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IRAS 19035-0134: A NEW MIRA VARIABLE

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The Stardial project of the University of Illinois at Urbana-Champaign provides a sky patrol of a declination band just south of the equator, using a drift-scan robotic CCD camera. All the images are immediately made available on the world-wide web under http://www.astro.uiuc.edu/stardial/. While "blinking" Stardial frames in a search for new variables, the star IRAS 19035-0134 = USNO-A2.0 0825-14421517, located at $19^{\rm h}06^{\rm m}05^{\rm s}.65 - 01^{\circ}29'59'.0$ (J2000, from USNO-A2.0), was found to vary between about 10 and fainter than 12.5 in unfiltered CCD magnitudes.

The Stardial lightcurve from all 181 usable frames (collected over 4 observing seasons) indicated Mira-type variability with a period of about 250 days. Fig. 1 shows positive magnitude measurements relative to GSC 5128-945 as solid diamonds, and upper limits from non-detections as very small triangles. There is a clear-cut maximum around JD 2450 620, and an incomplete one at about JD 2451 360. In between, a minimum is indicated by a decline around JD 2450 950 and a rise around JD 2451 060. The minimum itself is indicated by the large number of non-detections (small symbols) around JD 2451 000. In addition, there is a rise around JD 2450 330, given by a group of non-detections followed by a group of positive observations.

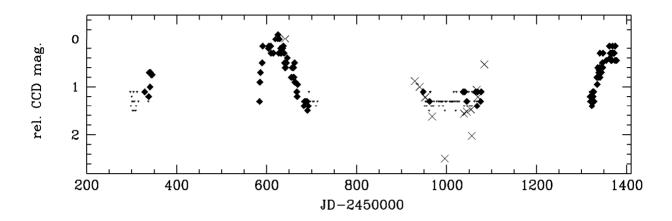
This interpretation of the *Stardial* data is corroborated by 14 frames from *The Amateur Sky Survey* (TASS, another public CCD sky patrol project, see http://www.tass-survey.org/). *I*-band magnitudes derived from the 14 frames are displayed as crosses in Fig. 1. Due to the larger optics compared to *Stardial*, the TASS data give positive observations even close to the minimum.

From Fig. 1 the following rough ephemeris can be derived:

$$JD (Max) = 2450620 + 247 \times E.$$

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 $\textbf{Figure 1.} \ \, \text{Lightcurve of IRAS 19035-0134. Symbols are explained in the text.}$