Astropy Workshop

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Overview

- What is astropy?
- What can it do?
- Demo Notebook
- Astropy.learn tutorials

What is Astropy?

- Set of python packages developed by and for the astronomical community.
- Python 2.7 and Python 3 versions, but only python 3 being developed!
- “Core” packages are best supported and actively developed.
- Large array of affiliated packages significantly extend astropy - BUT they are often less documented/developed.

What can you do with core astropy?

- Read, write, and analyze FITS images
- Read/Write table data from ASCII, HDF5, FITS, VOTABLE, and other formats.
- Store data tables in a powerful python object which allows units, missing values, named columns. and writing to LaTeX format
- Convert coordinates between different frames and equinoxes
- Import astrophysical constants in SI and CGS
- Work with physical units in calculations.
- Load different cosmologies to convert between redshift and redshift dependent quantities

What about affiliated?

- Query Vizier, SIMBAD, and many telescope archives for information and to download data. (Astroquery)
- Analyze spectra and spectral cubes (pyspeckit, spectral-cube, many more)
- Galactic dynamics (galpy)
- Machine Learning (astroML)
- much much more! https://www.astropy.org/affiliated/index.html
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Demo Notebook:

- At terminal: “git clone https://github.com/loganastro/astropy-workshop”
- Or just visit the URL, download, and unzip.
- Upload the notebook to “https://uvic.syzygy.ca/” or open on your own machine with anaconda python3.

learn.astropy

- Extensive tutorials and documentation - we will do two on coordinate transforms and using the astropy Quantity object for calculations.
- These notebooks are included in my repository - you can upload them to syzygy or use on your own machine.
- Visit http://learn.astropy.org/tutorials.html for much more!