

# Ondřejov Southern Sky Photometry Survey

## Light curve SSAP interpretation

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# Ondřejov Southern Sky Photometry Survey

- Different teams with different goals and few objects of interest
- Often, 99 percent of data on the images is unused
- Making use of these data - light curve identification

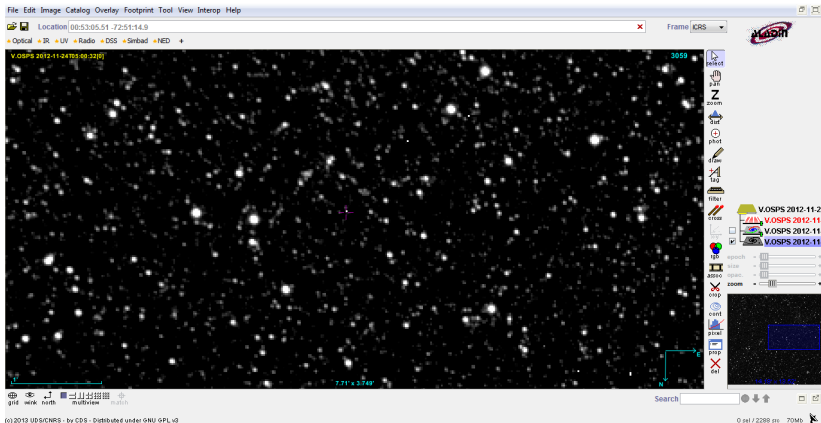
# SIAP publication

- D.Mikhailova's work - publishing raw and reduced images
- Image formats
  - FITS - cca 15 MB, embargoed
  - PNG - cca hundreds of KB, public
- Services URLs
  - [http://vos2.asu.cas.cz/dk154\\_reduced/q/sia/info](http://vos2.asu.cas.cz/dk154_reduced/q/sia/info)
  - [http://vos2.asu.cas.cz/dk154\\_rawdata/q/sia/info](http://vos2.asu.cas.cz/dk154_rawdata/q/sia/info)

# Munipack solution from Dr. Hroch, Masaryk University

- Stored in FITS extension
- High quality astrometry and photometry for the images
- Outputs list of objects identified on the images
- More info: <http://munipack.physics.muni.cz/>

## PNG



## FITS

The screenshot displays the Aladin software interface. The main window shows a star field with a red crosshair. The top menu bar includes File, Edit, Image, Catalog, Overlay, Footprint, Tool, View, Interop, and Help. The status bar at the top indicates the location as 00:53:21.52 72:51:34.7. The toolbar on the right contains various tools such as 'release', '232', 'Zoom', '3int', 'phot', 'draw', 'tag', 'file', 'area', 'rgb', 'aparc', 'zoom', 'cert', 'panel', 'psp', and 'del'. The bottom status bar shows the copyright information: (c) 2013 UDS/CNRS - by CD5 - Distributed under GNU GPL v3. The bottom right corner displays '0 del / 2288 obj 52Mb'.

# FITS with Munipack identified objects

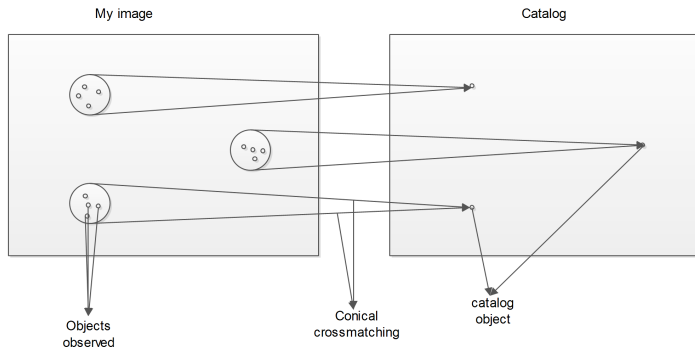
The screenshot displays the Aladin software interface. The main window shows a star field with numerous yellow stars. A tooltip is visible over a star, displaying the text "OGLE SMC-GC-140493 (18.87, E8\*) [by Smbad]". The interface includes a menu bar (File, Edit, Image, Catalog, Overlay, Footprint, Tool, View, Interop, Help) and a toolbar with various icons for navigation and analysis. The status bar at the bottom indicates the coordinates "OGLE SMC-GC-140493 (18.87, E8\*) [by Smbad]" and the zoom level "7.71 x 3.149".

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# Identification

- After Munipack reduction observations of 1 object can be found in 1 arcsec radius
- Catalog crossmatching



# Catalog identification

**UCAC4** Hundreds of objects per 1 image, left about 20 % without match

**PPMXL** Thousands of objects per 1 image, left about 10 % without match

- Using catalog identifiers - correct light curve identification guaranteed

# SSAP representation

Access Reference	Type	Bandpass	Title	P. DID	Location [deg,deg]	Publisher	Start Date Obs.	End Date Obs.
<a href="#">sync</a>	application/fits	V	ASU CAS lightcurve 6667165627600297759 V	6667165627600297759	Position ICRS 13.1222741789 -72.885694377	ASU CAS	2012-11-03T02:34:06Z	2012-11-03T02:42:55Z

- similar to CoRot archive
- Generation on the fly
- SSAP columns:
  - [accref](#) - TAP query returning the light curve as a FITS table
  - [others](#) - Description of the light curve satisfying the SSAP protocol
- Service URL  
<http://vos2.asu.cas.cz/extract/q/ssa/info>

## SPLAT - SSAP

Starlink SPLAT-VO: Query VO for Spectra

File Options Resolver Interop Help

Options Tags

Source

Survey  Theory  Pointed  
 Custom  Artificial  ALL  
 All Observati...  All Theoretical

Wave Band

Radio  Millime...  Infrared  
 Optical  UV  EUV  
 X-ray  Gamma...  ALL

SSAP Servers

▼ SSAP Servers

▶ OSPS lightcurves [DK\_154 light

Search parameters:

Simple Query

Object:

RA:  Dec:

Radius:

Band:  /

Time:  /

Query Format:

Wavelength calibration:

Optional Parameters

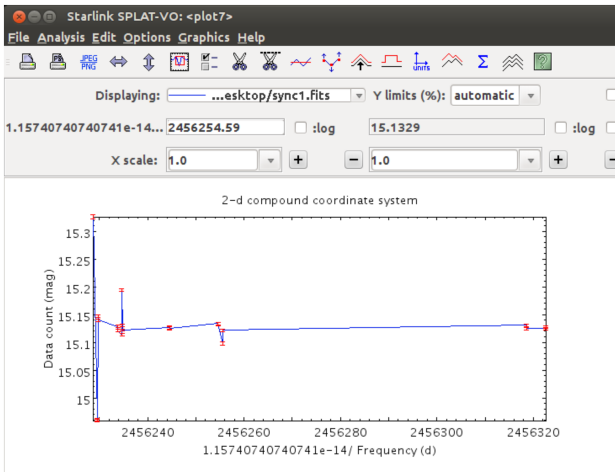
<SERVER>?REQUEST=queryData&POS=13.1583291666  
 Query:66666,-72.80028055555556&SIZE=0.1666666666666666

Query results:

OSPS lightcurves

Index	accref	mime	band	ssa_dstitle
1	http://vos2.asu.cas.cz/ta...	application/fits	R	ASU CAS lightc
2	http://vos2.asu.cas.cz/ta...	application/fits	V	ASU CAS lightc
3	http://vos2.asu.cas.cz/ta...	application/fits	I	ASU CAS lightc
4	http://vos2.asu.cas.cz/ta...	application/fits	I	ASU CAS lightc
5	http://vos2.asu.cas.cz/ta...	application/fits	R	ASU CAS lightc

# Light curve





# Outlook

- SSAP time-series support
- Generation of lightcurves on fly without storing them in special files



# Questions

Questions?

## More info

For more info about the lightcurve identification project, you can have a look at my full bachelor's thesis:

[http://dip.felk.cvut.cz/browse/pdfcache/nadvoji1\\_2013bach.pdf](http://dip.felk.cvut.cz/browse/pdfcache/nadvoji1_2013bach.pdf)





# Acknowledgement

Thank you for your attention.