

Basic instructions on how to work with a Jupyter Notebook

The ClimBEco course “From CO₂ in situ measurements to carbon balance maps as a tool to support national carbon accounting” includes a set of exercise packages in Python. Every exercise package is available as a Jupyter notebook. To work with the exercises, you need to login to your Jupyter account. Open your browser (Firefox or Chrome) and go to:

climbeco.icos-cp.eu

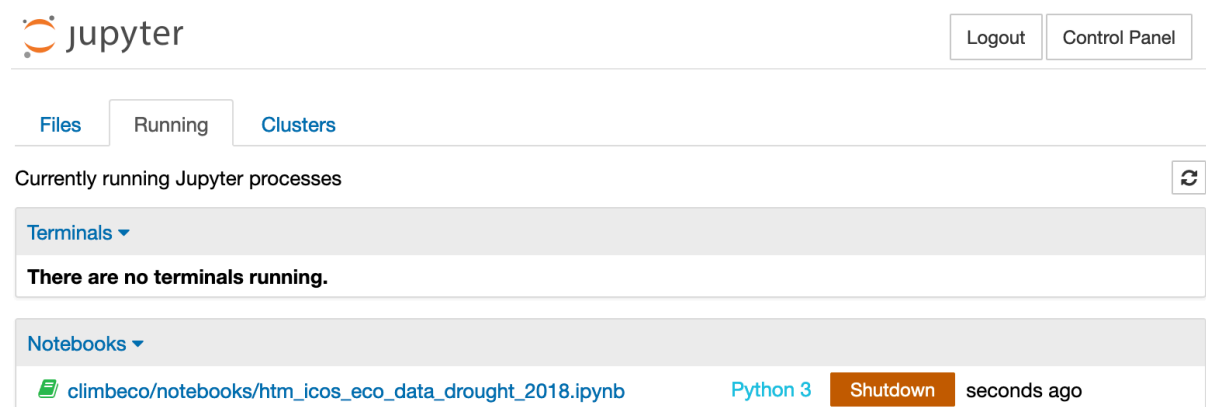
Enter your login-credentials in the popup window:

Username: <enter your email address>

Password: snowroller

Once you have successfully logged-in, you will see two directories. The **climbeco** directory includes all the exercises, code, data and ancillary documents. This directory is a read-only directory, meaning that you may run the notebooks in there, but you cannot change them (no changes will be stored). In order to add your own code to a notebook that corresponds to an exercise, you need to first download the notebook and then upload it to the **work** directory (instructions for download and upload see below). All changes made to a notebook stored in the **work** directory are saved. This means that you can log out and the next time you log in the notebooks in *work* will be available including all the changes you made to them.

Remember to frequently save the notebook you are working with and to **shutdown** all notebooks before you log out.



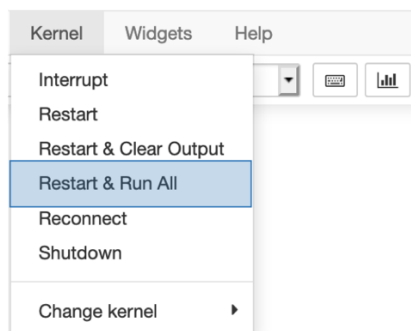
The screenshot shows the JupyterLab web interface. At the top left is the Jupyter logo. At the top right are 'Logout' and 'Control Panel' buttons. Below these are three tabs: 'Files' (selected), 'Running', and 'Clusters'. Under the 'Running' tab, it says 'Currently running Jupyter processes' with a refresh icon. There are two expandable sections: 'Terminals' and 'Notebooks'. The 'Terminals' section is collapsed and shows 'There are no terminals running.' The 'Notebooks' section is expanded and shows a single notebook: 'climbeco/notebooks/htm_icos_eco_data_drought_2018.ipynb'. To the right of the notebook name is 'Python 3', an orange 'Shutdown' button, and the text 'seconds ago'.

| Terminals | |
|---------------------------------|--|
| There are no terminals running. | |

| Notebooks | |
|---|-------------------------------|
| climbeco/notebooks/htm_icos_eco_data_drought_2018.ipynb | Python 3 Shutdown seconds ago |

Run the notebook

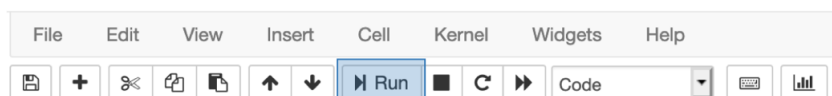
To run all the code included in a Jupyter Notebook, go to the menu at the top of the page and click on **Kernel** and then **Restart & Run All**.



Use the provided links to navigate to different parts of the notebook. Some notebooks include parts that are long. In these cases, the part includes an additional table of contents with links to its corresponding subparts. Use the links to quickly navigate from one subpart to another. It is also possible to scroll.

Run a Single Code-Cell

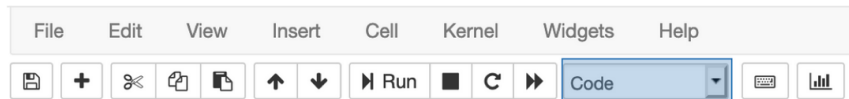
A Jupyter Notebook consists of code-cells. It is possible to write Python code in a code-cell and then run it by clicking on Run in the menu at the top of the page.



Observe that only one code-cell will be executed, and this is the code-cell that was active when you clicked on Run. You can activate a code-cell just by clicking on it. An active code-cell is highlighted in blue or green color (see image below).

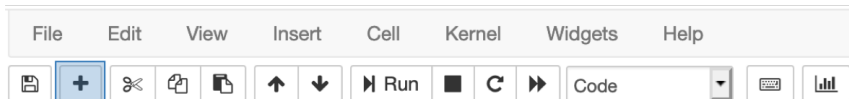


It is also possible to write Markup code in a Jupyter Notebook code-cell. For instance, the instructions you are reading here are written in a Markup code-cell that includes markup text and HTML code. When you are writing Python code in a code-cell make sure that the cell is a Python code-cell. The type of the currently active code-cell is shown in the dropdown list on the menu bar at the top of the page (see figure). A code-cell that includes Python code should be marked as Code.



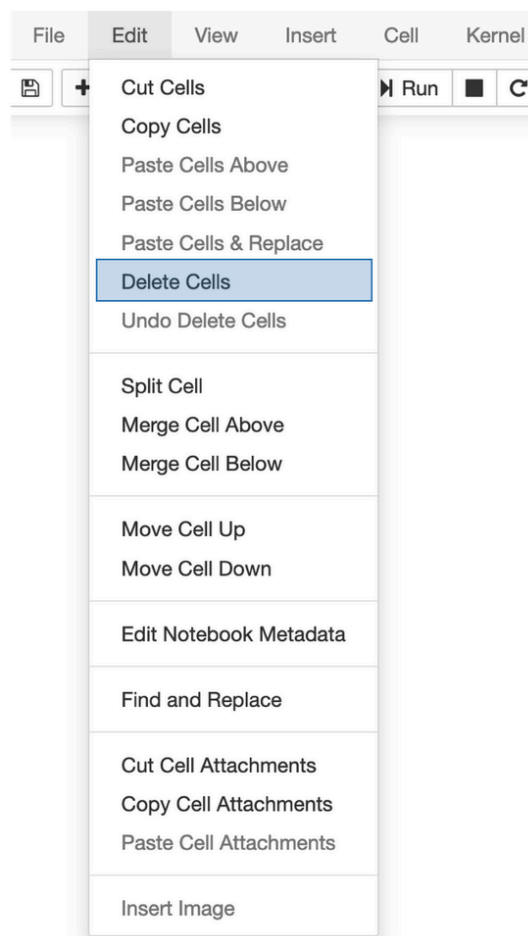
Add a Code-Cell

Click on "+" in the menu to add a new code-cell under the current active code-cell.



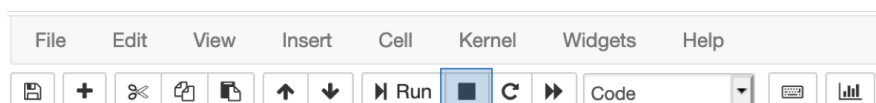
Delete a Code-Cell

If you wish to delete a code-cell, select the code-cell by clicking on it and then go to the menu at the top of the page and click on **Edit** --- > **Delete Cells**.

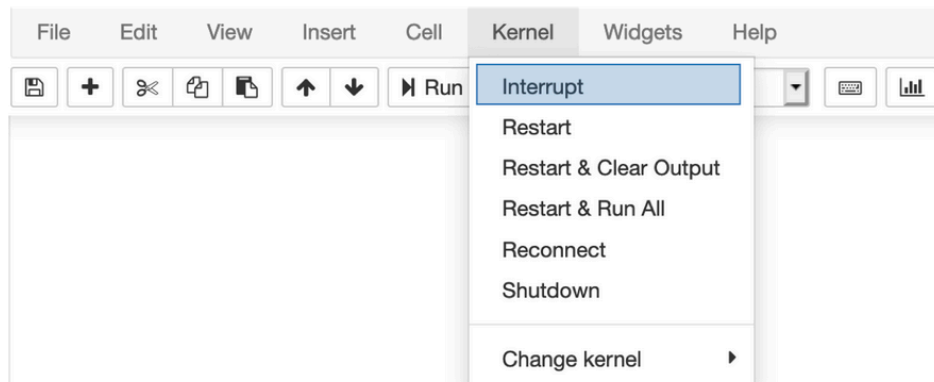


Stop Execution

If an execution is taking too long, you can stop your notebook from running by clicking on **Interrupt kernel** in the menu.

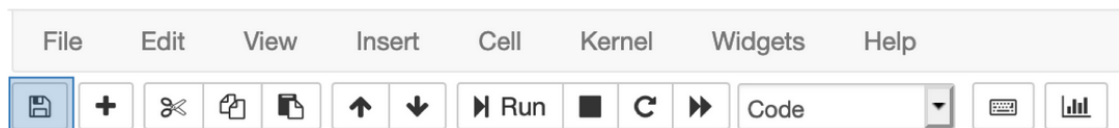


Alternatively, another choice is to go to **Kernel** and click on **Interrupt**.



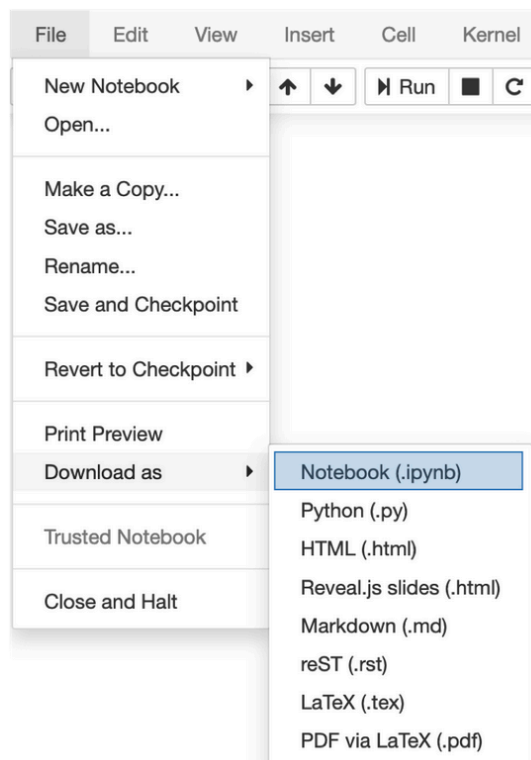
Save Notebook

Click on **Save** frequently to save your work.

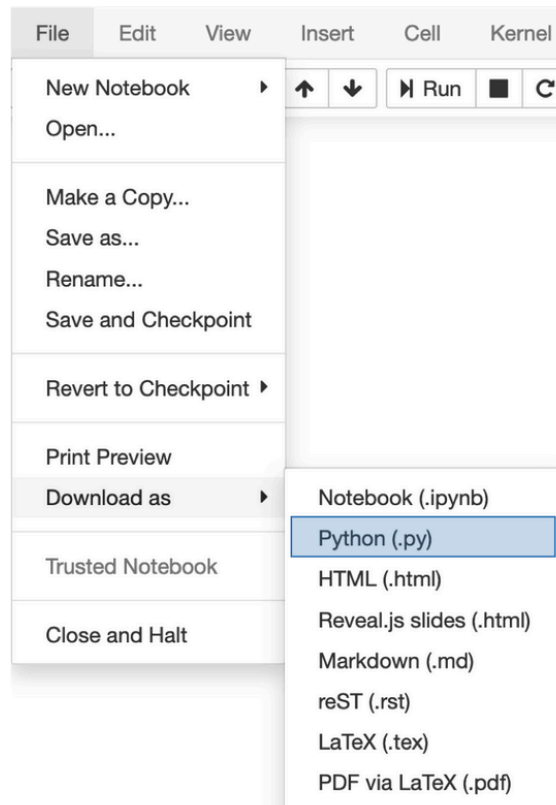


Download Notebook

If you wish to download the notebook as a Jupyter Notebook, go to the menu at the top of the page, click on **File** --- > **Save As...** --- > **Notebook(.ipynb)**.



If you wish to save your work as pure Python code, go the menu at the top of the page, click on **File** --- > **Save As...** --- > **Python(.py)**.



Upload Notebook

If you wish to upload a notebook, go to your work folder and click on the Upload button on the right.

