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Nástroje Upravit mapu

J.K. Tyla

J.K. Tyla

UN

# NSVS 07453183 Lyn





# Základní informace a literatura

## Latest Details



Log in to retrieve additional aliases from SIMBAD.

Name	<b>V</b> NSVS 7446320
AAVSO UID	--
Constellation	Lynx <a href="#">» Sequence</a>
J2000.0	09 16 12.38 +36 15 32.0 (139.05157 +36.25889) <a href="#">» Search nearby</a>
B1950.0	09 13 06.56 +36 28 08.8
Galactic coord.	187.514 +43.904
Other names (Internal only)	NSVS 7453183 (Not logged in) <a href="#">» Add name</a>
Variability type	EA
Spectral type	--
Mag. range	13.012 (0.824) R1
Discoverer	--
Epoch	27 Mar 2005 (HJD 2453456.67630) <a href="#">» Ephemeris</a>
Outburst	--
Period	0.366971
Rise/eclipse dur.	--

## Remarks



Some references may be clicked to view in new window. Roll over index number to view submission details.

**1** | 2008AJ....136.1067H | Probable low-mass binary. MinII = (0.443)R1.

(Not logged in) [» Add remark](#)

## References



Click reference title/citation to view in new window. Roll over index number to view submission details.

**1** | D.I. Hoffman et al., 2008, AJ 136, 1067 | 2008AJ....136.1067H  
**2** | J.L. Coughlin, J.S. Shaw, 2007, JSARA 1, 7 | 2007JSARA...1....7C

Ekvatoriální souřad.  
Apparent  
2011-09-19  
11h57m38s (GMT)  
Mag:16.5  
Zorné pole:+00°59'29"

+36°20'

• **NSVS 07453183 Lyn - 13,44 (1,02)**



+36°10'

↑ **4UC UCAC4-632-044809 - 13,13 (0,90)**



+36°00'



0 2' 18' 9h19m 9h18m 9h17m 9h16m 9h15m

## Seven New Low-Mass Eclipsing Binaries

Show affiliations

Coughlin, Jeffrey L. ; Shaw, J. Scott

We present the discovery of seven new low-mass eclipsing binaries, their photometric light curves, and preliminary models. This nearly doubles the available data on these systems, with only nine previously known. Once radial-velocity curves are completed, physical parameters will be determined with an error of less than 2-3%, thus allowing for a rigorous examination of stellar models in the lower-main sequence. Our initial analysis seems to support the current findings that low-mass stars have greater radii than models predict, most likely due to the presence of strong magnetic fields.

**Publication:** Journal of the Southeastern Association for Research in Astronomy, volume 1, p. 7-12

**Pub Date:** September 2007

**Bibcode:** [2007JSARA...1...7C](#) 

**Keywords:** binaries: eclipsing; stars: low mass; brown dwarfs

 Feedback/Corrections?

# Magnetic activity and orbital periods of five low-mass eclipsing binaries

Li-Yun Zhang,<sup>1,2★</sup> Qing-feng Pi<sup>1,2</sup> and Yuan-Gui Yang<sup>3</sup>

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<sup>2</sup>*Key Laboratory for the Structure and Evolution of Celestial Objects, Chinese Academy of Sciences, Kunming 650011, People's Republic of China*

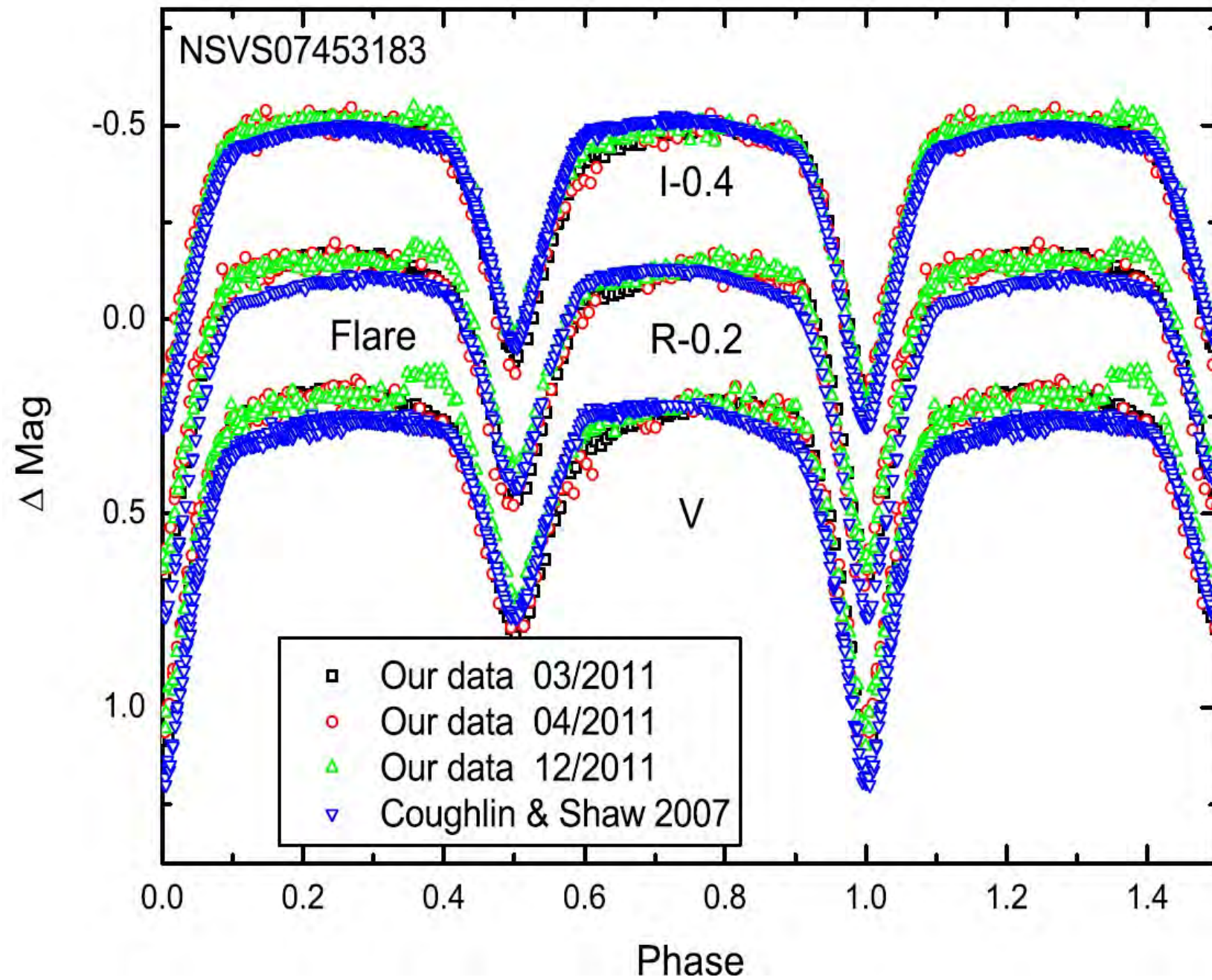
<sup>3</sup>*School of Physics and Electronic Information, Huaibei Normal University, Huaibei 235000, Anhui Province, People's Republic of China*

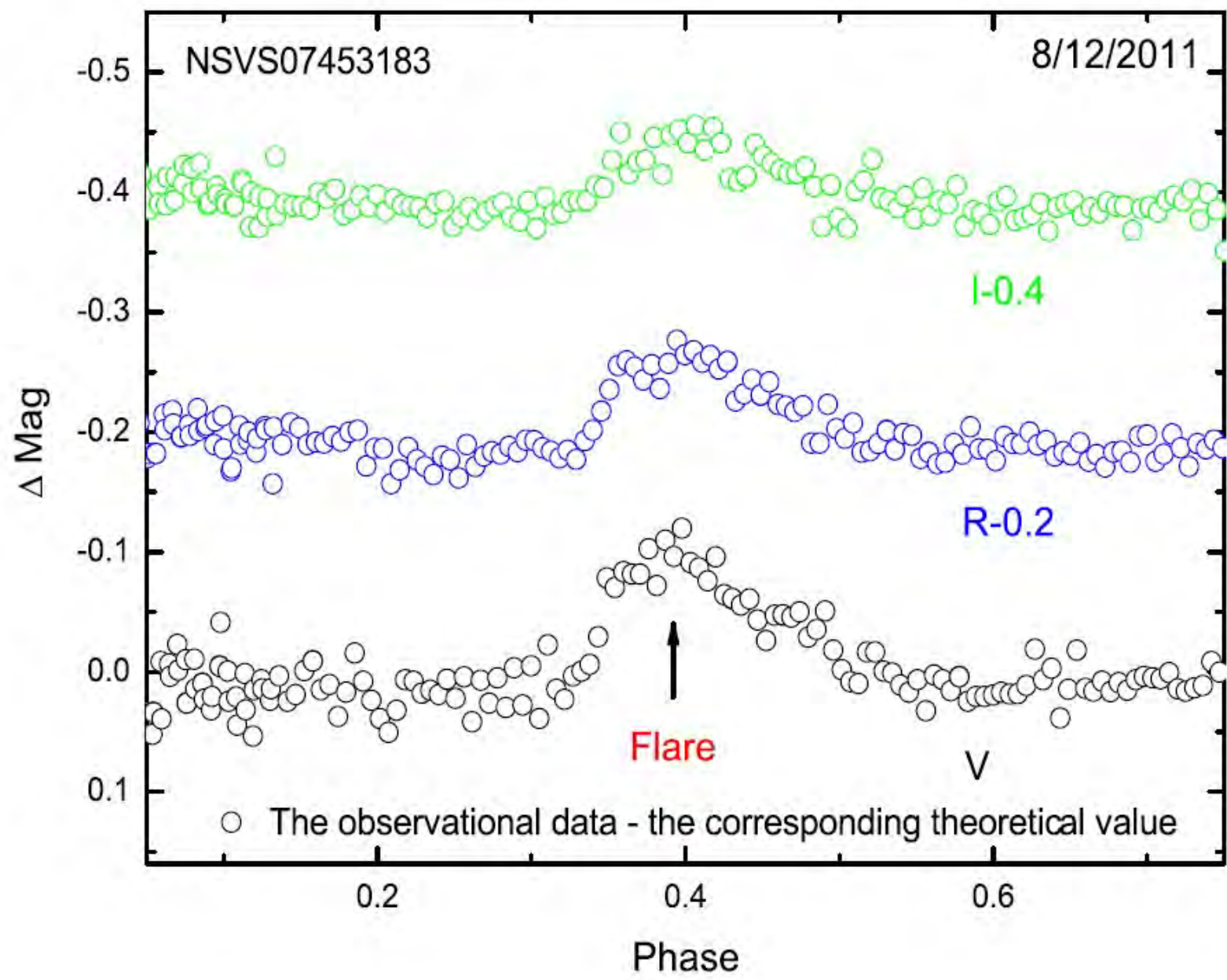
Accepted 2014 May 12. Received 2014 May 12; in original form 2014 January 30

## ABSTRACT

We report 15 new *VRI* light curves of five low-mass eclipsing binaries (NSVS 02502726, NSVS 07453183, NSVS 11868841, NSVS 06550671 and NSVS 10653195) that were observed between 2010 and 2012. We analysed our new data together with three published spectroscopic observations and seven published light curves using a modified version of the Wilson–Devinney program. Orbital solutions of the five low-mass eclipsing binaries were revised and new star-spot parameters were obtained. We found that spot locations on the five low-mass eclipsing binaries changed over several years. However, the star-spots for NSVS 07453183 and NSVS 06550671 were stable for several months. More interestingly, for NSVS 02502726, the spots within a star-spot longitude region of  $180^\circ$ – $360^\circ$  indicated a magnetic activity cycle of  $5.9(\pm 0.2)$  yr. Moreover, we detected the first flare-like event on NSVS 07453183 at phase 0.39. The observations of the chromospheric activity indicators ( $H\beta$  and  $H\gamma$  lines) revealed that NSVS 10653195 and NSVS 06550671 were active. For NSVS 02502726, we found a weak continuous secular decrease at a smaller rate of  $dp/dt = -2.1(0.8) \times 10^{-7} \text{ d yr}^{-1}$  than the previous result. For NSVS 07453183, the O–C times appeared to increase at cycle







# Substellar companions in low-mass eclipsing binaries

## NSVS 01286630, NSVS 02502726, and NSVS 07453183

M. Wolf<sup>1</sup>, P. Zasche<sup>1</sup>, H. Kučáková<sup>1</sup>, J. Vraštil<sup>1</sup>, K. Hornoch<sup>2</sup>, L. Šmelcer<sup>3</sup>, F. Bílek<sup>4</sup>, L. Pilarčík<sup>1</sup>, and M. Chrastina<sup>5</sup>

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<sup>2</sup> Astronomical Institute, Academy of Sciences, 251 65 Ondřejov, 298 Fričova, Czech Republic

<sup>3</sup> Observatory Valašské Meziříčí, Vsetínská 78, 757 01 Valašské Meziříčí, Czech Republic

<sup>4</sup> Trhové Sviny Observatory, Trocnovská 1188, 374 01 Trhové Sviny, Czech Republic

<sup>5</sup> Department of Theoretical Physics and Astrophysics, Masaryk University, 611 37 Brno, Kotlářská 2, Czech Republic

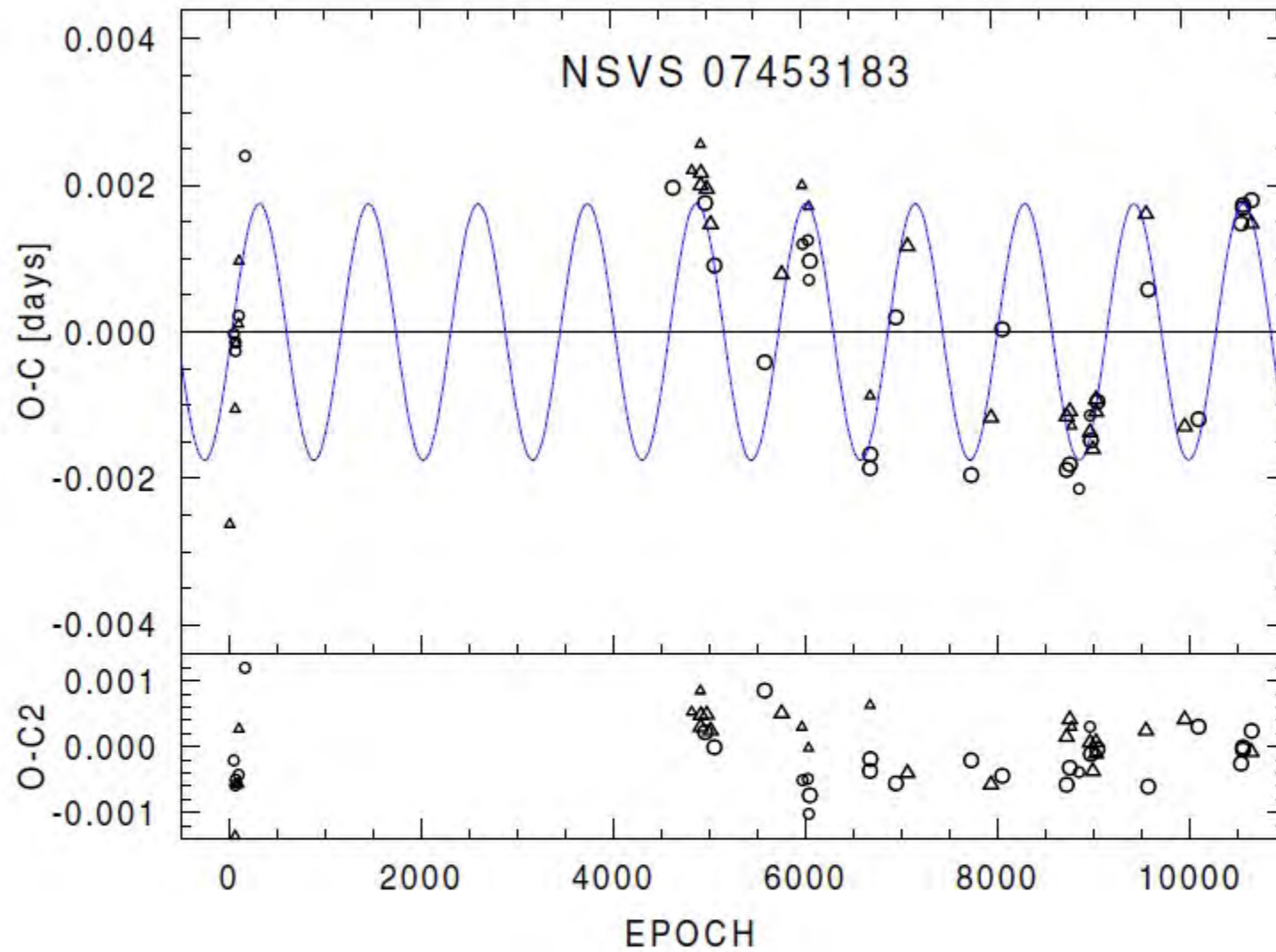
Received 10 December 2015 / Accepted 13 January 2016

### ABSTRACT

*Aims.* As part of our long-term observational project we aim to measure very precise mid-eclipse times for low-mass eclipsing binaries, which are needed to accurately determine their period changes. Over two hundred new precise times of minimum light recorded with CCD were obtained for three eclipsing binaries with short orbital periods: NSVS 01286630 ( $P = 0^d.38$ ), NSVS 02502726 ( $0^d.56$ ), and NSVS 07453183 ( $0^d.37$ ).

*Methods.* O–C diagrams of studied stars were analysed using all reliable timings, and new parameters of the light-time effect were obtained.

*Results.* We derived for the first time or improved the very short orbital periods of third bodies of between one and seven years for all measured low-mass systems. We calculated that the lowest masses of the third components are between those of red and brown



**Fig. 3.** O–C graph for the times of minimum of NSVS 07453183. The very short period of the third body on a circular orbit of 418 days is plotted. See also legend to Fig. 1.

# Světelné křivky 2019 - 2022

## A photometric study of NSVS 7453183: a probable quadruple system with long-term surface activity

L. Šmelcer,<sup>1,2</sup> M. Wolf<sup>3</sup>,<sup>3★</sup> H. Kučáková,<sup>2,3,4,5</sup> P. Zasche,<sup>3</sup> J. Kára,<sup>3</sup> K. Hornocho,<sup>4</sup> M. Zejda<sup>6</sup> and R.F. Auer<sup>2,7</sup>

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<sup>2</sup>Czech Astronomical Society, Variable Star and Exoplanet Section, Vídeňská 1056, CZ-142 00 Praha 4, Czech Republic

<sup>3</sup>Astronomical Institute, Faculty of Mathematics and Physics, Charles University Prague, V Holešovičkách 2, CZ-180 00 Praha 8, Czech Republic

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<sup>5</sup>Research Centre for Theoretical Physics and Astrophysics, Institute of Physics, Silesian University in Opava, Bezručovo nám. 13, CZ-746 01 Opava, Czech Republic

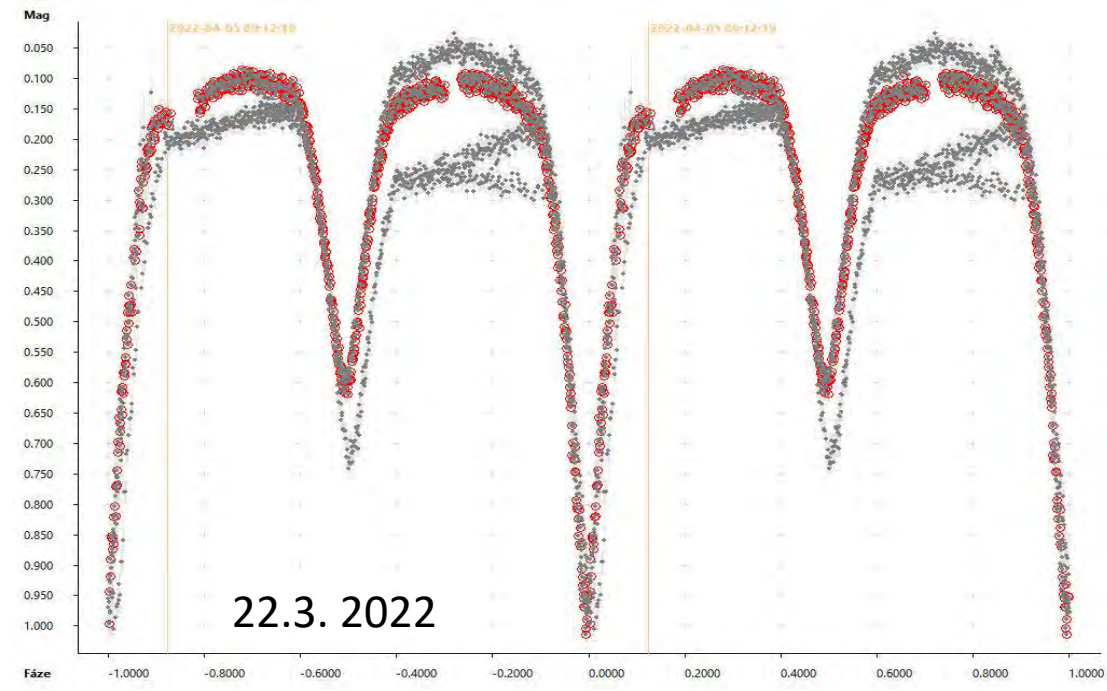
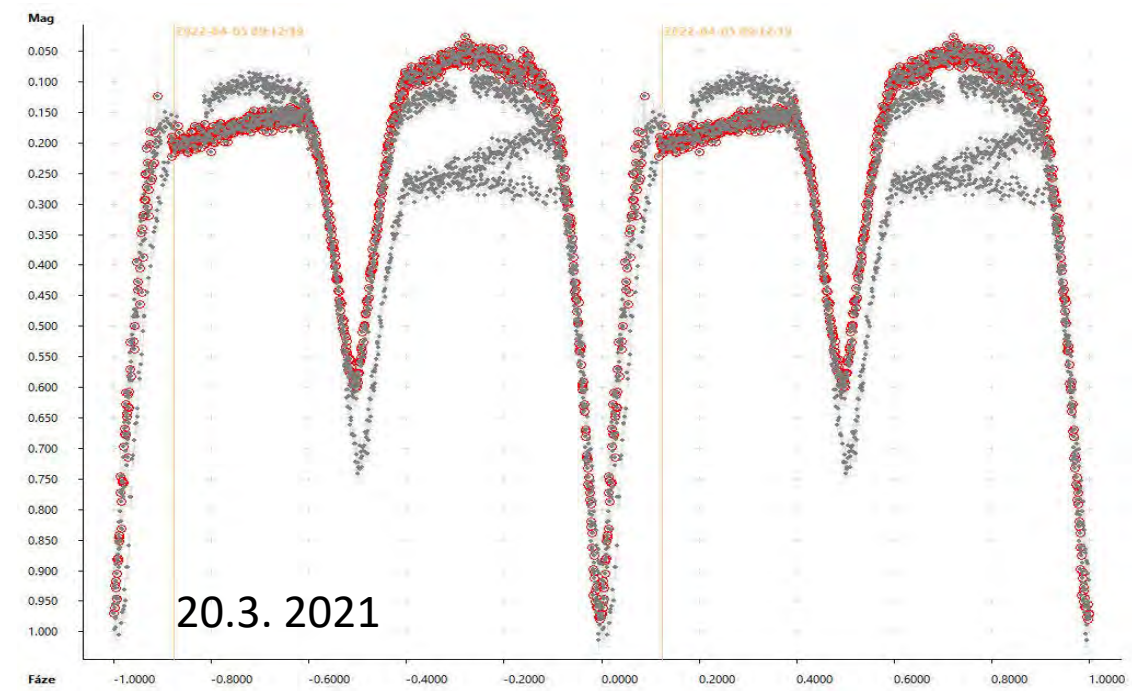
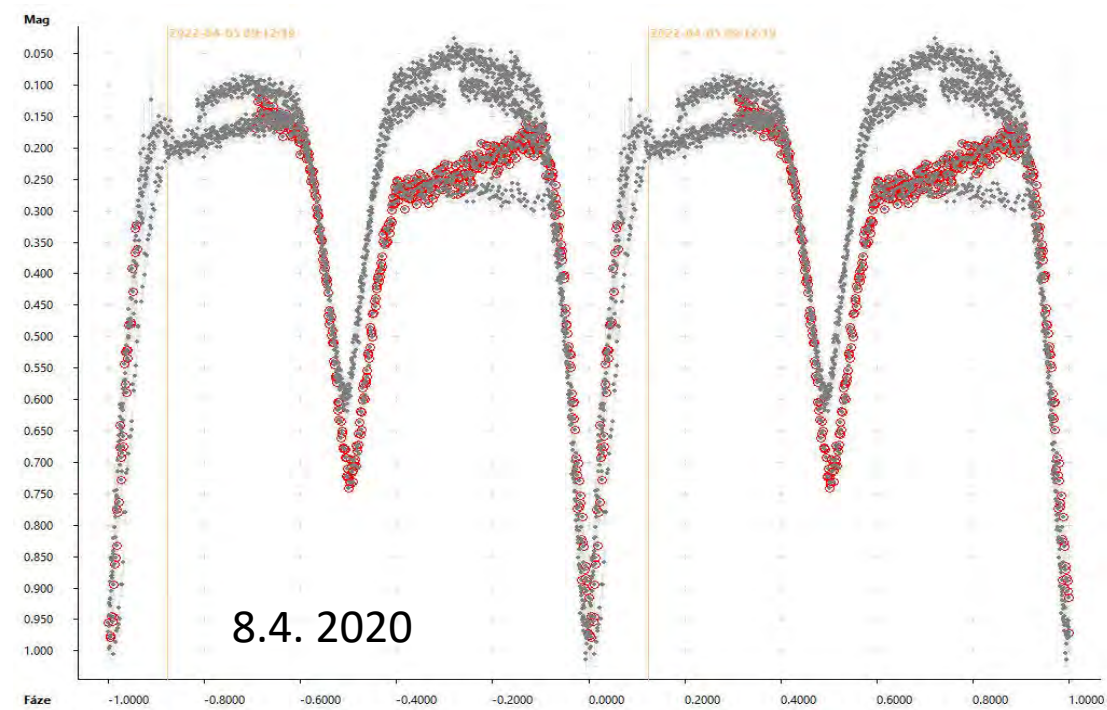
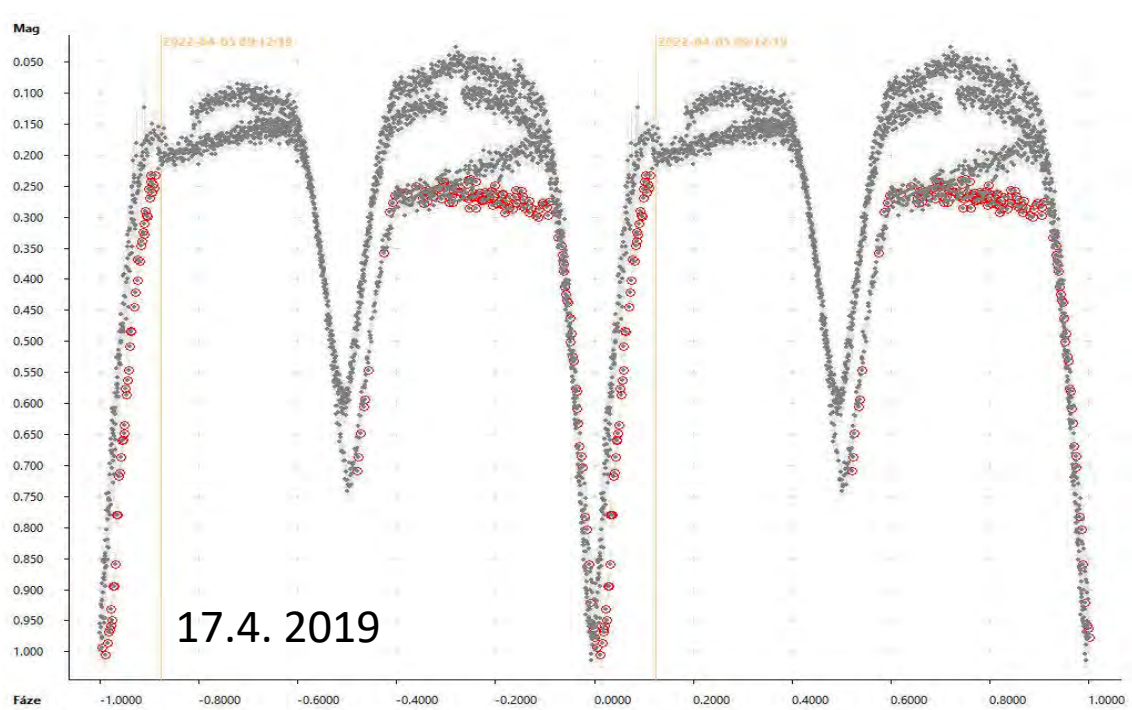
<sup>6</sup>Department of Theoretical Physics and Astrophysics, Masaryk University, Kotlářská 2, CZ-611 37 Brno, Czech Republic

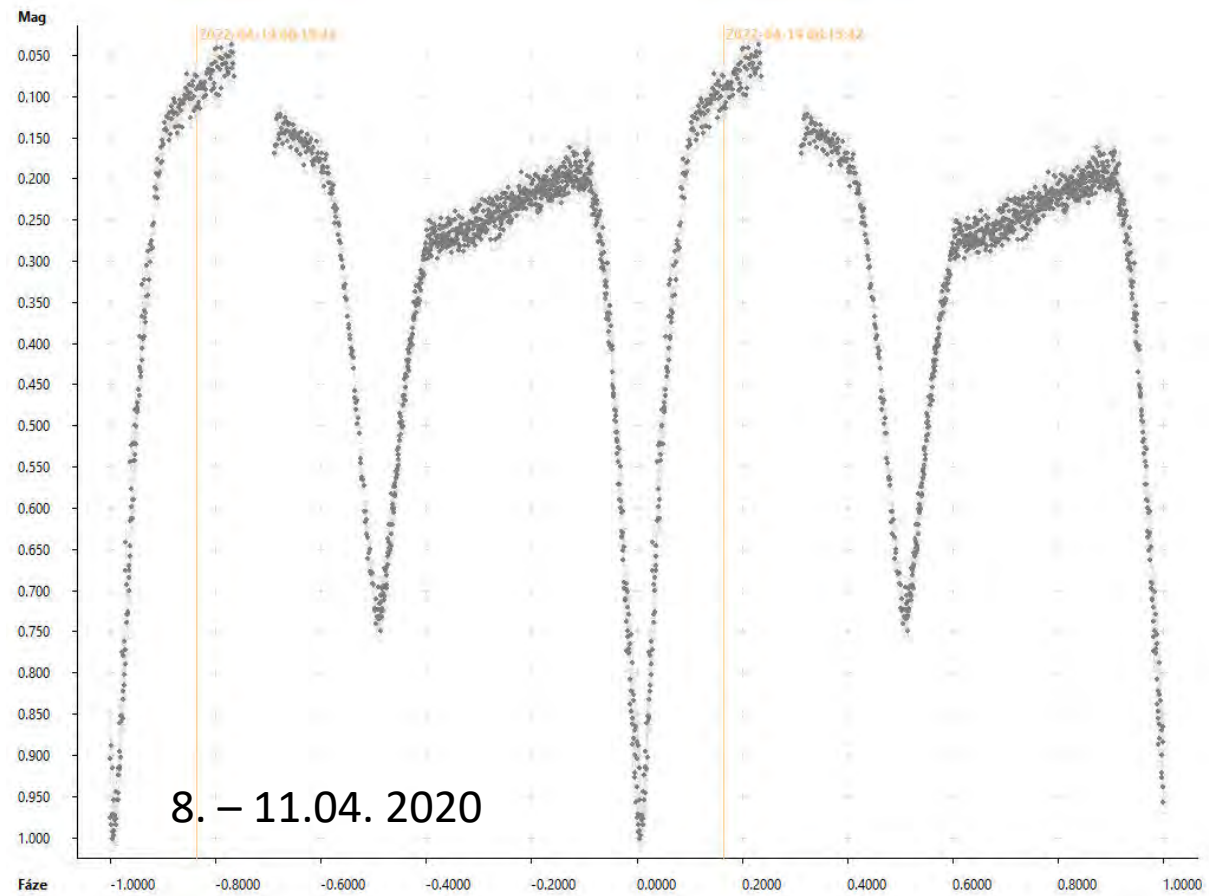
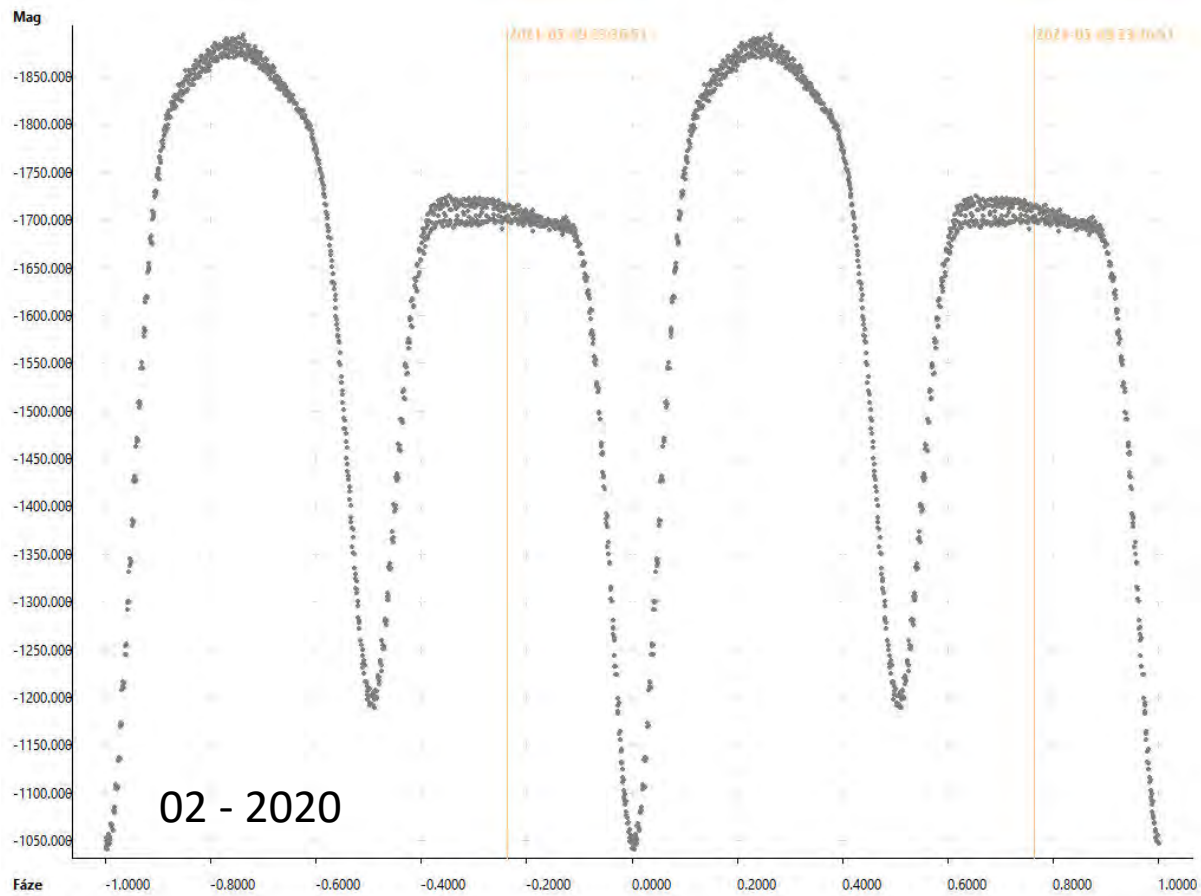
<sup>7</sup>South-Moravian Observatory, Chudčice 273, CZ-64771 Veverská Bítýška, Czech Republic

Accepted 2023 January 3. Received 2022 December 6; in original form 2022 October 11

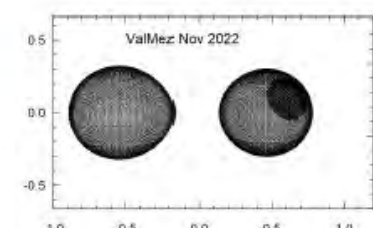
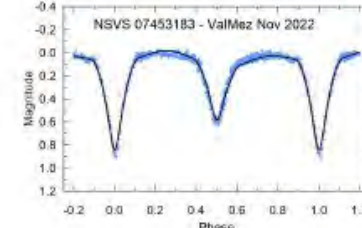
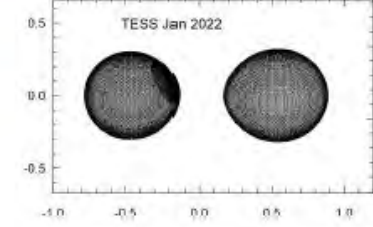
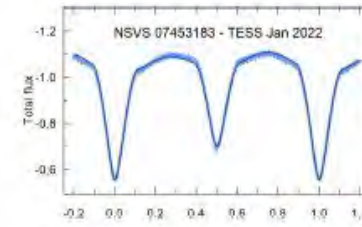
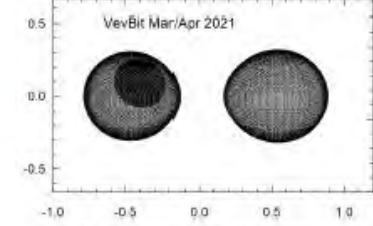
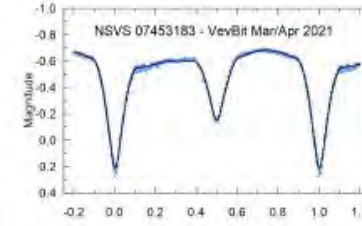
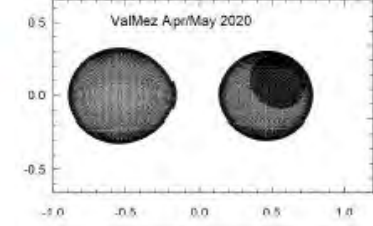
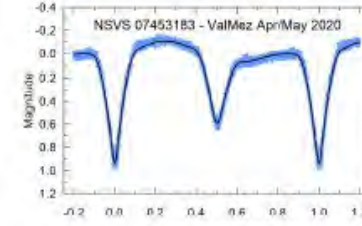
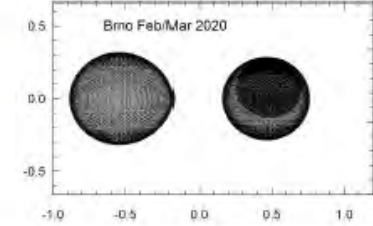
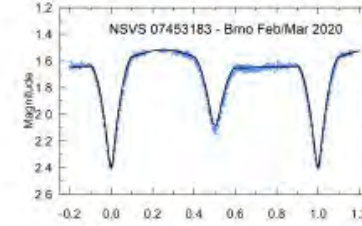
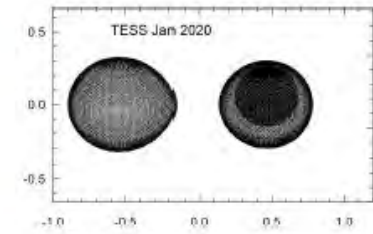
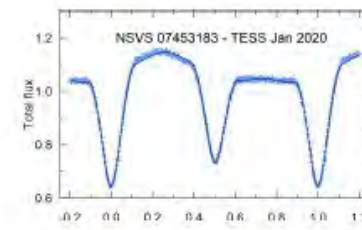
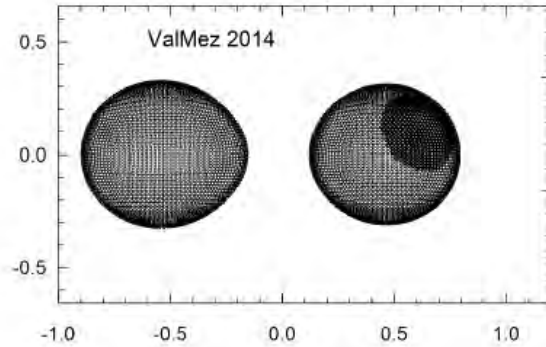
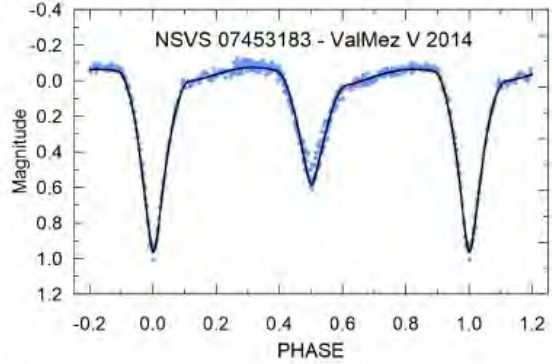
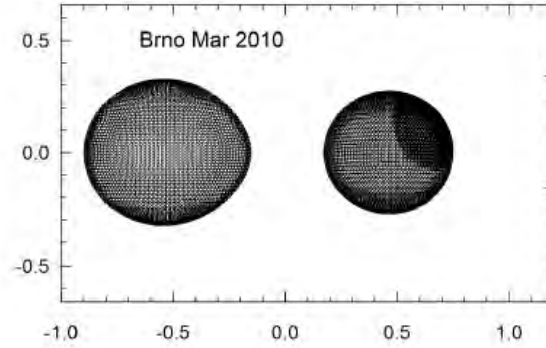
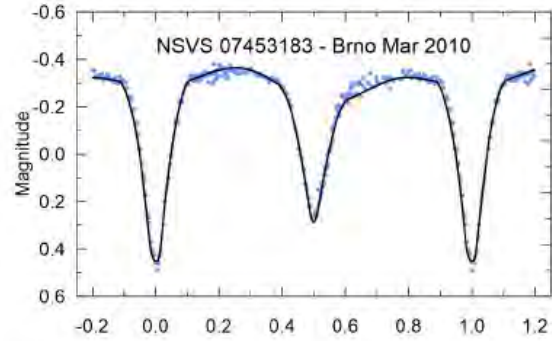
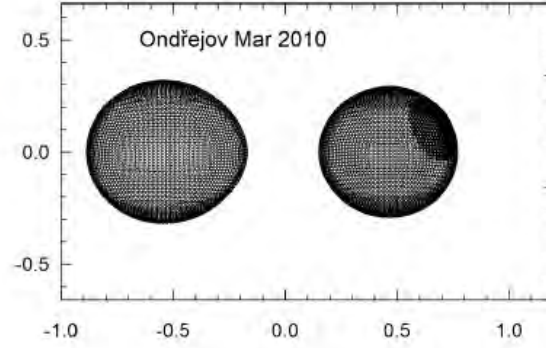
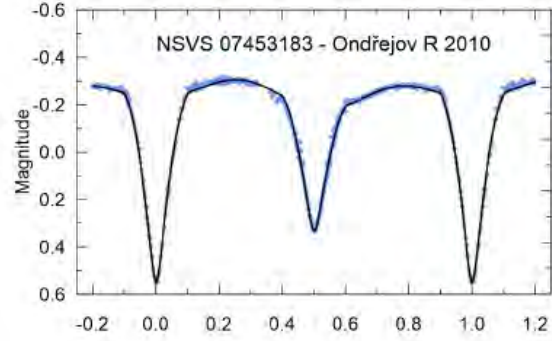
### ABSTRACT

The *VRC* light curves were regularly measured for the eclipsing binary NSVS 7453183 as a part of our long-term observational project for studying of low-mass eclipsing binaries with a short orbital period and surface activity. The *TESS* light curve solution in PHOEBE results to the detached configuration, where the temperature of primary component was adopted to  $T_1 = 4300$  K according to the SED approximation. It gives us  $T_2 = 4080 \pm 100$  K for the secondary component. The spectral type of the primary component was estimated to be K6, and the photometric mass ratio was derived  $q = 0.86$ . We confirm presence of the third body in this system, a stellar companion with a minimal mass  $0.33 M_{\odot}$  orbiting the eclipsing pair with a short period about 425 days, and propose the next, fourth body with a longer orbiting period of about 12 years, probably a brown dwarf with the minimal mass of  $50 M_{\text{Jup}}$ . The hierarchical structure  $((1+1)+1) + 1$  of this quadruple system is assumed. Characteristics and temporal variations of the dark region on the surface of the primary component were estimated. The average migration speed of

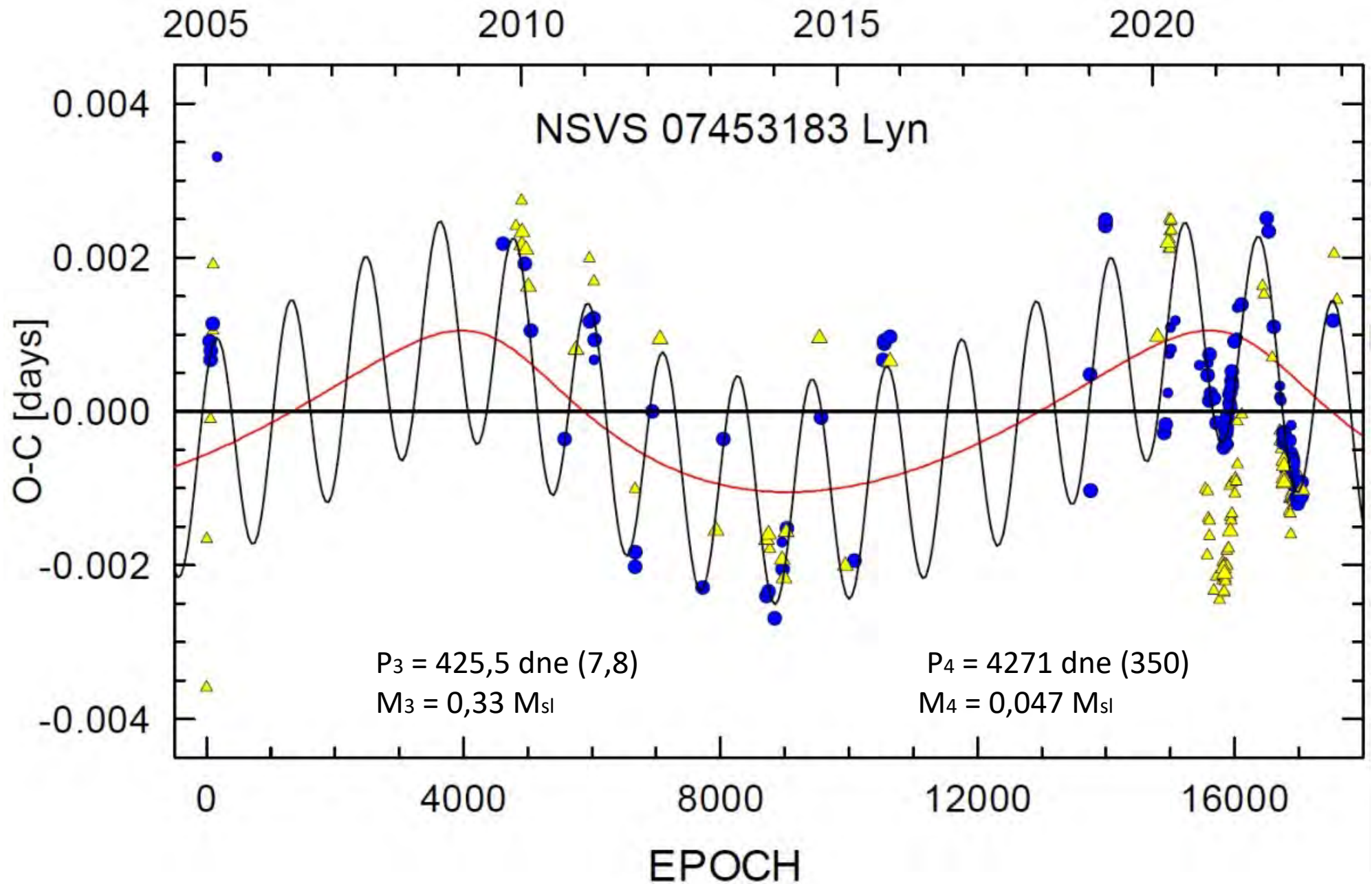








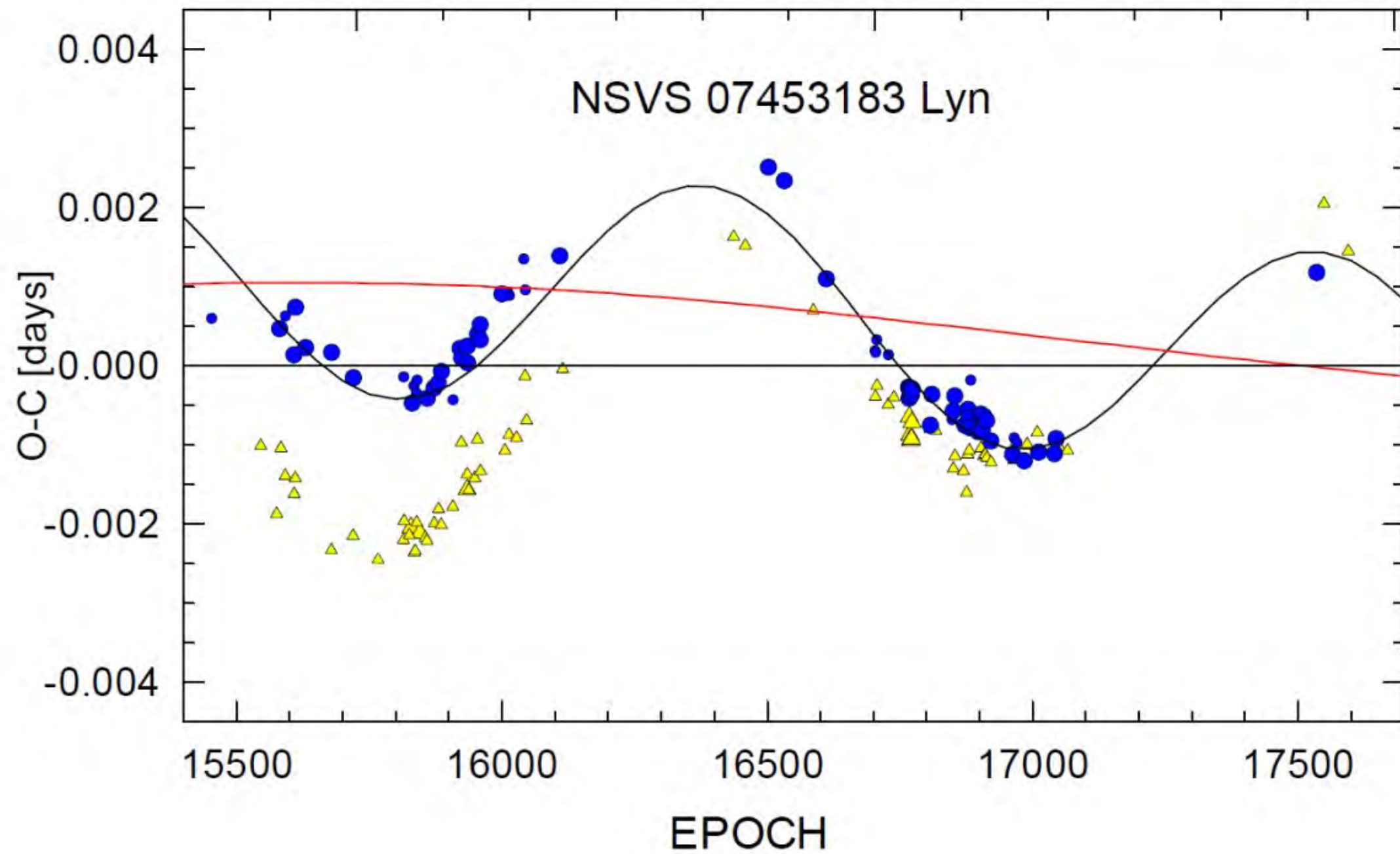
O-C diagram



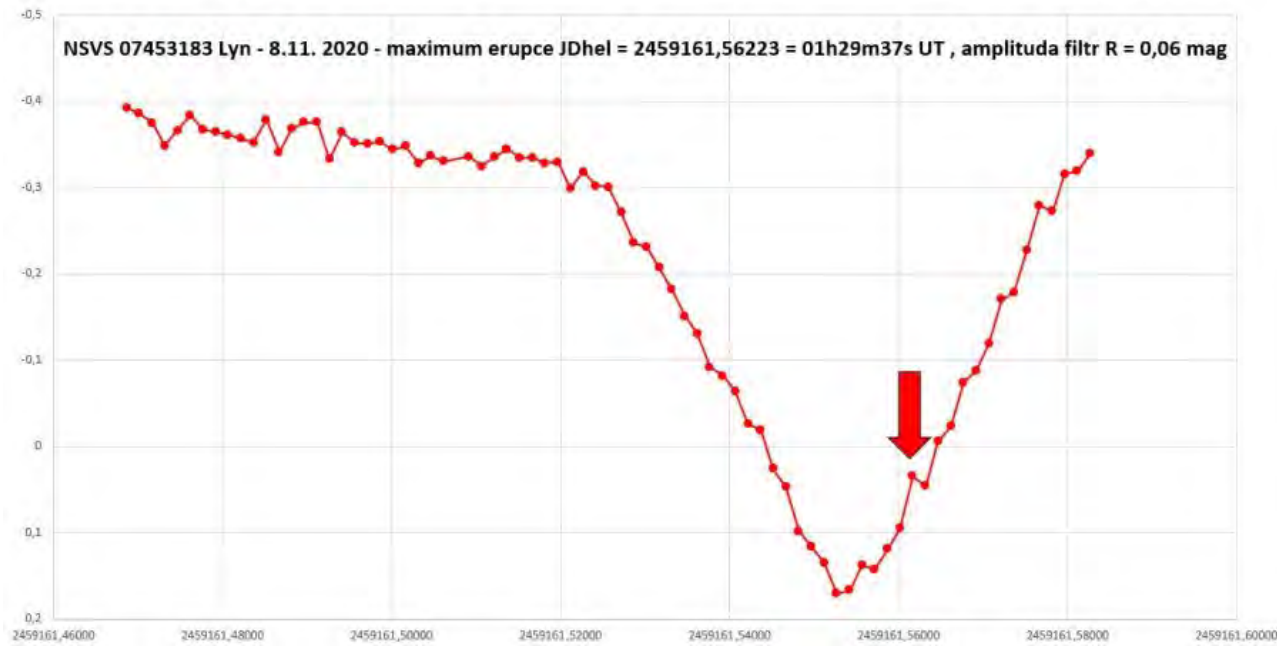
2021

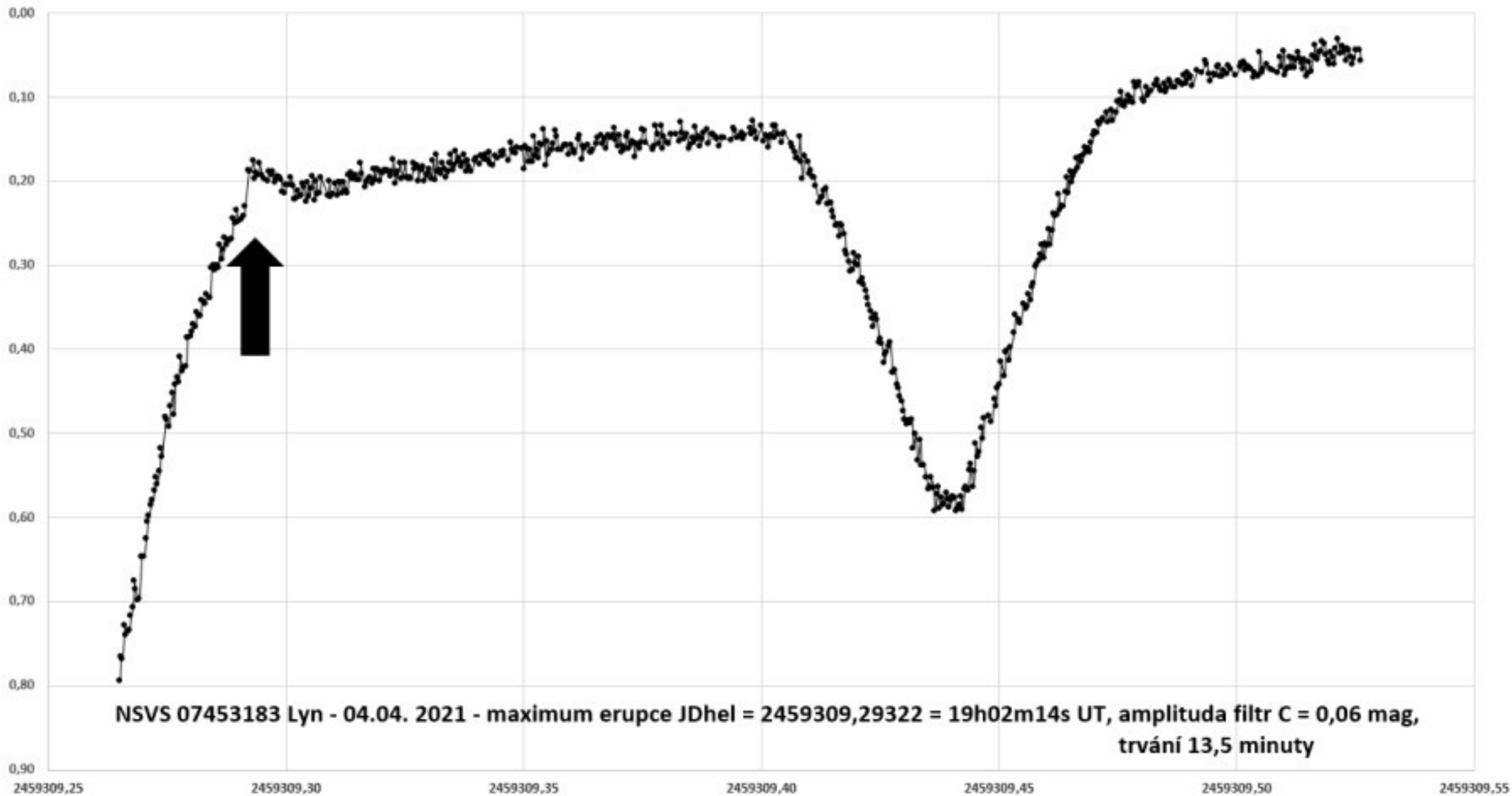
2022

2023



# Eruptivní aktivita





**NSVS 07453183 Lyn - 04.04. 2021 - maximum erupce JDhel = 2459309,29322 = 19h02m14s UT, amplituda filtr C = 0,06 mag, trvání 13,5 minuty**

	date	telescope		time (UT)	duration (minute)	amplitude (mag)	filter		phase		maximum JDhel
1	08.11.2020	C 355 + G2 1600		01h28m32s	4,3	0,13	V				2459161,56148
				01h29m37s	2,8	0,06	R				2459161,56223
2	04.04.2021	N 254 + QHY 174		19h02m14s	13,5	0,06	C				2459309,29322
3	01.03.2022	N 254 + QHY 174	start	22h52m20s	2,5	0,09	C				2459640,45301
			max	22h54m50s	5						2459640,45475
			end	22h59m50s	celkem 7,5						
4	02.03.2022	N 254 + QHY 174	start	18h14m58s	17	0,07	C				2459641,25579
			max	18h31m58s	31						2459641,27220
			end	19h02m28s	celkem 48						2459641,28878
5	14.03.2022	N 254 + QHY 174	start	02h16m39s	5,23	0,19	C				2459652,59490
			max	02h21m53s	9,4						2459652,59853
			end	02h31m17s	celkem 14,63						2459652,60506
6	21.03.2022	N 254 + QHY 174	start	02h01m55s	3,99	0,09	C				2459659,58468
			max	02h05m56s	6,51						2459659,58745
			end	02h12m29s	celkem 10,5						2459659,59197
7	18.03.2023	N 200 + C2 7000A		22h36m56s	10,1	0,05	C				2460022,44232



567,75 hod. pozorování, 6 erupcí, frekvence 0,010568 er./hod., 1 er. za 94,63 hod  
742,85 hod. pozorování, 7 erupcí, frekvence 0,0094 er./hod., 1 er. za 106,14 hod

2

## Četnost erupcí NSVS 07453183 Lyn - 2014 - 2023

