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BVRI OBSERVATIONS OF AH Her IN THE YEARS 2000-2001

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AH Her is a dwarf nova, Z Cam subtype, that varies in magnitude between $V=14^m.3$ and $V=11^m.3$ (for a review, see Spogli et al. 2001).

In this paper we present the results of our observations made in the years 2000-2001 at the Astronomical Observatory of the Perugia University in the B , V , R_C , I_C photometric bands. The instruments used and the photometric techniques have been already described in Spogli et al. (1998). We used the calibration stars as reported in Spogli et al. (2001).

The data are collected in two distinct tables relative to the above-mentioned years. The observations made in 2000 are few but significant: the object was discontinuously followed for 14 nights from 18/08/2000 to 27/09/2000 (see Table 2 and Figure 1). In 2001 the variable was instead well monitored: the data collected goes from 15/07/2001 to 02/11/2001 for a total of 47 nights (see Table 3 and Figure 2). There is a gap in our observations in the month of September for the bad weather.

Table 1 shows the main characteristics of the data and improves the values reported in Spogli et al. (2001). We computed the spectral slope for AH Her using the same procedure described in Spogli et al. (1998), confirming a values ranging from $0^m.3$ to $0^m.7$, with a mean value equal to $0^m.61 \pm 0^m.08$. Figure 3 shows the colour-magnitude diagram for AH Her during the whole outburst cycle: the data are well represented by a linear regression, in agreement with Spogli et al. (2001).

Table 1: Photometric characteristics of AH Her during our observations.

	B	V	R_C	I_C
Maximum Outburst	11.57 ± 0.09	11.58 ± 0.04	11.52 ± 0.05	11.41 ± 0.03
Minimum of Light	14.48 ± 0.11	14.14 ± 0.05	13.73 ± 0.05	13.20 ± 0.03
Mean Values at Minimum	14.0 ± 0.3	13.7 ± 0.3	13.3 ± 0.2	12.9 ± 0.2
Outburst Amplitude	2.9	2.5	2.2	1.8
Decay Rates(mag/day)	0.25 ± 0.04	0.22 ± 0.04	0.17 ± 0.03	0.14 ± 0.03
	$(B - V)$	$(V - R_C)$	$(V - I_C)$	
Mean Values at Maximum	-0.02	0.06	0.21	
Mean Values at Minimum	0.35	0.38	0.74	

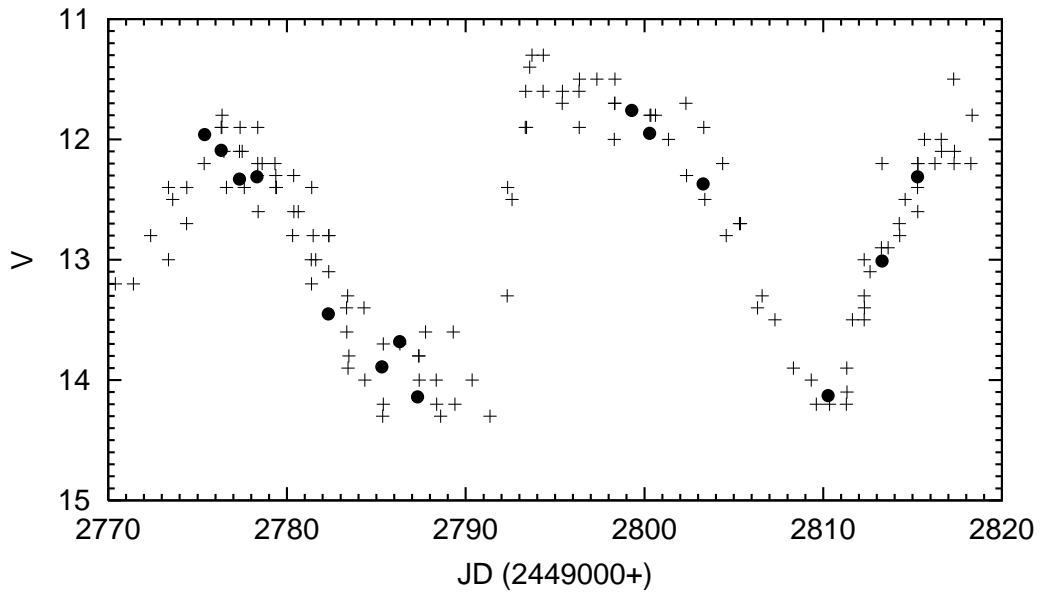


Figure 1. V light curve of AH Her during August-September 2000. Circles represent the data here reported, while crosses are visual estimates available from VSNET (<http://vsnet.kusastro.kyoto-u.ac.jp/vsnet/>)

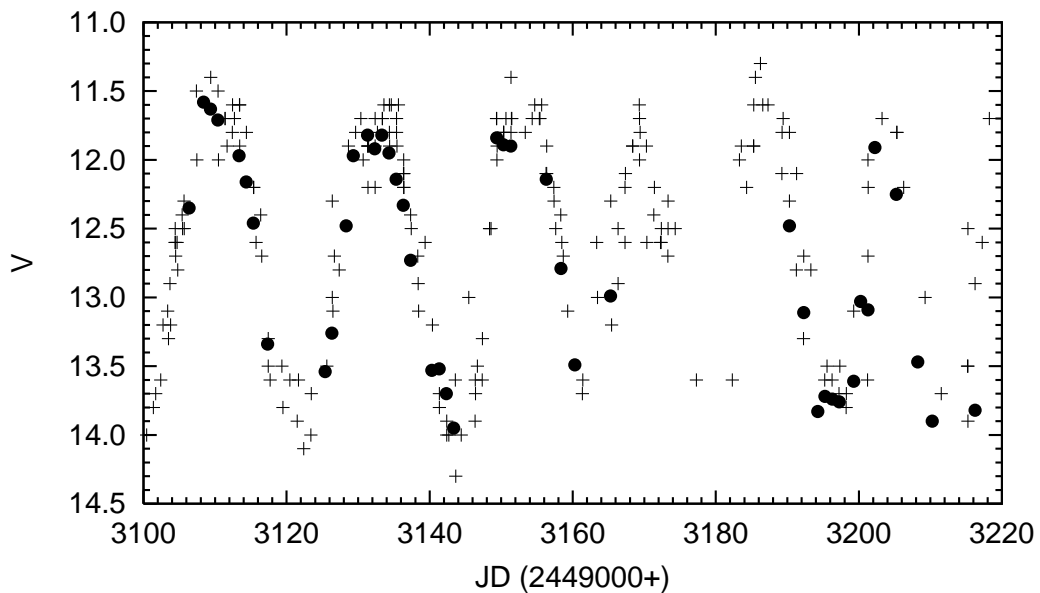


Figure 2. V light curve of AH Her during the summer-autumn 2001. Circles represent the data here reported, while crosses are visual estimates available from VSNET.

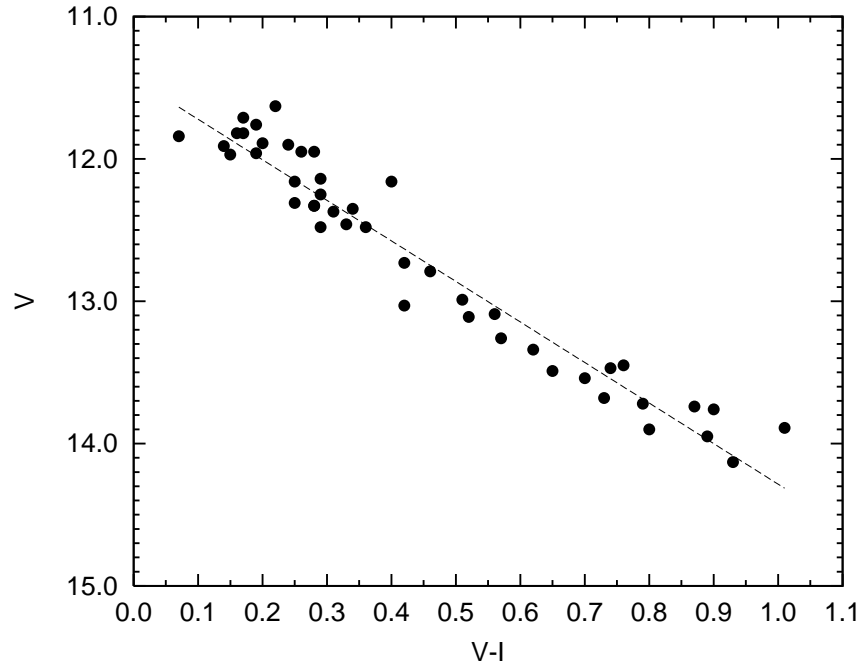


Figure 3. Colour-magnitude diagram of AH Her during 2001. The dashed line represent the linear regression.

Table 2: 2000 $BV(RI)_C$ data of AH Her

Date	JD (2449000+)	B	V	R_C	I_C
18/08/2000	2775.387	12.01 ± 0.13	11.96 ± 0.04	11.87 ± 0.05	11.77 ± 0.06
19/08/2000	2776.319	12.11 ± 0.12	12.09 ± 0.04	12.02 ± 0.05	
20/08/2000	2777.344	12.19 ± 0.12	12.33 ± 0.03	12.17 ± 0.05	12.05 ± 0.04
21/08/2000	2778.314	12.66 ± 0.14	12.31 ± 0.09	12.40 ± 0.07	
25/08/2000	2782.311	13.61 ± 0.12	13.45 ± 0.04	13.17 ± 0.06	12.69 ± 0.04
28/08/2000	2785.308	14.39 ± 0.17	13.89 ± 0.05	13.30 ± 0.05	12.88 ± 0.03
29/08/2000	2786.306	14.01 ± 0.12	13.68 ± 0.04	13.33 ± 0.04	12.95 ± 0.04
30/08/2000	2787.305	14.28 ± 0.14	14.14 ± 0.05		13.25 ± 0.09
11/09/2000	2799.292	11.74 ± 0.13	11.76 ± 0.04	11.68 ± 0.04	11.57 ± 0.04
12/09/2000	2800.291	11.89 ± 0.16	11.95 ± 0.04	11.79 ± 0.05	11.69 ± 0.04
15/09/2000	2803.288	12.44 ± 0.08	12.37 ± 0.05	12.31 ± 0.05	12.06 ± 0.04
22/09/2000	2810.278	14.48 ± 0.11	14.13 ± 0.04	13.73 ± 0.06	13.20 ± 0.03
25/09/2000	2813.286	13.01 ± 0.08	13.01 ± 0.04		
27/09/2000	2815.272	12.37 ± 0.11	12.31 ± 0.04	12.20 ± 0.05	12.06 ± 0.03

References:

- Spogli C., Fiorucci M., Tosti G., 1998, *A&AS*, **130**, 485
 Spogli C., Fiorucci M., Tosti G., Raimondo G, 2001, *IBVS*, **5147**

Table 3: 2001 $BV(RI)_C$ data of AH Her

Date	JD (2449000+)	B	V	R_C	I_C
15/07/2001	3106.375	12.26±0.05	12.35±0.03	12.23±0.05	12.01±0.04
17/07/2001	3104.392	11.57±0.08	11.58±0.04	11.52±0.05	
18/07/2001	3109.368	11.61±0.09	11.63±0.03	11.54±0.04	11.41±0.03
19/07/2001	3110.391	11.73±0.11	11.71±0.04	11.70±0.05	11.54±0.05
22/07/2001	3113.355	11.94±0.11	12.16±0.03	11.89±0.05	11.76±0.04
23/07/2001	3114.365	12.09±0.08	13.84±0.05	12.05±0.04	11.91±0.05
24/07/2001	3115.354	12.55±0.07	12.46±0.05	12.35±0.05	12.13±0.04
26/07/2001	3117.352	13.35±0.08	13.34±0.04	13.04±0.04	12.72±0.04
03/08/2001	3125.396	13.76±0.11	13.54±0.08	13.20±0.05	12.84±0.03
04/08/2001	3126.333	13.40±0.07	13.26±0.05	13.01±0.04	12.69±0.04
05/08/2001	3127.334	13.98±0.13			
06/08/2001	3128.336	12.51±0.07	12.48±0.03	12.35±0.05	12.19±0.03
07/08/2001	3129.332	12.25±0.11	11.97±0.04	11.91±0.05	11.82±0.05
09/08/2001	3131.329	12.03±0.12	11.82±0.04	11.88±0.05	11.66±0.06
10/08/2001	3132.327	11.97±0.11	11.92±0.04	11.81±0.05	
11/08/2001	3133.327	11.72±0.13	11.82±0.03	11.71±0.05	11.65±0.04
12/08/2001	3134.326	11.96±0.11	11.95±0.04	11.86±0.05	11.67±0.04
13/08/2001	3135.327	12.39±0.09	12.14±0.04	12.05±0.05	
14/08/2001	3136.323	12.41±0.11	12.33±0.04	12.23±0.05	
15/08/2001	3137.325	12.81±0.12	12.73±0.04	12.59±0.05	12.31±0.06
18/08/2001	3140.318	13.73±0.08	13.53±0.04	13.19±0.05	
19/08/2001	3141.323	13.94±0.09	13.52±0.04		
20/08/2001	3142.337	13.89±0.09	13.70±0.05		
21/08/2001	3143.358	14.36±0.11	13.95±0.03	13.49±0.06	13.06±0.04
26/08/2001	3148.302	12.26±0.16			
27/08/2001	3149.369	11.91±0.08	11.84±0.04	11.87±0.05	11.77±0.04
28/08/2001	3150.308	11.81±0.09	11.89±0.04	11.82±0.05	11.69±0.04
29/08/2001	3151.337	11.89±0.07	11.90±0.04	12.03±0.05	11.66±0.04
03/09/2001	3156.301	12.13±0.13	12.14±0.04	11.95±0.05	11.85±0.03
05/09/2001	3158.356	12.91±0.11	12.79±0.04	12.63±0.05	12.33±0.03
07/09/2001	3160.295	13.81±0.10	13.49±0.05	13.22±0.06	12.84±0.03
12/09/2001	3165.291	13.57±0.11	12.99±0.04	12.94±0.05	12.48±0.03
07/10/2001	3190.279	12.41±0.06	12.48±0.05	12.28±0.05	12.12±0.04
09/10/2001	3192.276	13.20±0.05	13.11±0.04	12.85±0.05	12.59±0.03
11/10/2001	3194.254	14.10±0.08	13.83±0.04	13.44±0.05	
12/10/2001	3195.253	13.78±0.06	13.72±0.04	13.39±0.05	12.93±0.03
13/10/2001	3196.287	14.04±0.08	13.74±0.04	13.31±0.05	12.87±0.03
14/10/2001	3197.251	14.18±0.12	13.76±0.04	13.36±0.05	12.86±0.04
16/10/2001	3199.275		13.61±0.05	13.18±0.05	12.83±0.04
17/10/2001	3200.251	13.88±0.16	13.03±0.05	13.05±0.05	12.61±0.05
18/10/2001	3201.275	13.29±0.16	13.09±0.05	12.84±0.05	12.53±0.04
19/10/2001	3202.249	11.96±0.09	11.91±0.04	11.88±0.05	11.77±0.05
22/10/2001	3205.246	12.42±0.11	12.25±0.04	12.17±0.07	11.96±0.05
25/10/2001	3208.243	13.59±0.06	13.47±0.05	13.15±0.05	12.73±0.04
27/10/2001	3210.241	14.47±0.06	13.90±0.04	13.48±0.05	13.10±0.05
29/10/2001	3212.239	14.06±0.12			12.68±0.05
02/11/2001	3216.234	13.98±0.08	13.82±0.04	13.36±0.05	