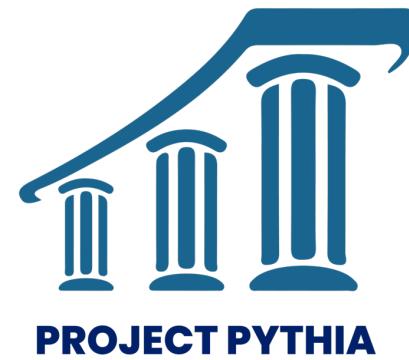


Better ^(open-source) Homes and Gardens. with



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



About us:

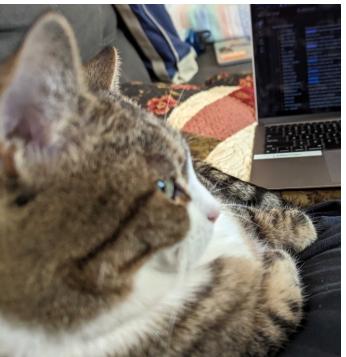
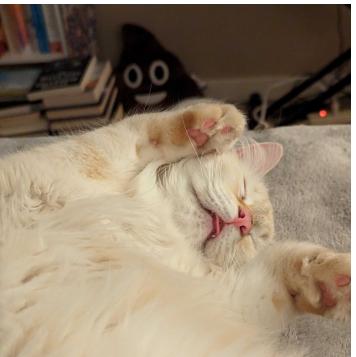


Drew Camron
[Unidata](#)
[@dcamron](#)



Kevin Tyle
[University at Albany](#)
[@ktyle](#)

Our code testers:

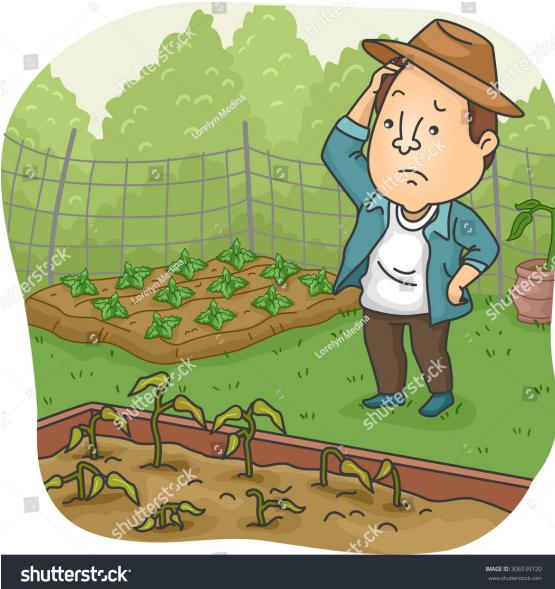


**Lady
Theo
Stormy**



**Sophia
Maya**

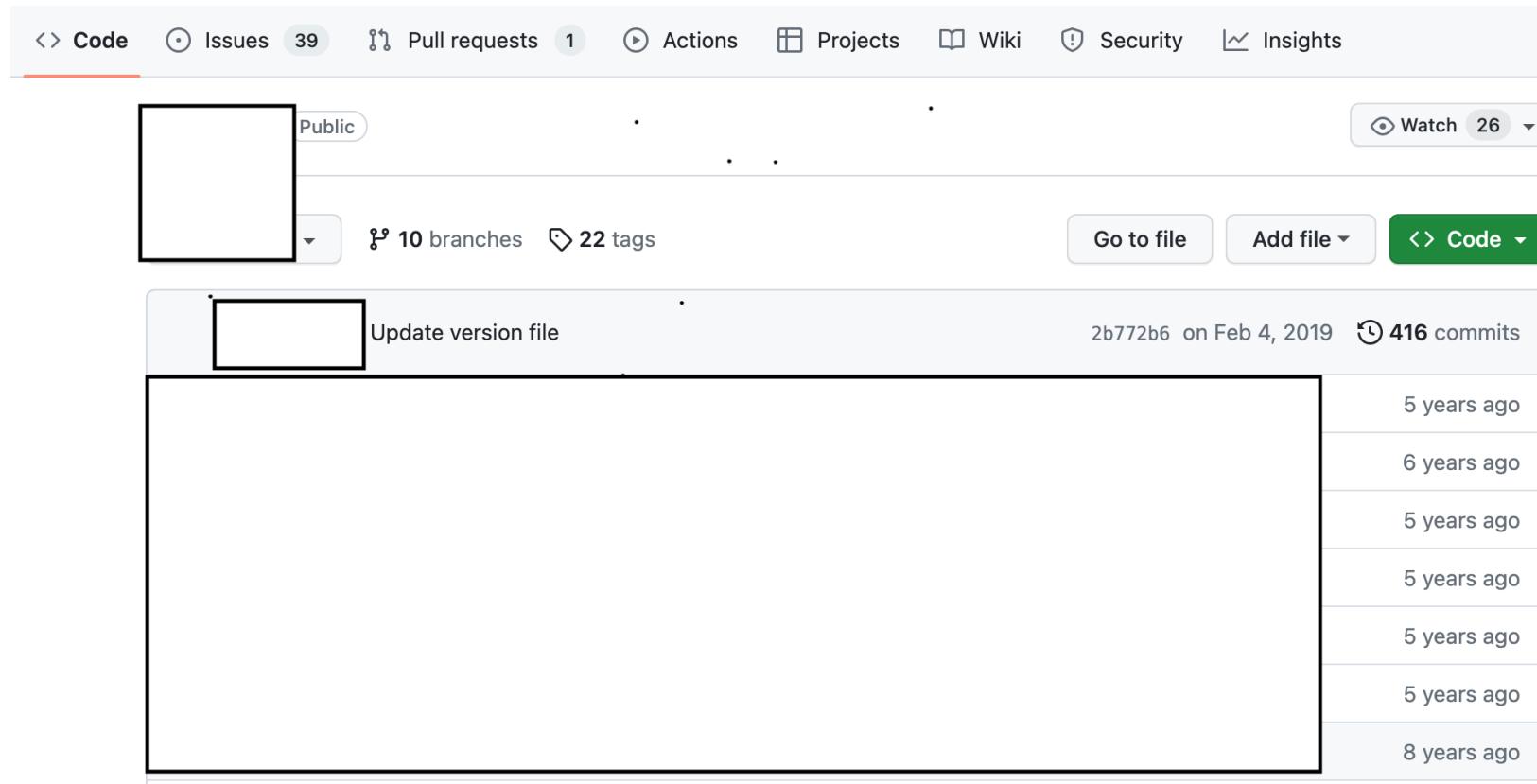
What are the tell-tale signs that an open-source home/garden needs some love?



Obsolete dependencies

```
WARNING: libgdal 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

 **albany_nullschool** Public

 master  11 branches  0 tags

[Go to file](#) [Add file](#) [Code](#)

 **Your master branch isn't protected**
Protect this branch [Learn more](#)

 ktyl Minor interface wording edits	511e707 on May 10, 2018	 17 commits
 public	Minor interface wording edits	5 years ago
 scripts	Initial	6 years ago
 .gitignore	Initial	6 years ago

About 

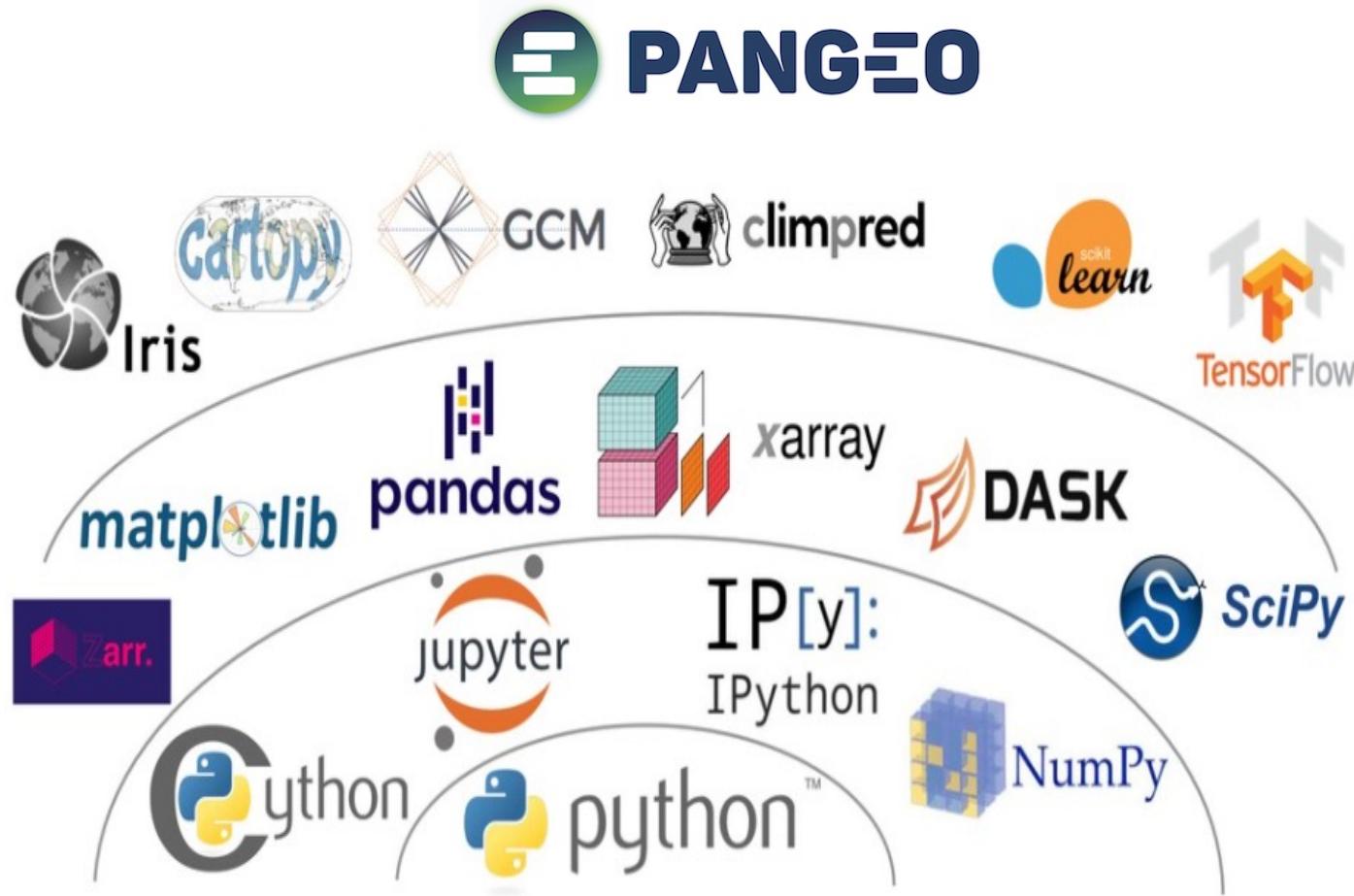
An offshoot of Cameron Beccario's earth.nullschool.net

 [Readme](#)
 [MIT license](#)
 [Activity](#)
 [7 stars](#)
 [3 watching](#)
 [0 forks](#)

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



Pangeo ecosystem: Community

The screenshot shows the Pangeo community forum interface. At the top, there's a navigation bar with links for 'all categories', 'all tags', 'Latest', 'New (1)', 'Unread (7)', 'Top', 'Categories' (which is highlighted in blue), and '+ New Topic'. Below this is a search bar and a user profile icon.

The main area is divided into 'Category' and 'Topics' sections. Under 'Category', there are sections for 'News & Announcements', 'Meta', 'Education', 'Data', and 'Uncategorized'. Each category has a list of topics with details like the number of posts, the last poster, and the time since posted.

Under 'Topics', there are sections for 'Latest' and 'Recent'. The 'Latest' section shows topics from various categories, while the 'Recent' section shows recent activity in specific categories like 'Pangeo in education' and 'Data'.

At the bottom, there are links for 'Py-ART 1.15.1.post3 documentation', 'User Guide', 'API Reference Manual', 'Example Gallery', 'Notebook Gallery', 'Blog', and 'More'.

This screenshot shows a video player interface displaying a series of recordings. The recordings are titled:

- 1 Carbon flux
- 2 NSF Pathways to Enable Open-Source Ecosystems (POSE)
- 3 Proposed cookbook: Interactive dashboard for Sentinel-2 satellite imagery
- 4 Mental Health in the Geosciences
- 5 Xarray-Datetree: Hierarchical Data Structures for Multi-Model Science
- 6 Major advances in Holoviz for Pangeo: GUI explorer, interactive pipelines, and publishing apps
- 7 GeoPandas: Easy, fast and scalable geospatial analysis in Python

Each recording includes a thumbnail, duration, and view count. A 'Play all' button is visible at the bottom of the player.

A pinned tweet from **MetPy @Metpy** dated July 7, 2023. The tweet reads: "MetPy 1.5.1 has been released with a few bug fixes for 1.5.0, including fixing stationary fronts looking flipped by default with WPC bulletins. For full release notes, see: [here](#)".

The tweet is displayed on a card with a blue header. Below the tweet, there's a section for 'New Release v1.5.1' featuring the version number '1.5.1' in large bold letters, a 'Highlights' section with two bullet points, and a 'Contributors' section showing four contributors.

At the bottom of the card, there's a link to 'github.com' and the text 'Release 1.5.1 · Unidata/MetPy'.

The screenshot shows the Py-ART documentation homepage. The title is 'The Python ARM Radar Toolkit - Py-ART'. The page is organized into several sections:

- Radar Cookbook**: An icon of an open book.
- Reference Guide**: An icon of three horizontal lines with dots.
- Developer Guide**: An icon of a terminal window with a greater-than sign.
- Example Gallery**: An icon of a line graph.

On the right side, there's a sidebar with links for 'On this page', 'What is Py-ART?', 'Citing Py-ART', 'What can Py-ART do?', 'Short Courses', 'Install', 'Dependencies', 'Optional Dependencies', 'Getting help', and 'Contributing'. There's also a 'Show Source' link.

Below the sidebar, there's a section for 'Contributors' showing four profiles.

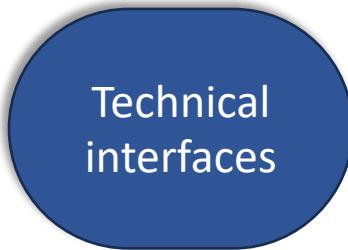
What is Project Pythia?

A screenshot of the Project Pythia website. The header features the "PROJECT PYTHIA" logo with three stylized columns next to the text. Below the logo is a navigation bar with links to Home, Foundations, Cookbooks, Resources, and Community. To the right of the navigation bar are icons for GitHub, Twitter, and YouTube. The main content area has a blue-tinted background image of a classical stone structure. The title "Project Pythia" is displayed in large white font, followed by a subtitle "An education and training hub for the geoscientific Python community". A detailed paragraph below explains the project's purpose: "Project Pythia is the education working group for Pangeo and is an educational resource for the entire geoscience community. Together these initiatives are helping geoscientists make sense of huge volumes of numerical scientific data using tools that facilitate open, reproducible science, and building an inclusive community of practice around these goals."

[Project Pythia](#) is the education working group for [Pangeo](#) and is an educational resource for the entire geoscience community. Together these initiatives are helping geoscientists make sense of huge volumes of numerical scientific data using tools that facilitate open, reproducible science, and building an inclusive community of practice around these goals.

How does Project Pythia tend its garden?

We can't *just* reduce barriers.



all require *active* participation and support



```
graph LR; A[Idea] --> B[Conversation]; B --> C[JupyterBook]; C --> D[Cookbook]; D --> E[Credit]; E --> F[Community]
```

Idea

Conversation

JupyterBook

Cookbook

Credit

Community

Idea

Conversation

JupyterBook

Cookbook

Credit

Community

Desire to garden

Foundations in Python

Jupyter training

Spaces (asynchronous, synchronous)



**PROJECT
PYTHIA**

[Home](#) [Found](#)

Search the docs ...

Pythia Foundations

PREAMBLE

[How to Use This Book](#)

[How to Cite This Book](#)

FOUNDATIONAL SKILLS

[Overview](#)

[Why Python?](#)

[Getting Started with Python](#) ▾

[Getting Started with Jupyter](#) ▾

[Getting Started with GitHub](#) ▾



Idea

Conversation

JupyterBook

Cookbook

Credit

Community



[Home](#) [Forum](#)

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?

Idea

Conversation

JupyterBook

Cookbook

Credit

Community

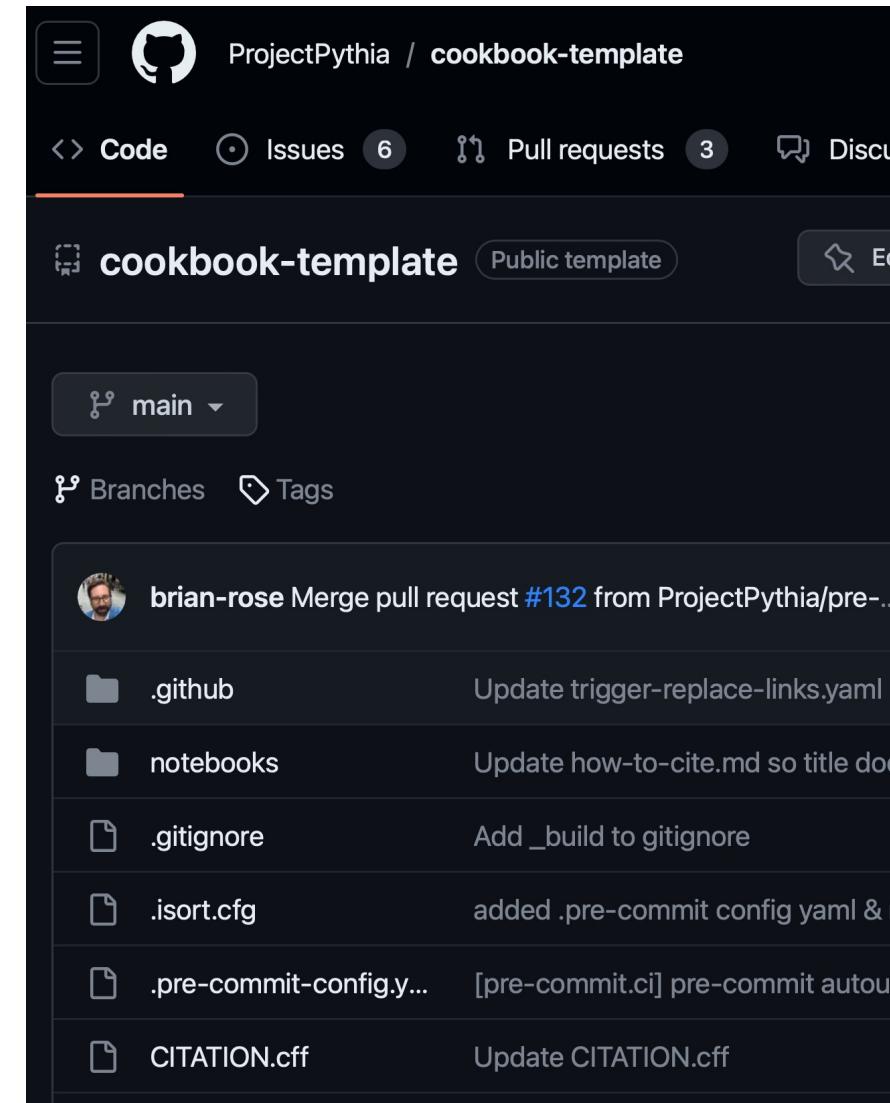
Seedlings, plant starts

GitHub templates

Events, technical training

Guides & documentation

Meeting spaces and Discourse



Idea

Conversation

JupyterBook

Cookbook

Credit

Community

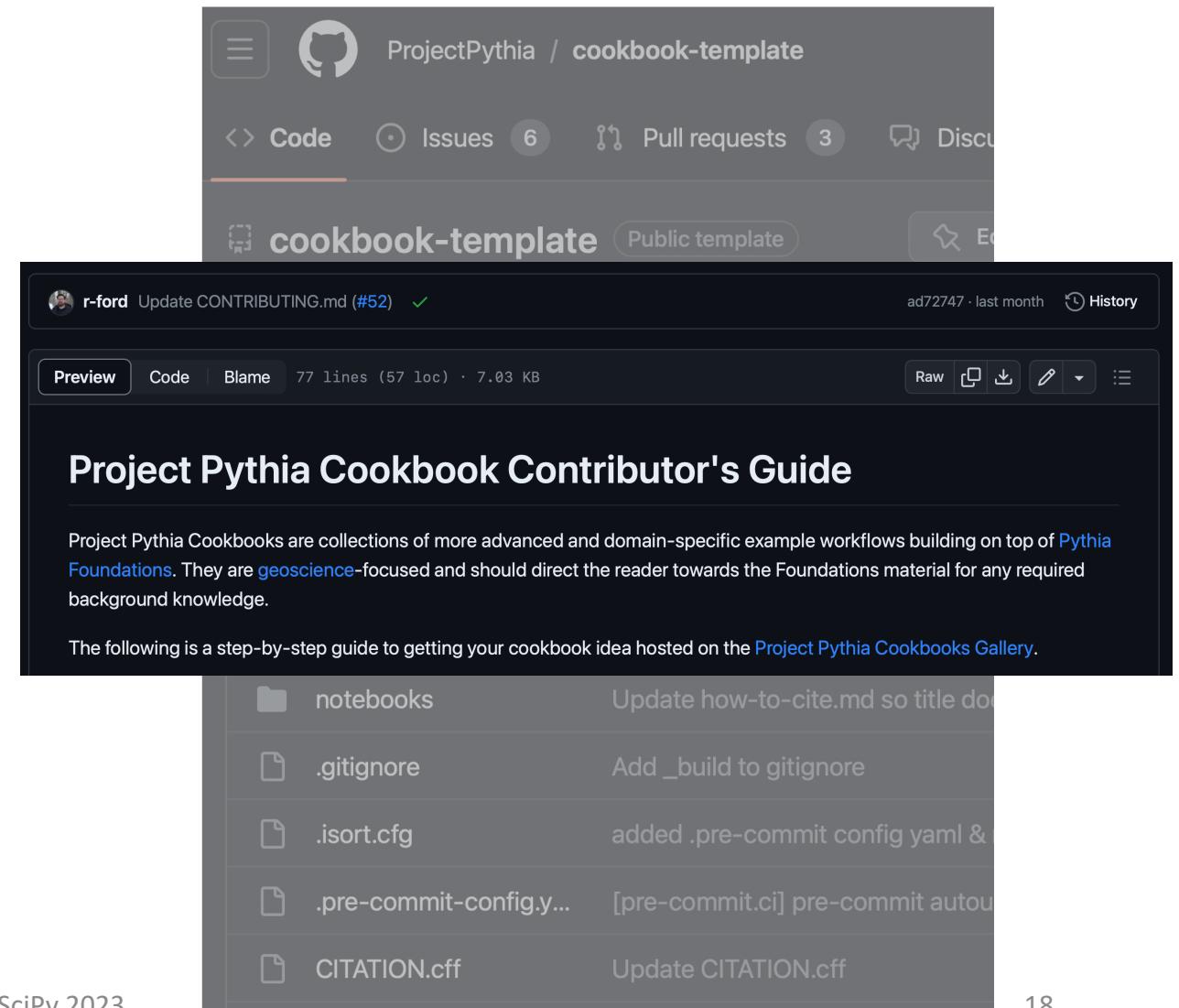
Seedlings, plant starts

GitHub templates

Events, technical training

Guides & documentation

Meeting spaces and Discourse



Idea

Conversation

JupyterBook

Cookbook

Credit

Community



Home Foundations Cookbooks Resources Community

Search the docs ...



Radar Cookbook

PREAMBLE

How to Cite This Cookbook

WEATHER RADAR FOUNDATIONS

The Basics of Weather Radar

RADAR SOFTWARE FOUNDATIONS

Py-ART Basics

Py-ART Corrections

Py-ART Gridding

Interactive Radar Visualization

EXAMPLE WORKFLOWS

Looking at NEXRAD Data from
Moore, Oklahoma

ARM

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

Boxes, w

Actions:
Interaction
GitHub,
Investment
Review?

July 14, 2023



ProjectPythia / radar-cookbook

<> Code

Issues 5

Pull requests 2

Discussions

Actions

Community

Actions

New workflow

All workflows

nightly-build

pages-build-deployment

preview-book

publish-book

trigger-book-build

trigger-delete-preview

trigger-link-check

trigger-preview

Management

All workflows

Showing runs from all workflows

1,502 workflow runs

Event ▾

Status ▾

Branch ▾

Actor ▾

nightly-build

nightly-build #392: Scheduled

nightly-build

nightly-build #391: Scheduled

nightly-build

nightly-build #390: Scheduled

21



Idea

Conversation

JupyterBook

Cookbook

Credit

Community

New Gardener of the Year!

Citation

Elevation of voice

Idea

Conversation

Jup



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.

New Gardener of the Year!

Citation

Elevation of voice

Authors

[Max Grover](#), [Zachary Sherman](#), [Milind Sharma](#)

Contributors



Idea

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JupyterBook

Cookbook

Credit

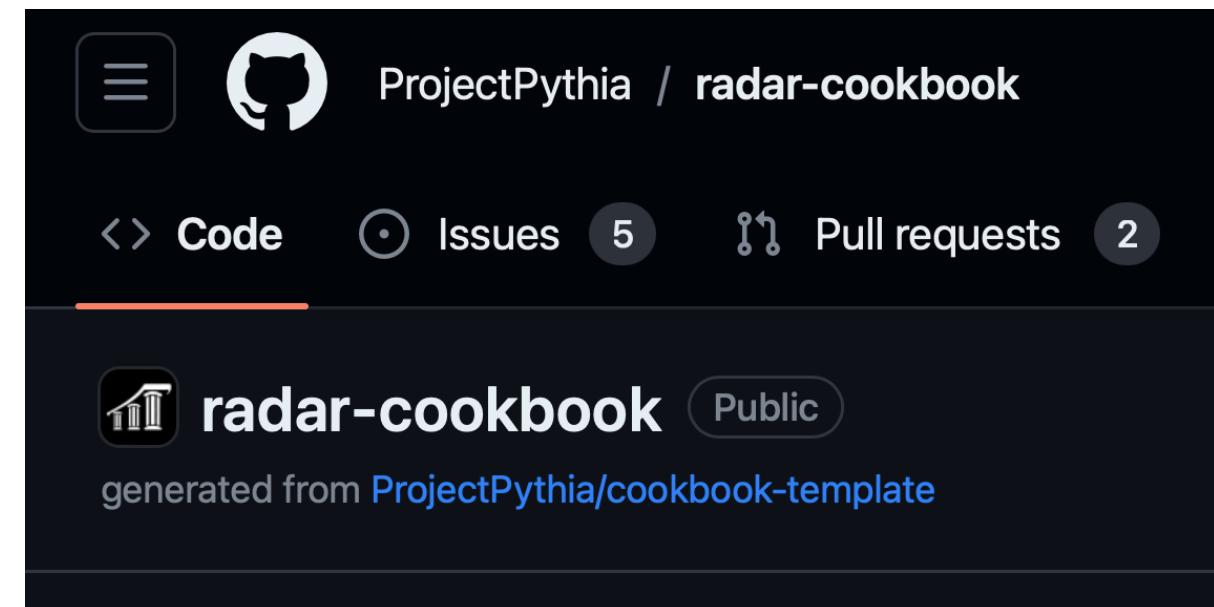
Community

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”

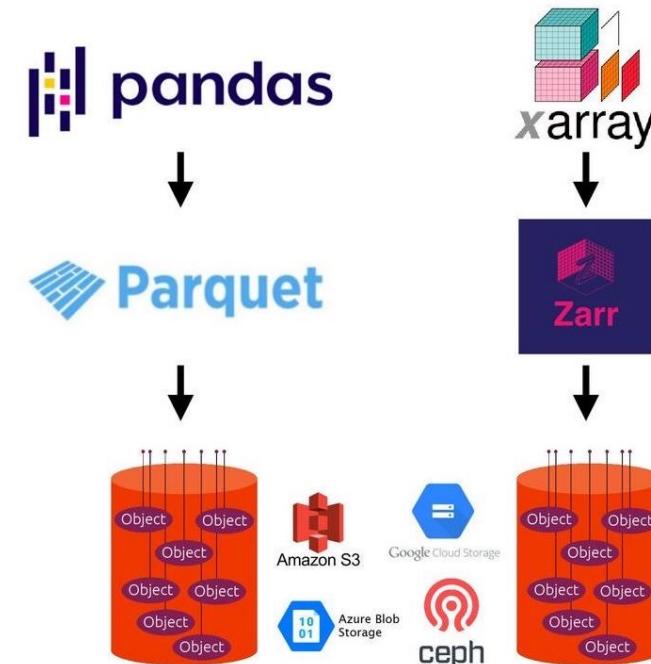
Technical growth

Discoverable ARCO data repository

Analysis Ready, Cloud Optimized

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

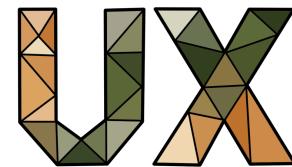


Technical growth

Develop content supporting emerging Pangeo ecosystem packages



<py>



Community growth

Engage with the broader FOSS community



contributor-experience.org

CHAOS

Community growth

Help make our garden grow!

- Join our [weekly meetings](#)



Community growth

Help make our garden grow!

- Join our [Discourse](#)

 PANGEO

Sign Up | Log In |  

[Education](#) ▶ [Project Pythia](#) ▶ [all tags](#) ▶ [Latest](#) [Top](#)

Topic	Replies	Views	Activity
Project Pythia Category Project Pythia (https://projectpythia.org/) is the education working group for Pangeo and is an educational resource for the entire geoscience community. Together these initiatives are helping geoscientists make sense of... read more	1	255	Oct '22
Proposed cookbook: Interactive dashboard for Sentinel-2 satellite imagery	1	139	4d
Proposed Cookbook: Web Map Tile Services (WMTS)	10	186	4d
Propagating changes in cookbook templates	6	143	29d
Interested in submitting a new cookbook	6	106	30d
Sign up now for the Project Pythia Summer 2023 Hackathon!	1	309	May 16

Community growth

Help make our garden grow!

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

The screenshot shows the GitHub profile page for the organization "Project Pythia". The page includes a logo featuring two stylized columns, a repository summary, pinned repositories, discussions, and a people section.

Project Pythia
Community learning resource for Python-based computing in the geosciences
61 followers • United States of America • http://projectpythia.org • @Project_Pythia • projectpythia@ucar.edu

Pinned

- pythia-foundations** (Public)
Jupyterbook source for the Foundations collection
Jupyter Notebook • 49 stars • 31 forks
- projectpythia.github.io** (Public)
Python • 31 stars • 15 forks
- cookbook-template** (Public template)
Project Pythia Cookbook template
Jupyter Notebook • 12 stars • 12 forks
- cookbook-gallery** (Public)
Root site for the ProjectPythiaCookbooks GitHub Pages
Python • 8 stars

Repositories

Find a repository Type Language Sort New

Follow

View as: Public
You are viewing the README and pinned repositories as a public user.

Get started with tasks that most successful organizations complete.

Discussions
Set up discussions to engage with your community!
Turn on discussions

People

A grid of 20 small profile pictures representing team members.

Community growth

Help make our garden grow!

- Add a [Cookbook](#), a [Resource](#), or contribute to our [Foundations](#)

Cookbooks Gallery

Pythia Cookbooks provide example workflows on more advanced and domain-specific problems developed by the Pythia community. Cookbooks build on top of skills you learn in [Pythia Foundations](#).

Cookbooks are created from Jupyter Notebooks that we strive to binderize so each Cookbook can be [executed in the cloud with a single click from your browser](#), but in some instances executing a Cookbook will require [running the notebooks locally](#).

Interested in contributing a new Cookbook or contributing to an existing Cookbook? Great! Please see the [Project Pythia Cookbook Contributor's Guide](#), and consider opening a discussion under the [Project Pythia](#) category of the Pangeo Discourse.

[Submit a new Cookbook](#)

[Clear all filters](#)

[Domains](#)

[Packages](#)

Resource Gallery

[Submit a new resource](#)

[Clear all filters](#) [Affiliation](#) [Domains](#) [Formats](#) [Packages](#)

Xdev

Your First Python Tutorial

Author: [Xdev Team](#)
Institution: [NCAR](#)

A tutorial for getting started with Python aimed at scientists with experience in at least one other coding language. Designed to teach you Python, not package specific syntax.

[pure-python](#) [pythia](#) [tutorial](#) [xdev](#)

[Search the docs ...](#)

Pythia Foundations

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[Getting Started with GitHub](#)

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[NumPy](#)
[Matplotlib](#)
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[Data Formats](#)
[Xarray](#)

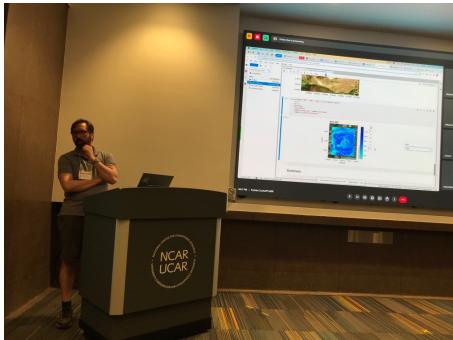
APPENDIX
[Pythia Foundations Contributor's Guide](#)



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!!