

How to run LPJ-GUESS with DataGURU

LPJ-GUESS Mix & Match — preparing ready-to-run scripts and input data

Introduction

This guide describes how to use the DataGURU web interface to request pre-configured LPJ-GUESS instruction files (.ins) together with the corresponding input datasets (.nc and .out files), download them as a single .tar archive, and invoke LPJ-GUESS on your own system with a single command. It is intended for LPJ-GUESS users who are already familiar with the model but wish to streamline the preparation of input data via DataGURU.

Requirements

A system on which LPJ-GUESS can be invoked as `guess -cf <instruction_file>`, whether as part of the model trunk or as a separate branch. A DataGURU account is also required; first-time users must register via the magic-link (email) login.

Available configurations

DataGURU offers three pre-configured LPJ-GUESS Mix & Match bundles:

LPJG_mnm_3 — Minimal: Temperature, Precipitation, Shortwave radiation, Soil database, Carbon dioxide.

LPJG_mnm_2 — BVOC: As Minimal, plus Minimum temperature and Maximum temperature.

LPJG_mnm_1 — Full: As BVOC, plus Wind, Specific humidity, and Pressure.

Step 1 — Sign in to DataGURU

Navigate to <https://dataguru.lu.se> in your web browser. Sign in using one of the two available methods:

- 1.1.** First-time users: click the person icon in the top-right corner and sign in via the **magic link** (email). A login link will be sent to your registered email address.
- 1.2.** Returning users with a Google account: use the **Google login** option for faster sign-in, provided your Google email is already registered in DataGURU.
- 1.3.** In the navigation bar, click **Get Data**.
- 1.4.** From the dropdown menu, select **Make a query**. This opens the DataGURU Application view.

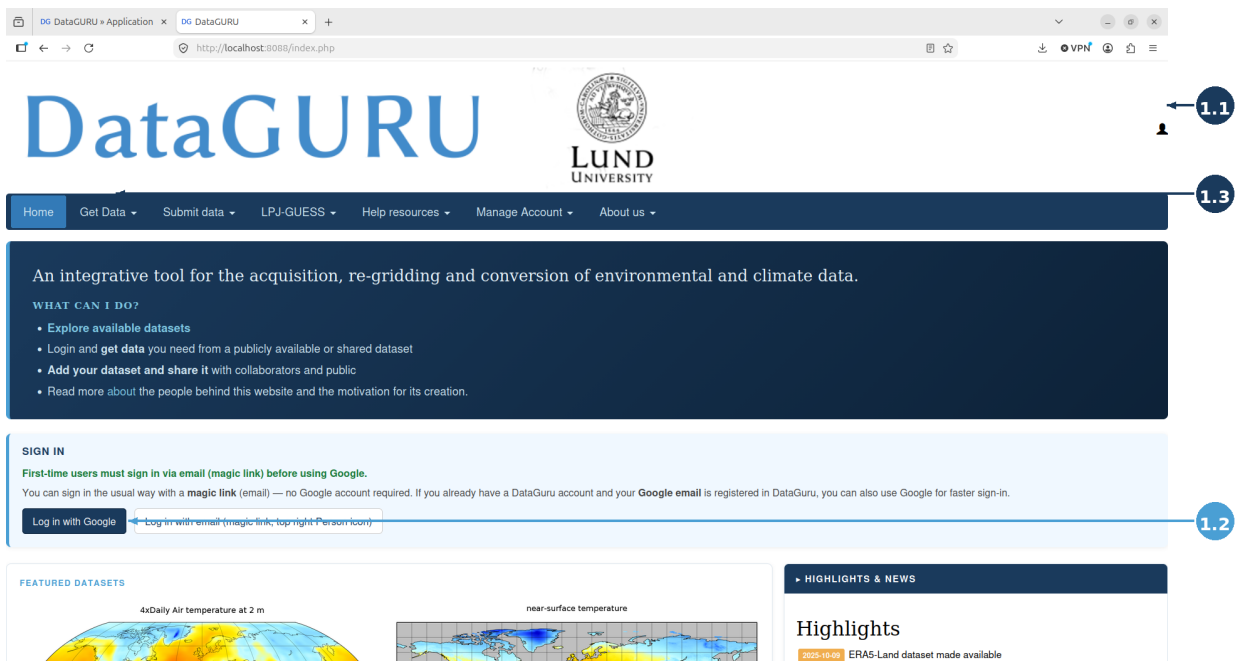


Figure 1. The DataGURU landing page. (1.1) Person icon for magic-link login. (1.2) Log in with Google button. (1.3) Get Data in the navigation bar.

Step 2 — Select an LPJ-GUESS Mix & Match bundle

2.5. In the **New features** section of the left-hand panel, click the appropriate bundle:

LPJG_mnm_1 (full), **LPJG_mnm_2** (BVOC), or **LPJG_mnm_3** (minimal). The selected bundle name will appear in the search field and the variable-selection interface will be displayed.

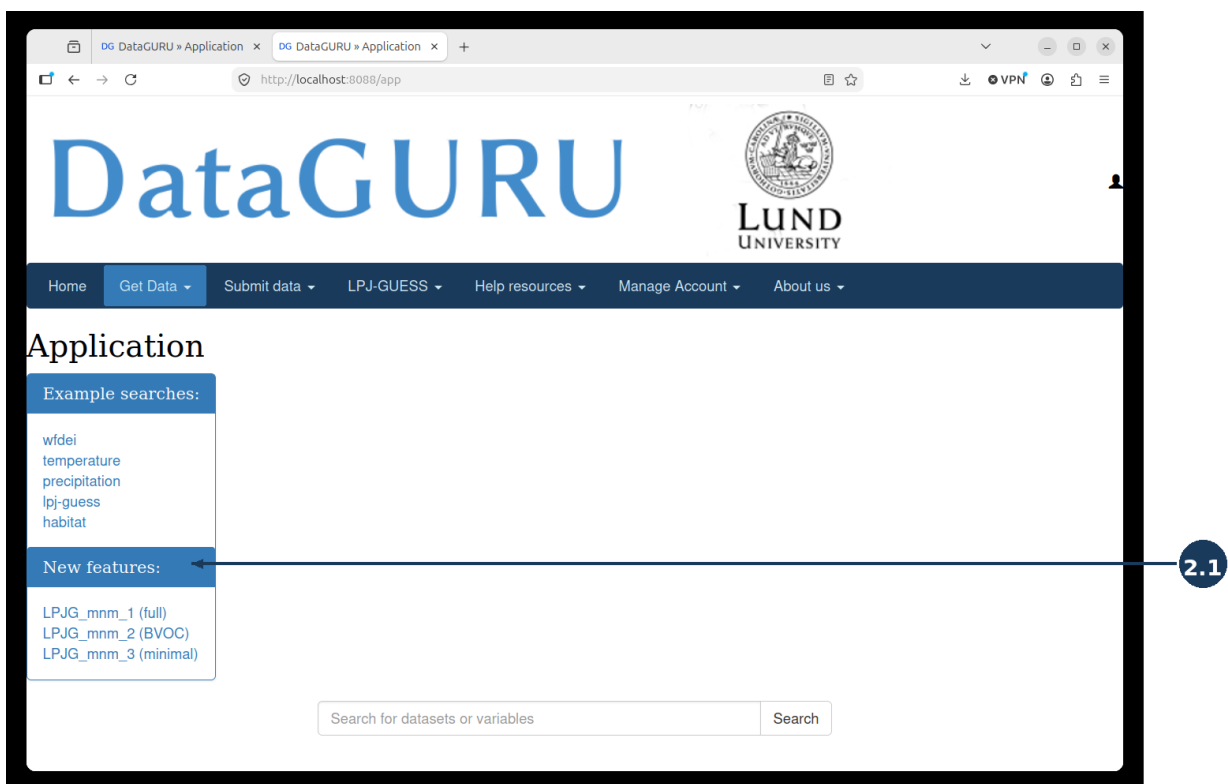


Figure 2. The DataGURU Application view. (2.1) The 'New features' section in the left panel, listing the three LPJ-GUESS Mix & Match bundles.

Step 3 — Choose input variables

The variable-selection interface presents one button for each required climate or soil input variable. For each variable, DataGURU will offer the applicable dataset choices. Select the most appropriate dataset for your application.

3.1. Click each variable button in turn (**Temperature**, **Precipitation**, etc.). For each variable, a set of annotated dataset options will appear; click your preferred dataset. The selection will be recorded under **Current choice**.

3.2. Once all variables have been assigned a dataset, the **Continue with those choices** button becomes active. Click it to proceed to the query form.

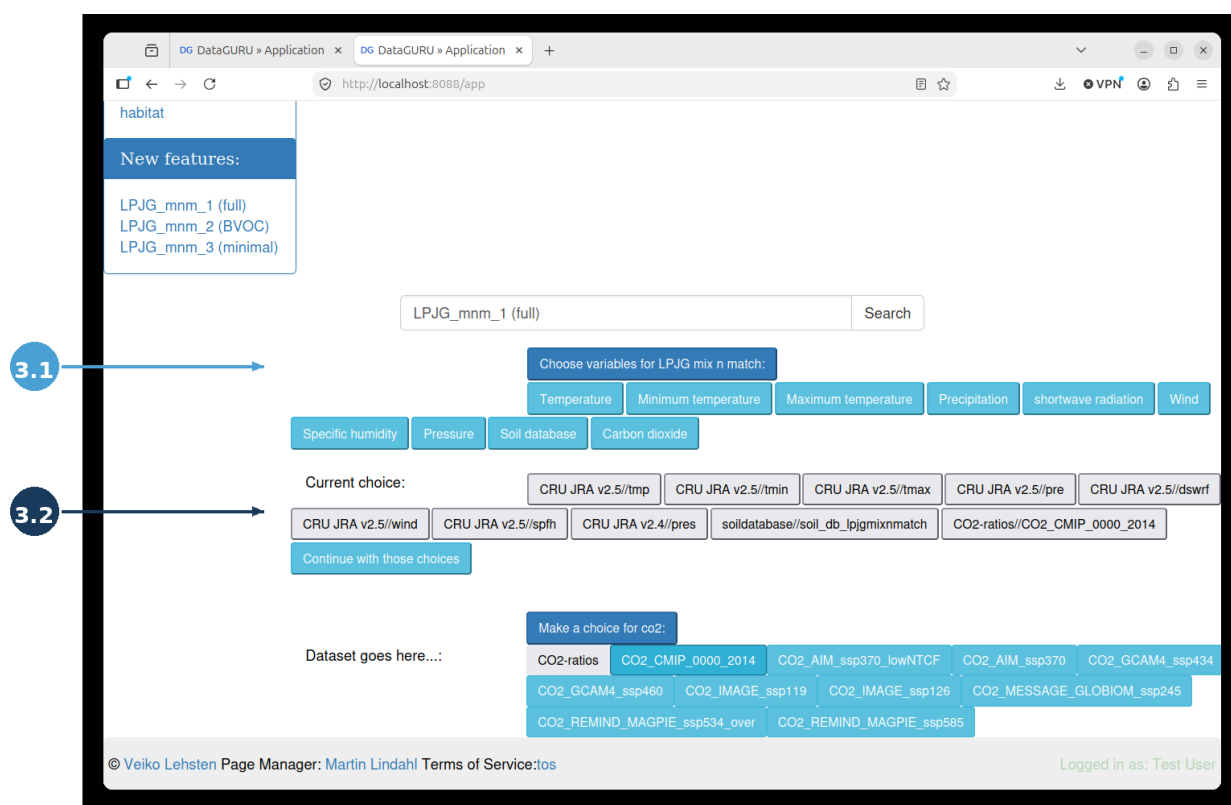


Figure 3. Variable selection. (3.1) Click each variable button and select the appropriate dataset. The current selections are shown under 'Current choice'. (3.2) When all variables are assigned, click 'Continue with those choices'.

Step 4 — Configure the data query

The query form allows you to specify the spatial and temporal extent of the data to be generated, as well as the output format.

4.1. Spatial extent: choose one of three options — *Select on a map*, *Set manually*, or *Full extent*. For a global LPJ-GUESS run, select **Full extent**.

4.2. Lower left / Upper right corner: if you selected *Set manually*, enter the bounding-box coordinates in decimal degrees (longitude/latitude). These fields are pre-filled with the full global extent by default.

4.3. Spatial resolution: this is set automatically based on the selected datasets and normally does not need to be changed.

4.4. Temporal extent: enter the start and end dates for the simulation period in the format YYYY-MM-DD.

4.5. New temporal resolution: select the desired temporal aggregation (e.g. Monthly / Mean) from the dropdown menus.

4.6. Select output format: choose **NetCDF** (recommended) or *Download data in original format*.

4.7. Accept the DataGURU Terms of Service, ensure *Generate dataset on DataGURU server* is checked, and click **Submit**. If the estimated processing time is less than 12 minutes, you may also check *Run as fast job* to receive results more quickly.

The screenshot shows the DataGURU web application interface. At the top, there's a header with the application name and browser tabs. Below the header, a section titled 'Dataset goes here...' displays a grid of dataset options. A blue callout '4.1' points to the 'Spatial extent' section, which includes radio buttons for 'Select on a map', 'Set manually', and 'Full extent' (which is selected). Callout '4.2' points to the 'Lower left corner' and 'Upper right corner' coordinate input fields. Callout '4.3' points to the 'Spatial resolution' input field, which is set to '0.5'. Callout '4.4' points to the 'Temporal extent' section, showing 'From' and 'until' date pickers. Callout '4.5' points to the 'New temporal resolution' section, which has dropdown menus for 'Monthly' and 'Mean'. Callout '4.6' points to the 'Select output format' section, which has buttons for 'NetCDF' and 'Download data in original format'. At the bottom, there's a yellow banner with a checkbox for 'I agree to the DataGURU Terms of Service' and a checkbox for 'Generate dataset on DataGURU server'. A red callout '4.7' points to the 'Submit' button.

Figure 4. The query configuration form. (4.1) Select spatial extent method. (4.2) Bounding-box coordinate fields. (4.3) Spatial resolution (auto-filled). (4.4) Temporal extent. (4.5) Temporal resolution. (4.6) Output format. (4.7) Submit button.

Step 5 — Download and run LPJ-GUESS

After submission, DataGURU will process your request on the server. Depending on the data volume and server load, this may take several minutes. You will receive an email notification when the job is complete.

5.1. Follow the download link provided in the notification email to retrieve a **.tar archive** containing the input datasets and a pre-configured **.ins instruction file**.

5.2. Extract the archive to a directory of your choice: `tar -xf <archive_name>.tar`

5.3. Invoke LPJ-GUESS from that directory using the provided instruction file: `guess -cf <instruction_file>.ins`

Note: If a 'fast job' was not selected and the server-side processing time exceeds 12 minutes, the job will be queued and results will be sent by email as a downloadable link once complete.