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POSSIBLE IDENTIFICATION OF MisV0106 AND NSV 25425

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This report discusses the possible identification of MisV0106, one of new variable stars discovered in the course of the MISAO Project, and NSV 25425, one of the suspected variable stars in the NSV catalog (New Catalogue of Suspected Variable Stars) Supplement 1.0 (Kazarovets et al. 1998).

In the course of variable star survey based on the MISAO Project observations, the variable brightness of USNO-A2.0 1200.16773850, R.A. = 21^h00^m37^s.223, Decl. = +37°28′55″.08 (2000.0), 14.5 mag(*R*), 17.8 mag(*B*), was discovered and named as MisV0106 (Yoshida et al. 1999).

NSV 25425 is 52 arcsec from MisV0106. At the position of NSV 25425, there is a star USNO-A2.0 1200.16771307, R.A. = 21^h00^m34^s.472, Decl. = +37°29′36″.80 (2000.0), 13.9 mag(*R*), 15.4 mag(*B*) (see Figure 1).

Table 1 shows the photometry of these two stars, obtained automatically by the PIXY system from unfiltered CCD images taken by Kadota between 1999 May and September. The magnitudes were measured using the USNO-A1.0 catalog based on a preliminary *V* magnitude calculated from *R* and *B* magnitude in the catalog based on Kato's (1998) equation:

$$V = R + 0.375(B - R)$$

Further details are the same as described in Yoshida and Kadota (1999). These observations confirmed the variability of USNO-A2.0 1200.16773850, while USNO-A2.0 1200.16771307 was constant within the error.

In order to confirm the color of the two stars, we measured relative colors of these stars by comparing images with an R60-filter and an IR-blocking filter (Table 2). Red stars are relatively fainter through an IR-blocking filter. The data in the USNO-A2.0 catalog of these two stars implies both stars are red. Our observations confirm that USNO-A2.0 1200.16773850 is evidently red, while USNO-A2.0 1200.16771307 is not red.

The finding chart of NSV 25425 is given in Margoni and Stagni (1984). The star labelled as NSV 25425 on the chart is identical with USNO-A2.0 1200.16771307. However, there is a remark on NSV 25425 that “*is very bright in the infrared*”. This does not agree with the result of our observations.

Table 1: Photometry (unfiltered CCD)

JD	USNO-A2.0 1200.16773850	USNO-A2.0 1200.16771307
2451300.25	12.7	15.3
2451367.20	14.0	15.4
2451408.22	14.4	15.4
2451426.12	13.4	15.2

Table 2: Photometry (filtered CCD)

Filter	USNO-A2.0 1200.16773850	USNO-A2.0 1200.16771307
none	13.4	15.2
R60	13.2	15.1
IR-blocking	15.6	15.3

As a conclusion, the identification of NSV 25425 with USNO-A2.0 1200.16771307 is possibly a mistake and USNO-A2.0 1200.16773850 (MisV0106) is the true NSV 25425.

Because the finding chart of Margoni and Stagni (1984) was based on a blue photographic plate, USNO-A2.0 1200.16773850, a red star, was too faint to be visible on the chart. This may explain why Margoni and Stagni (1984) labelled the wrong star as the variable.

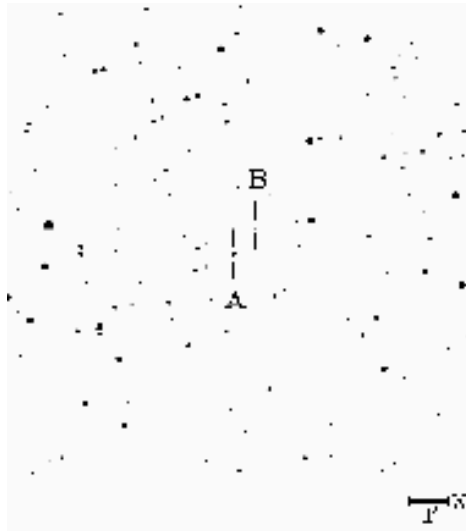


Figure 1. A: USNO-A2.0 1200.16773850 (MisV0106)
 B: USNO-A2.0 1200.16771307

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