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**NEW VARIABLES IN THE FIELDS OF V1413 AQUILAE  
AND AU HERCULIS**

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During the observation and data analysis of the variable stars V1413 Aquilae and AU Herculis, previously unknown possible variables were found in each field. We used Pickles and the Guide Star Catalog to obtain the positions of the new variables; the coordinates of the possible new variable (Guide Star Catalog #1585 1087) in the V1413 Aquilae field are  $\alpha_{2000} = 19^{\text{h}}03^{\text{m}}46^{\text{s}}$ ,  $\delta_{2000} = 16^{\circ}29'52''$ . The coordinates of the possibly varying star (Guide Star Catalog #2102 1349) in the AU Herculis field are  $\alpha_{2000} = 17^{\text{h}}56^{\text{m}}59^{\text{s}}.6$ ,  $\delta_{2000} = 29^{\circ}47'14''.8$ . Neither star is listed as a suspected or known variable in the New Catalogue of Suspected Variable Stars (Kholopov *et al.*, 1982), SIMBAD, or any issues of the Information Bulletin on Variable Stars from 1993 to the present, including the 72nd Name-List of Variable Stars (IBVS No. 4140, 1995). Thus, we conclude the stars have not previously been noted as variables.

All observations of both new variables were made with a Photometrics CCD camera attached to the Wellesley College 0.6 meter Cassegrain Reflecting telescope. AU Herculis has been observed and analyzed since the summer of 1993, and V1413 Aquilae has been observed since the summer of 1994. It was noticed during the analysis of both stars that one of the comparison stars in each of the fields was showing a larger variation of magnitude than the other comparison stars.

The new variable in the AU Herculis field varies by approximately 0.5 magnitudes in both the R and the V filters. This is compared to the significantly smaller variation of approximately 0.09 and 0.07 magnitudes shown by the other comparison stars in the R and V filters. The new variable in the field of V1413 Aquilae varies in magnitude by approximately 0.3 magnitudes in the I filter, 0.4 magnitudes in the R filter, and 0.5 magnitudes in the V filter. The other comparison stars in this field vary by approximately 0.07 in the I filter, 0.15 in the R filter, and 0.09 in the V filter. Figures 1 and 2 show the variations of the star in the field of AU Herculis in the V filter and the variation of the star in the V1413 Aquilae field in the I filter respectively. Figures 3 and 4 identify the new variable stars. For each image, north is up and the field is about nine arcminutes square.

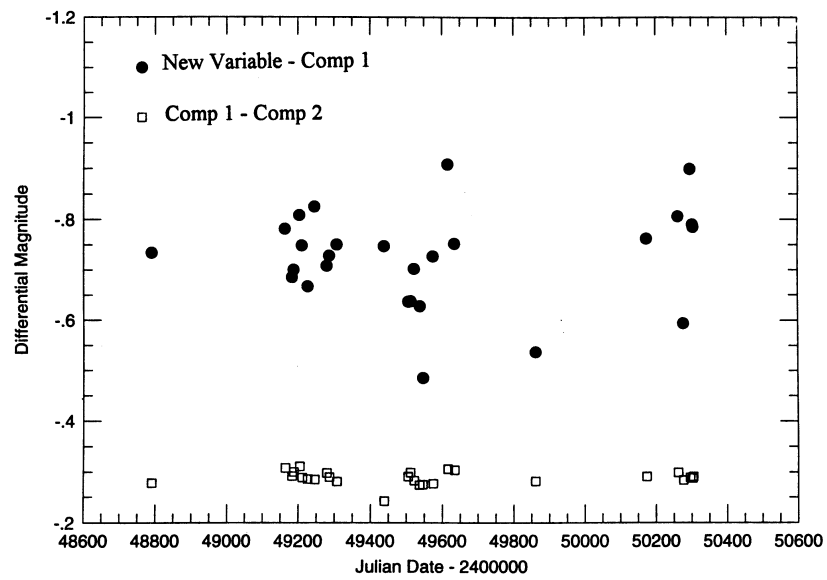


Figure 1. V Light Curve of the New Variable in the AU Herculis field

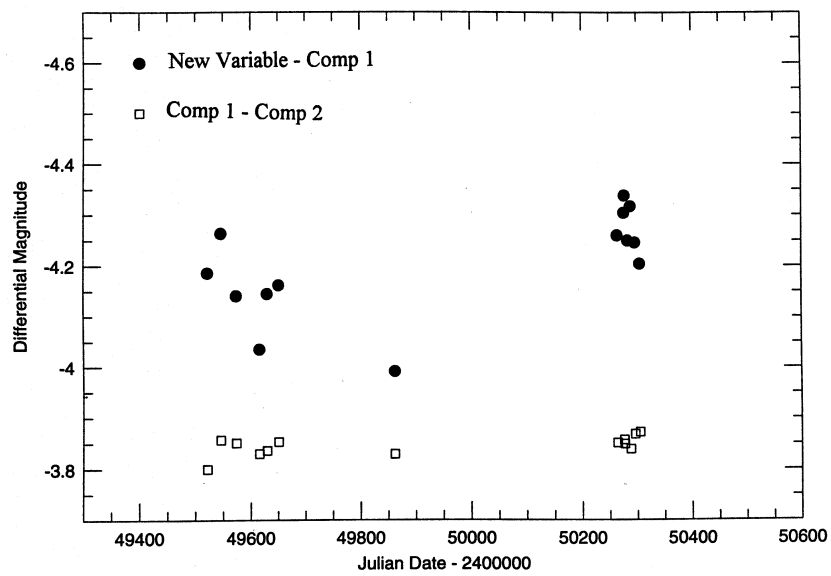
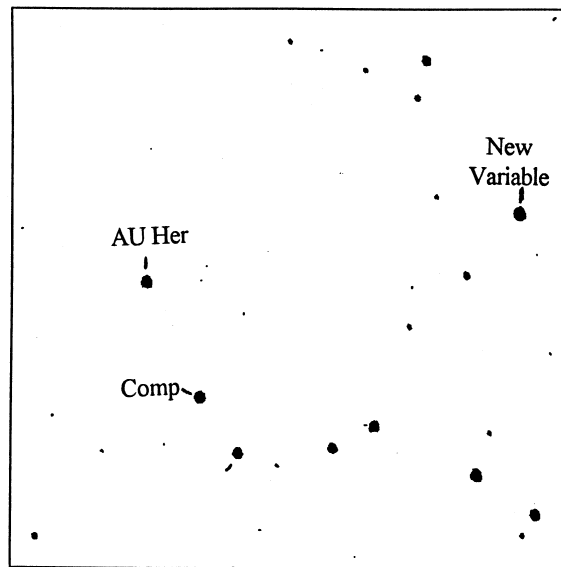
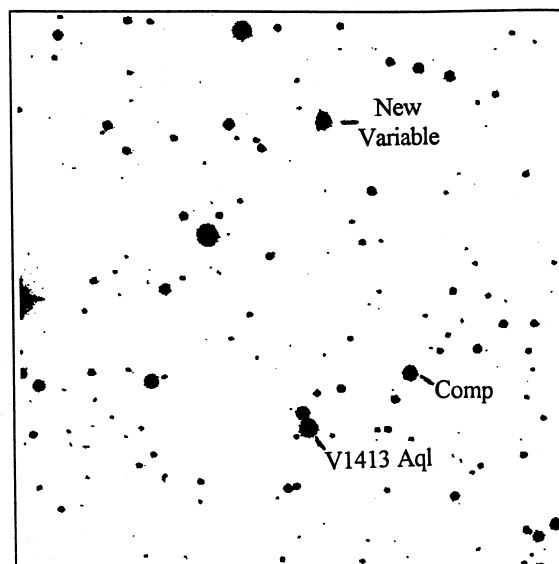


Figure 2. I Light Curve of a New Variable in the V1413 Aquilae field



**Figure 3.** A finder chart for the new suspected variable star in the field of AU Herculis



**Figure 4.** A finder chart for the new suspected variable star in the field of V1419 Aquilae

The two new variables were examined for periodicity using a Fourier transform period fitting program written by Charles Prosser of the Harvard Center for Astrophysics. No likely periods were found between 0.2 and 400 days.

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