A New Double Star Observed During Lunar Occultation: TYC 6312-00761-1

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Abstract: A lunar occultation observation by DG in March 2013 detected a new, previously unknown companion of star TYC 6312-00761-1. Subsequent lunar occultation observation by DH in September 2015 confirms the double star nature and the two observations when combined gives the solution; Sep = 0.527", PA = 131.59 degrees, at a Mean Date of 2014.45.

TYC 6312-00761-1

On 2013 March 7th, a lunar occultation reappearance of TYC 6312-00761-1 was video-recorded at 25 frames/sec by Dave Gault using a 30cm telescope. The waning moon was 19% illuminated. The light curve in Figure 1 was recorded.

The intermediate step lasted for 1.96 seconds, with the brighter star reappearing first. The position angle of the event on the moon's limb was 327° and the radial velocity of the moon at the location of the occultation was 0.1851"/second. The observed magnitudes are 10.8 and 11.7.

On 2015 September 23rd, a lunar occultation disappearance of TYC 6312-00761-1 was video-recorded at 25 frames/sec by Dave Herald using a 40cm telescope. The waxing moon was 71% illuminated. The light curve in Figure 2 was recorded.

The intermediate step lasted for 0.96 seconds, with the brighter star disappearing first. The position angle of the event on the moon's limb was 80° and the radial velocity of the moon at the location of the occultation was 0.3824"/second. The observed magnitudes are 10.7 and 12.0.

From the heights of the three portions of the two light curves the V magnitudes of the components are derived as 10.7 and 11.8.

Star	TYC 6312-00761-1 = PPM 721083 = XZ 46854
Coordinates (J2000)	19h46m50.4935s, -15º55'16.184"
Spectral type	F4
Derived double data:	
Mag A	10.7 ±0.1 (V)
Mag B	11.8 ±0.1 (V)
Epoch	2014.45 (average)
Separation at epoch	0.527" ± 0.002"
PA at epoch	131.59 ± 0.01 deg

Acknowledgement and Reference

Miyashita, K. : *Limovie* - http://astro-limovie.info/limovie/limovie_en.html

Herald, D. : *Occult4* - http://www.lunar-occultations.com/iota/occult4.htm

Lunar Occultation Archive: VizieR Catalogue number VI/132A

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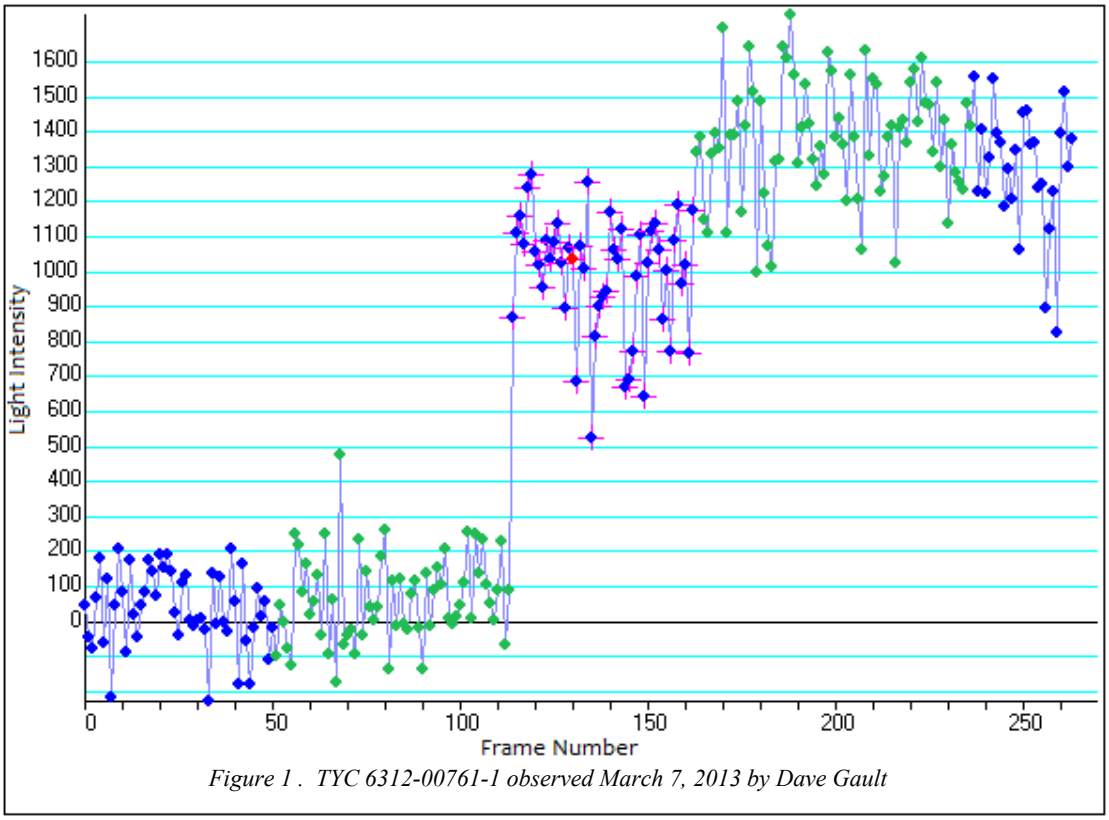

Figure 1 . TYC 6312-00761-1 observed March 7, 2013 by Dave Gault

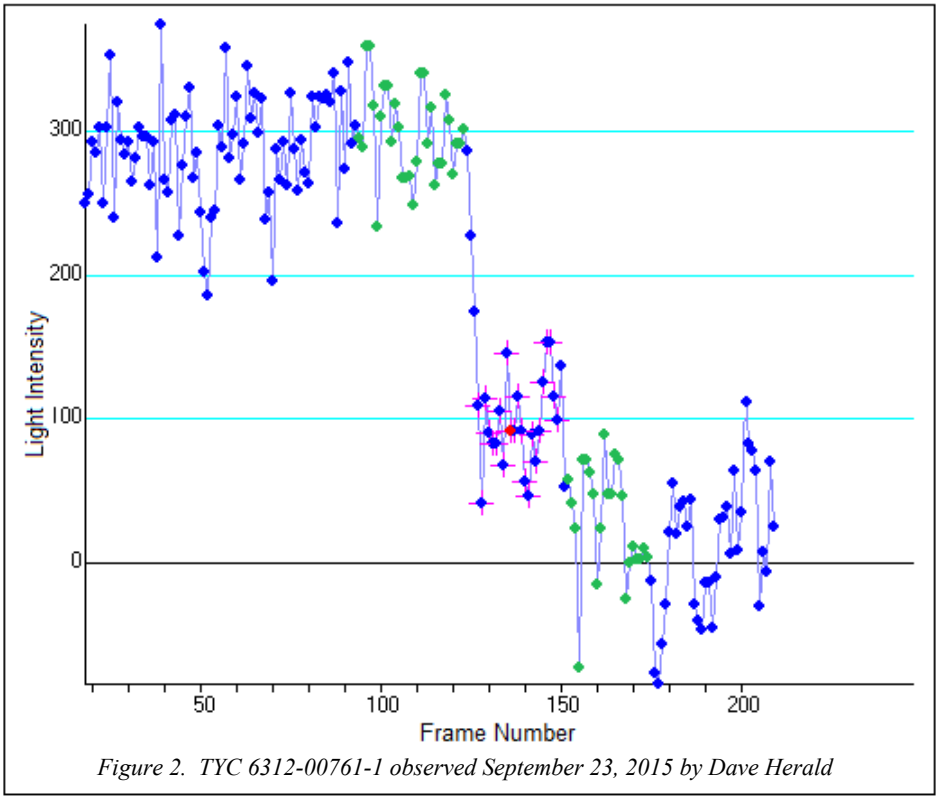

Figure 2. TYC 6312-00761-1 observed September 23, 2015 by Dave Herald