

WEB-BASED OBSERVATION SUPPORTING ARCHIVE OF 2M ONDŘEJOV TELESCOPE

Lenka Kotková, Petr Škoda

Astronomical Institute of the Academy of Sciences of the Czech Republic, v.v.i.
Fričova 298, Ondřejov, CZ-251 65

ABSTRACT

We present a PHP-based database of stellar spectra obtained with coude spectrographs of Ondřejov observatory 2m telescope. It is an integrated system serving as a observation preparation tool, quick-look pipeline, pre-reduction quality checker and the interactive archive for finally reduced and calibrated spectra.

Key words: Spectra, Data Archives, Virtual Observatory.

1. INTRODUCTION

Ondřejov 2m telescope is the Czech main astronomical facility used mainly for high resolution spectroscopy in coude spectrograph (see Škoda et al. (2001) and Šlechta & Škoda (2002)). Its scientific team consists of astronomers with various professional aims, collaborating on long-term observations of a wide range of targets (mostly Be and B[e] stars) mostly accomplished in service mode on behalf of other team members and worldwide collaborators. In 2003 simple web-based database of this targets has been developed to provide observers with an overview of objects suitable for current observation. Later reduced spectra from this telescope have been linked with the stars to show what was actually observed. Finally, also raw data viewer and scanned pages of observation logbook have been included into this system. Web database links relations among all coherent information, offers variety of searches and tests. Web-based archives with similar features have been developed at the Astronomical Institute also for observations of variable star light curves and fireball observations. All systems are running on Linux servers, use Mysql database controlled by PHP scripts, PNG images are generated by GD libraries.

2. STELLAR POSITION ON THE SKY

Coordinates of an object enable to draw the field of view of camera finder (GSC stars) and altitude diagram. Individual stars of interest can be gathered to groups by observers to create observational schedule. Altitude overview is provided for all the stars together. This tool helps observers to decide in real time about the most suitable target at the current time or at any given time during night.

3. RAW DATA

Newly saved raw images can be displayed by the web interface in a few tens of seconds, after files were automatically copied to directory controlled by the web system. List of all images shows brief file description. Simple viewer (Figure 1) shows spatial profile of the spectrum (the number of lines selected depends on their average intensity above given threshold), average spectrum computed from automatically selected lines, spectrum image and short description. Data supervisor sorts raw images into observational night directories, adds observer names (those names in file headers are not always correct) and after thorough check of each image (including calibration ones) object files are linked with stars in database. For the cases of doubts, scanned pages of observation logbook are available later to judge the situation.

4. REDUCED DATA

Spectra reduced externally in IRAF (see Škoda & Šlechta (2002)) are uploaded to the given directory of the web server and after the quick update of header database the links establishing the relation to raw object image, calibration images, observer names, logbook pages and to the database of objects are created. Telescope coordinates from the image header can be compared with those in target database. List of observed spectra is supplied with the phase diagram, if periodicity is given. Review

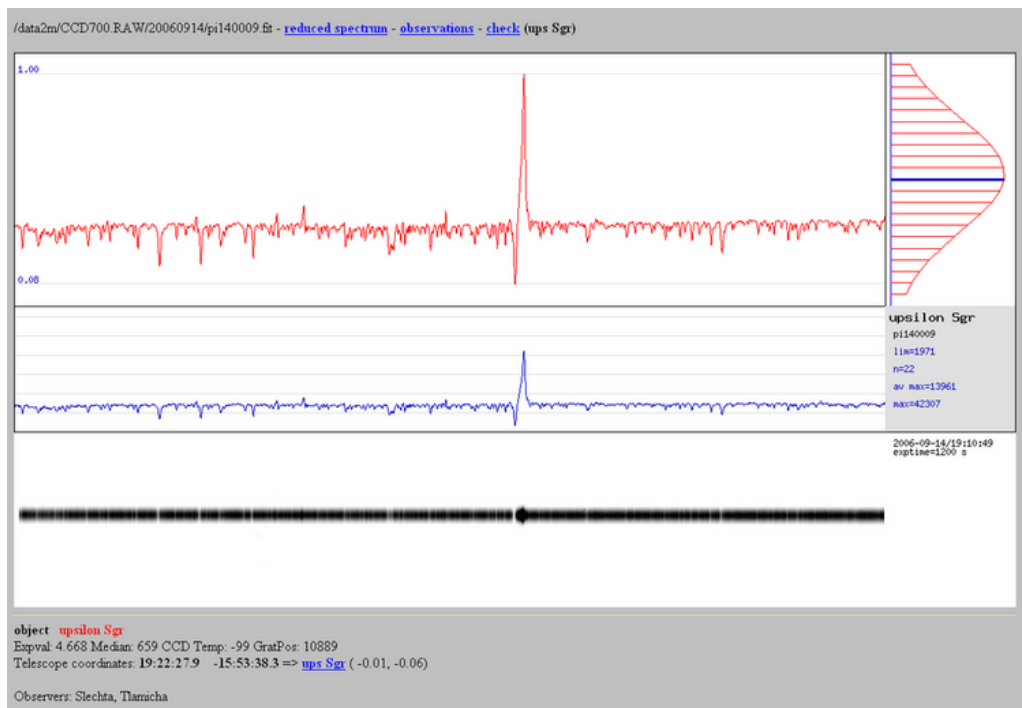


Figure 1. Raw data viewer.

table (in ASCII) of observed spectra and their parameters can be used also as an input file for further processing by external programs.

5. SEARCHES

Various searches by object name or spectrograph configuration are possible for both raw images (including calibration images) and reduced spectra. Also results of error checks, like telescope versus database coordinates or spectrograph configuration problems, can be displayed.

CONCLUSIONS

This complex tool helps observers at 2m telescope in Ondřejov to decide effectively on targets most suitable for the current exposure, taking into account both observing conditions (seeing, elevation, extinction) and physical parameters (e.g. interesting orbital phase, strength of emission, period coverage). It allows the pre-reduction checks of quality of raw frames of both calibrations and target (e.g. SNR, contamination by cosmoics or strength of skylines) and after final reduction of data it serves as a full-fledged archive of spectra. Besides its primary goal the system is also foreseen as the test-base for the future development of VO compliant spectra archive.

ACKNOWLEDGMENTS

This work has been supported by grant GACR 205/06/0584. The Astronomical Institute Ondřejov is supported by project AV0Z10030501

REFERENCES

- Škoda P., Honsa J., Šlechta M., 2001, in Astronomical Data Analysis Software and Systems X, eds. Harnden Jr. F. R., Primini F., and Payne H. E., ASP Conf. Series, 238, 423
- Šlechta M., & Škoda P., 2002, Publ. Astron.Inst. ASCR, 90, 1
- Škoda P., & Šlechta M., 2002, Publ. Astron. Inst. ASCR, 90, 22