

Welcome!



Slides and all materials here:
bit.ly/pydata-astropy



Kelle Cruz

Professor @ Hunter College
Astropy coordinator



Adrian Price-Whelan

Postdoc @ Princeton University
Astropy core developer





Semyeong Oh



Cristóbal Sifón



Ellianna Schwab



Chris Lovell



Rocio Kiman



JP Ventura

Code of Conduct

The community of participants in open source Astronomy projects is made up of members from around the globe with a diverse set of skills, personalities, and experiences. It is through these differences that our community experiences success and continued growth. We expect everyone in our community to follow these guidelines when interacting with others both inside and outside of our community. Our goal is to keep ours a positive, inclusive, successful, and growing community.

http://www.astropy.org/code_of_conduct.html

the plan for today

- intro to the Astropy project and core package
- units and quantities [astropy.units]
- coordinates and time [astropy.coordinates, astropy.time]
- reading and manipulating data [astropy.table, astropy.io]

the format

alternate between short introductory slides
and individual working time

how to use this workshop

Ask questions!

(most questions asked gets a GitHub sticker)

If you finish the tutorial notebook, start thinking about how you would use the features in your own research

other resources

mailing lists:

astropy users

astropy developers

astropy slack group

astropy tutorials

astropy documentation

check installation / setup

Clone the pydata2017-astropy repository

bit.ly/pydata-astropy

check installation / setup

Clone the pydata2017-astropy repository

 [adrn / pydata2017-astropy](#)

[!\[\]\(26633b49a6a049dbcdb72c211022769c_img.jpg\) Code](#) [!\[\]\(c1eef8597e8624b27c40bc77c24c1933_img.jpg\) Issues 0](#) [!\[\]\(1b7c2a07f96414bd52fd74aa4674183e_img.jpg\) Pull requests 0](#) [!\[\]\(c87cd6f776d9cb3983bb1a982eab3057_img.jpg\) Projects 0](#) [!\[\]\(23b5671960ccffff4fa693b6b1d6b495_img.jpg\) Wiki](#) [!\[\]\(5a2bf27b958b744af2f6bb8676805b0f_img.jpg\) Insights](#) [!\[\]\(54708819a52629073d2c887abae0172e_img.jpg\) Settings](#)

Materials for the Astropy workshop at the PyData NYC 2017 workshop [!\[\]\(d0589b3fb7a03450d776b95c17fbd3da_img.jpg\) Edit](#)

[Add topics](#)

 30 commits  1 branch  0 releases  1 contributor

Branch: [master](#) ▾ [New pull request](#) [Create new file](#) [Upload files](#) [Find file](#) [Clone or download](#) ▾

 [adrn](#) check env Latest commit 54f6291 6 hours ago

 [0-intro](#) intro slides 6 hours ago

check installation / setup

Clone the pydata2017-astropy repository

adrn / **pydata2017-astropy** Unwatch ▾ 1 Star 0 Fork 1

Code Issues 0 Pull requests 0 Projects 0 Wiki Insights Settings

Materials for the Astropy workshop at the PyData NYC 2017 workshop Edit

Add topics

30 commits 1 branch 0 releases 1 contributor

Branch: master ▾ New pull request Create new file Upload files Find file Clone or download ▾

adrn check env Latest commit 54f6291 6 hours ago

0-intro intro slides 6 hours ago

check installation / setup

Clone the pydata2017-astropy repository

Go to the pydata2017-astropy directory

Run the check environment script:

```
python check_env.py
```

bit.ly/pydata-astropy



astropy

Overview

what is astropy?

the astropy core package:

- a community-driven, open-source, open-development Python library for Astronomy
- provide core functionality for more specialized astro packages

the astropy project:

a community effort to develop the core package and foster an ecosystem of interoperable astronomy packages

astropy core package

astropy core package

Key subpackages for users:

astropy core package

Key subpackages for users:

- `astropy.units`: represent and convert numbers with units

astropy core package

Key subpackages for users:

- `astropy.units`: represent and convert numbers with units
- `astropy.coordinates`: transform astronomical coordinates

astropy core package

Key subpackages for users:

- `astropy.units`: represent and convert numbers with units
- `astropy.coordinates`: transform astronomical coordinates
- `astropy.time`: represent and convert astronomical times

astropy core package

Key subpackages for users:

- `astropy.units`: represent and convert numbers with units
- `astropy.coordinates`: transform astronomical coordinates
- `astropy.time`: represent and convert astronomical times
- `astropy.table`: represent tabular data

astropy core package

open source

(source code is licensed but available to anyone for use, modification, etc.)

open development

(bugs, code contributions, discussions all done in the open [on GitHub])

 This repository Search Pull requests Issues Marketplace Explore

 astropy / astropy Unwatch 164 Star 1,469 Fork 780

Code Issues 735 Pull requests 70 Projects 1 Wiki Insights

Repository for the Astropy core package <http://www.astropy.org>

python astronomy science

20,724 commits 11 branches 62 releases 220 contributors BSD-3-Clause

Branch: master New pull request Create new file Upload files Find file Clone or download

bsipocz Merge pull request #6901 from mhvk/time-column-sandwich-changelog-change ... Latest commit 5dec6bb 2 hours ago

astropy Merge pull request #6823 from mhvk/time-allow-column-unicode-sandwich 2 days ago

astropy_helpers @ d23a53f Update astropy-helpers to v2.0.2 2 months ago

cextern Ensure only required files are kept. 3 months ago

docs Merge pull request #6890 from astrofrog/install-to-test 5 days ago

examples Fix more permanently redirected URLs a month ago

licenses Update README.rst 8 months ago

static Fixed support on Python 3, and got rid of .astropy-root per astropy/a... 3 years ago

.astropy-root Don't rely on .git to enable auto-build when importing from source tr... 2 years ago

.gitattributes Use union merge for changelog 3 years ago

.gitignore Ignore lastfailed (direct pytest invocation) file [skip ci] a month ago

.gitmodules Make use of astropy affiliated package infrastructure 4 years ago

.mailmap update credits 5 months ago

.rtd-environment.yml Include pytest as RTD dependency 18 days ago

.run_docker_tests.sh CI: don't install pytest-astropy manually 5 days ago

.travis.yml CI: don't install pytest-astropy manually 5 days ago

code contributions, review, management done on GitHub:



Unwatch ▾ 164

Star 1,469

Fork 780

Code

Issues 735

Pull requests 70

Projects 1

Wiki

Insights

 astropy / astropy

 Unwatch ▾ 164

 Star 1,469

 Fork 780

 Code

 Issues 735

 Pull requests 70

 Projects 1

 Wiki

 Insights

 Code

 Issues 735

 Pull requests 70

 Projects 1

 Wiki

 Insights

bugs

feature requests

some specific questions

[Code](#)[Issues 735](#)[Pull requests 70](#)[Projects 1](#)[Wiki](#)[Insights](#)[Filters](#) ▾ is:issue is:open[Labels](#)[Milestones](#)[New issue](#) ① 735 Open ✓ 1,887 Closed

Author ▾

Labels ▾

Projects ▾

Milestones ▾

Assignee ▾

Sort ▾

 ① Fails to create large bintable [Docs](#) [Effort-low](#) [io.fits](#)

4

#6900 opened 13 hours ago by Acrisel

 ① Logarithmic quantities should support some ufuncs [Bug](#) [units](#)

#6897 opened 2 days ago by mhvk

 ① Changes to integer column values with bzero set in opened fits tables are not written back to file [Affects-release](#) [Bug](#) [io.fits](#) [table](#)

#6887 opened 6 days ago by kgabor

 ① HTML download of docs yields very old version [Docs](#)

1

#6886 opened 6 days ago by bwinkel

 ① Respect tied values in model parameters should be respected [Feature Request](#) [modeling](#)

#6881 opened 6 days ago by mhvk

 ① Bayesian Blocks type error [Bug](#) [stats](#)

2

#6877 opened 7 days ago by ebouff

 ① instructions for updating from Astropy 1.x to Astropy 2.x in Anaconda [Docs](#) [installation](#)

4

#6874 opened 9 days ago by richardgmcma

 ① Start checking for component name-frame attribute overlaps at frame class creation [coordinates](#)

1

#6870 opened 10 days ago by eteq

[Code](#)[Issues 735](#)[Pull requests 70](#)[Projects 1](#)[Wiki](#)[Insights](#)[Filters](#) ▾ is:issue is:open[Labels](#)[Milestones](#)[New issue](#) ① 735 Open ✓ 1,887 Closed[Author](#) ▾[Labels](#) ▾[Projects](#) ▾[Milestones](#) ▾[Assignee](#) ▾[Sort](#) ▾ ① Fails to create large bintable[Docs](#) [Effort-low](#) [io.fits](#)

#6900 opened 13 hours ago by Acrise

[4](#) ① Logarithmic quantities should support some ufuncs[Bug](#)[units](#)

#6897 opened 2 days ago by mhvk

 ① Changes to integer column values with bzero set in opened fits tables are not written back to file[Affects-release](#) [Bug](#) [io.fits](#) [table](#)

#6887 opened 6 days ago by kgabor

[1](#) ① HTML download of docs yields very old version[Docs](#)

#6886 opened 6 days ago by bwinkel

 ① Respect tied values in model parameters should be respected[Feature Request](#)[modeling](#)

#6881 opened 6 days ago by mhvk

 ① Bayesian Blocks type error[Bug](#)[stats](#)

#6877 opened 7 days ago by ebouff

[2](#) ① instructions for updating from Astropy 1.x to Astropy 2.x in Anaconda[Docs](#)[installation](#)

#6874 opened 9 days ago by richardgmcma

[4](#) ① Start checking for component name-frame attribute overlaps at frame class creation[coordinates](#)

#6870 opened 10 days ago by eteq

[1](#)

Code

Issues 735

Pull requests 70

Projects 1

Wiki

Insights

Filters ▾

is:issue is:open

Labels

Milestones

New issue

 ① 735 Open ✓ 1,887 Closed

Author ▾

Labels ▾

Projects ▾

Milestones ▾

Assignee ▾

Sort ▾

 ① Fails to create large bintable [Docs](#) [Effort-low](#) [io.fits](#)

#6900 opened 13 hours ago by Acriser

4

 ① Logarithmic quantities should support some ufuncs [Bug](#) [units](#)

#6897 opened 2 days ago by mhvk

 ① Changes to integer column values with bzero set in opened fits tables are not written back to file [Affects-release](#) [Bug](#) [io.fits](#) [table](#)

#6887 opened 6 days ago by kgabor

 ① HTML download of docs yields very old version [Docs](#)

#6886 opened 6 days ago by bwinkel

1

 ① Respect tied values in model parameters should be respected [Feature Request](#) [modeling](#)

#6881 opened 6 days ago by mhvk

 ① Bayesian Blocks type error [Bug](#) [stats](#)

#6877 opened 7 days ago by ebouff

2

 ① instructions for updating from Astropy 1.x to Astropy 2.x in Anaconda [Docs](#) [installation](#)

#6874 opened 9 days ago by richardgmcma

4

 ① Start checking for component name-frame attribute overlaps at frame class creation [coordinates](#)

#6870 opened 10 days ago by eteq

1

[Code](#)[Issues 735](#)[Pull requests 70](#)[Projects 1](#)[Wiki](#)[Insights](#)

Physical types in units could be improved #6864

[Edit](#)[New issue](#)[Open](#)

adrn opened this issue 11 days ago · 2 comments



adrн commented 11 days ago

Member



For other contexts (specifically in `astropy.coordinates`, where we the `Unit*` representation and differential classes), it would be useful to have a concept of `dimensional_unscaled` units (compare to `dimensionless_unscaled`). But it occurred to us that this is actually a physical type! It may be that we want to make the physical types in `astropy.units` into objects themselves that behave like dimensional but unscaled units that cancel and combine properly.

cc @mhvk

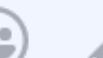
adrн added [Effort-medium](#) [Package-expert](#) [units](#) labels 11 days ago

adrн added this to the Future milestone 11 days ago



adrн commented 11 days ago

Member



Assignees

No one—assign yourself

Labels

[Effort-medium](#)[Package-expert](#)[units](#)

Projects

None yet

Milestone

Future

Notifications



Unwatch ▾ 164

Star 1,469

Fork 780

Code

Issues 735

Pull requests 70

Projects 1

Wiki

Insights



Unwatch ▾ 164

Star 1,469

Fork 780

Code

Issues 735

Pull requests 70

Projects 1

Wiki

Insights

[Code](#)[Issues 735](#)[Pull requests 70](#)[Projects 1](#)[Wiki](#)[Insights](#)

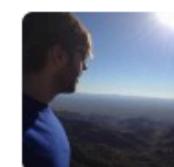
contributed code

bug fixes

documentation edits

[Code](#)[Issues 735](#)[Pull requests 70](#)[Projects 1](#)[Wiki](#)[Insights](#)

Add a way to update the position of a source given its proper motion, radial velocity and a new time or time difference #6872

[Edit](#)[Open](#)adrn wants to merge 4 commits into `astropy:master` from `adrn:coordinates/evolve`[Conversation 7](#)[Commits 4](#)[Files changed 2](#)[+104 -5](#)

adrн commented 10 days ago

Member



This implements what is sometimes called an "epoch transformation": you observe a source on some date, but if it has a large proper motion, it will have moved when going back to observe it later. This currently assumes that the motion is linear, and that if a velocity component is not specified, that it is 0 (this is a hard assumption, so we need to be up front about this in the documentation!).

Note that this requires `SkyCoord` to support velocity data, so this includes a commit by @eteq who is working on making that possible. This probably has to wait until his PR is merged to write good tests, but creating this just to get discussion started and so I remember the branch exists :)

This needs:

- Real tests
- Documentation
- Need to preserve the frame attributes in the new method...
- An audit of the method name (we originally thought of `evolve_to`, but think that's not quite right). @mhvk settled on `move_to`, but I'm not quite sold on that either...

Reviewers**Assignees**

No one—assign yourself

Labels[coordinates](#)[Work in progress](#)**Projects**

None yet

Milestone



mhvк reviewed 18 days ago

[View changes](#)

astropy/io/fits/fitstime.py

```
...     ... @@ -362,6 +362,10 @@ def _convert_time_column(col, column_info):  
362     362             # [+/-C]CCYY-MM-DD[Thh:mm:ss[.s...]] where the number of char  
363     363             # from index 20 to the end of string represents the precision  
364     364             precision = max(int(col.info.dtype.str[2:]) - 20, 0)  
365 +         if col.info.dtype.kind == 'S':
```



mhvк 18 days ago Member

I'd not be against solving this on the `Time` side - @taldcroft - what do you think? It would not be difficult (but definitely in another PR).



mhvк 18 days ago Member

Actually, `col` here is an astropy `Column`, which should sandwich the bytes already, so I think that this doesn't work automatically is a buglet.



mhvк 18 days ago Member

See [#6823](#) for a fix. I think it is fairly trivial, so perhaps we can merge it before this PR, so that this change no longer is necessary.



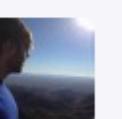
astrofrog 18 days ago Owner

@mhvk - sounds good!



taldcroft 4 hours ago Owner

[#6823](#) is merged now.



Reply...

astropy core package

We always welcome new contributors!

You don't have to contribute code:
documentation changes / clarification, tutorials,
bug reports — talk to us if interested!

astropy affiliated packages

Astronomy Python packages that are not part of the Astropy core package but have requested to be a part of the Astropy project

Agree to good coding standards (testing, documentation), reduce duplication, open development

Use astropy when possible to improve interoperability

affiliated.astropy.org