

Tutorial for the SimPeru model

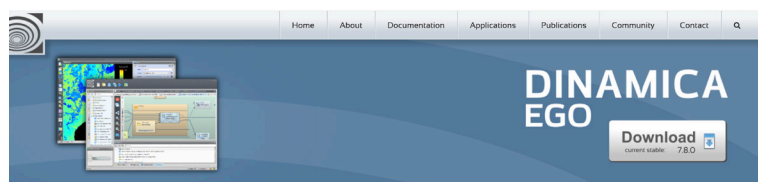


The SimPeru model is a specialized tool designed to address deforestation in the Peruvian Amazon. It relies on statistical analysis of environmental and physical variables to predict where deforestation is likely to occur up to 2030. SimPeru also calculates deforestation emissions, making it a valuable resource for policymakers and researchers. By inputting the expected amount of deforestation, the model provides insight into where it may occur and estimates the resulting emissions.

How to run SimPeru

Download the software

1. Download Dinamica EGO software from <https://csr.ufmg.br/dinamica/> by clicking on the “Download” button. If you are downloading Dinamica EGO for Microsoft Windows, do not forget to download the Enhancement Plugins too.

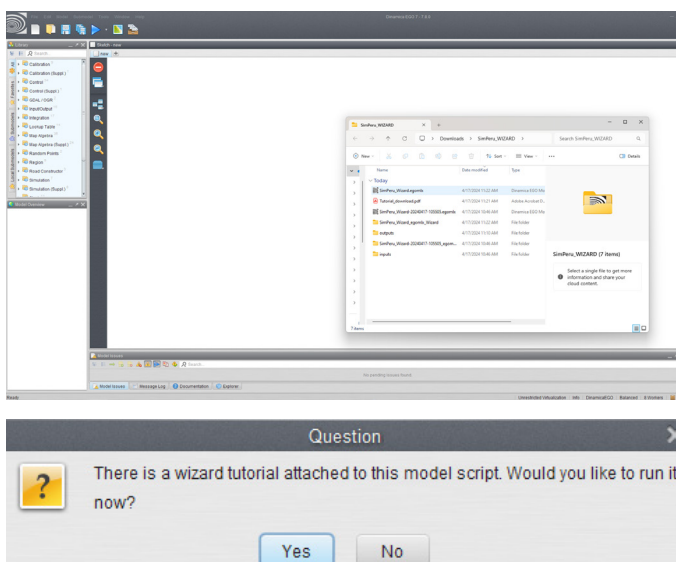


What is Dinamica EGO?

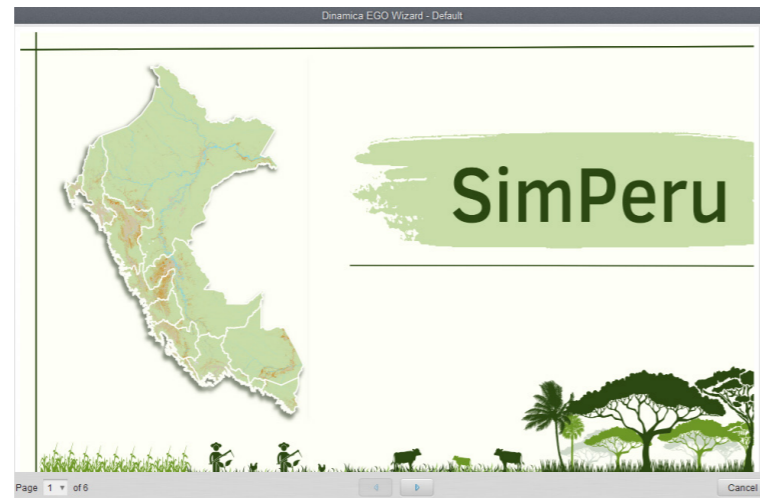
Dinamica EGO is a sophisticated, free, and non-commercial platform for environmental modeling with outstanding possibilities for the design from the very simple static spatial model to very complex dynamic ones, which can ultimately involve nested iterations, multi-transitions, dynamic feedbacks, multi-region and multi-scale approach, decision processes for bifurcating and joining execution pipelines, and a series of complex spatial algorithms for the analysis and simulation of space-time phenomena.

Version 5 onward of Dinamica EGO features a bleeding edge parallel architecture. Now, the parallel execution uses a fixed number of execution threads (called workers) with task stealing to provide load balancing and increase the flexibility of how parallel tasks can be designed. In theory, all model components can run in parallel.

2. To run the Wizard tutorial in Dinamica EGO software, follow these steps:
 - a. Download the SimPeru file package using this link http://www.csr.ufmg.br/imagery/dl/ftp.php?p=/SimPeru_WIZARD.zip.
 - b. Drag and drop the “Sim_Peru_Wizard.egomlx” file into the software.
 - c. A box with information about the model will appear. Read the information and then click “close”.
 - d. Next, a second box will appear, asking if you want to run the Wizard tutorial. Click “Yes” to start the tutorial.

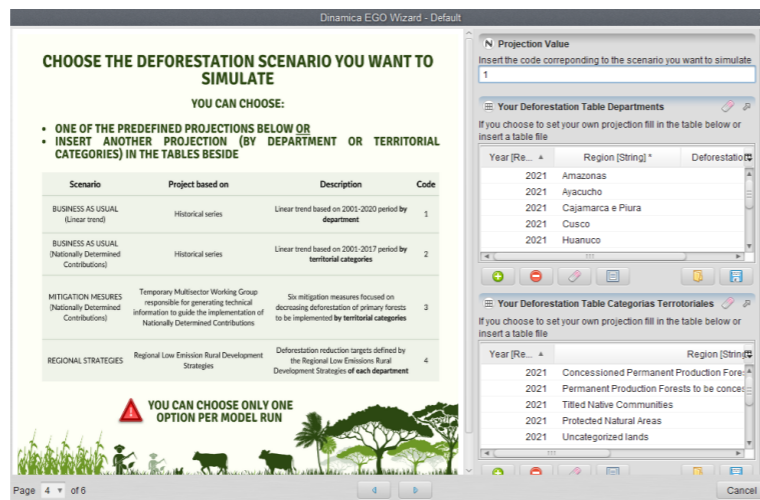


3. The Dinamica EGO Wizard tutorial window will open to guide you. Go through the pages and read the content to choose the options (see additional instructions below to fill in pages 4, 5 and 6). You can adjust the window size to follow the content better.



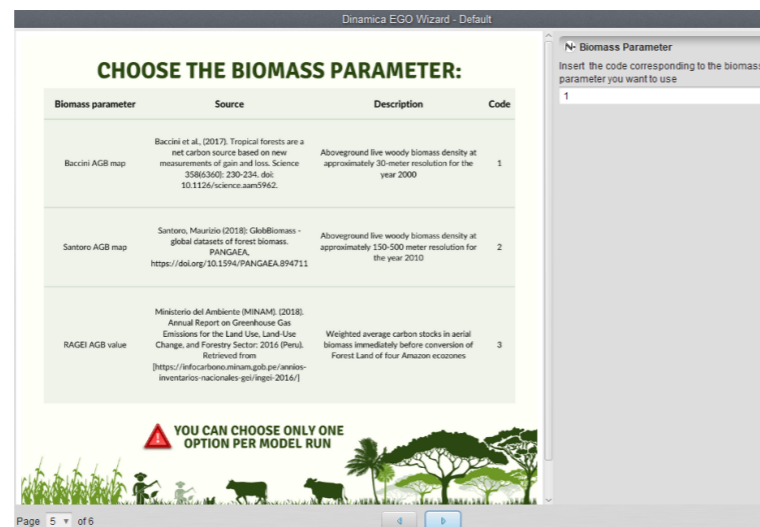
4. On page 4, you can choose the scenario you want to simulate. There are two options:

- Choose one of the predefined projections displayed in the figure and insert its code in the first box.
- Use your own deforestation projection by inserting/editing a table in the second box. You will need to provide a deforestation value (in hectares) for each year and department (region) of Peru.
 - If you choose to edit the table inside the application, you can detach the table by clicking the arrow button on the upper right side to make editing easier.
 - Alternatively, you can edit the table outside the application. If you choose to do so, you can save the table to your computer by clicking the save button on the lower right side, edit it as needed, and then insert the completed table by clicking the folder button on the lower right side. The completed table must be saved in .csv format and include all years and departments (regions).

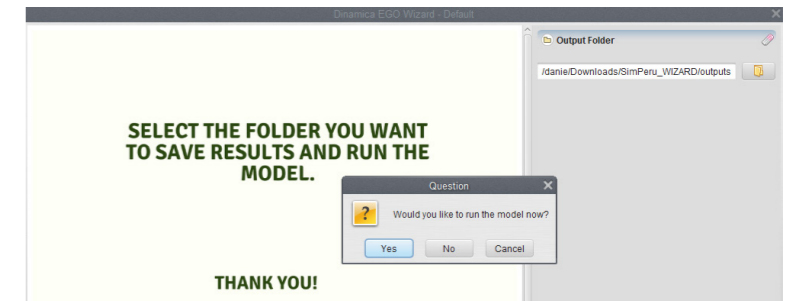


Please note that if you fill in at least one cell in the second box, the model will use that table to run the simulation. If you wish to select one of the predefined projections, simply input its code in the first box and leave the second box empty.

5. On page 5, you need to select the "Biomass Parameter" to calculate the emissions from deforestation. You can choose one of the options shown in the figure and insert its code in the designated box. The first two options are biomass maps from different sources. The last option is the average biomass value used in Peru's annual Report on Greenhouse Gases for the Land Use, Land Use Change, and Forestry Sector for 2016 (known as RAGEI, an acronym in Spanish).



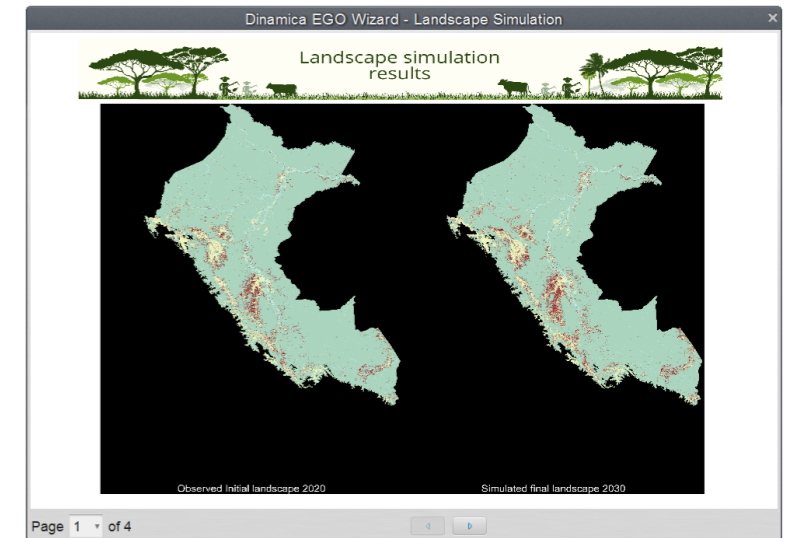
6. Finally, on the last page, select the output folder to save the model results, click on the "Finish" button on the lower part of the box, and answer "Yes" to run the model.



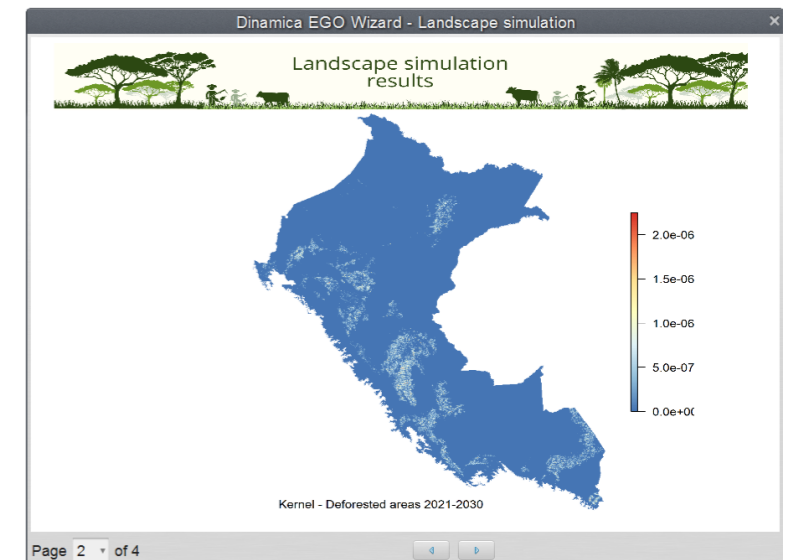
Wizard results

7. When the model finishes its execution, the Wizard application shows these results:

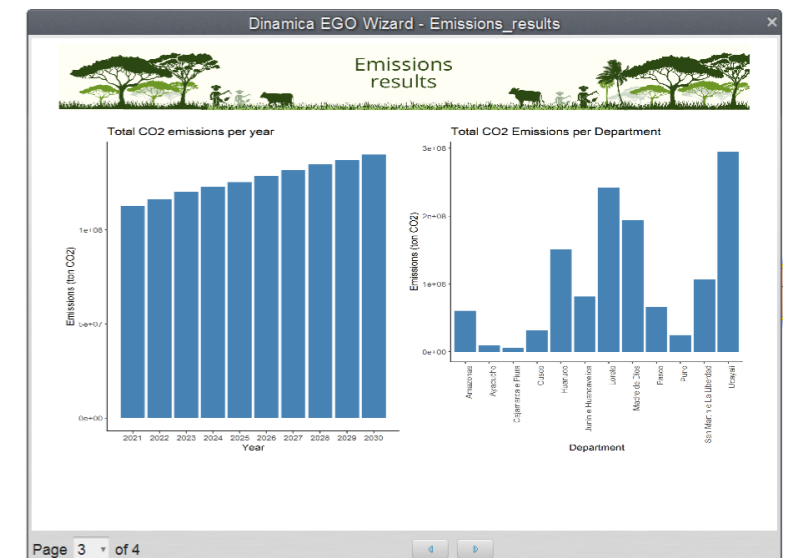
a. Maps of initial and final landscapes:



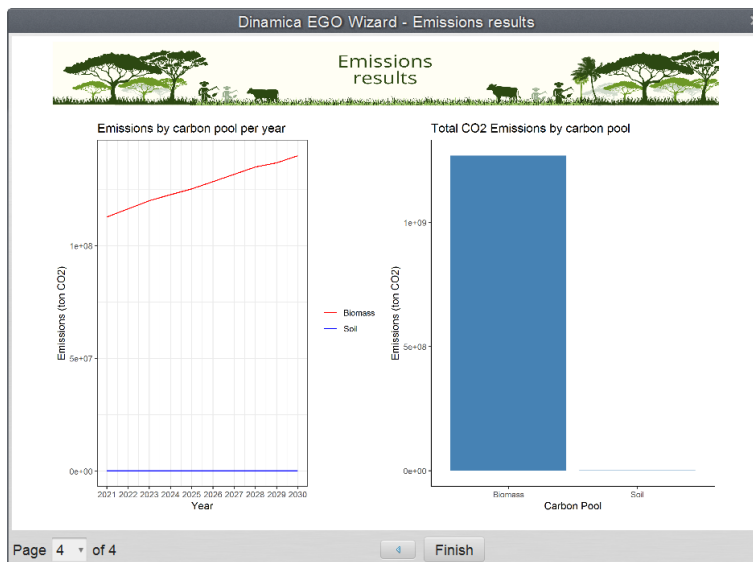
b. Kernel density map of the deforested areas:



c. Emissions from deforestation (ton CO₂) by year and department (region):



- d. Emissions from deforestation (ton CO₂) by carbon pool by year and accumulated for the whole period.



Results saved on disk

8. All results, in the form of tables and maps, are saved in the folder indicated by the user. These results include:
 - a. Maps of future landscape by year (2021–2030)
 - b. Maps of deforested areas by year (2021–2030)
 - c. Map of kernel density of deforested areas from 2021 to 2030
 - d. Table of deforested area in Peru
 - e. Table of deforested area by department (region)
 - f. Table of total emissions for Peru
 - g. Table of total emissions by department (region)
 - h. Table of biomass emissions for Peru
 - i. Table of biomass emissions by department (region)
 - j. Table of soil emissions for Peru
 - k. Table of soil emissions by department (region)

9. You can utilize the Dinamica EGO map viewer to visualize the results of your maps, as with any Geographic Information System (GIS) software. Map Viewer is a part of Dinamica EGO software and is downloaded automatically when you install Dinamica EGO. To begin, open the Map Viewer application and drag and drop the maps that you want to view. If you need assistance with using the Dinamica EGO Map Viewer, you can also consult this tutorial at: https://www.csr.ufmg.br/dinamica/dokuwiki/doku.php?id=map_viewer.

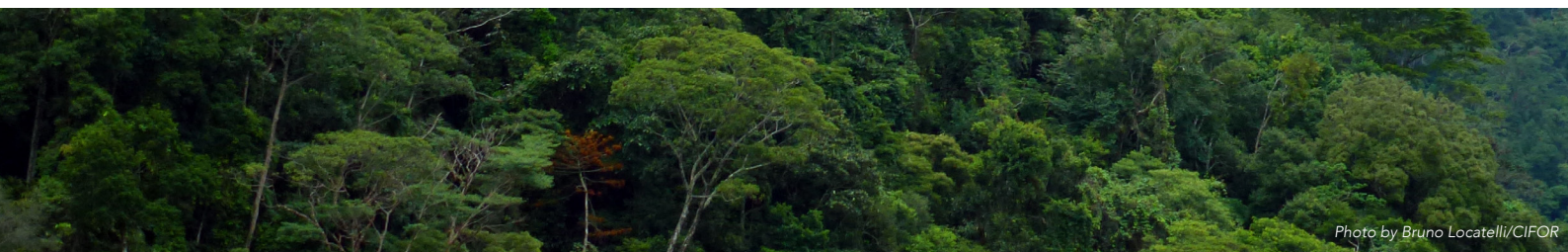


Photo by Bruno Locatelli/CIFOR

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