Variability of GSC 0376-0596

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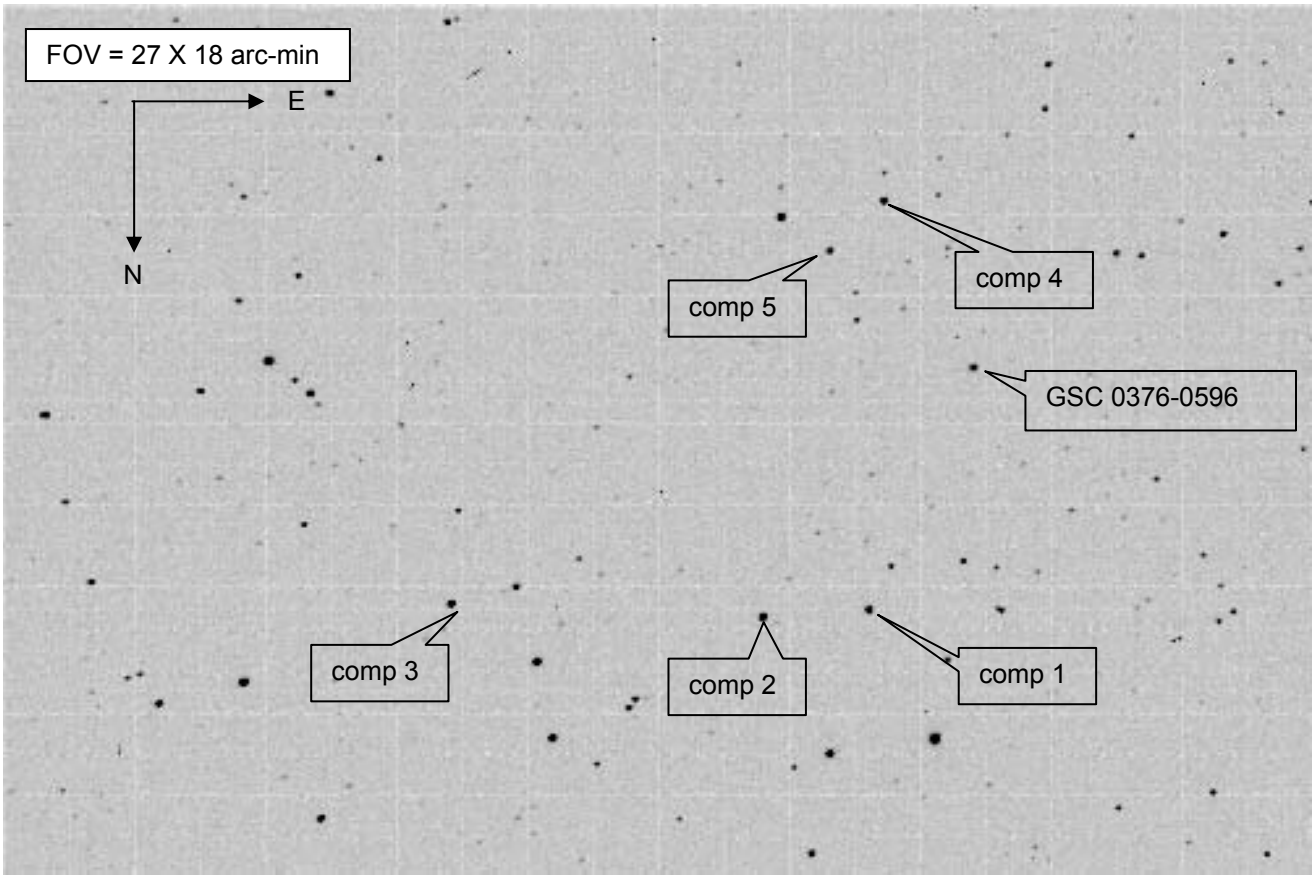
On UT 05-21-2005, the star GSC 0376-0596 was discovered to be a short-period variable (P= 2.596 hours), apparently of the delta-Scuti type, with unusually large amplitude (ΔV ≈ 0.6 mag).

Summary: Data from two nights of unfiltered CCD data, and two nights of filtered (V, R) data on this star show:

- The fundamental period of variation is 2.596 hours (±0.003 hrs)
- The light curve shows a peak-amplitude variation of up to 0.1 V-magnitude from cycle to cycle.
- Average (mid-point) brightness is V ≈ 12.87
- The peak-to-peak amplitude variation is about ΔV ≈ 0.6 magnitude
    - max brightness V= 12.58
    - min brightness V= 13.14
- The color changes with the brightness – it is about 0.10 magnitude redder at minimum brightness than it is at maximum brightness.
    - max brightness (V-R) ≈ 0.1
    - min brightness (V-R) ≈ 0.22

Identification: Identification data for this star are:
RA(2000) = 16:20:02
Dec(2000)= +4:28:41
Cross- identifications = MUSNO 4995/22
= UCAC2 3316055
= GSC 0376-0596
A finder image is provided below:

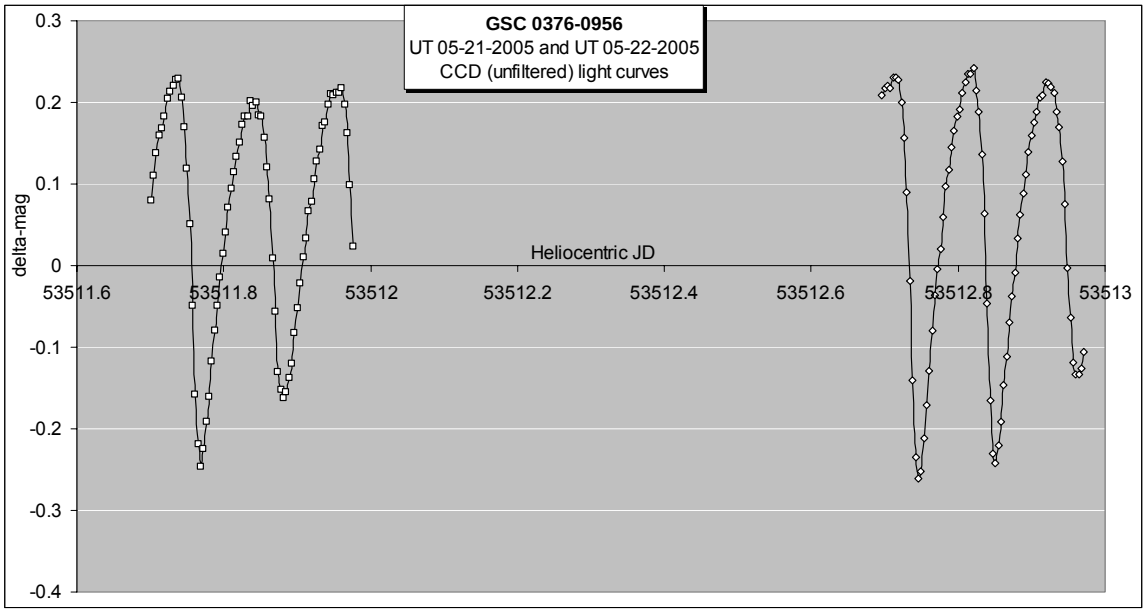


Observational details:

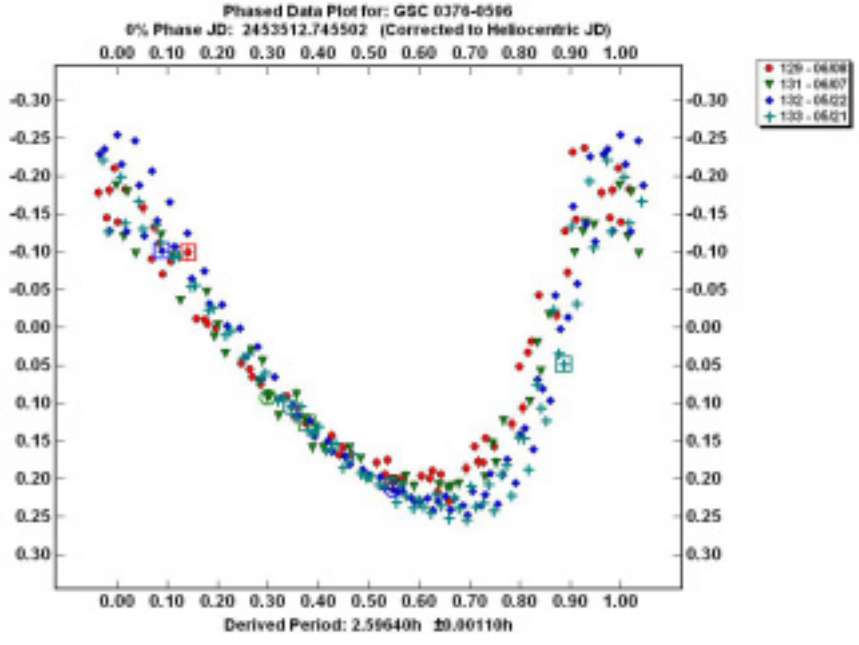
- Observatory and telescope: Altimira Observatory is a private amateur observatory, using an 11-inch Schmidt-Cassegrain telescope operating at F/6.3.
- Detector: 1020 X 1530 pixels SBIG ST-8XE (NABG) CCD, cooled (-10C typ), 1.1 arc-sec square pixels.
- Method of data reduction: MPO Canopus (published by Brian Warner, BDW Publishing)
- Comparison stars as shown on finder chart were:

comp 1	GSC 0376-0774
comp 2	GSC 0376-0852
comp 3	GSC 0376-0669
comp 4	GSC 0376-0238
comp 5	GSC 0376-0258

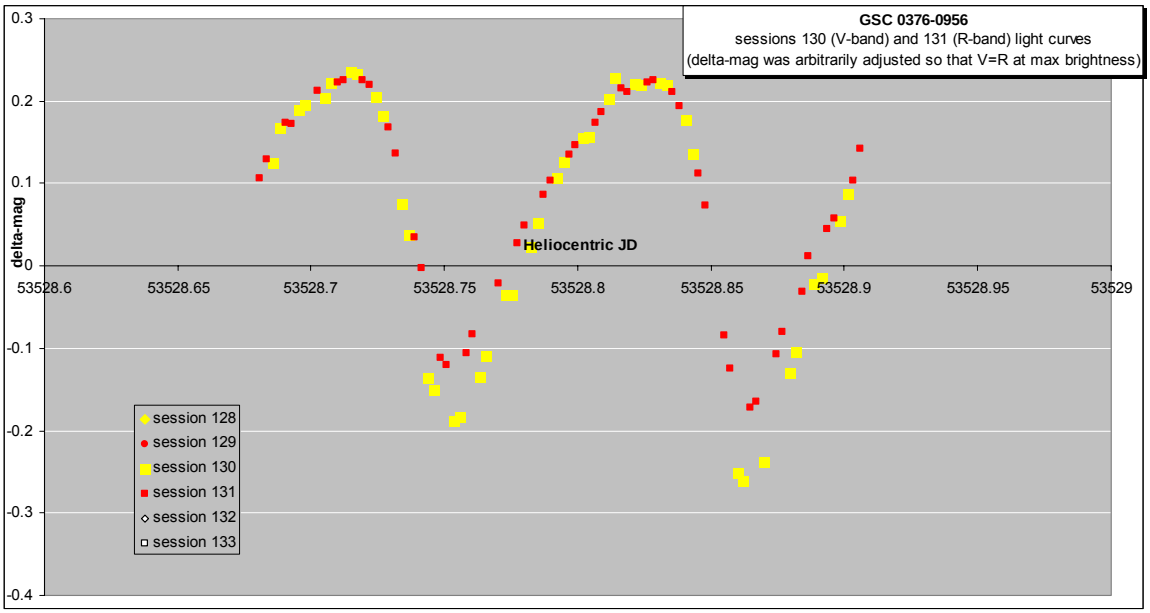
Light-curve data: Light-curve data from unfiltered CCD observations on UT 05-21-2005 and UT 05-22-2005 are shown below:

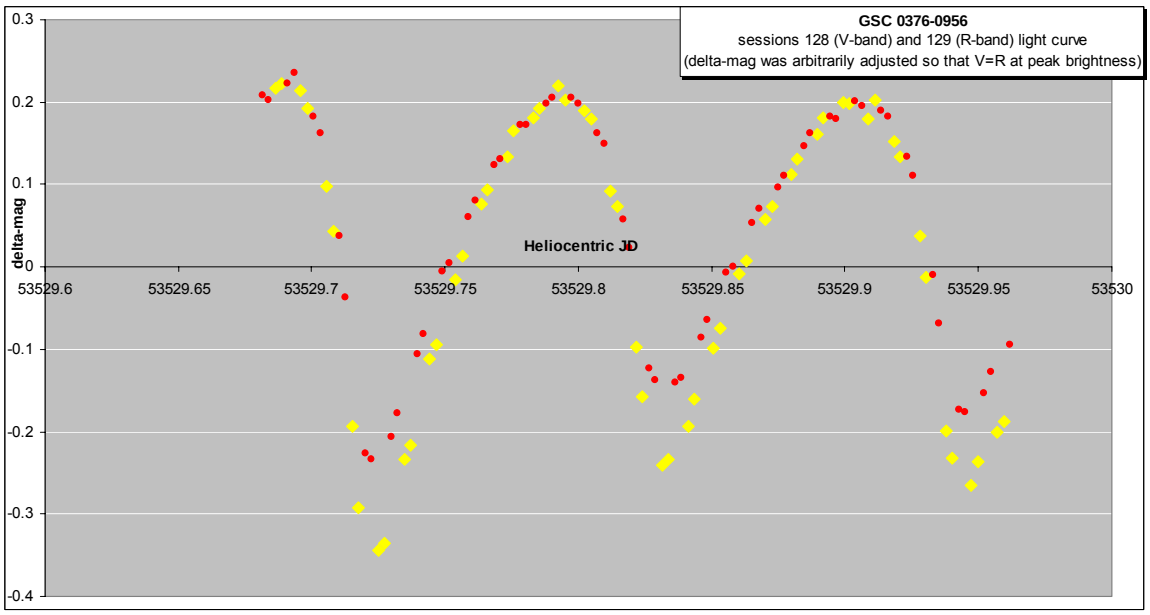


A Phased light curve, based on the primary period P= 2.5964 hours, is shown below:



The filtered CCD photometry also shows that the star's color changes slightly during its cycle. In the two figures below (from UT 06-07-2005, and UT 06-08-2005, respectively), the instrumental V and R magnitudes are shown, with arbitrary brightness offset so that the V and R curves align at maximum brightness. These show that the star is somewhat redder at minimum brightness, than it is at maximum brightness.





Availability of data: Raw data and images may be obtained via e-mail from the author.

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