



# **TDIG Summary and Roadmap**

Chair: Ada Nebot

Vice-chair: Dave Morris

**17 May 2019, Paris Interop**



# TDIG summary

## TIMESYS

- TIMESYS in VOTable1.4
  - Implementation in services: VizieR (in beta) and GAVO
  - Client implementation: Topcat, Stilts, SPLAT
  - Validator: votlint
  - But reposition=TOPOCENTER is not enough (needed for light-travel corrections)

**K2C9 VST Time Series Browser Interface**

The Kepler satellite has observed the Galactic center in a campaign lasting from April until the end of June 2016 (K2/C9). The main objective of the 99 hours for the microlensing program 097.C-0261(A) using the ESO VLT Survey Telescope (VST) was to monitor the superstamp (i.e., the actually downloaded region of K2/C9) in service mode for improving the event coverage and securing some color-information. Due to weather conditions, the majority of images were taken in the red band. These are part of the present release. The exact pointing strategy was adjusted to cover the superstamp with 6 pointings and to contain as many microlensing events from earlier seasons as possible. In addition, a two-point dither was requested to reduce the impact of bad pixels and detector gaps. Consequently, some events were getting more coverage and have been observed with different CCDs. The large footprint of roughly 1 square degree and the complementary weather conditions at Cerro Paranal have lead to the coverage of 147 events (this resource's events table), but ~60 of those were already at baseline.

**Object**  
 MOA-2016-BLG-0034 No selection matches all, multiple values legal.  
 MOA-2016-BLG-0137  
 MOA-2016-BLG-0158  
 MOA-2016-BLG-0227  
 MOA-2016-BLG-0264  
 OGLE-2016-BLG-0014  
 OGLE-2016-BLG-0084  
 OGLE-2016-BLG-0126  
 OGLE-2016-BLG-0241  
 OGLE-2016-BLG-0264  
 Common name of object observed.

**Location**  
 Coordinates (as h m s, d m s or decimal degrees), or SIMBAD-resolvable object

**Search radius for Location**  
 Search radius in arcminutes

**VizieR**

VizieR provides the most complete library of published astronomical catalogues --tables and associated data-- with verified and enriched data, accessible via multiple interfaces. Query tools allow the user to select relevant data tables and to extract and format records matching given criteria. Currently, 18646 catalogues are available [more info](#)

**Free text search** catalogue name, author, ... **Find catalogues**

**Position** position or object name 10 " **Find catalogues** **Photometry**

**Go to the classic form** **Advanced search**

**VizieR**

- How to publish my catalog
- Help and tutorials
- View large catalogues
- Rules of usage
- Mirrors

**Other related services**

- TAPVizieR
- Photometry viewer
- CDS cross-match service
- VizieR images, spectra service
- VizieR using the batch mode

**Simple browsing modes**

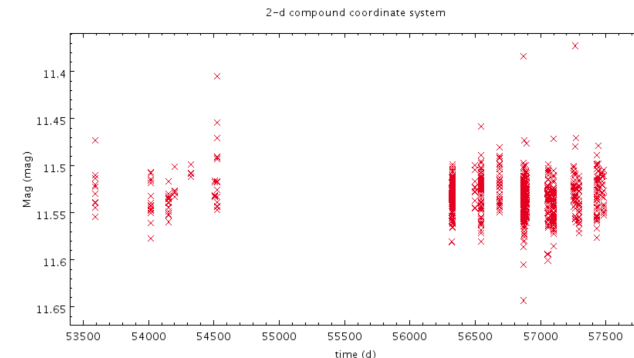
- By hierarchical organisation
- By acronyms or abbreviations
- By popularity
- Recently entered into VizieR
- Catalogs having images, spectra...

**TOPCAT(2): Table Columns**

Window Columns Display Help

Table Columns for 2: timesys\_example.vot

Δ	Index	Visible	Name	Units	Datatype	TimesysReposition	TimesysTimeorigin	TimesysTimescale	Domain
0			Index						
1	1	✓	obs_time	d	double	BARYCENTER	2455197.5	TCB	TIMESYS->Time
2	2	✓	flux	s**-1	float				
3	3	✓	mag	mag	float				
4	4	✓	flux_error	s**-1	float				

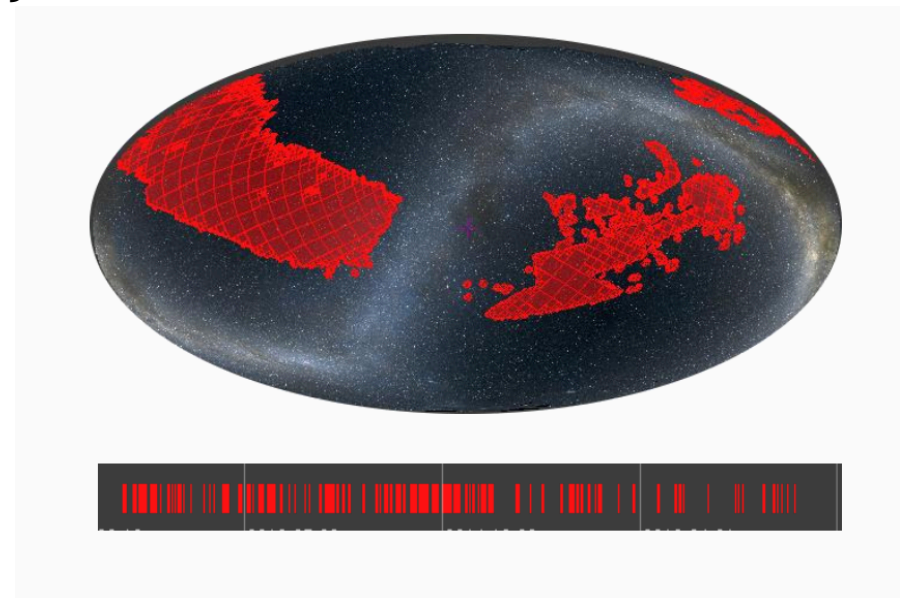
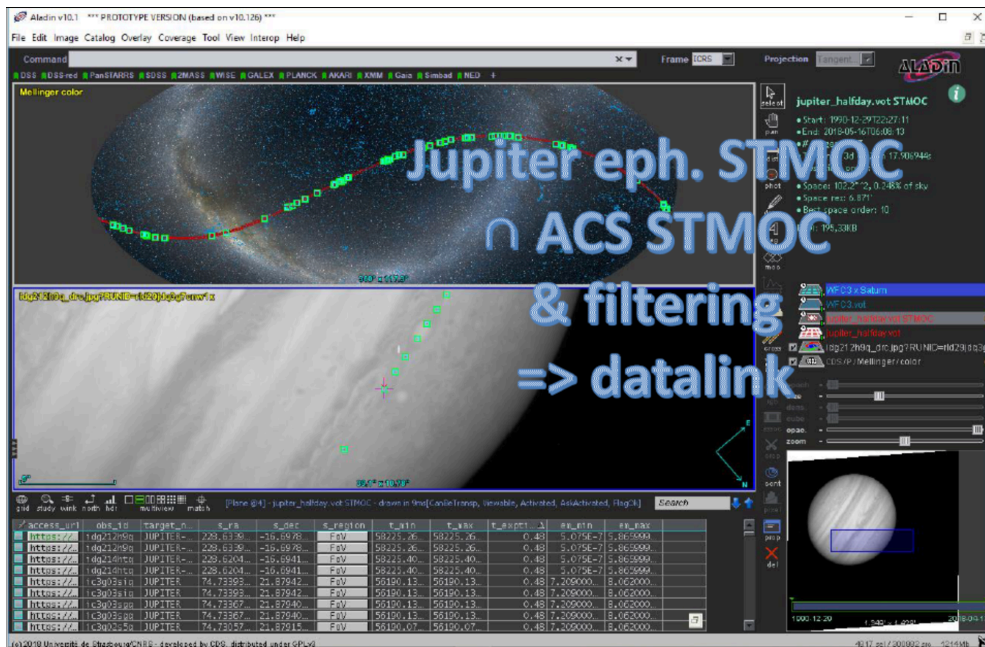




# TDIG summary

## Space and Time coverage

- ST-MOC
  - Coverage in Space and Time of any image collection or catalog containing positions and time
  - Filter catalogs by intersection of STMOCs that is in areas of interest
  - An STMOC IVOA note is ready (Durand, Fernique, Nebot et al. 2019)
  - Proto for tests: <http://aladin.u-strasbg.fr/java/stmoc/index.html>



2 years CDS&Co R&D  
driven by  
IVOA effort on time



# Time Domain Roadmap

- TimeSeriesDM:
  - Explore how the current status of the data model is able to describe ZTF-DR1 products (Objects Table, lightcurves, single-epoch images, quality flags)
- ST-MOC:
  - Work with data providers to precompute STMOCs: VizieR catalogs and HiPS, and for solar system body ephemeris – work close to SSIG for that.
  - Ingest in CDS MocServer: => clients can resource by Space - Time
  - Create library in python and add to mocpy
  - IVOA 2.0 MOC for SMOC, TMOC and STMOC?
  - VO registry coverage by STMOC?
- Semantics work to improve discovery and client use of:
  - VOEvents services and streams (What and where)
  - Time Series as distributed by datalink (data product (sub)type)
  - Get the *reposition* case of topocenter started for TIMESYS in VOTable1.4