

Prediction of the Start of the Holy Month of Shawwal 1435 Hejriah

The calculations are done for the Longitude and Latitude of
Makkah AlMukarramah Area and the times are for the Local Time of Saudi Arabia (GMT+3)

Makkah Al-Mukarramah: Latitude = 21.45 ° N , Longitude = 39.82 ° E

Umm-UIQura: [(Monday 01 Shawwal 1435 Hejriah, 28 July 2014)]

Prediction: [(Tuesday 01 Shawwal 1435 Hejriah, 29 July 2014)]

New Moon of the Month of Shawwal occurs on Sunday 27 June 2014 at 1:42 a.m.

Day	(2014) Date	Sun Set	Moon Set	Moon altitude & azimuth at sunset	According to:		
					Start of Ramadhan	Umm-UIQura	Prediction
Sunday	27 / 7	19:03	19:14	2.5 ° , 282.5 °	29 Ramadhan	30 Ramadhan	29 Ramadhan
Monday	28 / 7	19:02	19:52	11.1 ° , 275.6 °	01 Shawwal	01 Shawwal	30 Ramadhan
Tuesday	29 / 7	19:02	20:29	19.4 ° , 268.6 °	02 Shawwal	02 Shawwal	01 Shawwal

According to the astronomical calculations, the birth of the new moon (conjunction) occurs at about 1:42 am of the morning of Sunday 27 July 2014 and the moon sets at about 11 minutes after the Sun on that evening in Makkah AlMukarramah. Therefore and according to accuracy of astronomical calculations and possibility of actual sighting, it is predicated not to be possible to sight the crescent moon on that evening from all Islamic countries due to its low altitude as indicated in the above table. Adding to that, its tiny visible part (phase, Illumination) which is only 0.65% of the full moon and thin crescent width that is less than 0.003 of a degree which is less than the resolution of human eyes. There is a much better possibility to observe the crescent using optical aids from South Africa and using naked eyes from South America provided the sky is clear.

The crescent may be sighted with naked eyes if the sky is clear on Monday 28 July 2014 evening (just after the sunset). At that moment the age of the moon will be about 41.34 hours, it stays about 50 minutes, it is about 11.1 ° above the horizon, its elongation with the Sun is about 19.2 °, and its visible part (phase) is about 2.8% of the full moon. Therefore, according to the conventional civil Hejriah calendar (non-juridical method) which does not require actual sighting (depending only on the conjunction), Monday 28 July is taken to be the first day of month of Shawwal. But considering the accuracy of astronomical calculations and possibility of actual sighting of the crescent (juridical method), Inn-Shaa-Allah, Tuesday 29 July 2014 is predicated to be the first day of the month of Shawwal 1435 H. and Allah has the knowledge (wAllahuAllam).

Note that birth of the "visible" crescent happens after the new moon (conjunction) which may not exceed much half a day or it may extend to a day or more depending on the Moon location relative to the Sun, duration of its presence above the horizon, its luminosity (phase), crescent width, and of course the atmospheric condition just after sunset. Adding to that, the physical, psychological, health conditions, eye sensitivity and its speed of adaptation to light, and accumulated experience of the person doing the sighting should be considered as important factors.

For crescent sighting on Monday evening (provided that the sky is dark and clear, free of clouds, dust, and humidity and just after the sunset): the altitude of the moon above the horizon will be about 11.1 °, its elongation with the sun will be about 19.2 °, it will be about 15.0 ° to left (south) of the setting sun (about 0.8 ° north of West direction), and the shape of the crescent moon will be tilted to the left as shown in the figure.



The above prediction is based on astronomical formulas and calculations and theoretical possibility of sighting the crescent which may be used for the purpose of a general guidance and one should go with the method of actual sighting of the crescent, the method which, our Prophet Mohammad SallAllahuAlihiWassallam (ﷺ) guided and ordered us to observe and follow, and Allah has the knowledge.