MYRaf: An Easy Aperture Photometry GUI for IRAF

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Abstract. We describe the design and development of MYRaf, a GUI (Graphical User Interface) that aims to be completely open-source under General Public License (GPL). MYRaf is an easy to use, reliable, and a fast IRAF aperture photometry GUI tool for those who are conversant with text-based software and command-line procedures in GNU/Linux OSs. MYRaf uses IRAF, PyRAF, matplotlib, ginga, alipy, and SExtractor with the general-purpose and high-level programming language Python, and uses the Qt framework.

1. MYRaf

MYRaf carries out the basic steps of photometric reduction and analysis using many freely available computational tools in Astronomy mostly from IRAF[1] (v2.14 and higher). We have preferred the GUI framework Qt (v4.0 and higher) to create a user-friendly appearance. We used the Python programming language for sharing free, fast, and easily readable code. PyRAF[2] (v2.0 and higher) has also been used for controlling IRAF with Python. Malte Tewes's alipy[3] is our main dependency for aligning CCD images. It uses SExtractor and astroasciidata (a package to read SExtractor[4] catalogs) for matching stars on CCD images (Bertin & Arnouts 1996). MYRaf v2.0 Beta uses ginga[5] for displaying FITS images with the matplotlib backend (Jeschke 2013). We have devel-

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[1]`http://iraf.noao.edu/`

[2]`http://www.stsci.edu/institute/software_hardware/pyraf`

[3]`http://obswww.unige.ch/~tewes/alipy/index.html`

[4]`http://www.astromatic.net/software/sextractor`

[5]`https://github.com/ejeschke/ginga`

oped our code using Subversion from Google Code for fast and secure sharing under the GPLv[6] license.

2.   Software and GUI

Steps in the MYRaf processing are "Preparing images", "Editing header information", "Calibration", "Align", "Photometry", and "Plotting". For now, MYRaf only works under GNU/Linux OSs for stability and fast performance. We successfully ran all versions of MYRaf on Fedora (18 and higher), Ubuntu (12.04 and higher) and some RPM-based/Debian-based GNU/Linux distributions. We have released three versions of MYRaf (v1.0, v1.5, v2.0) since the last quarter of 2012. MYRaf has been successfully used with data from the SI 1100 series CCD camera, which is attached to the 100 cm Ritchey-Chretien (T100) telescope located at the TÜBITAK National Observatory, and data from the 0.4 m Schmidt-Cassegrain telescope (Kreiken Telescope - T40) equipped with the Apogee ALTA U47+CCD camera, although all these versions were beta. MYRaf basically consists of eight tabs: "Calibration", "Align", "Photometry", "Graph", "Editor", "Scheduler", "Settings", and "Help". MYRaf v2.0 Beta and all other versions were developed with Apache Subversion. Therefore, MYRaf has a revision control system hosted on Google Code[7]. Google Code also has an issue tracking/reporting system, wiki documentation, and source code exploring on MYRaf Project's Google Code web page. Video tutorials can also be found at YouTube or the MYRaf Project home page[8]. We recognize some shortcomings of our text-based usage or user documentation in comparison with our video tutorials, issue reporting support, installation tutorials, and e-mail responses.

3.   Conclusion

The MYRaf Project is still an ongoing project. It is constantly being improved by authors based on user requests and feedback. An upcoming project will address the reduction of spectra as well. We believe that MYRaf will make the reduction procedure simple for many users, especially those afraid of IRAF, providing good quality reduction of data with uniform procedures.

References

Bertin,E., Arnouts, S. 1996, Astronomy and Astrophysics Supplement, 117, 393
Jeschke E. 2013, "Ginga: Flexible FITS viewer", Astrophysics Source Code Library, record
       ascl:1303.020

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[6]`https://www.gnu.org/copyleft/gpl.html`

[7]`https://code.google.com/p/myrafproject/`

[8]`http://myrafproject.org/`