

## Prediction of the Start of the Month of Shawwal 1433 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

Makkah Al-Mukarramah: Latitude = 21.43 ° N , Longitude = 39.82 ° E

Prediction: [ Saturday 29 Ramadhan 1433 Hejriah corresponds to 18 August 2012 ]  
[ Sunday 01 Shawwal 1433 Hejriah corresponds to 19 August 2012 ]

New Moon of Shawwal Occurs on Friday 17 October 2012 at 6:56 pm.

Day	(2012) Date	Sun Rise	Moon Rise	Sun Set	Moon Set	Moon altitude & azimuth at sunset	According to:	
							UmmUIQura	Prediction
Fri	17 / 8	5:59	5:35	18:50	18:30	-5.1 ° , 281 °	29 Ramadhan	28 Ramadhan
Sat	18 / 8	6:00	6:32	18:49	19:11	4.3 ° , 272 °	30 Ramadhan	29 Ramadhan
Sun	19 / 8	6:00	7:29	18:48	19:51	13.6 ° , 263 °	01 Shawwal	01 Shawwal

According to the astronomical calculations, the birth of the new moon (conjunction) occurs at about six minutes after the sunset on Friday 17 August 2012 and the moon sets before the sun by about twenty minutes on that evening in Makkah AlMukarramah, therefore and according to calculations and possibility of actual sighting, it is impossible to sight the moon on that evening due to its absence (It is about 5° below the horizon) and the conjunction (new moon) occurs after the sunset as indicated in the above table.

But on the evening (just after the sunset) of Saturday 18 August 2012, which should be the 30th of Ramadhan 1433 H according to UmmUIQura Calendar, it may be possible to sight the crescent using optical aids, but with difficulties and the possibility of sighting increases from the West and Southwest regions of the Kingdom according to Odeh criterion (The crescent may be sighted with naked eyes from middle and southern regions of Africa, Southern regions of North America, and all regions of South Americas). On Saturday just after sunset, the age of the moon in Makkah AlMukarramah will be about 24 hours, it is about 4.3° above the horizon, its visible part (phase) is about 1.4 % of the full moon, its thickness is 0.007 of a degree, its elongation with the Sun is about 13 degrees, and it stays about 22 minutes above the horizon before setting. Therefore, according to astronomical calculations and possibility of actual sighting of the crescent, Inn-Shaa-Allah, Sunday 19 August 2012 is predicated to be the first day of the month of Shawwal 1433 H (First day of Eid AlFitri), and Allah has the knowledge (wAllahuAllam).

Note that birth of the "visible" crescent moon happens after the new moon (conjunction) which may not exceed half a day or it may extend up 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. Usually the contract is very small between the color and brightness of the crescent and the sky, which adds difficulty to observation.

**For crescent sighting from Makkah Al-Mukarramah areas on Saturday evening:** Find a dark area away from cities, provided that the sky is clear, free of clouds, dust, smog, and other sources of pollution, one should face approximately toward west at the sunset where the altitude of the moon above the horizon will be about 4.3 °, it will be about 12 ° to the left (south) of the setting sun (2 ° north of the West direction), its elongation will be about 13 °, and the shape of the crescent moon will be slightly tilted to the left as shown in the figure.



**The above prediction is based on astronomical formulas, calculations, theoretical and statistical possibility of sighting the crescent which may be used for the purpose of a general guidance for crescent sighting. 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.**

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