ASCL.net

Astrophysics Source Code Library

*Making Codes Discoverable
for 20 Years*

Astrophysics Source Code Library

Registry and repository for openly-available source codes used in research

Software is submitted by authors or entered by editors and is assigned a unique ID

Started in 1999

Why?

To make software used in research more discoverable…

…to improve the **transparency**, reproducibility, and falsifiability of research

Infrastructure and data

Built with open source tools:
    MySQL
    Code Igniter
    WordPress
    phpbb

Public data available
    https://ascl.net/code/json

ASCL Code Record

[ascl:1604.006] 2-DUST: Dust radiative transfer code

Ueta, Toshiya; Meixner, Margaret

2-DUST is a general-purpose dust radiative transfer code for an axisymmetric system that reveals the global energetics of dust grains in the shell and the 2-D projected morphologies of the shell that are strongly dependent on the mixed effects of the axisymmetric dust distribution and inclination angle. It can be used to model a variety of axisymmetric astronomical dust systems.

Code site: https://2dust.stsci.edu/
Used in: http://adsabs.harvard.edu/abs/2004ApJ...614..371M
Described in: http://adsabs.harvard.edu/abs/2003ApJ...586.1338U

Bibcode: 2016ascl.soft04006U

Preferred citation method:
http://adsabs.harvard.edu/abs/2003ApJ...586.1338U

Explain these fields?

Discuss ➝

ascl 1604.006

Add this shield to your page

Metadata

Deliberately kept light

Previous ASCL-like efforts failed, many in part or in full because the metadata was not maintained (Allen & Schmidt, 2015)

Result: ASCL is more easily maintained and has been reliably available for 20 years
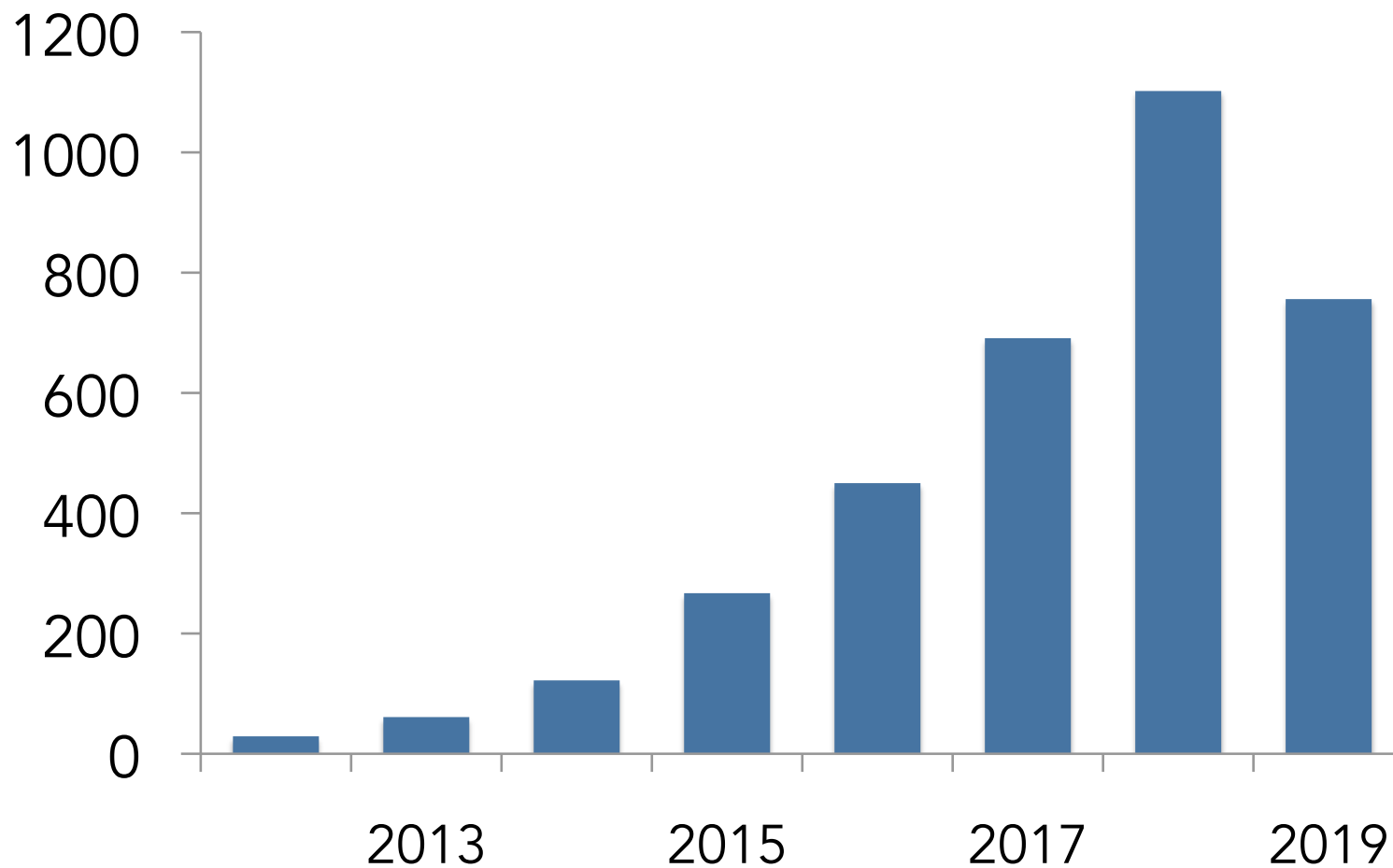
ASCL IDs

ASCL assigns unique identifier to entries

Identifier formula is *ascl:yymm.xxx*, where *yy* is year/*mm* is month of addition to ASCL, and *xxx* is incremental number

Result: Software can easily be cited by ascl ID, and discipline indexer and others can easily track citations
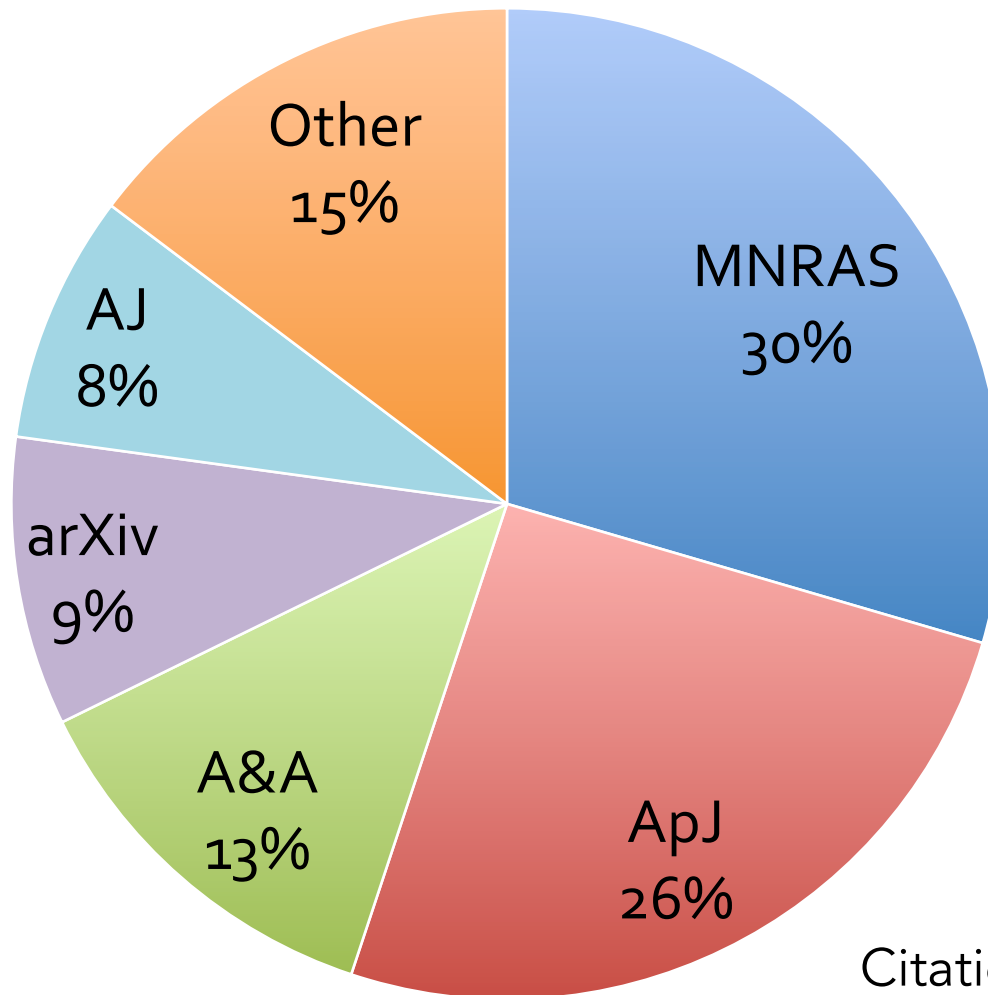
Citations per year, 2012-2019
as of June 4, 2019

Citation data from ADS

Citations by journal
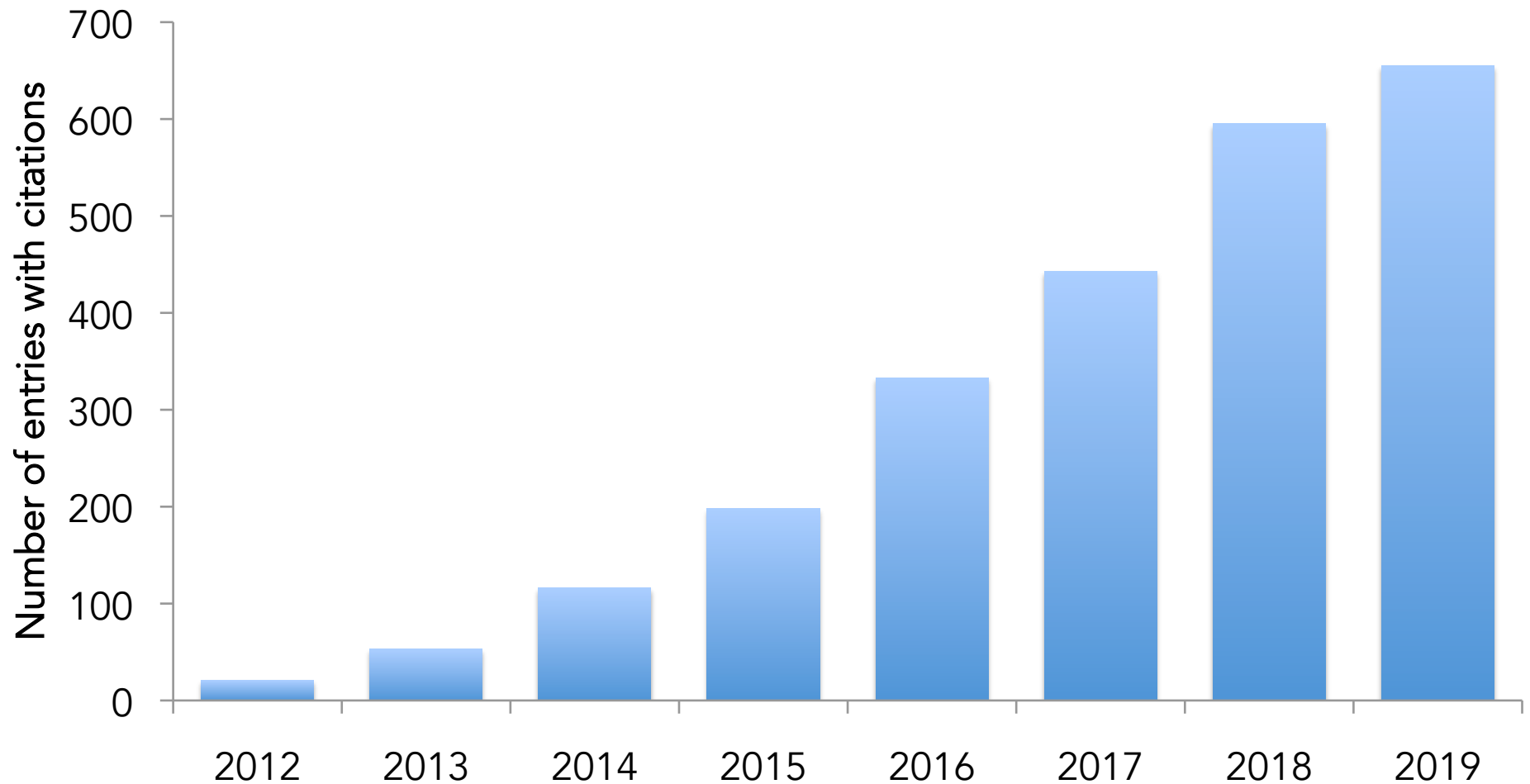## as of June 4, 2019

Citation data from ADS

Cumulative number of code entries in ADS with citations
2012-present

Maybe better questions?

- What percentage of code entries in the ASCL have been cited?

  currently 34%; in 2014, 7%

- What is the rate of growth in citations? Is that more or less than the growth of the ASCL itself (in the number of code entries)?

  From 2017 to 2018:
  citations increased by 59%
  number of entries increased by 35%

Maybe another better question?

- Is the rate of growth of author submitted increasing?

     From 2017 to 2018:

     author submissions grew by 31%

Repository

ASCL initially required code deposit

Most software authors were reluctant to deposit code

Result: ASCL didn't grow; research was not becoming any more transparent

Repo + Registry

ASCL dropped requirement to deposit code, though still accepts code deposits

Pointing to software download location is easily done and removes barrier to growth

Result: ASCL has grown from initial ~40 entries to over 1900 today, making more research more transparent

Site link curation

Links checked with two link checkers, one twice weekly, the other continuously

When links are consistently down for period of time, editor seeks new link

Result: Links are consistently healthy; link health is reported twice weekly on public dashboard
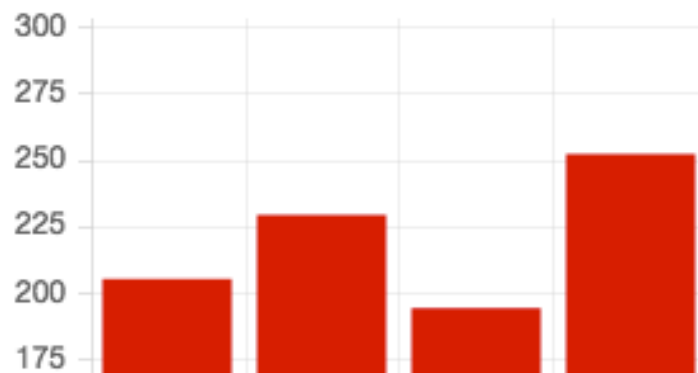
Site link curation

3743 site links (96.87%) are working as of 2019-06-04 04:06:39.* ←

Statistics:

- There are 1948 codes in the ASCL, and 27 submitted.
- There are 3478 citations to ASCL entries in ADS.
- 1947 (99.95%) ASCL codes are in ADS.
- 655 (33.64%) have ADS citations.

Code additions by year:

300
275
250
225
200
175

Citations by year:

1200
1100
1000
900
800
700

Communication within astro

With users, code authors, journal editors and publishers, astro societies, indexers, librarians

All the standard ways: meetings, conferences, email, social media, institutional outreach, ASCL blog

Also: emails to authors upon ascl ID assignment, APOD hook, annual report

Communication outside astro

Organizations such as Force11, Research Data Alliance, WSSSPE

ASCL-like entities in other disciplines

Libraries such as Library of Congress and National Library of Medicine

Funding?

Funding!

Things we'd like

More robust search engine

API

New governance model

More things we'd like

Your codes!

Questions?

aallen@ascl.net