

Transit surveys and the Virtual Observatory

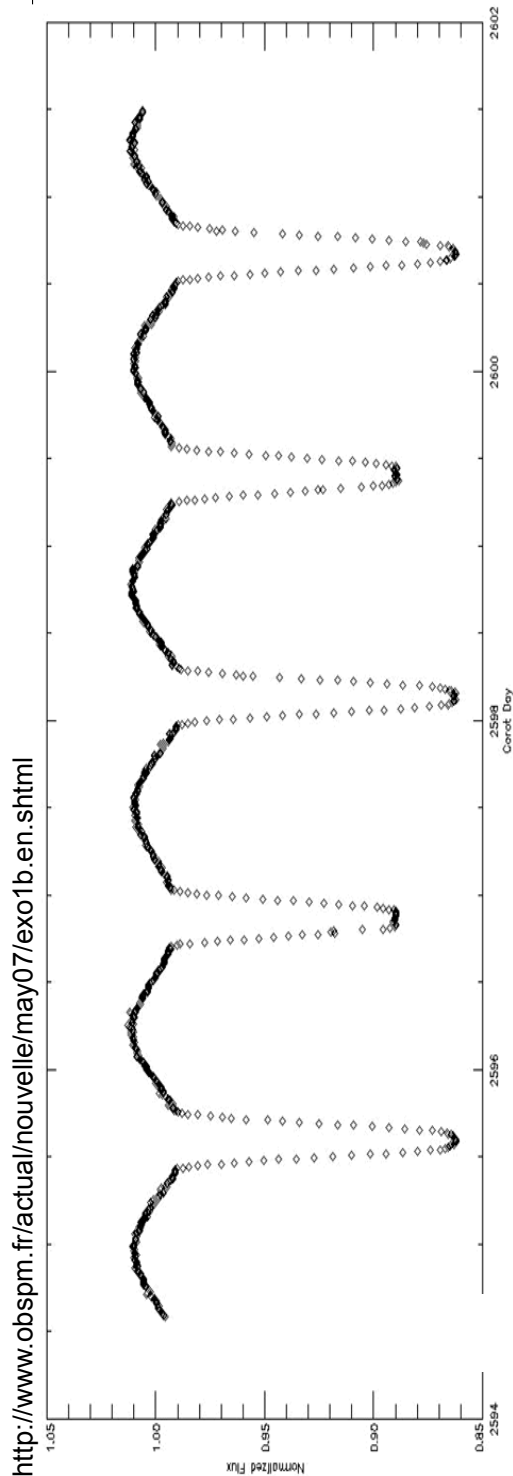


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Outline

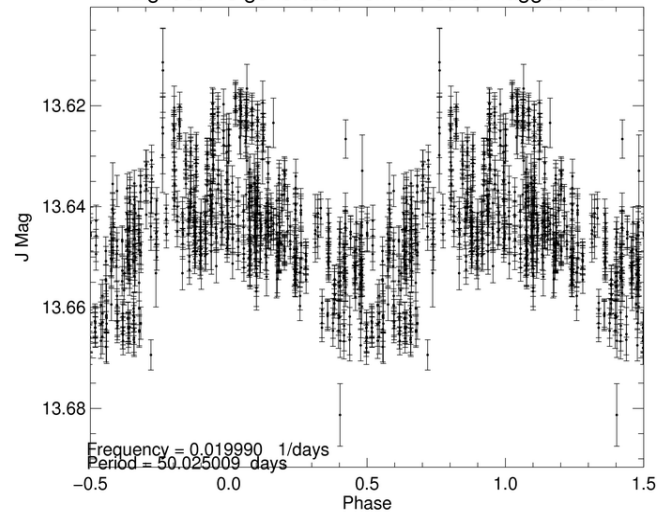
- Search for variable stars in the WTS
 - Focus on eclipsing binaries
 - Utilisation of VO tools to confirm membership and to set constraints
 - VOSA
 - Aladin
 - SIMBAD and VizieR
 - Characterization of the systems
 - Summary and outlook
-

Data reduction of the light curves and search for variable stars

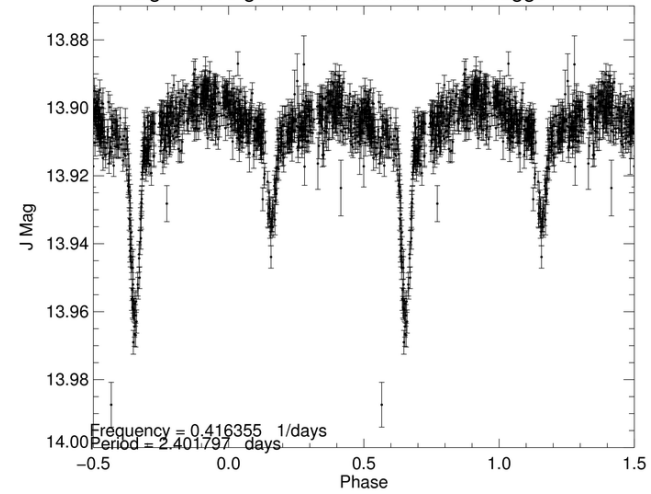
- Apply a set of rejection criteria with respect to magnitude and errors to minimize outliers
 - Obtain parameters of variability using *bossirr* algorithm
 - Folds light curves with a range of frequencies and chooses the most significant one by least-square fitting
 - Computes amplitudes corresponding to those frequencies
 - Reject false positives based on *bossirr* results
 - Extract eclipsing binary stars from the results
 - 66 exceptionally good light curves detected in one of the fields
-

Some results

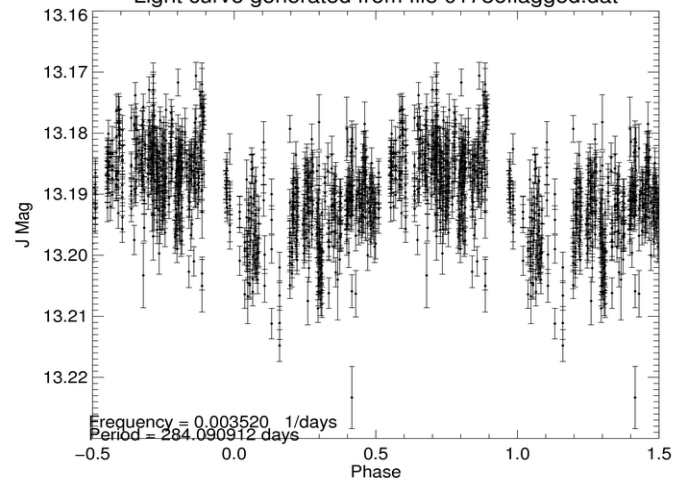
Light curve generated from file 05201flagged.dat



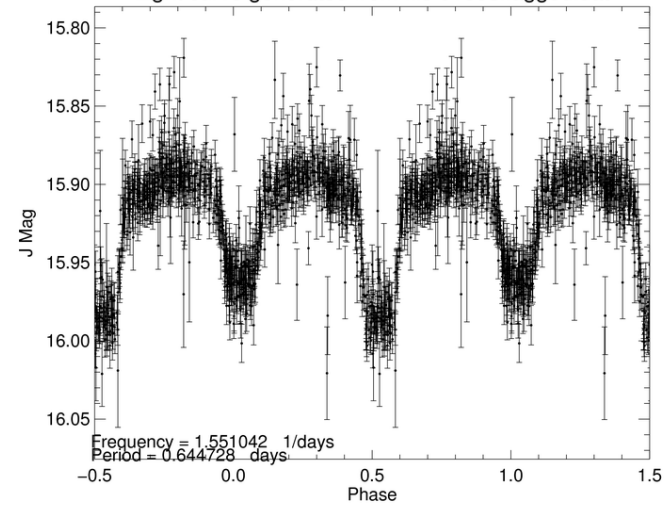
Light curve generated from file 07470flagged.dat



Light curve generated from file 01786flagged.dat



Light curve generated from file 01303flagged.dat



SIMBAD query result - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://vizier.u-strasbg.fr/viz-bin/VizieR-3

Restore Session Живот и вероятности. 2-ра ... 0611947v2.pdf (application/p... nph-iaricle_query (applicatio... 0611482v1.pdf (application/p... Catalogue Selection Page

Tokyo, Japan · CADZ, Canada · Cambridge, UK · CfA/Harvard, USA · UKIRT-Hawaii, USA · INASAN, Russia · Beijing Obs., China

B/gcvs **new** General Catalogue of Variable Stars (Samus+ 2007-2010) [Similar Catalogues](#) [ReadMe](#)

1. B/gcvs/gcvs_cat The GCVS Catalog (Vol. I-III, version 2010-Oct) (41639 rows)
(Other tables in this catalogue are listed below)

Query Setup (usage)

Maximum Entries per table: 50 Output layout: HTML Table Output Order: + - Reset All

Query by Position on the Sky (Adapt Form to use a List of targets)

Target Name (resolved by Simbad) or Position: Clear J2000 Target dimension: 2 arcmin Submit Query

Position in Sexagesimal or Decimal Radius or Box size

Output preferences for Position:

	r	x,y	Position	Galactic	J2000	B1950	EclJ2000	none
Compute	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sort by	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

r and x,y are the distance to the Target; Position is in the same coordinate system as Target.

Query by Constraints applied on Columns

	Show	Sort	Column	Clear	Constraint	Explain (UCD)
	<input type="checkbox"/>	<input type="radio"/>	recno			Record number within the original table (starting from 1) (meta.record) (RECORD)
Dist	<input type="checkbox"/>	<input type="radio"/>	VarNum			Numeric designation, made from constellation and star names (codes in file "constel.txt") (meta.id) (ID_NUMBER)
Oth	<input type="checkbox"/>	<input type="radio"/>	m_VarNum		(char)	Component identification (Note 1) (meta.code.multip) (CODE_MULT_INDEX)
ICF	<input checked="" type="checkbox"/>	<input type="radio"/>	f_GCVS		(char)	[=N+] "N" if the star does not exist (Note 7) (meta.code) (CODE_MISC)
FK2	<input checked="" type="checkbox"/>	<input type="radio"/>	GCVS		(char)	Variable star designation. The designation in the constellation is separated from the constellation name by up to 5 blanks; an * is therefore recommended to qualify this column, e.g. SS *Cyg (Note G1) (meta.id;meta.main) (ID_MAIN)
FK3	<input checked="" type="checkbox"/>	<input type="radio"/>	n_GCVS		(char)	[*] indicates a remark in "gcvs_rem.dat" file, x indicates the existence of cross-identifications (meta.note) (NOTE)
Gal	<input checked="" type="checkbox"/>	<input type="radio"/>	RAJ2000		"h:m:s" ^(t)	Hours RA, equinox J2000.0 (Note 2) (pos.eq.ra;meta.main) (POS_EQ_RA_MAIN)
Proj	<input checked="" type="checkbox"/>	<input type="radio"/>	DEJ2000		"d:m:s" ^(t)	Degrees Dec, equinox J2000.0 (Note 2) (pos.eq.dec;meta.main) (POS_EQ_DEC_MAIN)
Flux	<input checked="" type="checkbox"/>	<input type="radio"/>	u_DEJ2000		(char)	[*] position accuracy flags (Note 3) (meta.code.error;pos.eq.dec) (CODE_ERROR)

Done

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[susana] susana@satumo... ESAC_VO2010_pr... Java

14:57

Summary and outlook

- 66 high-quality light curves of eclipsing binaries have been identified in the WTS 19a field;
 - Estimation for temperatures and position on the HR diagram using the output of VOSA;
 - Spectroscopic measurements are needed to confirm their temperatures and their nature.
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