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NEW CCD TIMES OF MINIMA OF 17 ECCENTRIC ECLIPSING BINARY SYSTEMS

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Observatory and telescope:

Sobaeksan Optical Astronomical Observatory (SOAO): 61cm Boller and Chivens reflecting telescope on an equatorial mount.

Detector:	A PIXIS 2K CCD for the observing seasons of 2009-2011
	and a FLI 4K CCD for those of 2015-2017 were used and
	the fields of view for the CCD systems are $17.6' \times 17.6'$ and
	$15.2' \times 15.2'$, respectively.

Method of data reduction:

Reduction of all CCD frames was made with the IRAF/DIPHO¹ software package.

Method of minimum determination:

Times of minimum light were computed with the method of Kwee & van Woerden (1956).

Explanation of the remarks in the table:

C1 and C2 denote the PIXIS 2K and FLI 4K CCD cameras, respectively. C3 = TYC 3570-1573-1 = 2MASS J19554410+5213346 = KIC 12903449 = [DCO2008] T-CYG1-1373. The 'd' denotes the total eclipse duration times of seven binary stars having a flat-bottom at primary or secondary eclipses.

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Times of minima:						
Star name	Time of min.	Error	Type	Filter	Rem.	
	HJD 2400000+					
AG Ari	57717.0978	0.0002	II	R	C2, $d \simeq 49^{\text{m}}$	
AL Ari	57357.9840	0.0002	II	R	$C2, d \simeq 65^{\mathrm{m}}$	
CG Aur	57409.1039	0.0002	Ι	R	C2	
V645 Aur	57768.15414	0.00008	II	R	C2, $d \simeq 12^{\text{m}}$	
WW Cam	57363.05325	0.00006	II	V	C2, $d \simeq 12^{\text{m}}$	
	57769.04056	0.00004	I	R	C2	
AS Cam	57475.98222	0.00005	I	V	C2, $d \simeq 53^{\text{m}}$	
AV CMi	57770.1307	0.0003	II	R	C2	
OX Cas	57330.9347	0.0002	I	R	C2	
PV Cas	55100.2708	0.0002	II	BVRI	C1	
	55480.1232	0.0004	II	BVRI	C1	
	55494.9672	0.0002	I	BVRI	C1	
	55550.9830	0.0002	I	BVRI	C1	
	55836.3097	0.0003	I	BV	C1	
	55837.2198	0.0002	II	BVRI	C1	
	55838.05977	0.00007	I	BVRI	C1	
	55866.0682	0.0002	I	BVRI	C1	
	55922.0810	0.0002	I	BVRI	C1	
	57332.11993	0.00006	II	R	C2	
V381 Cas	57330.0947	0.0001	I	R	C2	
V821 Cas	57332.2172	0.0003	II	R	C2	
CO Lac	57688.0732	0.0002	II	BVR	C2	
MZ Lac	57319.9878	0.0005	II	R	C2	
V401 Lac	57553.1778	0.0001	II	R	C2	
	57718.05706	0.00005	Ι	R	C2, $d \simeq 32^{\text{m}}$	
V498 Mon	57718.2093	0.0006	II	R	$C2^{'}$	
FT Ori	57320.27040	0.00007	II	R	C2, $d \simeq 40^{\text{m}}$	
TYC 3570-1573-1	57238.2590	0.0001	I	R	C2, C3	

Remarks:

In order to obtain the eclipse timings of some eccentric eclipsing binary stars (EEB) the CCD photometric observations of the systems were made during the observing seasons of 2009–2017. All the raw CCD images obtained were pre-processed by compensating for bias, dark, and flat using the IRAF/CCDPRO package and post-processed using IRAF/DAOPHOT. Further details of raw data processing were described in Kim et al. (2014). A total of 28 timings for 17 EEBs were obtained from the observations. Type I and II labels in the fourth column of the table denote primary and secondary eclipses, respectively. Individual filtered timings determined from the multi-bandpass observations of PV Cas and CO Lac were calculated to be the weighted mean timings which are listed in the table. All the timings were archived into the database of Kreiner et al. (2001).

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