Prediction of the Start of Month of Zul-Hejja 1430 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 29 Zul-Qada 1430 Hejriah corresponds to 17 November 2009]
[Wednesday 01 Zul-Hejja 1430 Hejriah corresponds to 18 November 2009]

New Moon of Zul-Hejja Occurs on Monday 16 November 2009 at 10:15 p.m.

Day	(2009) Date	Sun Rise	Moon Rise	Sun Set	Moon Set	Moon altitude & azimuth at sunset	According to: UmmUlQura	Prediction
Mon.	16 / 11	6:32	6:02	17:39	17:12	Below horizon	28 Zul-Qada	28 Zul-Qada
Tue.	17/ 11	6:32	7:00	17:39	18:01	3.9 º , 241 º	29 Zul-Qada	29 Zul-Qada
Wed.	18/ 11	6:33	7:57	17:39	18:53	13.5 º , 234 º	01 Zul-Hejja	01 Zul-Hejja
Thu.	26/ 11	6:38	13:19	17:38	00:55	**Arafa Day**	09 Zul-Hejja	09 Zul-Hejja

According to the astronomical calculations, the birth of the new moon (conjunction) occurs about four hours and thirty five minutes after the sunset on Monday 16 November 2009 in Makkah AlMukkaramah where the moon sets about 26 minutes before the sunset, therefore and according to calculations and actual sighting, it is impossible to sight the moon on that evening due to its absence (It is about 6 º below the horizon) as indicated in the above table. But on the evening (just after the sunset) of Tuesday 17 November 2009, which should be the 29th of Zul-Qada 1430 H according to Umm-Ul-Qura calendar, it is not impossible, but there is a very slim possibility to sight the crescent with extreme difficulty and by using optical aids and from the areas of south and west of the Kingdom*. The age of the moon at that moment will be about 19½ hours, stays about 23 minutes above the horizon, and the brightness of its visible part is about 0.8 % of that of the full moon. Accordingly, previous calculation and possibility of actual sighting may indicate (with very low possibility) that the first day of Zul-Hejja could be (In-Shaa-Allah) on Wednesday 18 November 2009 as shown in the table. Also the **Arafa Day** (the ninth day of month of Zul-Hejja) may fall on Thursday 26 November and Eid Al-Adhha (Eid of Sacrifice) may fall on Friday 27 November 2009 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 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: Find a dark area away from cities, provided that the sky is clear, free of clouds, dust, and man made pollution, one should face approximately toward southwest at the sunset where the altitude of the moon above the horizon will be about 4 º, it will be about 9 degrees to the left (south) of the setting sun (29º south of west), its elongation about 10 º, and the shape of the crescent moon will be slightly tilted to the left as shown in the figure.

* There is a better chance and possibility of sighting the crescent from areas of middle and southern parts of Africa and Central America. Also there is much better chance and greater possibility of sighting the crescent with naked eyes from the whole areas of South America.

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 SallAllhuAlihiWassallam (ﷺ) guided and ordered us to observe and follow, and Allah has the knowledge.

Dr. Ali Mohammad Al-Shukri , Physics Department , KFUPM Box # 378
Dhahran 31261 , Saudi Arabia - Phone: (03) 860-3573 or (03) 860-2255 - fax: (03) 860-2293
email: alshukri@kfupm.edu.sa - Homepage: http://faculty.kfupm.edu.sa/phys/alshukri