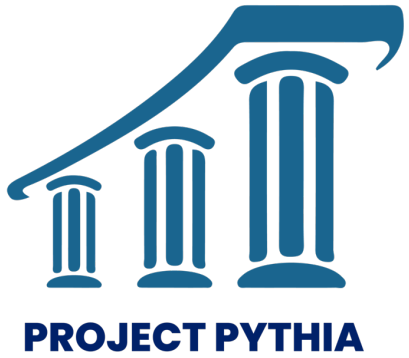
# Better Homes and Gardens. (open-source) with




**Presenters: Kevin Tyle (UAlbany) and Drew Camron (Unidata)**

NCAR | NATIONAL CENTER FOR ATMOSPHERIC RESEARCH

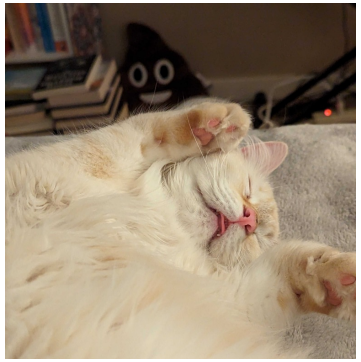

UNIVERSITY AT ALBANY
State University of New York

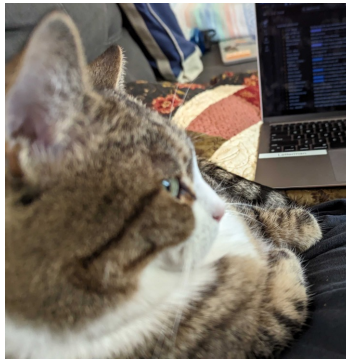
# About us:

**Drew Camron**
**Unidata**
@dcamron

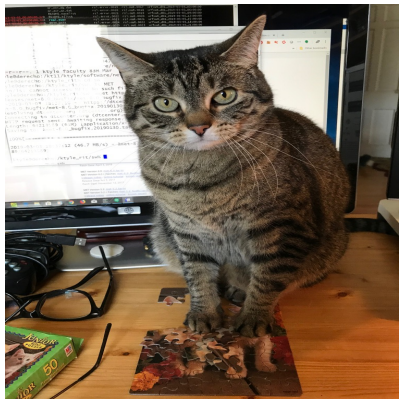
**Kevin Tyle**
**University at Albany**
@ktyle

# Our code testers:





**Lady**
**Theo**
**Stormy**



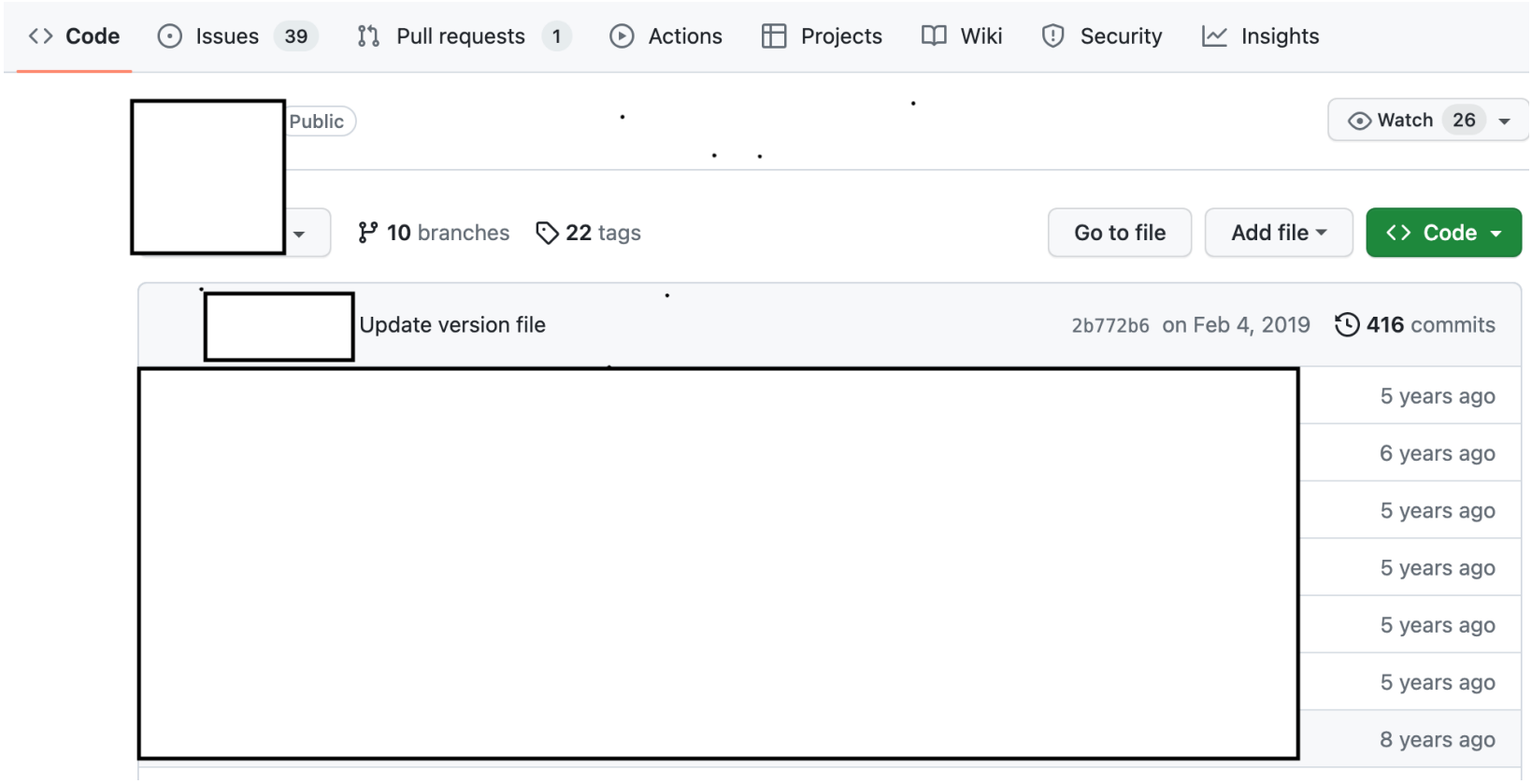
**Sophia**
**Maya**

# What are the tell-tale signs that an open-source home/garden needs some love?

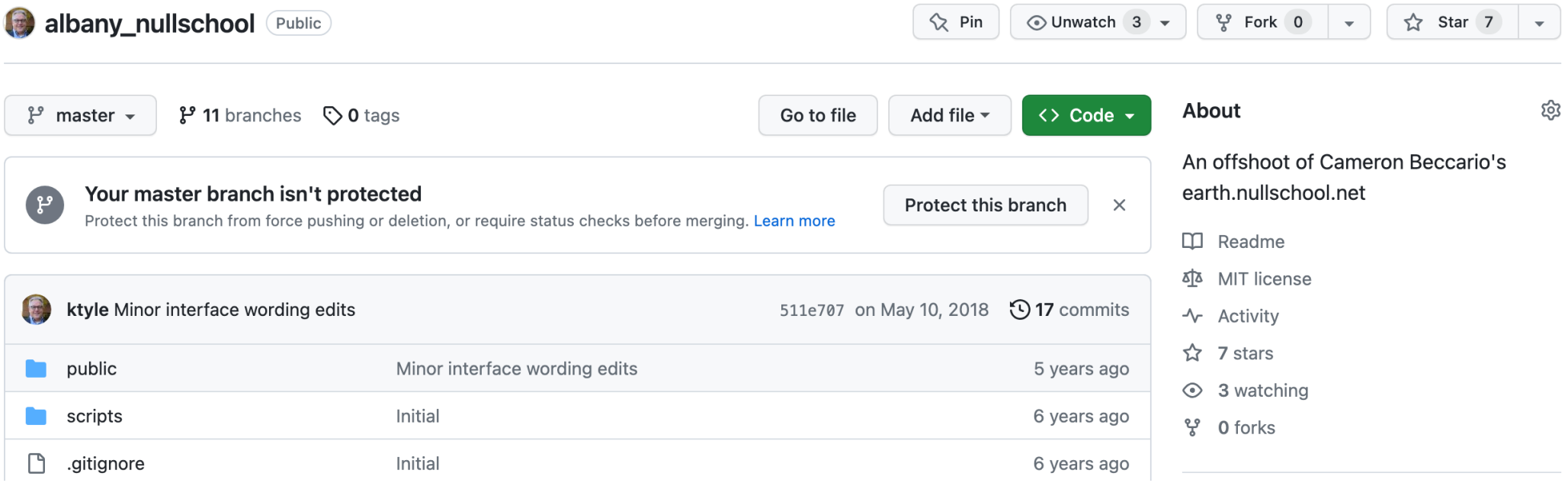

# Obsolete dependencies

```
Warning  libmamba Added empty dependency for problem type SOLVER_RULE_UPDATE
Could not solve for environment specs
The following packages are incompatible
├─ libgdal is installable with the potential options
│  ├─ libgdal [3.5.2|3.5.3] would require
│  │  ├─ icu >=70.1,<71.0a0 , which can be installed;
│  │  └─ openssl >=3.0.5,<4.0a0 , which can be installed;
│  ├─ libgdal [3.5.2|3.5.3] would require
│  │  ├─ geos >=3.11.0,<3.11.1.0a0 , which can be installed;
│  │  ├─ icu >=70.1,<71.0a0 , which can be installed;
│  │  └─ openssl >=1.1.1q,<1.1.2a , which conflicts with any installable versions previously reported;
│  ├─ libgdal [3.5.3|3.6.0] would require
│  │  ├─ geos >=3.11.0,<3.11.1.0a0 , which can be installed;
│  │  ├─ icu >=70.1,<71.0a0 , which can be installed;
│  │  └─ openssl >=1.1.1s,<1.1.2a , which conflicts with any installable versions previously reported;
│  ├─ libgdal [3.5.3|3.6.0|3.6.1|3.6.2] would require
│  │  ├─ icu >=70.1,<71.0a0 , which can be installed;
│  │  └─ openssl >=3.0.7,<4.0a0 , which can be installed;
│  ├─ libgdal [3.5.3|3.6.0|3.6.1] would require
│  │  ├─ icu >=70.1,<71.0a0 , which can be installed;
│  │  └─ openssl >=1.1.1s,<1.1.2a , which conflicts with any installable versions previously reported;
│  ├─ libgdal [3.5.3|3.6.3|3.6.4] would require
│  │  ├─ hdf5 >=1.14.0,<1.14.1.0a0  with the potential options
│  │  │  ├─ hdf5 1.14.0 would require
│  │  │  │  └─ openssl >=3.0.8,<4.0a0 , which can be installed;
│  │  │  ├─ hdf5 [1.12.2|1.14.0] would require
│  │  │  │  └─ openssl >=1.1.1s,<1.1.2a , which conflicts with any installable versions previously reported;
│  │  │  ├─ hdf5 1.14.0 would require
```

# No recent activity



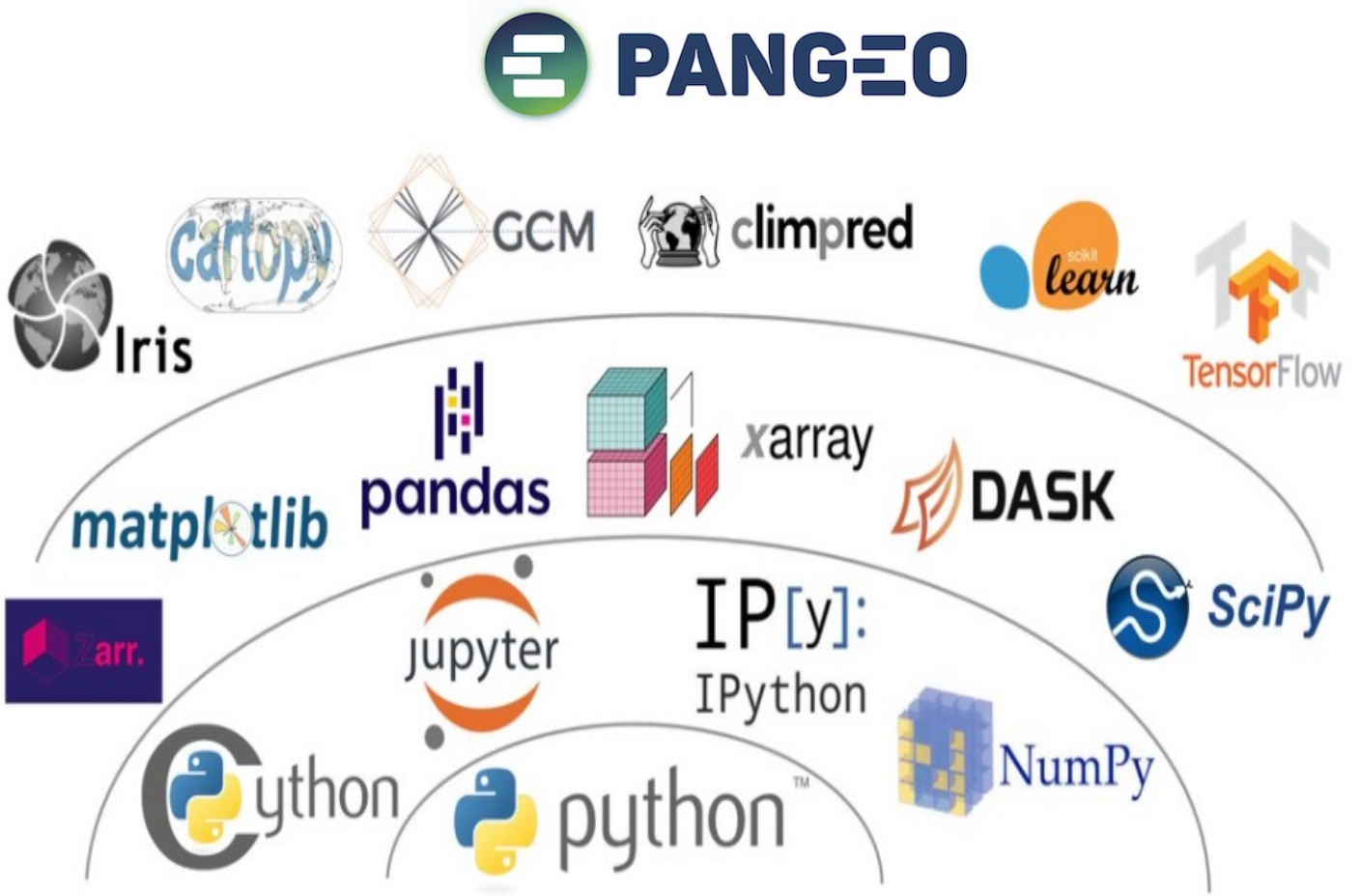
# Lack of community



# Why might a FOSS home/garden decay?

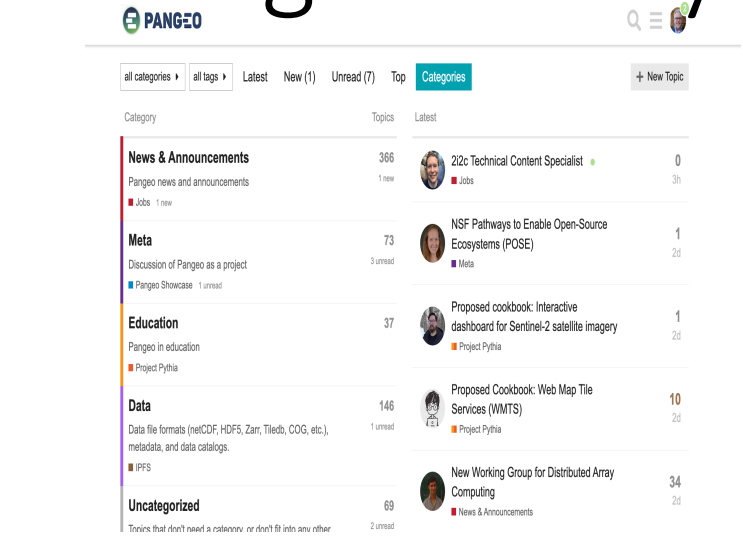
Few (or just one) core members
Lead “gardeners” depart
Not used / not in sync with the broader ecosystem
Little or no documentation
Barriers to entry for contributors
Insufficient TLC
Lack of funding

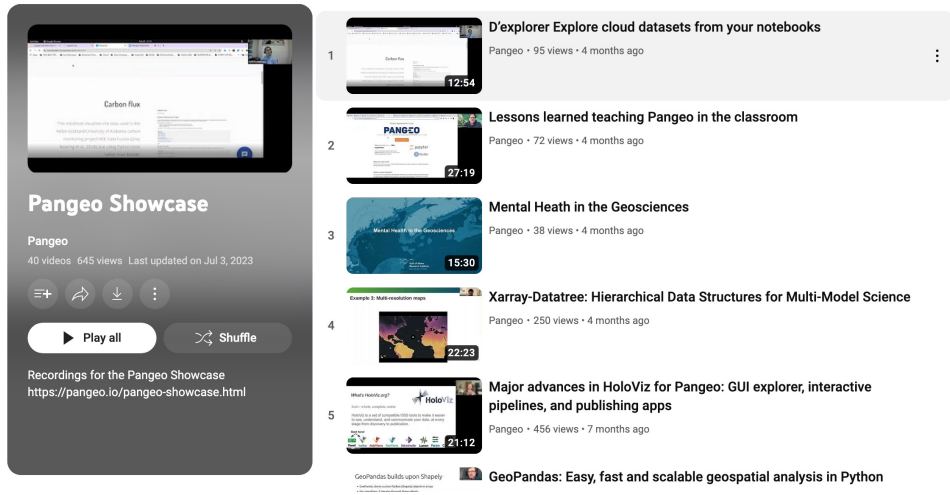
# The SciPy / Pangeo ecosystem: Thriving and growing community homes and gardens

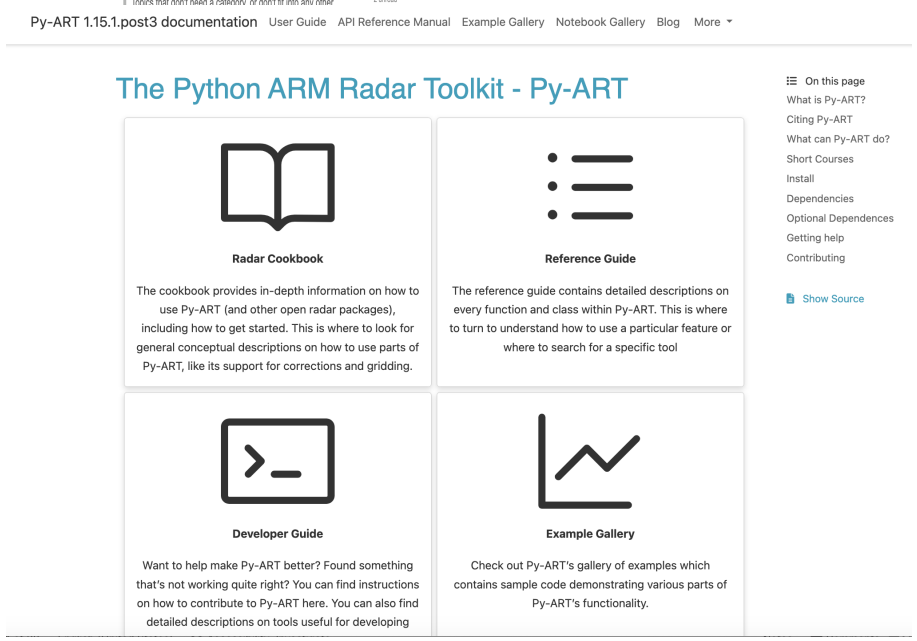


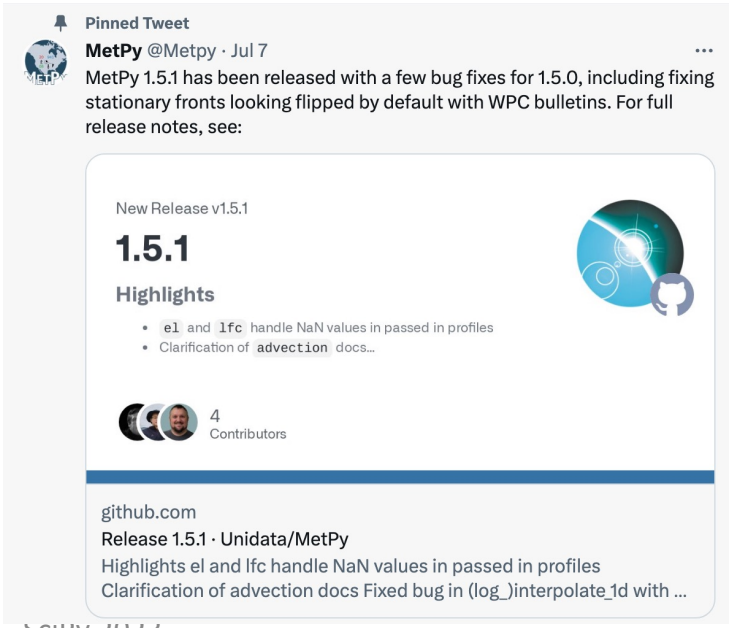

Inspiration: Stephan Hoyer, Jake Vanderplas (SciPy 2015)

# Pangeo ecosystem: Community



# What is Project Pythia?

# How does Project Pythia tend its garden?

We can't *just* reduce barriers.


all require *active* participation and support

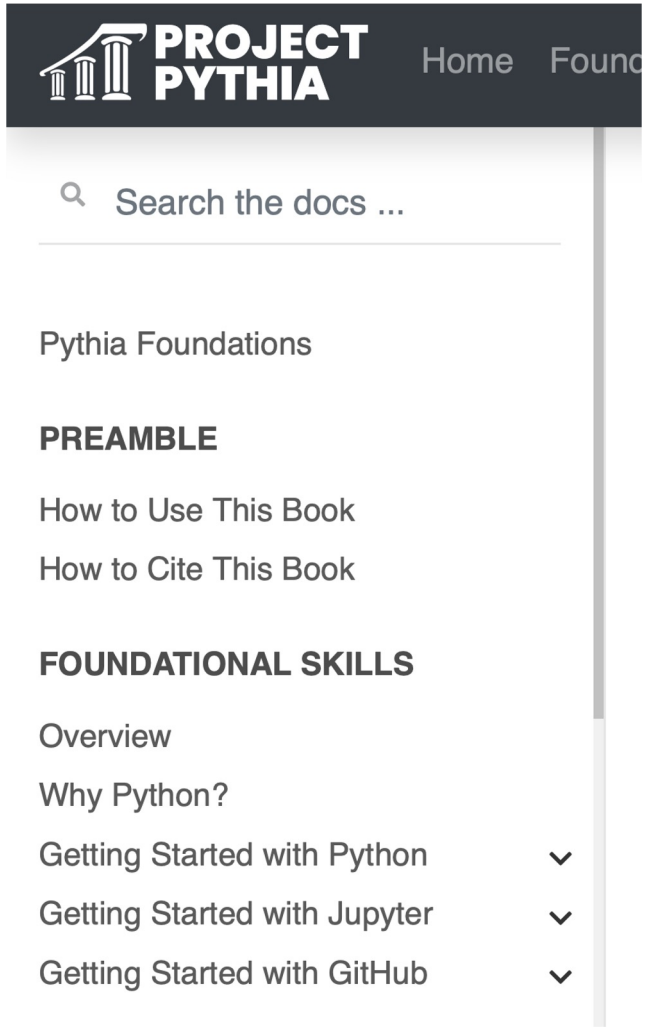

Idea
Conversation
JupyterBook
Cookbook
Credit
Community

Desire to garden

Foundations in Python

Jupyter training

Spaces (asynchronous, synchronous)



# Join us!

If you have questions or want to share anything with the Project Pythia Team, please reach out to us through the Project Pythia category on the Pangeo Discourse forum or join us at our Weekly Working Group Meetings.

Go to Pangeo Discourse

Getting Started with Jupyter

Getting Started with GitHub


Joining community garden

open, accessible **and** retaining a sense of community and safety

a low wall

Communal, public – open, but must be safe

Comfort: direct e-mail, synchronous spaces, word of mouth

New places?

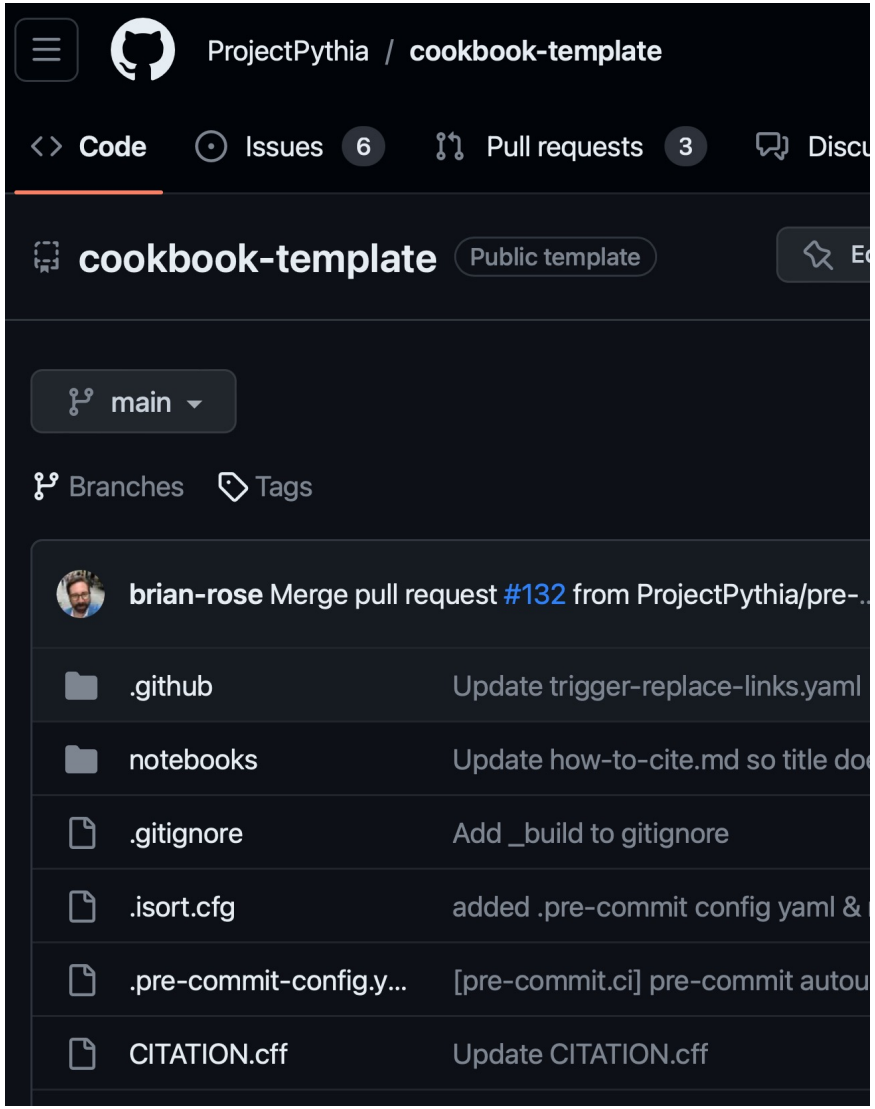
Seedlings, plant starts

GitHub templates

Events, technical training

Guides & documentation

Meeting spaces and Discourse



Seedlings, plant starts

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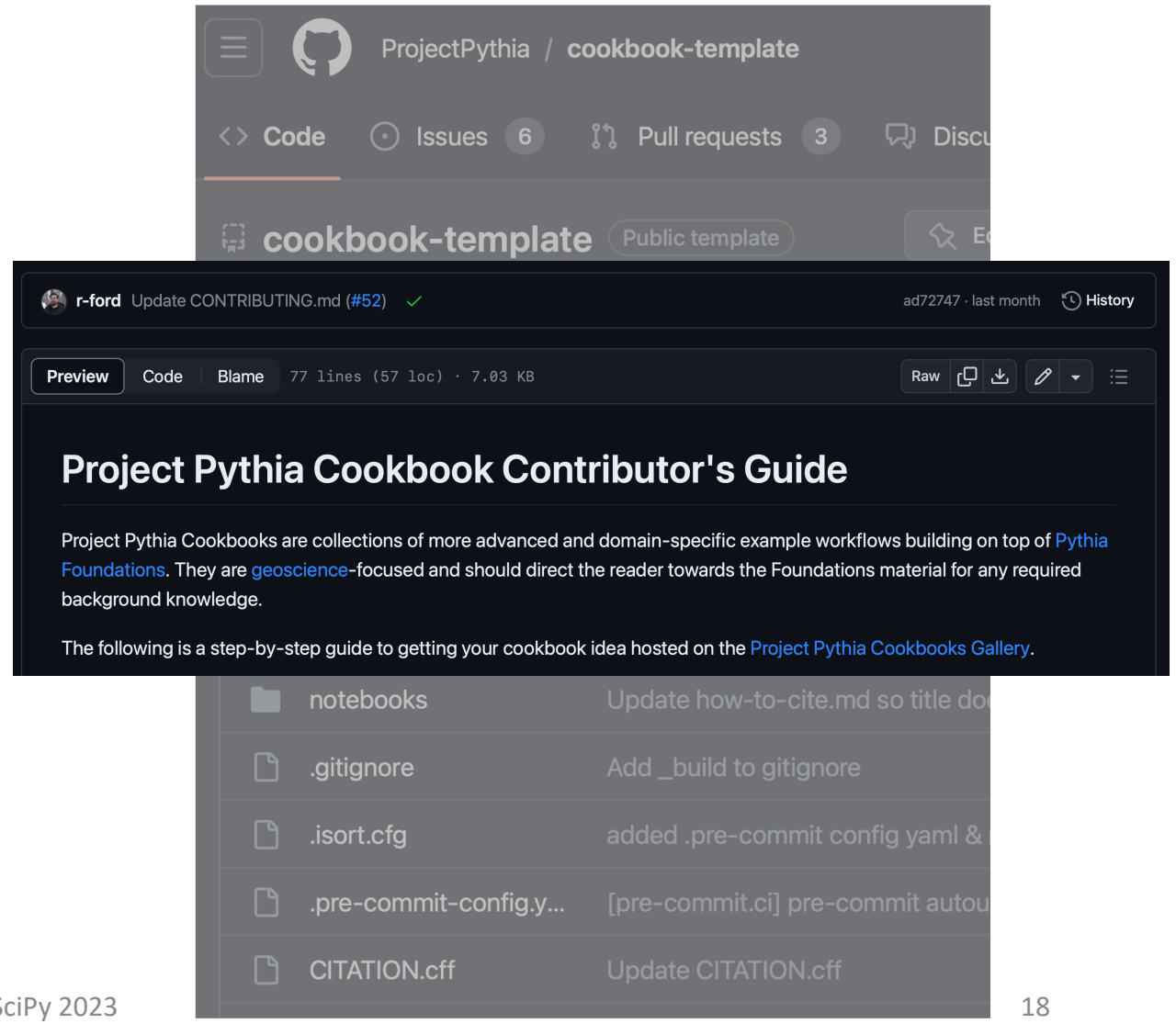



PROJECT PYTHIA Home Foundations Cookbooks Resources Community

Search the docs ...



# Radar Cookbook

nightly-build passing | launch binder | DOI 10.5281/zenodo.8075855

This Project Pythia Cookbook covers the basics of working with weather radar data in Python.

## Motivation

This cookbook provides the essential materials to learning how to work with weather radar data using Python.

Most of the curriculum is focused around the Python ARM Toolkit, which is defined as:


Boxes, watering, tending

Actions: testing, health-checks, publishing, citation

Interactivity via JupyterBook and/or BinderHub

GitHub, GitHub, GitHub

Investment from creator and from users

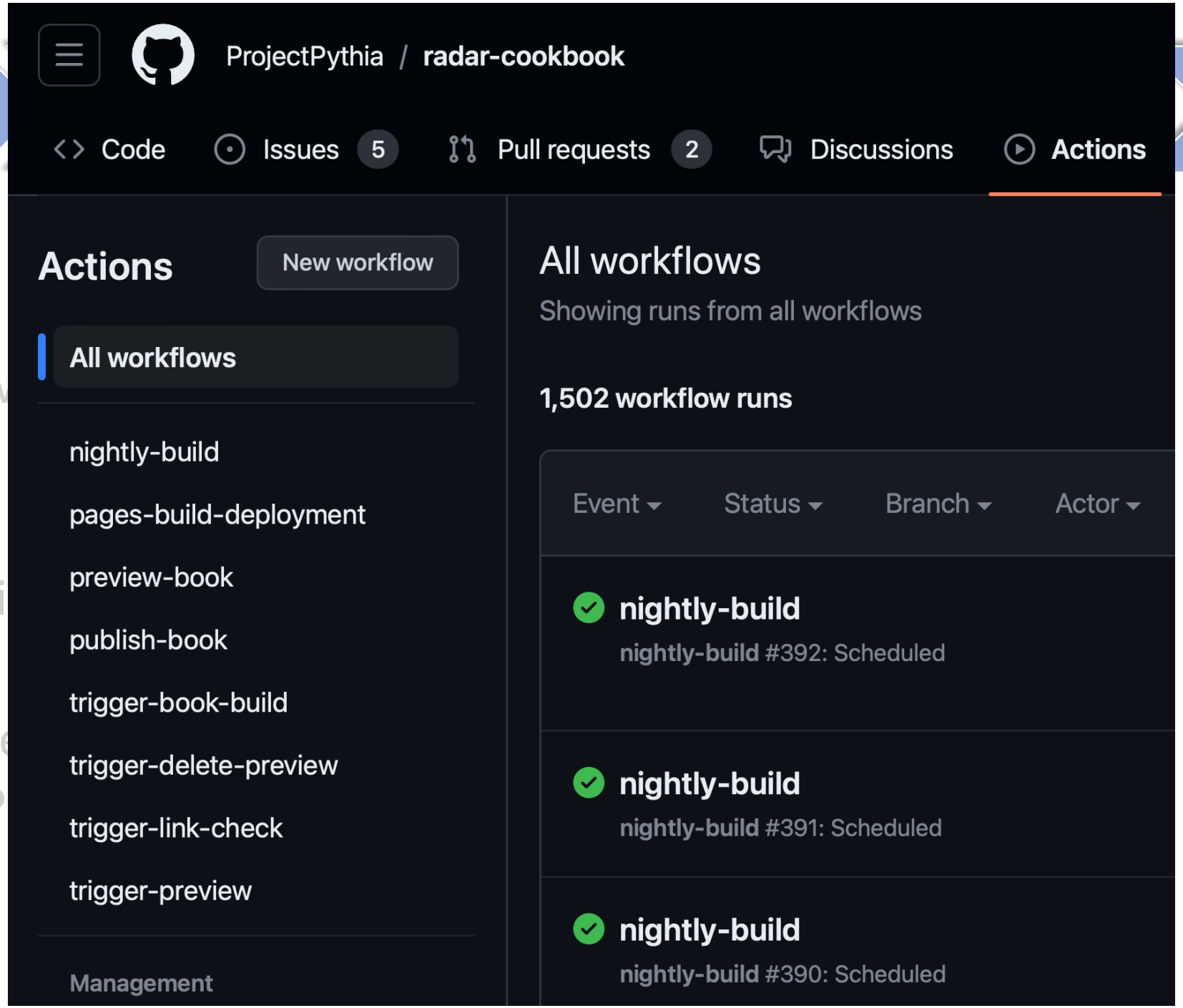
Review? Iteration? Technical support?

Idea

Community

Boxes, w

Actions:
Interacti
GitHub,
Investme
Review?




New Gardener of the Year!

Citation

Elevation of voice

Idea → Conversation → Jup

New Gardener of the Year!

Citation

Elevation of voice

# Radar Cookbook

nightly-build passing | launch binder | DOI 10.5281/zenodo.8075855

This Project Pythia Cookbook covers the basics of working with weather radar data in Python.

## Authors

Max Grover, Zachary Sherman, Milind Sharma

## Contributors

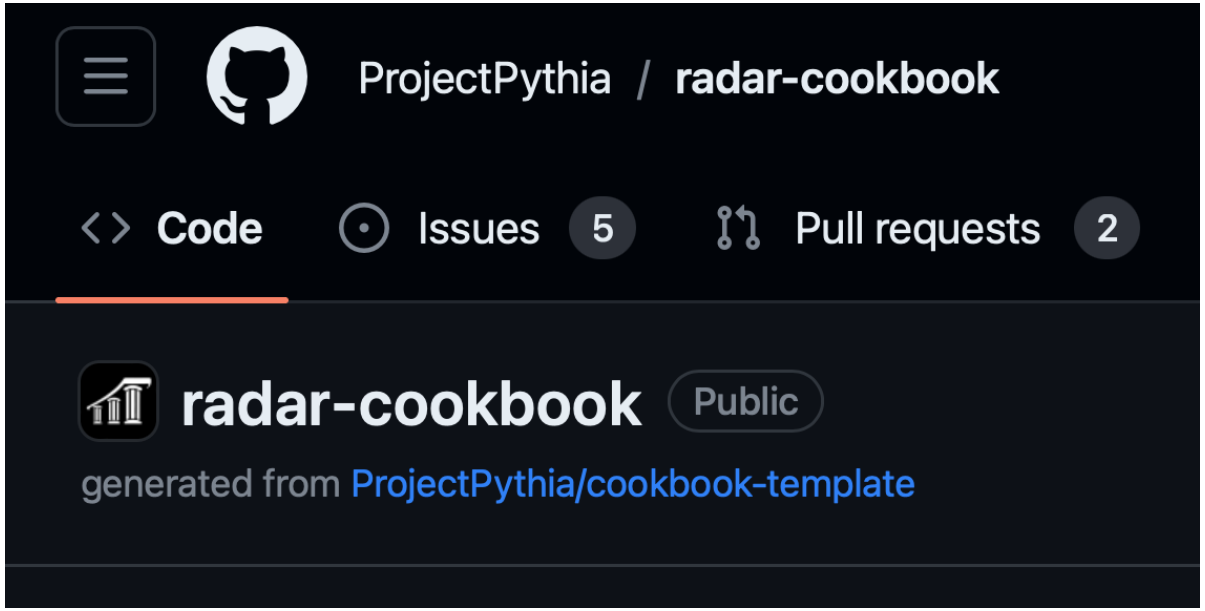
Idea → Conversation → JupyterBook → Cookbook → Credit → **Community**

Signing up for next year

Individual ownership/responsibility

Group support and care

Evolution, living materials



# Takeaways

Gardening itself takes work

Tending a community garden is no easier

Needs nuance

Requires responsiveness

Iterate, iterate, iterate!

# Takeaways

Gardening itself takes work

Tending a community garden is no easier

Needs nuance

Requires responsiveness

Iterate, iterate, iterate!

It feels incredible!

# Keeping Pythia’s garden thriving: next steps

# Technical growth

- More community contributions → more infrastructure

# Technical growth

- As the community grows …

**“We’re gonna need a bigger ~~boat~~ Binderhub”**

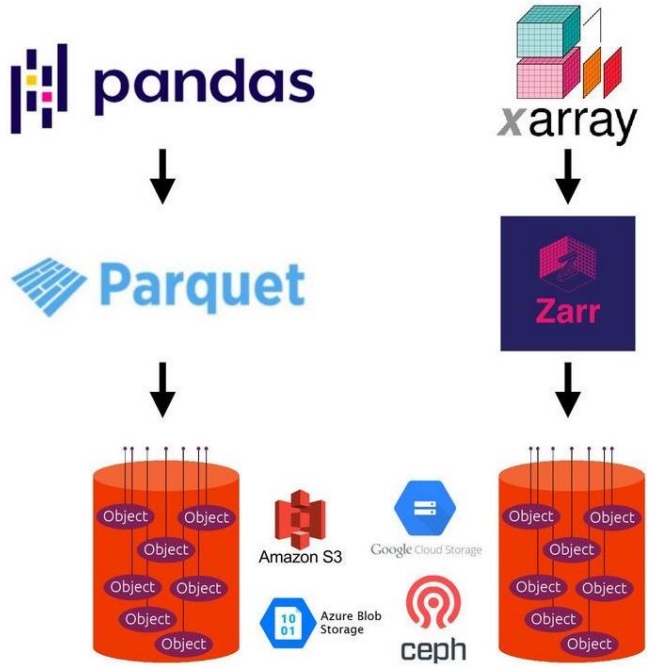
# Technical growth

## Discoverable ARCO data repository

**A**nalysis **R**eady, **C**loud **O**ptimzed

*What is "Cloud Optimized"?*

- Compatible with object storage (access via HTTP)
- Supports lazy access and intelligent subsetting
- Integrates with high-level analysis libraries and distributed frameworks




PANGEO

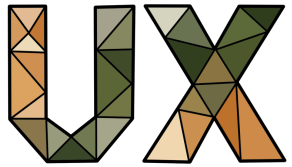
PANGEO FORGE

# Technical growth

## Develop content supporting emerging Pangeo ecosystem packages






# Community growth

## Engage with the broader FOSS community

contributor-experience.org

CHAOSS

# Community growth

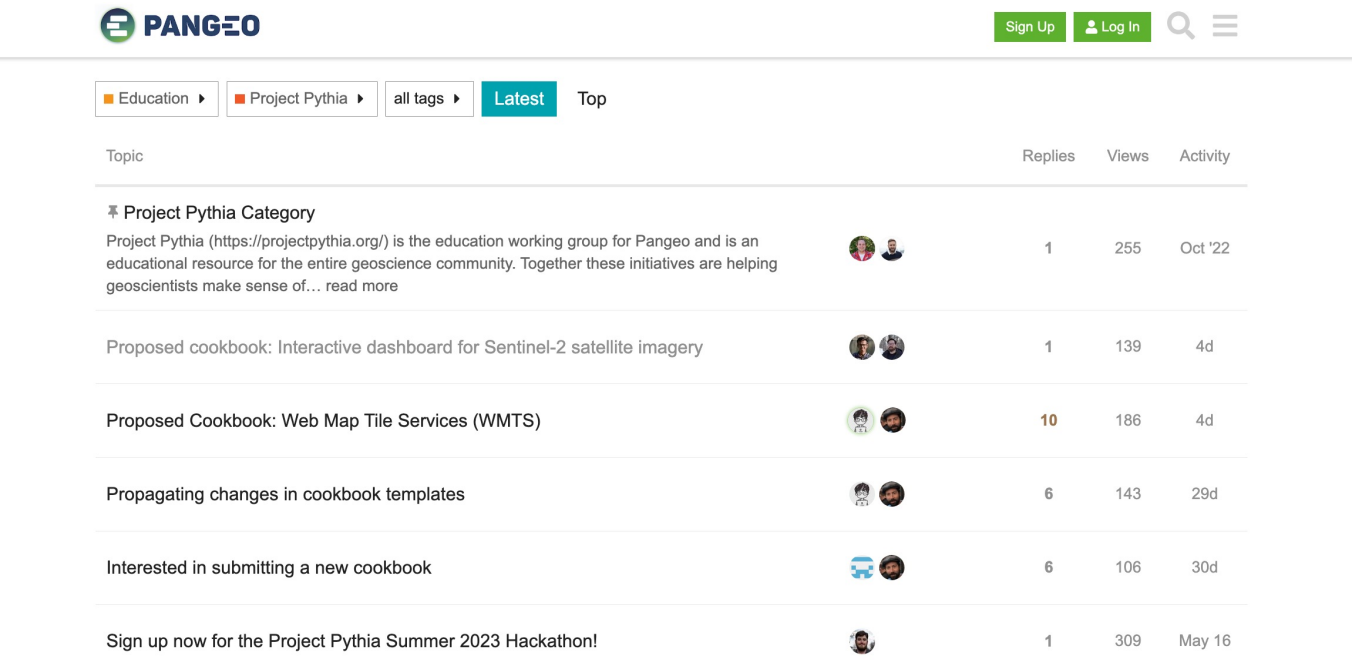
## Help make our garden grow!

- Join our weekly meetings

# Community growth

## Help make our garden grow!

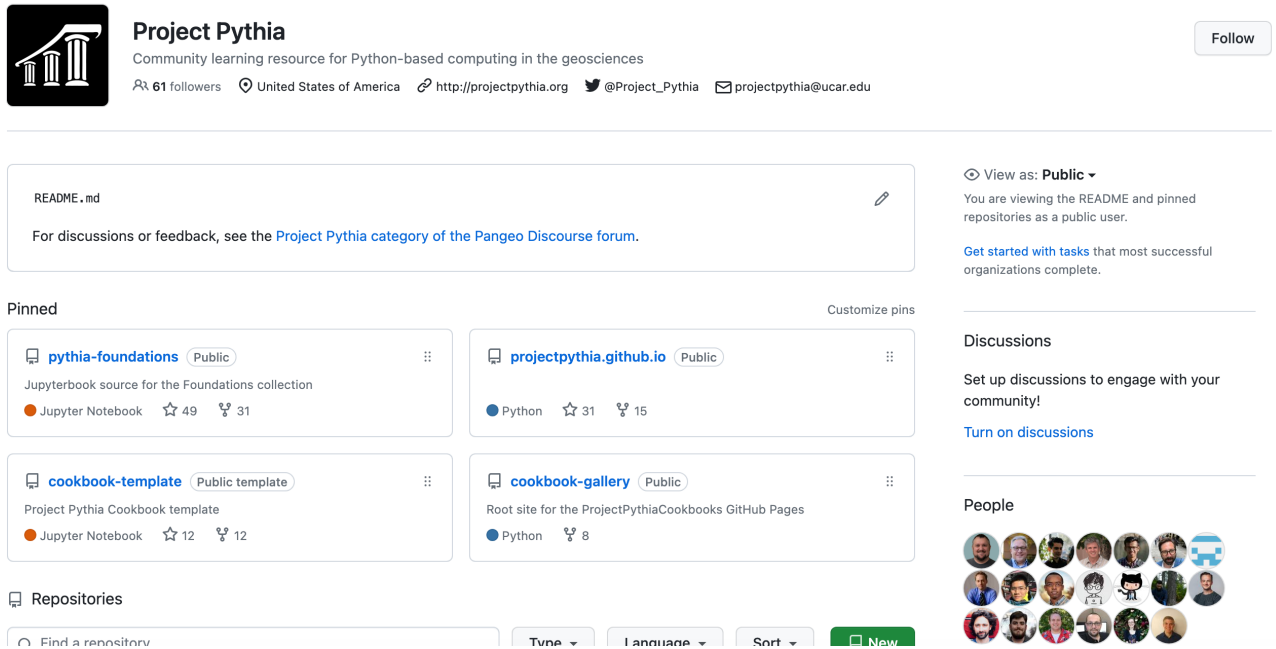
- Join our Discourse



# Community growth

## Help make our garden grow!

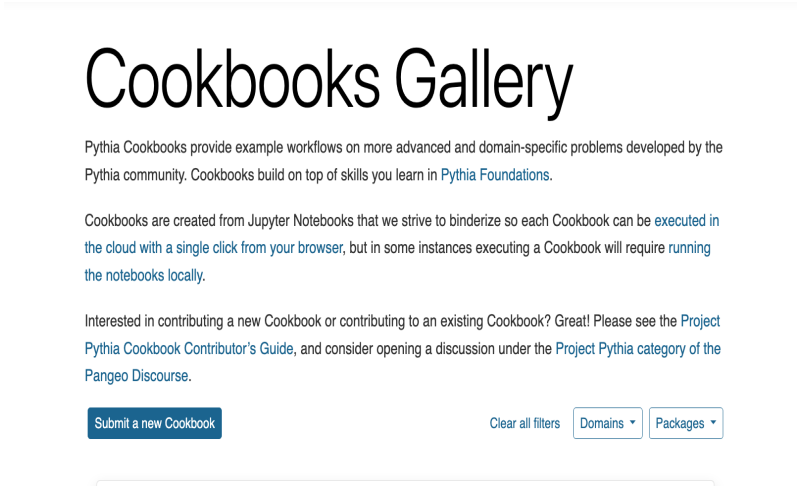
- Open an issue and/or submit a PR on https://github.org/ProjectPythia



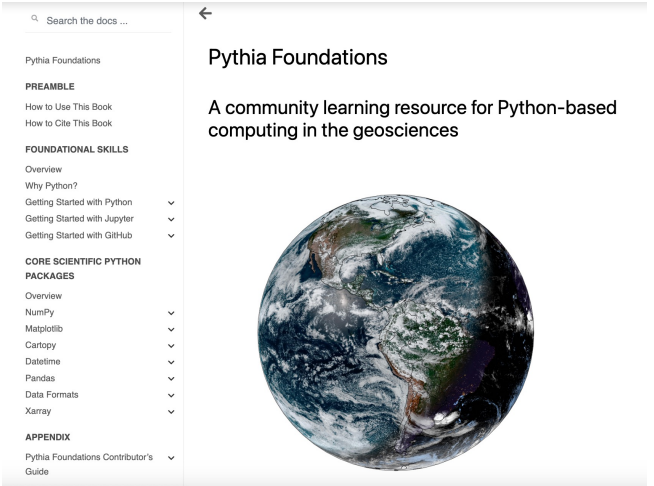
# Community growth

## Help make our garden grow!

- Add a Cookbook, a Resource, or contribute to our Foundations



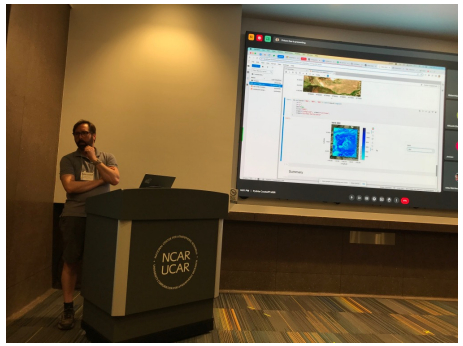




# Community growth

## Help make our garden grow!

- Annual Summer Hackathon




# Thanks for creating and sustaining our garden!






# Thanks for creating and sustaining our garden!

***And especially …***

# Thanks for creating and sustaining our garden!

***And especially …***

***All of you!!***

# Thanks for creating and sustaining our garden!


***Come see us to get a sticker!!***