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HD 200356: A POSSIBLE NEW δ SCUTI STAR

Since one third of the stars that lie within the limits of the instability strip are pulsators, (Breger, 1979) whenever an observation of a known variable star is made, a systematic search for detection of new variable stars is carried out (Peniche et al. 1980, Peniche and Peña 1981). In this case, together with the observation of the δ Scuti star HR 8006, the star HD 200356 (BD-1^o4098) was tested for variability since its spectral type indicated that it might have features of a δ Scuti pulsator; Table I presents a summary of the characteristics of the observed stars.

Table I

Star	m_v	Spectrum	α (1950)	δ (1950)
V=HR8006	6.6	F0	20 ^h 52 ^m 33 ^s	-1 ^o 33'54"
HD 200356	7.3	F2	21 ^h 0 ^m 32 ^s	-1 ^o 30'24"
C ₁ =BD-1 ^o 4074	8.0	F5	20 ^h 52 ^m 21 ^s	-0 ^o 53'39"
C ₂ =BD-1 ^o 4073	8.0	F5	20 ^h 52 ^m 19.1 ^s	-1 ^o 34' 0"

The photometric observations were made with the 85 cm telescope at the San Pedro Mártir Observatory, Mexico, a refrigerated 1P21 photomultiplier and Johnson's V filter were utilized. The sequence C₁, V, C₂ was followed uninterruptedly each night, with observations of HD 200356 every two cycles. A single observation consisted of at least five ten second integrations of each star and two of the sky.

HD 200356 was observed during the nights of September 28th, 29th, 30th and October 1st, 1980. Figure 1 shows the result of subtracting the mean of the magnitude of the comparison stars (interpolated at the time of the observation of the variable)

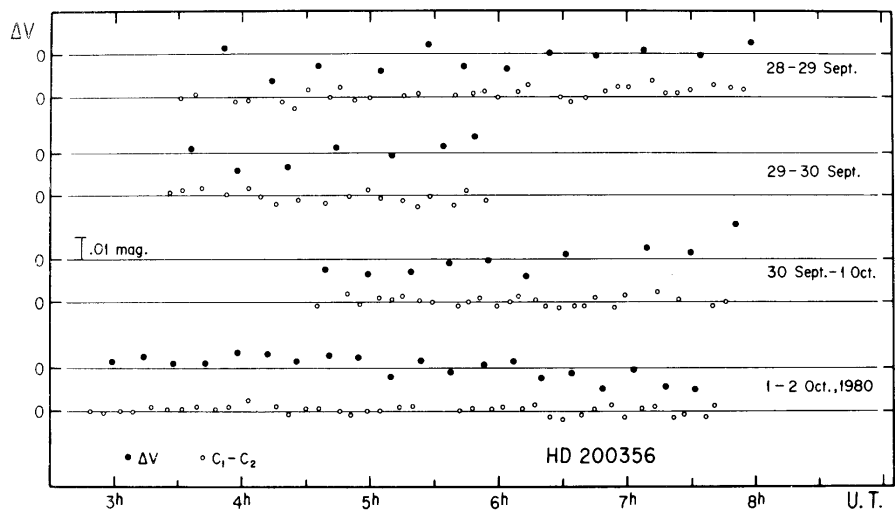


Figure 1

from the magnitude of HD 200356, along with the sequence of the difference in magnitudes of the comparison stars for each night. The probable error in a single observation, estimated from the comparison stars is ± 0.003 mag., time is reported in universal time and its precision is of 1 minute.

It is clearly visible from the figure that, although the amplitude of the variation of HD 200356 is rather small (0.01 mag.) it is not a constant star. On each night the calculated standard deviation of the difference in magnitudes of the comparison stars is about one half that of the magnitude of the variable star, moreover, since the magnitude of the comparison stars (8.0) is fainter than the magnitude of HD 200356 (7.3) the variations seen in the light curves are real and not due to the atmospheric conditions.

At this moment nothing can be said about the period of this star, but it is on the order of hours. Hence, due to the characteristics shown (spectral type of F2, low amplitude of variation and a short period on the order of hours) we might conclude that this star is probably a δ Scuti pulsator; of course more detailed observations are needed in order to determine its periodic behaviour.

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References:

- Breger, M., 1979 *Pub. Astron. Soc. Pac.*, 91, 5
 Peniche, R., Peña, J. H., Sánchez, G., Warman, J.,
 1980, *Pub. Astron. Soc. Pac.*, 92, 300
 Peniche, R., Peña, J. H., 1981, *Inf. Bull. Var.
 Stars*, No. 1970