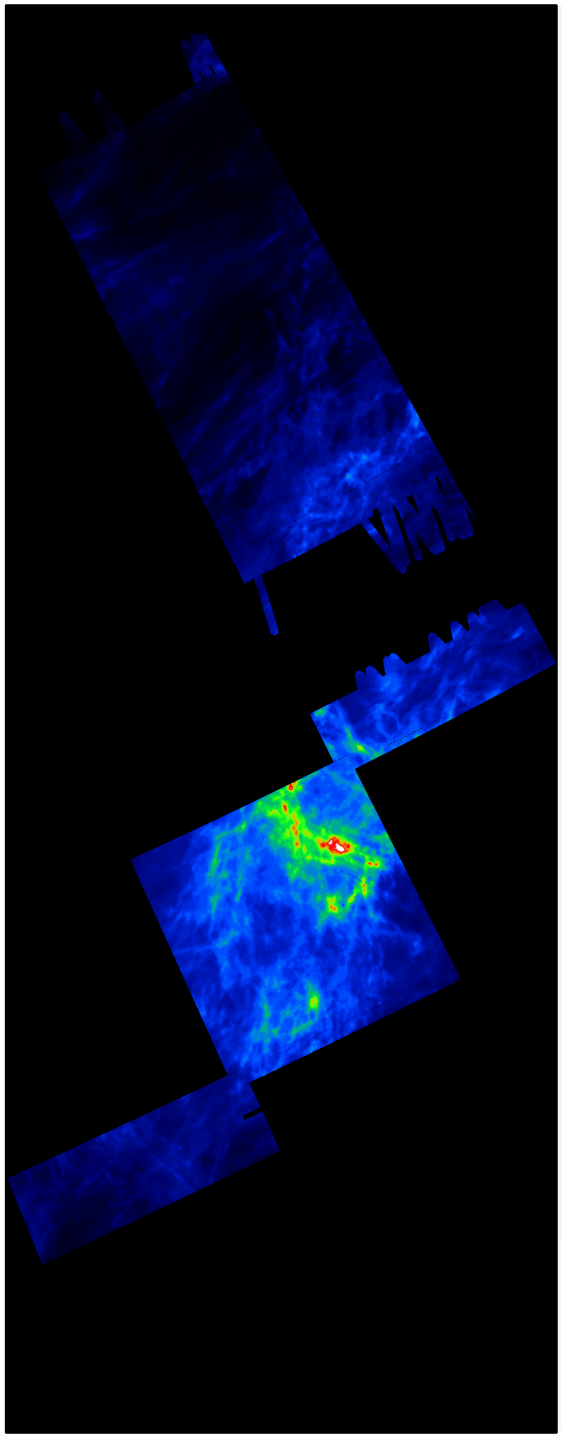


Research software best practices: Transparency, credit, and citation

Alice Allen
Astrophysics Source Code Library
ascl.net

Heidelberg Institute for Theoretical Studies

HITS

University of Maryland

Michigan Tech

Research software

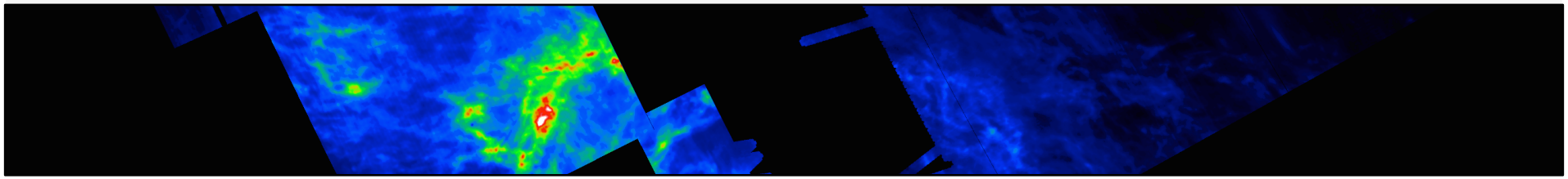
Integrity of research depends on transparency and reproducibility

"… anything less than release of actual source code is an indefensible approach for any scientific results that depend on computation…"

Ince, Hatton, & Graham-Cumming, *The case for open computer programs*, Nature, v. 482, Feb. 23, 2012

Efforts Underway

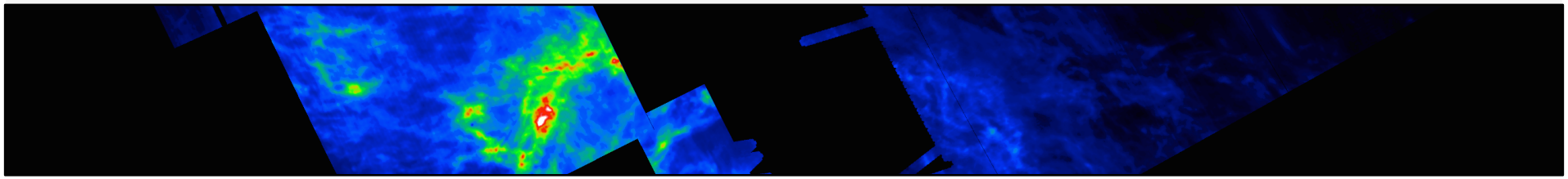
- Workshop on Sustainable Software for Science: Practice and Experiences (WSSSPE)
- CodeMeta project
- Force11 Software Citation Working Group
- Center for Open Science's Transparency and Openness Promotion (TOP) Guidelines
- Engineering Academic Software at Dagstuhl



Force11 Software Citation Principles

- Importance
- Credit and attribution
- Unique identification
- Persistence
- Accessibility

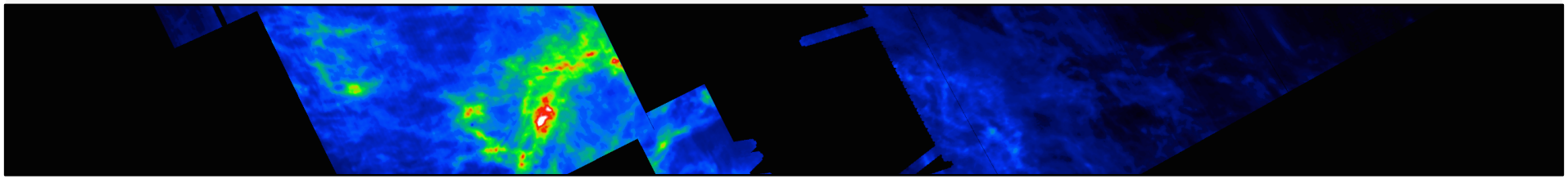
https://peerj.com/articles/cs-86/



Dagstuhl Manifesto on Citation

- I will make explicit how to cite my software.
- I will cite the software I used to produce my research results.
- When reviewing, I will encourage others to cite the software they have used.

https://dl.dropboxusercontent.com/u/11565521/dagstuhl-eas-manifesto-2016-12-02.pdf



Astrophysics Source Code Library (ASCL, ascl.net)

ASCL.net
Astrophysics Source Code Library

Making codes discoverable since 1999

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ASCL Code Record

[ascl:1208.017] APLpy: Astronomical Plotting Library in Python

Robitaille, Thomas; Bressert, Eli

APLpy (the Astronomical Plotting Library in Python) is a Python module for producing publication-quality plots of astronomical imaging data in FITS format. The module uses Matplotlib, a powerful and interactive plotting package. It is capable of creating output files in several graphical formats, including EPS, PDF, PS, PNG, and SVG. Plots can be made interactively or by using scripts, and can generate co-aligned FITS cubes to make three-color RGB images. It also offers different overlay capabilities, including contour sets, markers with customizable symbols, and coordinate grids, and a range of other useful features.

Code site: http://aplpy.github.com/

Appears in: http://adsabs.harvard.edu/abs/2012ApJ...748..123S

Bibcode: 2012ascl.soft08017R

Preferred citation method:
This research made use of APLpy, an open-source plotting package for Python (Robitaille and Bressert, 2012) where Robitaille and Bressert, 2012 is a citation to http://adsabs.harvard.edu/abs/2012ascl.soft08017R

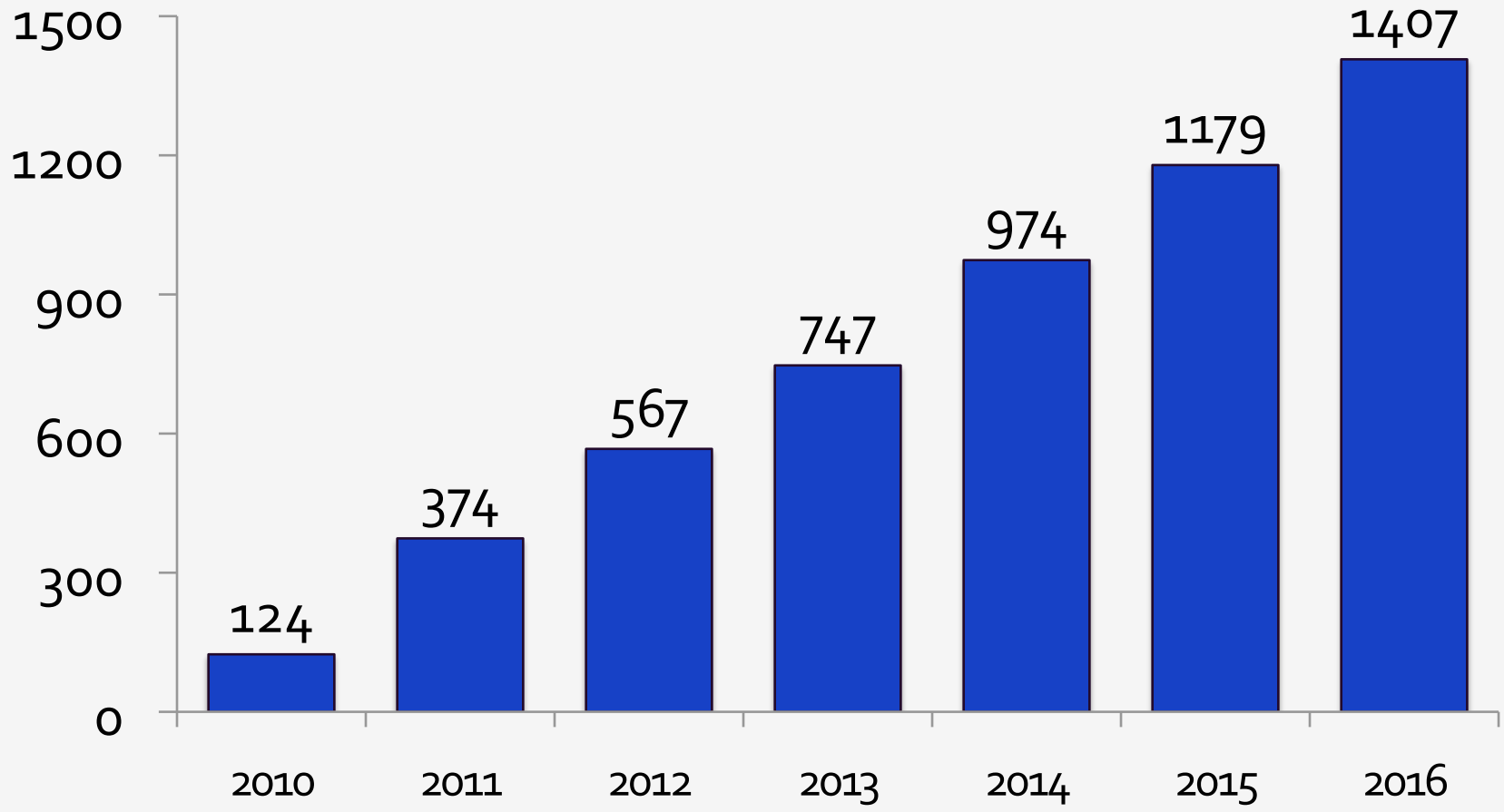
Explain these fields?

ascl 1208.017

Add this shield to your page

Discuss

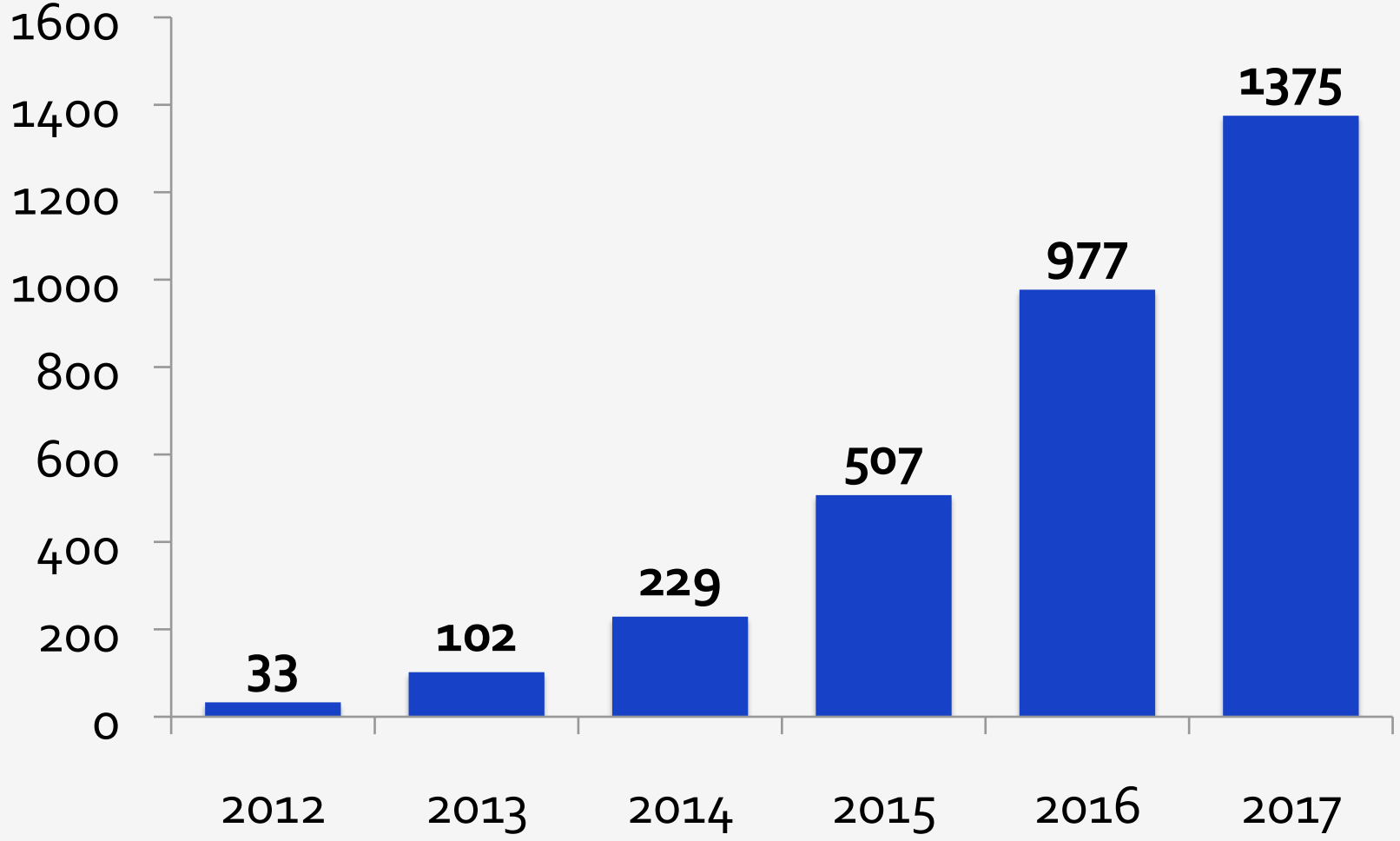
Number of code entries at year end, 2010 - 2016



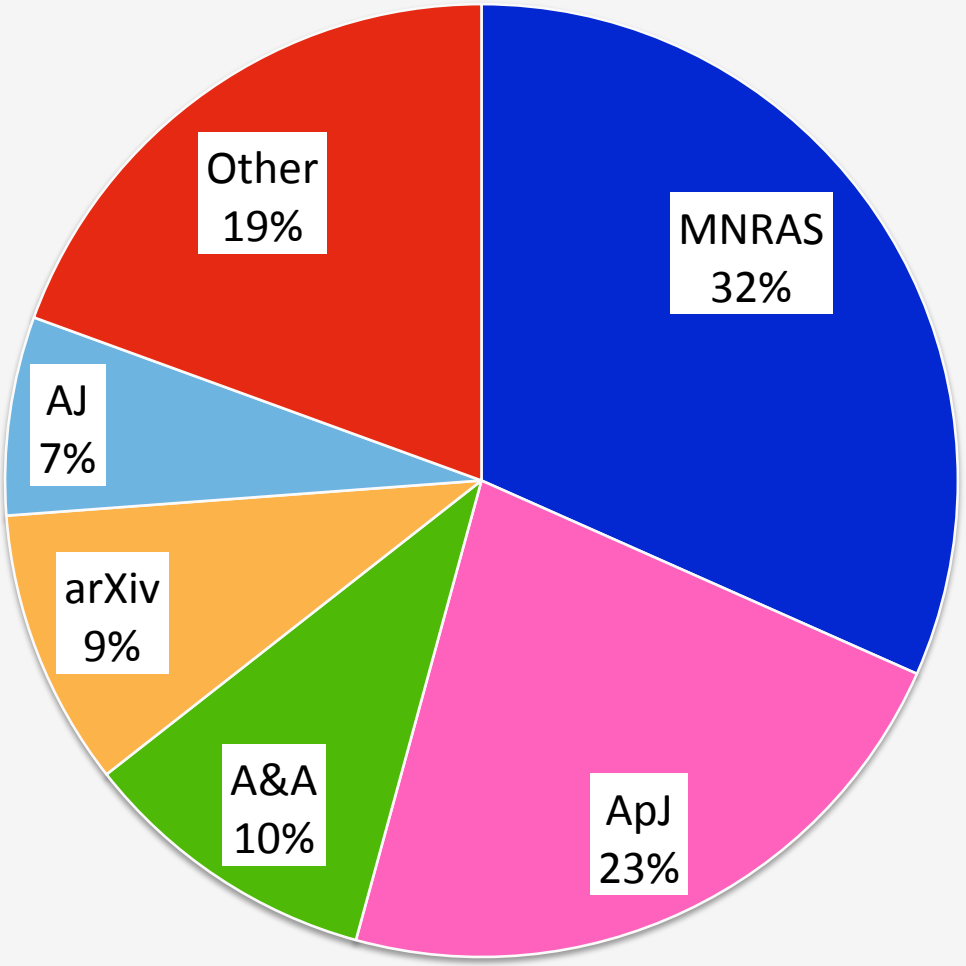
No one can assume that valuable innovations will pop up magically in the public domain if their inventors received no reward for their labor and capital.

–Richard Epstein

Cumulative number of citations to ASCL entries in ADS by year



Citations by journal



Benefits of the ASCL

Improves transparency of research

Aids in software discovery

Provides way to cite software separately from papers

Assigns DOIs for codes housed on ASCL

Reliability of data

You can change the world!

(Or at least a little piece of it!)

Release your code

Specify how you want your code to be cited

License your code

Register your code

Archive your code somewhere

Dagstuhl Manifesto on Citation

- I will make explicit how to cite my software.
- I will cite the software I used to produce my research results.
- When reviewing, I will encourage others to cite the software they have used.

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