

Prediction of the Start of the Month of Shawwal 1436 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: [(Friday 01 Shawwal 1436 Hejriah, 17 July 2015)]

Prediction: [(Saturday 01 Shawwal 1436 Hejriah, 18 July 2015)]

New Moon of the Month of Shawwal occurs on Sunday 16 July 2015 at 4:24 a.m.

Day	(2015) Date	Sun Set	Moon Set	Moon Age	Moon altitude & azimuth at sunset	Sun azimuth at sunset	According to:	
							Umm-UIQura	Prediction
Thursday	16 / 7	19:06	19:18	14.7 Hrs.	2.1 ° , 285.7 °	293.4 °	29 Ramadhan	29 Ramadhan
Friday	17 / 7	19:06	20:01	38.7 Hrs.	11.5 ° , 279.4 °	293.2 °	01 Shawwal	30 Ramadhan
Saturday	18 / 7	19:05	20:42	62.7 Hrs.	20.9 ° , 272.6 °	293.0 °	02 Shawwal	01 Shawwal

According to the astronomical calculations, the birth of the new moon (conjunction) occurs at 4:24 am of the morning of Thursday 16 July 2015 and the moon sets 12 minutes after the Sun on that evening in Makkah AlMukkaramah. Therefore and according to accuracy of astronomical calculations and possibility of actual sighting, it is extremely difficult (not possible) to sight the 14.7 hours old (crescent) moon on that evening from all Islamic countries due to its low altitude (2.1 degrees) and short stay (12 minutes) as indicated in the above table. Adding to that, its tiny visible part (phase, Illumination) which is only 0.54% of the full moon and its thin crescent width that is less than 0.003 of a degree (full moon is 0.5 of a degree). There is a much better possibility, but still difficult, to observe the crescent by 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 Friday 17 July 2015 evening (just after the sunset). At that moment the age of the moon will be about 38.7 hours, it stays about 55 minutes, it is about 11.5 ° above the horizon, its elongation with the Sun is about 18.4 °, and its visible part (phase) is about 2.7% 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 or using method of possibility of sighting from regions that share with our region in part of the night), Friday 17 July is taken to be the first day of the month of Shawwal. But considering the accuracy of astronomical calculations and possibility of actual sighting of the crescent (juridical method), Inn-Shaa-Allah, Saturday 18 July is predicated to be the first day of the month of Shawwal. 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.

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

For crescent sighting on Friday evening (Find a region away from cities, provided the sky is clear, free of clouds, dust, and humidity and just after the sunset): On the evening of Friday 17 July the altitude of the moon above the horizon will be about 11.5 °, its elongation with the sun will be about 18.4 °, it will be about 13.8 ° to left (south) of the setting sun (about 9.4 ° north of West direction), and the shape of the crescent moon will be tilted to the left as shown in the figure.

