Prediction of the Start of The Holy Month of Ramadhan 1434 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: [(Tuesday 30 Shaaban 1434 Hejriah, 9 July 2013)]
[(Wednesday 01 Ramadhan 1434 Hejriah, 10 July 2013)]

New Moon of the Month of Ramadhan occurs on Monday 8 July 2013 at 10:16 a.m.

Day	(2013) Date	Sun Rise	Moon Rise	Sun Set	Moon Set	Moon altitude & azimuth at sunset	According to: UmmUlQura	Prediction
Mon	8 / 7	5:44	5:46	19:07	19:08	0.1 º , 289 º	29 Shaaban	29 Shaaban
Tue	9 / 7	5:44	6:36	19:07	19:49	8.6 º , 282 º	01 Ramadhan	30 Shaaban
Wed	10 / 7	5:45	7:27	19:07	20:29	17.6 º , 276 º	02 Ramadhan	01 Ramadhan

According to the astronomical calculations, the birth of the new moon (conjunction) occurs at about 10:16 am on the morning of Monday 8 July 2013 and the moon sets almost with the Sun (about one minute after the Sun) on that evening in Makkah AlMukkaramah, therefore and according to accuracy of astronomical 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 extremely low altitude (much less than a degree) as indicated in the above table. Adding to that, its extremely tiny visible part (phase, Illumination) which is only 0.3% of the full moon and extremely thin crescent which is less than the resolution of human eyes even by using optical aids. It is impossible to sight the crescent in the Northern, Middle, and Eastern areas of Saudi Arabia since the Moon sets before the Sun. There is a low possibility but with some difficulties to observe the crescent from middle and south of South America only by using optical aids. But on the evening (just after the sunset) of Tuesday 9 July 2013, the crescent may be sighted with naked eyes, where the age of the moon will be about 33 hours, it stays about 42 minutes, it is about 8.6 º above the horizon, its elongation with the Sun is about 15.3 º, and its visible part (phase) is about 1.9% of the full moon. Therefore, according to high accuracy of astronomical calculations and possibility of actual sighting of the crescent, Inn-Shaa-Allah, Wednesday 10 July 2013 is predicated to be the first day of the month of Ramadhan 1434 H. According to the conventional civil Hejriah calendar (Non-juridical) which does not require actual sighting (depending only on conjunction), Tuesday 9 July is taken to be 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 8.6 º , its elongation with the sun is about 15.3 º , it is about 12¼ º to left (south) of the setting sun (about 12¼ º north of West direction), and the shape of the crescent moon will be tilted to the left 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 some scattered clouds with planet Venus is about twelve 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, which may collaborate with other atmospheric effects to lead to false impression of seeing a crescent.