Python

and why it might be useful to you

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Why Python?

- free, platform-independent
- easy to learn
- command-line or scripts
- object-oriented
- high-level
- modular
- interfaces to C/Fortran code libraries
- Active Astro development (STSCI, APEX, ALMA/CASA GILDAS...)

Examples

Easy to learn, high-level, command-line

- leastsq
- matplotlib

scripts, object-oriented, astronomical images

- APLpy: plotysos.py

scripting: system calls

- moveout.py

Interface to C/Fortran

- ctypes (load dynamic libraries), pyrex (wrappers)

Libraries

- Numpy (or numeric or numarray)
  - Maths and array processing
  - extended by Scipy
- Matplotlib
  - graphs
- Pyfits, pywcs
  - FITS image processing
- PyRAF, PyGILDAS
  - Python interfaces to IRAF, GILDAS
- *NEW* APLpy
  - FITS image display, publication-quality plots

Further reading

- http://docs.python.org/tutorial/
- http://www.astro.washington.edu/users/rowen/AstroPy.html -- astronomical Python
- http://www.scipy.org/Getting_Started - scientific Python
- http://www.stsci.edu/resources/software_hardware/pyraf/stsci_python STSCI
- http://www.astro.uni-bonn.de/~rschaaf/Python2008/ Python for Astronomers course (Reinhold Schaaf, Bonn)
- http://python.net/crew/theller/ctypes/

  using c/ fortran libraries from within python