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NEW TIMES OF MINIMA OF ECLIPSING BINARY SYSTEMS

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Observatory and telescope:

50-cm $f/8.4$ Ritchey–Chrétien telescope of the Baja Astronomical Observatory (Hungary)

50-cm $f/15$ Cassegrain telescope, 60/90cm Schmidt-telescope and 1m $f/13.3$ RCC telescope of the Konkoly Observatory at Piskésetető Mountain Station (Hungary)

Detector:

SBIG ST-7 CCD camera (ST7)

Apogee AP-7 CCD camera (AP7)

UBVRI Photometer (Pi50)

Photometrics CCD-camera(Schmidt, 1m RCC)

Method of data reduction:

Reduction of the CCD frames was made with a customly developed IRAF¹ package.

Method of minimum determination:

The minima times were computed with parabolic fitting, and in some cases with linearized Pogson-method or Kwee-van Woerden method (Kwee & van Woerden, 1952).

¹IRAF is distributed by the National Optical Astronomical Observatories, operated by the Association of the Universities for Research in Astronomy, Inc., under cooperative agreement with the National Science Foundation

| Observed star(s): | | | | | | | |
|--------------------------|-----------|---------------------|-----------|--------------|-------------|------------|--------|
| Star name | GCVS type | Coordinates (J2000) | | Comp. star | Ephemeris | | Source |
| | | RA | Dec | | E 2400000+ | P [day] | |
| AB And | EW | 23 11 32 | +36 53 35 | BD+36°5018 | 51534.2504 | 0.33189106 | 1 |
| OO Aql | EW | 19 48 13 | +09 18 32 | 1058-0689 | 38613.2222 | 0.50678848 | 2 |
| IM Aur | EA | 05 15 30 | +46 24 21 | 3358-1208 | 38327.7974 | 1.2472891 | 3 |
| AS Cam | EA | 09 05 29 | +69 29 45 | HD 35169 | 44939.24524 | 3.4309638 | 4 |
| VW Cep | EW | 20 37 21 | +75 35 57 | BD+75° 739 | 44157.4131 | 0.2783146 | 2 |
| XX Cep | EA | 23 38 20 | +64 20 03 | 4288-0150 | 44839.8022 | 2.3373266 | 2 |
| DK Cyg | EW | 21 35 03 | +34 35 45 | 2712-1841 | 51000.0999 | 0.4706929 | 5 |
| LS Del | EB | 20 57 10 | +19 38 59 | 1656-0356 | 51000.2257 | 0.36384021 | 5 |
| AK Her | EW | 17 13 58 | +16 21 01 | 1536-1266 | 42186.4600 | 0.42152201 | 2 |
| GU Her | EA | 16 32 05 | +30 23 10 | 2581-1969 | 50983.46694 | 4.34320188 | 6 |
| HS Her | EA | 18 50 50 | +24 43 12 | 2113-1427 | 40146.6080 | 1.637438 | 2 |
| V994 Her | EA | 18 27 46 | +24 41 51 | BD+24° 3426 | 48501.1239 | 2.08309 | 7 |
| UV Leo | EA | 10 38 21 | +14 16 04 | 0845-0255 | 38440.72633 | 0.60008478 | 2 |
| V1353 Ori | EW | 05 42 58 | -00 42 46 | 4767-0774 | 50100.26097 | 0.4714531 | 8 |
| W UMa | EW | 09 43 45 | +55 57 09 | 3810-1196 | 50554.7444 | 0.33363554 | 9 |
| DW UMa | EA | 10 33 53 | +58 46 54 | 3822-0772* | 46229.00691 | 0.13660653 | 10 |
| | | | | 3822-0070** | | | |
| | | | | 3822-0072*** | | | |
| GSC 3822-1056 | EW | 10 33 58 | +58 52 16 | 3822-0772* | 50495.5212 | 0.30989069 | 11 |
| | | | | 3822-0070** | | | |
| | | | | 3822-0072*** | | | |

Source(s) of the ephemeris:

1. Pribulla et al., 2001
2. Kholopov et al., 1985
3. Bartolini & Zoffoli, 1986
4. Kozyreva et al., 1996
5. Kiss et al., 1999
6. Borkovits et al., 2001
7. ESA, 1997
8. present paper
9. Morgan et al., 1997
10. Bíró, 2000
11. Bíró & Borkovits, 2000

| Times of minima: | | | | | | |
|-------------------------|------------------------------|-------|------|----------------|------------------|---------------------|
| Star name | Time of min. HJD 2400000+ | Error | Type | Filter | $O - C$ [day] | Rem. |
| AB And | 52511.3418 | 1 | I | <i>V</i> | 0.0041 | Csiz/1m RCC |
| OO Aql | 52481.5095 | 1 | I | <i>R, V, B</i> | 0.0205 | Bír+Kov/AP7 |
| IM Aur | 52304.281 | 1 | II | <i>V</i> | -0.014 | Bor/AP7 |
| | 52305.529 | 1 | II | <i>V</i> | -0.014 | Bír/AP7 |
| AS Cam | 52365.3753 | 2 | II | <i>V</i> | -0.1911 | Moór+Köny/Schmidt |
| VW Cep | 52506.4320 | 2 | I | <i>V, R</i> | 0.1375 | Bor/Pi50 |
| | 52506.4329 | 2 | I | <i>B</i> | 0.1384 | Bor/Pi50 |
| XX Cep | 52466.4673 | 3 | I | <i>V</i> | -0.0316 | Bor/AP7 |
| DK Cyg | 52512.4415 | 1 | I | <i>V, R, I</i> | 0.0053 | Csiz/1m RCC |
| LS Del | 52200.3569 | 2 | II | <i>R</i> | 0.0043 | Bor/AP7 |
| AK Her | 52360.5365 | 1 | II | <i>R</i> | 0.0105 | Bor/AP7 |
| | 52437.4639 | 1 | I | <i>R</i> | 0.0101 | Bor/AP7 |
| GU Her | 52338.557 | 1 | I | <i>R</i> | 0.011 | Bor/AP7 |
| | 52362.432 | : | II | <i>R</i> | -0.002 | Bor/AP7 |
| HS Her | 52417.5275 | 2 | I | <i>V</i> | -0.0409 | Bír/AP7 |
| V994 Her | 52488.4984 | 6 | I: | <i>R</i> | 0.3402 | Bír+Kov+Kós+Pál/AP7 |
| | 52488.4994 | 1 | I: | <i>V</i> | 0.3412 | Bír+Kov+Kós+Pál/AP7 |
| | 52488.4997 | 3 | I: | <i>B</i> | 0.3415 | Bír+Kov+Kós+Pál/AP7 |

| Times of minima: | | | | | | |
|-------------------------|------------------------------|-------|------|-------------|------------------|--------------|
| Star name | Time of min. HJD 2400000+ | Error | Type | Filter | $O - C$ [day] | Rem. |
| UV Leo | 52307.5076 | 7 | I | <i>V</i> | 0.0222 | Bor/AP7 |
| V1353 Ori | 51952.3645 | 1 | II | – | 0.0000 | Heg/AP7 |
| W UMa | 52364.5035 | 1 | II | <i>b, y</i> | –0.0469 | Csiz/ 1m RCC |
| DW UMa | 52298.4349 | 1 | I | <i>V</i> | –0.0001 | Bor/AP7* |
| | 52298.5708 | 3 | I | <i>V</i> | –0.0008 | Bor/AP7* |
| | 52347.4769 | 5 | I | <i>R</i> | 0.0001 | Bor/AP7** |
| | 52347.6132 | 1 | I | <i>R</i> | –0.0002 | Bor/AP7** |
| | 52366.3283 | 1 | I | <i>R</i> | –0.0002 | Bor/AP7*** |
| GSC 3822 1056 | 52263.4567 | 2 | I | – | 0.0024 | Bor/ST7** |
| | 52298.480 | 1 | I | <i>V</i> | 0.008 | Bor/AP7* |
| | 52298.626 | 1 | II | <i>V</i> | –0.001 | Bor/AP7* |
| | 52347.4387 | 1 | I | <i>R</i> | 0.0036 | Bor/AP7** |
| | 52347.5950 | 5 | II | <i>R</i> | 0.0049 | Bor/AP7** |
| | 52366.3401 | 2 | I | <i>R</i> | 0.0016 | Bor/AP7*** |
| | 52366.497 | 1 | II | <i>R</i> | 0.004 | Bor/AP7*** |

Explanation of the remarks in the table:

Observer(s)/Instrument

Asterisks indicate the comparison stars used in the actual reduction of DW UMa and GSC 3822 1056, as labeled in Table ‘Observed star(s)’.

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