

Another 25 new chromospherically active stars in the ROTSE-1 database – numbers 26 - 50

KLAUS BERNHARD^{1,3}, CHRISTOPHER LLOYD²

1) A-4030 Linz, Austria; e-mail: klaus.bernhard@liwest.at

2) Department of Physics and Astronomy, Open University, Milton Keynes MK7 6AA, UK;
e-mail: C.Lloyd@open.ac.uk

3) Bundesdeutsche Arbeitsgemeinschaft für Veränderliche Sterne e.V. (BAV), Munsterdamm 90, D-12169 Berlin, Germany

BAV Mitteilungen Nr. 196

Abstract: Another 25 new chromospherically active stars are presented, which were found in the ROTSE-1 database:

GSC 03189-00408, GSC 02727-01789, GSC 00562-01405, GSC 01684-01956, GSC 02587-00902, GSC 01108-01066, GSC 01939-00467, GSC 00580-01188, GSC 01746-01812, GSC 02624-02515, GSC 01546-01938, GSC 01101-00607, GSC 02760-00635, GSC 01543-00131, GSC 01676-01765, GSC 01656-01714, GSC 02612-01778, GSC 00346-00400, GSC 05011-00274, GSC 03042-00255, GSC 05253-00748, GSC 00258-00148, GSC 02172-01415, GSC 00341-00005, GSC 03262-01217

During a programme of optical identification of X-ray sources from the ROSAT All-Sky Faint Source Catalogue (1RXS) (Voges et al. 2000) in the ROTSE1 database (<http://skydot.lanl.gov/>, Wozniak et al., 2004) 25 new chromospherically active stars have been found. For further details of the programme see Bernhard & Lloyd (2008).

The criteria for including a star in this list of chromospherically active stars were, i) the X-ray identification, ii) a suitable period after an analysis of the NSVS data with Period 04 (Lenz and Breger 2005) and iii) an appropriate B-V colour index (Høg et al. 2000) if available. Chromospherically active stars exhibit spectral types of F-K (these are mostly RS CVn systems, and a smaller number of FK Comae stars) and K-M (BY Dra variables). Partial information about high proper motions (Ivanov 2007, Zacharias et al. 2005) supports the classification as chromospherically active stars. Because of the high absolute magnitudes of pulsating variables with similar light curves (especially Cepheids) their large distances should result in small proper motions.

Table 1: Positions, identifications and photometric data for the new chromospherically active stars

No.	GSC	RA (2000)	Dec	1RXS	Range (NSVS)	Per. (d)	NSVS ID
26	03189-00408	21 50 11.15	+40 46 49.0	J215011.1+404642	11.7-12.0	5.91732	5938413
27	02727-01789	21 54 06.78	+34 28 37.3	J215406.6+342843	10.5-10.8	37.0918	8839333
28	00562-01405	22 19 23.65	+03 34 03.7	J221923.4+033405	11.8-12.0	8.05823	14525765
29	01684-01956	22 06 00.97	+17 10 39.0	J220600.9+171045	10.8-11.0	23.8171	11750459
30	02587-00902	16 28 35.23	+36 02 35.2	J162834.6+360236	12.3-12.5	16.6574	7913157
31	01108-01066	21 09 01.26	+09 30 21.4	J210901.7+093024	11.4-11.6	17.8154	11563363
32	01939-00467	08 07 50.64	+28 21 07.9	J080750.3+282114	11.6-11.8	3.88535	7315193
33	00580-01188	23 15 26.05	+02 36 05.8	J231526.2+023612	13.1-13.5	5.00123	14602171
34	01746-01812	00 58 11.60	+27 34 37.4	J005811.2+273428	10.9-11.1	10.8420	6398606
35	02624-02515	18 27 14.28	+30 22 10.7	J182713.5+302211	10.8-11.0	33.6579	8159227
36	01546-01938	17 28 52.70	+19 13 12.8	J172853.5+191304	10.3-10.5	19.1288	10842150
37	01101-00607	20 47 51.72	+13 50 28.6	J204751.4+135035	11.5-11.7	17.9449	11534160
38	02760-00635	23 21 38.78	+34 42 51.6	J232138.5+344259	11.7-12.1	2.12082	9025123
39	01543-00131	17 07 06.33	+20 29 22.2	J170706.0+202927	10.0-10.3	39.1844	10807915
40	01676-01765	21 30 40.62	+22 01 43.0	J213041.3+220138	10.2-10.4	24.1350	11648113
41	01656-01714	20 59 02.51	+18 47 01.9	J205902.1+184711	11.0-11.2	3.62021	11501028
42	02612-01778	17 54 46.96	+32 13 34.8	J175446.4+321341	09.5-09.7	1.10962	8077745
43	00346-00400	15 00 13.95	+06 44 41.9	J150014.4+064444	11.7-11.9	12.5002	13411786
44	05011-00274	15 28 26.66	-04 47 36.3	J152827.1-044729	11.9-12.1	0.57687	13460829
45	03042-00255	14 31 04.06	+44 04 21.7	J143103.6+440430	11.6-11.8	6.70280	5104557
46	05253-00748	23 50 51.02	-01 09 21.9	J235051.1-010916	11.3-11.5	5.66241	11909334
47	00258-00148	10 59 20.12	+04 53 16.9	J105920.5+045308	12.2-12.4	8.76046	13083707
48	02172-01415	20 56 59.62	+23 44 30.1	J205700.0+234421	11.2-11.4	15.2382	8599362
49	00341-00005	15 29 51.12	+02 02 49.7	J152951.7+020242	11.9-12.2	11.3819	13436982
50	03262-01217	00 52 14.30	+45 41 26.4	J005216.1+454134	11.8-12.0	1.22208	3752817

Folded light curves (with the period given above), finding charts and comments:

No. 26: GSC 03189-00408

NSVS data:

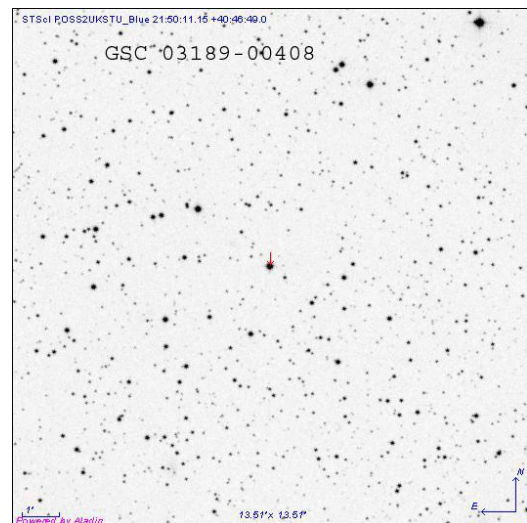
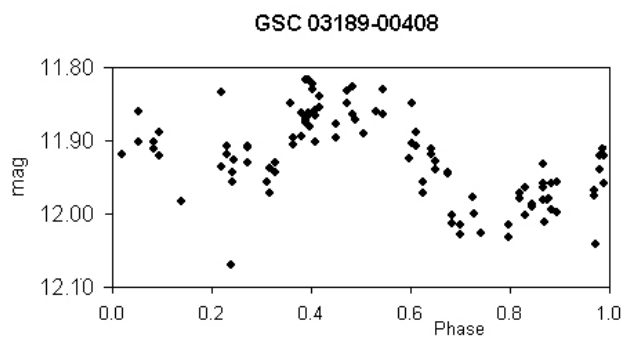
<http://skydot.lanl.gov/nsvs/star.php?num=5938413&mask=32004>

Tycho-2: 03189-00408-1: Johnson B-V=0.963 (derived from Tycho-2)

Star with high-proper motion (Ivanov, 2007)

Proper motion 49 mas yr⁻¹ (Zacharias et al. 2005)

Likely RS CVn variable



No. 27: GSC 02727-01789

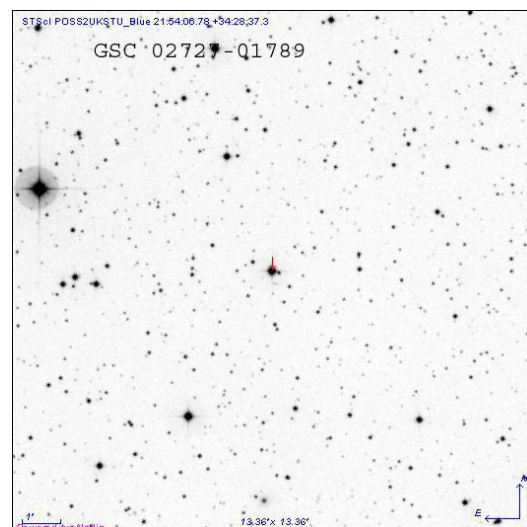
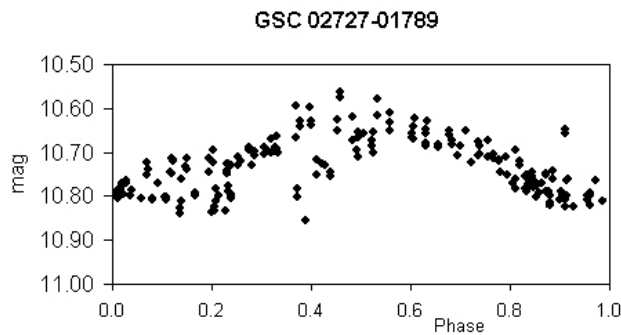
NSVS data:

<http://skydot.lanl.gov/nsvs/star.php?num=8839333&mask=32004>

Tycho-2: 2727-1789-1: Johnson B-V=1.137 (derived from Tycho-2)

Proper motion 26 mas yr⁻¹ (Zacharias et al. 2005)

Probably a BY Dra star

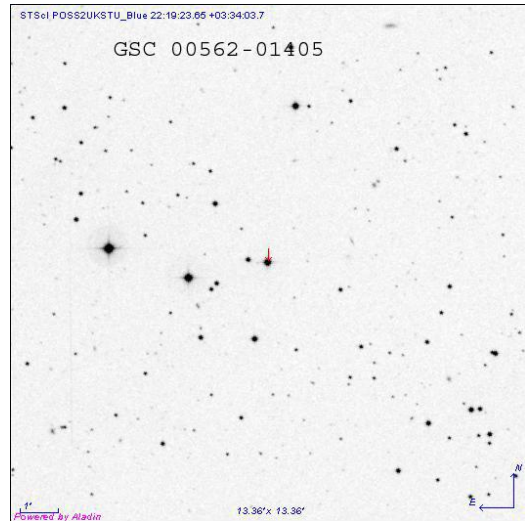
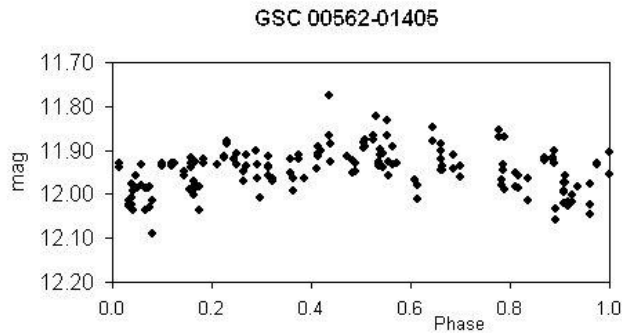


No. 28: GSC 00562-01405

NSVS data:

<http://skydot.lanl.gov/nsvs/star.php?num=14525765&mask=32004>

Proper motion 13 mas yr⁻¹ (Zacharias et al. 2005)



No. 29: GSC 01684-01956

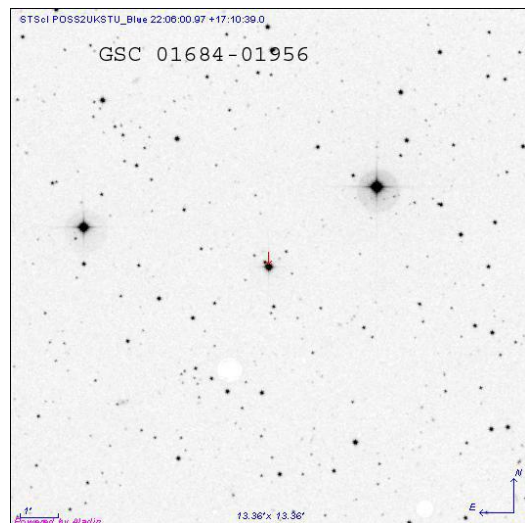
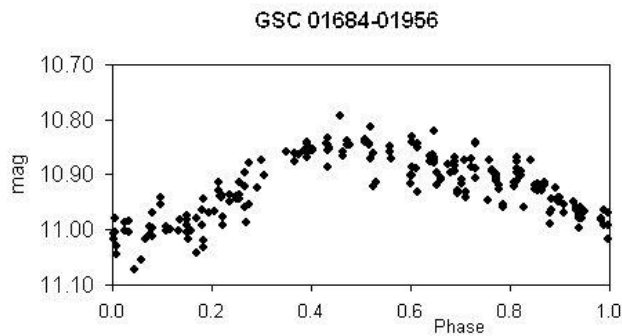
NSVS data:

<http://skydot.lanl.gov/nsvs/star.php?num=11750459&mask=32004>

Tycho-2: 1684-1956-1: Johnson B-V=1.142 (derived from Tycho-2)

Proper motion 21 mas yr⁻¹ (Zacharias et al. 2005)

Probably a BY Dra star



No. 30: GSC 02587-00902

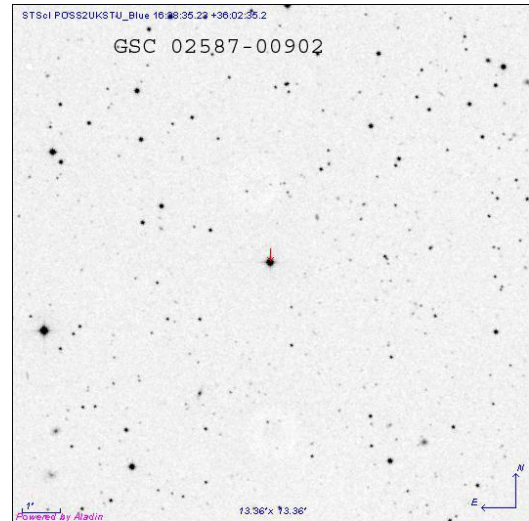
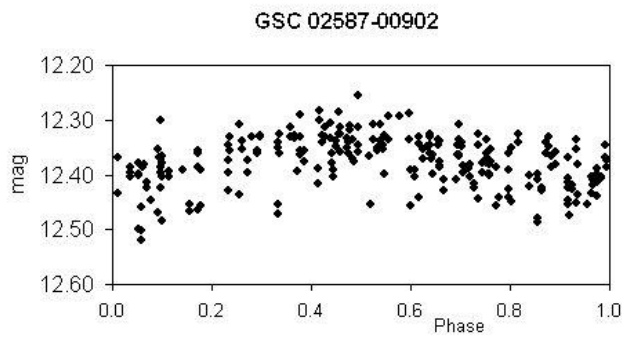
NSVS data:

<http://skydot.lanl.gov/nsvs/star.php?num=7913157&mask=32004>

Tycho-2: 2587-00902-1: Johnson B-V=0.543 (derived from Tycho-2)

Proper motion 14 mas yr⁻¹ (Zacharias et al. 2005)

Likely RS CVn variable



No. 31: GSC 01108-01066

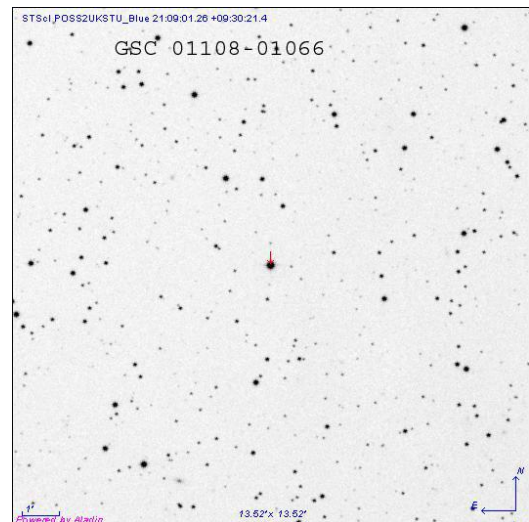
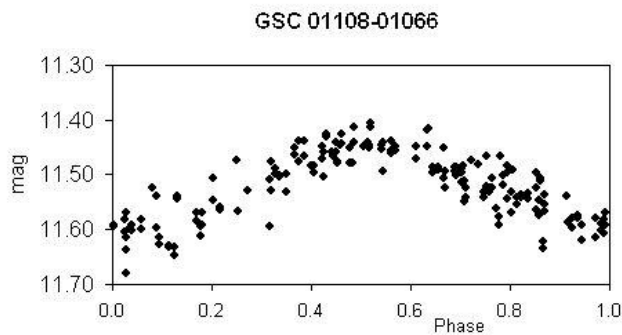
NSVS data:

<http://skydot.lanl.gov/nsvs/star.php?num=11563363&mask=32004>

ASAS variable:

<http://cdsarc.u-strasbg.fr/viz-bin/vizExec/Vgraph?II/264/var18/210901%2b0930.4.lc=92922740&>

Proper motion 11 mas yr⁻¹ (Zacharias et al. 2005)

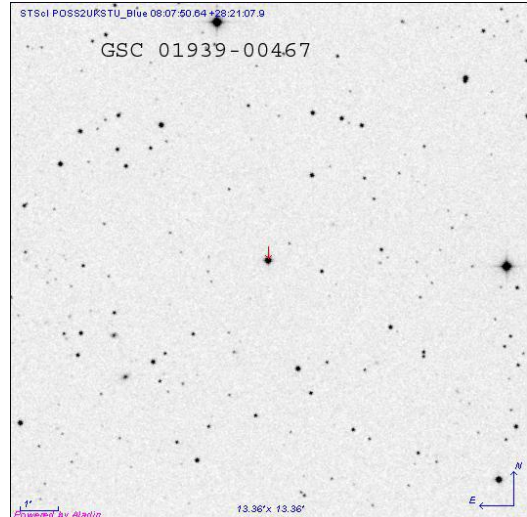
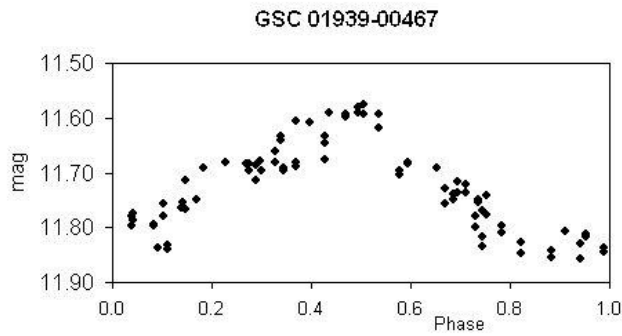


No. 32: GSC 01939-00467

NSVS data:

<http://skydot.lanl.gov/nsvs/star.php?num=7315193&mask=32004>

Proper motion 23 mas yr⁻¹ (Zacharias et al. 2005)

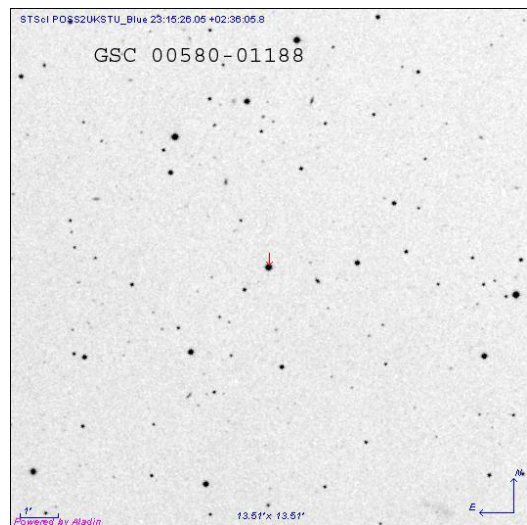
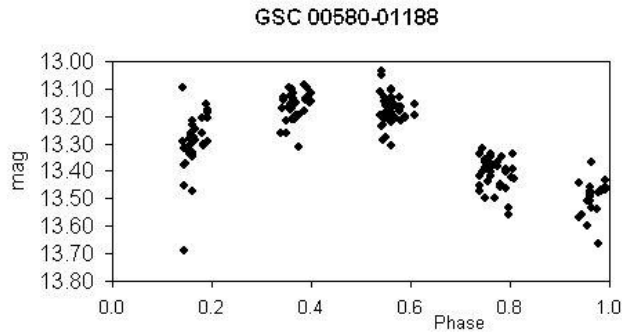


No. 33: GSC 00580-01188

NSVS data:

<http://skydot.lanl.gov/nsvs/star.php?num=14602171&mask=32004>

Proper motion 11 mas yr⁻¹ (Zacharias et al. 2005)



No. 34: GSC 01746-01812

NSVS data:

<http://skydot.lanl.gov/nsvs/star.php?num=6398606&mask=32004>

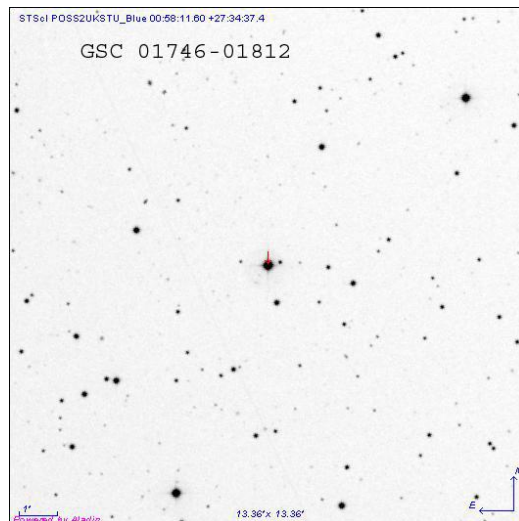
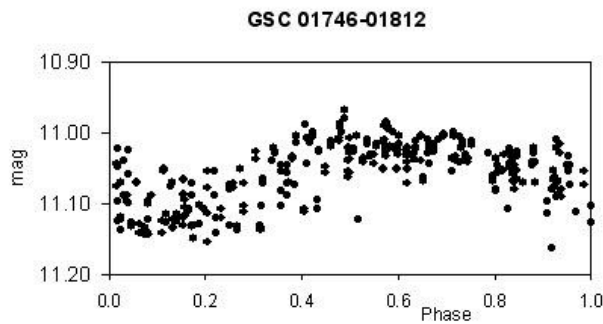
Tycho-2: 01746-01812-1: Johnson B-V=0.632 (derived from Tycho-2)

ASAS variable:

<http://cdsarc.u-strasbg.fr/viz-bin/vizExec/Vgraph?II/264/vareq/005812%2b2734.6.lc=581778&>

Proper motion 35 mas yr⁻¹ (Zacharias et al. 2005)

Likely RS CVn variable



No. 35: GSC 02624-02515

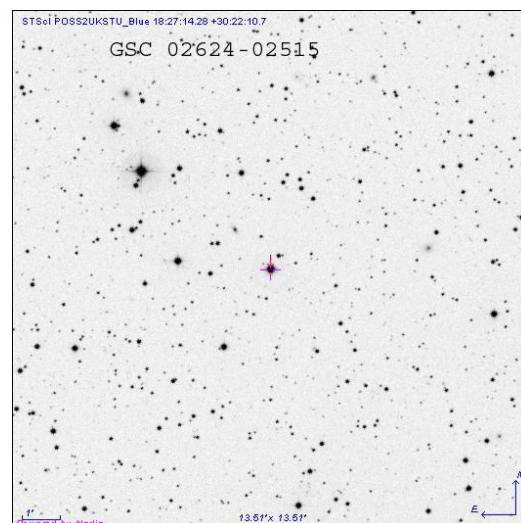
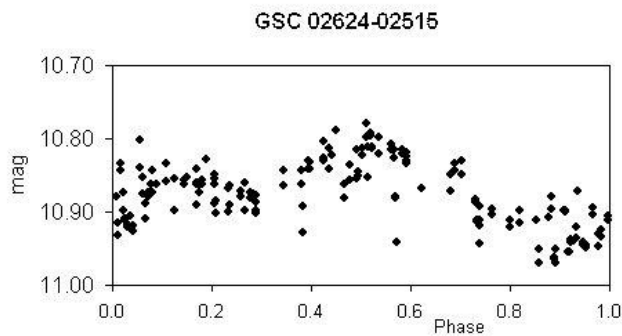
NSVS data:

<http://skydot.lanl.gov/nsvs/star.php?num=8159227&mask=32004>

Tycho-2: 02624-02515-1: Johnson B-V=0.946 (derived from Tycho-2)

Proper motion 25 mas yr⁻¹ (Zacharias et al. 2005)

Likely RS CVn variable



No. 36: GSC 01546-01938

NSVS data:

<http://skydot.lanl.gov/nsvs/star.php?num=10842150&mask=32004>

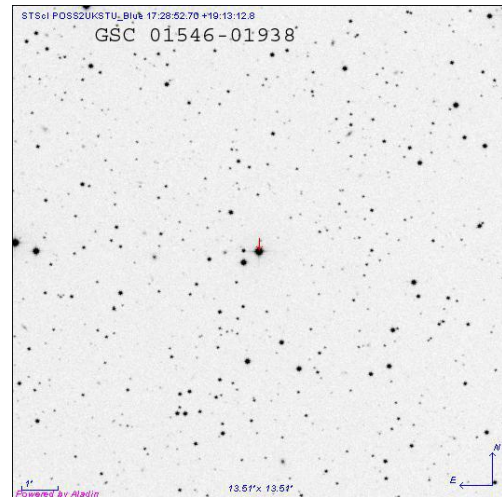
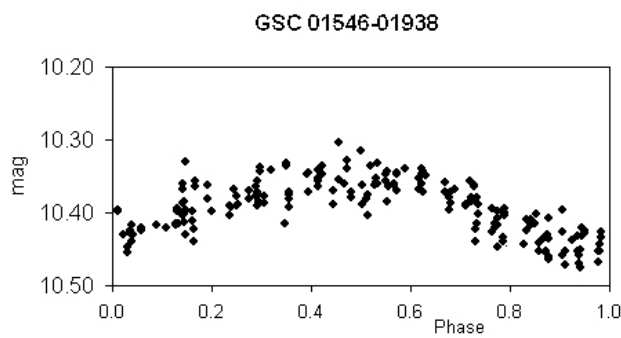
Tycho-2: 01546-01938-1: Johnson B-V=1.218 (derived from Tycho-2)

ASAS variable:

<http://cdsarc.u-strasbg.fr/viz-bin/vizExec/Vgraph?II/264/172853%2b1913.2&P=1.024340>

Proper motion 35 mas yr⁻¹ (Zacharias et al. 2005)

Probably a BY Dra star



No. 37: GSC 01101-00607

NSVS data:

<http://skydot.lanl.gov/nsvs/star.php?num=11534160&mask=32004>

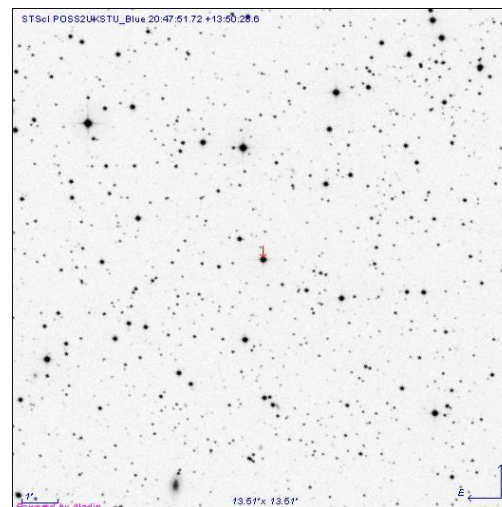
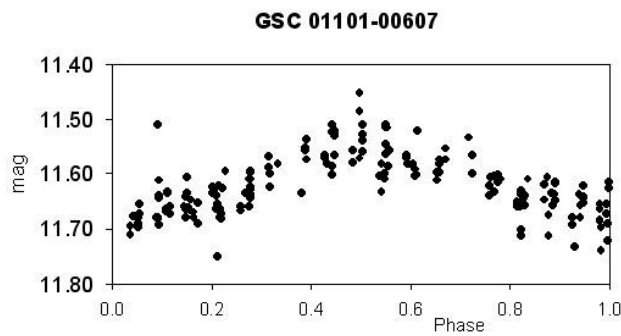
Tycho-2: 01101-00607-1: Johnson B-V=0.508 (derived from Tycho-2)

ASAS variable:

<http://cdsarc.u-strasbg.fr/viz-bin/vizExec/Vgraph?II/264/var18/204752%2b1350.5.lc=89040562&>

Proper motion 17 mas yr⁻¹ (Zacharias et al. 2005)

Likely RS CVn variable



No. 38: GSC 02760-00635

NSVS data:

<http://skydot.lanl.gov/nsvs/star.php?num=9025123&mask=32004>

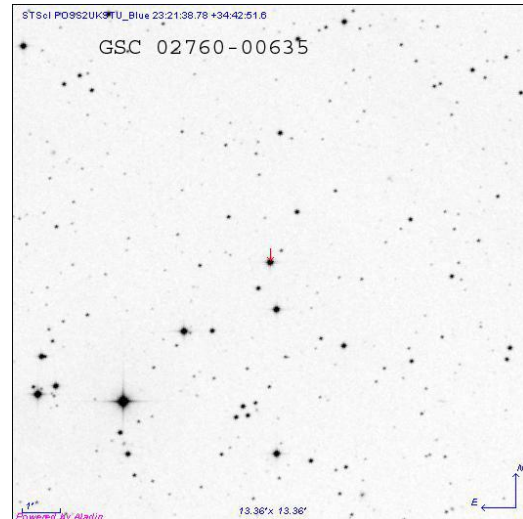
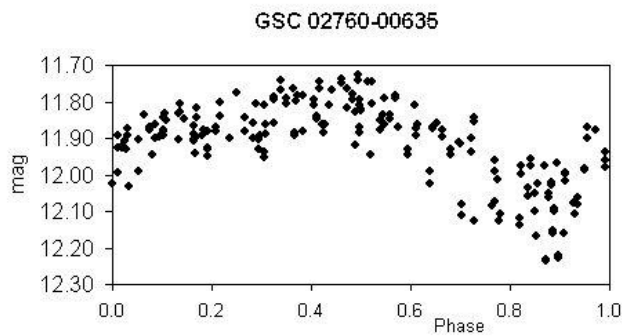
Tycho-2: 02760-00635-1: Johnson B-V=0.849 (derived from Tycho-2)

TAROT suspected variable star (Damerdji et al. 2007)

<http://cdsarc.u-strasbg.fr/viz-bin/vizExec/Vgraph?J/AJ/133/1470/lc/TN-N001322120-4-67-2.txt%20%20%20&P=%20%203.76480000>

Proper motion 14 mas yr⁻¹ (Zacharias et al. 2005)

Likely RS CVn variable



No. 39: GSC 01543-00131

NSVS data:

<http://skydot.lanl.gov/nsvs/star.php?num=10807915&mask=32004>

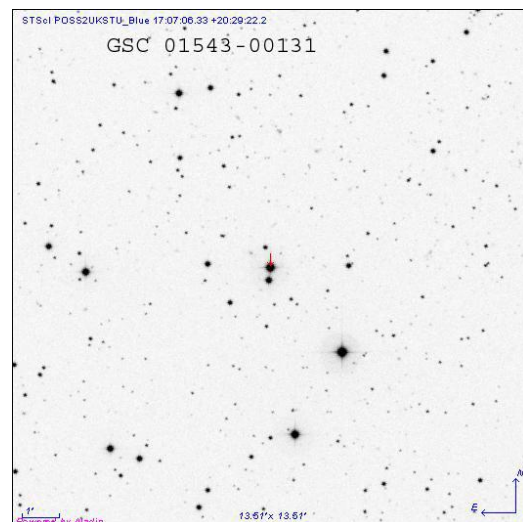
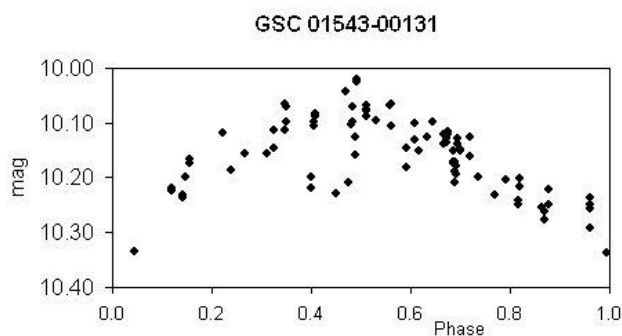
Tycho-2: 01543-00131-1: Johnson B-V=1.057 (derived from Tycho-2)

ASAS variable:

<http://cdsarc.u-strasbg.fr/viz-bin/vizExec/Vgraph?II/264/vareq/170706%2b2029.4.lc=34478164&>

Proper motion 9 mas yr⁻¹ (Zacharias et al. 2005)

Likely RS CVn variable



No. 40: GSC 01676-01765

NSVS data:

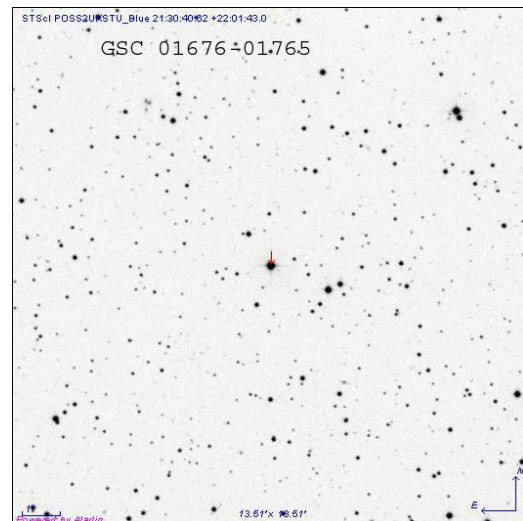
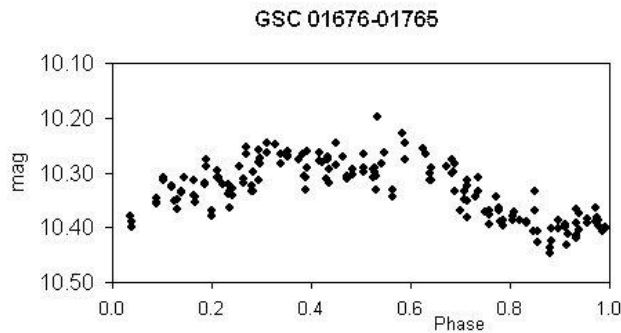
<http://skydot.lanl.gov/nsvs/star.php?num=11648113&mask=32004>

Tycho-2: 01676-01765-1: Johnson B-V=1.425 (derived from Tycho-2)

Proper motion 12 mas yr⁻¹ (Zacharias et al. 2005)

ASAS variable type: MISC

Probably a BY Dra star



No. 41: GSC 01656-01714

NSVS data:

<http://skydot.lanl.gov/nsvs/star.php?num=11501028&mask=32004>

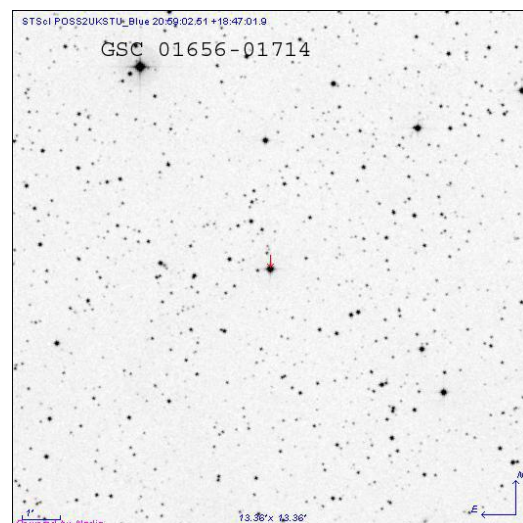
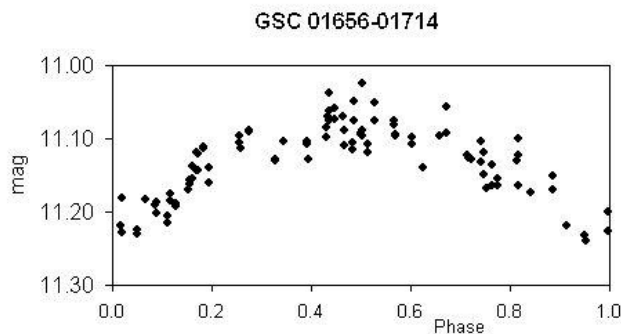
Tycho-2: 01656-01714-1: Johnson B-V=0.804 (derived from Tycho-2)

ASAS variable:

<http://cdsarc.u-strasbg.fr/viz-bin/vizExec/Vgraph?II/264/var18/205903%2b1847.0.lc=91146799&>

Proper motion 8 mas yr⁻¹ (Zacharias et al. 2005)

Likely RS CVn variable



No. 42: GSC 02612-01778

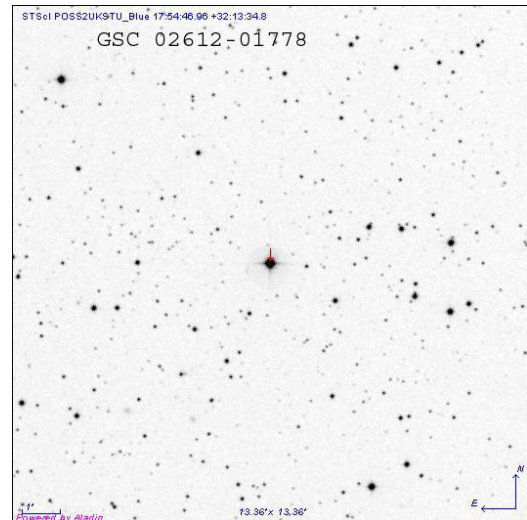
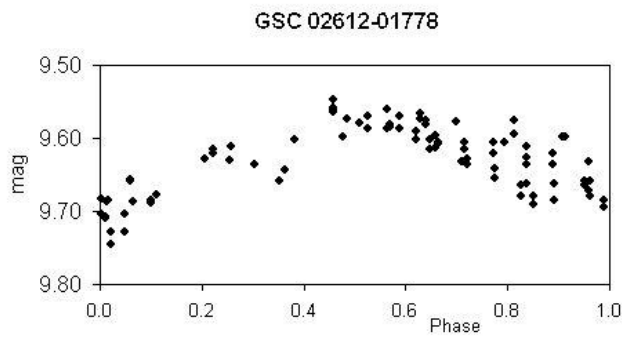
NSVS data:

<http://skydot.lanl.gov/nsvs/star.php?num=8077745&mask=32004>

Tycho-2: 02612-01778-1: Johnson B-V=1.396 (derived from Tycho-2)

Proper motion 17 mas yr⁻¹ (Zacharias et al. 2005)

Probably a BY Dra star

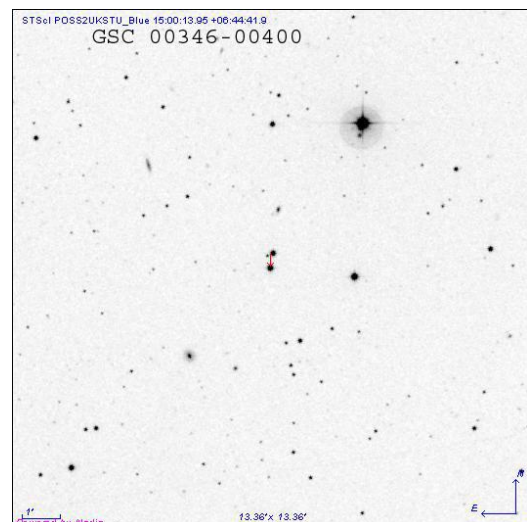
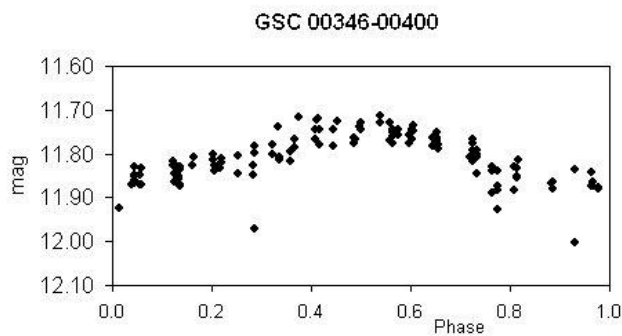


No. 43: GSC 00346-00400

NSVS data:

<http://skydot.lanl.gov/nsvs/star.php?num=13411786&mask=32004>

No significant proper motion (Zacharias et al. 2005)



No. 44: GSC 05011-00274

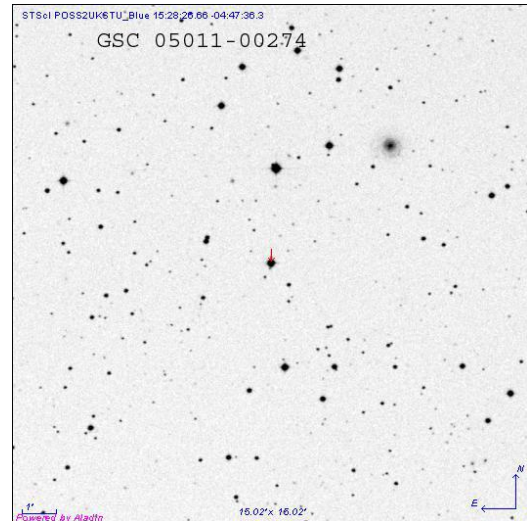
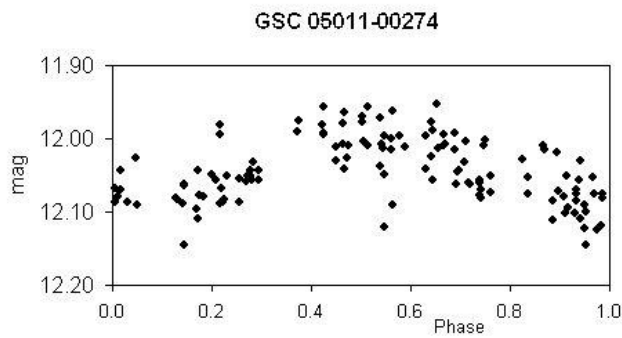
NSVS data:

<http://skydot.lanl.gov/nsvs/star.php?num=13460829&mask=32004>

Tycho-2: 05011-00274-1: Johnson B-V=0.565 (derived from Tycho-2)

Proper motion 30 mas yr⁻¹ (Zacharias et al. 2005)

Likely RS CVn variable



No. 45: GSC 03042-00255

NSVS data:

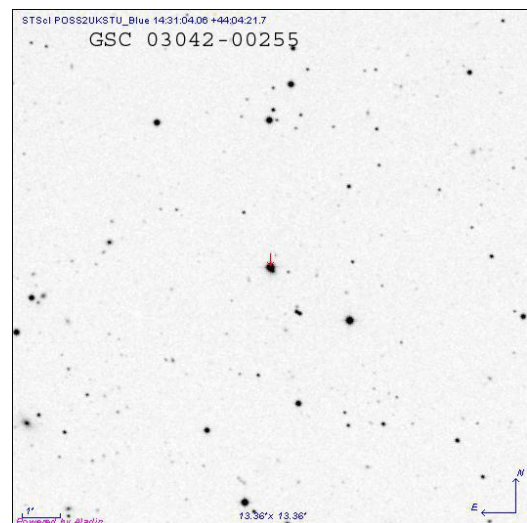
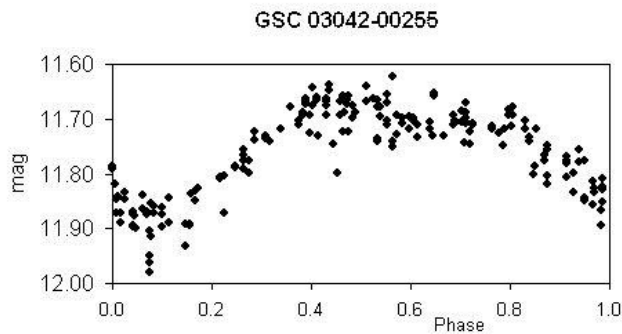
<http://skydot.lanl.gov/nsvs/star.php?num=5104557&mask=32004>

Tycho-2: 03042-00255-1: Johnson B-V=1.027 (derived from Tycho-2)

Star with high-proper motion (Ivanov, 2007)

Proper motion 47 mas yr⁻¹ (Zacharias et al. 2005)

Likely RS CVn variable



No. 46: GSC 05253-00748

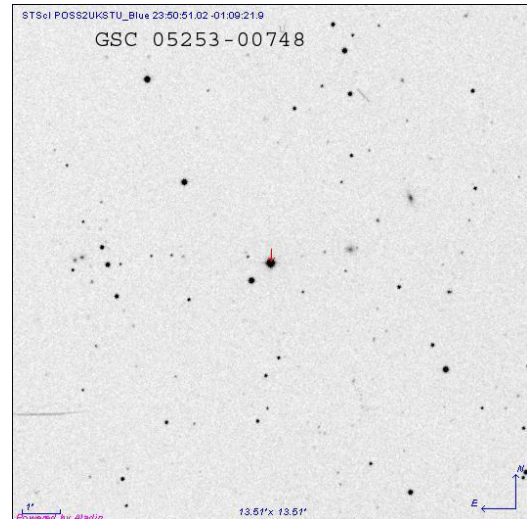
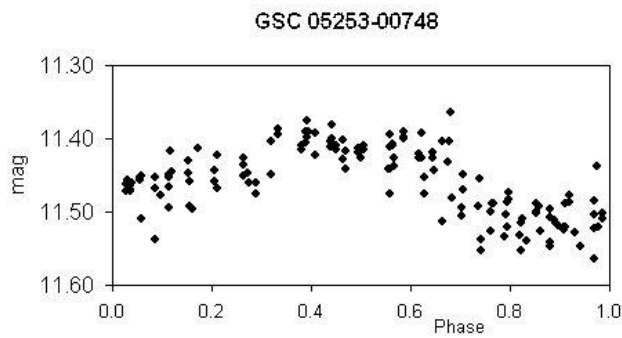
NSVS data:

<http://skydot.lanl.gov/nsvs/star.php?num=11909334&mask=32004>

Tycho-2: 05253-00748-1: Johnson B-V=1.102 (derived from Tycho-2)

No measurable proper motion (Zacharias et al. 2005)

Probably a BY Dra star



No. 47: GSC 00258-00148

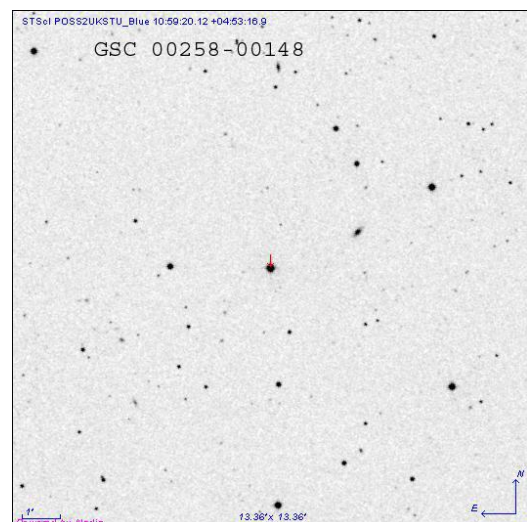
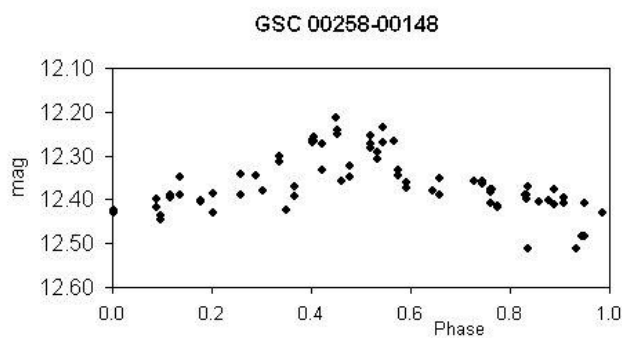
NSVS data:

<http://skydot.lanl.gov/nsvs/star.php?num=13083707&mask=32004>

ASAS variable:

<http://cdsarc.u-strasbg.fr/viz-bin/vizExec/Vgraph?II/264/105920%2b0453.3&P=2.115500>

Proper motion 20 mas yr⁻¹ (Zacharias et al. 2005)



No. 48: GSC 02172-01415

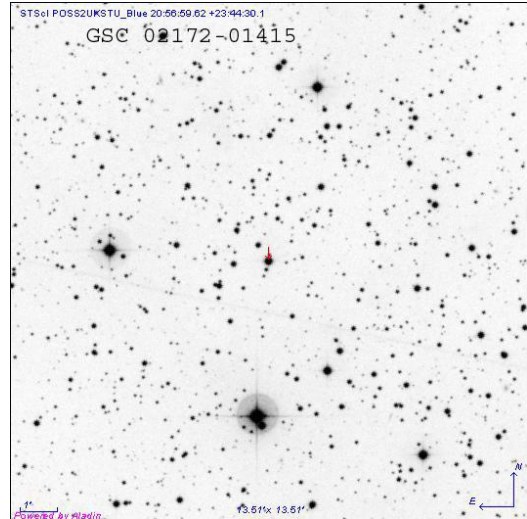
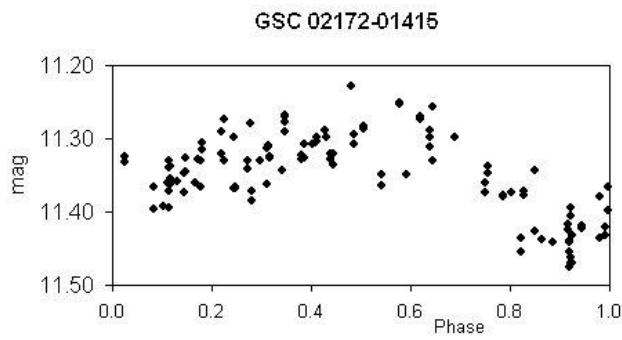
NSVS data:

<http://skydot.lanl.gov/nsvs/star.php?num=8599362&mask=32004>

Tycho-2: 02172-01415-1; Johnson B-V=1.465 (derived from Tycho-2)

Proper motion 17 mas yr⁻¹ (Zacharias et al. 2005)

Probably a BY Dra star

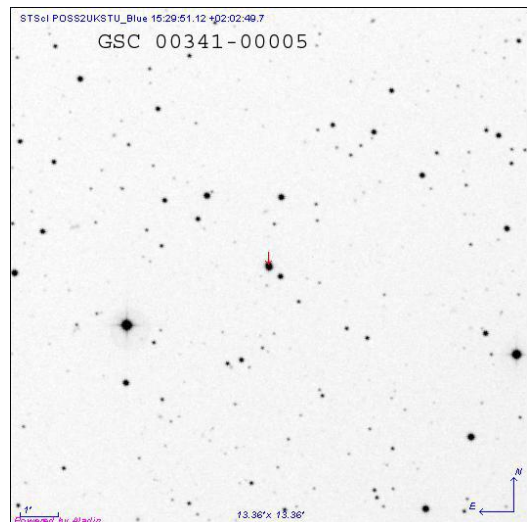
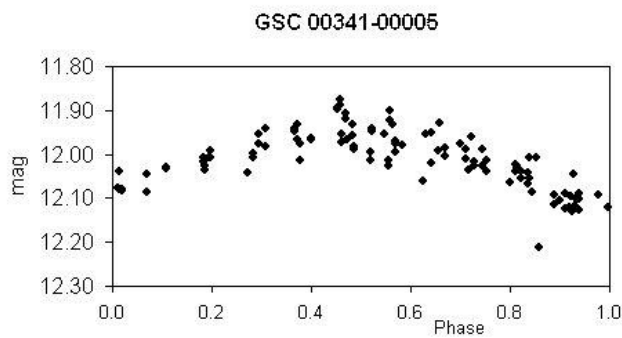


No. 49: GSC 00341-00005

NSVS data:

<http://skydot.lanl.gov/nsvs/star.php?num=13436982&mask=32004>

Proper motion 42 mas yr⁻¹ (Zacharias et al. 2005)



No. 50: GSC 03262-01217

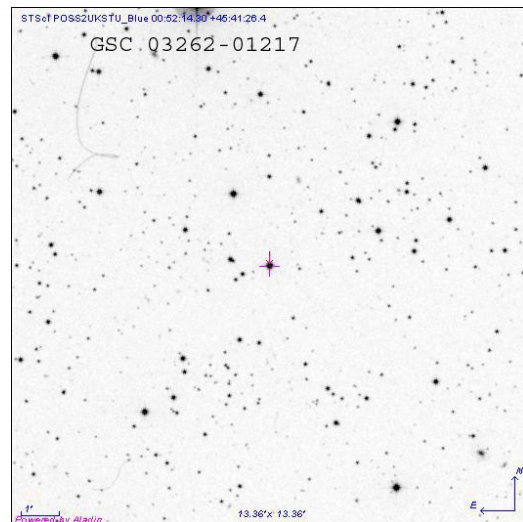
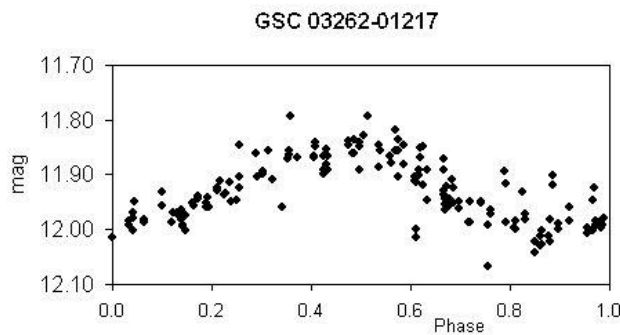
NSVS data:

<http://skydot.lanl.gov/nsvs/star.php?num=3752817&mask=32004>

Tycho-2: 03262-01217-1; Johnson B-V=0.562 (derived from Tycho-2)

Proper motion 34 mas yr⁻¹ (Zacharias et al. 2005)

Likely RS CVn variable



Acknowledgements: This research has made use of the SIMBAD and VizieR databases operated at the Centre de Données Astronomiques (Strasbourg) in France, of the Smithsonian/NASA Astrophysics Data System and of the International Variable Star Index (AAVSO).

References:

Bernhard K., Lloyd C., 2008, OEJV, 86

<http://var.astro.cz/oejv/issues/oejv0086.pdf>

Damerджи Y., Klotz A., Boer M., 2007, Astron. J., 133, 1470-1477

<http://simbad3.u-strasbg.fr/cgi-bin/cdsbib?2007AJ....133.1470D>

Høg E., Fabricius C., Makarov V.V., Urban S., Corbin T., Wycoff G., Bastian U., Schwekendiek P., Wicenec A., 2000, Astron. Astrophys., 355, L27 (2000A&A...355L..27H)

<http://adsabs.harvard.edu/abs/2000A&A...355L..27H>

Ivanov G.A., 2007, Catalogue of stars with high-proper motions - version 1., Ivanov G.A., Main Astronomical Observatory (MAO), Kiev, Ukraine

<http://cdsarc.u-strasbg.fr/viz-bin/Cat?I/306>

Lenz P., Breger M., 2005, Comm. in Asteroseismology, 146, 53 (2005CoAst.146...53L)

<http://adsabs.harvard.edu/abs/2005CoAst.146...53L>

Voges W., Aschenbach B., Boller Th., Brauning H., Briel U., Burkert W., Dennerl K., Englhauser J., Gruber R., Haberl F., Hartner G., Hasinger G., Pfeffermann E., Pietsch W., Predehl P., Schmitt J.,

Trumper J., Zimmermann U. 2000, IAU Circ. 7432, ROSAT all-sky survey faint source catalogue. (2000IAUC.7432R...1V)

<http://adsabs.harvard.edu/abs/2000IAUC.7432R...1V>

Wozniak P. R., Vestrand W. T., Akerlof C. W., Balsano R., Bloch J., Casperson D., Fletcher S., Gisler G., Kehoe R., Kinemuchi K., Lee B. C., Marshall S., McGowan K. E., McKay T. A., Rykoff E. S., Smith D. A., Szymanski J., Wren J., 2004, Astron. J., 127, 2436, Northern Sky Variability Survey: Public Data Release (2004AJ....127.2436W)

<http://adsabs.harvard.edu/abs/2004AJ....127.2436W>

Zacharias N., Monet D.G., Levine S.E., Urban S.E., Gaume R., Wycoff G.L., 2005, Naval Observatory Merged Astrometric Dataset (NOMAD)

San Diego AAS Meeting, January (2005) (2004AAS...205.4815Z)

<http://adsabs.harvard.edu/abs/2004AAS...205.4815Z>

<http://cdsarc.u-strasbg.fr/viz-bin/Cat?I/297>