

Regional Moon Sighting Criteria for the UK

This criteria was proposed by Eng. Qamar Uddin (in 2016) and adopted by the ICOUK¹ membership in January 2017

1. Abstract

This paper discusses the basis for a local moon sighting criteria and for the adverse UK weather conditions, it proposes a regional moon sighting zone (*Matla/ المطالع*) to include Western European countries (longitude) down to Tropic of Cancer (23.5° latitude), which includes Morocco. The Sharia basis is explained with quotations from Quran and Ahadith and the Scientific basis are explained with related calculations of prayer times and geographical map boundaries. The result is similar to some existing moon sighting criteria, but not the same.

2. Introduction

The geographical location of the UK is such that adverse weather conditions persist throughout the year (as it's an Island between oceans). As a result, it is not always possible to sight the first day's crescent moon (Hilal) every consecutive month. If the months are completed 30-days continuously, then after six consecutive months, it will result in the future months having less than 29-days, which is not permitted in a lunar calendar system. A coordinated effort by ICOUK members since 2008 has proven that it is possible to sight the Hilal on the UK horizons for a few months in a year. However, it has been a custom for UK Muslims to borrow foreign moon sighting news throughout the year, which leads to divisions, since foreign news are often contradictory.

This paper proposes a lunar calendar based on local sighting with extension of the UK horizon to nearby countries where reliable moon sighting can or does take place, but excluding any locations that are too far East or West (based on sunset to dusk times) and is above the Equator (to avoid change of seasons). The local moon sighting efforts by ICOUK members, together with news from Morocco over past 8 – 10 years has proven this method to work satisfactorily, which also matches the *Fiqh* rule of *Difference of Sightings* (Ikhtilaf al Matali' / اختلاف المطالع) and Nearest Latitude (أقرب آل بلد).

3. Local Moon Sighting

The importance of starting the lunar months with local moon sighting are given below:

3.1 The order to begin the month by sighting the Hilal comes from the following verse of the Quran when the Jews of Madinah asked the Sahabah (راضى الله عنهم), why the phase of the moon kept changing? In response to this question put to the Prophet Muhammad (صلى الله عليه وسلم), Allah says:

They ask you, [O Muhammad], about the new [crescent] moons. Say, "They are measurements of time for the people and for Hajj." (Quran 2:189) / <http://tanzil.net/#2:189>

The Mufassirun (commentators) have stated that there could be two reasons why Allah has used the plural form of the crescent moons (Ahilla/ الالهة), instead of the singular form (Hilal/ الهلال). It can mean Allah is referring to (a) **every** region with their own [phase of the] crescent moons or (b) **all** the months of the year with their own crescent moons

The Mufassirun have also stated that based on the above verse of the Quran, it is a communal obligation (*fardh kifaya* / فرض كفاية) to establish a Hijri calendar based on moon sighting for all 12 months of the year and not just for Ramadan two Eids (as is the common practice in some Muslim communities or countries).

This is highlighted in the following verse of the Quran, where Allah says:

"Indeed, the number of months with Allah is twelve months (in a year) so was it ordained by Allah [from] the day He created the heavens and the earth; " (Quran 9:36) / <http://tanzil.net/#9:36>

¹ Islamic Crescent Observation for the UK (www.icouk.net); Moon Sighting UK (www.moonsighting.org.uk)

3.2 In the time of Prophet Muhammad (صلى الله عليه وسلم), the Sahabah (راضى الله عنهم) were instructed to start the lunar month by sighting the Hilal from their own horizon. This point is supported by the following Hadith.

Kuraib (راضى الله عنه) reported that Umm Fadl, daughter of Harith, sent him (Fadl, i.e. her son) to Mu'awiya in Syria. I (Fadl) arrived in Syria, and did the needful for her. It was there in Syria that the month of Ramadan commenced. I saw the new moon (of Ramadan) on Friday. I then came back to Medina at the end of the month. Abdullah b. 'Abbas (Allah be pleased with him) asked me (about the new moon of Ramadan) and said:

When did you see it? I said: We saw it on the night of Friday. He said: (Did) you see it yourself? I said: Yes, and the people also saw it and they fasted and Mu'awiya also fasted, whereupon he said: But we saw it on Saturday night. So we will continue to fast till we complete thirty (fasts) or we see it (the new moon of Shawwal). I said: Is the sighting of the moon by Mu'awiya not valid for you? He said: No; **this is how the Messenger of Allah (صلى الله عليه وسلم) has commanded us.** Yahya b. Yahya was in doubt (whether the word used in the narration by Kuraib) was Naktafi or Taktafi. (Muslim/1087) / <http://sunnah.com/muslim/13>

In 1981 the Muslims World League (MWL) Fiqh Council in Makkah organised a conference with many eminent scholars of the Muslim World (including the Saudi Scholar, Shaykh Abdul Aziz Bin Baaz and the Indian Scholar, Shaykh Abul Hasan Ali Nadawi) to discuss the moon sighting issue and they all signed a declaration in support of local moon sighting for all 12 months of the year, including Dhul Hijjah (for Eid-ul Adha) – see references.

3.3 Muslim historians have recorded that the Farewell Pilgrimage (Hujja-tul Wada' / حجة الوداع) of the Prophet Muhammad (صلى الله عليه وسلم) was on Friday 9th Dhul Hijjah 10 AH in Makkah and his demise was on Monday 12 Rabi-ul Awwal 11 AH (3 months later) in Madinah. Noting that a lunar month is either 29 or 30 days, it is not possible to synchronise the calendar of Makkah with Madinah, even if all three months are made 30-days, as the Madinah calendar still becomes 1-day short (demise falls on Sunday) with that of Makkah. This difference was resolved by the Muslim historian Mulla Ali Qari (رحمة الله عليه), who stated that people of Madinah started the month of Dhul Hijjah 10 AH 1-day after that of Makkah. The calendar diagram below illustrates this point (and also the fact that a lunar month did **not** start on the day of a Solar Eclipse/New Moon in Madinah (29 Shawwal 10 AH).

Dates of Solar Eclipse in Madinah & Farewell Pilgrim Makkah (632AD/10AH)

Shawwal (Dec/Jan)							Dhul Qa'dah (Jan/Feb)							Dhul Hijjah (Feb/Mar)						
Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa
					3	4				29	30	31	1 Feb					27	28	29
					1	2				1	2	3	4					1	2	3
5	6	7	8	9	10	11	2	3	4	5	6	7	8	1 Mar	2	3	4	5	6	7
3	4	5	6	7	8	9	5	6	7	8	9	10	11	4	5	6	7	8	9	10
12	13	14	15	16	17	18	9	10	11	12	13	14	15	8	9	10	11	12	13	14
10	11	12	13	14	15	16	12	13	14	15	16	17	18	11	12	13	14	15	16	17
19	20	21	22	23	24	25	16	17	18	19	20	21	22	15	16	17	18	19	20	21
17	18	19	20	21	22	23	19	20	21	22	23	24	25	18	19	20	21	22	23	24
26	27	28					23	24	25	26				22	23	24	25	26	27	28
28	29	30					26	27	28	29				25	26	27	28	29	30	1/30

Note: Solar Eclipse on 29 Shawwal 10 AH & Farewell Pilgrim on 9 Dhul Hijjah 10 AH

Calendar by Qamar Uddin, York (UK)

Dates of Farewell Pilgrim in Makkah & Death of Prophet in Madinah (632AD/11AH)

Muharram (Mar/Apr)							Safar (Apr/May)							Rabi-I (May/Jun)						
Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa
29	30	31	1 Apr	2	3	4			28	29	30	1 May	2					28	29	30
1	2	3	4	5	6	7			1	2	3	4	5					1	2	3
5	6	7	8	9	10	11	3	4	5	6	7	8	9	31	1 Jun	2	3	4	5	6
8	9	10	11	12	13	14	6	7	8	9	10	11	12	4	5	6	7	8	9	10
12	13	14	15	16	17	18	10	11	12	13	14	15	16	7	8	9	10	11	12	13
15	16	17	18	19	20	21	13	14	15	16	17	18	19	11	12	13	14	15	16	17
19	20	21	22	23	24	25	17	18	19	20	21	22	23	14	15	16	18	19	20	21
22	23	24	25	26	27	28	20	21	22	23	24	25	26	18	19	20	21	22	23	24
26	27						24	25	26	27				22	23	24	25	26	27	
29	30						27	28	29	30				25	26	27	28	29	30	

Note: 12 Rabi-I is Monday because Madinah started Dhul Hijjah 1 day after Makkah

Calendar by Qamar Uddin, York (UK)

This calendar proves beyond any doubt of the point that people of Makkah and Madinah carried out local moon sighting at the time of Prophet Muhammad (صلى الله عليه وسلم) and they did not borrow the news from each other.

3.4 A few years ago (c. 1998) the Islamic Society of North America (ISNA) decided to follow local moon sighting for Ramadan and Makkah (Saudi Arabia) for Dhul Hijjah (Eid-ul Adha), instead of local moon sighting for all months. When a renowned scholar (Mufti Taqi Usmani) was asked to comment on the validity of the above criteria, he commented that both Ramadan and Dhul Hijjah should be started according to local moon sighting since following Makkah by foreign countries has no basis (or precedence) in Islam. He also pointed out the unanimous ruling of the world Muslim Scholars on the same issue more recently (see Reference) and also pointed out that Eid-ul Fitr and Eid-ul Adha were celebrated by the Prophet Muhammad (صلى الله عليه وسلم) in Madinah from 2 AH when Ramadan became obligatory, which was 7 years before Hajj became obligatory in 9 AH and he (صلى الله عليه وسلم) never attempted to borrow the moon sighting news from Makkah to Madinah for Eid-ul Adha, even though 9 days and 10 nights were more than enough time to send a horse rider with the news from Makkah to Madinah.



Note that the distance between Makkah and Madinah is about 270 miles between mountain passes, which now has modern highways (avoiding shorter distance over mountains). The mode of travel at that time was by horse (30 mph) or camel (24 mph). So the total time to travel will be approximately 9 hrs by a horse or 12 hrs by a camel. Even if overnight rest was included in the journey, a horse or a camel rider could easily reach Madinah from Makkah in under 24 hours. There is no evidence in Islamic history for past Muslim khulafah, leaders and governors to attempt to synchronise the calendar of Madinah with Makkah, since local sighting was the standard.

This malpractice by foreigners have only started with the advent of modern telecommunication from 1980's when International telephones became available and Muslims going on Hajj/Umrah calling back home with the news of the lunar date declared from Riyadh (Saudi Arabia). The scholars of Saudi Arabia follow strictly local moon sighting news and they have publicly stated for foreign countries to follow their own horizon and not Saudi Arabia. This is found in the fatawa of Shaikh Saleh Ibn Uthaimin (رحمة الله عليه) and mentioned more recently at the Istanbul Conference in Turkey (28 – 30 June 2016) by one of the scholars from Saudi Arabia.

4. Global Moon Sighting

The concept of global moon sighting has never been practiced in the past 1400 years, so what does it mean.

4.1 Some Muslims in the UK consider that it is not necessary to make any efforts to sight the moon locally, since it is now possible to obtain the news from anywhere in the world regardless of how far it is to the East or to the West. This opinion is based on a unique interpretation of the following hadith:

Abu Huraira (رضي الله عنهم) reported Allah's Messenger (صلى الله عليه وسلم) has saying: "Observe fast on sighting it (the new crescent moon) and break (fast) on sighting it (the new crescent moon), but if the sky is cloudy for you, then complete the number (of thirty)". [Muslim] / <http://sunnah.com/muslim/13/21>

The [only] Hanafi Jurist, Imam Ibn Abedin As-Shami (d.1252 AH/1836 CE) stated in *Radd al-Muhtar ala Ad-Durr al-Mukhtar* that the command to "observe fast / صَوْمُ" is to the whole Ummah, so anyone who receives the news (from East or West) should follow it. If this interpretation is applied to the whole world, it seems to go against the noble practice of the Prophet Muhammad (صلى الله عليه وسلم) and the Sahabah (رضي الله عنهم) as mentioned earlier and hence other scholars interpret that command to mean "regional sighting" and **not** "global sighting" (see below).

If we were to consider the above interpretation as "global sighting" then it has two problems in practice and only works in one direction, i.e. if a location in the West is following a location in the East (and not the other way

around). For example, (1) if the moon was reported to have been sighted in Brisbane, Australia (GMT+10 hrs) then all locations to the West following the above opinion would most probably make the declaration after their Dhuhr



or Asr prayer and local moon sighting would be abandoned; (2) if there were no moon sighting in the East and they were waiting for news from the far West, until California, USA (GMT – 8 hrs) claimed a sighting then it will be past their Fajr time and possibly past mid-morning in far East location such as Brisbane. Even if UK was to wait for news from USA (California), it will be past Fajr time (4 am) next morning, apart from additional problem of verifying foreign news.

Therefore, this opinion of following moon sighting news from the West adds undue hardship, which is against the principles of Shariah (“Allah intends for you ease and does not intend for you hardship”, Quran 2:185). So, global sighting is **impossible** due to the Spherical Earth with Time-Zone differences.

This problem can be visualised by looking at the world as a Globe/Sphere and not as a flat-map (see diagram).

5. Regional Moon Sighting

5.1 There was an occasion when the Prophet (صلى الله عليه وسلم) accepted news from a distance place, as below.

Narrated Ikrimah (راضي الله عنه): Once the people doubted the appearance of the moon of Ramadan, and intended neither to offer the tarawih prayer nor to keep fast. A bedouin came from al-Harrah and testified that he had sighted the moon. He was brought to the Prophet (صلى الله عليه وسلم) and He asked: Do you testify that there is no god but Allah, and that I am the Messenger of Allah? He said: Yes; and he testified that he had sighted the moon. He commanded Bilal (راضي الله عنه) who announced to the people to offer the tarawih prayer and to keep fast. (Abu Dawud)² / <http://sunnah.com/abudawud/14/29>

Ibn ‘Abbas (راضي الله عنه) narrated: ‘A Bedouin came to the Prophet (صلى الله عليه وسلم) and said, ‘I have sighted the crescent (of Ramadan). He then said to him, “Do you testify that there is none worthy of worship but Allah?” The Bedouin said, ‘Yes.’ He asked him again, “Do you testify that Muhammad is the Messenger of Allah?” The man replied, ‘Yes.’ The Prophet (صلى الله عليه وسلم) there upon said, “O Bilal! Announce to the people to (start) fasting tomorrow.” Related by the five Imams. Ibn Khuzaimah and Ibn Hibban graded it as Sahih. (Bulugh al-Maram) / <http://sunnah.com/urn/2059050>

Note that the above incident happened when it was **cloudy** in Madinah at the end of Shaban and the people did not see the Hilal. So when a Bedouin from outside (Al-Harrah) came with the news, it was accepted. Al-Harrah is a high place about 3 miles (5km) North East/West of Madinah and hence the Bedouin could have come on foot.

5.2 The first day’s crescent moon always stays a short time on the horizon after sunset (Maghrib) and most certainly sets before dusk (Isha). The time difference between Maghrib and Isha in Madinah is about 1:20 hrs. Therefore, even if the Bedouin came on a horse, he could not have travelled more than 30 – 40 miles from outside Madinah. Note that in the UK, the Maghrib to Isha time fluctuates between 1 hr to 1.5 hrs (Summer – Winter)³.

² The authenticity of the above hadith is weak, but due to multiple narrations with same meaning, it is classified as good (حسن) and confirmed by scientific data that first crescent moon visibility occurs after Maghrib (sunset) and before Isha (dusk).

³ The time span between Maghrib and Isha can be seen for a 12 months’ prayer times or estimated by considering the shortest (21st Dec) and longest (21st Jun) days of the year (or for UK Isha, use night-length fraction in winter for summer).



Therefore, it is recommended that the UK Muslims should not extend the boundaries of moon sighting news from abroad any more than 1.5 hrs to the East or West from a central location (eg. Bradford, West Yorkshire). It means, when it is Maghrib in the UK, it would be Isha time in the Eastern boundary and when it is Isha time in the UK, it would be Maghrib time in the Western boundary (see boundaries map).

Since the earth rotates 15° longitudes every hour (i.e. 360° every 24 hrs), it means the sunset 1.5 hour before UK time will be the longitude of near Berlin (Germany) and 1.5 hour after UK sunset time would be longitude of Dakar (Senegal). Given the usual cloudy weather condition of UK, it is recommended that a Regional Moon Sighting rule based on the above Hadith and the Fiqh interpretations should be applied, limiting how far East or West from the UK the news can be obtained from (between Maghrib and Isha prayers).

Furthermore, the opposite Hemisphere must not follow each other because when the Hilal rises over Northern Hemisphere, it is usually **moonset-before-sunset** on the Southern Hemisphere and

vice versa, whereas it should be opposite (Quran 91:1-2). Also, when it's Summer (longer days) in the Northern Hemisphere, it is Winter in the Southern Hemisphere (shorter days) and vice versa. Hence, artificially changing the season for moon sighting must be avoided.

Allah (سبحانه وتعالى) in his infinite wisdom has chosen the lunar year (354 days) to be shorter than the solar year (365 days), so the lunar months (Ramadan) rotate through all the seasons (Winter, Spring Summer, Autumn etc). Note also that borrowing news from opposite Hemisphere causes a lunar date change, which is tantamount to intercalation that is forbidden in the Quran (9:37). Hence, it is recommended for UK Muslims **not** to borrow news from Southern Hemisphere, but restrict down to Tropic of Cancer (23.5° latitude), which includes Morocco and Algeria.

6. Verifying Moon Sighting

6.1 It is important to verify all moon sighting reports, before they are accepted as explained below.

Moon sighting reports collected by the International Islamic Crescent Observation Project (ICOP) since 1998 shows that the Muslim countries have been starting and celebrating Ramadan/Eids over 4 – 5 days, whereas it should be over 2 days worldwide, if not in 1 day. It proves the point that all human beings can make mistakes, even if they are honest/pious observers! Psychological studies have proven that when a person has a high expectation to see an object then the psychological bias of the brain may make them think they have seen it, whereas in reality it was something else (e.g. a contrail) instead of the Hilal. Therefore, the group sighting (*Jamme Gafir*) requirement in Hanafi Fiqh for clear sky conditions is a must, since it is unlikely that a very large group of people will make the same mistake as may be the case with a solo observer. Furthermore, the following verse of the Quran makes it essential to investigate/verify all moon sighting reports for Shariah purposes.

“O you who believe! If there comes to you Fasiq with information, investigate it, lest you harm a people out of ignorance and become regretful over what you have done.” (Quran 49:6)

It is reported that Imam Abu Yusuf (d.798 CE), a student of Imam Abu Hanifa (d.767 CE) required 50 plus witnesses when he was the Qadhi (Judge) in Baghdad. Similarly, both Imam Abu Yusuf and Imam Muhammad required a [large] group of observers from each masjid in town, i.e. such a large number that it is difficult to discredit them. In fact, the word “investigate/verify” in the above verse has been considered to be a significantly larger number of people until the Judge is *satisfied* that the sighting claim is genuine and not a mistake (or a fabrication).

6.2 It is reported at the time of Umar (ra), group sighting was able to eliminate the mistakes by individuals.

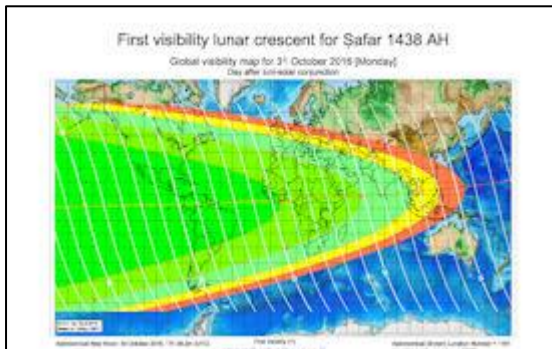
Anas b. Malik narrated: "We were with Umar (راضي الله عنه) between Makkah and Madina. We looked for Hilal (of D. Hijjah). As I had sharp eyes, I saw it. (But) Nobody other than me could confirm that he (also) had seen it. I kept telling Umar (راضي الله عنه) (the Khalifah and the Qadi): Don't you see it? He (kept on looking for it but) did not see any. Anas (RA) says that Umar (RA) told him: "I might soon see it"... I (Anas) was stretched on my bed listening (to Umar's description of Ahl al-Jannah and Ahl-al-Naar). (Muslim) <http://sunnah.com/muslim/53/91>

It was puzzling when Hadrat Anas (راضي الله عنه) (at very old age) claimed to have seen a crescent moon when everybody else, at the same location could not see the crescent moon. Then on removing the white hair from the eyebrow of Hadrat Anas (راضي الله عنه), he was asked to see again. Now he could see no 'crescent moon'. (See Aujaz al Masalik v.5, p.21, Tantawi's Irshad p.154, Bain al- Sunnah wal Ijtihad by Nimr p.50 etc.

A number of similar stories like the above exists in Fiqh texts to justify group sightings and points out the fact that it is possible for an honest/pious person to make a mistake (human error) in spotting the Hilal (see References).

It should also be noted that in modern times, the sky is not as clear and free from artificial objects as it used to be in the past centuries. This means, it is possible for a solo observer (or even a group of *inexperienced* observers!) to mistaken something else for the Hilal (e.g. a contrail). Therefore, it is necessary to use a large group of observers from different locations, to eliminate human errors. Indeed, this used to be the case amongst many past Governments (e.g. Ottoman Empire) who used to follow Hanafi Fiqh of group sightings (*Jamme Ghafir*) in clear sky conditions. Similarly, reports from average eye-sight observers were considered and not for 'sharp-eye' observers.

It is also a good idea to use astronomical data to cross-check the position/orientation of the crescent moon with that of any observation report and insist on a very large group if the data shows it's not possible to be sighted.



6.3 In the night of the Hilal (on 29th or 30th lunar date), the moon follows the sun (Quran 91:1-2) after sunset. Since the sunset in the East is before the sunset in the West and the moon is closely following the sun, any sighting claim from the East must be possible to be witnessed in the West in the same evening, especially on the same latitude with slight North/South variations (within the visibility parabola of the visibility map), but not the other way around. This natural fact of Hilal sighting is also stated in Fiqh texts below (*Ibn Taimyyah, Majmua Fatawa, vol.13/p.62*):

ان الرؤية تختلف باختلاف التشريق والتغريب، فإنه متى رُوي في المشرق وجب ان يري في المغرب ولا ينعكس
Meaning: If there is a Hilal sighting in the East, then it must be sighted in the West (but not the other way around)

So if there is a sighting claim from the East (e.g. Saudi Arabia), then hundreds of people from the West (e.g. Morocco) must be easily able to sight the moon on the same evening in clear sky conditions (a few hours later) - e.g. see visibility map for Safar 1438 AH.

6.4 It is also important to note that anyone who provides a moon sighting report is someone who actually follows local moon sighting themselves. It is not appropriate to accept moon sighting report from people who do not follow it themselves (as pointed out by Mufti Yusuf Sacha, 2015). For Allah says:

"O you who have believed, why do you say what you do not do? It is most hatred in the sight of Allah that you say what you do not do." (Quran 61:1-2)

Since the UK is in the same Time-Zone and close proximity to some of the European countries (e.g. Belgium, Netherlands, France, Germany, Spain etc.) we have been trying to make contacts with any local moon sighting groups within those countries via the Islamic Crescent Observation Project (ICOP) moon sighting volunteer group.

From our International ICOP contacts, we became aware of some members in Germany (www.mondsichtung.de/) and Algeria (www.siriusalgeria.net/), who carry out regular moon sightings, especially at start and end of Ramadan. Unfortunately, we have not been able to make contacts with any authorities who make monthly Hilal decisions based on their own sighting reports, other than relying on foreign news (e.g. country of their origin). Therefore, it is not appropriate for the UK to rely on any moon sighting news from any European countries until they have been confirmed to follow their own local moon sighting reports for all months. However, the option to send a small group of experienced observers from the UK to those countries at start/end of Ramadan should be considered if there is a good possibility of Hilal sighting on those locations (based on astronomical data).

7. Moon Sighting Calculations

7.1 The Holy Quran clearly states: “The sun and the moon follow course [exactly] computed” (Quran 55:5)

Observation experience over many years have also proven the accuracy of the position of the sun and the moon, especially during the times of solar eclipses, which visually shows the accuracy of New Moon Conjunction (NMC).

However, the calculations of crescent moon visibility are very complex and it was not possible until 1990’s when high powered personal computers became accessible to researchers who were able to produce more accurate models that matched the actual sightings and started a revolution in predicting crescent moon visibility⁴.

The ICOP group started collecting actual observation data since 1998 using Dr Bernard Yallop of HM Nautical Almanac Office (UK) visibility model and by 2006, an improved model was published by Engineer Mohammad Odeh⁵, which shows both the waxing and waning phases of the moon to a high degree of accuracy (see below).

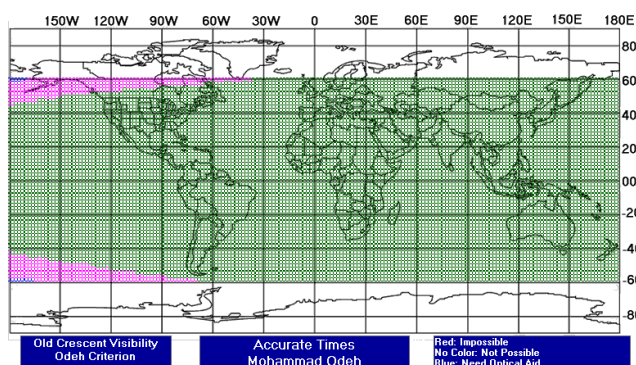


Figure 7.1 Waning Crescent Moon (10 Jan 2013) – Safar 1434

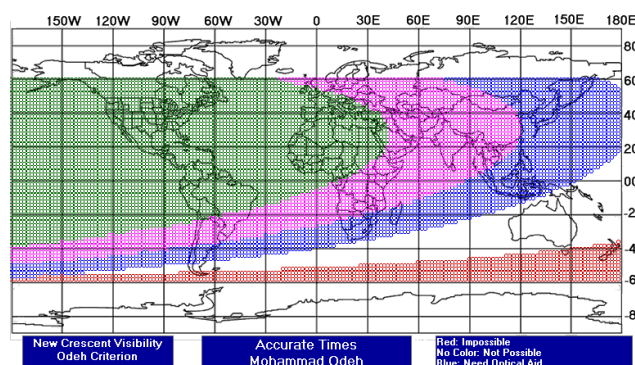


Figure 7.2 Waxing Crescent Moon (12 Jan 2013) – Rabi-I 1434



From the above visibility maps for waning and waxing



crescent moon, as verified with actual observations, the duration of the New Moon Phase (*Mahaq*) is about 60 hours (2.5 days) long and in extremely rare cases it may be about 36 hours (1.5 days) long if both the waning and waxing crescent can be seen 18 hrs before and after NMC.

⁴ See, “The Astronomy of Islamic Calendar”, by Dr Muhammad Ilyas (Malaysia), published by AS Noordeen (1997).

⁵ See, “New Criterion for Lunar Crescent Visibility”, by Mohammad Odeh, published by Springer (2006)/ www.icoproject.org

Regarding the phases of the moon, Allah says: "And (as for) the moon, We have measured for it mansions/phases (to traverse) till it returns like the old dried curved date stalk (Urjoonil Qadim)." [Quran 36:39]

In the Tafsir Jalalyan⁶ of the above verse it is stated there are visible and invisible phases of the moon (*Mahaq*), i.e. when it cannot be seen (for 1 or 2 days in each month). Therefore, the predicted crescent visibility maps, simply confirm the visible and invisible phases of the moon, which is consistent with the Quran and Ahadith.

7.2 There are three types of visibility maps that are widely used over past 10 years and while the ones by Eng Khalid Shaukat (USA) and Eng Mohammad Odeh (UAE) are very similar, the one by Dr Barnard Yallop (UK) is slightly different.

The visibility maps by Dr Barnard Yallop of HM Nautical Almanac Office (HMNAO) was first published in 1997 based on naked eye and small telescope sightings. However, due to advancement in technology with improved optics and computerised telescopes, more recent world-record sightings have been incorporated by Shaukat and Odeh criteria in 2005 - 2006.

Dr Barnard Yallop has retired many years ago and the present Head of HMNAO (Dr Steve Bell) was requested by ICOUK (in 2012 – 2015) to make a number of improvements to their old visibility maps, such as to include more recent world-record by Jim Stamm (USA) to make the curves similar to Shaukat and Odeh criteria (see Appendix).

While they accepted the other suggestions and revised their maps accordingly (astro.ukho.gov.uk/moonwatch), they did not consider one or two world record sighting records were sufficient to change their maps. The ICOUK website prefers to use HMNAO maps (Yallop/A+B), since they are sufficient for UK adverse weather conditions.

7.3 Using the crescent visibility maps for a given location or region, it is now possible to produce a predicted Hijri Calendar for civil purposes (e.g. for Ramadan/Eid holidays), which will also match actual observations, since cloudiness is a local phenomenon and the whole country or the region is not cloudy at the same time. The tables below show the predicted Hijri Calendar based on the "Regional Moon Sighting Criteria for the UK" as examples.

Hijri Calendar for UK (1437 AH)		
Month	Start Date	Days Cnt
Muharram	15/10/2015	29
Safar	13/11/2015	30
Rabi-I	13/12/2015	30
Rabi-II	12/01/2016	29
Jumada-I	10/02/2016	30
Jumada-II	11/03/2016	29
Rajab	09/04/2016	29
Sha'ban	08/05/2016	30
Ramadan	07/06/2016	29
Shawwal	06/07/2016	30
Dhul-Qa'dah	05/08/2016	29
Dhul-Hijjah	03/09/2016	30
	Total	354

Hijri Calendar for UK (1438 AH)		
Month	Start Date	Days Cnt
Muharram	03/10/2016	29
Safar	01/11/2016	30
Rabi-I	01/12/2016	30
Rabi-II	31/12/2016	30
Jumada-I	30/01/2017	29
Jumada-II	28/02/2017	30
Rajab	30/03/2017	29
Sha'ban	28/04/2017	29
Ramadan	27/05/2017	30
Shawwal	26/06/2017	29
Dhul-Qa'dah	25/07/2017	29
Dhul-Hijjah	23/08/2017	30
	Total	354

⁶ "And [as for] the moon - (read *wa'l-qamaru*, in the nominative, or *wa'l-qamara*, in the accusative; and it may be in the accusative because of a following verb that governs it) We have determined it, with respect to its course, [to run] in phases - twenty eight phases in twenty eight nights of every month; it becomes concealed for two nights when the month has thirty days, and for one night when it has twenty nine days - until it returns, during its final phase seeming to the [human] eye, like an aged palm-bough, in other words, like the stalk with a date cluster when it ages, becoming delicate, arched and yellowish." [Ref: Tafsir Jalalyan, Quran (38:39)]

8. Moon Sighting Questions

There are number of historical questions on how the moon sighting criteria evolved in the UK, as given below.

8.1 What was the moon sighting criteria followed by the UK Muslims prior to 1986?

Early Muslim immigrants to the UK used to follow the moon sighting news from their country of origin, but as the community became more established they decided to follow their own local sighting by the naked eye or (in the event of persistent adverse weather conditions in the UK) to borrow it from Morocco, the nearest Muslim country to the UK. This was agreed by in an all-party conference in 1984 at London Regents Park Mosque (see Reference).

8.2 What was the moon sighting criteria followed by the UK Muslims after 1986?

The moon sighting news from Morocco used to arrive by fax to a shopkeeper and he used to rely the news to the scholars of the sighting report. Once on 29th Ramadan it arrived very late after the shopkeeper had closed the shop for the night and found it next morning that the moon of Shawwal was sighted in Morocco the night before. There was a dispute amongst some of the senior UK scholars as to break the fast and celebrate Eid on that day or to continue keeping the fast and celebrate Eid on the next day. This was the cause of the split where one party decided to start following Saudi Arabia and the other party continued to follow Morocco as per 1984 agreement.

8.3 Who are the Wifaqul Ulama and what is their moon sighting criteria since 2006?

Since the above split in 1986, the vast majority of the UK Muslims started following Saudi Arabia for convenience as the news arrived well before UK sunset times and a day or two before Morocco. However, due to world-wide moon sighting reports by ICOP members and publication of various research papers, it became apparent that the news from Saudi Arabia was doubtful, if not totally wrong. This awareness lead to a few courageous Imams and Scholars to break away from following Saudi Arabia in 2006 to form an organisation by the name Wifaqul Ulama to establish local moon sighting. If it is not possible to locally sight the Hilal, then their criteria is to follow verified sighting reports from East of UK/Morocco on the 29th date, otherwise completing the month as 30-days. This group became known to ICOUK members in 2008 and since then they have been promoted by ICOUK members to revive the Sunnah of local moon sighting in the UK.

8.3 When did Wifaqul Ulama started following moon sighting reports from South Africa?

The initial moon sighting criteria by Wifaqul Ulama was to follow local moon sighting news (and to use astronomical data as a guide) or to follow news from Morocco. However, in 2008 Mufti Ebrahim Desai from South Africa visited various UK cities and was asked to provide moon sighting reports from Jamiatul Ulama South Africa.

There are numerous fatawa from many senior Ulama of the Indian subcontinent for UK to follow Morocco moon sighting only in the event of persistent adverse UK weather conditions, but not any further. Here is an extract:

“There is a far greater distance between Britain and Saudi whereas Morocco is a lot closer to Britain. To abandon a close country’s sightings and to accept Saudis sighting, is in contradiction with the principles of Fiqh.”

[Mufti Habibur Rahman, Mufti Darul-uloom Deoband, 18th of Safar 1424 AH] – Ref: www.central-mosque.com

The distance from London (UK) to Rabat (Morocco) is about 1,660 miles, to Makkah (Saudi Arabia) is about 3,880 miles and to Cape Town (South Africa) is about 8,240 miles. *If UK following Saudi Arabia is in contradiction to the principle of fiqh as stated above, how does UK following South Africa become in conformity to the principle of fiqh when it’s more than twice as far from Saudi Arabia?*

When Maulana Samiruddin Qasmi, a senior member of Wifaqul Ulama was asked in c.2008 for the reason, he said it was to reduce the differences of 2-days Eid celebration with Saudi Arabia. Since 2012, Saudi Supreme Court has adopted the revised Ummul Qura calendar (2002) as the minimum criteria for witness reports, reducing the difference to 1-day or None.

Therefore, it is most important for Wifaqul Ulama (and others) to review their moon sighting criteria and ignore any moon sighting report from South Africa (even though it may be reliable) and adopt a more cautious approach of Regional Moon Sighting criteria as explained in this document. *Is it appropriate to adopt a weak method for the sake of about 2 days in 36 months (5%), when in vast majority of the cases (95%) there is no need to consider it?*

9. Summary and Conclusions

This paper has tried to explained the important of moon sighting for the UK by discussing the following:

- 9.1 To establish a lunar calendar by sighting the moon is a command of Allah and the Sunnah of Prophet Muhammad (صلى الله عليه وسلم) and his Sahabah (رضي الله عنهم).
 - 9.2 To start and end each and every month by local moon sighting is also established from the Sunnah, including Ramadan and Dhul Hijjah.
 - 9.3 The Prophet Muhammad (صلى الله عليه وسلم), has always followed local moon sighting and did not borrow the news from distance places (e.g. Makkah to Madinah).
 - 9.4 The concept of “Global Moon Sighting” is a linguistic interpretation, which has never been practiced by the Muslim Ummah for past 1400 years and it is not possible due to the spherical earth and time-zone differences.
 - 9.5 If local sighting is not possible due to abnormal geographical location, such as in the UK, then “Regional Moon Sighting” is probably a more correct interpretation of “Global Moon Sighting” mentioned in Fiqh texts.
 - 9.6 There must be a time-limit by which the news of moon sighting must be considered, which was found to be between Maghrib (sunset) and Isha (dusk), i.e. between 1 - 1.5 hrs (for UK Summer and Winter seasons).
 - 9.7 In consideration of how far East or West the moon sighting news can be obtained from for the UK, it was found to be between Berlin (Germany) to the East and Dakar (Senegal) to the West for UK Maghrib to Isha times.
 - 9.8 Since the first visibility of moon shifts in both East-West and North-South directions, any moon sighting news for the UK must not cross the Equator, to avoid the moonset-before-sunset and change of season problems.
 - 9.9 To avoid mistakes from individuals or solo observers, group sighting (*Jamme Gafir*) is a must for clear sky conditions, especially if astronomical data shows there is very little or no chance of sighting the moon.
 - 9.10 According to our ICOP contacts, there are a few individuals in Europe (e.g. Germany) and North Africa (e.g. Algeria) who may be willing to help any future UK delegation to visit those countries for moon sighting, if needed.
 - 9.11 It is not necessary for the UK to follow Hilal news from far places in the East, such as Saudi Arabia or South Africa, since any moon sighting from the East must be seen in the West, such as on the UK/Morocco horizons.
 - 9.12 The lunar months have some visible and invisible phases as explained in the Tafsir Jalalyan, which can be accurately predicted by the crescent visibility map calculations and proven with actual observation results.
 - 9.13 By defining the “Regional Moon Sighting” zone for naked eye sighting, it is possible to use visibility maps (with consideration of seasons) to prepare Hijri calendars for civil purposes, which will match actual sightings.
 - 9.14 The past Muslim leaders/scholars have made great sacrifices to develop a unified moon sighting criteria to unite all the UK Muslims and this paper has built-on those efforts to suggest an improved criteria for greater unity.
 - 9.15 Regular moon sighting efforts must be continued on the 29th (and the **next day**) and reported to the Moon Sighting UK website for future analysis with a view to develop a more reliable moon sighting calendar for the UK.
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10. References

1. [Hilal Sighting & Islamic Date Solutions InshaAllah by Dr Salman Shaikh \(2007\)](#)
2. [ISNA's Eid al-Adha Evaluated by A Renowned Scholar \(Mufti Taqi Usmani, 1998\)](#)
3. [The 4th Meeting of the Muslim World League Fiqh Council \(1981\) – see Appendix 1](#)
4. [Darul Uloom Deoband Fatwa to follow moon sighting news from Morocco \(1424/2003\)](#)
5. Tafsir Ibn Kathir, Tafsir Qurtubi, Tafsir Jalalyan and Tafsir Mariful Quran
6. The History of the UK following Saudi Arabia by Mufti Muhammad Yusuf Danka (2010)
7. Email communication between Engineer Qamar Uddin and Dr Steve Bell (2015) – see Appendix 2
8. The Islamic Calendar according to Muslims in the UK by Mufti Amjad Mohammed (2015)

11. Appendix 1

The 4th Meeting of the Muslim World League Fiqh Council (1981) on **Local Moon Sighting**



The 4th Meeting of the Council
From 7th of Rabi Al-Thani-17th of Rabi Al-Thani 1401 Hijri
11th of Feb-21st of Feb 1981

القرار السابع

في بيان توحيد الأهلة من عدمه

الحمد لله وحده، والصلاة والسلام على من لا نبي بعده.. أما بعد :

لقد درس المجمع الفقهي الإسلامي مسألة اختلاف المطالع في بناء الرؤية عليها، فرأى أن الإسلام بني على أنه دين يسر وسماحة، تقبله الفطرة السليمة، والعقول المستقيمة، لموافقته للمصالح، ففي مسألة الأهلة، ذهب إلى إثباتها بالرؤية البصرية لا على اعتمادها على الحساب، كما تشهد به الأدلة الشرعية القاطعة، كما ذهب إلى اعتبار اختلاف المطالع، لما في ذلك من التخفيف على المكلفين، مع كونه هو الذي يقتضيه النظر الصحيح، فما يدعيه القائلون من وجوب الاتحاد في يومي الصوم والإفطار مخالف لما جاء شرعاً وعقلاً، أما شرعاً فقد أورد أئمة الحديث، حديث كريب، وهو أن أم الفضل بنت الحارث بعثته إلى معاوية بالشام قال: فقدمت الشام، فقضيت حاجتها، فاستهل علي شهر رمضان وأنا بالشام، فرأيت الهلال ليلة الجمعة، ثم قدمت المدينة في آخر الشهر فسألني عبد الله بن عباس -رضي الله عنهما- ثم ذكر الهلال فقال: متى رأيت الهلال؟ فقلت: رأيت ليلة الجمعة فقال: أنت رأيت؟ فقلت نعم ورآه الناس، وصاموا وصام معاوية، فقال: لكن رأيت ليلة السبت، فلا نزال نصوم حتى نكمل ثلاثين أو نراه، فقلت: أو لا نكتفي برؤية معاوية وصيامه؟ فقال: لا، هكذا أمرنا رسول الله ﷺ (رواه مسلم في صحيحه).

وقد ترجم الإمام النووي على هذا الحديث في شرحه على صحيح مسلم بقوله (باب بيان أن لكل بلد رؤيتهم، وأنهم إذا رأوا الهلال ببلد، لا يثبت حكمه لما بعد عنهم) ولم يخرج عن هذا المنهج من أخرج هذا الحديث من أصحاب الكتب الستة أمي داود والترمذي والنسائي في تراجمهم له.

وناط الإسلام الصوم والإفطار بالرؤية البصرية دون غيرها، لما جاء في حديث ابن عمر -رضي الله عنهما- قال قال رسول الله ﷺ (لا تصوموا حتى تروا الهلال، ولا تفطروا حتى تروه، فإن غم عليكم فاقدروا له). رواه البخاري ومسلم في صحيحيهما. فهذا الحديث علق الحكم بالسبب، الذي هو الرؤية، وقد توجد في بلد كمكة والمدينة، ولا توجد في بلد آخر، فقد يكون زمانها نهاراً عند آخرين، فكيف يؤمرون بالصيام أو الإفطار؟ أفاده في بيان الأدلة في إثبات الأهلة - وقد قرر العلماء من كل المذاهب: أن اختلاف المطالع هو المعتبر عند كثير، فقد روى ابن عبد البر الإجماع على ألا تراعى الرؤية فيما تباعد من البلدان: كخراسان من الأندلس، ولكل بلد حكم يخصه - وكثير من كتب أهل المذاهب الأربعة طافحة بذكر اعتبار اختلاف المطالع، للدلالة القائمة من الشريعة بذلك، وتطالعك الكتب الفقهية بما يشفي الغليل.

وأما عقلاً: فاختلاف المطالع لا اختلاف لأحد من العلماء فيه، لأنه من الأمور المشاهدة، التي يحكم بها العقل، فقد توافق الشرع والعقل على ذلك، فهما متفقان على بناء كثير من الأحكام على ذلك التي منها أوقات الصلاة - ومراجعة الواقع تطالعنا بأن اختلاف المطالع من الأمور الواقعية - وعلى ضوء ذلك قرر مجلس المجمع الفقهي الإسلامي: أنه لا حاجة إلى الدعوة إلى توحيد الأهلة والأعياد في العالم الإسلامي؛ لأن توحيدها لا يكفل وحدتهم، كما يتوهمه كثير من المقترحين لتوحيد الأهلة والأعياد. وأن ترك قضية إثبات الهلال إلى دور الإفتاء والقضاء في الدول الإسلامية، لأن ذلك أولي وأجدد بالمصلحة الإسلامية العامة. وأن الذي يكفل توحيد الأمة وجمع كلمتها، هو اتفاقهم على العمل بكتاب الله وسنة رسوله ﷺ في جميع شؤونهم. والله ولي التوفيق. وصلى الله على نبينا محمد وآله وصحبه وسلم.

The 4th Meeting of the Council
 From 7th of Rabi Al-Thani-17th of Rabi Al-Thani 1401 Hijri
 11th of Feb-21st of Feb 1981

مجلس مجمع الفقه الاسلامي

نائب الرئيس



عبد الله بن محمد بن حبيب

محمد علي الحركان

عبد العزيز بن عبد الله بن باز

صالح بن عثمان

محمد محمود العوافي

مطفي احمد الزرقان

صالح بن عثمان

محمد محمود العوافي

مطفي احمد الزرقان

محمد الشاذلي النني

ميرزا العوادى

محمد بن عبد الله بن سبيل

محمد الشاذلي النني

ميرزا العوادى

محمد بن عبد الله بن سبيل

الوالحسن بن الحسن القدر

محمد رشيد قبانى

عبد القدوس الهاشمي

الوالحسن بن الحسن القدر

محمد رشيد قبانى

عبد القدوس الهاشمي

د. محمد رشيد

حسن بن محمد مطرف

ابو بكر محمود جويشى

د. محمد رشيد

حسن بن محمد مطرف

ابو بكر محمود جويشى

محمد سالم عبدود

محمود شيبه خطاب

محمد سالم عبدود

محمود شيبه خطاب





**The 4th Meeting of the Council
From 7th of Rabi Al-Thani-17th of Rabi Al-Thani 1401 Hijri
11th of Feb-21st of Feb 1981**

All Praise be to Allah alone, and peace and salutations be on the one whom after there is no Nabi (Prophet), there after (Ammu Baa'd):

The Islamic Jurisprudence Council has studied the issue of Difference in Horizons (*local sighting*) and establishing sighting criteria on it. The Council concluded Islam is basically an easy and accommodating religion; this is what individuals with sound nature, appropriate intellect follow since it yields benefits. In the matter of Moon sighting Islam established its visual sighting over calculation as proven by the clear evidences from the Shariah. Also, it adopted differences in horizons (*local sighting*) since it is easier for the ordinary Muslims to follow, although that is the implication upon detailed examination of the proofs. As for the promoters of unification of the beginning of the fasting month and its end is concerned they are in opposition of what is established by Shariah and sound intellect.

As far as the opposition to Shariah, the Scholars of hadith have narrated the hadith of Kuraib which is

(Book 006, Number 2391 added by translator)

Kuraib reported that Umm Fadl, daughter of Harith, sent him (Fadl, i. e. her son) to Mu'awiya in Syria. I (Fadl) arrived in Syria, and did the needful for her. It was there in Syria that the month of Ramadan commenced. I saw the new moon (of Ramadan) on Friday. I then came back to Medina at the end of the month.

Abdullah b. 'Abbas (Allah be pleased with him) asked me (about the new moon of Ramadan) and said: When did you see it? I said.: We saw it on the night of Friday. He said: (Did) you see it yourself? -I said: Yes, and the people also saw it and they observed fast and Mu'awiya also observed fast, whereupon he said: But we saw it on Saturday night. So we would continue to observe fast till we complete thirty (lasts) or we see it (the new moon of Shawwal). I said: Is the sighting of the moon by Mu'awiya not valid for you? He said: No; this is how the Messenger of Allah (may peace be upon him) has commanded us.

Imam Nawawi Classified this hadith in his commentary on Sahih Muslim under the heading "*chapter for every country there is its own sighting, if the moon is sighted in a country that sighting is not acceptable for far away countries*" and none of the authors of the six books of hadith who narrated the same hadith deviated from this methodology in their classification for this hadith like Tirmidhi, Abu Daud and Al-Nasa'i.

And Islam established the moon sighting by vision over all other means, because of what was narrated by Ibn Omar in his hadith in Bukhari and Muslim.

(Book 006, Number 2363 added by the translator)

Ibn Umar (Allah be pleased with both of them) reported Allah's Messenger (may peace be upon him) as saying in connection with Ramadan: Do not fast till you see the new moon, and do not break fast till you see it; but if the weather is cloudy estimate about it.



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This hadith established the reason for the obligation as sighting, so it (the Moon) may be sighted in Makkah and Madina while it may not be sighted in any other country, the time in other countries may be day instead of night, so how then we obligate the other people with Fasting or Iftaar? All the scholars from all Madhahib have concluded that "the difference of horizons (*local Sighting*)" is the answer, near a great majority of them, so much so that Ibn Abd Al-Bar (great Maliki Jurist) narrated an Ijmaa (*Judicial Consensus*) that moon sighting between far places like Khurasaan (Asia now) and Andalus (Spain now) is not considered and every country has its own specific sighting. A majority of the Books of Most Schools of Jurists (madhahib) are full of opinions in favor of "the difference of Horizons" because of the vast evidence in shariah in that regard, if one were to look at the books of Fiqh they will conclude the same and they will heal any contempt for this issue in their hearts.

Common sense dictates, local moon sighting is something that the scholars do not differ on, because it is obvious, and hence the intellect concludes the same. This is the same for the Common Sense and the Shariah's convergence on the times of prayer as well. So if one was to be an observer of the Natural order and reality of the differences in times he will conclude the same.

Hence the Council concludes in light of the above:

- 1-There is no need to peruse unification of Moon sighting and Festivals in the Islamic world. Because this pursuit will not guarantee the ummah's unification as the promoters of unification of Moon sighting and Festivals imagine.
- 2- That the matter of moon sighting be left to the Muslim countries and their Judicial and Juristic Councils, because that has priority as well as will yield the most benefit.
- 3-The only guarantee which will benefit the Muslims in unifying the ummah in its matters and issues is that they agree to abide by the Quran and Sunnah in all of their matters.

And Allah only guarantees success. And Peace and Salutations be on our Nabi and his Family and his companions.

Signatures of the Scholars on this Fatwa are:

Shiekh Abd al Aziz bin Abdallah bin Baaz

Abo Bakr Mahmood Jumeec



The 4th Meeting of the Council
From 7th of Rabi Al-Thani-17th of Rabi Al-Thani 1401 Hijri
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Shickh Saleh Al Othaymeen

Hassanian Mohammed Makhloof

Sheikh Mustafa Ahmad Zarqa

Dr.Mohammed Rashidi

Abu Al Hassan Al Nadawi

Mahmmod Shhet Khattab

Sheikh Mohammed Salih Adood

Mabrook al Awadi

Abdallah Ali Al Harkaan

Mohammed Rashid Qabbani

Abdallah bin Mohammed al Homaid

Mohammed Mahmood Al-Sawwaf

Mohammed bin Abdallah al Subayil

Mabrook al Awadi

Mohammed al Shdhali Nefier

12. Appendix 2

Email communication between Eng Qamar Uddin and Dr Steve Bell (2015) on **Visibility Map Differences**

----- Original Message -----

Subject: RE: HMNAO crescent visibility criteria (Yallop, 1997)

Date: 2015-09-11 10:14

From: HMNAO <hmnao@UKHO.gov.uk>

To: 'Qamar Uddin UK' <qamar.uddin@uk2.net>

Copy: HMNAO <hmnao@UKHO.gov.uk>

Dear Sir,

Thank you for your e-mails. I think the first things to point out is that the Moon visibility diagrams are there principally for guidance purposes. They should [not] be taken as being "definitive".

To base the criteria for the Danjon limit for the new crescent moon on a single observation for the last crescent moon seems premature. While I have no doubt that the Stamm observation is a valid one, the factors involved in establishing limits for the old and new crescent moons are probably subtly different. I would prefer to see new crescent moon observations supporting the Danjon limit used for the new crescent moon.

Most observers who have small telescopes probably don't have access to CCD cameras and to adjust Yallop's criteria in favour [of] a small group of observers with more advanced technology seems again premature. Yallop's criteria was originally established using telescopic observations with the human eyeball rather than with electronic assistance such as CCD cameras, web cams and the like. However, there may be a case for adding an extra criteria for more advanced observation techniques. This would have to be investigated carefully.

I will certainly review Odeh's 2004 paper as this will be a valuable source of observations.

Regards,

Steve

Dr. Steve Bell

Head, HM Nautical Almanac Office
United Kingdom Hydrographic Office
Admiralty Way
TAUNTON
Somerset
TA1 2DN

www.ukho.gov.uk / astro.ukho.gov.uk



please consider the environment before printing this email

----- Original Message -----

Subject: HMNAO crescent visibility criteria (Yallop, 1997)
Date: 2015-08-03 18:44
From: Qamar Uddin UK <qamar.uddin@uk2.net>
To: Steve.Bell, ukho@ukho.gov.uk

Dear Dr Steve Bell,

As you may be aware that many of our UK Muslim scholars use the [HMNAO crescent visibility maps](#) to verify crescent observation reports, especially for Ramadan and two Eids.

However, the differences between the HMNAO (Yallop, 1997) and other visibility maps, such as by [ICOP Crescent Observation Results](#) (Odeh, 2006) causes confusion.

As a result of the above differences, some of the Muslim scholars quite often accept erroneous observation reports (e.g. Shawwal 1435/Johannesburg) on the basis that the visibility maps are not accurate, anyway!

Therefore, could you please review the [published paper by Mohammad Odeh](#) and consider if the Yallop criteria can be updated with the additional observation data, especially the record telescope sighting report by Jim Stamm from Arizona (USA)?

If the above observation data cannot be accepted, then a short statement on your HMNAO website with the reasons (for the differences between visibility maps) would be appreciated.

Regards,

Qamar Uddin, ICOUK

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*Extract from Experimental Astronomy (2004) 18: 39–64; DOI: 10.1007/s10686-005-9002-5
C Springer 2006; NEW CRITERION FOR LUNAR CRESCENT VISIBILITY by Mohammad Odeh*

7.3. TOPOCENTRIC ARCL (ELONGATION) - p.24

The minimum elongation crescent seen by optical aid is 6.4 degrees (Stamm #797, at the time of last visibility at 13:09 UT); for naked eye observations this is 7.7 degrees (Pierce #274, at the time of first visibility at 23:55 UT.).

8. Danjon limit - p.25

Danjon (1936) found that no crescent can be seen when the Moon is less than 7 degrees from the Sun, because the arc length of the crescent is then zero. He attributed this effect to the shadow of the lunar mountains. McNally (1983) found a Danjon limit of 5 degrees and explained it by atmospheric turbulence (seeing) effects. Schaefer (1991) found that a Danjon limit of 7 degrees and showed that in that configuration the Moon brightness per unit length of lies actually below the eye's detection threshold. From our large database, we find a Danjon limit of 6.4 degrees from observation #697.

13. Comments from Moon Sighting Researchers

- Dr Salman Zafar Shaikh commented: "Your paper looks comprehensive and excellent MashaAllah. Also, you may want to include Shaykh Al-Othaimeen Fatwa for local [moon sighting for Ramadan](#) and for [Eid ul Adha](#). Also, reference the Shaykh Ibrahim Memon's paper [on moon sighting](#)".
- Dr Mamnun Khan commented: "This is one of the best succinct pieces of work I have yet read on this topic. It is a formidable proposal, a testament to your heavy contribution to this field of research. Allah will surely reward you abundantly".

14. Appendix 3 – Use of Optical Aid (added 9/2019)

The persistent adverse weather conditions of the UK make it difficult to see the youngest crescent moon (Hilal), which could be easily seen by the naked eye in perfect weather conditions in nearby countries (e.g. Morocco).

However, the excellent improvements made in the manufacture of telescope optics and computerised mounts in recent years mean, it is now possible to see the crescent moon by high-powered optical telescopes well beyond the capacity and capability of the average human eyesight.

The role of the telescope is not to create an object that does not exist (but rather to enhance the sighting of an object by making it bigger and brighter) without causing the premature date change (e.g. by CCD imaging) of a visibility-based calendar.

Therefore, it has been recommended to add this guidance note to the ICOUK Moon Sighting Criteria (2017), as stated below.

The use of optical aid is allowed in the UK provided the moon is possible to be sighted by the average naked eye of correct vision anywhere within the sighting zone (*Matale*), but not otherwise.

The sighting zone currently agreed includes the UK to Morocco region, which may change in the future as the number of sighters increases to combat adverse weather conditions in the UK.

The possibility of the sighting (*Imkan Al-Ruyat*) by the naked eye is defined as per HMNAO/Yallop Code A (or B above age 24 hrs)*, as informed by UK observation experiences over many years.

**or the equivalent in other published criteria (e.g. Odeh, NACSA, etc).*

Note: the purpose of restricting the use of optical aid above is to keep the moon sighting experiences within the reach of the general public (*Ruy'yat Ammah*) and not just for the selected few (astronomy experts)!

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