

Prediction of the Start of Month of Muharram 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: [Saturday 30 DhuHejjah 1432 Hejriah, 26 August 2011]
[Sunday 01 Muharram 1433 Hejriah, 27 August 2011]

New Moon of Month of Muharram occurs on Friday 25 November 2011 at 9:11 a.m.

Day	(2011) Date	Sun Rise	Moon Rise	Sun Set	Moon Set	Moon altitude & azimuth at sunset	According to:	
							UmmUIQura	Prediction
Fri	25 / 11	6:37	6:37	17:38	17:51	2.15 ° , 245 °	29 Dhuhejjah	29 Dhulhejjah
Sat	26 / 11	6:38	7:41	17:38	18:53	14.1 ° , 238 °	01 Muharram	30 Dhulhejjah
Sun	27 / 11	6:39	8:41	17:37	19:55	25.8 ° , 231 °	02 Muharram	01 Muharram

According to the astronomical calculations, the birth of the new moon (conjunction) occurs at about nine o'clock (9:11) on the morning of Friday 25 November 2011 and the Moon sets after the Sun by about 13 minutes on that evening in Makkah AlMukkaramah, therefore and according to calculations and possibility of actual sighting, it is predicated not to be possible to sight the crescent moon on that evening due to its low altitude (2.2 °), its small elongation (4.2 °), its age is less than nine hours, its tiny visible part (phase, Illumination) is only 0.2% of the full moon, and extremely thin crescent which is less than the resolution of human eyes. There is a better chance with some difficulties to observe the crescent from areas of South America by using optical devices only. But on the evening (just after the sunset) of Saturday 26 November 2011, the crescent can be sighted easily with naked eyes, where the age of the moon will be about 32.5 hours, it stays about an hour and 15 minutes, it is about 14 ° above the horizon, its elongation with the Sun is about 18 °, and its visible part (phase) is about 2.6% of the full moon. Therefore, according to the conventional civil Hejriah calendar which does not require actual sighting, Saturday 26 November is the first day of Muharram, but according to astronomical calculations and possibility of actual sighting of the crescent, Inn-Shaa-Allah, Sunday 27 November 2011 is predicated to be the first day of the month of Muharram 1433 H, 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 Saturday 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 14 °, its elongation with the sun is about 18 °, it is about 10 ° to left (south) of the setting sun (32 ° left of the 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 planets Venus and Mercury in the same region as the Moon and the Sun. Adding to that humidity and temperature 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.