

## Prediction of the Start of the Month of DhulHejja 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: [ Tuesday 30 DhulQada 1433 Hejriah corresponds to 16 October 2012 ]  
[ Wednesday 01 DhulHejja 1433 Hejriah corresponds to 17 October 2012 ]

New Moon of DhulHejja Occurs on Monday 15 October 2012 at 3:04 pm.

Day	(2012) Date	Sun Rise	Moon Rise	Sun Set	Moon Set	Moon altitude & azimuth at sunset	According to:	
							UmmUIQura	Prediction
Mon	15 / 10	6:16	5:58	17:57	17:48	Below the horizon	29 DhulQada	29 DhulQada
Tue	16 / 10	6:16	7:02	17:56	18:38	8.5 ° , 248.6 °	30 DhulQada	30 DhulQada
Wed	17 / 10	6:17	8:08	17:55	19:33	19.2 ° , 239 °	01 DhulHejja	01 DhulHejja
Thu	25 / 10	6:20	14:58	17:49	02:25	<b>Arafa Day</b>	09 DhulHejja	09 DhulHejja
Fri	26 / 10	6:21	15:35	17:48	03:17	First Day of Eid AlAdh'ha	10 DhulHejja	10 DhulHejja

According to the astronomical calculations, the birth of the new moon (conjunction) occurs at about 3:04 pm on Monday 15 October 2012 and the moon sets about nine minutes before the sun in Makkah AlMukkaramah, 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 2° below the horizon).

But on the evening (just after the sunset) of Tuesday 16 October 2012, which should be the 30th of DhulQada 1433 H according to UmmUIQura Calendar, it is possible to sight the crescent and the possibility of sighting by naked eyes will be higher from the West and Southwest regions of the Kingdom.

On Tuesday just after sunset, the age of the moon in Makkah AlMukkaramah will be about 27 hours, it is about 8.5 degrees above the horizon, its visible part (phase) is about 1.9 % of the full moon, its thickness is 0.009 of a degree, its elongation with the Sun is about 15 degrees, and it stays about 43 minutes above the horizon before setting.

Accordingly, previous calculations and possibility of actual sighting indicate that the first day of DhulHejja could be (In-Shaa-Allah) on Wednesday 17 October 2012 as stated in the table. Also the **Arafa Day** (the ninth day of month of DhulHejja) may fall on Thursday 25 October 2012 and Eid Al-Adhha (Eid of Sacrifice) may fall on Friday 26 October 2012 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 contrast is very small between the color and brightness of the crescent and the sky, which adds difficulty to observation.

**For crescent sighting:** Find a dark area away from cities, provided that the sky is clear, free of clouds, dust, and other sources of pollution, one should face approximately toward southwest at the sunset where the altitude of the moon above the horizon will be about 8.5 °, it will be about 12 ° to the left (south) of the setting sun (21.5 ° south of west), its elongation will be about 15 °, 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 and calculations and may be used for the purpose of a general guidance and one should go with the method of actual sighting of the moon, the method which, our Prophet Mohammad peace and blessing be upon him (SallAllhuAlihiWassallam) (ﷺ) guided and ordered us to observe and follow, and Allah has the knowledge.

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