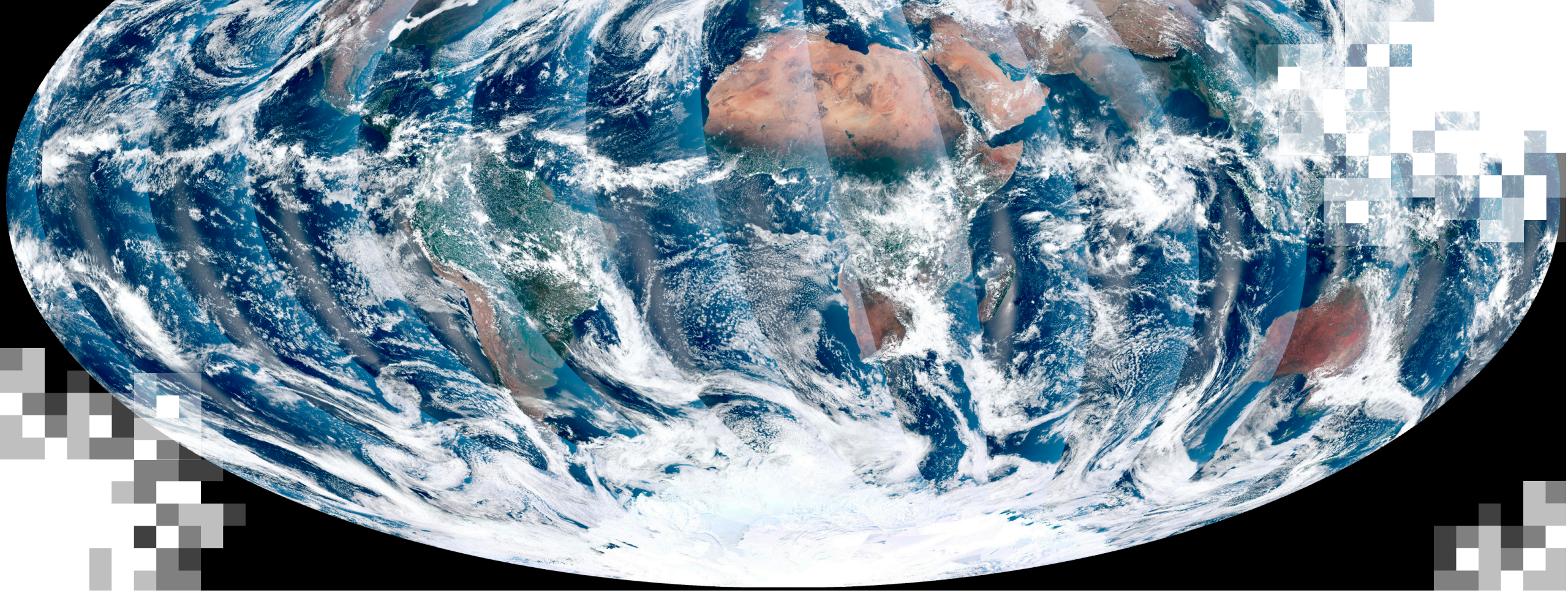
Things to do before you attend the webinar…

1. Create an Earthdata login if you don't have one (directions below).
2. Create a Google account if you would like to use the Jupyter notebooks as demonstrated during the webinar (optional Notebook walkthrough below if you want to view what we will cover).
3. Watch Session 2 of our Introductory Webinar, "An Inside Look at how NASA Measures Air Pollution." This session covers:
   - What are Aerosols?
   - Interpreting Aerosol Imagery: Dos and Don'ts
   - A Tour of NASA Resources for Generating Your Own Visualizations

https://appliedsciences.nasa.gov/join-mission/training/english/inside-look-how-nasa-measures-air-pollution (English)

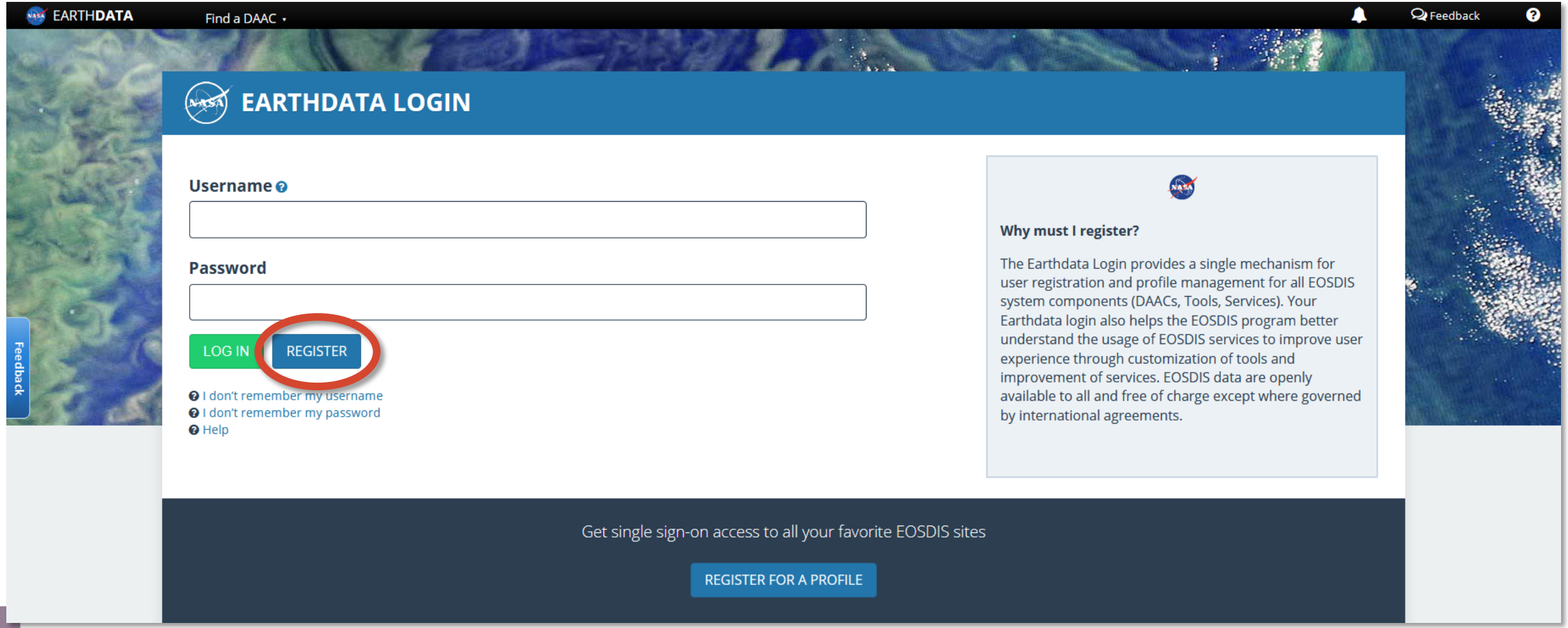
https://appliedsciences.nasa.gov/join-mission/training/spanish/un-vistazo-como-la-nasa-mide-la-contaminacion-del-aire-0 (Spanish)



Create an Earthdata Account

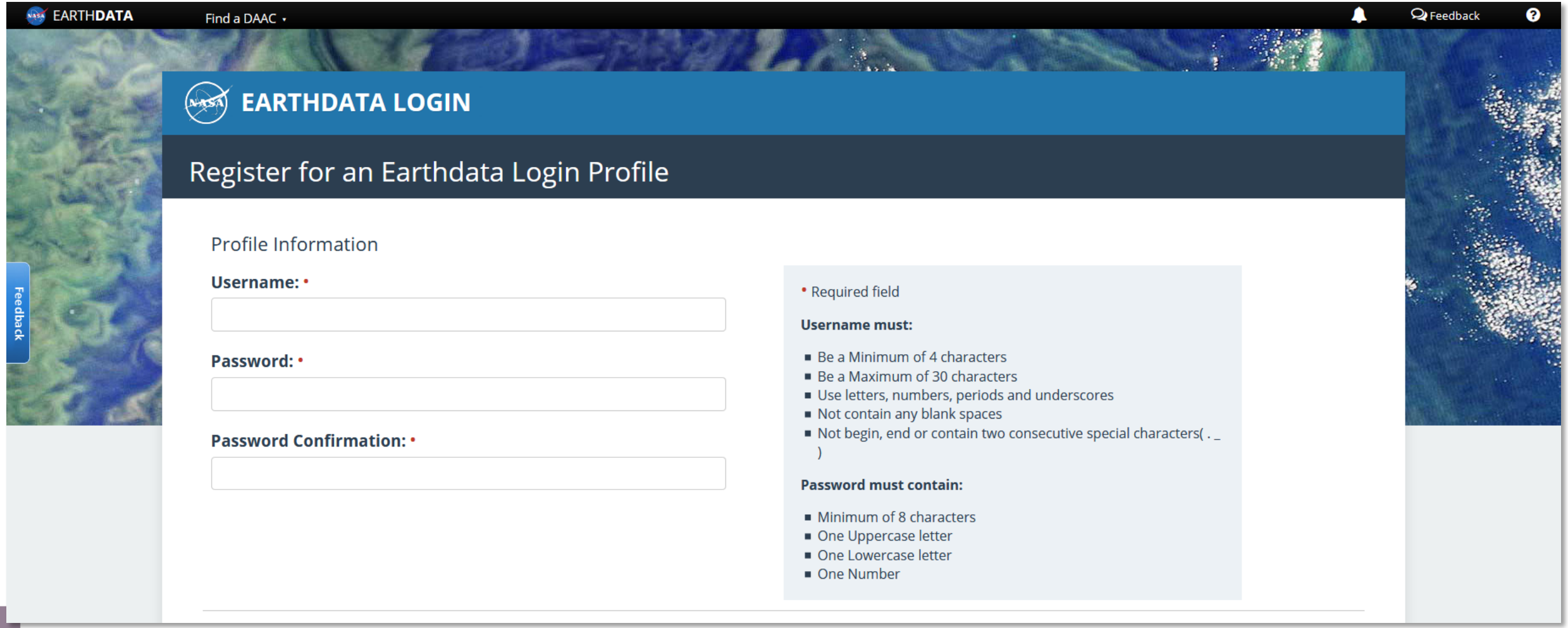
Create an Earthdata Account

Step 1: Go to https://urs.earthdata.nasa.gov/ and click "Register."



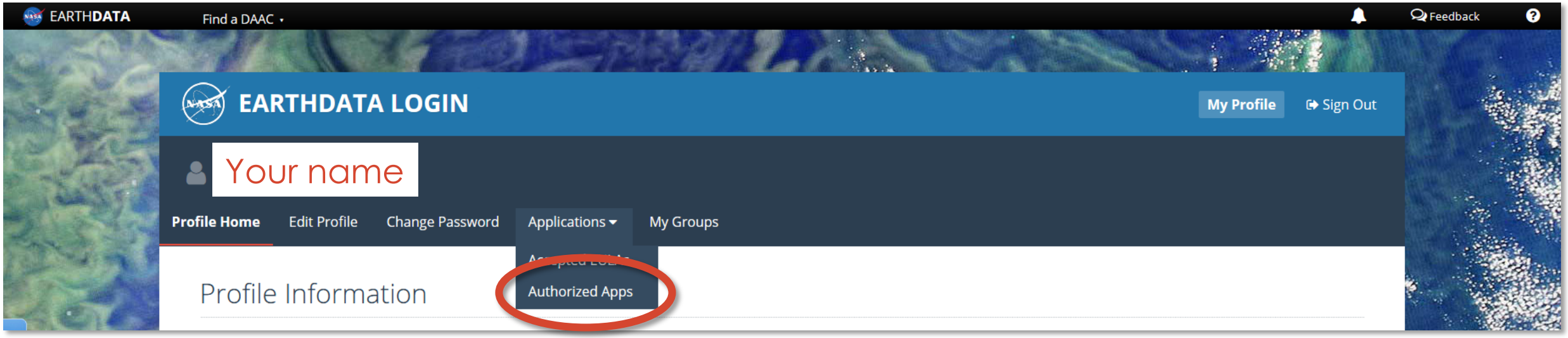
Create an Earthdata Account

Step 2: Fill out registration form and click “Register for Earthdata Login”



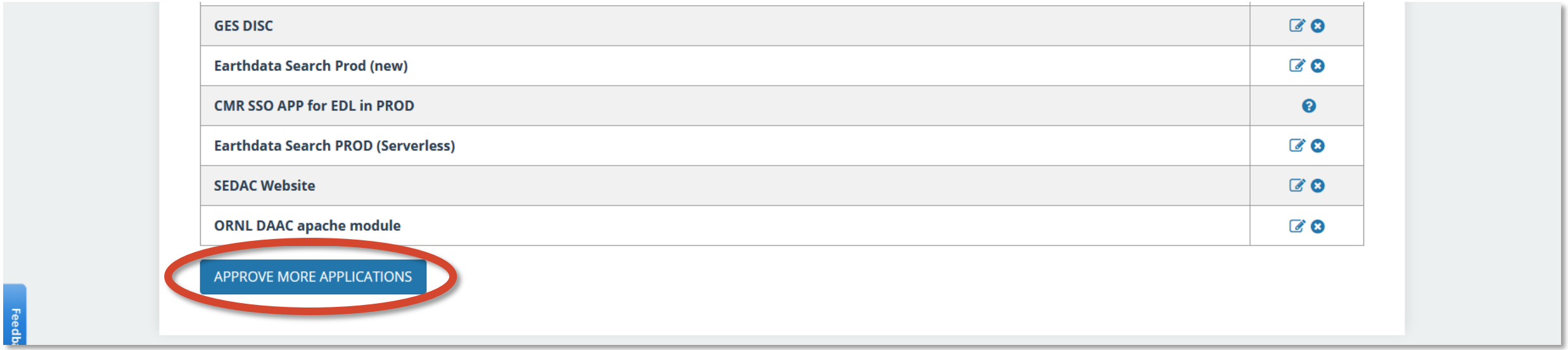
Add Applications

Step 1: After you log in, you'll see your profile screen, click Applications → Authorized Apps.



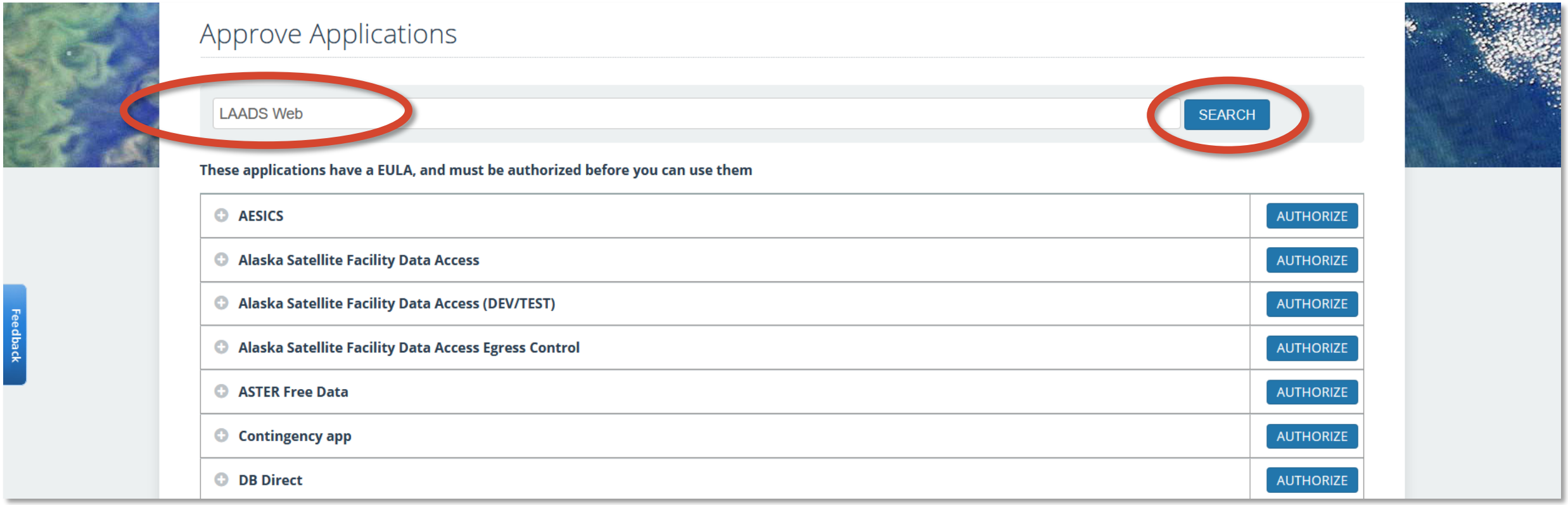
Add Applications

Step 2: Scroll down to the bottom and click “Approve More Applications.”



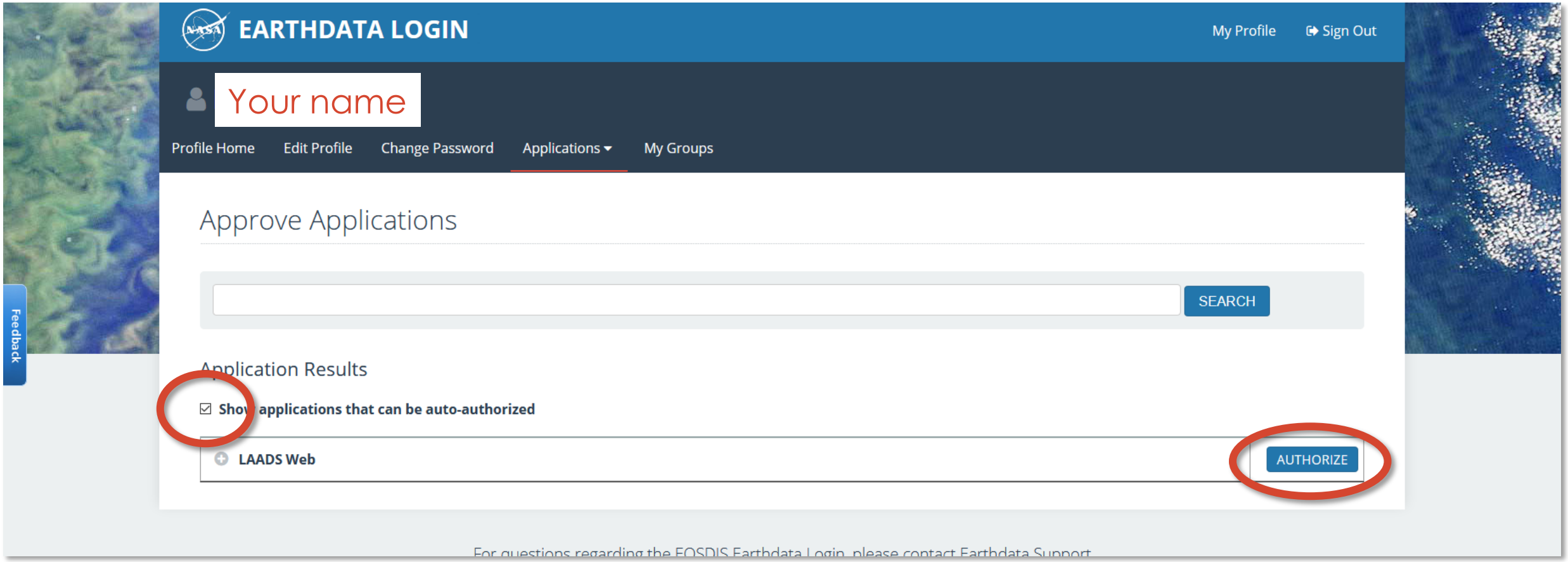
Add Applications

Step 3: Search for “LAADS Web” and the click “Search.”



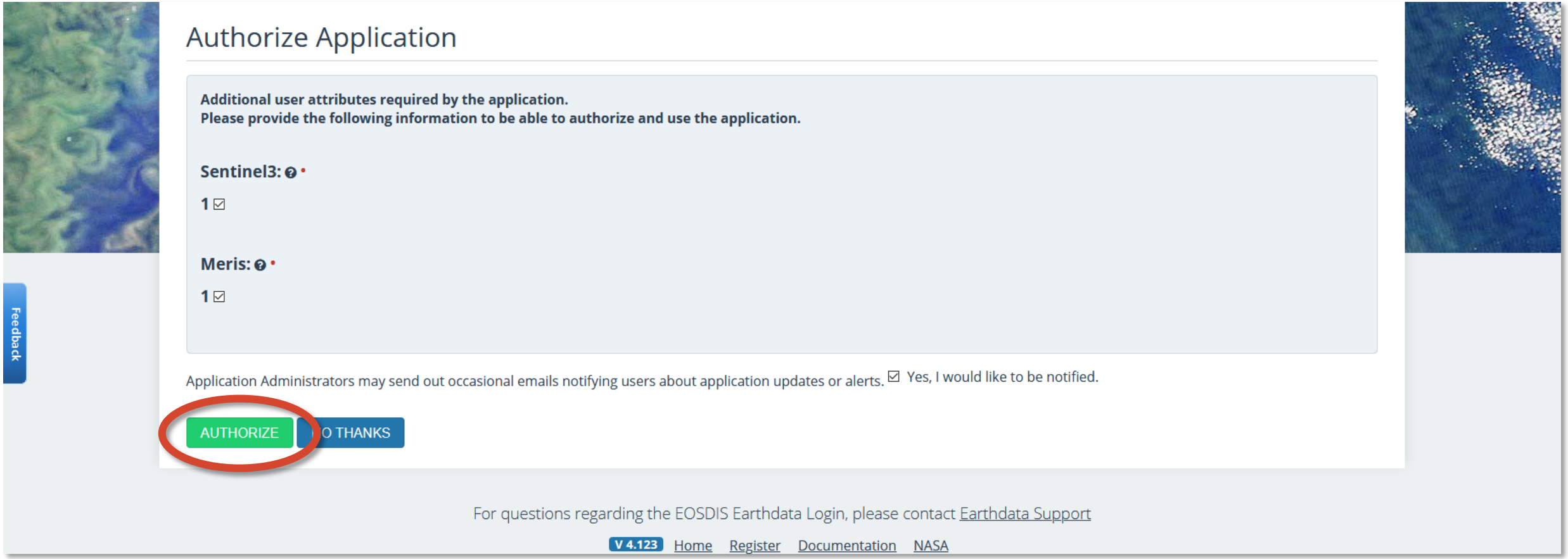
Add Applications

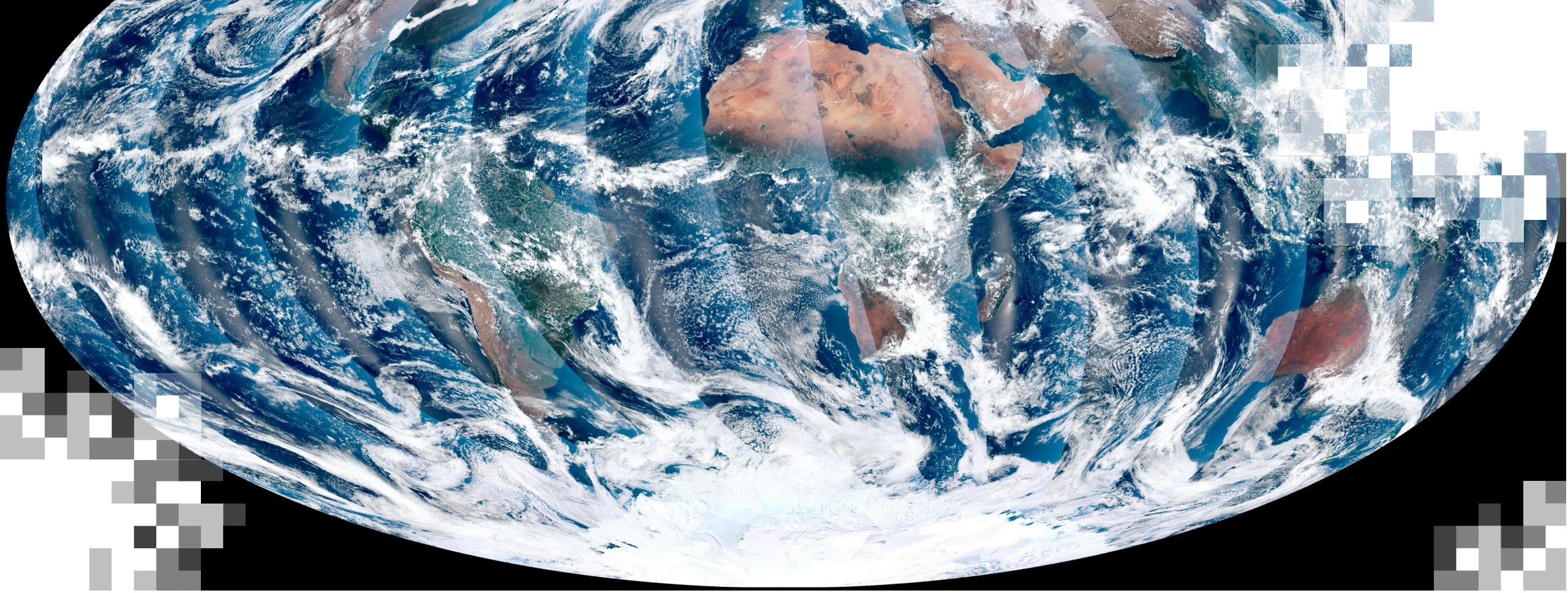
Step 4: Check 'Show Applications that can be auto-authorized' and click "Authorize."



Add Applications

Step 5: Authorize any additional user attributes, and click “Authorize”

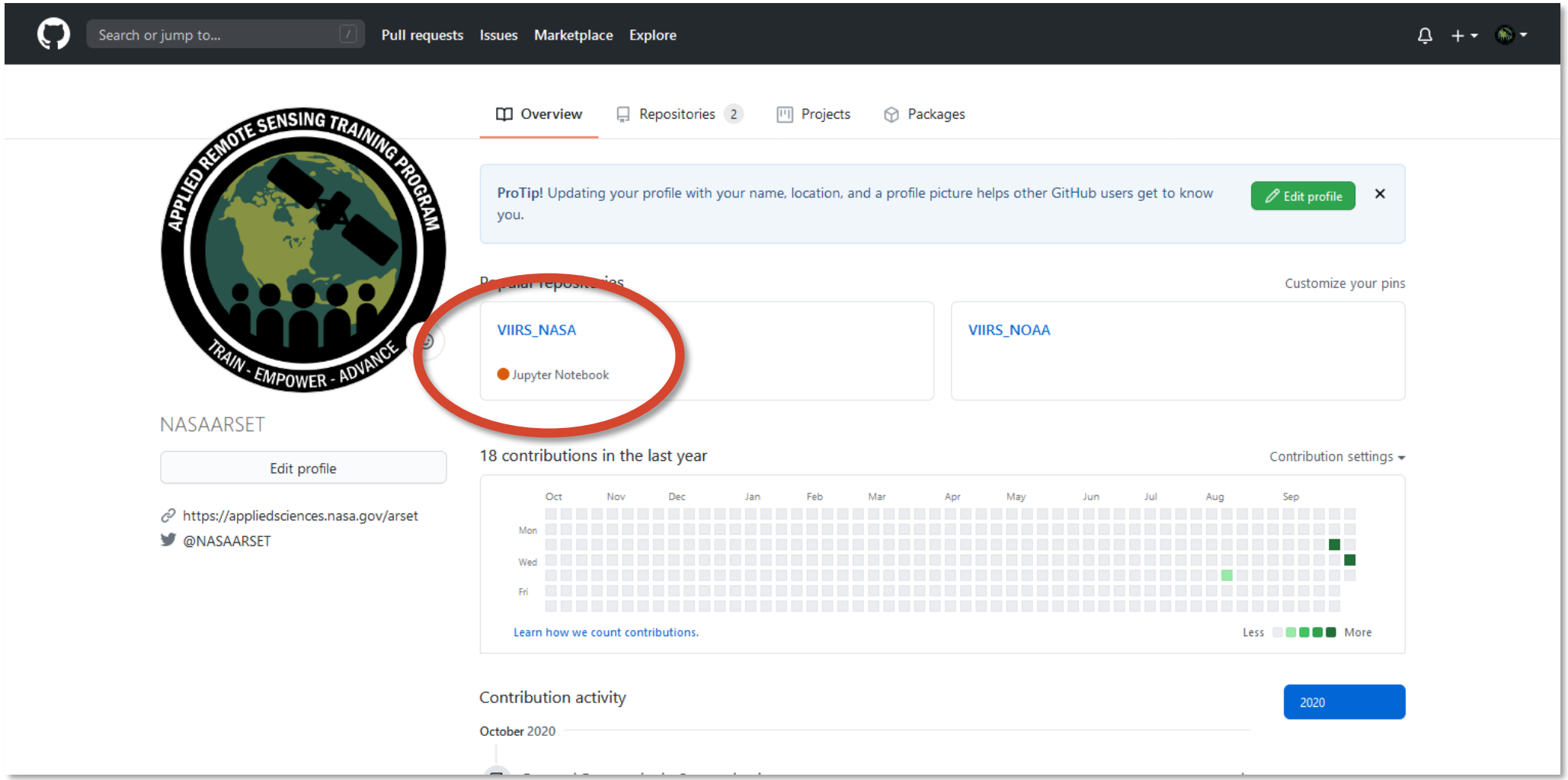




Download Jupyter Notebooks and Save to Your Computer

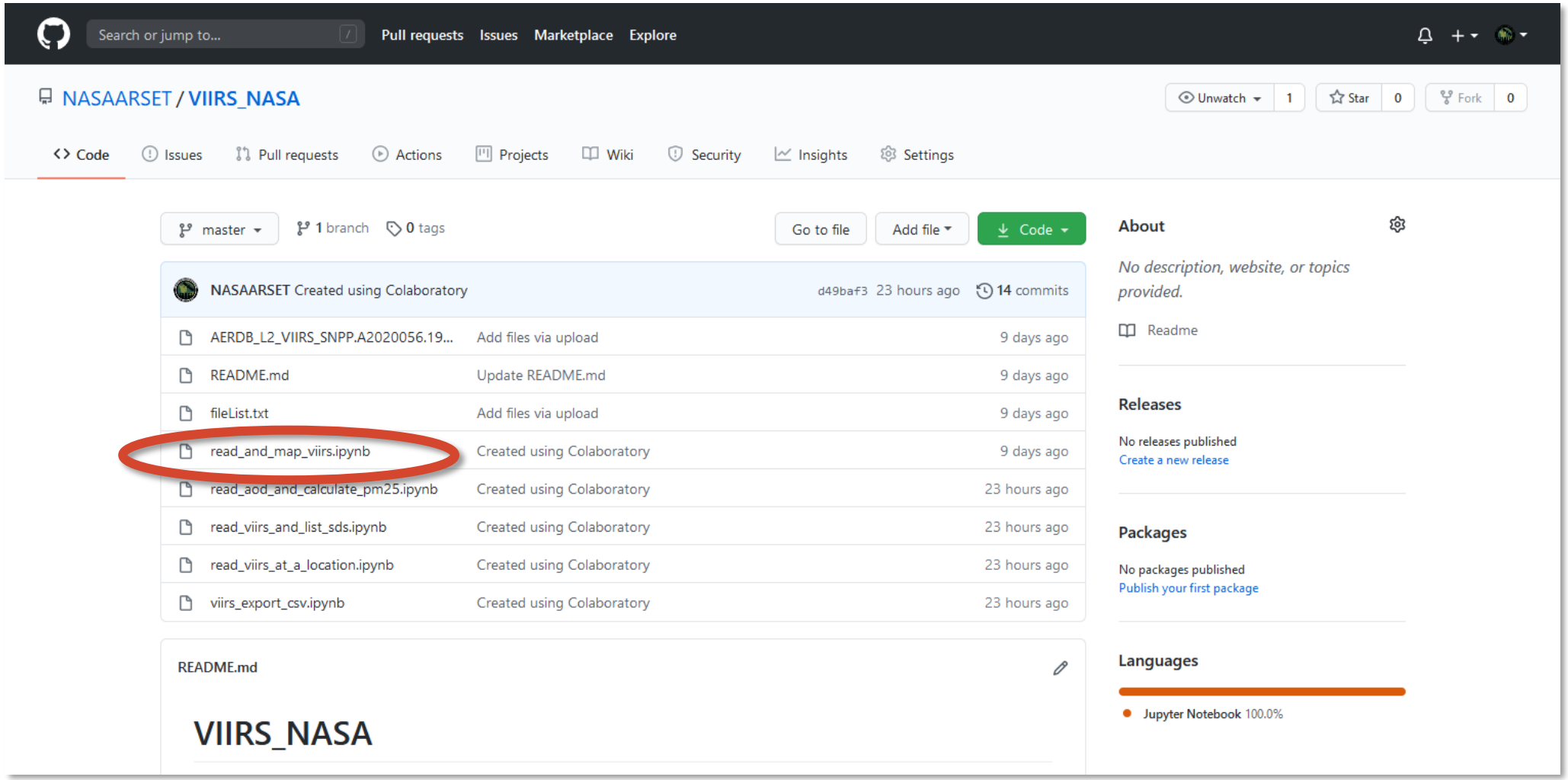
Download Jupyter Notebooks and Save to Your Computer

Step 1: Go to https://github.com/NASAARSET/, click on VIIRS_NASA



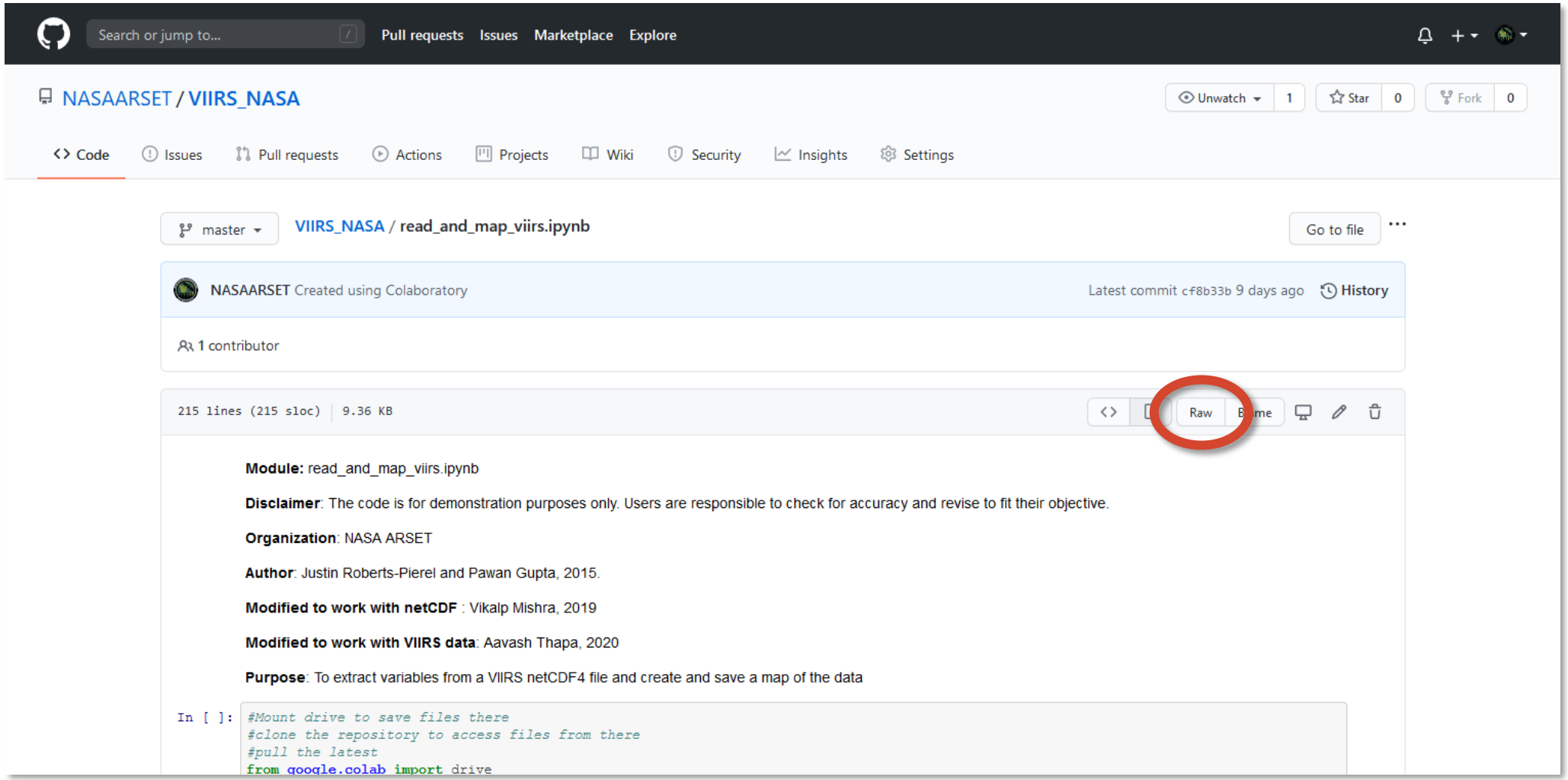
Download Jupyter Notebooks and Save to Your Computer

Step 2: Click on read_and_map_viirs.ipynb



Download Jupyter Notebooks and Save to Your Computer

Step 3: Above the code, click 'Raw'. This will display the raw code.



Download Jupyter Notebooks and Save to Your Computer

Step 4: Click Ctrl+S to save to your computer as a .ipynb.


```
{
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  "nbformat_minor": 0,
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      "display_name": "Python 3"
    }
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      "source": [
        "**Module:** read_and_map_viirs.ipynb\n",
        "\n",
        "**Disclaimer**: The code is for demonstration purposes only. Users are responsible to check for accuracy and revise to fit their objective.\n",
        "\n",
        "**Organization**: NASA ARSET\n",
        "\n",
        "**Author**: Justin Roberts-Pierel and Pawan Gupta, 2015.\n",
        "\n",
        "**Modified to work with netCDF** : Vikalp Mishra, 2019 \n",
        "\n",
        "**Modified to work with VIIRS data**: Aavash Thapa, 2020\n",
        "\n",
        "**Purpose**: To extract variables from a VIIRS netCDF4 file and create and save a map of the data"
      ]
    },
    {
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      },
      "source": [
        "#Mount drive to save files there\n",
        "#clone the repository to access files from there\n",
        "#pull the latest\n",
        "from google.colab import drive\n",
        "drive.mount('/content/drive', force_remount=True)\n",
        "! git clone https://github.com/NASAARSET/VIIRS_NASA.git\n",
        "! git -C VIIRS_NASA/ pull"
      ]
```
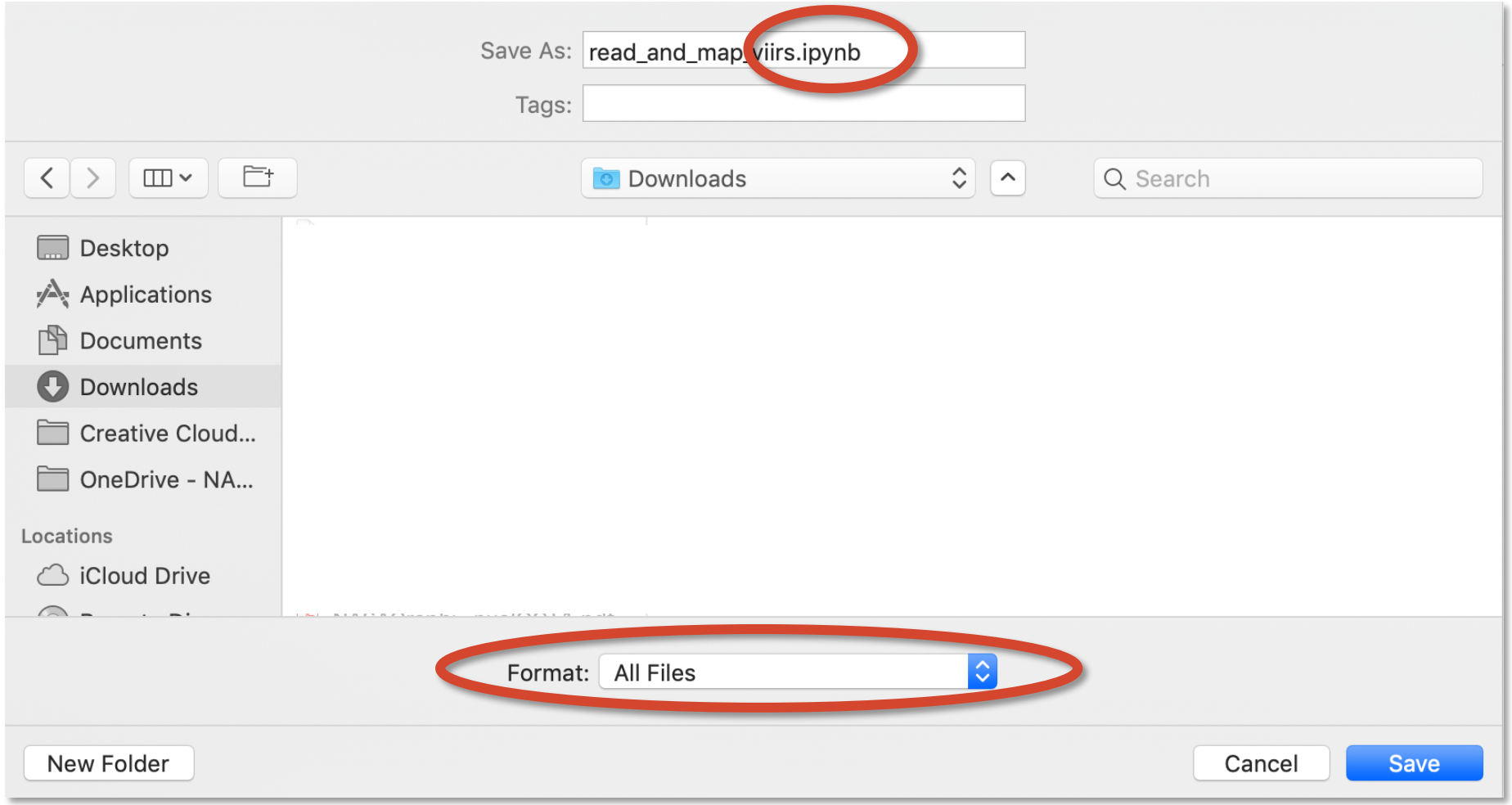
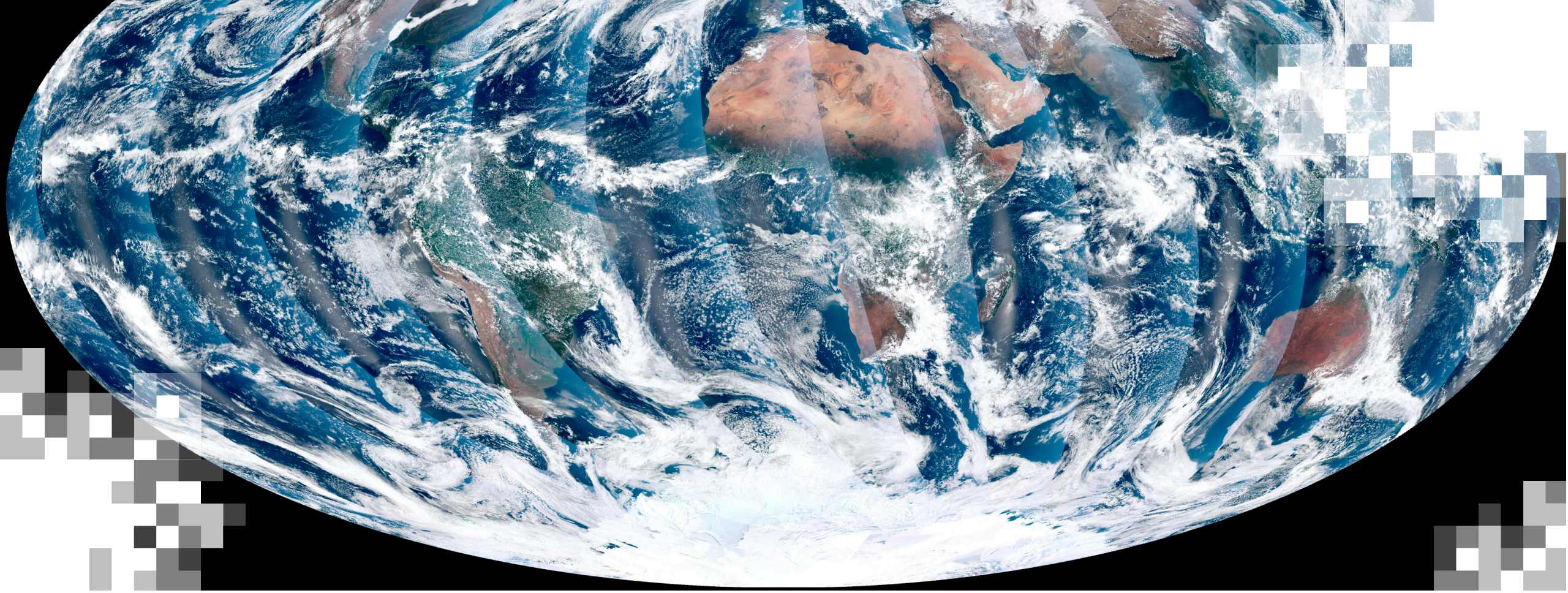

Download Jupyter Notebooks and Save to Your Computer

Make sure you save the file with the extension ".ipynb"!

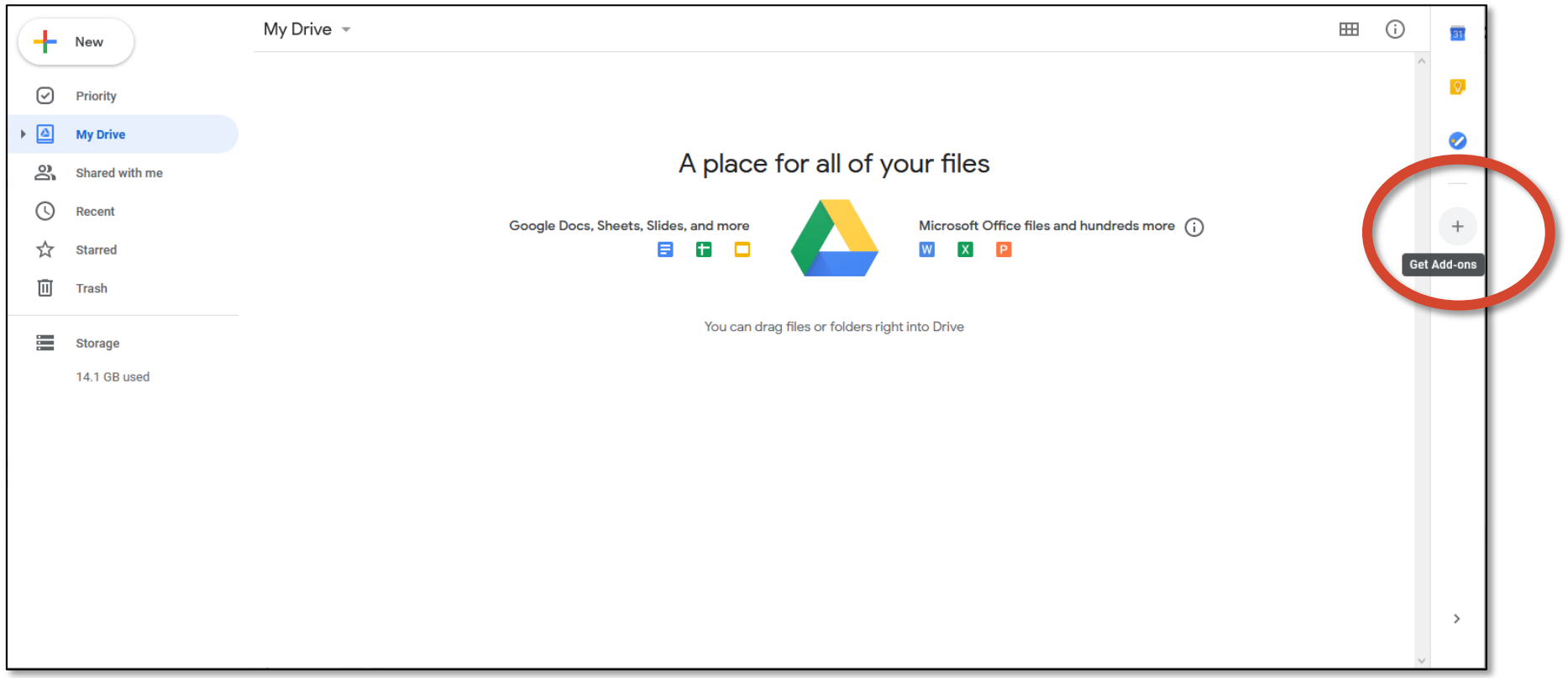




Install Google Colaboratory Add-on and Add Notebooks to ‘Colab Notebooks’ folder on Google Drive

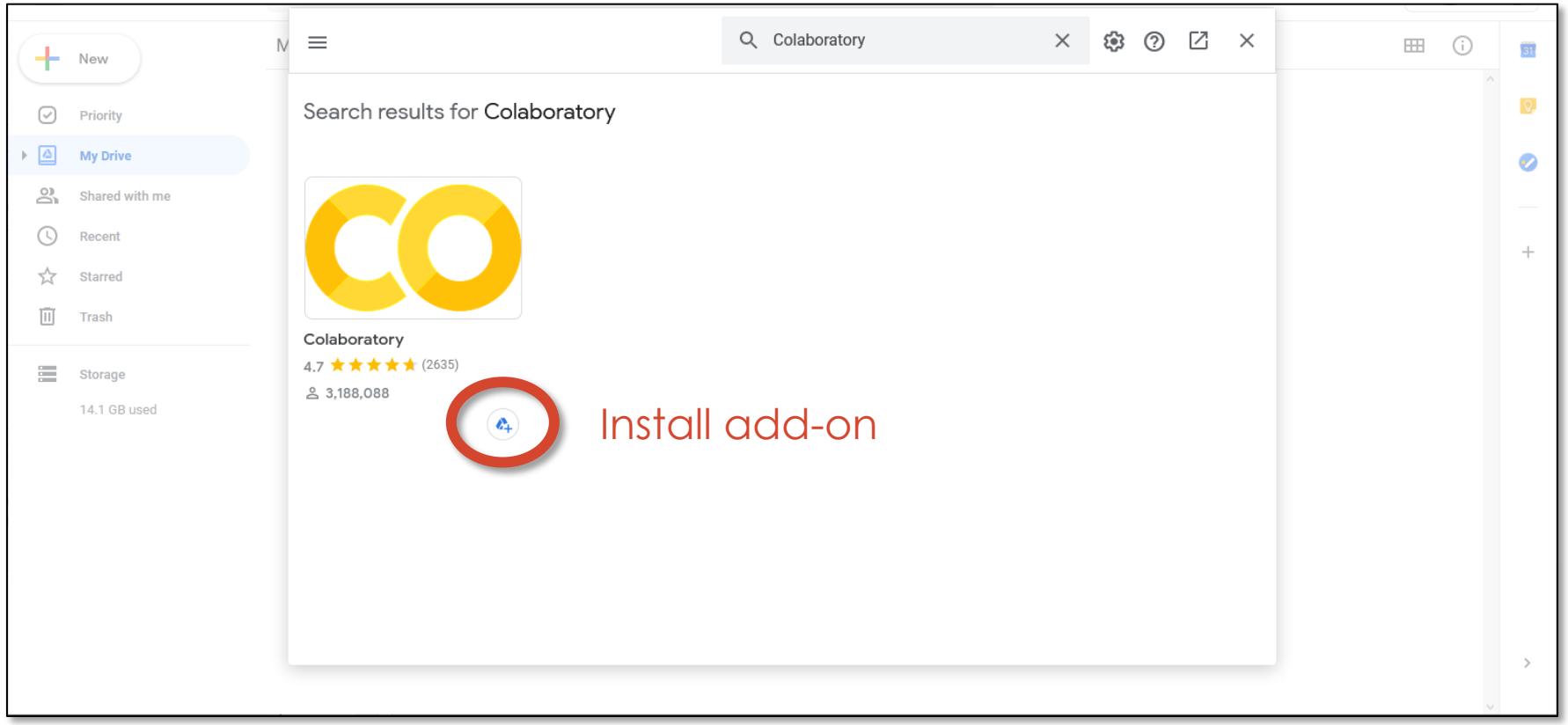
Add Your Notebooks to Google Drive

Step 1: Go to drive.google.com and click the + on the right to add add-ons.



Add Your Notebooks to Google Drive

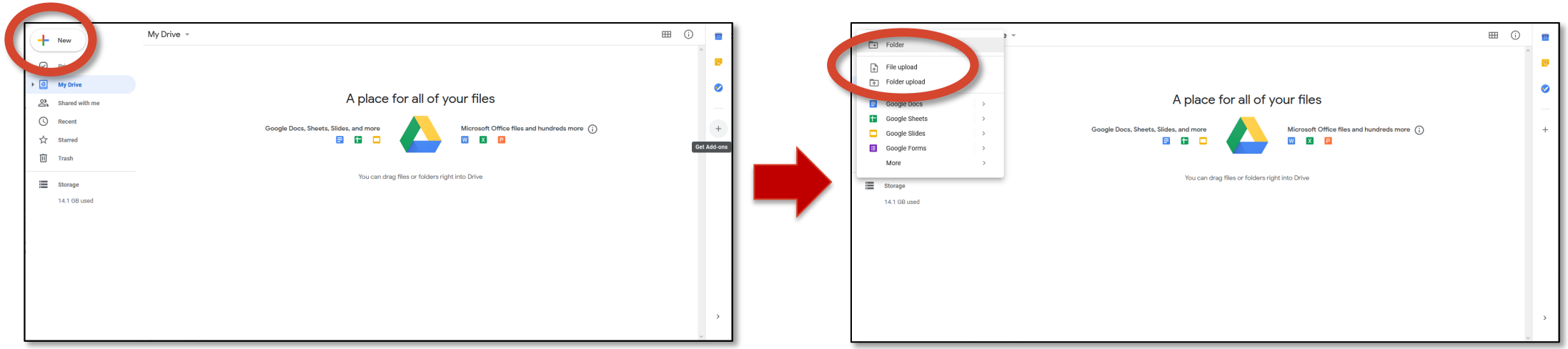
Step 2: Search for “Colaboratory" and install.



Add Your Notebooks to Google Drive

Step 3: Add Notebook to Google Drive by dragging over files, or clicking New → File Upload.

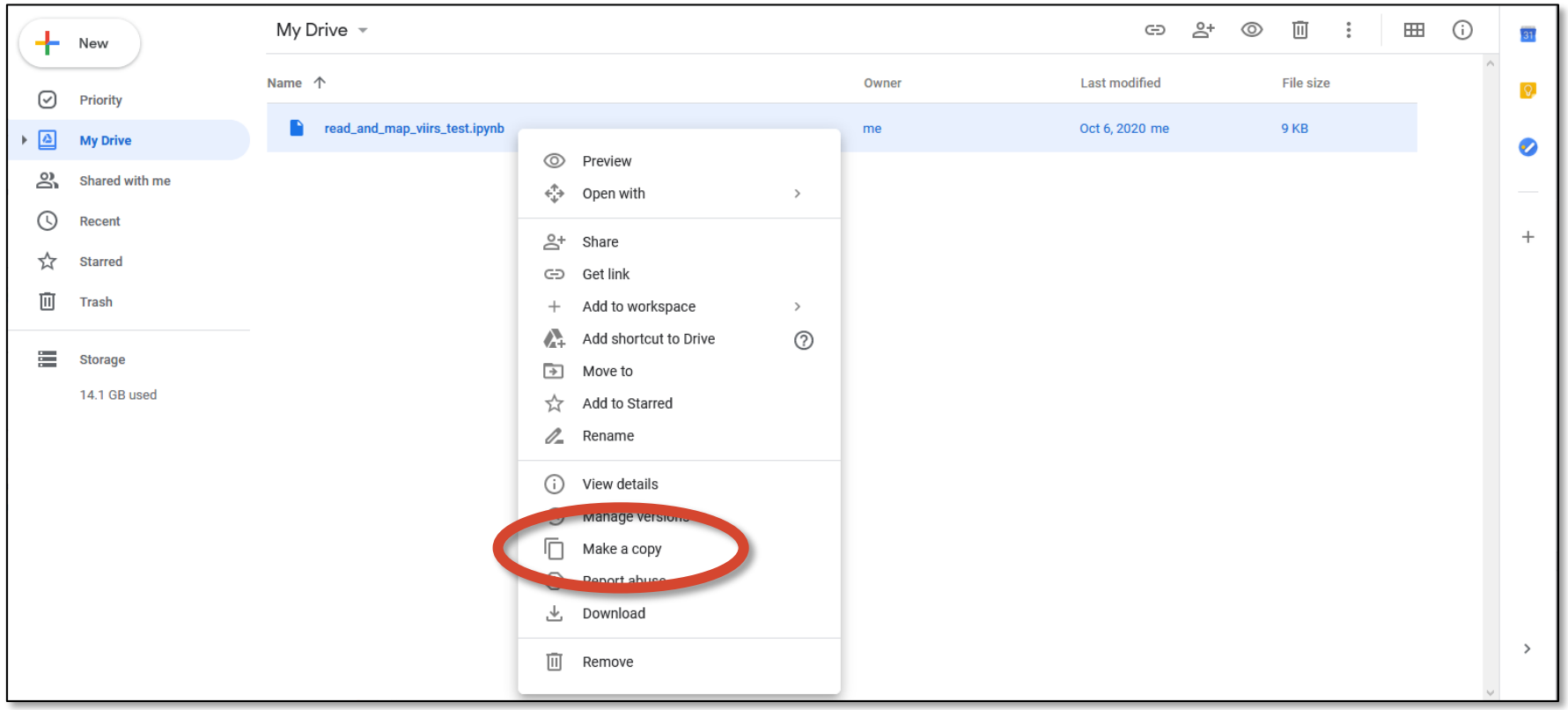
* If you already had Colaboratory installed, add the file to your Colab Notebooks folder. *

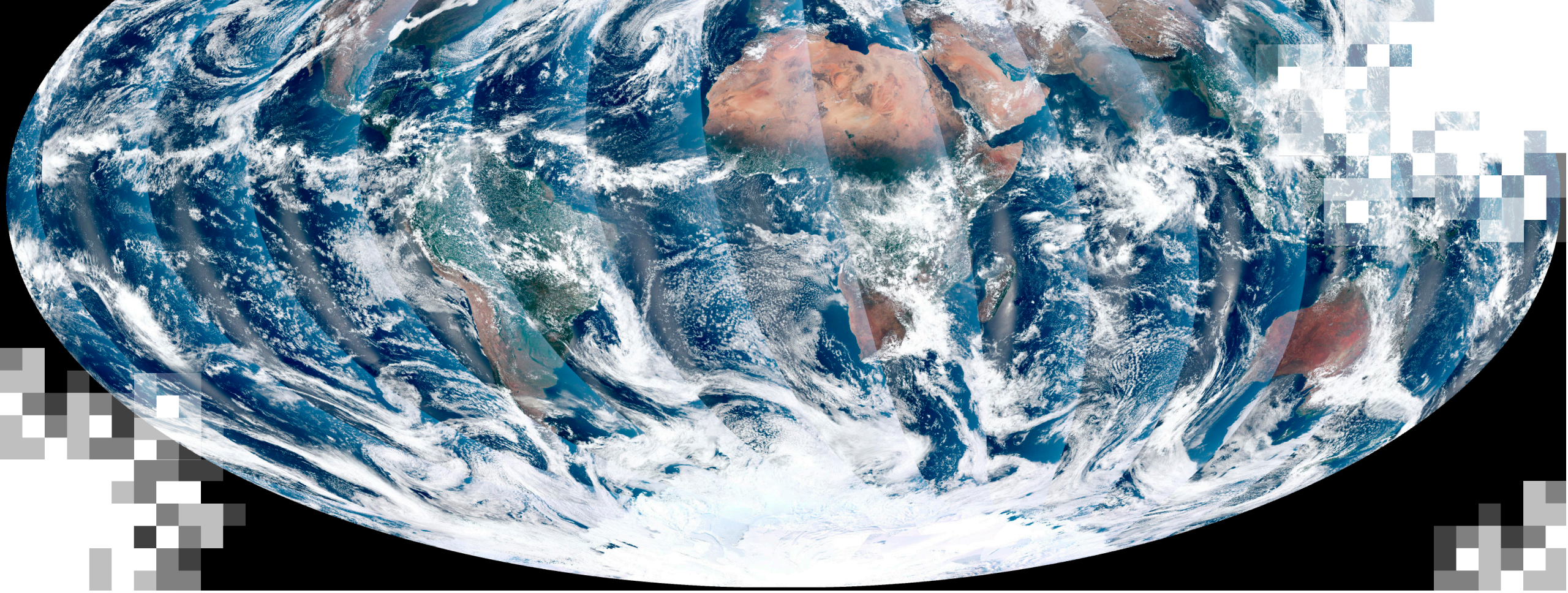


Add Your Notebooks to Google Drive

Step 3a: Right-click on your file and click "Make a copy". *This will create the Colab Notebooks folder in your Google Drive. The file copy will be inside this folder.*

* This step is only necessary if you had to install Colaboratory. *

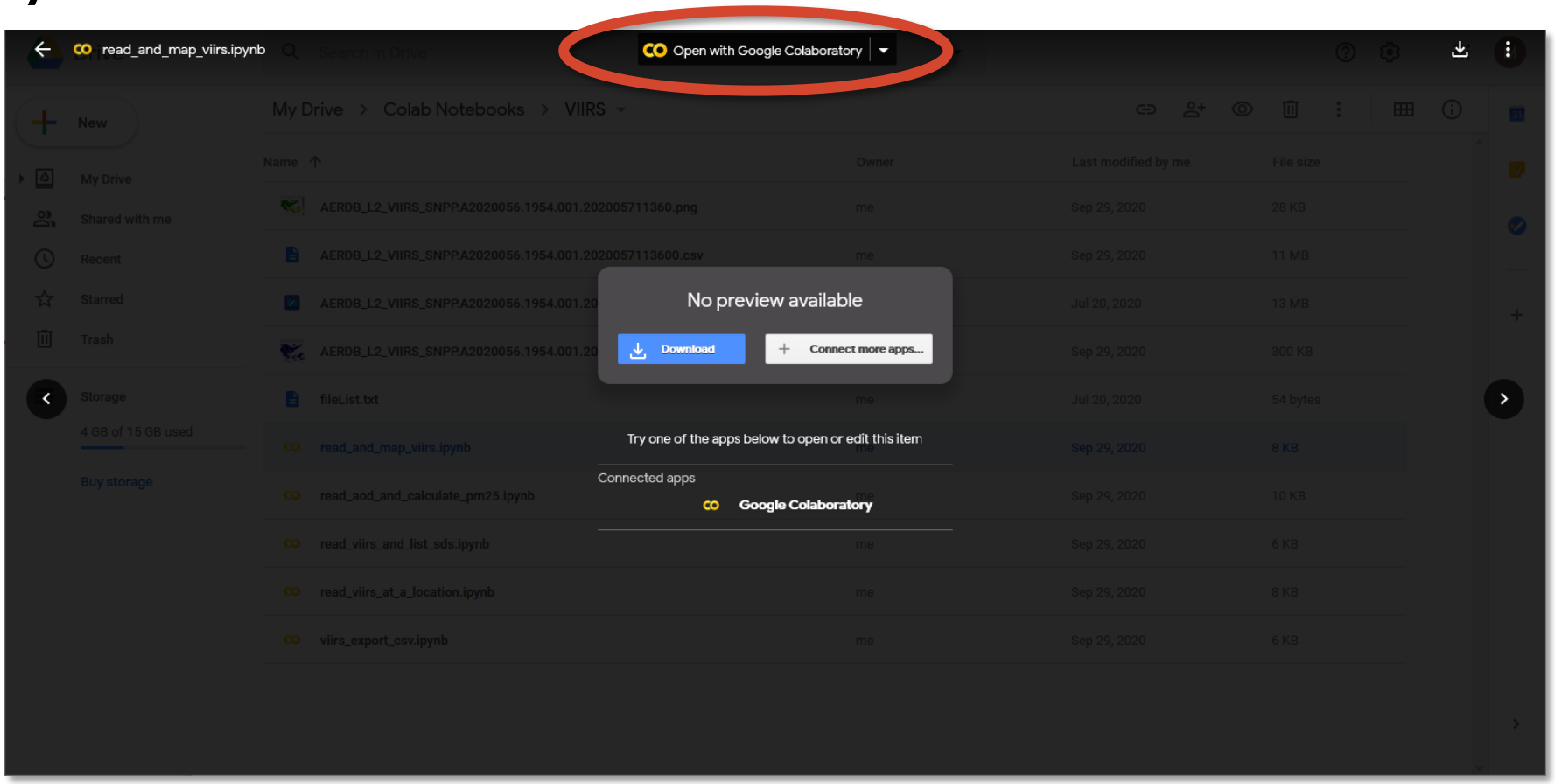




Run Jupyter Notebooks using Google Colaboratory

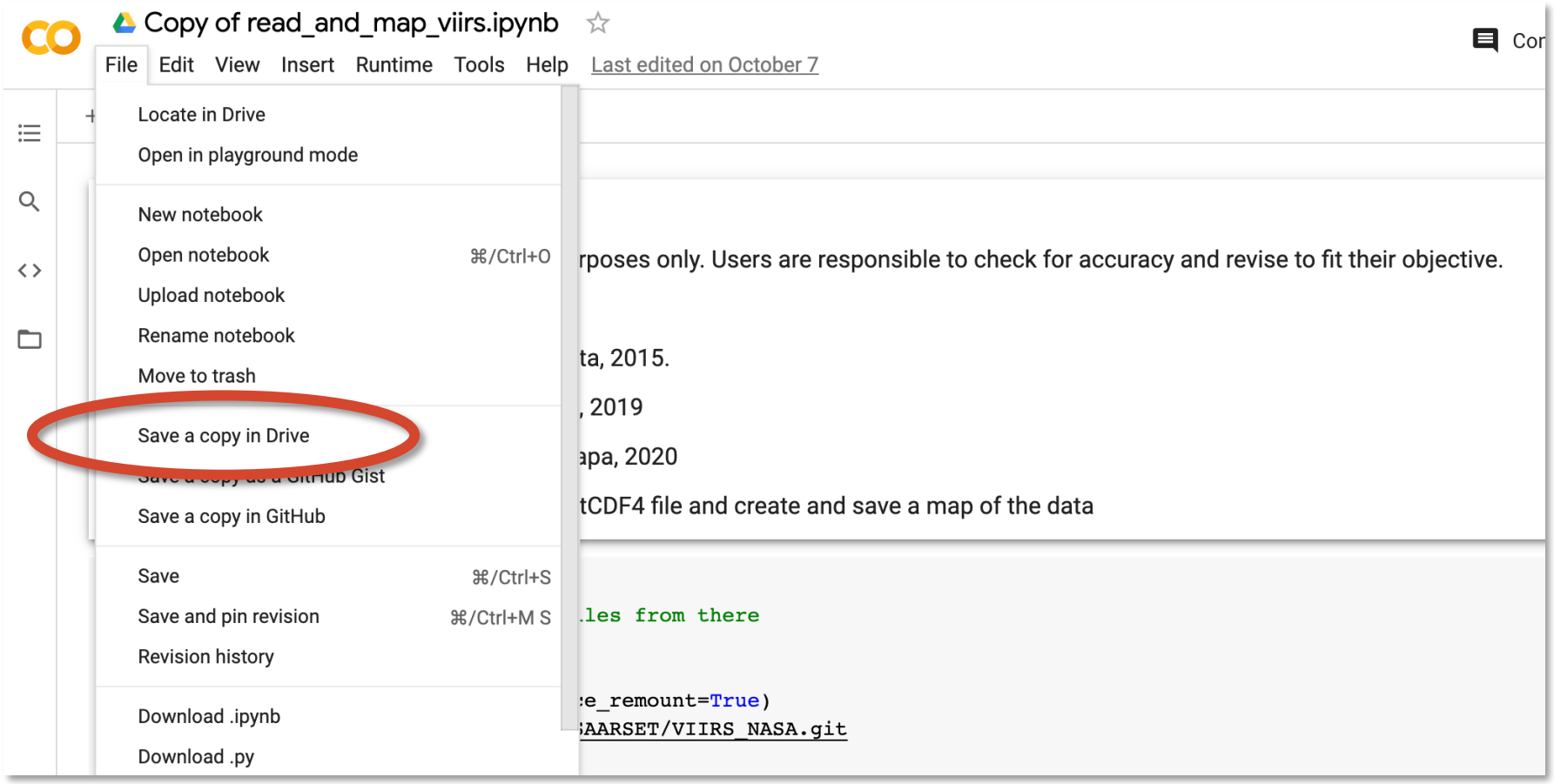
Run your Jupyter Notebook

Step 1a: Double click your file to open it and choose Open with Google Colaboratory.



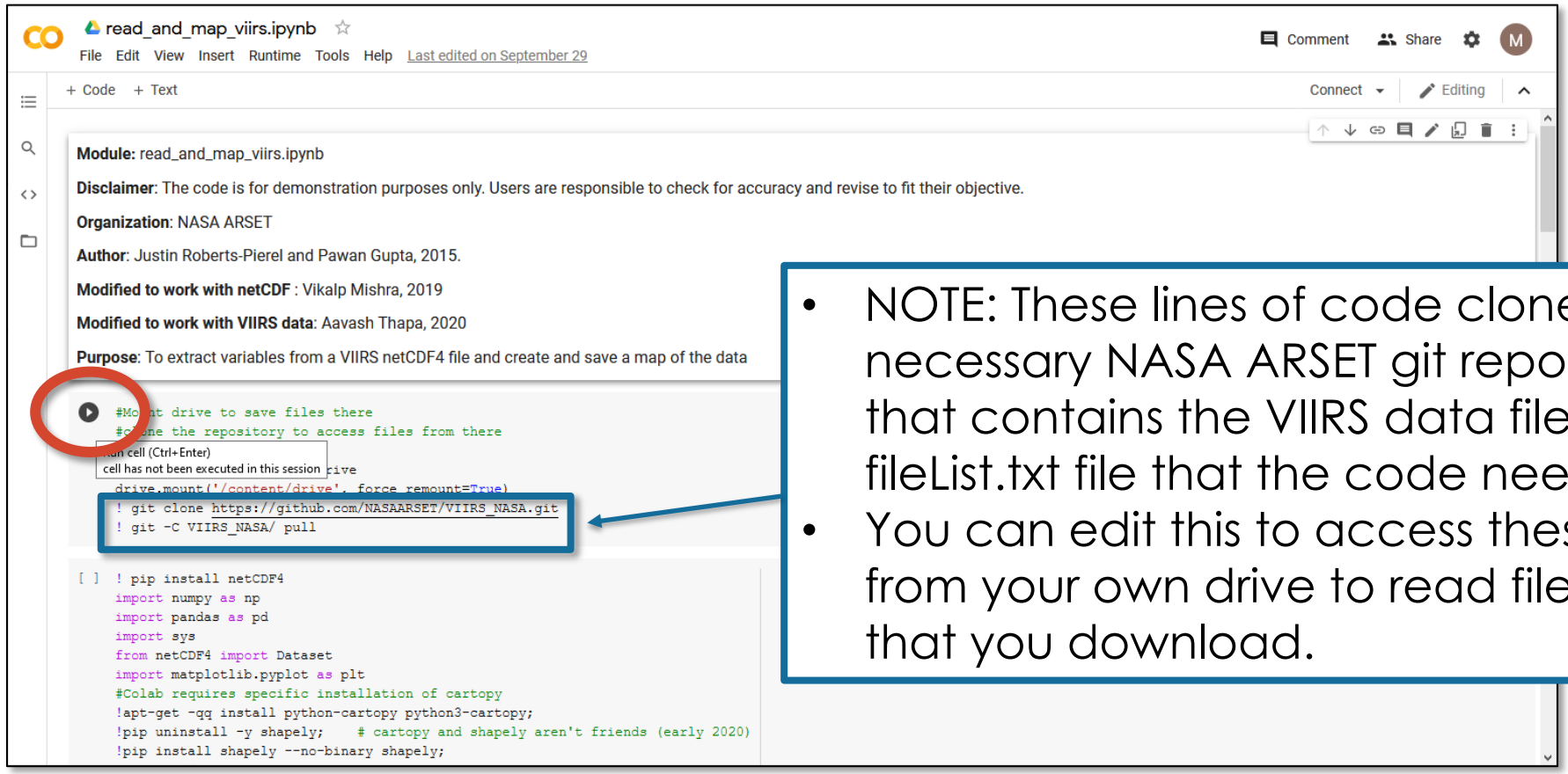
Run your Jupyter Notebook

Step 1b: Once open, click File > Save a copy in Drive. This will automatically create a duplicate copy in a folder called “Colab Notebooks”.



Run your Jupyter Notebook

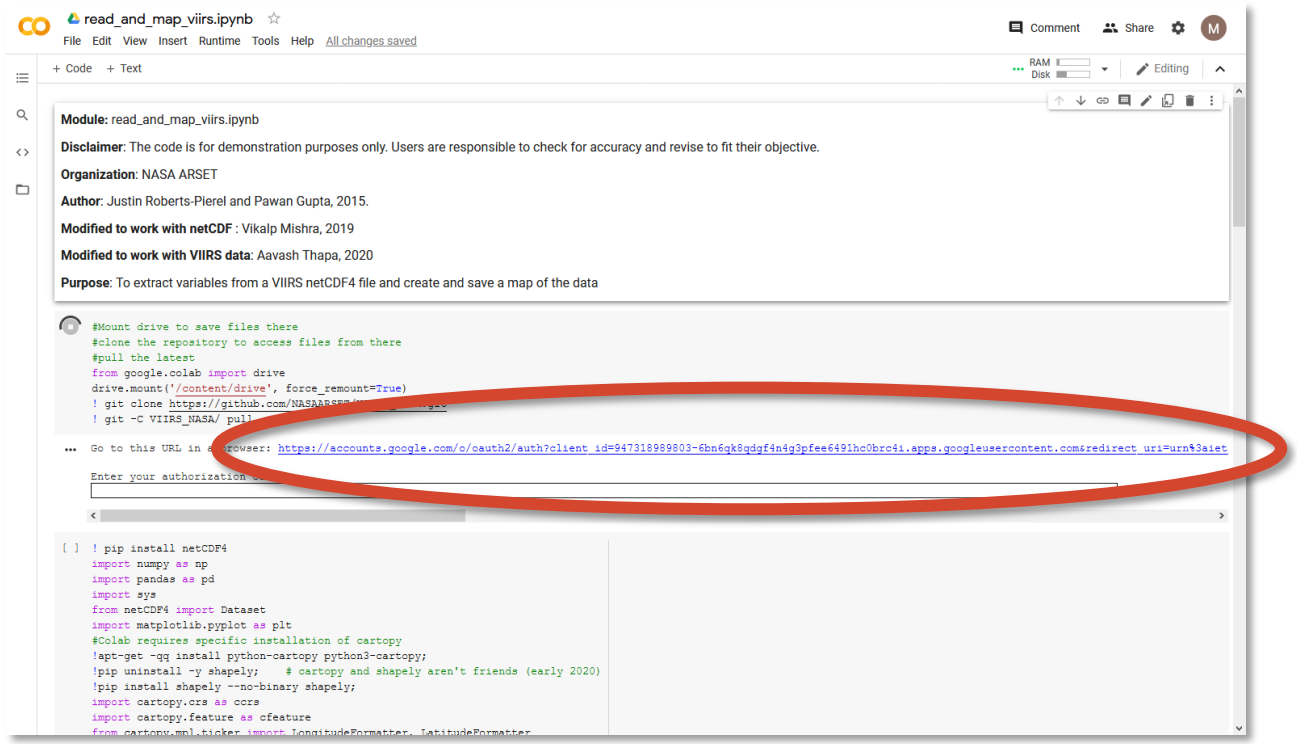
Step 2: Run each cell of your notebook in order.

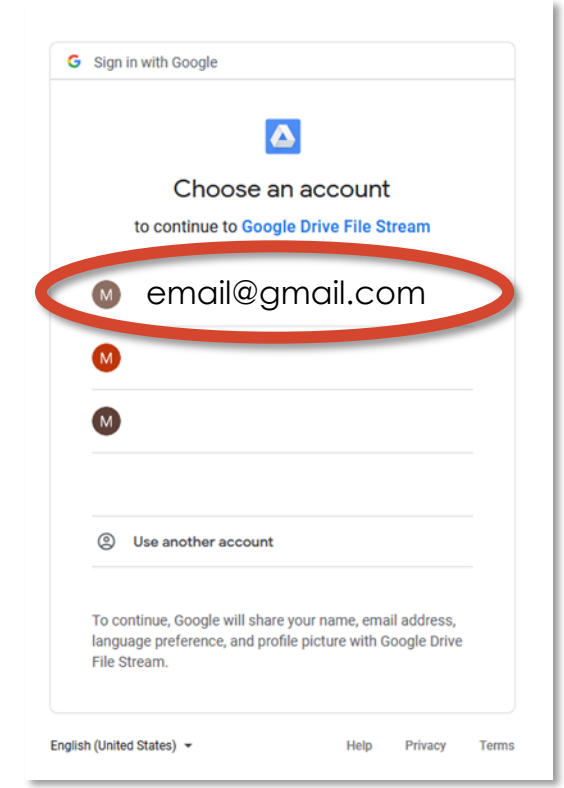


- NOTE: These lines of code clone the necessary NASA ARSET git repository that contains the VIIRS data file and fileList.txt file that the code needs.
- You can edit this to access these from your own drive to read files that you download.

Run your Jupyter Notebook

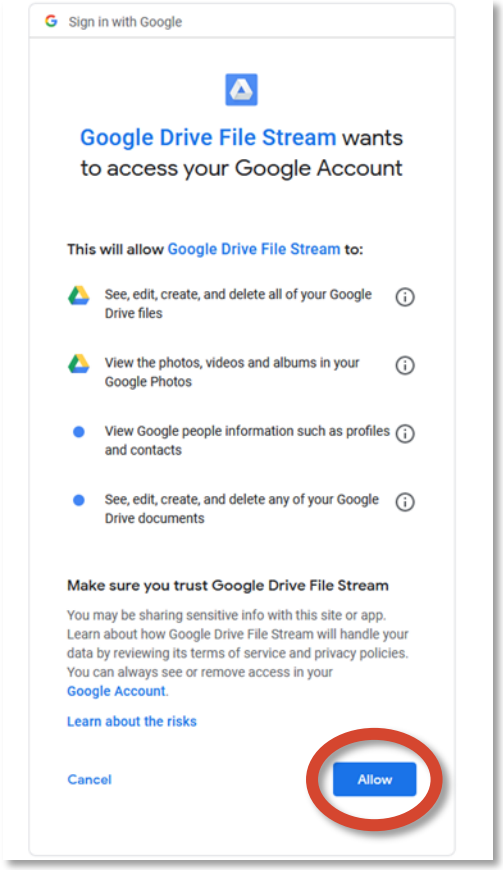
Step 2a: The first time you run each code you will need to get an authorization code from Google File Stream. Click the link and choose your google drive account.

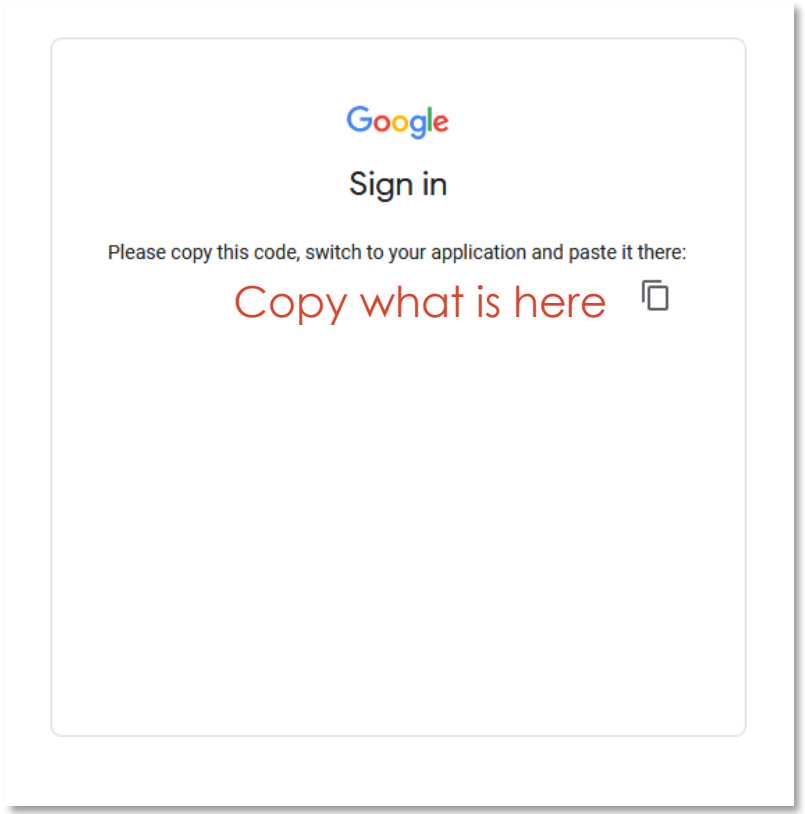




Run your Jupyter Notebook

Step 2b: Click Allow and copy the code.

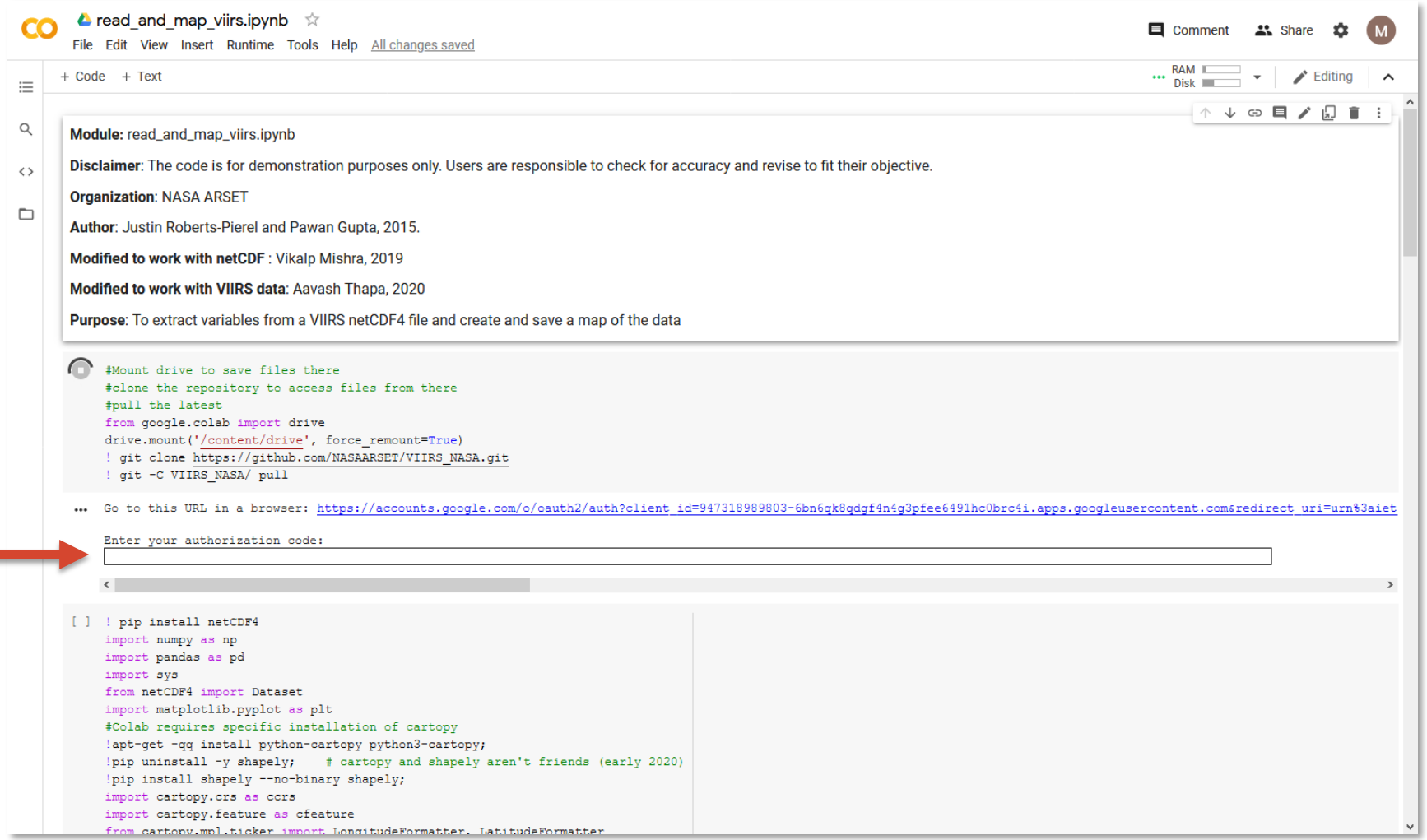




Run your Jupyter Notebook

Step 2c: Paste the code into the notebook and hit Enter.

Paste here

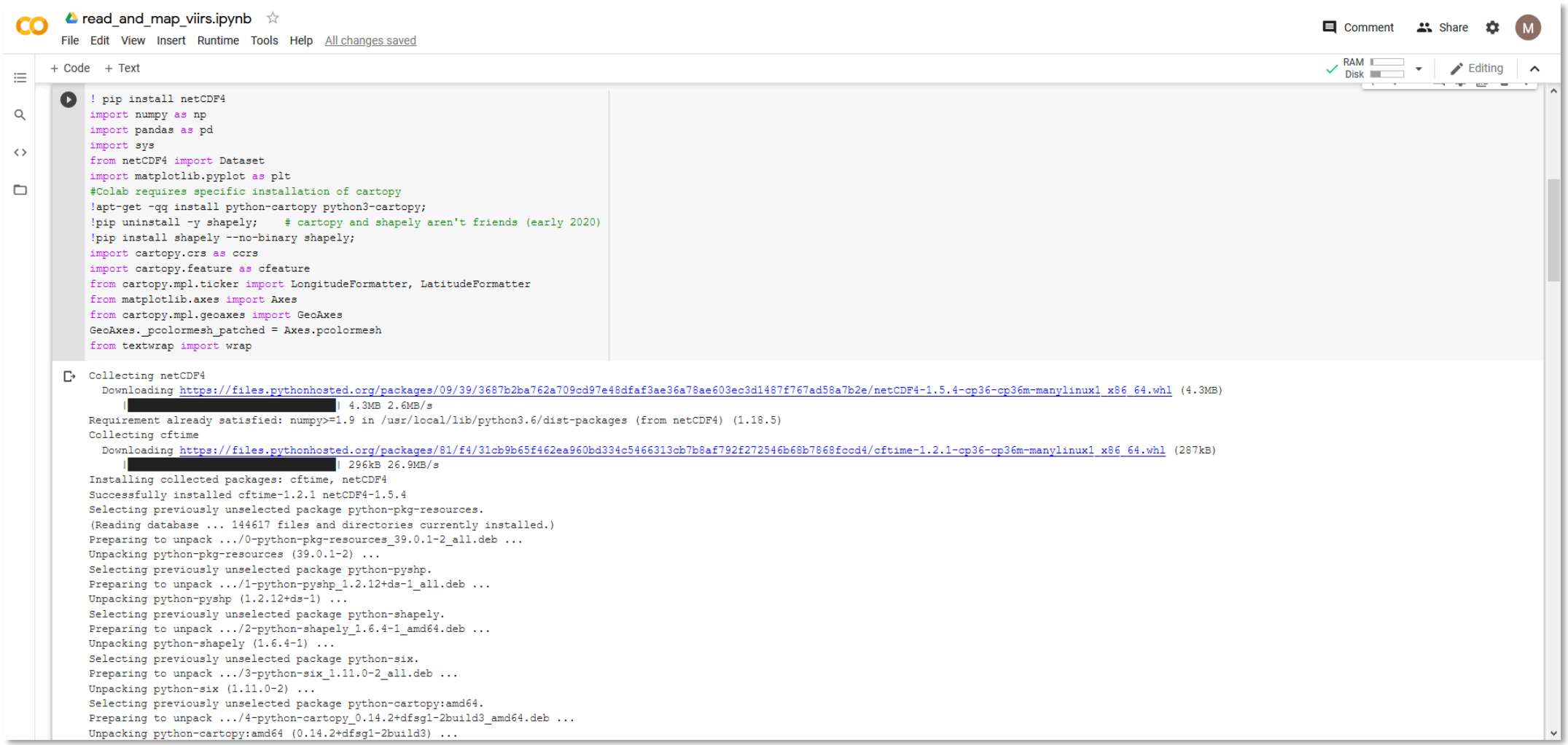


Run your Jupyter Notebook

Step 2c: Paste the code into the notebook and hit Enter.

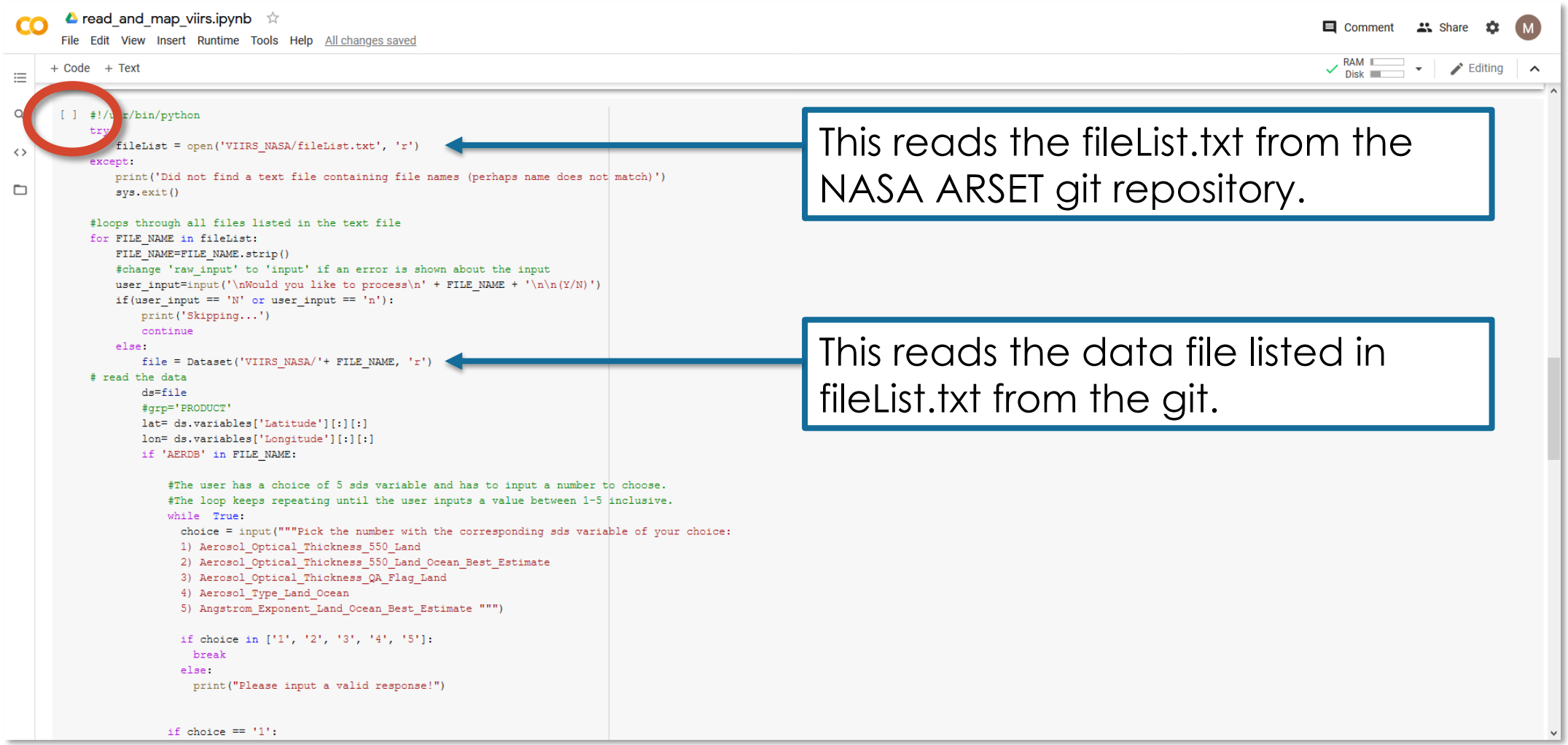
Run your Jupyter Notebook

Step 3: Run the next cell to import the necessary libraries.



Run your Jupyter Notebook

Step 4: Run the last cell to run the code.



This reads the fileList.txt from the NASA ARSET git repository.

This reads the data file listed in fileList.txt from the git.

Run your Jupyter Notebook

Step 4: Enter Y to process the file.

Run your Jupyter Notebook

Step 5: Enter 2 (Aerosol_Optical_Thickness_550_Land_Ocean_Best_Estimate**) and then enter Y to create a map. Then enter Y to save it to your Google Drive/Colab Notebooks/ folder.**