

Transient characterization using the Virtual Observatory

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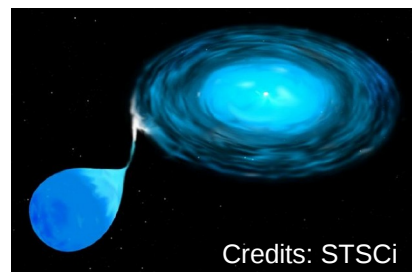
Abstract

Transients can be defined as astrophysical phenomena whose duration is significantly lower than the typical timescale of the stellar and galactic evolution (from seconds to years in contrast to millions or billions of years). Supernovae, novae, gamma-ray burst, ..., are some examples of transient events.

In most cases, a fast, multiwavelength characterization is required to properly understand the true nature of the transient. Follow-up observations made by both professional and amateur astronomers using ground- and space-based facilities are key to achieve this goal.

In this poster we propose an alternative approach using the existing information in astronomical archives and benefiting from the advantages that the Virtual Observatory offers in terms of discovery, access and analysis of astronomical data. Using STILTS and two services developed in the framework of the Spanish Virtual Observatory (SVO Discovery Tool and VOSA) we will describe the work done so far in the validation and characterization of the Cataclysmic Variables identified by the Gaia Science Alerts project.

Cataclysmic Variables



- H α emission due to accretion.
- Close binaries (WD+Main Seq) → composite SEDs.
- Well defined locus in the HR diagram.

The workflow

On a daily basis:

- Object selection: class "unknown" & comments "candidate CV"

Gaia Alerts Alerts Index All-Sky Alerts Search Surveys-Alerts Tools About

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If you publish any results based on these Gaia discoveries, we would appreciate an acknowledgement along the lines of: "We acknowledge ESA Gaia, DPAC and the Photometric Science Alert Team (<http://gsweb.ast.cam.ac.uk/alerts/>)".

These are all the alerts raised to date. You might wish to view or download these as a table in CSV format or using any of the tools described in this page. See here for an explanation of the columns.

Name	TNS	Observed	RA (deg)	Dec. (deg)	Mag.	Historic mag.	Historic scatter	Class	Published	Comment
Gaia19qpw	AT2019qpw	2019-09-23 18:15:40	48.90355	42.47855	19.28	20.31	0.22	unknown	2019-09-25 13:50:32	Known dwarf nova QY Per gets brighter by 1 mag.
Gaia19qpw	AT2019qpw	2019-09-18 02:50:57	44.05382	-10.56652	15.10	18.44	1.69	unknown	2019-09-25 13:46:10	Gaia source brightens by ~4 mags, previous outburst, candidate CV

- **Automated workflow:** SVO Disc. Tool, VOSA and STILTS → **List of candidates**



Physical parameters **All VizieR / VO: TAP**

Parameter	Number of results found	Number of valid results	Min	Max	Mean	StdDev	
Teff	4	3	7689.63	9377.75	8513.35	844.79	See results
Logg	0	0	?	?	?	?	
M/H	0	0	?	?	?	?	
ColorExcess	6	3	0.08	0.094	0.087	0.007	See results
Age	0	0	?	?	?	?	
RadialVel	1	0	?	?	?	?	See results
Sptype	5						See results
Parallax	3	2	1.197	1.198	1.197	0	See results
Vsini	0	0	?	?	?	?	

Catalog Code	VizieR Table	Catalog Description	Distance (arcsec)	ColName	Value
I/345	I/345/gaia2	Gaia DR2 (Gaia Collaboration, 2018)	0.08	b_(BP-RP)	
I/345	I/345/gaia2	Gaia DR2 (Gaia Collaboration, 2018)	0.08	B_(BP-RP)	
I/345	I/345/gaia2	Gaia DR2 (Gaia Collaboration, 2018)	0.08	E(BP-RP)	
I/335	I/335/galex_ais	Revised catalog of GALEX UV sources (GUVCat_AIS GR6+7) (Bianchi+ 2017)	1.47	E(B-V)	0.094
JJA/A/621/A38	JJA/A/621/A38/catalog	Gaia catalogue of hot subliminous stars (Geier+, 2019)	0.03	E(B-V)	0.08
JJA/J153/204	JJA/J153/204/table5	RR Lyrae stars from the PS1 3(pi) survey (Sesar+, 2017)	0.08	E(B-V)	0.088

VO Spectrum Services (**VO: SSAP**)

Services	Results
6	19

Service name	Results
DFBS SSAP	2
FUSE	1
LAMOST DR2 SSAP	6
LAMOST DR3 SSAP	6

