

Lost RR Lyrae stars in Apus

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Abstract:

The stars discussed here are all located in the constellation Apus and have not been observed since their discovery. They all are too faint to be recorded by the All Sky Automated Survey. Observations made in June 2007 with the 50 cm telescope and ST-7 camera on the Hakos IAS observatory in Namibia are reported.

SW Aps 14:38:41.0 -71:18:45 (J2000.0)

This star, originally HV 05100, is identified in the GCVS as GSC 9265.2113 but with the ominous remark:

„The variable star's identification with the source catalog is uncertain.“
The star was observed 2007/06/06 from 20:30 UTC to 04:50 UTC on the following morning. 653 ccd images have been recorded. The measurements scatter about 0.02 mag at the begin and 0.04 mag at the end, an increase of the brightness of 0.02 mag was found. It may be attributed to the fact, that Apus declines to the horizon in the morning.

Conclusion: RR Lyrae variability may be excluded.

TT Aps 14:39:32.4 -71:34:02 (J2000.0)

This star, originally HV 05106, is identified in the GCVS as GSC 9265.2338, questionable is only the classification as an RR Lyrae star.

The star was observed 2007/06/02 from 21:30 UTC to 04:50 UTC on the following morning. 650 ccd images have been recorded. The measurements scatter about 0.02 mag at the begin and more then 0.1 mag at the end, an increase of brightness of about 0.15 mag can be noticed. The effect may be attributed to the hight above the horizon, but is stronger then in the case of SW Aps. TT Aps is obviously red.

Conclusion: RR Lyrae variability may be excluded.

UV Aps 14:50:51.9 -71:07:12 (J2000.0)

This star, originally HV 05125, a crossidentification in the GSC may not be expected as it is very faint. A maximum time, 25433.24 and a period, 0.4149 are known. The ominous remark is present. The star was already observed in 2003 with the Celestron 14, but without conclusive results. This time it was observed 2007/06/08 from 20:20 UTC to 04:20 UTC in the following morning. No significant variability was detected.

The primary focus of the 50 cm mirror gives a larger field of view then the Celestron 14.

A variable star on the rim of the chip (and sometimes off the chip) was found. This star has the coordinates 14:50:04.5 -71:11:40 (J2000.0) 350 ccd images could be used for photometry. The lightcurve of this star may have a period of 0.4 days, but it was observed only one night.

The heliocentric julian time of the observed maximum is 54260.494+-0.005

An 5x5 arcmin field from DDS, with the variable in the centre, is attached.

Conclusion: The star will be attended with high priority in the next observing season.

UX Aps 14:52:30.3 -70:54:43 (J2000.0)

UX Aps is originally HV 05127 and has the elements $25327.52 + 0.40075$, but the identification is uncertain. In fact we, Friedhelm Hund and Anton Paschke, have tried to observe UX Aps since 2002. We discussed the star with prof Samus, the GCVS editor. He asked Mrs Hazen to search the discovery plate in the Harvard archive. But also the new star identified as UX Aps has been found constant.

Friedhelm Hund observed the field of UX Aps with his 120 mm refractor in 2005. The advantage of this instrument is the larger field of view. Two faint stars have been suspected and named RafV036 (14:52:23 -70:53:55) and RafV037 (14:51:27 -70:56:49) in our list of new variable stars. In June 2007 both have been observed with the 50 cm telescope and both have been found to be constant. UX Aps has reasonably accurate elements and should be the most certain catalog entry between all stars discussed here. We spend the most work on it, but in vain.

Conclusion: UX Aps is definitively lost.

VW Aps 15:02:51.4 -70:57:17 (J2000.0)

This star, originally HV 05132 has no elements and the classification as RR Lyrae is also questionable. He has also the remark about the uncertain identification. All together this is the least certain entry of the five and least time was invested here.

The star was observed 2007/06/09 from 22:30 UTC to 04:30 UTC. An ST-10 camera was used. 342 usable ccd images have been recorded. The measurements scatter 0.03 mag in the begin and 0.04 mag at the end. An increase of 0.05 mag is observed.

No other variable star was found in spite of the large field of view.

Conclusion: VW Aps is not an RR Lyrae star.

References:

General Catalog of Variable Stars <http://www.sai.msu.su/groups/cluster/gcvs/>

Motl David, 2006, C-Munipack <http://integral.physics.muni.cz/cmunipack/index.html>

Observatory IAS Hakos <http://www.ias-observatory.org/>