



Open Source at Data Central

Data Central not only hosts services and data for researchers, but also produces Open Source software and libraries to reduce the burden on astronomers, and contributes to the wider Open Source ecosystem. Here's some of them:

eso-downloader

eso-downloader is a Python package which wraps the ESO Data Archive Virtual Observatory interfaces to enable rapid downloads of both archival and proprietary data. The package provides both a CLI for scripting and one-off jobs, as well as a framework for integration as part of a wider software suite, or to enable more bespoke filtering of downloads. It can automatically skip over existing files, handles multiple proposals, and can download your latest proprietary data via the use of access tokens.

eso-downloader is available on PyPI (i.e. installable via pip), and is maintained on the AAO GitLab instance. It was developed under the ADACS Merit Allocation Scheme (2023A round) for the MAUVE and GECKOS teams with Amelia Fraser-McKelvie being the proposal lead.

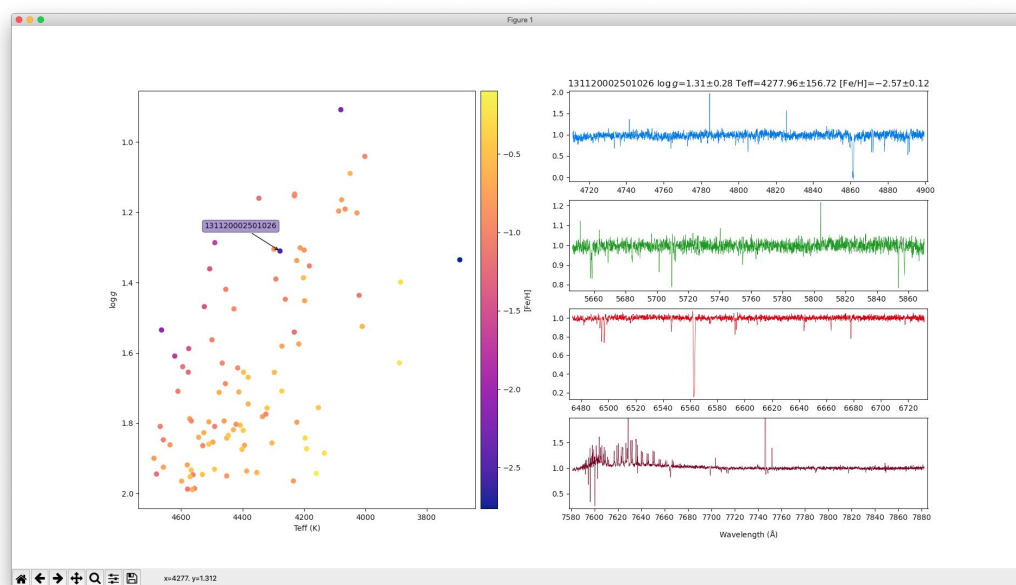
Other Projects

Data Central provides numerous scripts, demo applications and example notebooks, such as the interactive GALAH spectra browser below, for working with Virtual Observatory services on both the Data Central Docs site and the AAO GitLab. Data Central, and RDS more broadly, also produce other Open Source projects discoverable on the AAO GitLab, and our contributions to other projects are visible across GitHub and other external software forges.



eso-downloader

specutils



Example Application for browsing GALAH spectra

specutils

specutils is an astropy-coordinated package for reading, writing and analysing astronomical spectra. Data Central is a significant contributor to the project, producing over one third of the readers contained within the package. These readers are for the numerous surveys and archives that Data Central hosts, and avoid the need to write and rewrite bespoke readers when interacting with spectra.

specutils is available on PyPI and conda-forge, and we encourage any astronomer working with spectra in Python to see if their workflow can be simplified via the use of *specutils*.

django-q3c

django-q3c is python package to add support for the *q3c* PostgreSQL extension to the *django* ORM. This allows for spherical indexing for faster queries, and avoids the need for manual SQL usage (thereby increasing security by avoiding SQL injection attacks).

django-q3c is available on PyPI, and is maintained on the AAO GitLab instance. It was developed as part of the ADACS Merit Allocation Scheme (2021B round) for the SMART Pulsar team with Ramesh Bhat being the proposal lead.



django-q3c

VO examples



Additional
Content

Notebooks



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