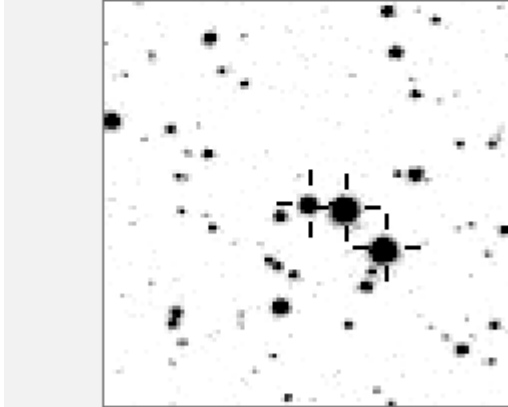
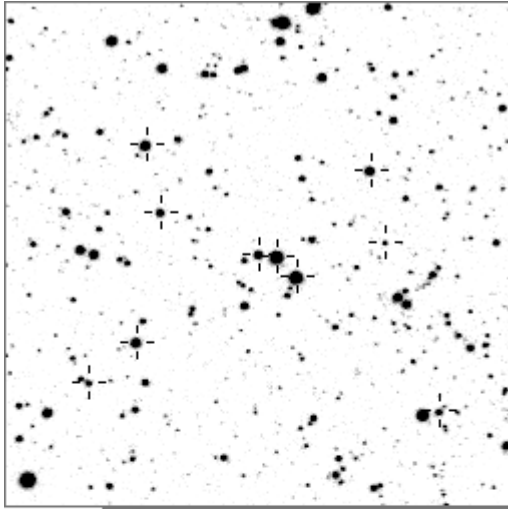


a02223



variables & brighter stars			
. k	O	2223	v
. a	a	83	
. b	b	340	v
. c	c	363	v
. d	d	1156	v
. f	e	1272	v
. g	f	1782	v
. O c	g	3238	v
. b	h	3286	v
.	i	6307	v
. e	j	6358	v
. l	k	6782	v
.	l	8526	v
. j n	m	15476	v
i h	n	19576	v
a			

. k	O	2223	v
. f	a	340	v
.	b	363	v
.	c	3230	
d	d	3238	v
. n	e	7112	
.	f	8307	
. O b	g	8463	
. i	h	10147	
.	i	10446	
.	j	10588	
. m	k	10685	
.	l	11246	
.	m	12407	
.	n	15496	

Bitmap sizes are 251, 101 and 31 pixels square, South up. The keys to the right refer to the 1st two bitmaps. The numbers in the key are those in my catalogue 'starlistA'. Stars marked with a cross have been found to be variable.

SW. The star a02223 is in the centre of the 251 by 251 pixel sample, above left. In addition to 2223 there are eight other variable stars in this small patch of sky, some are identified in the map above. Very close to the right of 2223, in my catalogue a00363, is the beautiful long period variable V577Cygni which brightened in an oscillatory fashion by 0.68 magnitudes from September 2003 to December 2007. (see entry for a00363)

Data and comments on star a02223
 SWid: a02223 / **USNO id: 3588 191601 / other id:**
 Co-ordinates, x,y in image z1051: 2458.9 2421.7
J2000 sky co-ordinates: 21 9 57.85 +46 44 17.08

CMC r'magnitude and 2MASS J,H,K magnitudes: 11.865 0 0 0

USNO B1.0 magnitudes, B1,R1,B2,R2,I2: 11.86 11.53 11.74 11.51 11.41

Misc comments :

Susebs new eb with period near to 4.107d. Best ref 1963, wonderful dips in 2901 1722 1755

Period says 4.107274, magm 11.94 magr 0.2 to 1710

See b21/79

Comparison reference star(s) co-ordinates:

a01710: 21 9 38.85 +46 44 17.57

a01963: 21 10 5.16 +46 40 45.72

colour temperature estimate: 9745K

not member of FOU2d ----- member of vars----- there is a WORD file-----NO magdata entry

a02223

Richard Stratford notes.

An EA eclipsing binary star.

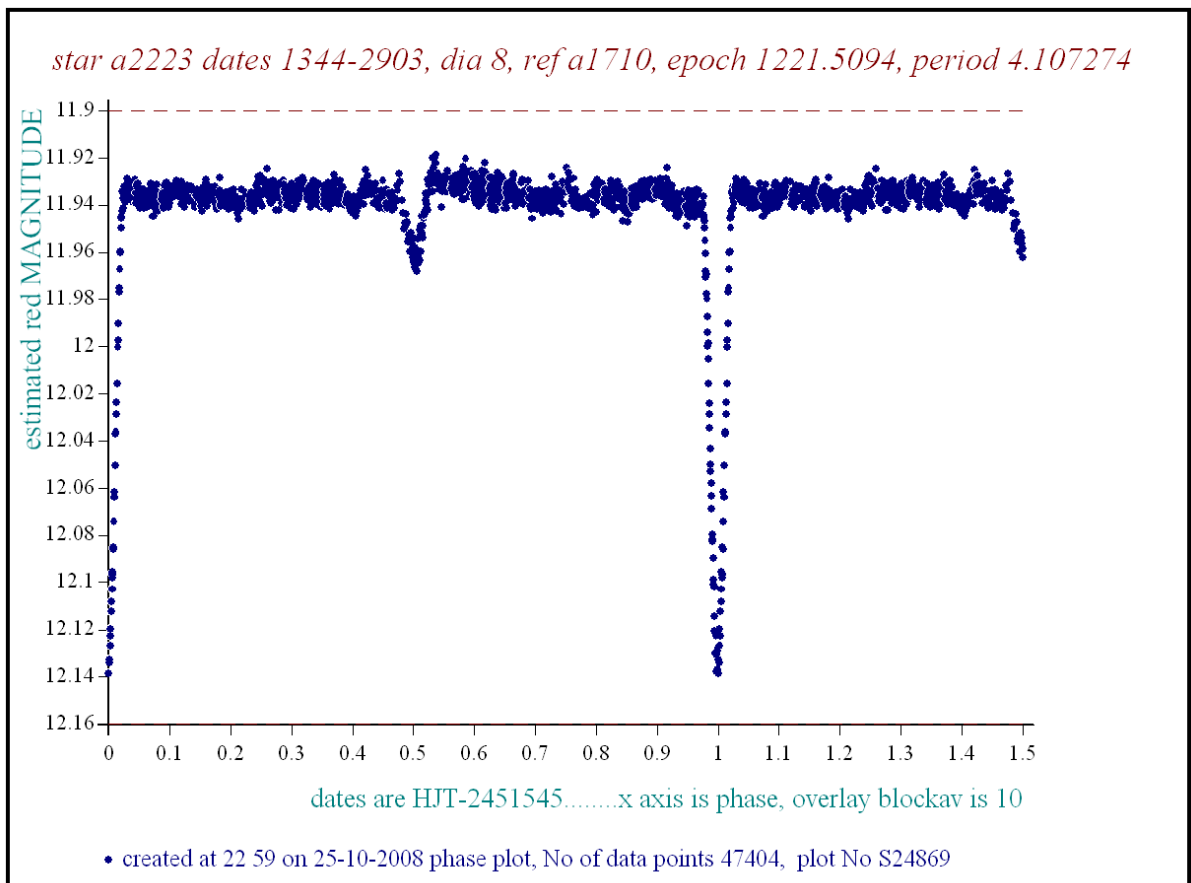
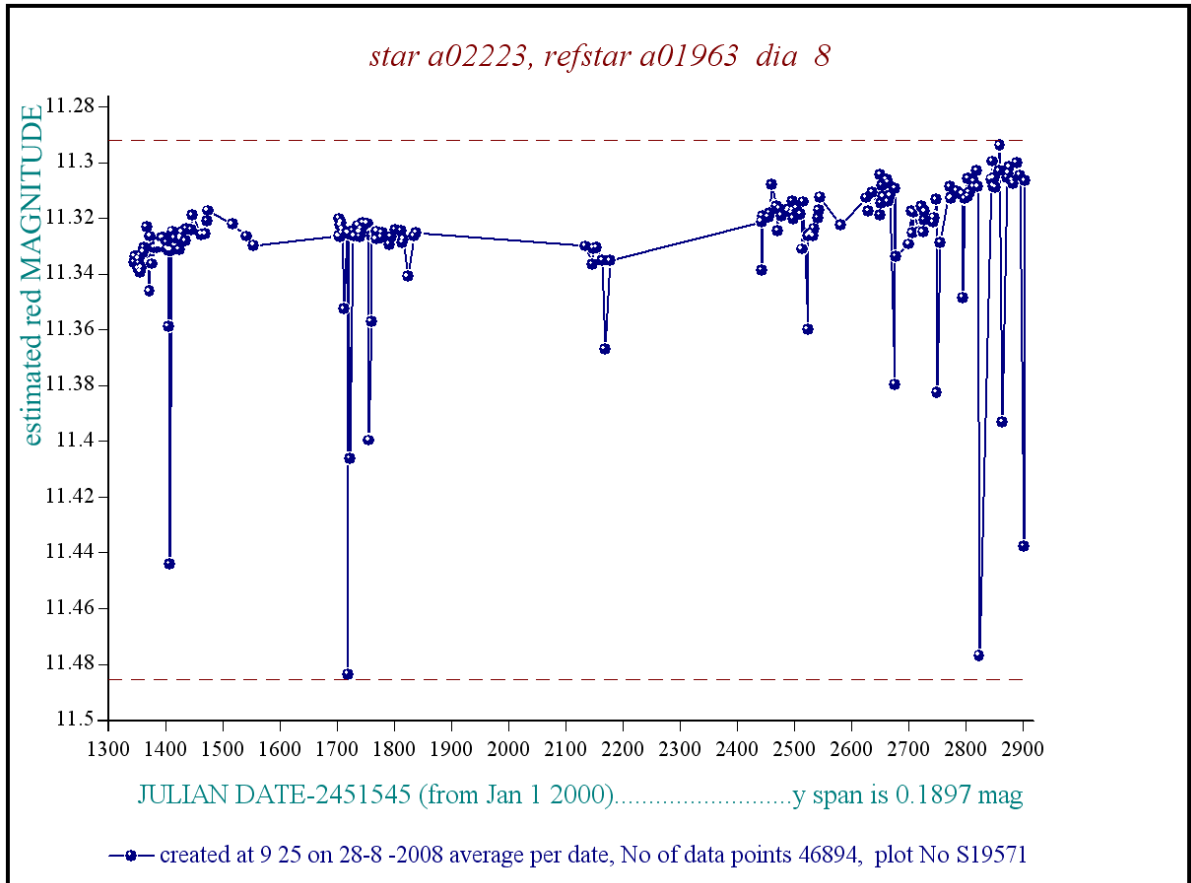
The BVR photometry ($V = 11.633$, $B-V = +0.195$, $V-R = 0.123$) makes this a late A-type star; the colours are slightly bluer than those of Altair (α Aql), which is an A7 IV-V star. There is no JHK photometry. If $MV \sim +1.9$, as expected from the estimated spectral type, $d \sim 880$ pc; with the proper motion given by Vizier ($\mu = 0.0114''$ a $^{-1}$), $v_{tr} \sim 48$ km s $^{-1}$, which seems reasonable. The 'stepscolour' function yields $T = 9745$ K, which is rather too high for a middle or late A-type star. (According to Wikipedia, Altair has $T_{eff} = 8000$ K.)

There is another interesting possibility, namely that a2223 is a metallic-line star (an Am-type star), one of the non-magnetic chemically peculiar (CP) stars. Most Am stars are short-period spectroscopic binaries, and several are eclipsing binaries, so the fact that this is a late A-type eclipsing binary makes it a plausible Am-type star. In the B-V,V-R diagram for the CP stars, a2223 falls in the same region as the Am stars and the α Bootis stars, and its BVR colours ($B-V = +0.195$, $V-R = 0.123$) are intermediate between those of the A5m star HD 23281 ($B-V = 0.188$, $V-R = 0.114$) and the A6m star HD 20320 ($B-V = 0.209$, $V-R = 0.128$). The star is in a dense field, so there is unlikely to be much reddening or extinction, particularly for a star with $d < 1$ kpc. There are two brighter late-type stars (the variable stars a340 and a363) to the east and north-east; star a363 (V577 Cyg), the eastern companion, is an N-type SRa-type variable with an estimated distance $d \sim 2.6$ kpc.

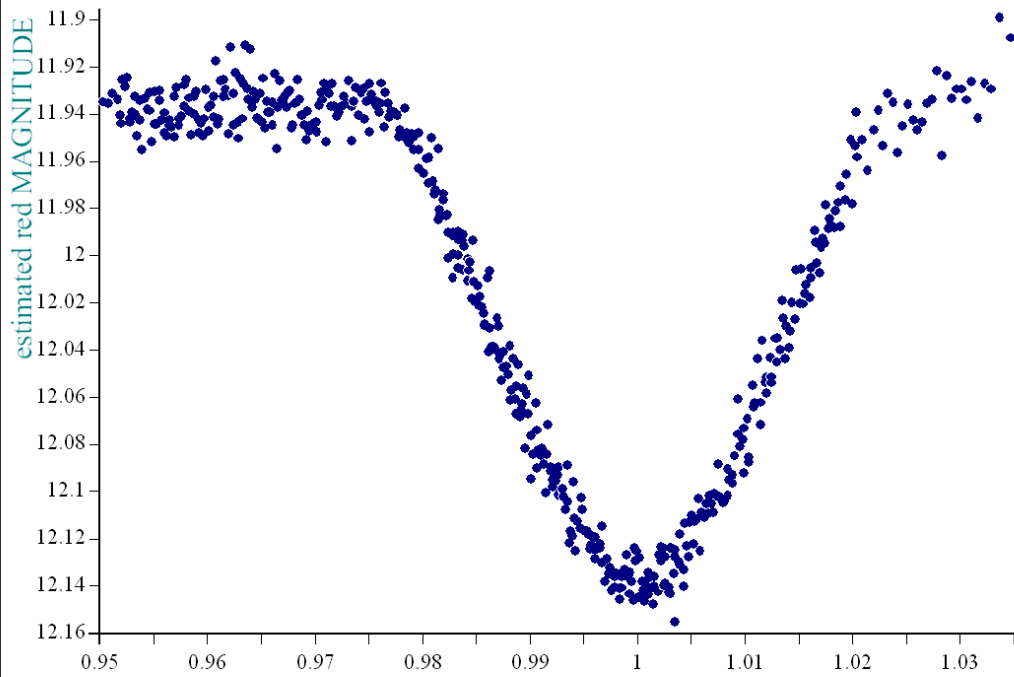
Reminder:

All dates, JD and HJD are from Jan 1st 2000

season 1: dates 1316 to 1553 is 9/8/2003 to 3/4/2004	(a)
season 2: dates 1696 to 1838 is 23/8/2004 to 12/01/2005	(z)
season 3: dates 2085 to 2177 is 16/9/2005 to 17/12/2005	(y)
season 4: dates 2442 to 2755 is 8/9/2006 to 19/7/2007	(w)
season 5: dates 2772 to 2903 is 4/8/2007 to 13/12/2007	(v)
season 6: dates 2930 to 3266 is 9/1/2008 to 10/12/2008	(u)
season 7: dates 3403 to 3539 is 26/4/2009 to 10/9/2009	(t)



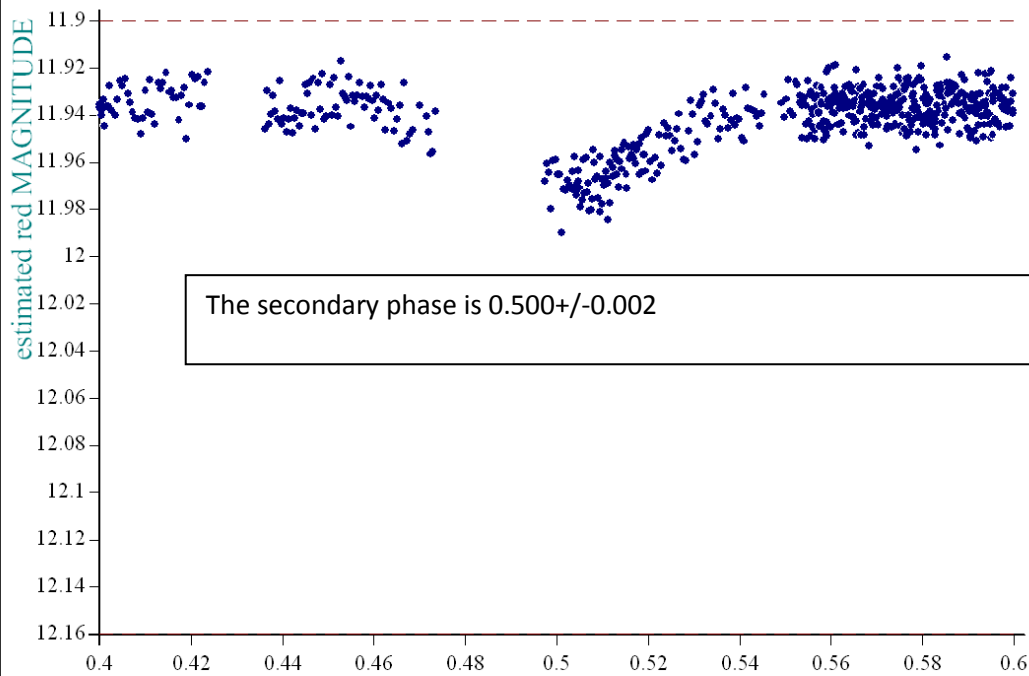
star a2223 dates 1702-1838, dia 8, ref a1710, epoch 1221.5094, period 4.107274



dates are HJT-2451545.....x axis is phase, overlay blockav is 10

• created at 22 57 on 25-10-2008 phase plot, No of data points 11323, plot No S24864

star a2223 dates 1702-1838, dia 8, ref a1710, epoch 1221.5094, period 4.107274



The secondary phase is 0.500 +/- 0.002

dates are HJT-2451545.....x axis is phase, overlay blockav is 10

• created at 23 1 on 25-10-2008 phase plot, No of data points 11323, plot No S24874