

Data and comments on star a06763

SWid: a06763 / USNO id: 0 0 / other id:

Co-ordinates, x,y in image z1051: 2583.9 2915

J2000 sky co-ordinates: **21 10 27.3 +47 3 50.13**

CMC r'magnitude and 2MASS J,H,K magnitudes: 13.048 11.727 11.297 11.225

USNO B1.0 magnitudes, B1,R1,B2,R2,I2: 0 0 0 0 0

Misc comments :

Only two dips recorded at 1345 1541 with a possible at 1702. A very thin eb with a dip 1/2 width of only 0.0006 if period is 196.01 days, that's 0.12 days. Much work done, see b21, p85ish. Pretty sure period is 24.500344. For future mins see 'prediction6763' in miscvars and below: 1st set primary, 2nd set secondary
To 92 magm 12.72, magr 0.50, 24.500344

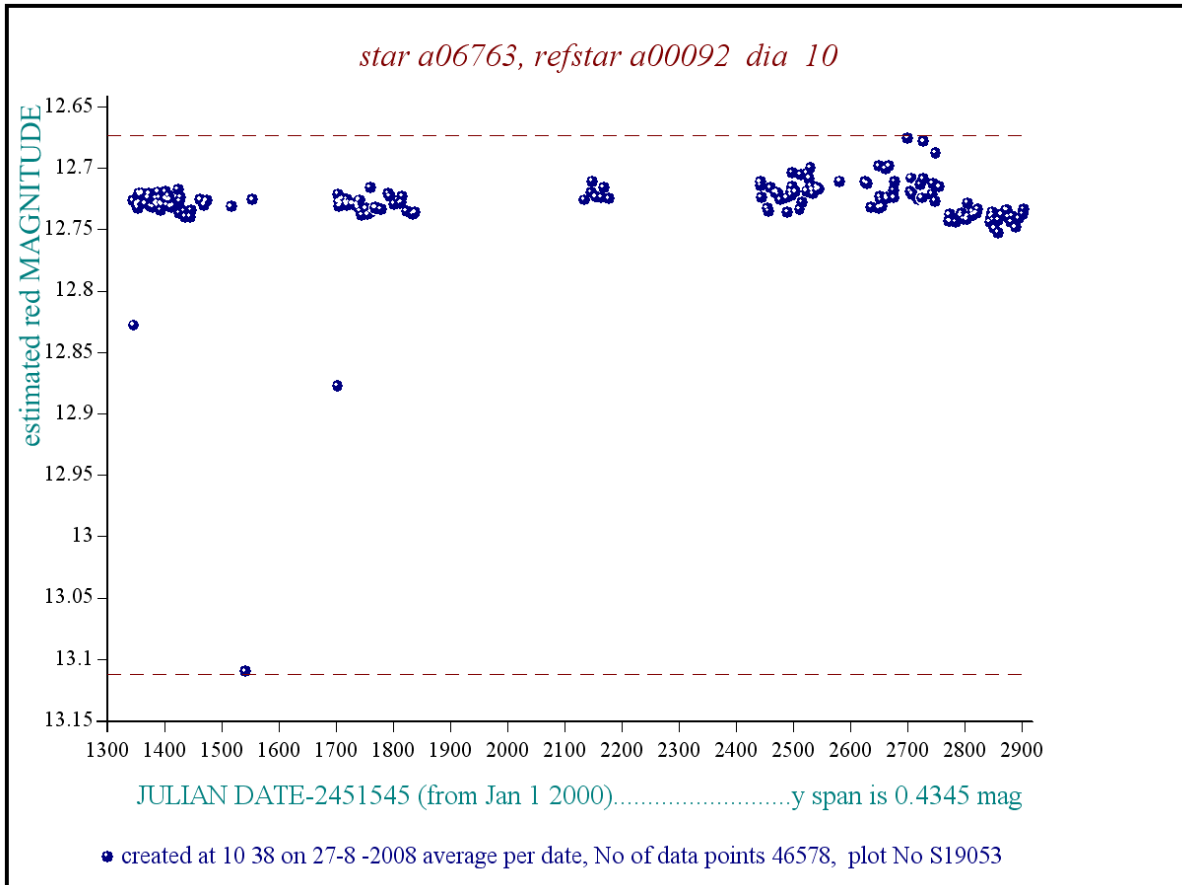
16	3232.155	67.1	0.052	0.248	06	11	2008	16	3245.975	36.7	0.872	0.068	19	11	2008
17	3256.655	8.9	0.552	0.748	30	11	2008	17	3270.475	21.7	0.372	0.568	14	12	2008
18	3281.155	79.5	0.052	0.248	25	12	2008	18	3294.975	64.8	0.872	0.068	07	01	2009
19	3305.655	13.6	0.552	0.748	18	01	2009	19	3319.475	9.1	0.372	0.568	01	02	2009
20	3330.155	50.3	0.052	0.248	12	02	2009	20	3343.975	81.4	0.872	0.068	25	02	2009
21	3354.655	32.7	0.552	0.748	08	03	2009	21	3368.475	12.9	0.372	0.568	22	03	2009

When this was written the list above was future minima predictions- number on left is the event number, next col is date (from 2000). I have data for this period and will add in due course.

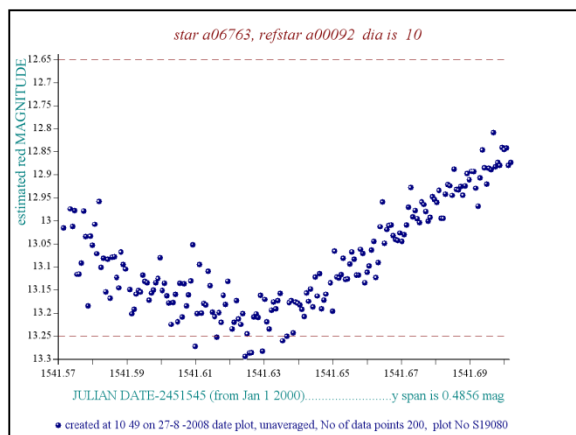
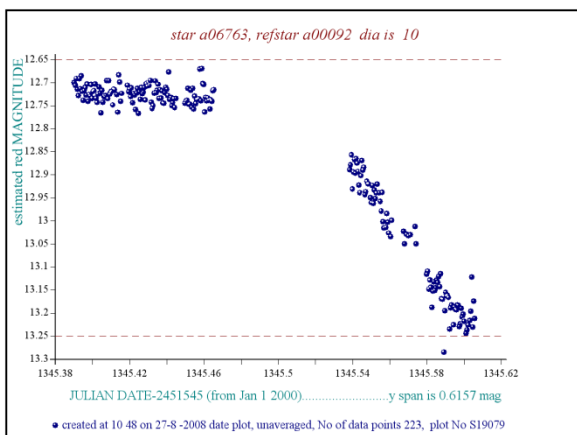
Comparison reference star(s) co-ordinates:

a00092: **21 10 31.92 +47 12 27.54**

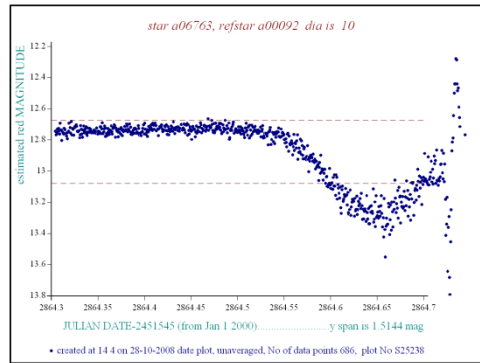
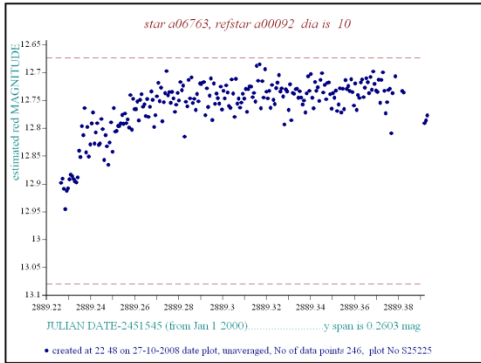
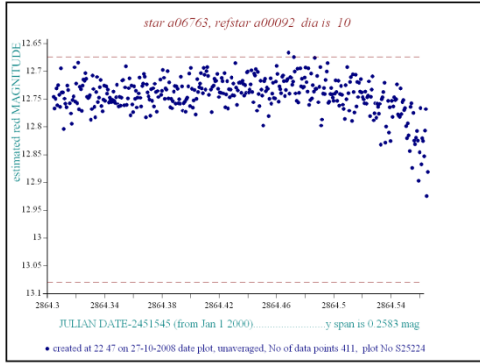
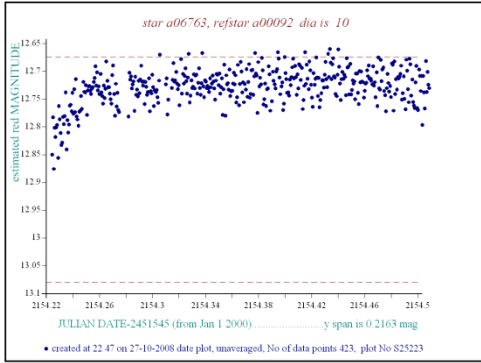
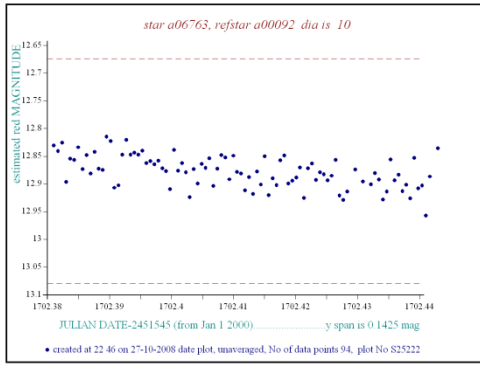
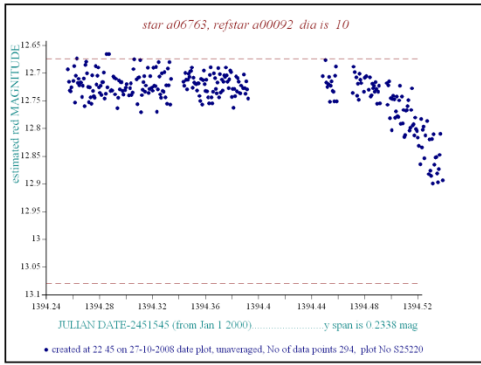
Data from 2008 and 2009 need to be added and some more study done



Looking at the above, there are apparently only three significant movements in this eclipsing binary star in 5 years. There are in fact a few other vital ones but they are small and not obvious by comparison with the main ones. We are still not really certain of the period but 49.002 is a strong possibility. The three main events seen above are in dates 1345, 1541 and 1702. The first two, immediately below, are undoubtedly parts of eclipses and these are the only large movements seen in the 5 years.



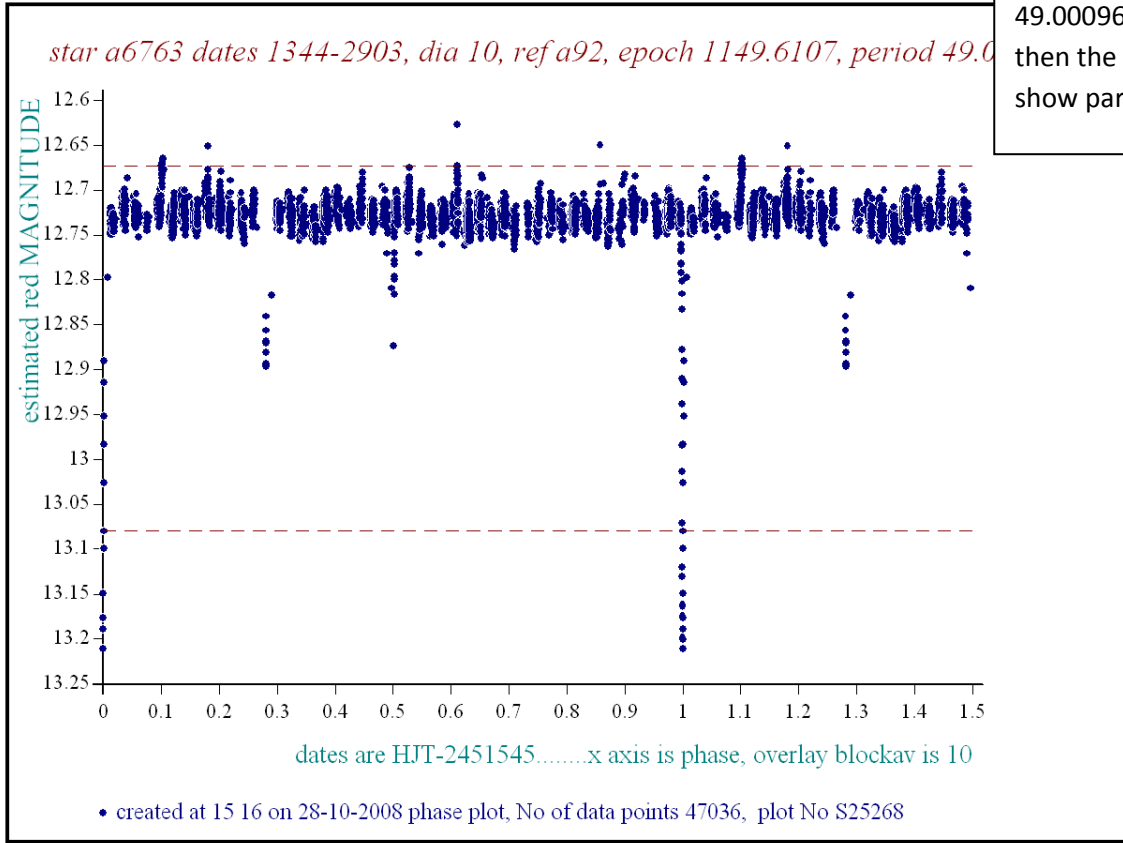
Equivalent positions on these two plots are spaced by 196.01 days so a possible period is that or a submultiple. The other events on dates 1394 1702 2154 2864 and 2889 are pictured below.



In date 1394 the elevation went from 48° to 34° so the data is likely to be reliable. In 1702 the elevation went from 74.6° to 84.6° before cloud rolled over so it ought to be reliable.

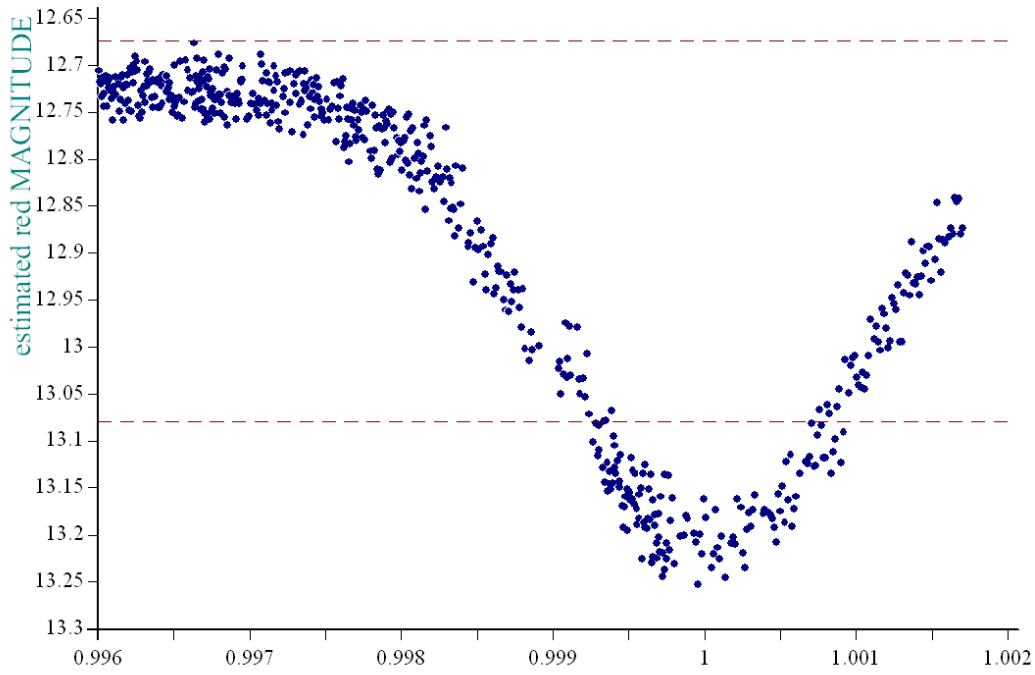
In 2154 the elevation went from 82.5° to 75.3° at 2154.26. That data is also reliable. Similarly for 2889, the angle from start to 2889.28 were 79.8° to 68.3°

The end of date 2864 is at low elevation, 2864.5 at 36.4° to 2864.56 at 25.7°, which is a little low perhaps. However, my records show that on this night images were obtained until the centre was at 8.5°- it must have been a good quality night. The data is normally automatically left out if the elevation is below 25° but putting it back gives the final plot in this sequence and this reveals almost the whole minimum. Using this and 1541 (assuming both primary or secondary) makes the period 49.00096 days. If this is the case then the two plots 2154 and 2889 show part of a secondary.



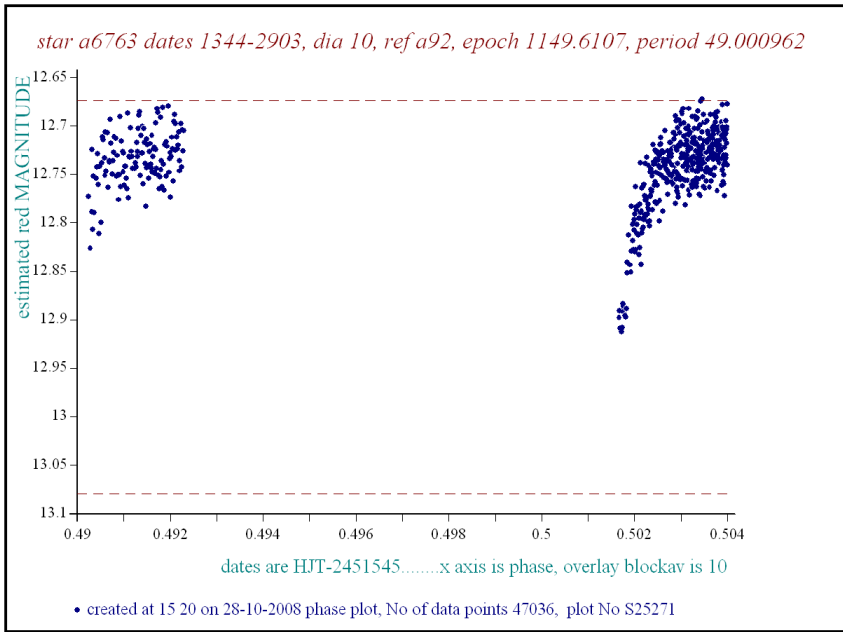
Above is the resulting phase diagram and below the primary minimum and next below the fragment of the secondary.

star a6763 dates 1344-2903, dia 10, ref a92, epoch 1149.6107, period 49.000962



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

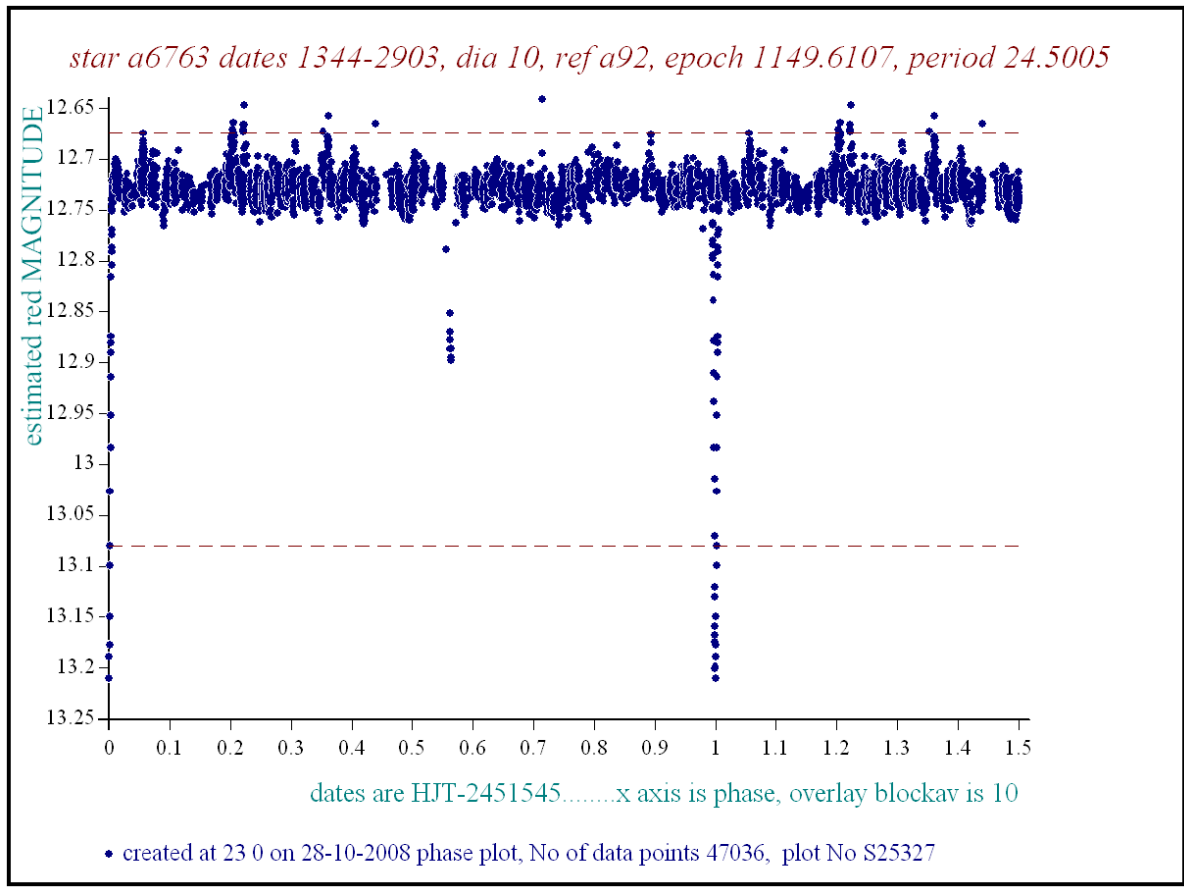
• created at 15 18 on 28-10-2008 phase plot, No of data points 47036, plot No S25269



The main difficulty with this interpretation is the existence of the movement in 1702. There is no reason to suppose it is poor data but it sticks out like a sore thumb at a phase of about 0.28 in the plot above.

Also, the rates of movement into and out of both primary and 'secondary' mins above are similar at about 5-6 magnitudes a day. The event in 1702 on the other hand is moving nearly linearly at 0.87mag/day.

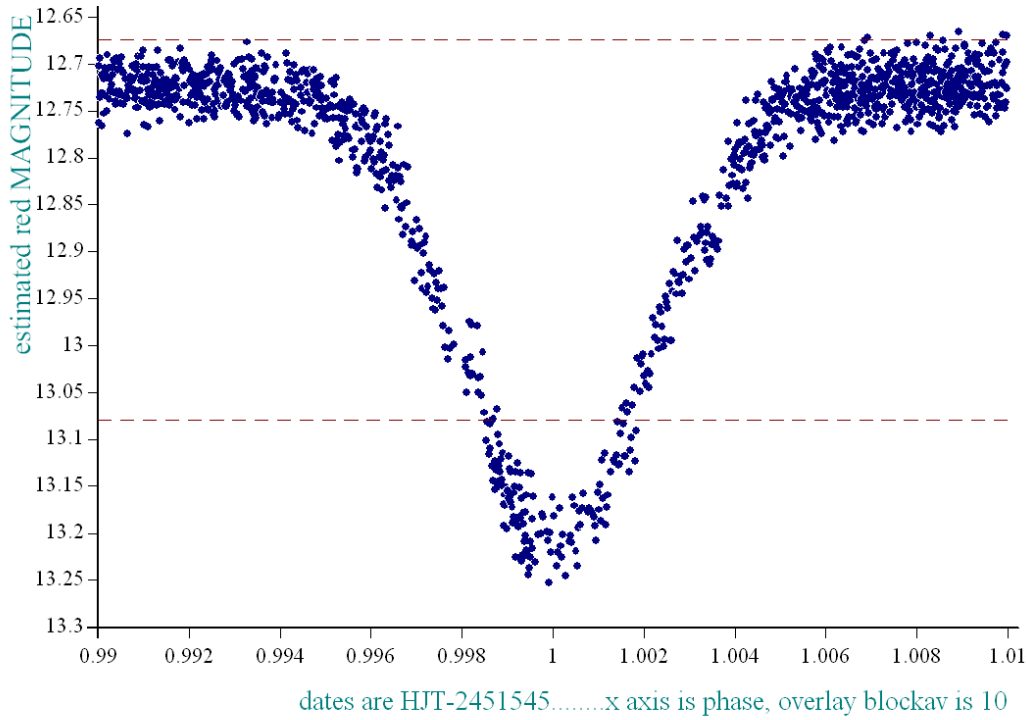
That could suggest both m1 and m2 above may be part of the same primary and 1702 a secondary.



That leads to half the period and the bits fit together pretty well as can be seen below and now the fragment in 1702 is plausibly part of a secondary at a phase near to 0.565 and possibly about half the depth of the primary. This is a working hypothesis with no negatives at the moment and easily proved or otherwise with more data. Making a guess that the secondary phase is 0.564 then we can easily predict ahead to further events.

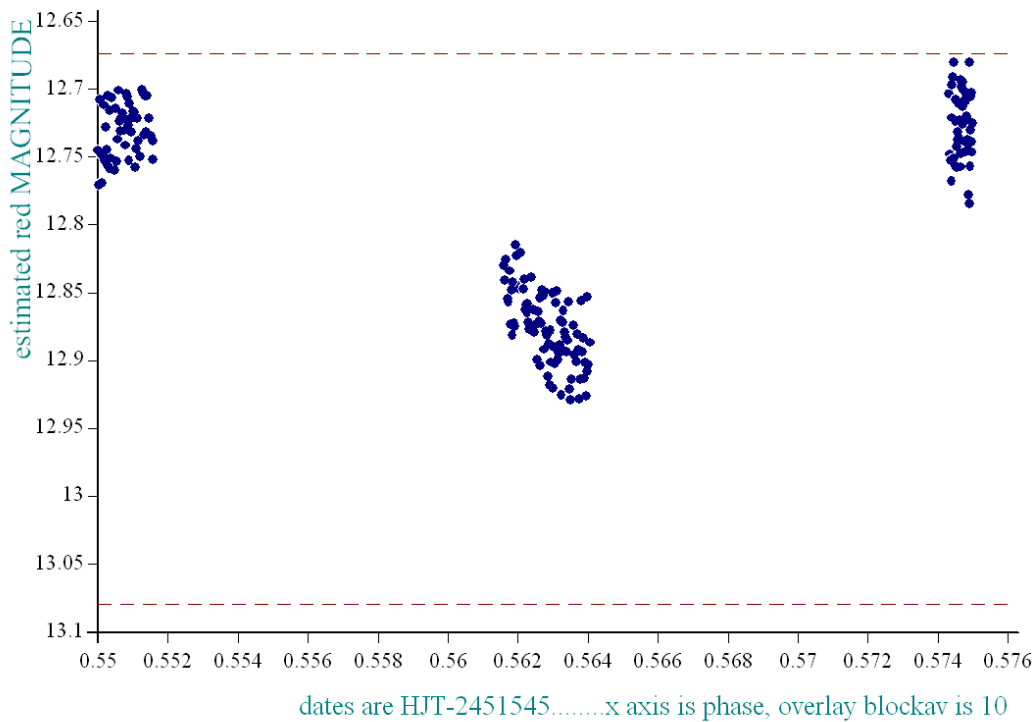
Best fit calculations yield a period of 24.500344 days

star a6763 dates 1344-2903, dia 10, ref a92, epoch 1149.6107, period 24.500481



• created at 18 39 on 28-10-2008 phase plot, No of data points 47036, plot No S25318

star a6763 dates 1344-2903, dia 10, ref a92, epoch 1149.6107, period 24.5005



• created at 23 2 on 28-10-2008 phase plot, No of data points 47036, plot No S25332