

## Prediction of the Start of Month of Ramadhan 1431 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

Prediction: [ (30 Shaaban 1431 Hejriah, 11 August 2010) ]  
[ (01 Ramadhan 1431 Hejriah, 12 August 2010) ]

New Moon of Month of Ramadhan occurs on Tuesday 10 August 2010 at 6:09 a.m.

Day	(2010) Date	Sun Rise	Moon Rise	Sun Set	Moon Set	Moon altitude & azimuth at sunset	According to:	
							UmmUIQura	Prediction
Tue	10 / 8	5:57	6:03	18:55	19:06	1.9 ° , 279 °	29 Shaaban	29 Shaaban
Wed	11 / 8	5:58	7:08	18:54	19:49	11.6 ° , 269 °	01 Ramadhan	30 Shaaban
Thu	12 / 8	5:58	8:12	18:53	20:31	21.1 ° , 258 °	02 Ramadhan	01 Ramadhan

According to the astronomical calculations, the birth of the new moon (conjunction) occurs at about six o'clock on morning of Tuesday 10 August 2010 and the moon sets after the sun by about eleven minutes on that evening in Makkah AlMukarramah, therefore and according to calculations and possibility of actual sighting, it is predicated to be extremely difficult (almost not possible) to sight the crescent moon on that evening due to its very low altitude (less than 2 degrees) as indicated in the above table adding to that, its tiny visible part (phase) only 0.5% of the full moon and extremely thin crescent which is less than the resolution of human eyes, but there is a better chance with some difficulties from South Africa by using optical devices only and even higher possibility from South America. But on the evening (just after the sunset) of Wednesday 11 August 2010, the crescent can be sighted easily with naked eyes, where the age of the moon will be about 36 hours and 46 minutes, it stays about 55 minutes, it is about 11.2° above the horizon, its elongation with the Sun is about 21.7°, and its visible part (phase) is about 3.73% of full moon. Therefore, according to astronomical calculations and possibility of actual sighting of the crescent, Inn-Shaa-Allah, Thursday 12 August 2010 is predicated to be the first day of the month of Ramadhan 1431 H and we should not rule out completely the day before as stated above, and Allah has the knowledge (wAllahuAllam).

Note that birth of the "visible" crescent 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.

**For crescent sighting on Wednesday evening**, provided that the sky is dark and clear, free of clouds, dust, and humidity: just after the sunset, the altitude of the moon above the horizon will be about 11.6°, its elongation with the sun is about 21.7°, it is about 18° to left (south) of the setting sun (1.2° left of West direction), and the shape of the crescent moon will be slightly tilted to the right 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.**

Dr. Ali Mohammad Al-Shukri , Physics Department  
KFUPM , Box 5047 , Dhahran 31261 , Saudi Arabia - Phone: 860-2255 - fax: 860-2293  
email: [alshukri@kfupm.edu.sa](mailto:alshukri@kfupm.edu.sa) - Homepage: <http://faculty.kfupm.edu.sa/phys/alshukri>