

Discovery of Five New Variables

[A. Liakos](#)

Institute for Astronomy, Astrophysics, Space Applications and Remote Sensing, National Observatory of Athens, Metaxa & Vas. Pavlou St., Penteli, Athens, Greece

ISSN 2221-0474

DOI: [10.24411/2221-0474-2020-10018](https://doi.org/10.24411/2221-0474-2020-10018)

Received: 11.09.2020; accepted: 22.12.2020
(E-mail for contact: alliakos@noa.gr)

| # | Name | Other | Coord (J2000) | Type | Max | Min | System | Period | Epoch (JD) | type | Sp | Comment | L.Curve | Find.Chart | Data |
|---|------|-------------------------|----------------------------|------|------|-------|--------|---------|-------------|------|----|-------------------------|--|---|---|
| 1 | | GSC 0281-0197 | 12 13 38.244, +01 56 51.57 | ZZ | 12.0 | 12.04 | R | 0.01102 | | max | | Comm. 1 | LC_GSC0281-0197.jpg | FoV_GSC0281-0197.jpg | D_GSC0281-0197.txt |
| 2 | | USNO-A2.0 0975-15110240 | 19 31 14.413, +09 16 27.23 | EW | 12.6 | 12.81 | R | 0.81436 | 2458672.399 | min | | Comm. 2 | LC_USNO-A2.0-0975-15110240.jpg | FoV_USNO-A2.0-0975-15110240.jpg | D_USNO-A2.0-0975-15110240.txt |
| 3 | | USNO-A2.0 1125-14844300 | 19 59 56.052, +22 45 53.27 | EW | 15.1 | 15.28 | R | 0.31026 | 2459016.517 | min | | Comm. 3 | LC_USNO-A2.0-1125-14844300.jpg | FoV_USNO-A2.0-1125-14844300.jpg | D_USNO-A2.0-1125-14844300.txt |
| 4 | | USNO-A2.0 1425-11421951 | 21 00 25.682, +54 33 25.21 | EA | 15.9 | 16.33 | I | 0.73143 | 2458376.417 | min | | Comm. 4 | LC_USNO-A2.0-1425-11421951.jpg | FoV_USNO-A2.0-1425-11421951.jpg | D_USNO-A2.0-1425-11421951.txt |
| 5 | | USNO-A2.0 1425-13126187 | 22 16 48.482, +57 19 45.49 | HADS | 16.3 | 16.53 | R | 0.15157 | 2458013.462 | max | | Comm. 5 | LC_USNO-A2.0-1425-13126187.jpg | FoV_USNO-A2.0-1425-13126187.jpg | D_USNO-A2.0-1425-13126187.txt |

Comments:

1. The star GSC 0281-0197 (indicated as V in the finding chart) is located in the field of view of the eclipsing binary IK Vir. GSC 00281-00316 and GSC 00281-00181 were used as Comparison (C) and Check (K) stars, respectively, and they are also indicated in the finding chart. The maximum magnitude in R band is given in the USNO-A2.0 Catalog (Monet et al. 1998). The star is multiperiodic with a dominant pulsation frequency of ~ 90.74 c/d (period ~ 15.87 min) with a semi-amplitude of ~ 0.018 mag. Other cross identifications for the variable: USNO-A2.0 0900-07102047.

2. The system USNO-A2.0 0975-15110240 (indicated as V in the finding chart) is located in the field of view of the planetary nebula NGC 6804. USNO-A2.0 0975-15157108 and USNO-A2.0 0975-15171802 were used as Comparison (C) and Check (K) stars, respectively, and they are also indicated in the finding chart. $\text{MaxI} - \text{MinI} = -0.21$ mag and $\text{MaxI} - \text{MinII} = -0.19$ mag in R filter. The maximum magnitude in R band is given in the USNO-A2.0 Catalog (Monet et al. 1998). Other cross identifications for the variable: 2MASS 19311440+0916271.

3. The system USNO-A2.0 1125-14844300 (indicated as V in the finding chart) is located in the field of view of the planetary nebula M27. USNO-A2.0 1125-14814427 and USNO-A2.0 1125-14815687 were used as Comparison (C) and Check (K) stars, respectively, and they are also indicated in the finding chart. $\text{MaxII} - \text{MinI} = -0.43$ mag and $\text{MaxI} - \text{MinII} = -0.18$ mag in R filter. The maximum magnitude in R band is given in the USNO-A2.0 Catalog (Monet et al. 1998). Other cross identifications for the variable: NOMAD1 1127-0565928.

4. The system USNO-A2.0 1425-11421951 (indicated as V in the finding chart) is located in the field of view of the planetary nebula NGC 7008. USNO-A2.0 1425-11421624 and USNO-A2.0 1425-11421231 were used as Comparison (C) and Check (K) stars, respectively, and they are also indicated in the finding chart. $\text{MaxI} - \text{MinI} = -0.43$ mag and $\text{MaxI} - \text{MinII} = -0.16$ mag in I filter. The maximum magnitude in I band is given in the USNO-B1.0 Catalog (Monet et al. 2003). Other cross identifications for the variable: NOMAD1 1445-0351878.

5. The star USNO-A2.0 1425-13126187 (indicated as V in the finding chart) is located in the field of view of the planetary nebula M2-51. USNO-A2.0 1425-13116226 and USNO-A2.0 1425-13123000 were used as Comparison (C) and Check (K) stars, respectively, and they are also indicated in the finding chart. The differences between maximum and minimum light show variability within a time range of 26 days. The maximum magnitude in R band is given in the USNO-A2.0 Catalog (Monet et al. 1998). Other cross identifications for the variable: NOMAD1 1473-0485545.

Remarks:

In the present study, we present photometric elements of five new variable stars. Their variability was detected as a by-product during observations of other targets. The observations were carried out at the Kryoneri Observatory of the National Observatory of Athens, Corinthia, Greece between September 2017 – August 2020 using a 1.2-m prime focus telescope (f/3) equipped with the twin cameras system Andor sCMOS Zyla 5.5 and the R and I Johnson-Cousins photometric filters (Xilouris et al. 2018). Differential magnitudes were obtained for all targets using the software Muniwin v.1.1.29 (Hroch 1998). The coordinates were drawn from the Gaia DR2 catalog (Gaia Collaboration et al. 2018).

Note added in proof: stars No. 2-5 were independently discovered in the Zwicky Transient Facility (Chen et al. 2020). The information was published in the [VSX](#) on September, 25 2020 – Editors.

References:

- Chen, X., Wang, S., Deng, L., et al., 2020, *Astron. J. Suppl. Ser.*, 249, 18
Gaia Collaboration, Brown, A.G.A., Vallenari, A., et al., 2018, *Astron. and Astrophys.*, 616, A1
Hroch, F., 1998, *Proceedings of the 29th Conference on Variable Star Research*, 30
Monet, D., Bird, A., Canzian, B., et al.: USNO-A2.0, A Catalog of Astrometric Standards, (U.S. Naval Observatory, Washington, DC), Centre de Données Astronomiques de Strasbourg, I/252
Monet, D., Levine, S., Canzian, B., et al., 2003, *Astron. J.*, 125, 984, A Catalog of Astrometric Standards (U.S. Naval Observatory, Washington, DC), Centre de Données Astronomiques de Strasbourg, I/284
Xilouris, E., Bonanos, A., Bellas-Velidis, I., et al., 2018, *Astron. and Astrophys.*, 619, 141

