

GSC 3514-00405, a New Double-Mode RR Lyrae Variable Star

[A. V. Khruslov](#)

Russia, Tula

Received: 20.02.2007; accepted: 14.03.2007

(E-mail for contact: khruslov@bk.ru)

Star Name:	GSC 3514-00405, NSVS 5321385, NSVS 5390345		
Coordinates (J2000):	17 41 07.33, +48 43 13.6		
Variability type:	RR(B);	Limits, System:	12.83 - 13.5 (R);
Period:	(see Remarks) d;	Epoch:	JD (see Remarks)

Remarks:

According to ROTSE-I data (Wozniak et al., 2004), GSC 3514-00405 is a double-mode RR Lyrae star. The phased light curves for the following elements:

$JD(\max) = 2451408.71 + 0.5539 \times E$ (fundamental mode) and

$JD(\max) = 2451408.71 + 0.4133 \times E$ (first overtone mode),

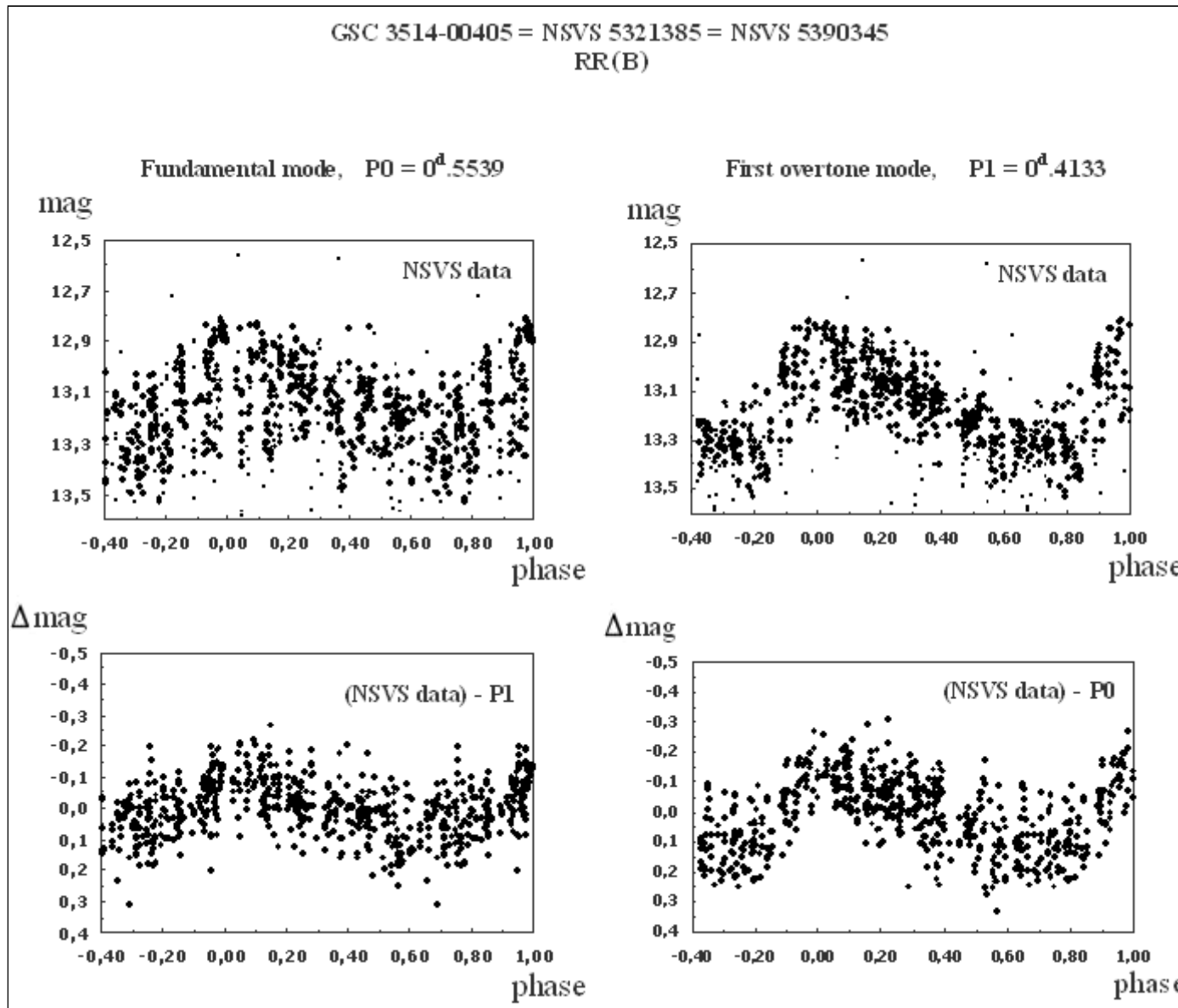
are given in the Figure. The period ratio $P1/P0=0.746$ is typical of RR(B) stars. The amplitude of the first overtone mode exceeds that of the fundamental mode.

The ROTSE data with photometric correction flags (usually rejected) were kept for the analysis. In the case of GSC 3514-00405, the use of these data considerably increases the number of available observations without deteriorating quality and allows us to determine the period more accurately. NSVS observations were analyzed using the period-search software developed by Dr. V.P. Goranskij for Windows environment. The coordinates are from the 2MASS catalog.

References:

Wozniak, P.R., Vestrand, W.T., Akerlof, C.W. et al., 2004, Astron. J., 127, 2436

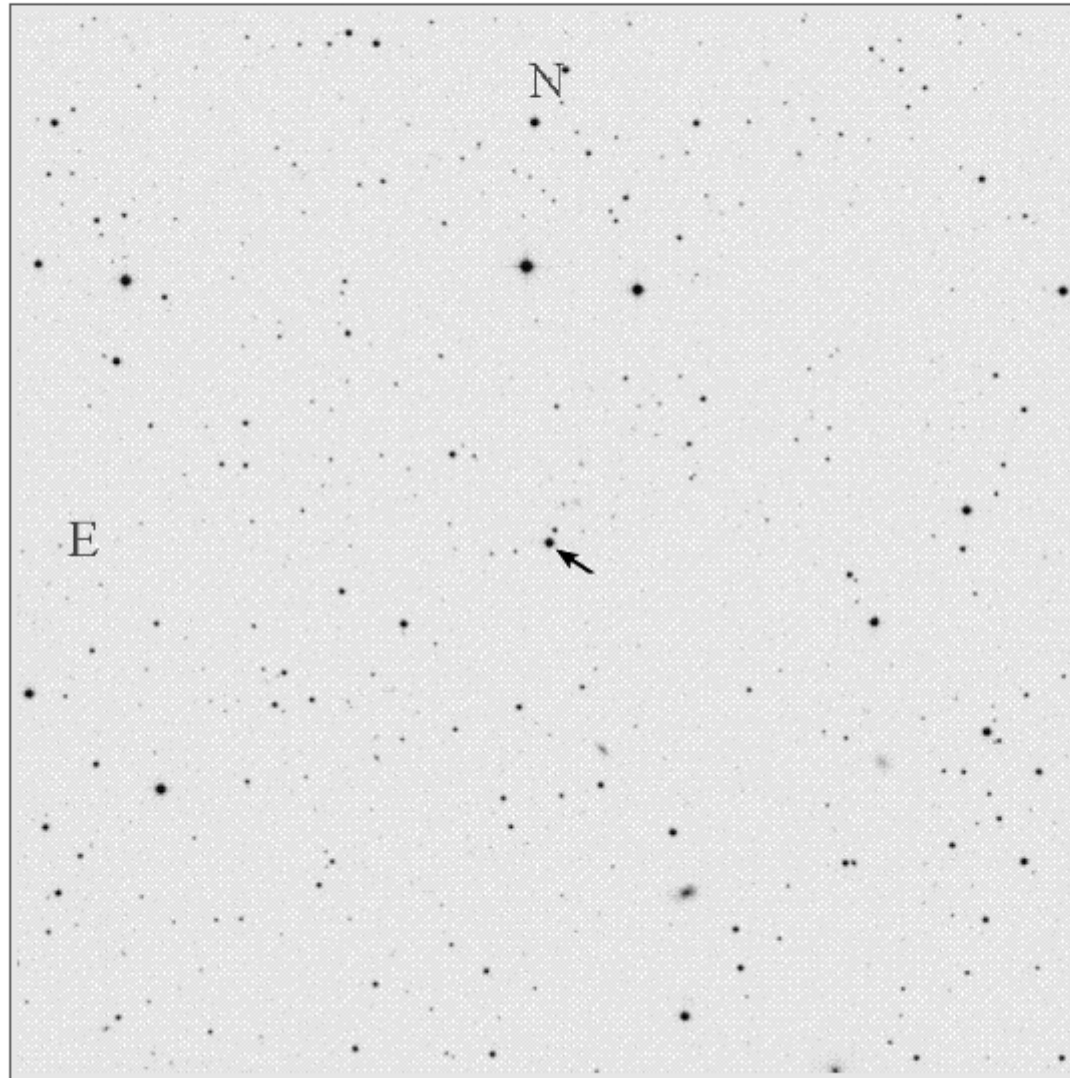
Light Curve



The phased light curves. Top panels: NSVS data folded with the fundamental-mode and the first overtone periods. Bottom panels: the same curves after prewhitening the other oscillation. Small dots are the NSVS data with $\text{err.} > 0.1$ mag. These observations were removed from the bottom curves.

Finding Chart

GSC 3514-00405



Poss II red

15'x 15'