COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS

Number 2173

Konkoly Observatory
Budapest
1982 July 2

HU ISSN 0374-0676

VBLUW MEASUREMENTS OF THE SHELL STAR PLEIONE

Measurements in the Walraven VBLUW system were performed of Pleione, the well known shell star in the Pleiades cluster (HD23862, m_v= 5.20. Sp. type B8Vn + shell according to Abt and Levato (1978)). The measures were made in the periods 1977 November and December, 1979 November, 1980 November and 1981 October and November, with the Walraven VBLUW photometer on the Dutch 91cm telescope at the ESO site on La Silla, Chile (see Lub (1979) for further references). The observations of 1977 were performed before the telescope and photometer were moved from the Leiden Southern Station on the SAAO annex near the Hartbeespoortdam in South Africa to the ESO site.

Golay and Mauron (1982) presented data for Pleione on the Geneva system, obtained between 1962 and 1979 December. The data presented here can be seen as an extension to these measurements up to 1981 November and are therefore presented in a similar way. Table I gives the data and their estimated mean errors (in units of 0.001 magn) as differences in magnitudes between Pleione and Maia (HD 23408, m_v = 3.88 Sp.type B8 IV sn). The 1981 measurements are split into three groups. All data are shown in Fig. 1.

Table I

Date	ΔV	m.e.	ΔB	m.e.	ΔL	m.e.	ΔU	m.e.	ΔW	m.e.	n
1977 Nov.-Dec.	1.343	2	1.390	3	1.438	4	1.593	6	1.686	10	2
1979 Nov.	1.348	1	1.375	1	1.440	2	1.770	3	2.055	5	3
1980 Nov.	1.350	1	1.380	1	1.470	2	1.873	3	2.185	4	1
1981 Oct. 18-23	1.340	0	1.378	0	1.463	1	1.900	1	2.273	2	11
1981 Oct. Nov. 6	1.340	0	1.378	0	1.465	1	1.898	1	2.265	2	19
1981 Nov. 17	1.340	1	1.375	1	1.460	2	1.910	3	2.250	4	2

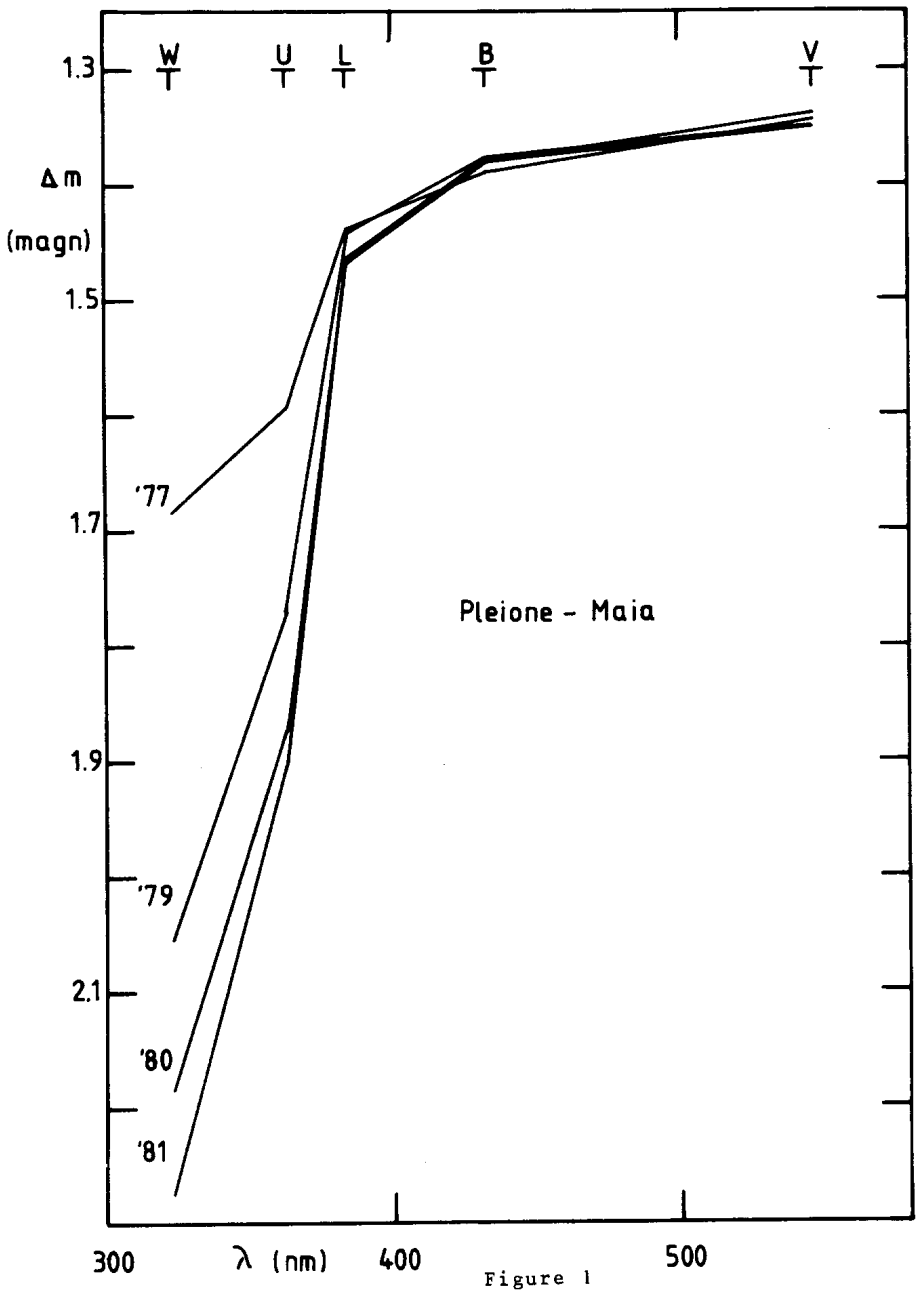

Figure 1

Differences in magnitude between Pleione and Maia for the five Walraven channels as measured during the years 1977 till 1981.

The Ultra Violet blocking by the Hydrogen shell clearly increased during 1980 and 1981, but the increase goes less rapidly than in the years 1977 to 1979. The blocking is prominent in the Balmer continuum and does not influence the B V and L channels. The slope becomes less steep towards the W channel, which is in agreement with IUE observations during 1978-1979 (see Golay and Mauron), which show a maximum absorption at about 2500 Å. The 1981 measurements may indicate some shorter time scale variations in U and W. On November 17 the U flux had decreased by 0.012 magnitudes, while the W flux had increased by 0.015 magnitudes with respect to the October measurements.

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