

**Twelve new Eclipsing Binaries**

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**Abstracts:** *This paper continues the line of publications of new detected variable stars, which has begun with BAVJ Nr. 4. In the course of my investigation of known variable stars on a regular basis, nearby stars are sometimes detected as variables.*

**Introduction:**

The observations were carried out with two semiautomatic telescopes, 8-inch and 14-inch Schmidt-Cassegrain ones, operated at my private observatory. Before 2008, both telescopes were equipped with cooled SBIG ST6 CCD-cameras. Beginning with 2008, these cameras are replaced with SIGMA 1603 cameras, containing a cooled Kodak KAF1603ME chip. Normally, the exposures are 60 s through a Ir & UV cut off filter.

**Observations:**

Differential magnitudes are calculated using a comparison star, not far from the variable ('a' in the chart). The constancy of the comparison is controlled using several check stars in the field, one of them got the label 'b' in the chart. The maximum sensitivity of the chip in the ST6 is in the red part of the spectrum and that of the KAF1603ME chip is at 640nm. Therefore rough instrumental magnitudes are calculated simply by adding the R-magnitude of the comparison star taken from the USNO-B1.0 catalogue to the differential magnitudes. The coordinates are also taken from the USNO-B1.0 catalogue.

**Data analysis:**

Concentric aperture photometry is carried out by means of a self-written program, after bias, dark- and flatfield correction of the exposures. The minima timings are to be published in the BAV-Mitteilungen.

| Nr | USNO-B1.0    | RA2000       | DE2000       | Type | Epoch 24.. | Period   | vicinity of |
|----|--------------|--------------|--------------|------|------------|----------|-------------|
| 1  | 1423-0515849 | 22 36 47.118 | +52 19 04.80 | EA   | 54737.3668 | 2.15517  | OS Lac      |
| 2  | 1422-0485665 | 22 07 17.422 | +52 16 39.49 | EA   | 53932.4891 | 3.23711  | IM Lac      |
| 3  | 1458-0404725 | 22 27 27.278 | +55 53 52.54 | EW   | 56924.5854 | 0.314524 | MW Lac      |
| 4  | 1405-0457183 | 22 33 18.124 | +50 33 07.16 | EA   | 56187.3578 | 3.056866 | AI Lac      |
| 5  | 1416-0453013 | 22 18 36.223 | +51 40 29.33 | EW   | 56158.3886 | 0.406191 | ER Lac      |
| 6  | 1113-0494337 | 20 11 59.036 | +21 19 04.20 | EW   | 55797.5233 | 0.472323 | FF Sge      |
| 7  | 1477-0001770 | 00 02 26.751 | +57 44 59.16 | EA   | 57329.3454 | 2.816756 | EY Cas      |
| 8  | 1079-0155806 | 06 52 30.132 | +17 58 48.25 | EW   | 55578.2855 | 0.45878  | KY Gem      |
| 9  | 1034-0118159 | 06 42 08.023 | +13 29 32.78 | EW   | 55623.3447 | 0.385301 | AV Gem      |
| 10 | 1087-0119272 | 06 34 05.293 | +18 46 25.00 | EB   | 55263.3208 | 1.02025  | EN Gem      |
| 11 | 1384-0419919 | 21 37 31.705 | +48 28 24.03 | EA   | 55391.5772 | 2.35693  | V635 Cyg    |
| 12 | 1076-0646636 | 20 26 51.872 | +17 36 54.67 | EW   | 56539.3746 | 0.35239  | BG Del      |

| Nr | Max   | Min I | Min II | comparison<br>(USNO-B1.0) | R1mag | checkstar              | lightcurve | chart   |
|----|-------|-------|--------|---------------------------|-------|------------------------|------------|---------|
| 1  | 13.47 | 13.68 | 13.65  | 1423-0515394              | 11.87 | GSC 3632-3017          | Fig 1a     | Fig 1b  |
| 2  | 13.57 | 13.92 | 13.90  | 1422-0485540              | 12.19 | TYC 3617-0427          | Fig 2a     | Fig 2b  |
| 3  | 13.23 | 13.48 | 13.46  | 1458-0404380              | 12.24 | GSC 3987-0713          | Fig 3a     | Fig 3b  |
| 4  | 11.38 | 11.74 | 11.71  | 1405-0457211              | 12.08 | GSC 3628-0182          | Fig 4a     | Fig 4b  |
| 5  | 13.84 | 14.00 | 13.97  | 1416-0453340              | 12.07 | GSC 3619-2022          | Fig 5a     | Fig 5b  |
| 6  | 13.50 | 13.88 | 13.79  | 1112-0497181              | 12.44 | GSC 1630-0328          | Fig 6a     | Fig 6b  |
| 7  | 13.48 | 14.44 | 13.77  | 1477-0001954              | 13.56 | TYC 3660-0017          | Fig 7a     | Fig 7b  |
| 8  | 15.8  | 16.3  | 16.2   | 1079-0156093              | 13.02 | USNO-B1.0 1080-0158708 | Fig 8a     | Fig 8b  |
| 9  | 14.57 | 14.95 | 14.93  | 1034-0118136              | 13.20 | TYC 0758-1843          | Fig 9a     | Fig 9b  |
| 10 | 12.67 | 13.17 | 12.90  | 1087-0118946              | 11.21 | GSC 1333-0161          | Fig 10a    | Fig 10b |
| 11 | 13.93 | 14.65 | 14.40  | 1383-0444840              | 11.34 | GSC 3595-1583          | Fig 11a    | Fig 11b |
| 12 | 11.42 | 11.74 | 11.72  | 1076-0646574              | 11.42 | GSC 1636-1610          | Fig 12a    | Fig 12b |

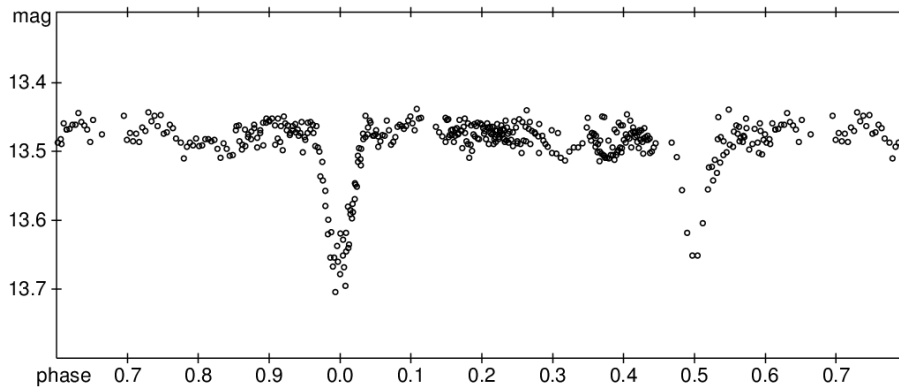


Fig. 1a: Lightcurve for USNO-B1.0 1423-0515849

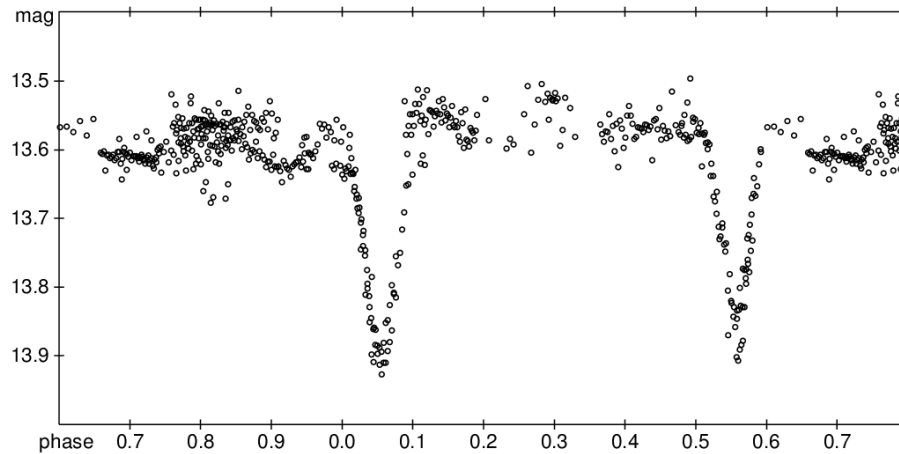


Fig. 2a: Lightcurve for USNO-B1.0 1422-0485665

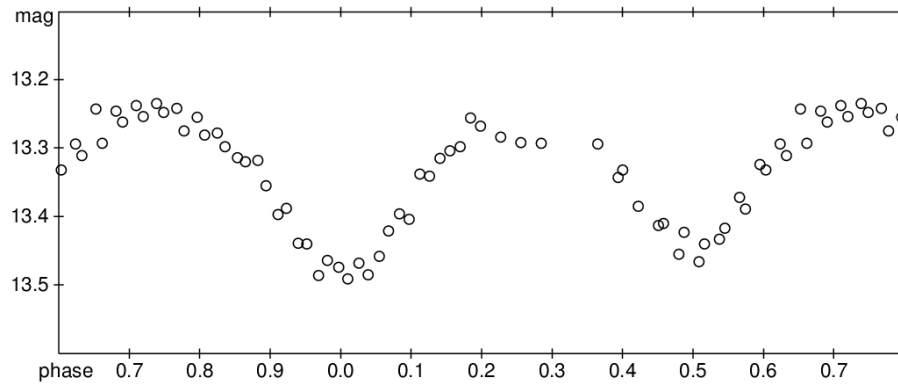


Fig. 3a: Lightcurve for USNO-B1.0 1458-0404725

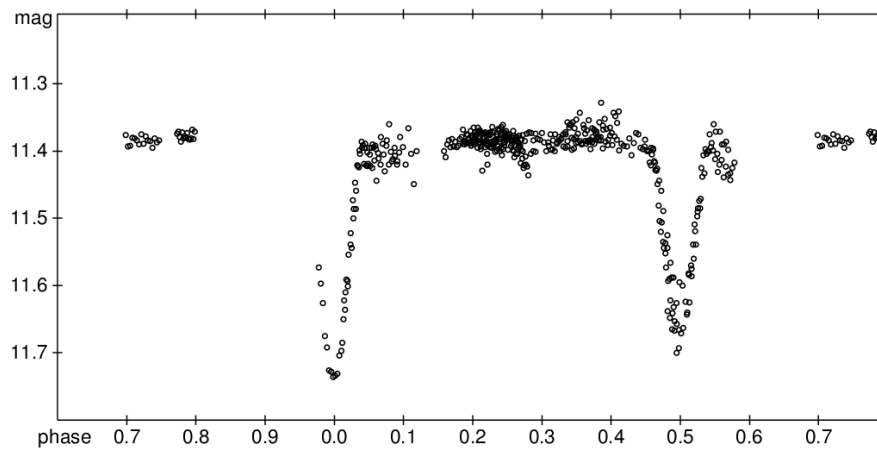


Fig. 4a: Lightcurve for USNO-B1.0 1405-0457183

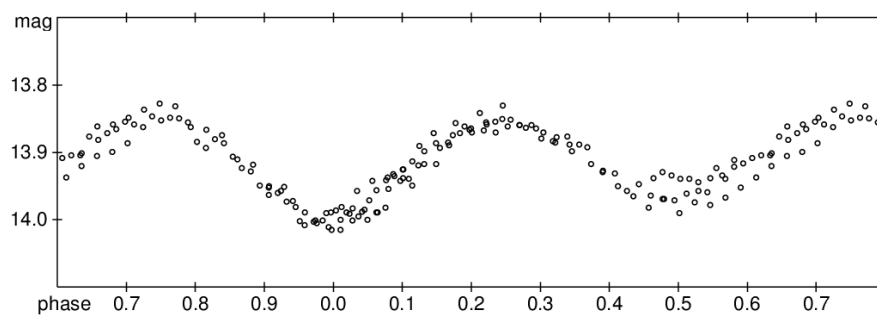


Fig. 5a: Lightcurve for USNO-B1.0 1416-0453013

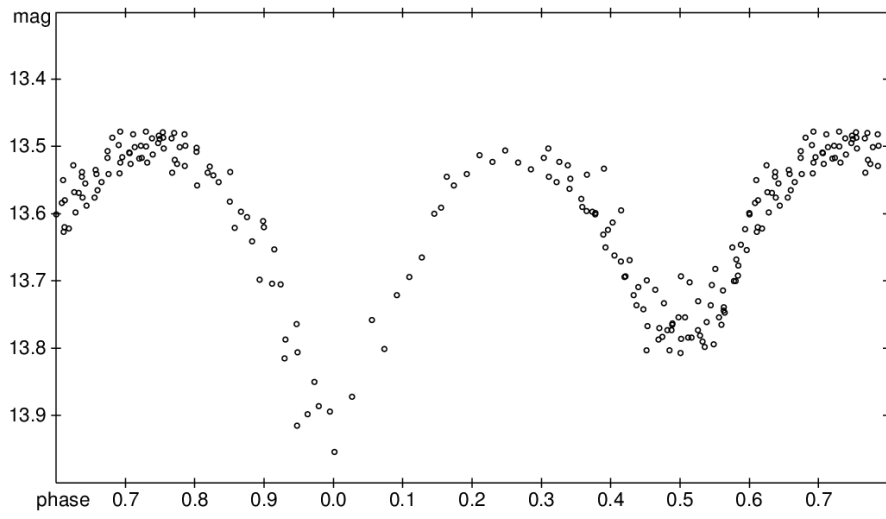


Fig. 6a: Lightcurve for USNO-B1.0 1113-0494337

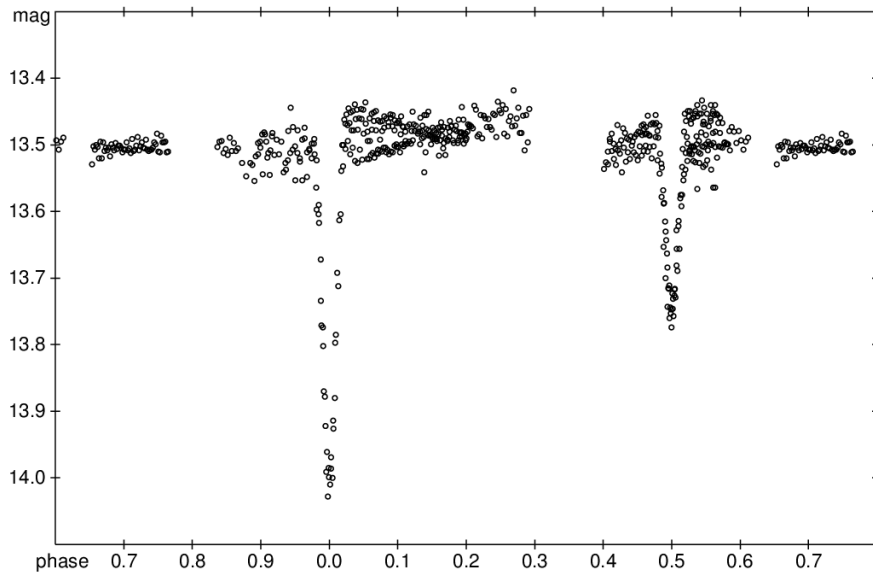


Fig. 7a: Lightcurve for USNO-B1.0 1477-0001770

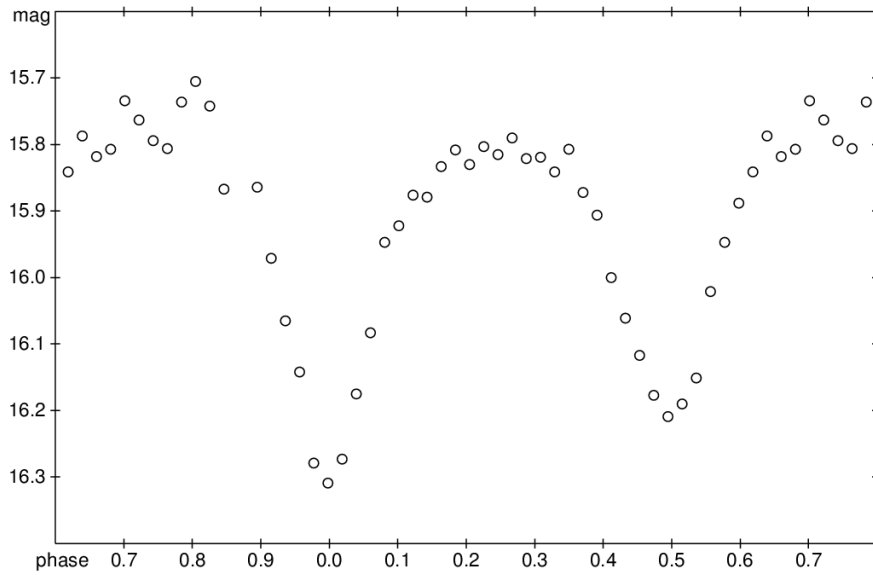


Fig. 8a: Lightcurve for USNO-B1.0 1079-0155806

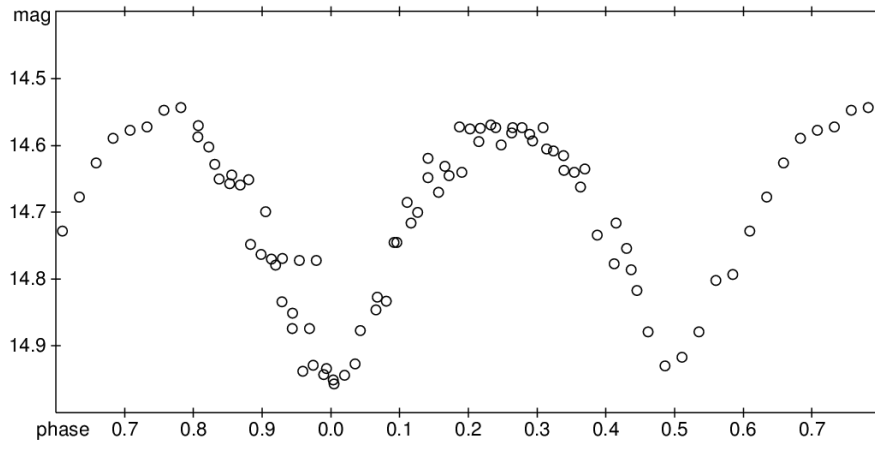


Fig. 9a: Lightcurve for USNO-B1.0 1034-0118159

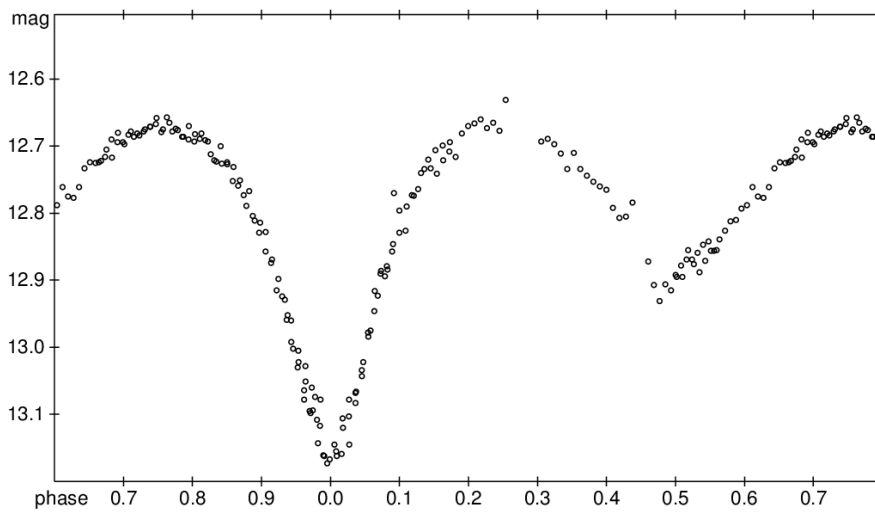


Fig. 10a: Lightcurve for USNO-B1.0 1087-0119272

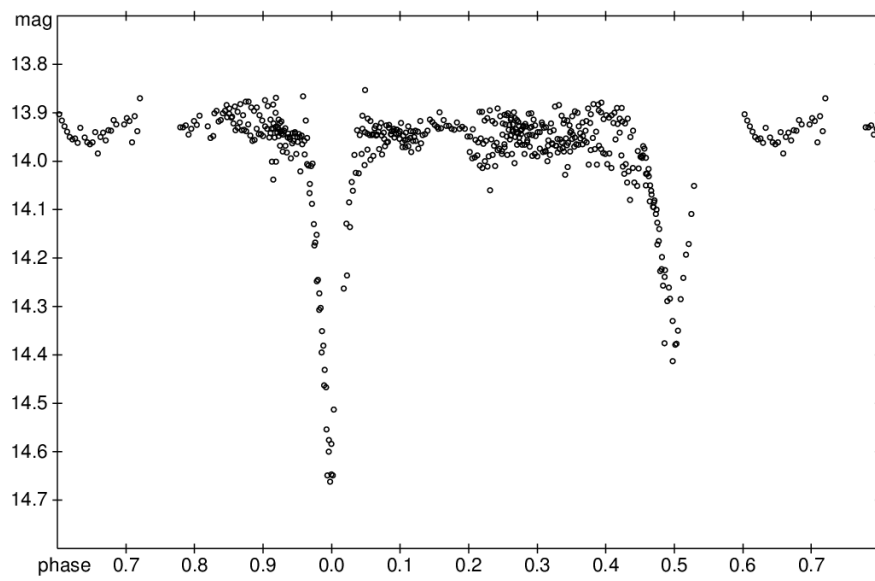


Fig. 11a: Lightcurve for USNO-B1.0 1384-0419919

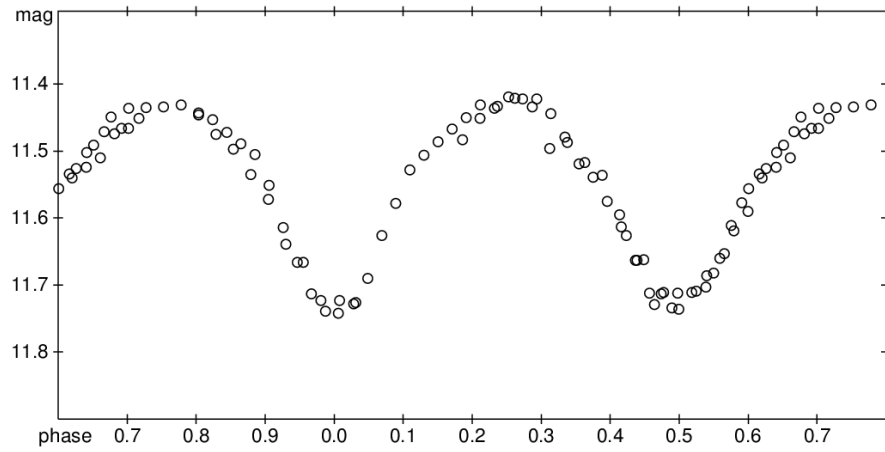


Fig. 12a: Lightcurve for USNO-B1.0 1076-0646636

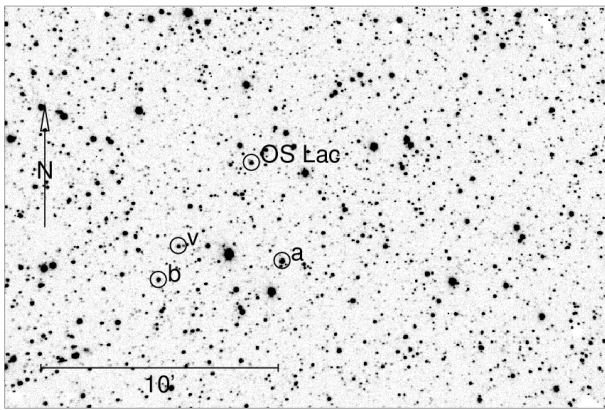


Fig. 1b: Chart for USNO-B1.0 1423-0515849

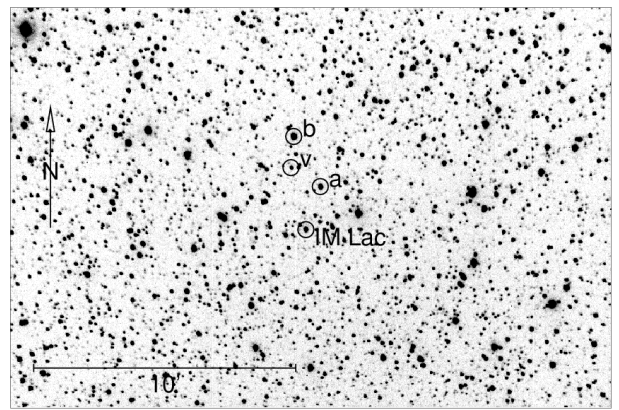


Fig. 2b: Chart for USNO-B1.0 1422-0485665

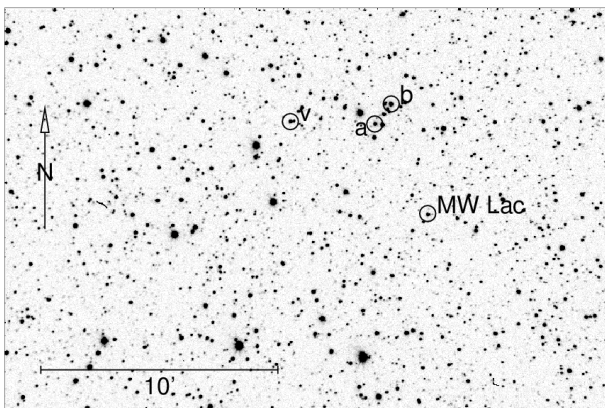


Fig. 3b: Chart for USNO-B1.0 1458-0404725

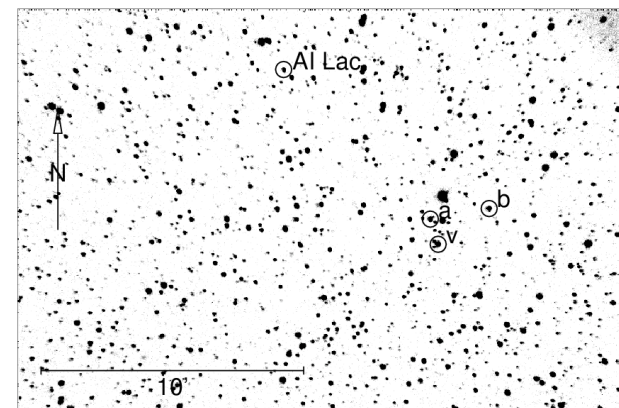


Fig. 4b: Chart for USNO-B1.0 1405-0457183

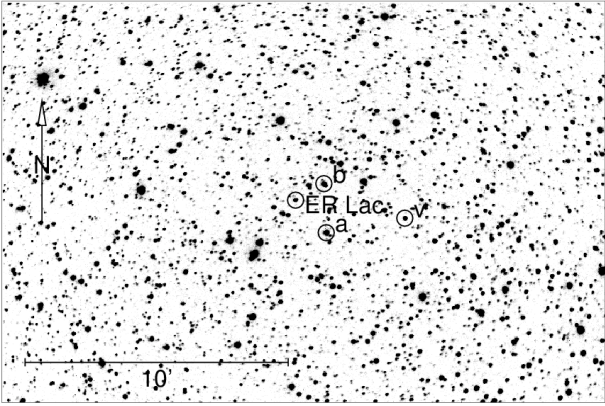


Fig. 5b: Chart for USNO-B1.0 1416-0453013

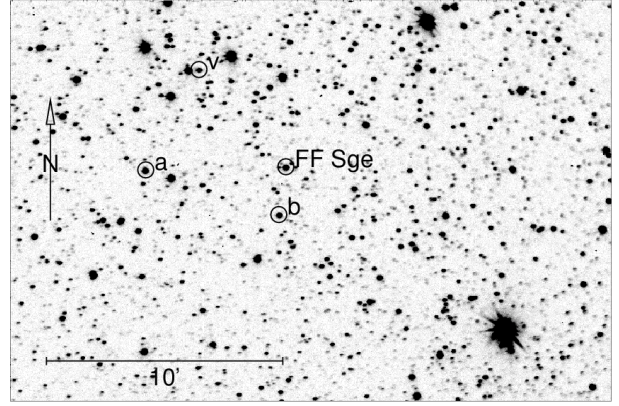


Fig. 6b: Chart for USNO-B1.0 1113-0494337

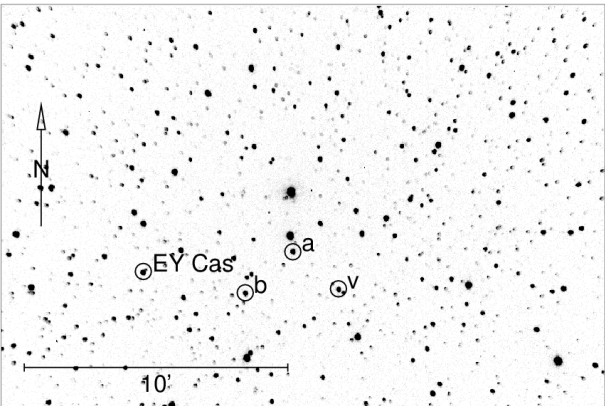


Fig. 7b: Chart for USNO-B1.0 1477-0001770

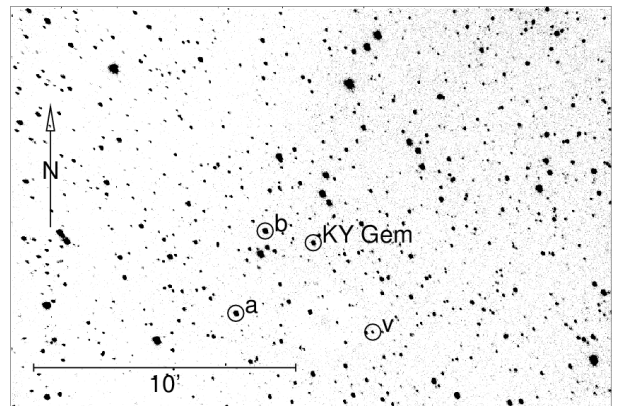


Fig. 8b: Chart for USNO-B1.0 1079-0155806

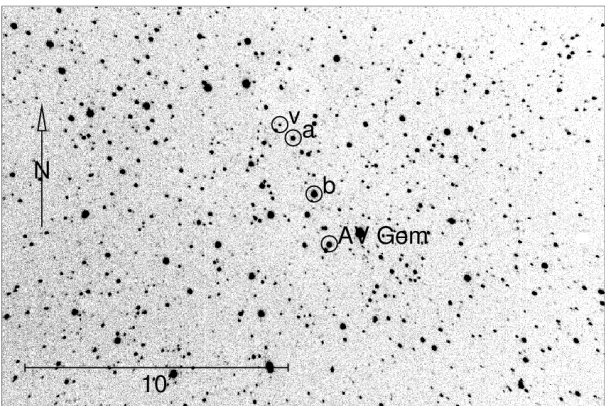


Fig. 9b: Chart for USNO-B1.0 1034-0118159

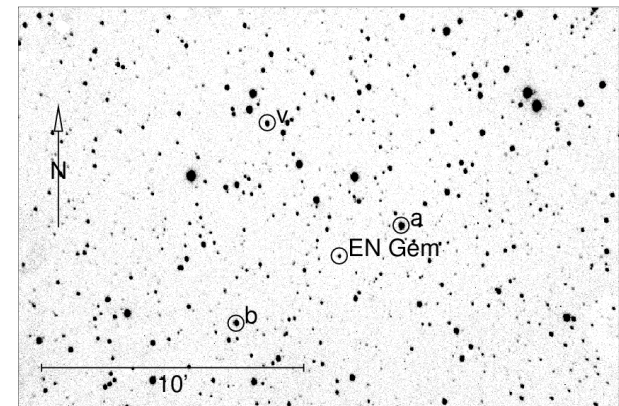


Fig. 10b: Chart for USNO-B1.0 1087-0119272

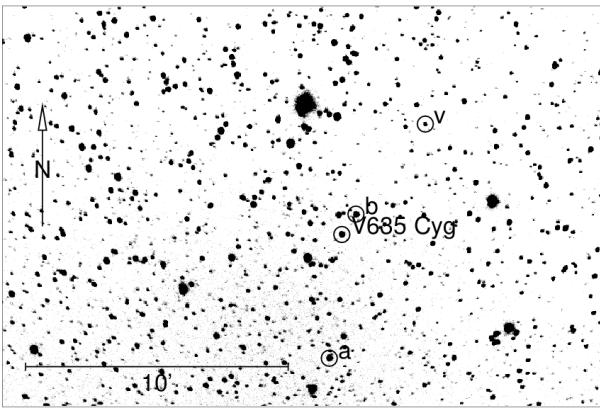


Fig. 11b: Chart for USNO-B1.0 1384-0419919

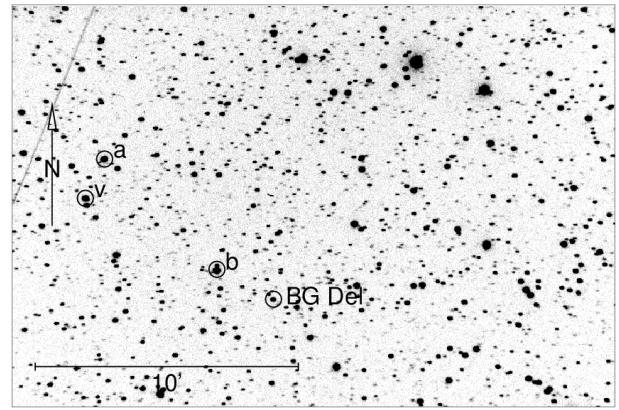


Fig. 12b: Chart for USNO-B1.0 1076-0646636

**Remarks:**

|    |   |
|----|---|
| 1  | 5 minima could be observed between 2004 and 2011  |
| 2  | 6 minima could be observed between 2004 and 2014<br>One of the eclipsing stars seem to be variable with a period of about 1.6d and a resulting brightness variation of the system of 0.1 mag. |
| 3  | 6 minima could be observed between 2004 and 2014  |
| 4  | 6 minima could be observed between 2004 and 2012  |
| 5  | 17 minima could be observed between 2006 and 2014   |
| 6  | This star is mentioned to be variable in VSX because 3 minima observed by the author are published in IBVS 6010<br>5 minima could be observed between 2006 and 2011                           |
| 7  | 7 minima could be observed between 2006 and 2015  |
| 8  | 9 minima or parts of it could be observed between 2007 and 2015   |
| 9  | 6 minima could be observed between 2007 and 2015  |
| 10 | 6 primary minima could be observed between 2008 and 2015  |
| 11 | 7 minima or parts of them could be observed between 2006 and 2010   |
| 12 | 7 minima could be observed between 2007 and 2013  |

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