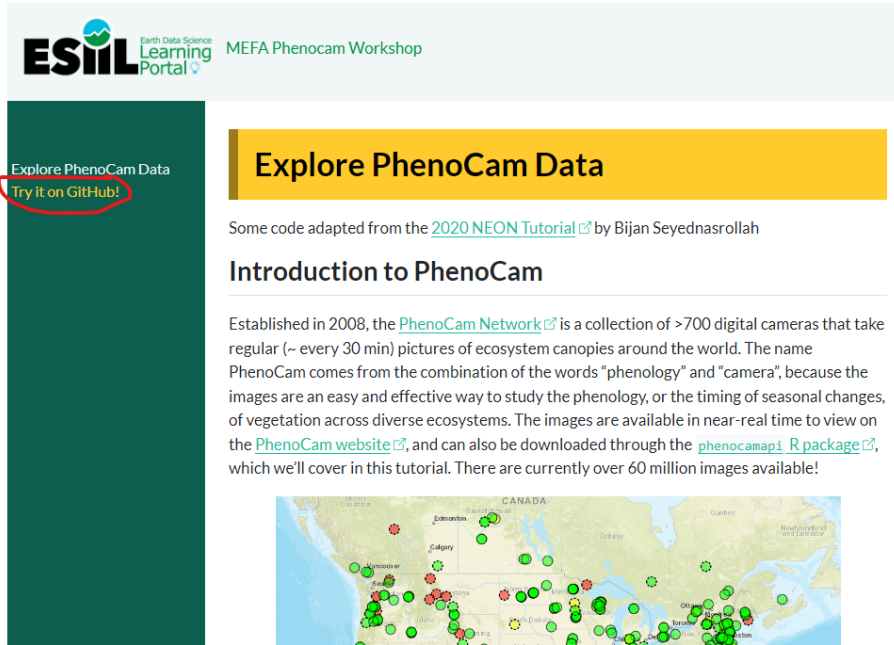


PhenoCam Activity & Codespaces

Prepared by Alison Post (alison.post@colorado.edu) July 2024

We've created a digital textbook page from the PhenoCam workshop material. You can find the textbook page at this link: <https://cu-esiil-edu.github.io/esiiil-learning-portal/mefa/notebooks/07-phenocam/phenocam.html>



ESiIL Earth Data Science Learning Portal MEFA PhenoCam Workshop

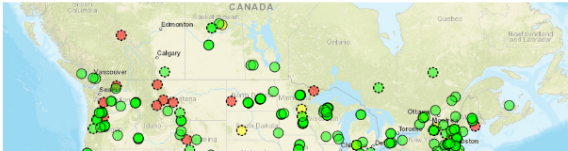
Explore PhenoCam Data
Try it on GitHub!

Explore PhenoCam Data

Some code adapted from the [2020 NEON Tutorial](#) by Bijan Seyednasrollah

Introduction to PhenoCam

Established in 2008, the [PhenoCam Network](#) is a collection of >700 digital cameras that take regular (~ every 30 min) pictures of ecosystem canopies around the world. The name PhenoCam comes from the combination of the words "phenology" and "camera", because the images are an easy and effective way to study the phenology, or the timing of seasonal changes, of vegetation across diverse ecosystems. The images are available in near-real time to view on the [PhenoCam website](#), and can also be downloaded through the [phenocamapi R package](#), which we'll cover in this tutorial. There are currently over 60 million images available!



Click "Try it on GitHub" (red circle below) to start a Codespace via GitHub classroom.

This will create a copy of the PhenoCam workshop GitHub repository with your GitHub username afterwards:




You're ready to go!

You accepted the assignment, **Phenocam**.

Your assignment repository has been created:

<https://github.com/cu-esiil-edu/phenocam-akpost21>

We've configured the repository associated with this assignment.

 [Open in GitHub Codespaces](#)

The blue link (red # 1) takes you to your copy of the repository in GitHub. Be sure to save this link so you can find it again in the future.

Note: Your copied repository is stored within the larger ESIL GitHub account (notice the “cu-esiil-edu” in the filepath). This allows you to have unlimited codespace time/storage since we have an educational account. This means the repository is NOT stored in your personal GitHub account. The best way to access it is to save/bookmark this link. Otherwise, you can go to the ESIL Education GitHub page (<https://github.com/cu-esiil-edu>), scroll down, and then search for your copied repository using your GitHub username (red circle below).

The screenshot shows the GitHub profile for 'ESIL Education'. The profile header includes a profile picture, the name 'ESIL Education', and a bio: 'Education programming from the Environmental Data Science Innovation & Inclusion Lab (ESIL) at the University of Colorado Bo...'. It also shows 27 followers, location 'United States of America', and a website link 'https://esiil.org/'.

Below the header is a section titled 'Popular repositories' with six repository cards:

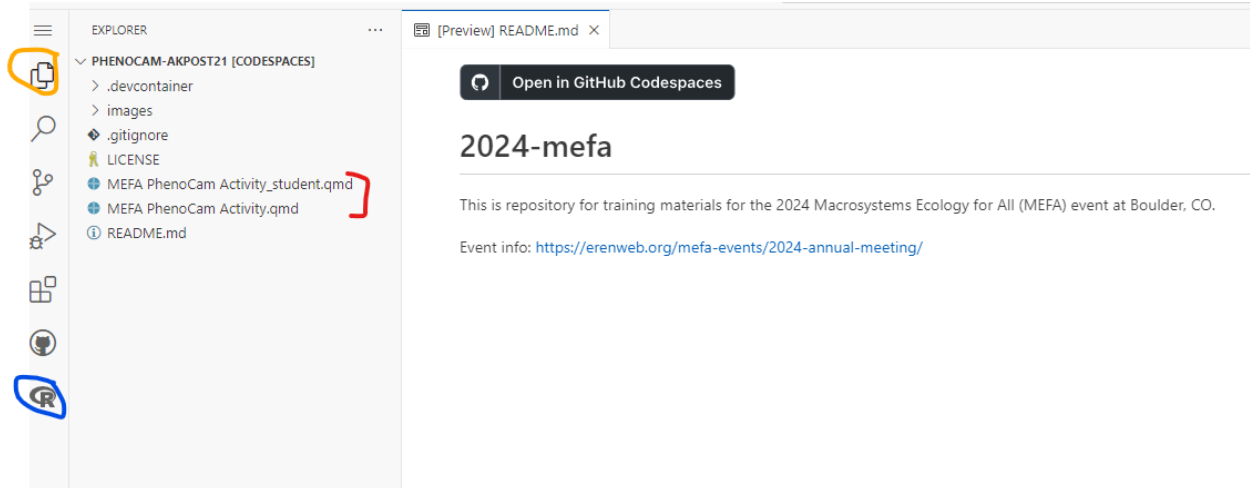
- 2024-data-short-course** (Public): Repository for all things ESIL 2024 Data Short Course. 3 stars, 16 forks.
- stars-2024** (Public): ESIL Stars Internship 2024. 3 stars, 21 forks.
- esiil-stars-syllabus-2023** (Public): Syllabus page for ESIL Stars 2023. 2 stars, 22 forks.
- time-series-data-eculler** (Public): time-series-data-eculler created by GitHub Classroom. Jupyter Notebook, 1 star, 1 fork.
- hackathon-training-collaborative-la-temperature-thea marks** (Public): hackathon-training-collaborative-la-temperature-theamarks created by GitHub Classroom. Jupyter Notebook, 1 star.
- hometowns** (Public): A repository for practicing submitting Pull Requests. Jupyter Notebook, 1 star, 43 forks.

Below the repositories is a search bar with the text 'akpost' entered and circled in red. To the right of the search bar are filters for 'Type', 'Language', and 'Sort', and a 'New' button. Below the search bar, it says '3 results for all repositories matching akpost sorted by last updated' and a 'Clear filter' button.

The first search result is a repository named 'phenocam-akpost21' (Public). It is described as 'Forked from cu-esiil-edu/mefa-workshop-phenocam-2024-mefa' and 'mefa-workshop-phenocam-2024-mefa created by GitHub Classroom'. It has a Dockerfile, 0 stars, MIT license, 1 fork, 0 issues, 0 pull requests, and was updated 5 days ago.

The black “Open in GitHub Codespaces” button (red # 2 in screenshot on prior page) will create a codespace for you and open the PhenoCam activity within it.

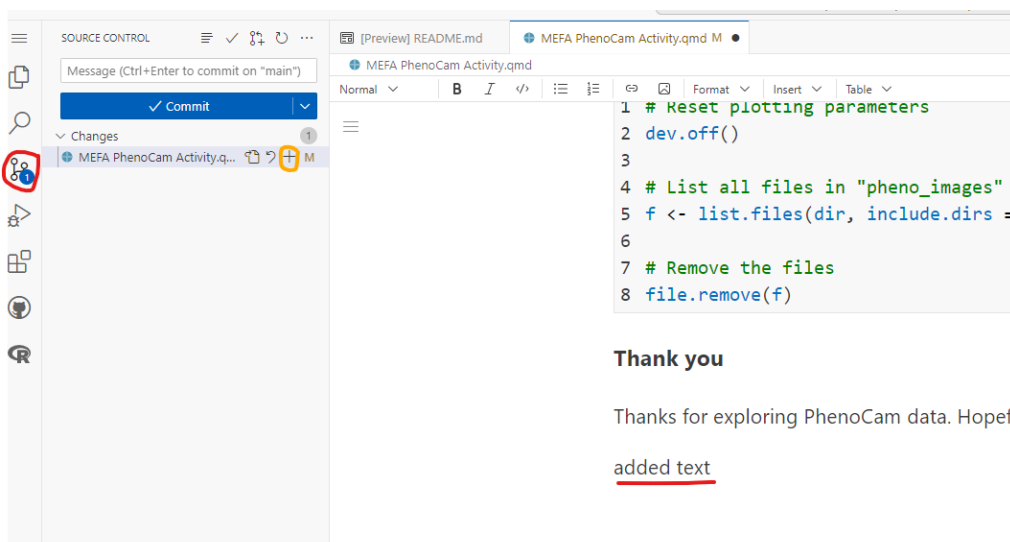
Once in codespaces, click on one of the “.qmd” (quarto) files to open the activity - either “MEFA PhenoCam Activity” (full version) or “MEFA PhenoCam Activity_student” (some blanks in code). It should automatically open in visual mode (the pretty version).



Remember that you can see your virtual computer with the “2-paper” symbol in the upper right (yellow circle) and your R environment with the “R” symbol (blue circle).

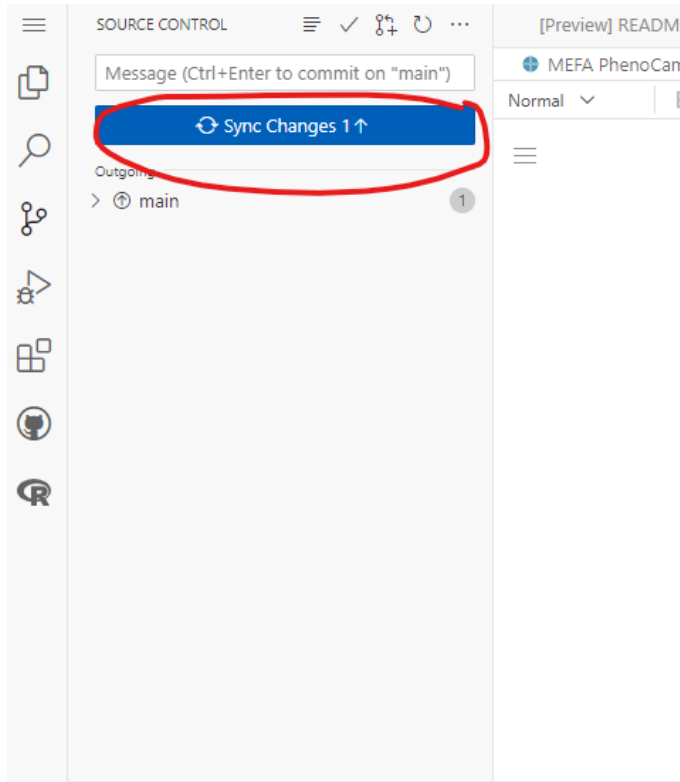
Save your work!

To save any changes you make to the activity, you will have to complete 3 steps (stage, commit, and push) so they are saved in your GitHub repository. For example, I added the words “added text” to the bottom of the file. That causes a little notification to pop up on the left (“branch” symbol, red circle below). If I click that “branch” symbol, I can see my file is ready to be saved. Press the “+” symbol (yellow circle) to stage the change (step 1).



Then, write a short note (couple words) about what changes you made in the message box and press the blue “commit” button (step 2).

Finally, press the sync changes button (step 3) and hit “OK” on the pop-up message.



Now, your changes should be reflected in your GitHub repository and your work is saved!

phenocam-akpost21 Public Watch 0

forked from [cu-esil1-edu/mefa-workshop-phenocam-2024-mefa](#)

main 1 Branch 0 Tags

This branch is 2 commits ahead of [cu-esil1-edu/mefa-workshop-phenocam-2024-mefa:main](#)

akpost21 text added a6d64bd · 2 minutes ago 3 Commits

.devcontainer	Initial commit	5 days ago
images	Initial commit	5 days ago
.gitignore	Initial commit	5 days ago
LICENSE	Initial commit	5 days ago
MEFA PhenoCam Activity.qmd	text added	2 minutes ago
MEFA PhenoCam Activity_student.qmd	Initial commit	5 days ago
README.md	add online IDE url	5 days ago

README License

Close your Codespace

Finally, you should always close your codespace when you're done using it so it's not taking up resources. From your GitHub repository, click the green "code" button and then make sure the "codespaces" tab is selected. You can see I have 1 active codespace open called "didactic waddle". Click the 3 dots next to that name, and select stop codespace.

phenocam-akpost21 Public Watch 0 Fork 0 Star

forked from [cu-esil1-edu/mefa-workshop-phenocam-2024-mefa](#)

main 1 Branch 0 Tags **About**

This branch is 3 commits ahead of [cu-esil1-edu/mefa-workshop-phenocam-2024-mefa:main](#)

akpost21 text added 2

.devcontainer	Initial commit	
images	Initial commit	
.gitignore	Initial commit	
LICENSE	Initial commit	
MEFA PhenoCam Activity.qmd	text added 2	14 minutes
MEFA PhenoCam Activity_student.qmd	Initial commit	5 days
README.md	add online IDE url	5 days

README License

Local Codespaces

Your workspaces in the cloud + ...

On current branch

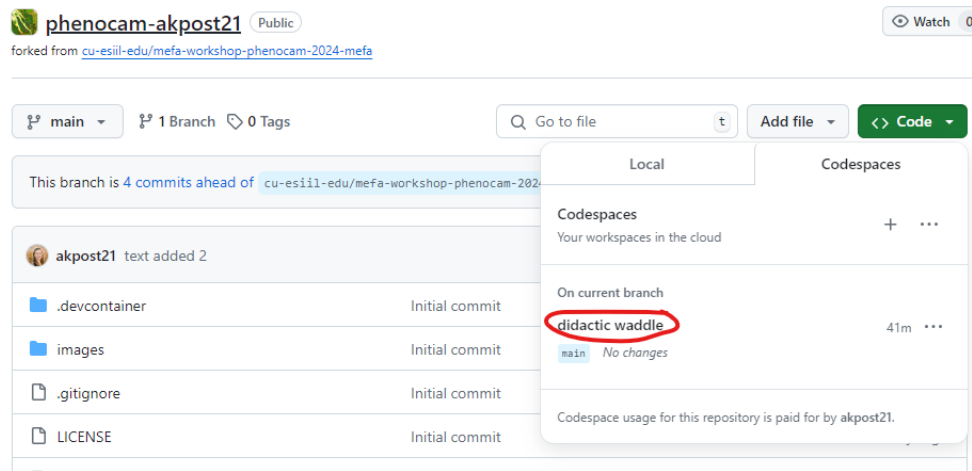
didactic waddle Active ⋮

main Uncommitted changes

Codespace usage for this repository is paid for by akpost21.

- Rename
- Export changes to a branch
- Change machine type
- Stop codespace**
- Auto-delete codespace
- Open in Browser
- Open in Visual Studio Code
- Open in JetBrains Gateway Beta
- Open in JupyterLab Beta
- Delete

To re-open the codespace in the future, from your repository, click the green “code” button again and click on the name of the codespace you want to open.



You can follow these same instructions to completely delete a codespace and/or create a new one from your repository.