V445 PUPPIS FROM SOUTH AMERICA

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Abstract

The Kanatsu object, called Nova Puppis 2000 or V445 Pup, is a peculiar one. In the six months following its discovery in late December 2000 at photographic magnitude 8.6, its development was very slow—slow decline to visual magnitude ~10.0 in early February 2001, very brief significant brightening in March, a little decrease in late April, and stabilization at visual magnitude 10.3 near the end of June. Visual and CCD observations carried out by Latin-American Astronomical League (LIADA) and Brazilian Observational Network (REA) members indicate that the object does not appear to be a typical nova.

1. Introduction

In closing out the millennium, on December 30 the announcement was made (Kato 2000) that Kazuyoshi Kanatsu of Matsue, Shimane, Japan, had photographically discovered an 8.6-magnitude object that had not before been seen to be brighter than magnitude 15 in any catalogue or photograph.

The editors of the *General Catalogue of Variable Stars* assigned the object (R.A. = $07^{h}37^{m}58^{s}$, Decl. = $-25° 56' 51''$, J2000.0) the name V445 Puppis, thus officially acknowledging its variability (Samus 2001).

The behavior of V445 Pup has been quite different from that of other novae discovered in recent years. It appears to be closer to that of RT Serpentis, prototype of the Nc class that in 1915 brightened to magnitude 10.5, and remained nearly that bright for almost 10 years until finally dimming to 14th magnitude in 1942.

2. The observations

The Variable Star Section of LIADA (Latin-American Astronomical League) will usually start an observing campaign within a few hours of the announcement of a discovery, as it did for V382 Vel (Garcia 2000). In the case of V445 Pup, both visual and unfiltered CCD observations were made by the group's observers in South America and Spain, with visual data from Argentina, Brazil (observers from REA, Brazilian Observational Network), Spain, Venezuela, and Uruguay, and unfiltered CCD photometry from Uruguay and Venezuela, for a total of 312 observations. Contributing observers are shown in Table 1. LIADA observers report their observations to the astronomical community in collaboration with the AAVSO and with VSNET of the Variable Star Observers League of Japan (VSOLJ) (Garcia 2000).

The light curve of unfiltered CCD observations is shown in Figure 1. Visual observations are represented in Figure 2.

The light curves show oscillations, but during early March (JD~2451975) the object's magnitude was steady at about 10.0. On March 13 (JD 2451981), V445 Pup brightened almost 0.7 magnitude to 9.3, and returned to magnitude 10.0 on March 16 (JD 2451984). After a dip in mid-April to late May (JD~2452020-2452060), the system was stable at 10.3 until late June.

CCDV observations of V445 Pup by Kiyota (2001) reported to VSNET early in February indicated that the difference in magnitude between *V* photometry and the visual observations increased (*V* became brighter than visual magnitudes). This increase may be due to spectral changes, similar to those detected in V382 Vel by Liller and Jones (2000). However, in V382 Vel, the opposite effect was seen—the *V* magnitude became fainter than the visual ones.

3. Conclusions

Certainly V445 Puppis is not a typical nova, as may be seen by the visual light curve. During July 2001, the star began to fade rapidly, thus behaving in a more "normal" way. It will be interesting to follow V445 Pup during next year's observing season (December 2001-June 2002) to determine its classification more precisely.

References

Garcia, J. R. 2000, *J. Amer. Assoc. Var. Star Obs.*, **29**, 19.

Kato, T. 2000, *IAU Circ.*, No. 7552, ed. D. Green.

Kiyota, S., 2001, VSNET-OBS messages No. 32036, 32146, and 32169, http://www.kusastro.kyoto-u.ac.jp/vsnet/Mail/obs32000/maillist.html.

Liller, W., and Jones, A. 2000, *Inf. Bull. Var. Stars*, No. 5004.

Samus, N. 2001, *IAU Circ.*, No. 7559, ed. D. Green.

Table 1. LIADA and REA observers contributing to this campaign on V445 Pup.

Observer	*From*	*Number of Observations*
Sebastián Otero	Argentina	88
Jaime García	Argentina	30
Jesús Guerrero	Venezuela	28
Víctor Ladino	Venezuela	28
Daniel Medina	Argentina	22
ALDA team	Venezuela	21
José Rodríguez Freitas	Uruguay	17
Kappa Crucis team	Uruguay	14
Víctor Trombotto	Argentina	12
Sergio Domínguez	Argentina	11
Juan Miguel Hodar Muñoz	Brazil	5
Conrado Federico Kurtz	Argentina	5
Horacio Medina	Argentina	4
Alexis Peña B.	Venezuela	4
José Guilherme Aguiar	Brazil	3
Cianny Orellanes	Venezuela	3
Francisco Suarez	Venezuela	3
Alexandre Amorim	Brazil	2
Mercedes Duque	Venezuela	2
Felipe Hodar	Brazil	2
Tito Lizardo	Venezuela	2
Juan Manuel Santiago	Venezuela	2
José María Fernández Andújar	Spain	1
Gilbert Sanchez	Venezuela	1
Amaury Valenzuela	Venezuela	1
Freddy Yépez	Venezuela	1

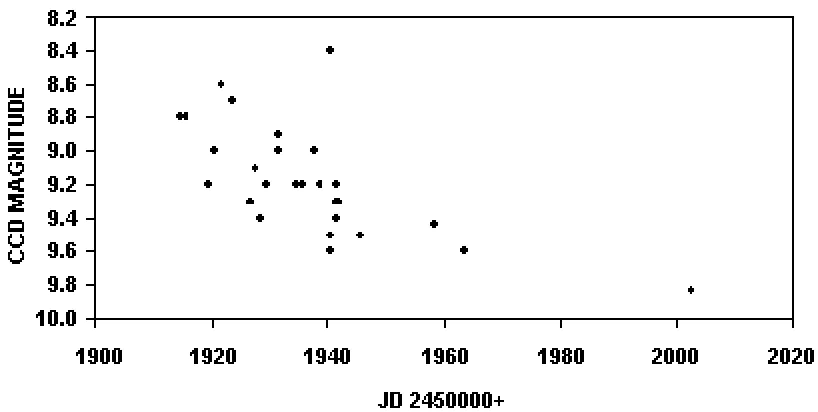

Figure 1. CCD unfiltered light curve for V445 Pup.

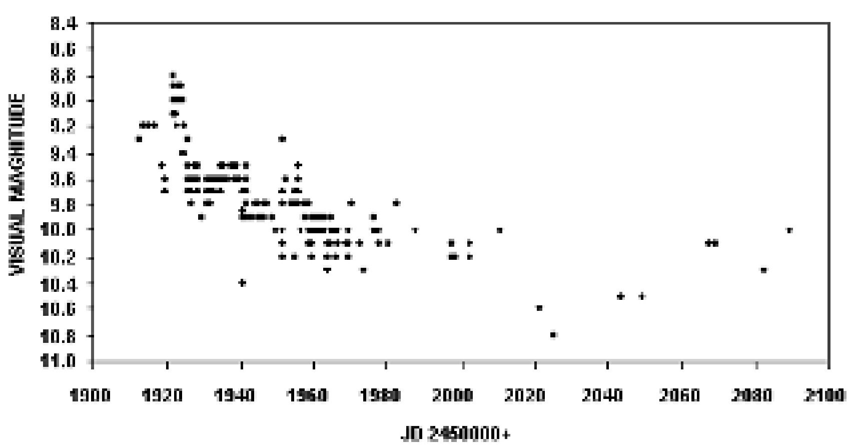

Figure 2. Visual light curve for V445 Pup.