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HD 167971 - AN Of-TYPE VARIABLE*

HD 167971 (spectral type O8Ibf) is among the most luminous stars (M_{bol} = -10.6) known in our Galaxy. Due to its membership in the young cluster NGC 6604 and its apparent brightness, HD 167971 was subject of several investigations leading to very well known stellar parameters (see Leitherer and Wolf, 1984).

We observed HD 167971 with the ESO 50-cm photometric telescope in the Bessell-UBVRI-system and in the Stroemgren ubvy-system on several occasions in 1983/84. The result of our photometry is given in Table I. Obviously, HD 167971 performed variations in all observed passbands, which by far exceed the photometric uncertainty (typically $0^m.02$). Note that the colours of HD 167971 remained constant within the limits of uncertainty.

Table I

Photometry of HD 167971

JD	V	B-V	U-B	V-R	V-I	y	b-y	m_1	c_1
2445555.589	7.40	0.78	-0.35	0.52	1.08	-	-	-	-
5560.583	7.38	0.78	-0.41	0.52	1.07	-	-	-	-
5561.583	7.65	0.79	-0.39	0.52	1.07	-	-	-	-
5586.613	-	-	-	-	-	7.60	0.58	0.00	-0.24
5596.600	-	-	-	-	-	7.58	0.54	-0.02	-0.22
5600.573	-	-	-	-	-	7.37	0.59	-0.02	-0.22
5602.567	-	-	-	-	-	7.37	0.59	-0.02	-0.23

In Figure 1 we illustrate the variations of HD 167971 in the V and y passbands over the period of observations. Since the photometric systems for V and y are nearly identical for spectral type O8, V and y-magnitudes can be immediately compared without any transformation. Figure 1 implies that HD 167971 is variable by $\sim 0^m.30$. Further observations will be necessary to find or exclude a periodicity of these variations.

*Based on observations collected at the European Southern Observatory, La Silla, Chile

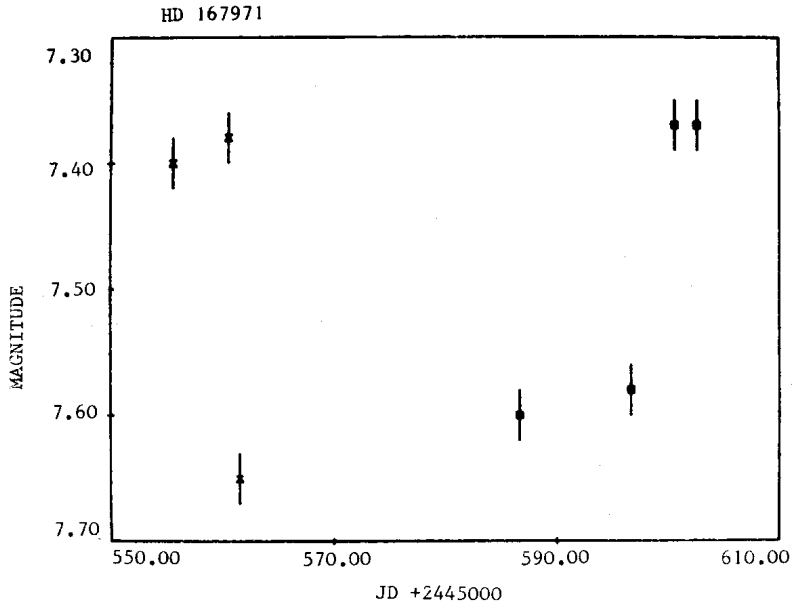

Figure 1
V measurements (x) and y measurements (□) of HD 167971 between JD 2445550 and JD 2445610

In order to check the possibility of contamination of our photometry by nearby field stars, we examined a POSS IR survey plate (see Figure 2). Although the field around HD 167971 (star no. 1 in Figure 2) is crowded, no star with magnitude comparable to V = 7.50 is within the diaphragm of the photometry (15 arcsec). Stars nos. 2 and 3 are of magnitude V = 12.85 and V = 12.95, respectively (Moffat and Vogt, 1975). Further stars discernibly close to the disk of HD 167971 are even fainter (I > 15 mag), so that the result cannot be affected by these objects.

We should like to mention that no indication of variability has yet been published for HD 167971. Several older measurements found in the literature give an average magnitude of V = 7.50 $\pm$ 0.05 during the last twenty years.

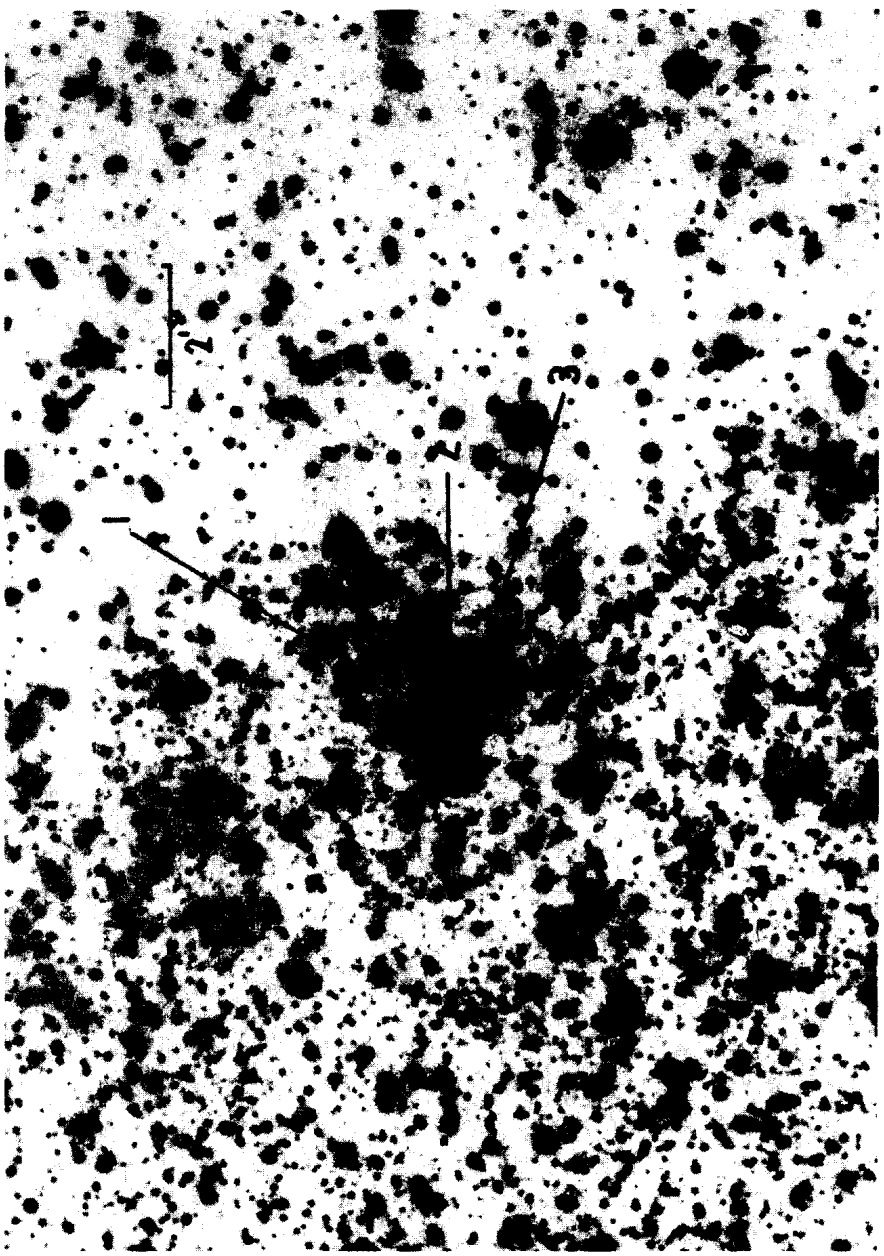

Figure 2
Enlargement of POSS IR plate No. 23981 showing the field around HD 167971 (no. 1). North is up and east to the left.

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