

COMMISSIONS 27 AND 42 OF THE IAU
 INFORMATION BULLETIN ON VARIABLE STARS

Number 5636

Konkoly Observatory
 Budapest
 21 July 2005

HU ISSN 0374 – 0676

CCD OBSERVATIONS OF TIMES OF MINIMA OF ECLIPSING BINARIES

COOK, J. M.; DIVOKY, M.; HOFSTRAND, A.; LAMB, J.; QUARDERER, N.

Dept. Physics & Astronomy, University of Iowa, Iowa City, Iowa

e-mail: talon@phobos.physics.uiowa.edu

| |
|---|
| Observatory and telescope: |
| 37cm f/14 Rigel ¹ telescope at Winer Observatory |

| | |
|------------------|---|
| Detector: | FLI IMG-1024 CCD camera, Peltier cooling, SITe-003 sensor, 17' × 17' FOV, 0.98" per pixel, 1024 × 1024 format |
|------------------|---|

| |
|---|
| Method of data reduction: |
| Reduction of the CCD frames was made with the Talon ² image analysis package |

| |
|---|
| Method of minimum determination: |
| The minima timings were computed using a folded light curve method. |

| Times of minima: | | | | | | |
|-------------------------|------------------------------|---------|------|--------|------------------|------|
| Star name | Time of min. HJD 2400000+ | Error | Type | Filter | $O - C$ [day] | Rem. |
| AB And | 52933.6761 | 0.0005 | I | R | 0.0014 | |
| | 53022.6227 | 0.0003 | I | R | 0.0009 | |
| | 53292.7828 | 0.0005 | I | R | 0.0008 | |
| | 53293.7783 | 0.0003 | I | R | 0.0007 | |
| | 53297.7609 | 0.0004 | I | R | 0.0006 | |
| RT And | 53529.9077 | 0.0005 | I | R | -0.0057 | |
| | 53553.8059 | 0.0006 | I | R | -0.0068 | |
| WZ And | 52935.7186 | 0.0003 | I | R | -0.0010 | |
| | 53022.6763 | 0.0006 | I | R | 0.0008 | |
| | 53282.8547 | 0.0007 | I | R | 0.0011 | |
| | 53294.6803 | 0.0008 | I | R | 0.0004 | |
| | 53547.9021 | 0.0014 | I | R | 0.0006 | |
| XZ And | 52934.8526 | 0.00025 | I | R | -0.0010 | |
| | 53318.9701 | 0.0003 | I | R | -0.0032 | |
| | 53329.8282 | 0.0002 | I | R | -0.0036 | |
| | 53348.8308 | 0.0003 | I | R | -0.0034 | |

¹See <http://phobos.physics.uiowa.edu/tech/rigel.html>

²Talon is a custom telescope control and image analysis software suite developed by Elwood Downey of the Clear Sky Institute. (see <http://phobos.physics.uiowa.edu/tech/software.html>)

| Times of minima: | | | | | | |
|-------------------------|------------------------------|--------|------|--------|------------------|------|
| Star name | Time of min. HJD 2400000+ | Error | Type | Filter | $O - C$ [day] | Rem. |
| V0343 Aql | 53531.8183 | 0.0008 | I | R | 0.0052 | |
| V0346 Aql | 53530.7595 | 0.0005 | I | R | 0.0004 | |
| | 53531.8659 | 0.0005 | I | R | 0.0004 | |
| | 53540.7170 | 0.0014 | I | R | 0.0006 | |
| | 53552.8892 | 0.0007 | I | R | 0.0029 | |
| AL Cam | 53433.7815 | 0.0003 | I | R | -0.0027 | |
| | 53530.7541 | 0.0015 | I | R | 0.0016 | |
| | 53538.7198 | 0.0008 | I | R | -0.0027 | |
| IR Cas | 53525.9444 | 0.0012 | I | R | -0.0019 | |
| | 53538.8781 | 0.0004 | I | R | -0.0012 | |
| | 53553.8519 | 0.0011 | I | R | -0.0024 | |
| | 53555.8946 | 0.0013 | I | R | -0.0017 | |
| IV Cas | 53552.7830 | 0.0007 | I | R | -0.0021 | |
| | 53553.7816 | 0.0008 | I | R | -0.0020 | |
| | 53553.7780 | 0.0005 | I | R | -0.0026 | |
| EG Cep | 53529.8576 | 0.0007 | I | R | 0.0006 | |
| | 53530.9467 | 0.0004 | I | R | 0.0005 | |
| | 53540.7501 | 0.0015 | I | R | 0.0007 | |
| | 53547.8307 | 0.0007 | I | R | 0.0012 | |
| | 53548.9197 | 0.0005 | I | R | 0.0010 | |
| | 53553.8222 | 0.0012 | I | R | 0.0019 | |
| ZZ Cep | 53552.9370 | 0.0028 | I | R | -0.0022 | |
| RW Com | 53486.6738 | 0.0003 | II | R | 0.0126 | |
| | 53494.7403 | 0.0007 | II | R | 0.0094 | |
| | 53525.7168 | 0.0009 | I | R | 0.0123 | |
| | 53529.7518 | 0.0004 | I | R | 0.0125 | |
| | 53531.7688 | 0.0007 | II | R | 0.0120 | |
| | 53538.7710 | 0.0010 | I | R | 0.0125 | |
| | 53540.6702 | 0.0005 | I | R | 0.0130 | |
| | 53548.7398 | 0.0010 | I | R | 0.0128 | |
| | 53553.7239 | 0.0005 | I | R | 0.0127 | |
| W Crv | 53547.6724 | 0.0012 | I | R | 0.0003 | |
| BR Cyg | 53525.8806 | 0.0007 | I | R | -0.0007 | |
| | 53529.8795 | 0.0006 | I | R | 0.0005 | |
| CG Cyg | 53529.9148 | 0.0006 | I | R | 0.0019 | |
| | 53548.8489 | 0.0004 | I | R | 0.0017 | |
| | 53555.7921 | 0.0004 | I | R | 0.0023 | |
| V0346 Cyg | 53531.8979 | 0.0007 | I | R | 0.0172 | |
| | 53553.8434 | 0.0008 | I | R | 0.0163 | |
| V0387 Cyg | 53529.8980 | 0.0005 | I | R | -0.0048 | |
| | 53531.8191 | 0.0003 | I | R | -0.0055 | |
| | 53538.8655 | 0.0005 | I | R | -0.0057 | |
| | 53540.7871 | 0.0005 | I | R | -0.0059 | |
| | 53547.8337 | 0.0005 | I | R | -0.0053 | |
| WW Cyg | 53532.8989 | 0.0004 | I | R | 0.0060 | |
| | 53552.8060 | 0.0008 | I | R | 0.0062 | |

| Times of minima: | | | | | | |
|-------------------------|------------------------------|--------|------|--------|------------------|------|
| Star name | Time of min. HJD 2400000+ | Error | Type | Filter | $O - C$ [day] | Rem. |
| ZZ Cyg | 53528.7504 | 0.0012 | I | R | 0.0033 | |
| | 53538.8085 | 0.0005 | I | R | 0.0036 | |
| | 53540.6954 | 0.0004 | I | R | 0.0047 | |
| | 53548.8676 | 0.0005 | I | R | 0.0050 | |
| | 53553.8966 | 0.0006 | I | R | 0.0051 | |
| | 53555.7831 | 0.0015 | I | R | 0.0057 | |
| TY Del | 53531.9321 | 0.0006 | I | R | 0.0016 | |
| | 53555.7547 | 0.0006 | I | R | 0.0017 | |
| W Del | 53555.9487 | 0.0005 | I | R | 0.0164 | |
| YY Del | 53525.8905 | 0.0007 | I | R | 0.0013 | |
| | 53529.8549 | 0.0005 | I | R | 0.0003 | |
| | 53548.8894 | 0.0004 | I | R | 0.0005 | |
| | 53552.8533 | 0.0007 | I | R | -0.0010 | |
| RZ Dra | 53529.7827 | 0.0007 | I | R | 0.0004 | |
| | 53530.8851 | 0.0003 | I | R | 0.0010 | |
| | 53539.6974 | 0.0003 | I | R | -0.0007 | |
| | 53540.8003 | 0.0005 | I | R | 0.0004 | |
| | 53547.6885 | 0.0026 | II | R | 0.0027 | |
| | 53547.9570 | 0.0006 | I | R | -0.0043 | |
| | 53552.9192 | 0.0014 | I | R | 0.0001 | |
| UZ Dra | 53532.7430 | 0.0026 | I | R | 0.0023 | |
| YY Eri | 52935.9390 | 0.0020 | I | R | 0.0015 | |
| | 53014.7012 | 0.0020 | I | C | -0.0034 | |
| | 53281.8696 | 0.0006 | I | R | 0.0001 | |
| | 53282.0311 | 0.0008 | II | R | 0.0009 | |
| | 53290.8715 | 0.0004 | I | R | 0.0001 | |
| | 53297.9447 | 0.0006 | I | R | 0.0003 | |
| CT Her | 53528.7871 | 0.0016 | I | R | -0.0015 | |
| | 53553.7973 | 0.0017 | I | R | -0.0006 | |
| SZ Her | 53528.7309 | 0.0003 | I | R | 0.0076 | |
| | 53532.8209 | 0.0005 | I | R | 0.0071 | |
| | 53555.7288 | 0.0004 | I | R | 0.0083 | |
| TU Her | 53548.7018 | 0.0004 | I | R | 0.0047 | |
| SW Lac | 53552.8936 | 0.0006 | I | R | -0.0023 | |
| | 53553.8554 | 0.0006 | I | R | -0.0026 | |
| FL Lyr | 53531.7977 | 0.0006 | I | R | -0.0016 | |
| | 53555.7555 | 0.0005 | I | R | -0.0035 | |
| SX Oph | 53547.7158 | 0.0007 | I | R | -0.0023 | |
| U Peg | 53548.9386 | 0.0010 | I | R | -0.0040 | |
| V0505 Sgr | 53525.8969 | 0.0025 | I | R | -0.0201 | |
| EQ Tau | 52939.7935 | 0.0004 | I | R | 0.0024 | |
| | 53014.8898 | 0.0008 | I | C | 0.0023 | |
| | 53017.6207 | 0.0004 | I | C | 0.0024 | |
| | 53017.7923 | 0.0005 | II | C | 0.0034 | |
| | 53292.7474 | 0.0005 | I | R | 0.0034 | |
| | 53294.7958 | 0.0010 | I | R | 0.0037 | |
| | 53297.8676 | 0.0005 | I | R | 0.0034 | |

| Times of minima: | | | | | | |
|-------------------------|------------------------------|--------|------|--------|------------------|------|
| Star name | Time of min. HJD 2400000+ | Error | Type | Filter | $O - C$ [day] | Rem. |
| RV Tri | 52937.6240 | 0.0012 | I | R | 0.0004 | |
| X Tri | 53011.7607 | 0.0003 | I | C | 0.0019 | |
| W UMa | 53462.7047 | 0.0007 | I | R | -0.0010 | |
| | 53467.7092 | 0.0010 | I | R | -0.0010 | |
| RU UMi | 53525.7965 | 0.0006 | I | R | -0.0021 | |
| | 53555.7186 | 0.0017 | I | R | -0.0008 | |
| BU Vul | 52934.6546 | 0.0006 | I | R | -0.0053 | |
| | 53293.6883 | 0.0004 | I | R | -0.0081 | |
| | 53297.6723 | 0.0009 | I | R | -0.0071 | |
| | 53301.6547 | 0.0004 | I | R | -0.0077 | |
| | 53525.8389 | 0.0005 | I | R | -0.0079 | |
| | 53529.8209 | 0.0004 | I | R | -0.0089 | |
| | 53538.9245 | 0.0006 | I | R | -0.0092 | |

| |
|--------------------------|
| Acknowledgements: |
|--------------------------|

| |
|---|
| This work was partly supported by NSF grant DUE-9952594 |
|---|