

Using ArcGIS Pro and Python for Bias-Correction and Hydrologic Prediction: Computer Setup

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Configuring ArcGIS Pro

Software Requirements:

ArcGIS Pro v3.1.3 or latest version

License level: Advanced

Extensions: Spatial Analyst

Python Environment:

For these exercises, we will need to be able to modify the python environment since the default environment 'arcgispro-py3' cannot be modified. We will create a new environment named "arcgispro-py3-clone" and set the new environment as default.

Steps:

1. Open ArcGIS Pro
2. On the start page, click "Settings" on the left panel.
3. Select "Package Manager" on the left-side panel.
4. In the ArcGIS Pro Package Manager, select the Gear icon next to "Active Environment: arcgispro-py3".
5. Clone the "arcgispro-py3" environment by clicking the "copy" button. Make sure to select a location that may be modified and in which the user has write-permissions. The default will be to the users AppData directory.
6. Activate the new environment. This is most likely called "arcgispro-py-clone". This may require exiting ArcGIS Pro and re-opening before you can activate this new environment as default.

Configuring Training Directory

It will be important to choose a location where the user has write permission.

Top level folder structure:

```
<Training Directory>\
    Q2Q_Bias_Correction_and_Verification\
        scripts\
        documents\
        notebooks\
        ArcGIS_Pro\India_WBG_Bias_Correction\
```

Steps:

1. Navigate to the training repository:
https://github.com/NCAR/Q2Q_Bias_Correction_and_Verification
2. Click "<> Code" (green button), then select "Download ZIP".
3. Extract the downloaded zip archive contents into the desired training directory. Right-click on the .zip file and select "Extract All...". Ensure that the resulting directory does not contain any space, dashes, or special characters. Note: You may need to remove the "-main" from the default directory name.

Navigate into "Q2Q_Bias_Correction_and_Verification\
ArcGIS_Pro\India_WBG_Bias_Correction" and open the file
"India_WBG_Bias_Correction.aprx". This will open ArcGIS Pro

Setting up ArcGIS Notebook Environment

Once you complete the steps above, ArcGIS Pro should be open and the project titled "India_WBG_Bias_Correction". An ArcGIS Notebook should be one of the tabs near the top of the screen. Select this notebook "00_environment_setup".

Note: If you do not see the notebook, you can use the Catalog in ArcGIS Pro to navigate to "<training directory>\ Q2Q_Bias_Correction_and_Verification\
ArcGIS_Pro\India_WBG_Bias_Correction" and right-click to Open
"00_environment_setup.ipynb".

When the "00_environment_setup.ipynb" notebook is open, use the "Run" button to run through all the cells in the notebook. This will install necessary python libraries, setup directories, and download and extract the training data from Google Drive. Please note that the download and extraction of data from Google Drive may take up to 20 minutes to complete.

If this ArcGIS Notebook runs to completion, then the training materials are ready.

Close ArcGIS Pro and save the Project.

Alternative setup of training data directory:

If troubles arise when trying to execute the “00_environment_setup.ipynb” notebook, there is an alternative to configuring the input data directory for the training.

Steps:

1. Navigate to the training directory: “<training directory>\Q2Q_Bias_Correction_and_Verification”
2. Create a new directory named “data”.
There should now be a “data” directory alongside other directories such as “notebooks”, “scripts”, “documents”, and others.
3. Navigate into the “data” directory.
4. Download the training data .tar.gz archive from Google Drive:
https://drive.google.com/file/d/1GwelOjbFvPvfe88_Fuyf5WdW_Jzbx8nQ/view?usp=sharing
5. Extract the .tar.gz contents here. The result should be a directory structure like this:
“<training directory>\Q2Q_Bias_Correction_and_Verification\data\input.”
The “input” directory should be populated with subdirectories.

Please let me know if you have any questions:

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Thank you