2018 Workshop: Python for Space Science

Long title
Snakes on a Spaceship: The Return of the Python
Conveners
Angeline Burrell
Jeff Klenzing
Russell Stoneback
Description

The pursuit of system science requires integrating measurements from multiple platforms into a coherent system for analysis. The variety of instrument types and data formats makes this challenging. Typically these challenges are solved separately by different research teams, leading to duplicated efforts. The reproducibility of scientific results are also affected, since most journal articles do not include complete analysis descriptions. The study of the magnetosphere and the ionosphere as a system would be enhanced if solutions to these problems were made broadly available to the community.

The use of community developed software has found acceptance in astronomy (astropy) and solar science (sunpy). 'Snakes on a Spaceship' is focused on introducing the Python language, associated tools, and science software packages developed for the CEDAR and GEM community.

Please bring your computer, since there will be several tutorials that you will be able to work through with the speaker.

Useful Links

Community webpage: https://heliopython.org/

Agenda

• Overview of Python in Space Science Survey (pdf) — Angeline Burrell

• Community Organization (pdf) — Alex deWolfe

• AULs and software (pdf)— Adam Kellerman

- Advanced python - unit testing etc (pdf) — Russell Stoneback
- Repositories and dois (pdf)— Steve Morley
- Development on an Academic Timeline (pdf) — Angeline Burrell
- Discussion
- Ethics of unofficial versions.

Justification

CEDAR justification: strategic thrust #6: manage, mine, and manipulate geoscience data and models

1) How the questions will be addressed: The challenge of performing system science is addressed by teaching the community about the existence and use of open source science software that enables system science

2) What resources exist, are planned, or are needed: Science python software already exists that helps the community achieve these goals, pysat, davitpy, spacepy, madrigal, etc.

3) How progress should be measured: Participation rates in open source science python software. Publications that use community tools, and software citation rate can also be tracked.

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