

Prediction of the Start of Month of Ramadhan 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 (GMT+3)

Makkah Al-Mukarramah: Latitude = 21.45 ° N , Longitude = 39.82 ° E

Prediction: [(30 Ramadhan 1433 Hejriah, 20 July 2012)]
[(01 Ramadhan 1433 Hejriah, 21 July 2012)]

New Moon of Month of Ramadhan occurs on Thursday 19 July 2012 at 7:25 a.m.

Day	(2012) Date	Sun Rise	Moon Rise	Sun Set	Moon Set	Moon altitude & azimuth at sunset	According to:	
							UmmUIQura	Prediction
Thu	19 / 7	5:48	5:54	19:05	19:11	0.86 ° , 286 °	29 Shaaban	29 Shaaban
Fri	20 / 7	5:49	6:49	19:05	19:53	9.9 ° , 278 °	01 Ramadhan	30 Ramadhan
Sat	21 / 7	5:49	7:44	19:05	20:33	19.2 ° , 269 °	02 Ramadhan	01 Ramadhan

According to the astronomical calculations, the birth of the new moon (conjunction) occurs at about 7:25 am on the morning of Thursday 19 July 2012 and the moon sets after the sun by about six minutes on that evening in Makkah AlMukkaramah, therefore and according to accuracy of calculations and possibility of actual sighting, it is predicated not to be possible to sight the crescent moon on that evening due to its very low altitude (less than one degree) as indicated in the above table adding to that, its extremely tiny visible part (phase, Illumination) which is only 0.4% of the full moon and extremely thin crescent which is less than the resolution of human eyes even by using optical aids. There is a better chance but with some difficulties to observe the crescent from South Africa by using optical devices only and even there is a higher possibility to sighted from South America. But on the evening (just after the sunset) of Friday 20 July 2012, the crescent can be sighted with naked eyes, where the age of the moon will be about 36 hours, it stays about 48 minutes, it is about 9.9 ° above the horizon, its elongation with the Sun is about 17.8 °, and its visible part (phase) is about 2.5% of the full moon. Therefore, according to high accuracy of astronomical calculations and possibility of actual sighting of the crescent, Inn-Shaa-Allah, Saturday 21 July 2012 is predicated to be the first day of the month of Ramadhan 1433 H. But according to the conventional civil Hejriah calendar which does not require actual sighting, Friday 20 July is possibly the first day of Ramadhan, 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 Tuesday 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 9.9 °, its elongation with the sun is about 17.8 °, it is about 14 ° to left (south) of the setting sun (8 ° north of West direction), and the shape of the crescent moon will be 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.

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One should be very careful and sure not to mistakenly see a shape that looks like a fussy thin crescent due to the presence of planet Mercury about eight degrees above the Sun. Adding to that high humidity and temperature in the summer season with suspended aerosols in the air cause scattering of the light and collaboration with other atmospheric effects may lead to false impression of seeing crescent.