Preliminary Data Access Center : Tests February 2017

Krzysztof Suberlak, [1]⋆ Željko Ivezić, [1] and the PDAC team

[1]*Department of Astronomy, University of Washington, Seattle, WA, United States*

ABSTRACT

A report of progress made in testing the Preliminary Data Access Center user interface, infrastructure, and database ingestion. We list conducted tests commenting on the outcomes. This will help direct focus of the PDAC development to make it user-friendly and efficient.

INTRODUCTION

Data content

PDAC contains NCSA-hosted Summer 2013 DM-stack reprocessed SDSS Stripe 82 data (called 'LSST Data' in the online portal). PDAC also allows access to IPAC-stored datasets (GAIA, WISE, etc.).

Data access

PDAC allows user-interface and SQL queries of various tables. Currently positional query is the available type of query. It allows selecting a region of the sky and requesting the objects located within that region. The region can be shaped as a cone, ellipse, rectangular box, or a polygon.

Performed tests

• General navigation of the main 'Search Catalogs' interface. Possible selection of Catalogs (Deep Source, Deep Forced Source), or Images (Deep Coadd, Science CCD Exposure). Positional query against Catalogs requires entering 'Name or Position'. Degrees are resolved into h:m:s and vice-versa. However, examples suggested underneath the âĂŸName or PositionâĂŹ dialog box include objects that are not present in the available dataset. It would be good to provide examples of names and coordinates of objects that are actually present in the chosen dataset. 'Method Search' has 6 options (Cone,Elliptical, Box, Polygon, Multi-Object, All Sky), of which only 4 are working - Multi-Object search (positional 1-to1 match against a list of coordinates and search radii) and All Sky search are not operational.

• When conducting a positional search, the miniature image showing the query region on the sky is not always centered, nor shows the actual region (as compared to SDSS DR13 SkyServer, and CDS Aladin). The problem persists when using the browser 'back' navigation button to change the query region, instead of reloading the entire PDAC user interface. When increasing the search radius, beyond 1000 arcsec the image does not resemble the SDSS region at all, but is more similar to WISE image of a different sky region.

• Comparing data for particular objects - querying positionally against 483 RR Lyrae from Sesar et al. (2010). Direct calibrated magnitudes are not available. For each object, it is necessary to first query the `RunDeepForcedSource` to find which objectIds are detected within a search radius, and for these objectIds download lightcurves. Queries were conducted by a python script that transfers curl subprocesses to the terminal of a user laptop, communicating with the PDAC database at http://lsst-qserv-dax01.ncsa.illinois.edu:5000/db/v0/tap/sync To convert raw fluxes to magnitudes one needs to query `Science_Ccd_Exposure` table. Of 483 stars, only 343 stars are present in the PDAC S82 dataset. Those with RA < 320 or RA > 55 degrees are not present in the dataset. Those that are present have been folded on the period reported by Sesar et al. (2010) and can be confirmed to be RR Lyrae. The lightcurves are not bitwise-identical due to the fact that Sesar et al. (2010) used the SDSS DR2 data, whereas PDAC stores reprocessed S82 data from Summer 2013.

REFERENCES

Sesar, B., et al. 2010, ApJ, 708, 717

This paper has been typeset from a TEX/LATEX file prepared by the author.