use changes for anthropogenic climate change.....  
.....

**Computer Project Account:** spsemay.....

**Principal Investigator(s):** Wilhelm May.....  
.....

**Affiliation:** Centre for Environmental and Climate Science, Lund University.....

**Name of ECMWF scientist(s) collaborating to the project (if applicable)** Not applicable.....  
.....

**Start date of the project:** 1.1.2023.....

**Expected end date:** 31.12.2025.....

**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)	3,000,000	0	4,000,000	0
Data storage capacity	(Gbytes)	120,000	52,000	160,000	52,000

**Summary of project objectives** (10 lines max)

The purpose of the project is to assess the role that forest management and land use change play for anthropogenic climate forcing by considering both the terrestrial carbon balance that affects the atmospheric concentration of CO<sub>2</sub> (biogeochemical effects) and the state of the vegetation that affects albedo, roughness length and evapotranspiration (biophysical effects). This will be done by means of the LPJ-GUESS terrestrial ecosystem model and the EC-Earth earth system model, which incorporates LPJ-GUESS to simulate the terrestrial ecosystems.

**Summary of problems encountered** (10 lines max)

For various reasons, I had to revise the project plan and drop using the LPJ-GUESS terrestrial ecosystem model. I will use the HEUREKA system, which only runs on WINDOWS systems. And, as the new version of the EC-Earth earth system model has not been released, I have not worked with the earth system model either.

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

I will not continue with the proposed work in this project for the remainder of 2025. Instead, I will be using the computing resources at ECMWF for other research activities. For this, I will mainly use the ecfs-system as most applications can be run on the login-nodes.

**List of publications/reports from the project with complete references**

May, W., 2025: The role of the land surface for surface climate: results from a stepwise land-atmosphere coupling experiment. *Climate Dynamics*, 63, 123.

**Summary of results**

Due to the revised project plan, there haven't been any results obtained specific to the proposed project. Instead, I have concluded work on the interactions between the land surface and the atmosphere in the EC-Earth earth system model with a scientific publication. I have also worked on the seasonal variability rainfall in East Africa, i.e., analysed observations and evaluated the representation in regional climate models.