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**NSV 12364: A SEMIREGULAR VARIABLE**

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<b>Name of the object:</b>
NSV 12364 = USNO A2.0 0825-16831668 = IRAS 19422-0054 = GSC 0514500383 = 2MASSI J1944495-004656

<b>Equatorial coordinates:</b>	<b>Equinox:</b>
<b>R.A.</b> = 19 <sup>h</sup> 44 <sup>m</sup> 49 <sup>s</sup> .504 <b>DEC.</b> = -0°46'56".76	2000.0

<b>Observatory and telescope:</b>
University of Illinois at Urbana-Champaign, Stardial

<b>Detector:</b>	Kodak KAF-400 CCD
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<b>Filter(s):</b>	RG-1
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<b>Date(s) of the observation(s):</b>
JD 2 450 289 – 2 452 185

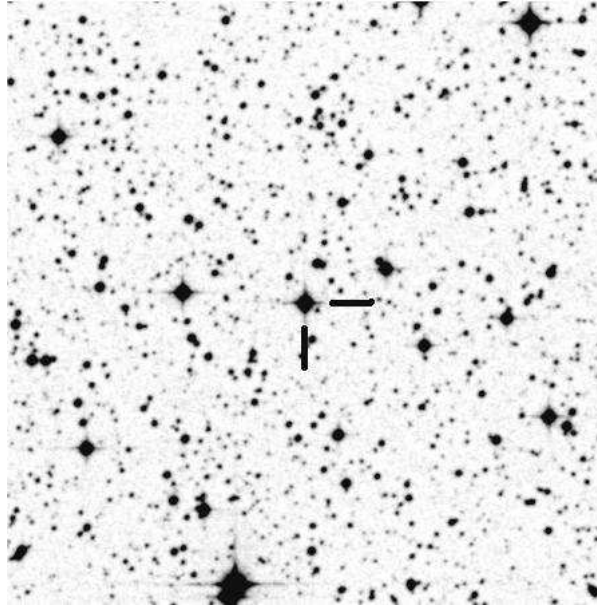
<b>Comparison star(s):</b>	GSC 0514501789 = USNO A2.0 0825-16834586
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<b>Check star(s):</b>	GSC 0514500716 = USNO A2.0 0825-16788287
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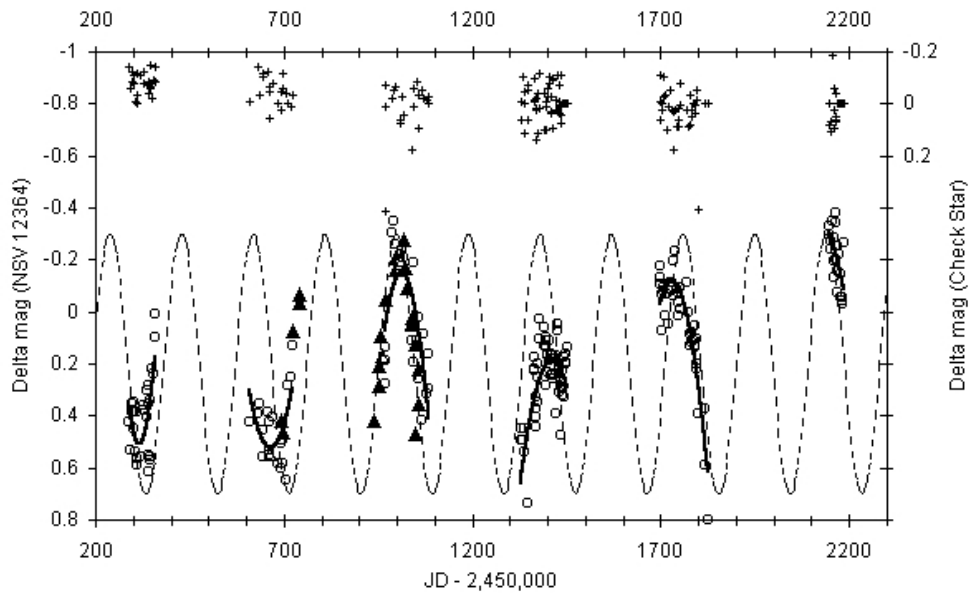
<b>Transformed to a standard system:</b>	No
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<b>Availability of the data:</b>
At the IBVS website: 5288-t1.txt

<b>Type of variability:</b>	SRA
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**Figure 1.** Identification chart: Field of NSV 12364. North is up and East is left on this  $7'5 \times 7'5$  section of a red plate from the UK Schmidt Telescope. Tick marks identify the variable. Image obtained from the Digitized Sky Survey.



**Figure 2.** Light Curve of NSV 12364. Open circles represent Stardial data, filled triangles are TASS Mark III I-band data, and crosses represent the check star. Dark curves are simple second-order polynomial fits to each season's data, and a dashed sine curve representing the best-fit period, 190 days, is overlaid.

**Remarks:**

This star was detected as variable while blinking Stardial (McCullough and Thakkar, 1997) images. It was first noted as a possible variable by Ross (1928) and was catalogued as NSV 12364 on the basis of that observation (Kholopov et al., 1998). All available Stardial images of the region were analysed. 185 images covering portions of six observing seasons 1996–2001 were found suitable for differential photometry. The results, along with 27 TASS (Richmond et al. 2000) I-band observations (converted to differential magnitudes) are plotted in Figure 2. A simple graphical fit yields a period of 190 days, but the actual maxima and minima may deviate from this fit by  $\pm 40^d$ . Simultaneous  $V$  and  $I$  band observations by TASS show a  $V - I$  color index of 3.72 magnitudes at maximum. This corresponds to a spectral type of M4 - M5 (Zombeck 1990). A significant infrared excess was observed by IRAS (12  $\mu$  flux 1.37 Jy, 25  $\mu$  flux  $4.72 \times 10^{-1}$  Jy, Moshir et al., 1989) and the Two Micron All-Sky Survey (2MASS J-band magnitude 6.037;  $H$  and  $K_s$  bands saturated). The picture that emerges is that of a mildly variable late-type star probably surrounded by a thick infrared-emitting dust shell, i.e. a typical asymptotic giant branch star. The color, amplitude and variable period direct the classification of this star as SRA.

**Acknowledgements:**

This research has made use of NASA's Astrophysics Data System Bibliographic Services, and the Vizier catalogue access tool, CDS, Strasbourg, France. The Digitized Sky Surveys were produced at the Space Telescope Science Institute under U.S. Government grant NAG W-2166. The images of these surveys are based on photographic data obtained using the Oschin Schmidt Telescope on Palomar Mountain and the UK Schmidt Telescope. The plates were processed into the present compressed digital form with the permission of these institutions. This publication makes use of data products from the Two Micron All Sky Survey, which is a joint project of the University of Massachusetts and the Infrared Processing and Analysis Center/California Institute of Technology, funded by the National Aeronautics and Space Administration and the National Science Foundation.

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