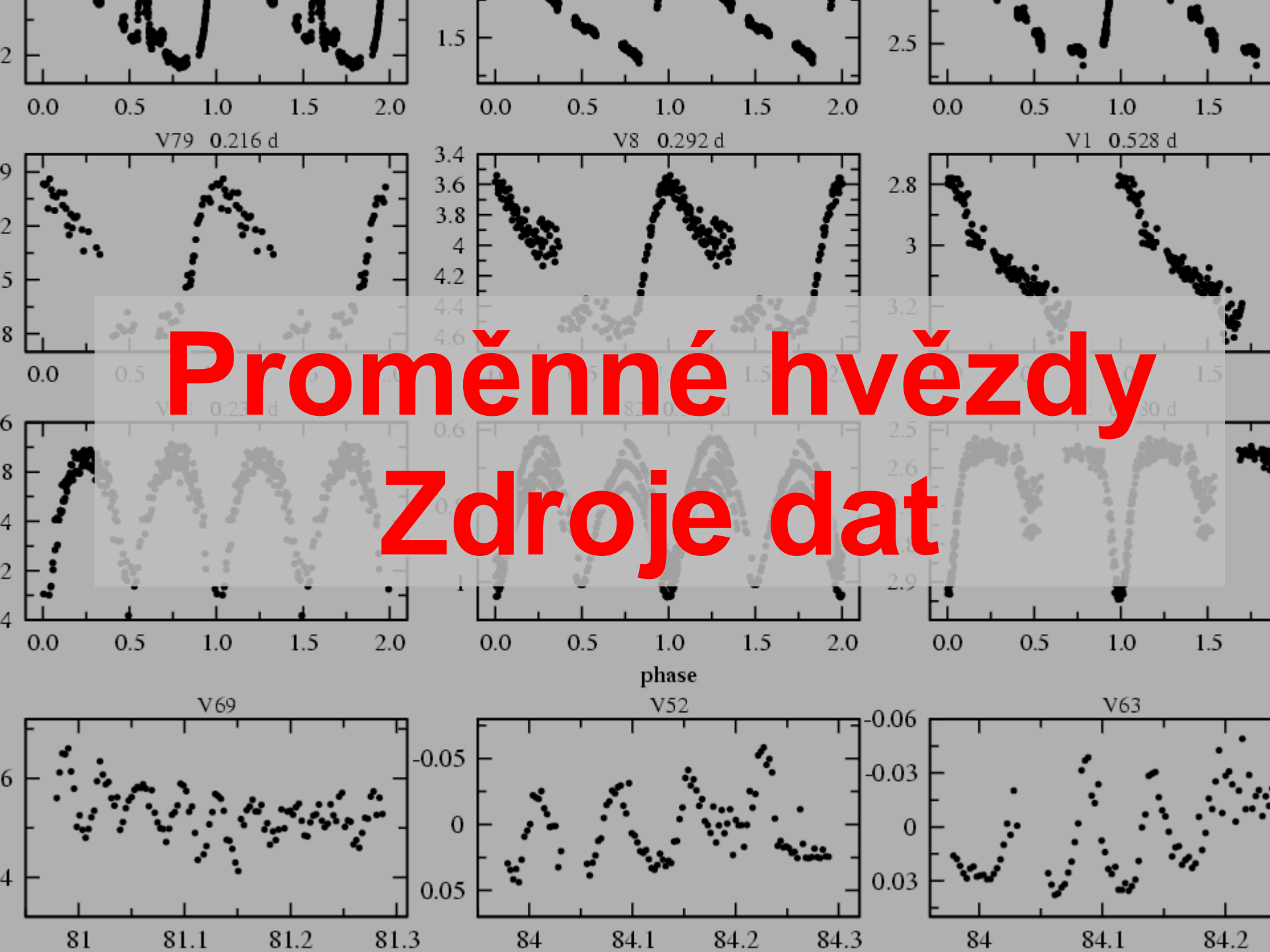


Proměnné hvězdy

Zdroje dat



Astronomie – věda založená na datech a jejich analýze

Zdroje dat:

- ❖ vlastní pozorování (fotometrická, spektroskopická, interferometrická, polarimetrická aj.) – pozorovatelů (alespoň těch profesionálních) ubývá
důvody – pohodlnost, robotické dalekohledy, přehlídky
- ❖ data z publikací, literatury
- ❖ archívy přehlídkových projektů – minulých i aktivních

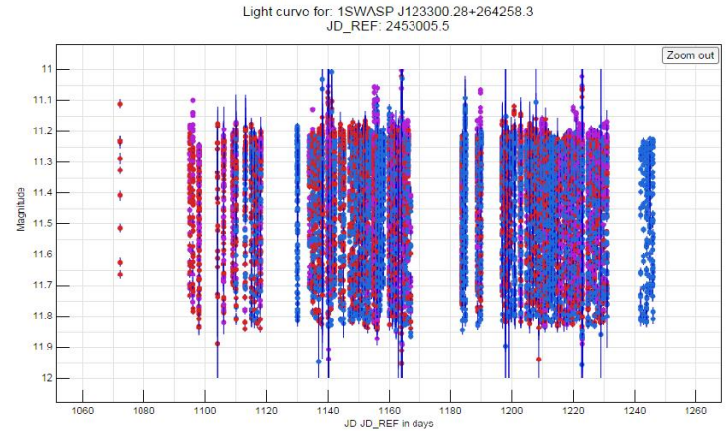
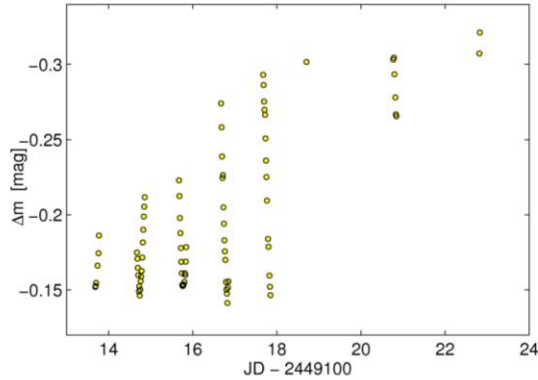
= > astronom musí umět:

1. hledat data v literatuře a archívech
2. získaná data korektně zpracovat!
(AI nedá odkazy, nástroje VO ve vývoji)



Předmět našeho studia – změny jasnosti proměnných hvězd (světelné křivky)
u periodicky proměnných – světelnou křivku nahrazuje fázová křivka

Světelná křivka - závislost hvězdné velikosti/jasnosti/toku na čase (JD)



Fázová křivka (pouze pro periodicky proměnné) - závislost hvězdné velikosti na fázi

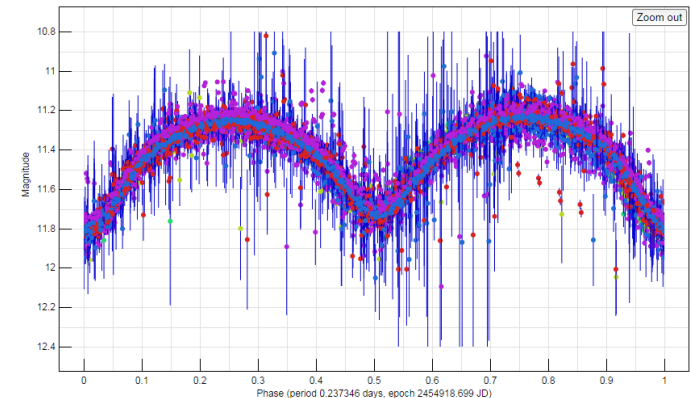
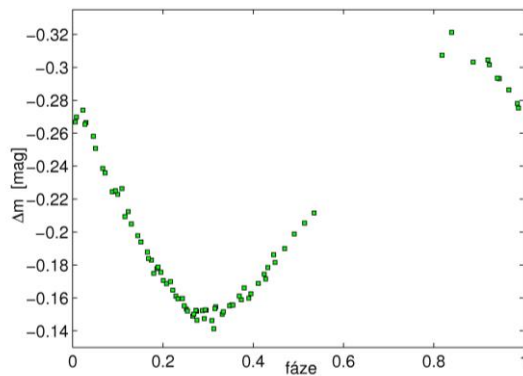
základní okamžik M_0 , perioda P

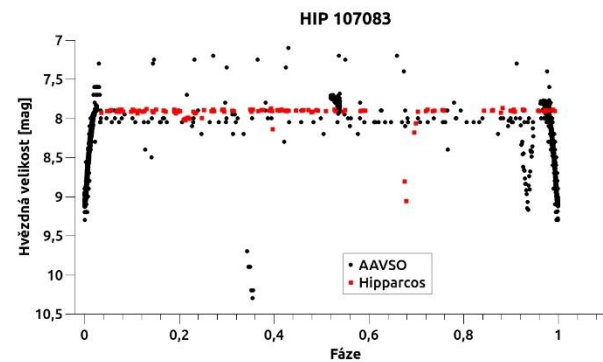
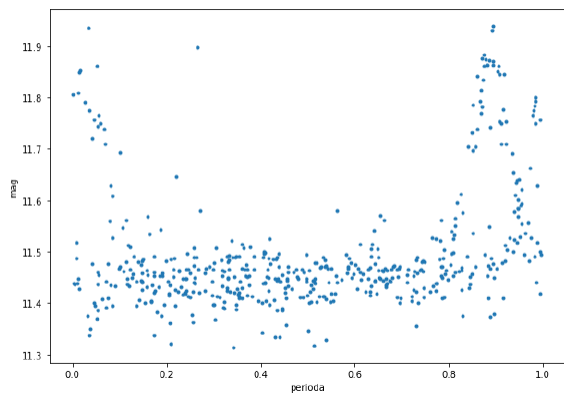
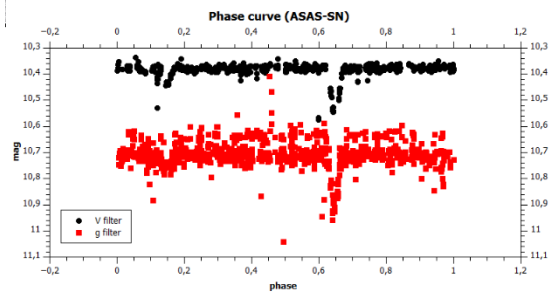
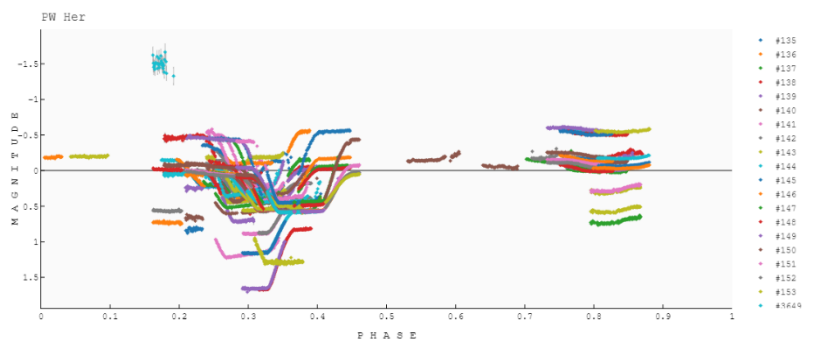
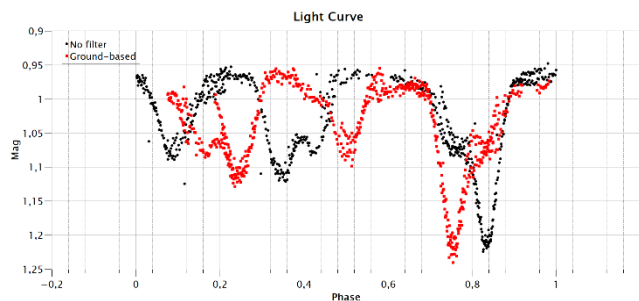
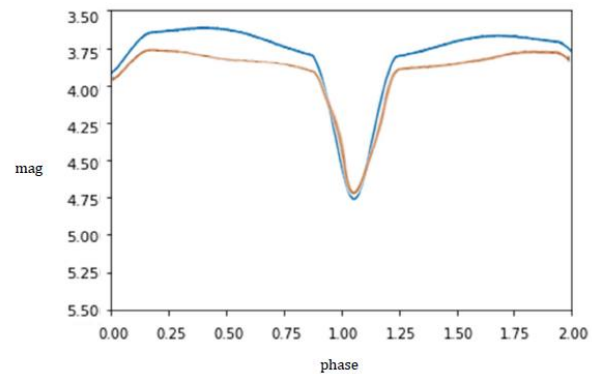
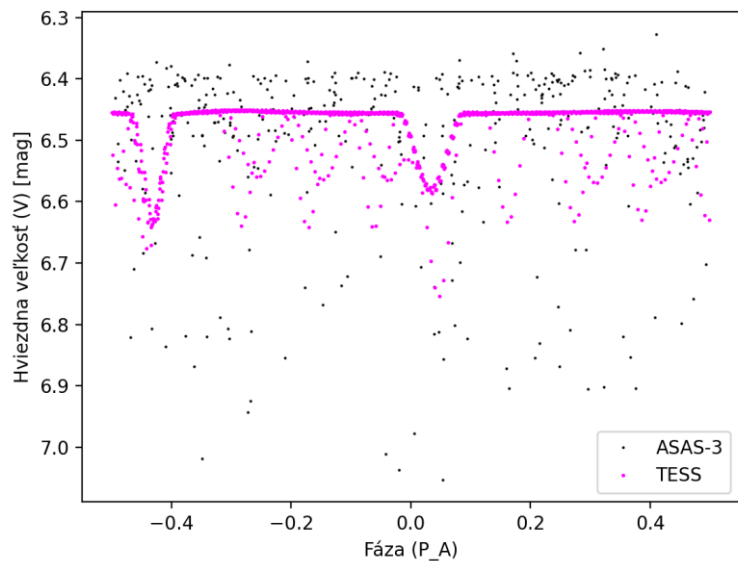
počet period/cyklů od M_0 – epocha E

fáze f , φ – časové určení okamžiku t v daném cyklu $\varphi = \text{frac} \frac{t - M_0}{P}$

Fázová funkce $\vartheta = E + \varphi$,

kde $\varphi = \text{frac} \vartheta$ a $E = \text{floor} \vartheta$





Data z literatury, publikací

zdroje:

- ADS

<https://ui.adsabs.harvard.edu/>

- SIMBAD

<http://simbad.u-strasbg.fr/simbad/>

- WoS

<http://apps.webofknowledge.com/>

- CDS

<https://cds.u-strasbg.fr/> aj.

poznámky:

1. starší a azbukou psané články nemusí být dostupné v elektronické podobě!
2. čtěte pozorně - zvyklosti, jak uvádět časy, hvězdné velikosti, chyby, fotometrické filtry aj. se s časem mění!
3. zkontrolujte, zda byla aplikována heliocentrická (event. jiná) korekce a pokud ano, jak byla spočtena!

Portal Simbad VizieR Aladin X-Match Other Help

RW Com

other query Identifier Coordinate Criteria Reference Basic Script Output Help
modes : query query query query query submission options

Object query : RW Com C.D.S. - SIMBAD4 rel 1.223 - 2014.10.03CEST15:13:54

Available data : [Basic data](#) • [Identifiers](#) • [Plot & images](#) • [Bibliography](#) • [Measurements](#) • [External archives](#) • [Notes](#) • [Annotations](#)

Basic data :
V* RW Com -- Eclipsing binary of W UMa type (contact binary) query around with radius 2 arcmin

Other object types: MU* () , PM* () , * (HIC,HIP,NSVS,TYC,Wolf) , V* (V*,AN,ROTSE1) , SB* (SBC9) , IR (2MASS) , X (RX)

ICRS coord. (ep=J2000) : 12 33 00.28388 +26 42 58.3782 (Optical) [30.80 18.35 0] A [2007A&A...474..653V](#)

FK5 coord. (ep=J2000 eq=2000) : 12 33 00.284 +26 42 58.38 (Optical) [30.80 18.35 0] A [2007A&A...474..653V](#)

FK4 coord. (ep=B1950 eq=1950) : 12 30 31.67 +26 59 32.7 (Optical) [178.18 106.10 0] A [2007A&A...474..653V](#)

Gal coord. (ep=J2000) : 217.6116 +85.8708 (Optical) [30.80 18.35 0] A [2007A&A...474..653V](#)

Proper motions *mas/yr* [error ellipse]: -127.00 -36.27 [3.51 2.09 0] A [2007A&A...474..653V](#)

Radial velocity / Redshift / cz : V(km/s) -53.00 [1.15] / z(~) -0.000177 [0.000004] / cz -53.00 [1.15] (~) B [2005MNRAS...357..497B](#)

Parallaxes *mas*: 11.71 [2.47] A [2007A&A...474..653V](#)

Spectral type: G8e D [1985AJ....90..109M](#)

Fluxes (5) : B 12.33 [0.22] D [2000A&A...355L..27H](#)
V 11.25 [0.09] D [2000A&A...355L..27H](#)
J 9.795 [0.028] C [2003yCat.2246....0C](#)
H 9.249 [0.034] C [2003yCat.2246....0C](#)
K 9.177 [0.020] C [2003yCat.2246....0C](#)

Interactive [AladinLite](#) view

Identifiers (11) :

| | | | |
|----------------------------|---|--|---------------------------------|
| V* RW Com | HIP 61243 | ROTSE1 J123300.30+264258.3 | TYC 1991-1724-1 |
| AN 33.1923 | 2MASS J12330028+2642582 | RX J123301.4+264255 | Wolf 423 |
| HIC 61243 | NSVS 7622769 | SBC9 728 | |

Plots and Images

References (123 between 1850 and 2014)
Simbad bibliographic survey began in 1950 for stars (at least bright stars) and in 1983 for all other objects (outside the solar system).

display
reference summary
from: 1850 to: \$currentYear
Sort reference summaries by : (not exhaustive, [explanation here](#))
Date Title|Abstract|Keyword In table



SIMBAD Astronomical Database

Queries

[basic search](#)

[by identifier](#)

[by coordinates](#)

[by criteria](#)

[reference query](#)

[scripts](#)

[TAP queries](#)

[options](#)

[Display all user annotations](#)

Documentation

[User's guide](#)

[Query by urls](#)

[Nomenclature Dictionary](#)

[Object types](#)

[List of journals](#)

[Measurement description](#)

[Spectral type coding](#)

[User annotations documentation](#)

Information

[Presentation](#)

[Acknowledgment](#)

Release:

SIMBAD4 1.223 - 15-May-2014

Content

The SIMBAD astronomical database provides basic data, cross-identifications, bibliography and measurements for astronomical objects outside the solar system.

SIMBAD can be queried by object name, coordinates and various criteria. Lists of objects and scripts can be submitted.

Links to some other on-line services are also provided.

Statistics

Simbad contains on 2014.11.30

7,711,243

objects

18,992,258

identifiers

298,023

bibliographic references

11,024,409

citations of objects in papers

Acknowledgment

If the Simbad database was helpful for your research work, the following acknowledgment would be appreciated:

This research has made use of the SIMBAD database, operated at CDS, Strasbourg, France

[2000.A&AS.143.9](#). "The SIMBAD astronomical database". Wenger et al.

Basic search

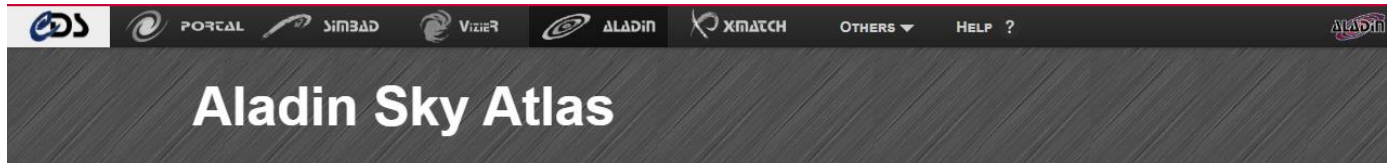
identifier, coordinates (radius=10 arcmin), or bibcode

[help](#)

[Install the Simbad basic search in your tool bar](#)

Aladin

<http://aladin.u-strasbg.fr/>



| |
|--------------------------------|
| Overview |
| Aladin Desktop |
| Aladin Lite |
| Information |
| → en français |

Overview

Aladin is an interactive sky atlas allowing the user to visualize digitized astronomical images or full surveys, superimpose entries from astronomical catalogues or databases, and interactively access related data and information from the *Simbad database*, the *VizieR service* and other archives for all known astronomical objects in the field.



Download
Aladin Desktop
on your machine



Preview with
Aladin Lite
in your browser



Install
ipyaladin
for Python notebooks

The *Aladin sky atlas* is available in two modes:

- *Aladin Desktop*, a regular Desktop application
- *Aladin Lite* a Javascript Web application.

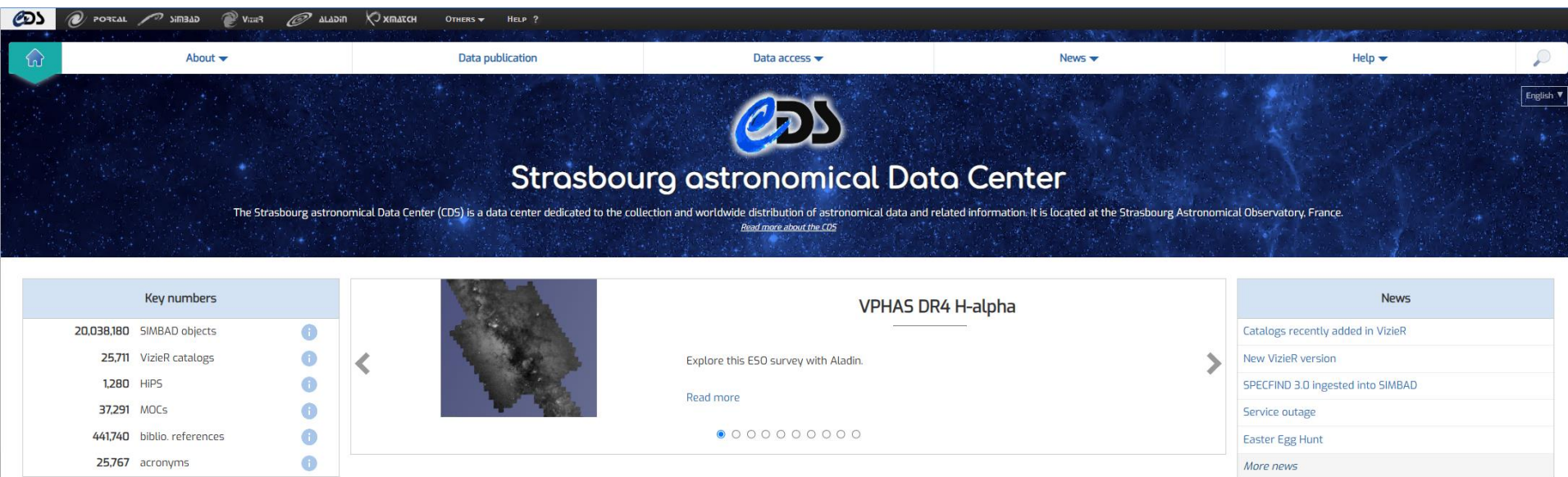
Aladin Desktop

Aladin Desktop is a widely-used java tool capable of addressing challenges such as locating data of interest, accessing and exploring distributed datasets, visualizing multi-wavelength data. Compliance with existing or emerging VO standards, interconnection with other visualisation or analysis tools, ability to easily compare heterogeneous data are key topics allowing Aladin to be a powerful data exploration and integration tool as well as a science enabler. *Aladin Desktop* is



CDS portal

<http://cdsportal.u-strasbg.fr/>



The screenshot shows the homepage of the Strasbourg astronomical Data Center (CDS). The header includes navigation links for About, Data publication, Data access, News, and Help. The main banner features the CDS logo and the text "Strasbourg astronomical Data Center". Below the banner, there is a section for "Key numbers" with a table of statistics, a featured article "VPHAS DR4 H-alpha" with an image and a "Read more" link, and a "News" section listing recent updates.

| Key numbers | |
|-------------|--------------------|
| 20,038,180 | SIMBAD objects |
| 25,711 | VizieR catalogs |
| 1,280 | HIP5 |
| 37,291 | MOCs |
| 441,740 | biblio. references |
| 25,767 | acronyms |

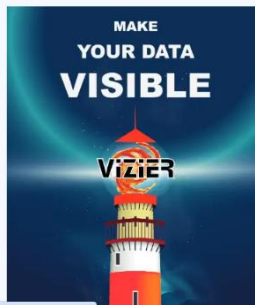
VPHAS DR4 H-alpha

Explore this ESO survey with Aladin.

[Read more](#)

News

- Catalogs recently added in VizieR
- New VizieR version
- SPECFIND 3.0 ingested into SIMBAD
- Service outage
- Easter Egg Hunt
- [More news](#)



Publishing data at CDS

The CDS strongly relies on data published in various astronomical and astrophysical journals to update databases like SIMBAD and VizieR.

Authors of these articles can help the CDS team to get and publish their data.

See the [Data publication page](#) to get some best practices and tools to help you.

Accessing CDS data

The CDS gives access to many astronomical data such as objects, catalogues, images and spectra.

Several services are available to search for and to get these data. Here are the main services:



IRSA (Infrared Processing and Analysis Center)



data z projektů NASA (IR a submm), družic a několik souborů dat



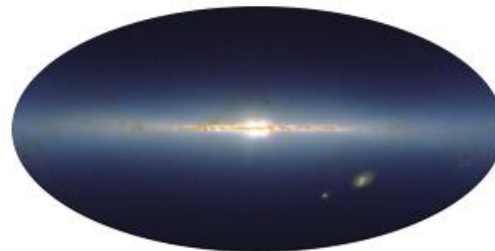
all-sky projekty v 20 oborech,
přes 20 miliard řádek dat v katalogu,
přes 18 milionů snímků,
přes 100 000 spekter

<http://irsa.ipac.caltech.edu/frontpage/>

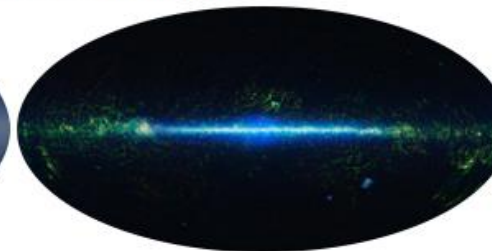
<http://www.ipac.caltech.edu/>



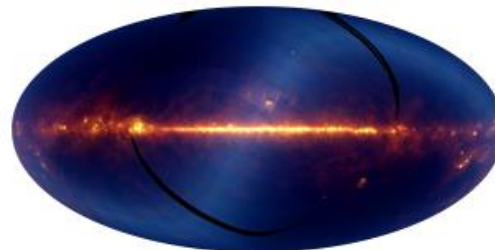
Spitzer: 3.6, 4.5, 5.8, 8, 24, 70, 160 microns



2MASS: J, H, K



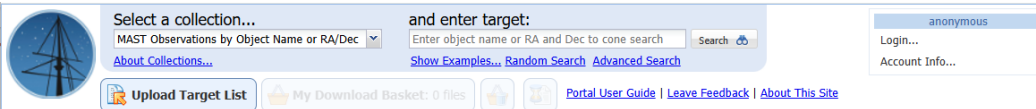
WISE: 3.4, 4.6, 12, 22 microns



IRAS: 12, 25, 60, 100 microns



Planck: 30-857 GHz



The navigation bar includes a logo on the left, a search section with a dropdown for 'Select a collection...', a search input field for 'and enter target:', and a search button. Below the search input are links for 'About Collections...', 'Show Examples...', 'Random Search', and 'Advanced Search'. On the right, there is a user profile box for 'anonymous' with 'Login...' and 'Account Info...' links. At the bottom of the bar are buttons for 'Upload Target List', 'My Download Basket: 0 files', and links for 'Portal User Guide', 'Leave Feedback', and 'About This Site'.

MAST: Barbara A. Mikulski Archive for Space Telescopes

The MAST Portal lets you search multiple collections of astronomical datasets all in one place. Use this tool to find astronomical data, publications, and images.

Note: This site uses cookies in order to monitor feature usage, track user preferences, and provide authentication for some services. By using this site you consent to the use of cookies for such purposes.

What's New

JWST Instrument metadata have changed. Now, the complete configuration is specified; for example, an Observation previously labeled "MIRI" might now be labeled "MIRI/IMAGE." This update brings JWST metadata in line with HST and allows for greater specificity in your search. See the [JWST Instrument Names](#) page for a full list of configurations.

Data from [FIMS-SPEAR](#), a joint Korean-US UV satellite, are now available in MAST. In addition to its invaluable spectral maps of the UV sky, FIMS-SPEAR has paved the way for us to ingest new cubesat, balloon, and small-rocket missions. Stay tuned as we add more of these missions to our collection!

You can now [access the PLATO MAST Catalog](#) using the API or catalog search form.

Data Retrieval Notes

- **MAST FTP:** Starting October 25 2021, the MAST FTP server archive.stsci.edu will no longer support unencrypted FTP connections. Only encrypted FTPS will be supported. Read more about this change and some related FAQ on the [MAST FTP Service page](#).
- **Auth.MAST Authentication:** New authentication mechanism for accessing exclusive access data via cURL or Astroquery. Please visit <https://auth.mast.stsci.edu> for authentication needs or view the [tutorial video](#).
- **Access MAST Programmatically:** with [Astroquery](#) or the [general API](#).

Release Notes

[MAST Portal software release notes](#).

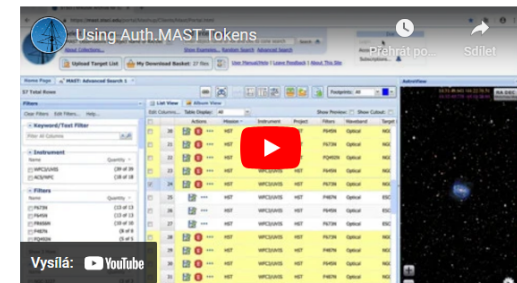
Upload Targets Quick Start:

1. Select a collection and enter a new search target OR upload an existing list of targets.
2. Use the filters and analysis tools to find the exact data for which you're looking.
3. Add files to the download basket to control your download options.

Currently available data collections:

- MAST Observations: Millions of observations from JWST, Hubble, Kepler, GALEX, IUE, FUSE, and more.
- Virtual Observatory: Search thousands of astronomical data archives from around the world for images, spectra, and catalogs.
- Hubble Source Catalog: A master catalog with a hundred million measurements of objects in Hubble images.
- MAST Catalogs: Access to catalog data such as Gaia and TESS Input Catalog, with more coming soon.

Featured tutorial: Using Auth.MAST, MAST's authorization token system.





See all video tutorials on the [MAST YouTube channel](#).

AAVSO

<https://www.aavso.org/vsx/>

AAVSO Home

 The International Variable Star Index  [Search](#) [Submit](#) [Register](#) [Log In](#) [Account](#) [About](#)

Current Time: 30 Nov 2014 21:37:10 UTC Welcome, Guest. You are not logged in.
[» Log in](#)

Search VSX ?

Special searches [» Go](#)

Select a Special search above, or enter information in the fields below, then click **Search**.

? **Name**
Examples: SS Cyg, V456 Sgr, NSV 1009
%And, ASAS %+%, Mis V%
Search by AUID also available

[» Capture coordinates for object to Position field](#)

Const.
Filters search results by boundaries of selected constellation

? **Include** **V** Variables **S** Suspects
 N Non-variables

? **Order by** Descending

Click **More** for coordinate-based searches.

[» Guidelines](#) [» Variability Types](#) [» Passbands](#) [» Copyright](#) [» Acknowledgments](#) [» Privacy](#) [» Contact](#)



The International Variable Star Index

Now cataloging **2,279,478** variable stars



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[VizieR](#)

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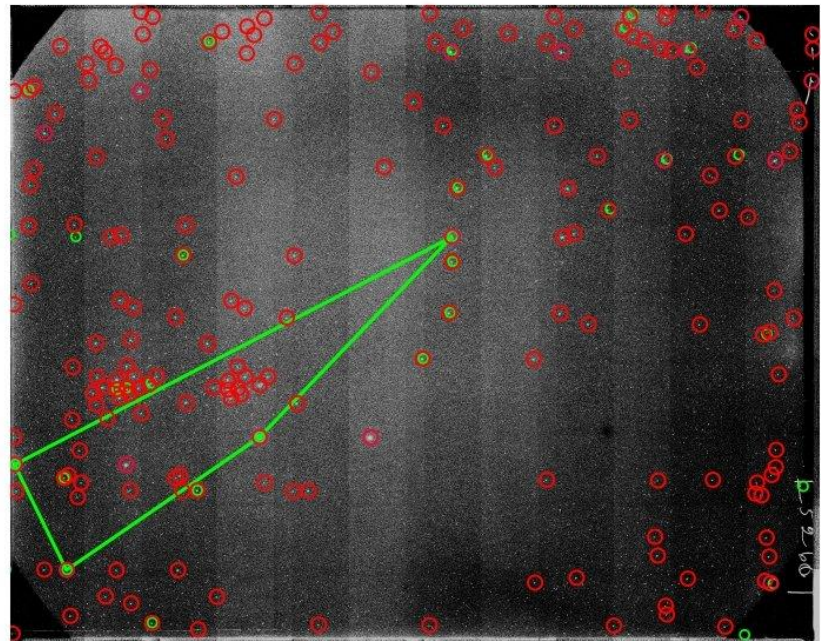
©AAVSO

Přehlídkové projekty:

historické – fotografické

- National Geographic Society
 - Palomar Observatory Sky Survey (NGS-POSS)
- Harvard Plate collection
- Moskva
- Pulkovo
- Sonneberg
- Asiago

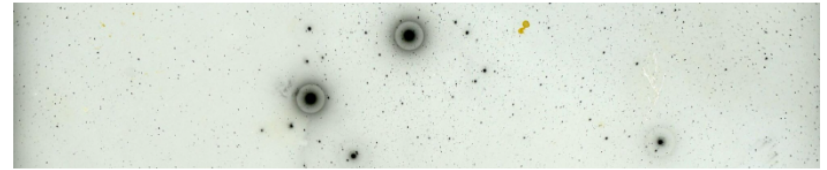
dnes – proces převodu do digitální podoby, např. project DASCH



DASCH: Digital Access to a Sky Century @ Harvard

A New Look at the Temporal Universe

Home “DRnext” Overview DR6 Overview Search/Download Data Sitemap



DASCH is the project to digitize the [Harvard College Observatory's Astronomical Photographic Glass Plate Collection](#) for scientific applications. This irreplaceable resource provides a means for systematic study of the sky on 100-year time scales.

This website provides technical information for scientific users of the DASCH data. You might wish to:

[Search Plates on StarGlass](#)

[Search Plates on Cannon \(Traditional\)](#)

[Search Lightcurves](#)

[Learn about the data](#)

If you use DASCH for science, you are strongly encouraged to sign up for the [DASCH Astrophysics email list](#), the preferred venue for announcements and discussions relating to DASCH:

Name

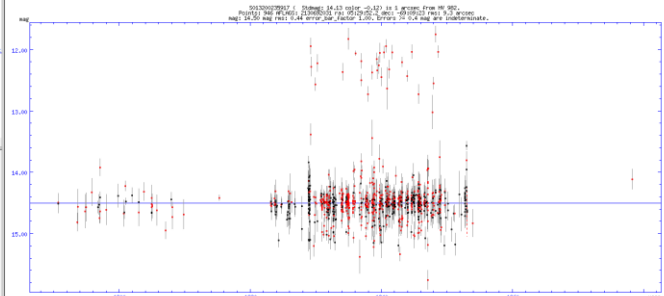
Email Address

For anything to do with the Harvard plates *besides* using the DASCH data for astrophysical research, visit [the Plate Stacks website](#).

2024 September 9: The spatial restrictions on DASCH data access through the traditional “[Cannon](#)” [data access portal](#) have been lifted. Using this portal you can now access lightcurves and postage stamps for all regions of the sky, not just ones with $b > 0$. Note that it has been possible to access data for the whole sky for some time through the [daschlab](#) Python analysis framework.

2024 March 28: After eighteen years, 470,000 scans, about half a petabyte of data, 15

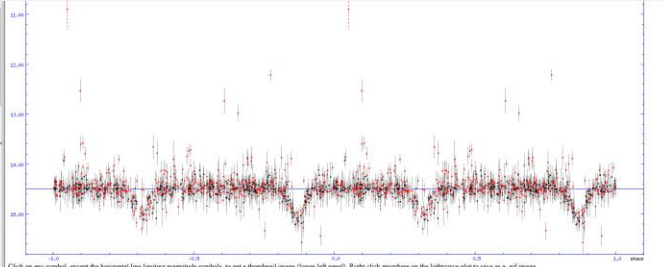
DASCH (apass) Catalog Query Results (5")
 RA: 05:29:52.3 Dec: -69:09:22 approx. plates: 2834
 source: auto select mag: 14 (conservative [low]) [object type] @ access
 1 1207 1663 14-15 283200025517



Drag mouse across plot to magnify region, or click on any symbol, except the horizontal line limiting magnitude symbols, to get a thumbnail image (lower left panel). Right click anywhere on the lightcurve plot to save as a gif image.
[Show Lightcurve Summary Data \(Plotted points only\)](#)
[Download Data in tab-delimited or VOTable format](#)
[Get Tutorial of Extracted FITS Images](#)
[Reset plot to original size](#)

Black points have no quality flags set, but note that these flags have varying probabilities of false positive and false negatives. Red points have one or more issues. Error bars greater than +/- 0.4 mag are truncated to this magnitude and shown as dashed. Stars too bright are shown as blue up arrows and limiting magnitudes are shown as horizontal bars. Undetected images are shown as down arrows at the average limiting magnitudes of a square degree region. Buttons below control the display of red points, a button with bold type means that the point is plotted. A 'Show' button click may need to be followed by the above 'Reset plot to original size' to display all of the affected points.
[Show: Unflagged points](#) | [Show: All points](#) | [Show: Default points](#)
[Show: Limiting Magnitudes](#) | [Show: Undetected](#) | [Hide: High astrometric error](#) | [Hide: Flare Defeat](#)
[Show: High BACKGROUND](#) | [Hide: Uncertain date for extinction calculation](#) | [Show: Maximum logarithmic rms exceeded](#) | [Show: Maximum locally smoothed rms exceeded](#)
[Show: Within 0.5 magnitude of the limiting magnitude](#) | [Hide: In spatial bin 5](#) | [Hide: Bin has high or unknown astrometric error](#) | [Hide: Blend of multiple catalog stars](#)
[Hide: Multiple images for one catalog star](#) | [Hide: Complex blend](#) | [Show: Pickering \(single image\)](#) | [Hide: Stenacker blend](#) | [Hide: Excessive smoothing correction](#) | [Hide: Within 21.5 degrees of horizon](#)
[Hide: Multiple Exposure Plates](#) | [Hide: Grating Plates](#) | [Hide: Yellow or Red Plates](#) | [Hide: Non-Blue ColorTerm Spatial Bin](#) | [Hide: Pickering Wedge Plates](#) | [Hide: Saturated Images](#)
[Hide: Not Magnitude-dependent Corrected](#) | [Hide: Wide-Field Panel Telescopes](#) | [Hide: Narrow-Field Telescopes](#) | [Hide: Trained](#) | [Hide: a series](#) | [Hide: am series](#) | [Hide: b series](#) | [Hide: db series](#)
[Hide: dr series](#) | [Hide: drw series](#) | [Hide: drw series](#) | [Hide: drw series](#)

DASCH (apass) Catalog Query Results (20")
 RA: 05:29:52.3 Dec: -69:09:22 approx. plates: 2834
 source: auto select mag: 14 (conservative [low]) [object type] @ access (dataset)
 1 1207 1663 14-15 283200025517
 2 1 14.79 283200025517
 3 1 14.79 283200025517
 4 1 14.79 283200025517
 5 1 14.79 283200025517
 6 1 14.79 283200025517
 7 1 14.79 283200025517
 8 1 14.79 283200025517
 9 1 14.79 283200025517
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 16 1 14.79 283200025517
 17 1 14.79 283200025517
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 19 1 14.79 283200025517
 20 1 14.79 283200025517



Click on any symbol, except the horizontal line limiting magnitude symbols, to get a thumbnail image (lower left panel). Right click anywhere on the lightcurve plot to save as a gif image.
 Note: before using the DASCH lightcurves, familiarize yourself with the [Known Stars](#) that affect the data.
[Show Lightcurve Summary Data \(Plotted points only\)](#)
[Show Lightcurve Summary Data \(All points\)](#)
[Download Data in tab-delimited or VOTable format](#)
[Get Tutorial of Extracted FITS Images](#)
[Reset plot to original size](#)

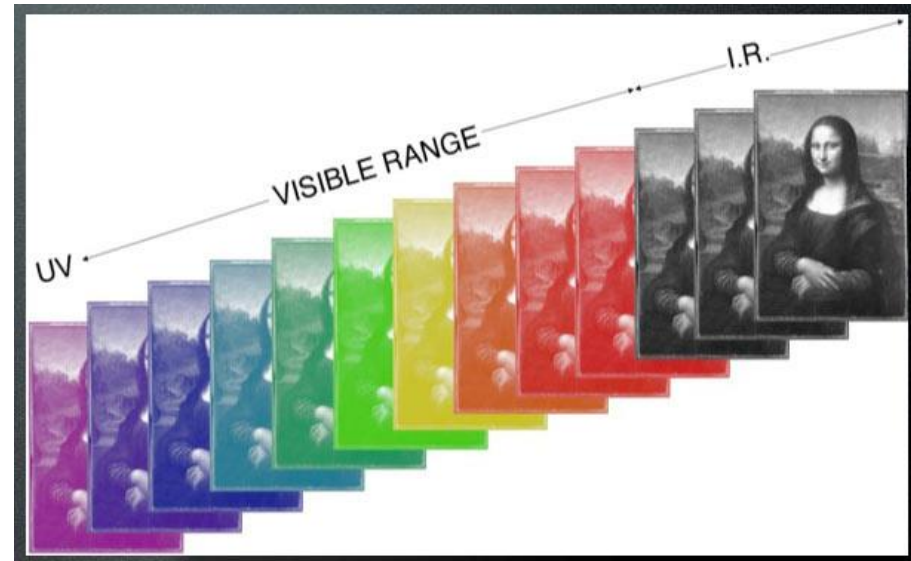
Black points have no quality flags set, but note that these flags have varying probabilities of false positive and false negatives. Red points have one or more issues. Error bars greater than +/- 0.4 mag are truncated to this magnitude and shown as dashed. Stars too bright are shown as blue up arrows and limiting magnitudes are shown as horizontal bars. Undetected images are shown as down arrows at the average limiting magnitudes of a square degree region. Buttons below control the display of red points, a button with bold type means that the point is plotted. Parentheses to some buttons indicate ALL/ALLG for numbers. A new button procedure is necessary because the web platform must also support detailed examination of events in a limited date range of the plot. A 'Show' button click may need to be followed by the above 'Reset plot to original size' to display the entire lightcurve.
[Show: Unflagged points](#) | [Show: All points](#)
[Show: Limiting Magnitudes](#) | [Show: Undetected](#) | [Hide: High astrometric error \(21\)](#) | [Hide: Flare Defeat \(25\)](#)
[Show: High BACKGROUND \(12\)](#) | [Hide: Uncertain time for extinction calculation \(18\)](#) | [Hide: Multiple exposures blend \(18\)](#) | [Show: Maximum logarithmic rms exceeded \(11\)](#) | [Show: Maximum locally smoothed rms exceeded \(12\)](#)
[Show: Within 0.5 magnitude of the limiting magnitude \(13\)](#) | [Hide: In spatial bin 5 \(14\)](#) | [Show: Bin has high or unknown astrometric error \(16\)](#) | [Hide: Blend of multiple catalog stars \(20\)](#) | [Hide: Multiple images for one catalog star \(20\)](#)
[Hide: Complex blend \(22\)](#) | [Show: Pickering \(single image\) \(23\)](#) | [Hide: Stenacker blend \(26\)](#) | [Hide: Excessive smoothing correction \(26\)](#) | [Hide: Within 21.5 degrees of horizon \(20\)](#) | [Hide: Multiple Exposure Plates](#)
[Hide: Grating Plates](#) | [Hide: Yellow or Red Plates](#) | [Hide: Non-Blue ColorTerm Spatial Bin](#) | [Show: Pickering Wedge Plates](#) | [Show: Saturated Images](#) | [Hide: Saturated Images](#) | [Hide: Not Magnitude-dependent Corrected](#)
[Hide: Wide-Field Panel Telescopes](#) | [Hide: Narrow-Field Telescopes](#) | [Hide: Trained](#) | [Hide: a series](#) | [Hide: am series](#) | [Hide: b series](#) | [Hide: db series](#) | [Hide: dr series](#) | [Hide: drw series](#)
[Hide: dr series](#) | [Hide: drw series](#) | [Hide: drw series](#) | [Hide: drw series](#)

<http://dasch.rc.fas.harvard.edu/>

Současné přehlídkové projekty

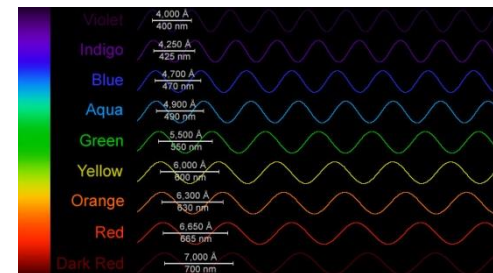
Rozdělení podle sledované části spektra

- Optické
- Infračervené
- Rádiové
- Gama
- Multispektrální



Rozdělení podle umístění přístrojů

- Pozemské
- Družicové
- Atmosférické (letadla, balóny)
- Měsíční



Náš zájem – zejména fotometrická data z dostupných zdrojů!

Družicové fotometrické přehlídky

- Hipparcos – celá hvězdná obloha, obor H_p , + podpora Tycho katalog (B, V)
<https://www.cosmos.esa.int/web/hipparcos>
 - OMC Integral – celá hv. obloha, obor V <https://sdc.cab.inta-csic.es/omc/index.jsp>
 - MOST -dlouhodobé sledování pečlivě vybraných objektů (hvězdy slunečního typu, podtrpaslíci, roAp, WR hvězdy, soustavy s exoplanetami)
 - COROT - FOV 2.7° by 3.05° , 2 pole (Ser, Mon) <http://idoc-corot.ias.u-psud.fr/>
 - KEPLER – pole Cyg-Lyr, mise K2
(https://www.nasa.gov/mission_pages/kepler/main/index.html)
 - Chandra - rtg. satelit, 827 prom. hvězd <http://cxc.harvard.edu/vguide/index.php>
 - GAIA - <http://sci.esa.int/science-e/www/area/index.cfm?fareaid=26>
 - BRITe – Kanada, Polsko, Rakousko – sada nanosatelitů
<http://www.brite-constellation.at/>
 - WISE (Wide-field Infrared Survey Explorer) - <http://wise.ssl.berkeley.edu/>
 - TESS (Transiting Exoplanet Survey Satellite) - <https://tess.gsfc.nasa.gov/>
 - HST – Hubble Catalogue of Variables <https://archive.stsci.edu/hlsp/hcv>
- a další



Not logged in

Log in

Object ID:

Odeslat

Reset

Examples: IOMC 2677000065, IOMC 26770000%, V1011 Cyg

Object list:



Object type:

[Blue object] Blue object
[Composite object] Association of Stars
[Composite object] Cataclysmic Var. AM Her type
[Composite object] Cataclysmic Var. DQ Her type
[Composite object] Cataclysmic Variable Star
[Composite object] Cluster of Galaxies

File:

Vybrat soubor

Soubor nevybrán

Magnitude range:

 < V <

Position:

R.A.:

Dec:

Radius (arcmin):

Date:

From:

To:

Time binning:

10 minutes

Centroid method:

Brightest pixel

Source coordinates

Target type:

Scientific

Num. points: Only light curves with points or more.

Avoid scientific targets with NULL priority:

expoziční časy jsou řádově minuty, každý snímek má jiný; uvádí se jen začátek expozice

Output format

HTML

Sort output by

Number of results per page

50

Page to show

1

Pozemské fotometrické přehlídky

- ASAS - <http://www.astrouw.edu.pl/asas/>
- OGLE - <http://ogle.astrouw.edu.pl/>
- MACHO – <http://wwwmacho.anu.edu.au/Data/MachoData.html>
- EROS - <http://eros.in2p3.fr/>
- ROTSE (NSVS) - <http://www.rotse.net/>
- SuperWASP - <http://wasp.cerit-sc.cz/form>
- APASS - <http://www.aavso.org/apass>
- SDSS - <http://www.sdss3.org>
- Catalina (CRTS) - <http://crtsc.caltech.edu/>
- 2MASS - <http://www.ipac.caltech.edu/2mass/>
- LINEAR – (<https://astroweb.lanl.gov/lineardb/>)???, (<https://ll.mit.edu/mission/space/linear/>)???
- Stardial - <http://stardial.astro.illinois.edu/>
- HATNet - <http://www.hatnet.org/> ???
- Pi of the sky - <http://grb.fuw.edu.pl/>
- MASCARA - <http://mascara1.strw.leidenuniv.nl/> ???
- Pan-STARRS – <https://archive.stsci.edu/panstarrs/>
- ASAS-SN - <http://www.astronomy.ohio-state.edu/~assassin/index.shtml>
- Evryscope - <http://evryscope.astro.unc.edu/>
- ATLAS - <https://atlas.fallingstar.com/>, <https://vizier.cds.unistra.fr/viz-bin/VizieR?-source=J/AJ/156/241>

a další

budované - čipy přes řádově Gpx! – Rubin observatory (LSST) - <http://www.lsst.org/>,
<https://rubinobservatory.org/>



ASAS All Star Catalogue

[white](#) [unfix](#)

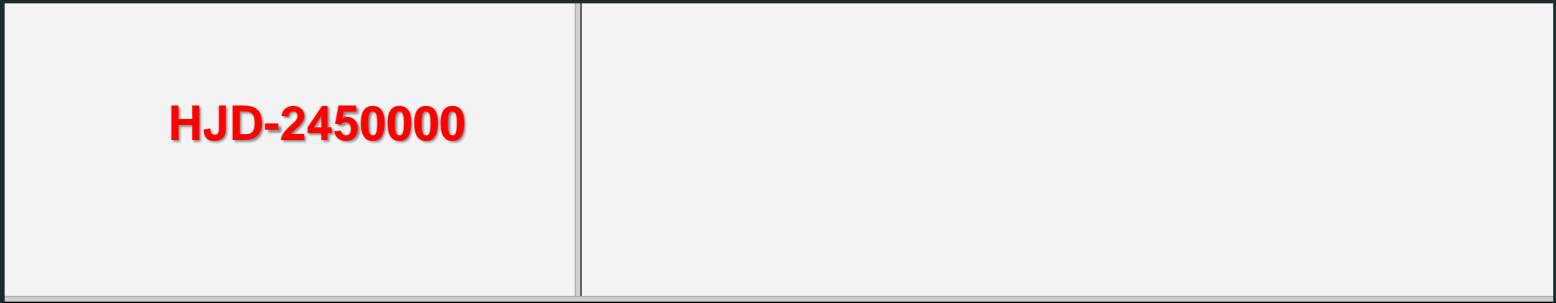
- [Main](#)
- [News](#)
- [Highlights](#)

- Services:
- [Catalogues](#)
 - [ACVS / variables](#)
 - [AASC / photometry](#)
 - [Sky Atlas](#)
 - [Kepler FOV](#)
 - [Download Data](#)
 - [View Alerts](#)
 - [Star of the Month](#)

- Information:
- [Credit](#)
 - [Status](#)
 - [Papers](#)
 - [History](#)

- Other:
- [Gallery](#)
 - [Links](#)
 - [Contact](#)

Visitors so far: 86993.



Source:

V-band (ASAS-3)
 I-band (ASAS-2)

Eqm:
 N >:
 r <: arcsec

To access photometric data enter object ID's (one per line) in the area above. Valid identifications are:

RA[h] DEC[deg]
 for example: 5:45 -81.5 or 5:26:50, -81:35:12

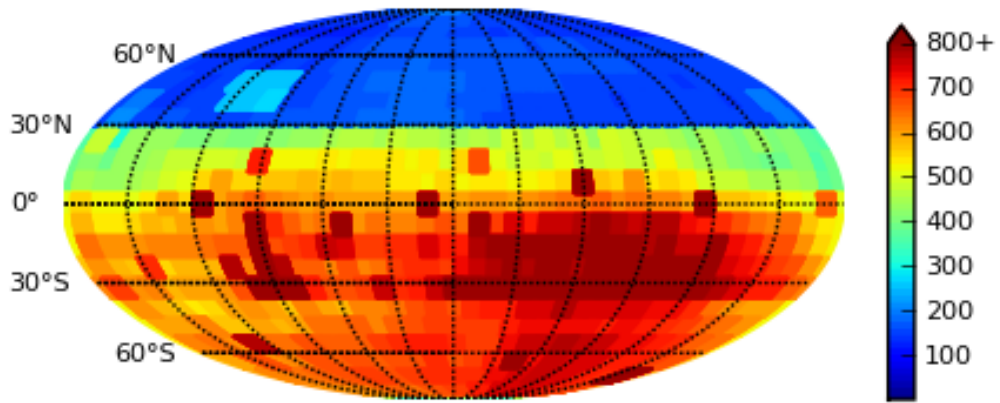
ASAS ID
 for example: 052650-8135.2

GCVS ID
 for example: XX Dor

All stars within r arcsecs from center, having more than N measurements will be listed. To obtain object's light curve, click on its listed ID.

For more information on the catalogues go to the [Catalogues](#) section.

ASAS # of frames distribution



SuperWASP

Wide Angle Search for Planets (Wikipedia, Home page) database contains 17,960,328 objects.

Hosted by CERIT Scientific Cloud, Institute of Computer Science, on behalf of Department of Theoretical Physics and Astrophysics, Faculty of Science, Masaryk University, Brno, Czech Republic



Position:
Object ID: (name for Sesame name resolver)
or
R.A.: (0.0-360.0 arc degree or 00:00:00.0-24:00:00.0 hours)
Declination: (-90.0 to +90.0 arc degree or [+/-]dd.mm.ss.sss arc degree)

Filter objects:
Radius: 1 deg
Magnitude range: < V <
Only nearest 10 objects.
Only objects with at least 1 points

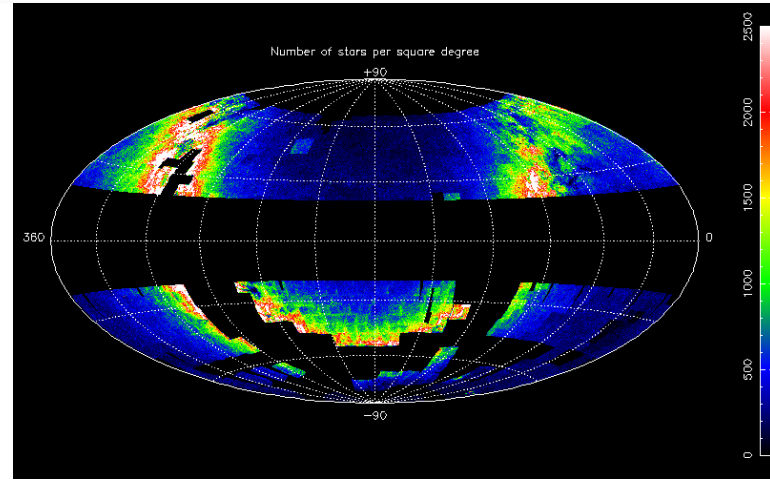
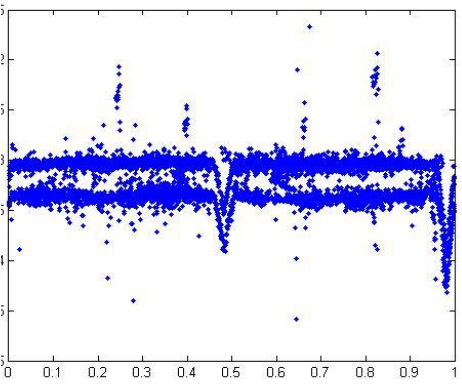
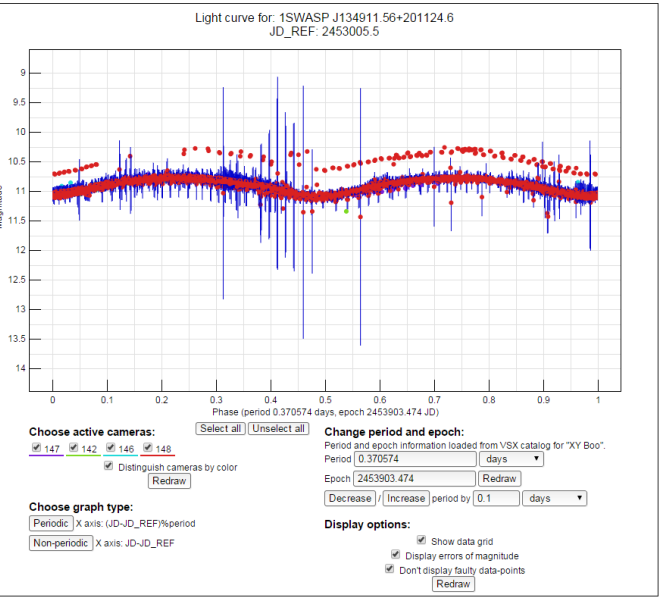
<http://wasp.cerit-sc.cz/form>

Contact: support@cerit-sc.cz

WASP Data Acknowledgement

If you make use of data from this archive, please include the following acknowledgement:

This paper makes use of data from the DR1 of the WASP data (Butters et al. 2010) as provided by the WASP consortium, and the computing and storage facilities at the CERIT Scientific Cloud, reg. no. CZ.1.05/3.2.00/08.0144 which is operated by Masaryk University, Czech Republic.



TMID (s) – střed expozice v sekundách od JD_REF
 $TMID = ((HJD - JD_REF) * 86400)$

Northern Sky Variability Survey

Before you start:

Cone search radius is limited to 120 arc minutes.

Output is always trimmed to 5000 rows.

Queries other than `select` are ignored

Selected flags reject measurements with certain known problems

(relevant only for light curve viewing)

Cone Search

Radius is in arc minutes. Format for coordinates is sexagesimal hours or decimal degrees: ([+|-]00:00:00.0 | 0.0)

RA

DEC

Radius

SExtractor flags:

NEIGHBORS

BLENDED

SATURATED

ATEDGE

APINCOMPL

ISINCOMPL

DBMEMOVR

EXMEMOVR

Photometric correction flags:

NOCORR

PATCH

LONPTS

HISCAT

HICORR

HISIGCORR

RADECFLIP

Reload the page to restore standard flags

Put your select query here:

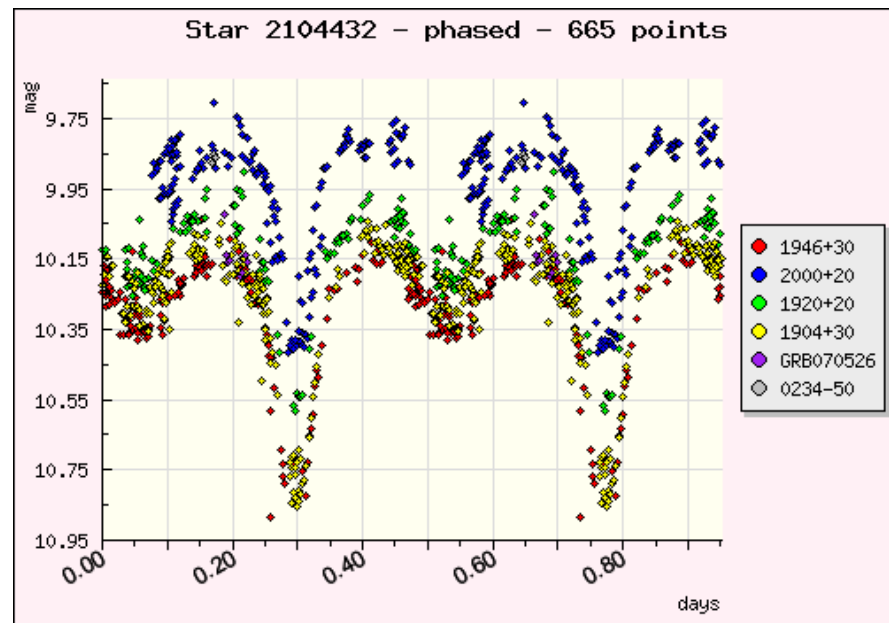
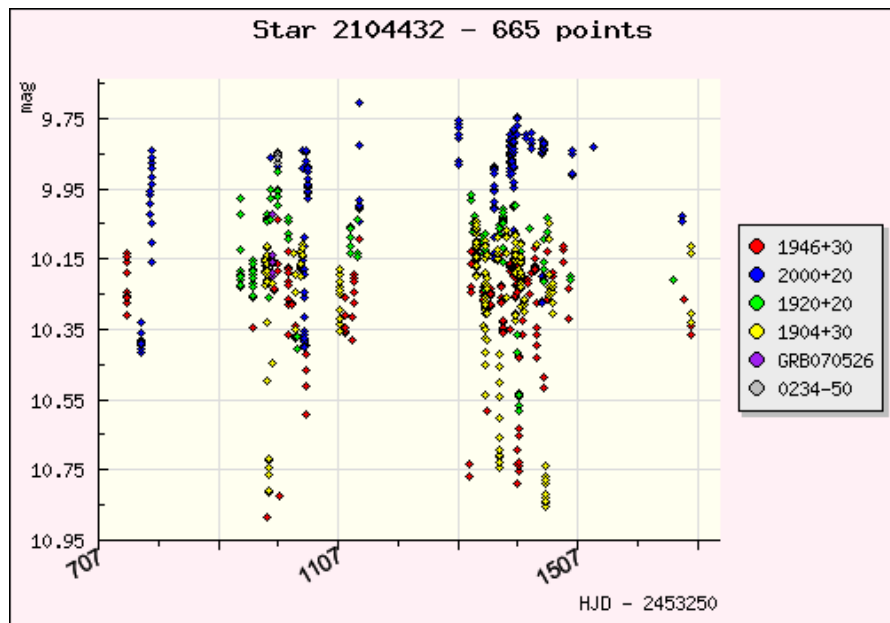
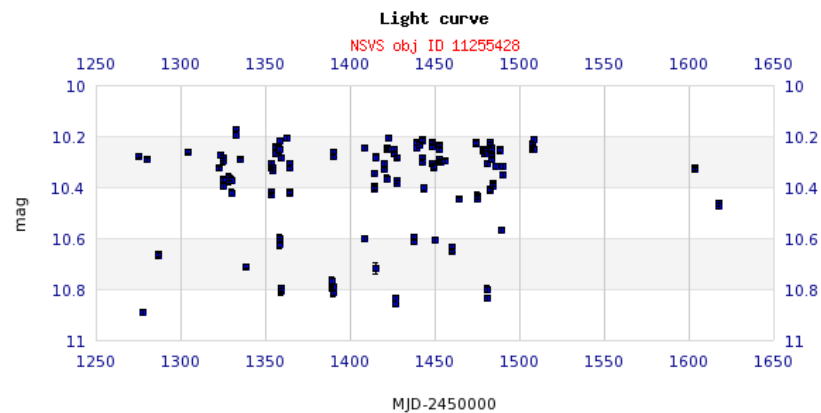
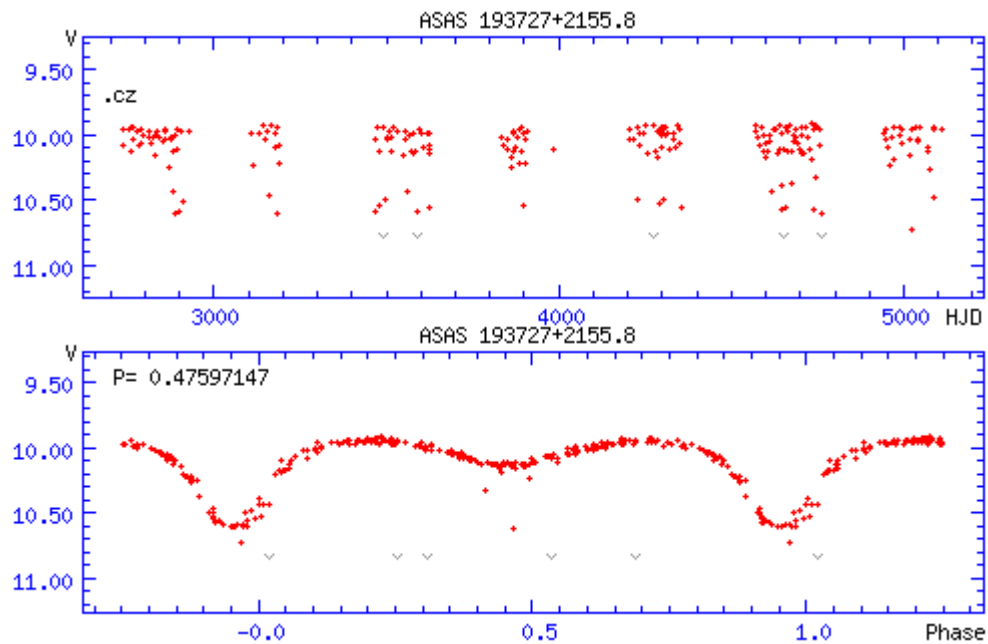
`select * from object limit 10`

MJD-50000

1282.418683 => 2451282.9186

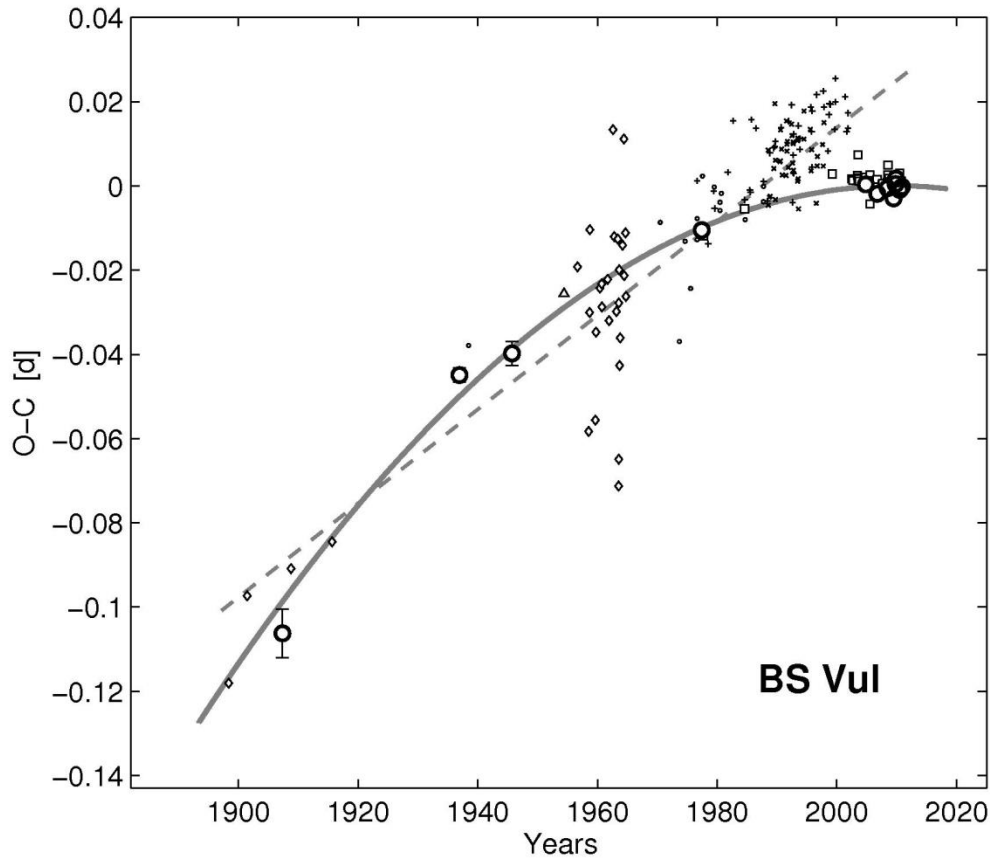
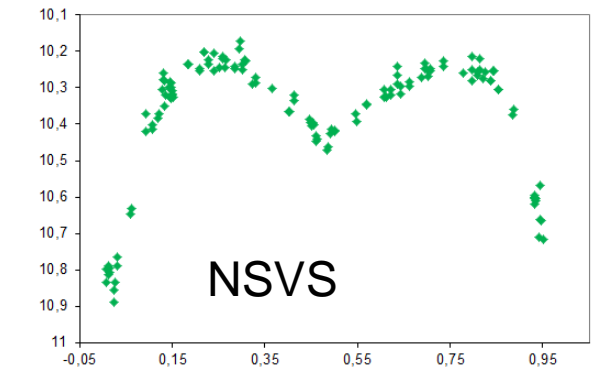
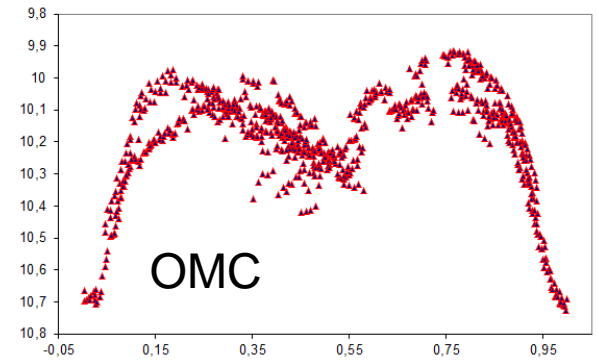
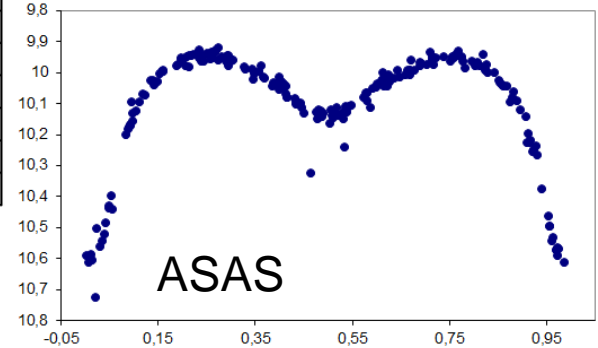
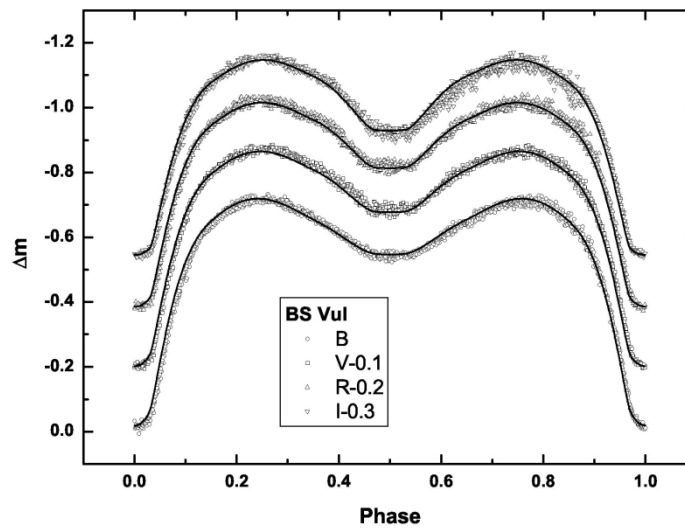


čas měření - 2453250



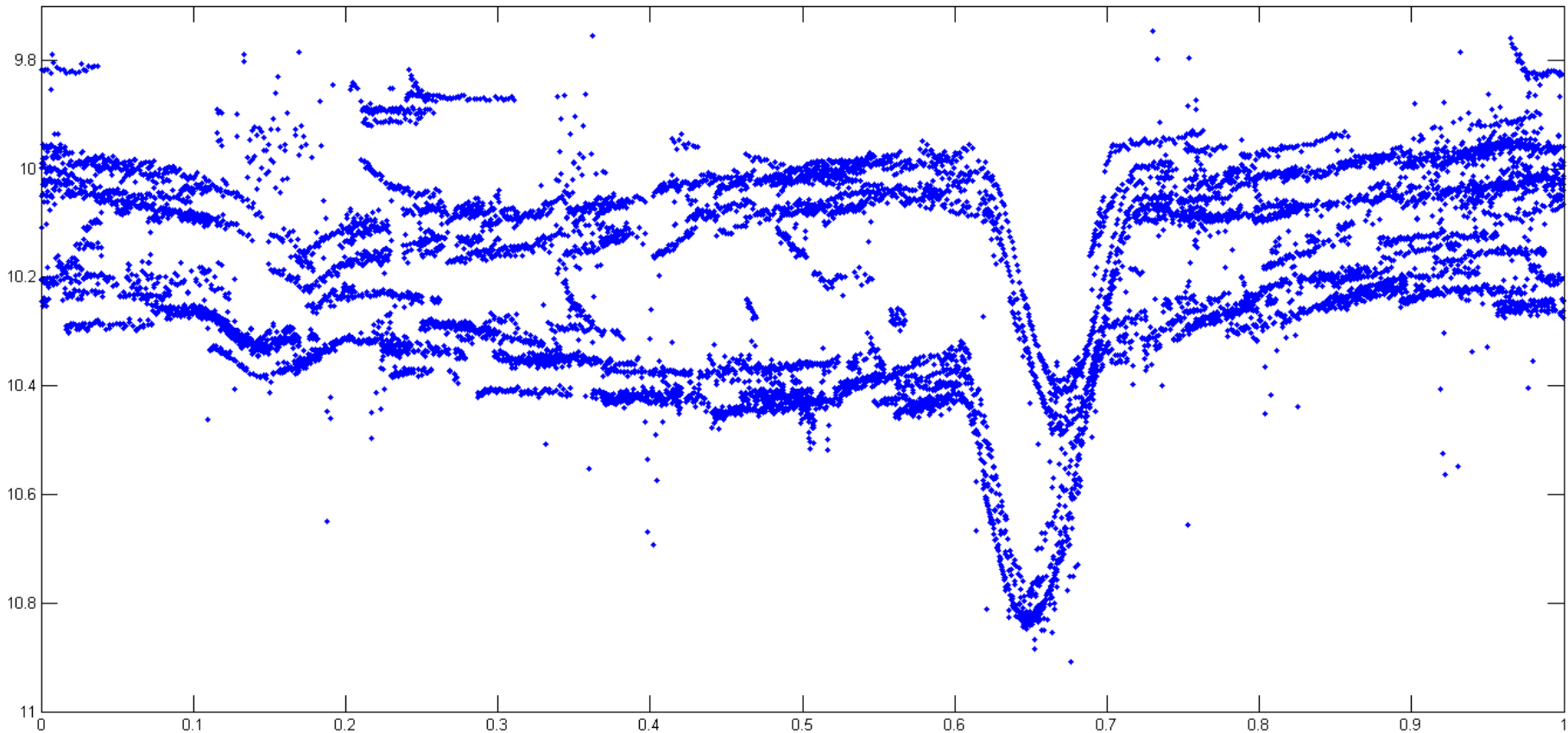
BS Vul

Astronomical Journal 144, 37 (2012)



UX Com (data z SWASP)

proměnná perioda,
změna tvaru světelné křivky,
na rozhraní snímků => několik měření v témže okamžiku, ale různé kalibrace



Vize do budoucna

Virtuální (astronomická) observatoř – VO, příp. VAO – souhrn astronomických dat, nástrojů a služeb, která jsou přístupná všem; částečně funkční

Zásady:

- vlastní formát dat s jasnou strukturou
- společné protokoly práce s daty
- společné nástroje na zpracování dat



International Virtual Observatory Alliance (IVOA) - <https://www.ivoa.net/>

Národní VO – např. španělská VO <https://svo.cab.inta-csic.es/main/index.php>,
evropská VO <http://www.euro-vo.org/>, americká <http://www.virtualobservatory.org/>,
česká <http://stelweb.asu.cas.cz/czvo/> ...



Nástroje pro práci s daty

příklady:

Lightkurve <https://github.com/lightkurve/lightkurve>

LcTools V19.2 – na vyžádání: Allan Schmitt aschmitt@comcast.net

TopCat - <http://www.star.bris.ac.uk/~mbt/topcat/>

Xamin - <https://heasarc.gsfc.nasa.gov/docs/xaminintro/>

TapHandle - <http://saada.unistra.fr/taphandle/>

VAO's Data Discovery Tool - <http://www.virtualobservatory.org/use/tutorial.aspx>

Peranso - <https://www.cbabelgium.com/peranso/>

Period04 - <http://period04.net/>

Pyriod - <https://github.com/keatonb/Pyriod>

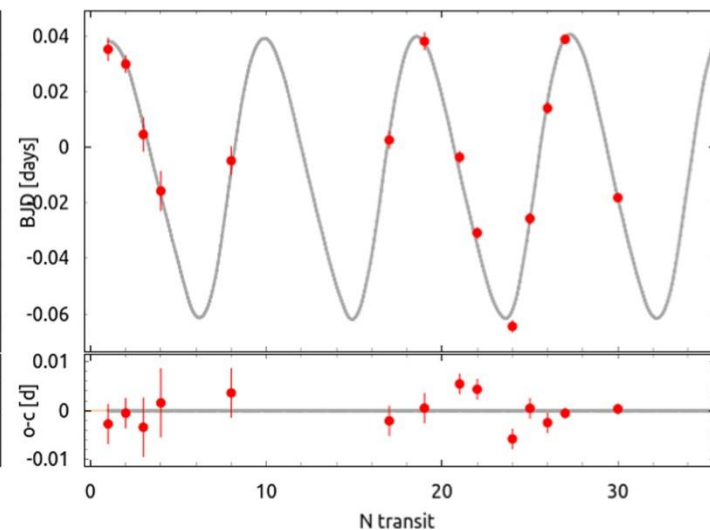
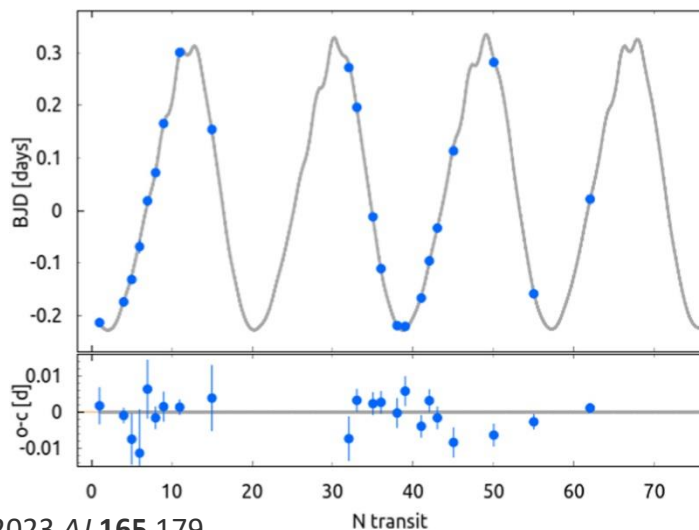
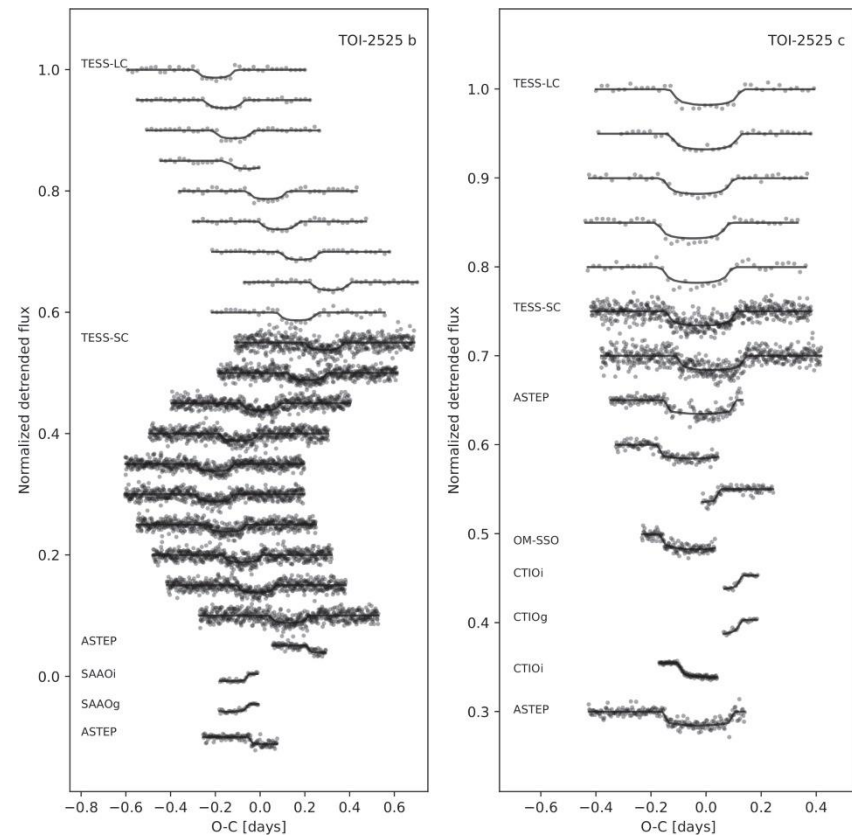
<https://www.ivoa.net/astronomers/applications.html>

<https://www.aavso.org/software-directory>

STEP – [program Quadruples](#)

Proč to všechno?

dlouhodobé studie - např. změny periody,
objevy exoplanet, ... TTV, O-C – dnes
změny menší než 1 min! => nutnost větší
pozornosti k přesnosti časových značek!



Praktické cvičení (domácí úkol):

- vyhledat alias jména k dané hvězdě a získat pro ni fotometrická data alespoň ze dvou zdrojů,
- uspořádat data, vytvořit z nalezených dat datový soubor ve formátu – HJD (BJD), mag, filtr, zdroj
- pokud nejsou data v požadovaném formátu, je třeba uvést původní formát a popsat způsob, jak jste je přepočítali
- vykreslit **fázovou** světelnou křivku s oběma zdroji dat
- pokud se na křivce objeví anomálie, zkusit odhalit příčinu
- sepsat krátkou zprávu/protokol o úkolu
- výsledný soubor dat, zprávu/protokol, včetně grafu zaslat

do **20. 12. 2024** na zejda@physics.muni.cz

Neváhejte se kdykoli zeptat, pokud by byl nějaký problém!

| | |
|--------------------------|------------------------------|
| Bless, Georgii | OGLE LMC-ECL-9257 |
| Bukovinská, Petra Tereza | TYC 8288-317-1 |
| Duchyňová, Nina | UCAC4 050-004795 |
| Gorodilov, Artem | WISE J115225.7-665754 |
| Hřibová, Magdaléna | TYC 9231-1222-1 |
| Hudačková, Barbora | ASASSN-V J124203.23-644513.2 |
| Chmelař, Václav | TYC 9232-1161-1 |
| Krusberský, Jindřich | ASASSN-V J162738.80-432923.7 |
| Lazarieva, Alona | HAT 622-924 |
| Miklošová, Barbora | ASAS J073054-1840.7 |
| Naumenko, Mariia | ASAS J074939-3037.0 |
| Ohlídál, Prokop | ASASSN-V J074844.43-374960.0 |
| Pešoutová, Karolína | Gaia DR3 5614373041669940480 |
| Rutová, Pavlína | TYC 7660-3460-1 |
| Slabá, Tereza | CPD-34 3002 |
| Šobichová, Alžbeta | ASAS J011328-3821.1 |
| Valková, Ramona | ASASSN-V J173344.14-363037.8 |
| Vítek, Tomáš | GDS_J1650034-440205 |