

# A Suggested Global Islamic Calendar

By Khalid Shaukat

Before we talk about the Islamic calendar, it is important to remind ourselves about what Qur'an and Hadeeth say about this subject.

The most relevant instruction from Allah subhanahu wa ta'ala is:

يَسْأَلُونَكَ عَنِ الْأَهْلِ قُلْ هِيَ مَوَاقِيتُ لِلنَّاسِ وَالْحَجِّ {البقرة 189}

*They ask thee concerning the New Moons. Say: They are but signs to mark fixed periods of time in (the affairs of) men, and for Pilgrimage. (Al-Baqarah 2:187)*

Remember, this is guidance for the whole mankind, not just for Muslims. The calendar should be for whole mankind. Allah subhanahu wa ta'ala also stressed that the calendar should be lunar with twelve months in a year.

إِنَّ عِدَّةَ الشُّهُورِ عِنْدَ اللَّهِ اثْنَا عَشَرَ شَهْرًا فِي كِتَابِ اللَّهِ يَوْمَ خَلَقَ السَّمَاوَاتِ وَالْأَرْضَ مِنْهَا أَرْبَعَةٌ حُرُمٌ  
{التوبة 37}

*The number of months in the sight of Allah is twelve (in a year) so ordained by Him the day He created the heavens and the earth; of them four are sacred. (Al-Taubah 9:36)*

Further, Qur'an says:

هُوَ الَّذِي جَعَلَ الشَّمْسَ ضِيَاءً وَالْقَمَرَ نُورًا وَقَدَرَهُ مَنَازِلَ لِتَعْلَمُوا عَدَدَ السِّنِينَ وَالْحِسَابَ مَا خَلَقَ اللَّهُ ذَلِكَ إِلَّا بِالْحَقِّ يُفَصِّلُ الْآيَاتِ لِقَوْمٍ يَعْلَمُونَ {يونس 5}

*It is He Who made the Sun to be a shining glory and the Moon to be a light (of beauty), and measured out stages for her; that you might know the number of years and the count (of time). Nowise did Allah create this but in truth and righteousness. (Thus) does He explain His Signs in detail, for those who understand. (Yunus 10:5)*

الشَّمْسُ وَالْقَمَرُ بِحُسْبَانٍ {الرحمن 5}

*The Sun and the Moon follow courses (exactly) computed. (Al-Rahman 55:5)*

Allah subhanahu wa ta'ala has created the Sun and Moon and both of them move according to precise and pre-defined patterns. Knowledge of these patterns help people calculate time, days and years, as mentioned in Surah Yunus, Ayah 5 mentioned above. This pattern is not only for prayer times, but it is for all time periods like the beginning of a month throughout the year. Allah subhanahu wa ta'ala tells us that we should pray our daily Salah and begin and end our fasts based on the movement of the sun.

أَقِمِ الصَّلَاةَ لِذُلُوكِ الشَّمْسِ إِلَى عَسْقِ اللَّيْلِ وَقُرْآنَ الْفَجْرِ إِنَّ قُرْآنَ الْفَجْرِ كَانَ مَشْهُودًا {الإسراء 78}

*Establish regular prayers -with the sun's decline till the darkness of the night, and the morning prayer and reading: for the prayer and reading in the morning carry their testimony. (Al-Isra' 17:78)*

....وَكُلُوا وَاشْرَبُوا حَتَّى يَتَبَيَّنَ لَكُمُ الْخَيْطُ الْأَبْيَضُ مِنَ الْخَيْطِ الْأَسْوَدِ مِنَ الْفَجْرِ ثُمَّ أَتِمُّوا الصِّيَامَ إِلَى اللَّيْلِ ....  
(البقرة 187)

.... and eat and drink, until the white thread of dawn appear to you distinct from its black thread; then complete your fast Till the night appears.... (Al-Baqarah 2:187)

The Prophet –peace be upon him- in explaining these rules told us how to observe the movements of the sun to establish the timings of daily Salah and the beginning and ending of the daily fasts. Similarly he told us how to begin and end the Islamic months.

سَمِعْتُ أَبَا هُرَيْرَةَ رَضِيَ اللَّهُ عَنْهُ يَقُولُ قَالَ النَّبِيُّ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ أَوْ قَالَ قَالَ أَبُو الْقَاسِمِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ صُومُوا لِرُؤُوسِهِ وَأَفْطِرُوا لِرُؤُوسِهِ فَإِنْ غُبِيَ عَلَيْكُمْ فَأَكْمِلُوا عِدَّةَ شَعْبَانَ ثَلَاثِينَ (البخارى 1776)  
“Fast with sighting it (Moon) and break the fast with sighting it. Complete 30 days of Sha’aban if it is cloudy.” (Al-Bukhari 1776)

He –peace be upon him- also said,

عَنْ نَافِعٍ عَنْ عَبْدِ اللَّهِ بْنِ عُمَرَ رَضِيَ اللَّهُ عَنْهُمَا أَنَّ رَسُولَ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ ذَكَرَ رَمَضَانَ فَقَالَ لَا تَصُومُوا حَتَّى تَرَوْا الْهَلَالَ وَلَا تُفْطِرُوا حَتَّى تَرَوْهُ فَإِنْ غَمَّ عَلَيْكُمْ فَأَقْدِرُوا لَهُ (البخارى 1773)  
“Do not fast until you see the Crescent and do not break the fast until you see it. Estimate about it in case it is cloudy.” (Al-Bukhari 1773)

1. The Prophet –peace be upon him- wanted that Muslims should make sure that the month has begun before they start their ‘Ibadah of fasting so that they be united in their observance of this act of worship together. He also told us that we should make sure that this month has ended so that we may have our celebration of Eid together.

2. The Prophet –peace be upon him- also said in this context:

3.  
حَدَّثَنَا سَعِيدُ بْنُ عَمْرٍو أَنَّهُ سَمِعَ ابْنَ عُمَرَ رَضِيَ اللَّهُ عَنْهُمَا عَنِ النَّبِيِّ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ أَنَّهُ قَالَ إِنَّا أُمَّةٌ أُمِّيَّةٌ لَا نَكْتُبُ وَلَا نَحْسِبُ الشَّهْرُ هَكَذَا وَهَكَذَا يَعْنِي مَرَّةً تِسْعَةً وَعِشْرِينَ وَمَرَّةً ثَلَاثِينَ (البخارى 1780)

“We are an unlettered people; we do not know how to write and how to calculate. The month is thus and thus, meaning either 29 days or 30 days.” (Al-Bukhari 1780)

## How We Can Make Global Islamic Calendar

From the time of Sahabah to the present, for centuries Muslims observed the movement of the sun according to the Qur'an and Sunnah. They observed the movement of the sun by their naked eyes every day for their five daily prayers. When clocks were invented, Muslims changed this method and started using calculated movements of the sun. They did so even though there was no Ayah or Hadith that provide for using calculations for Salah. They established the timings of daily Salah and developed perpetual Salah timetables that can be used throughout the year. Now, instead of physically watching movements of the sun, we can follow a timetable that is based on the calculations of the movements of the sun. No one disputes the use of calculated times for Salah and no one considers it a bid'ah (innovation), or forbidden in Islam.

The Prophet –peace be upon him- was fully aware of the condition of his people at that time and he gave them the instructions according to their capacity. He gave them a method that was easy and simple so that they could start and end their months with confidence and according to the natural moon cycles decreed by Allah subhanahu wa ta'ala.

Muslims in general continued sighting the Crescent (Hilal) to begin and end their month of Ramadan and celebrate Eid. It was easy in those days, and unity for distant localities was not an issue, because the communication to other localities was not easy. Now the whole world is a global village (one entity) because of instant and fast communication. Moreover, we are living in a time when we have to plan Eid and Ramadan way ahead of time, and we cannot remain uncertain until the last moment. Further, the science and computers advancement have put us in a position that we can accurately calculate the position and cycles of the moon. That is where calculation can help us determine the beginning of a new month ahead of time and for the unity of Ummah, we must have calculations applicable to the whole world as one unit.

It is reported that among the great Tabi'in, Mutarrif ibn Abd-Allah held the opinion that calculations of Hilal can be used for Ramadan. Imam Taqiuddin al-Subki a great Shafi'i jurist even said that calculation were more reliable than eye sighting. When Muslims learned writing and calculations and became more knowledgeable about the Moon and its various phases, more voices were raised to rely on the calculations of the Hilal instead of its physical sighting. Most jurists did not accept calculations because they were not sure whether the calculations were correct or could be trusted. With the development of astronomical sciences in the last one hundred years more and more voices are being raised by jurists in support of calculations. One of the famous Muhaddith Shaikh Ahmad Muhammad Shakir wrote a long article emphasizing that calculation is the most appropriate method of determining the lunar months and it is permissible.

The objective of the Shari'ah is that Muslims begin and end the month of Ramadan with assurance and be united in the observance of these blessed times. The objective of the Shari'ah is not that Muslims merely conduct Moon sightings or remain uncertain about their time of 'Ibadah until the last minute. The astronomical sciences are highly advanced today and more reliable methods are available to know the beginning of the lunar months. On the basis of the principles of the Shari'ah just as the timetable for Salah and Siyam are prepared, it is possible to prepare the calendars for the lunar months and for the beginning and end of Ramadan. This knowledge is now available and can be used.

A suggested method that fulfills the basic requirement of the Shari'ah is based on two principles:

- a. The new Moon is born. This means that the conjunction must have taken place.
- b. The new Moon has become Hilal. Enough time has passed to make it sightable.

The dates and locations, when and where the New Crescent Moon becomes visible after the New Moon phase depends on many factors. These factors are the geometry of the Sun, Moon, and horizon; the width of the crescent; the Moon's surface illumination, the absorption of the Moon's light and the scattering of the Sun's light in the Earth's atmosphere (temperature, pressure and humidity); and the human optics. Some of these factors can never be put in calculations for practical reasons.

By scientific calculations we know very accurately and definitely when the conjunction has taken place and the new Moon is on the way to become Hilal. It becomes Hilal when it has moved to certain degrees away from the line joining the centers earth and sun, such that the light of the sun can reflect from the moon and can come to the earth.

By scientific knowledge and decades of research correlating observations of Hilal with calculated parameters of the moon we know where on earth the Hilal has formed to be visible. Whether people see it or not depends on many factors (such as clouds, atmospheric pollution, city light pollution, humidity particles in the air, or just being present in the location where it can be seen, etc.). Given these facts, actual sighting would be less reliable than accurate calculations to know definitely that the Hilal is there.

Sighting of the Hilal has generated a lot of controversies and divisions in the Ummah today. In Muslim countries the official bodies make the decision. Some people and some mosques still differ. Countries where Muslim minorities live, there is more division. In Western Europe and North America Moon sighting has become a much more divisive issue.

The method of determining the beginning of an Islamic month suggested here is based on the principles of the Shari'ah. It complies with the Sunnah of our beloved Prophet –peace be upon him- and it uses our growing and advanced scientific astronomical knowledge. By accepting this method we can unite ourselves and can take the benefit of knowing our important dates in advance. This is an important benefit and it will save us many difficulties that we and our young Muslims (students) go through every year during Ramadan and Eid.

Lets us first examine what scientific knowledge we can use to construct a global Islamic calendar.

- Muslims have attained advanced scientific knowledge and are able to calculate the position of the moon and birth of moon quite accurately.
- Visibility calculations cannot be 100% accurate, as it involves changing atmospheric conditions and human optics.
- Visibility is affected by pressure, temperature, and humidity in the atmosphere and it varies with the eye-sight, experience and age of the observer, city lights, and pollution in the atmosphere.

Therefore, it would be best to use the moon-birth calculation with the probable sightability somewhere on earth, be it a continent, an island, or an ocean.

### **Three things are needed to construct a global Islamic calendar:**

- Moon must have completed its cycle around the earth, which means that new moon must be born.
- Hilal must be formed and must be sightable somewhere on earth (Ittihadul-Mataal'e concept).
- Synchronization with the day convention is desirable so that all Muslims in the world observe religious duties on the same day.

### **With these considerations a suggested global Islamic calendar is as follows:**

- Use astronomical calculation to determine the beginning of the Islamic lunar months with the consideration of the sightability of the Hilal anywhere on the globe.
- To determine a global Islamic lunar calendar, the most logical conventional point of reference is the International Date Line (IDL). [Why IDL? Is explained later]
- If the moon is born between 0:00 - 12:00 UT the Islamic month begins at sunset of the day everywhere in the world.
- If the moon is born between 12:00 - 23:59 UT the Islamic month begins at sunset of the next day everywhere in the world.

### **Why IDL is Chosen as a Reference?**

- International Dateline is practically used as a reference point for beginning of every day, which has been accepted by All Muslims e.g., to pray Friday prayers all over the world on a day that starts with IDL and ends with IDL.
- This would synchronize the day convention used by the whole world to the Islamic day, such that every Gregorian dates has one corresponding Islamic date.
- Selecting 0:00 to 12:00 UT means that the moon is born before the day begins at the IDL, and is sightable somewhere in the world on that day.
- If the moon is born between 12:00 to 23:59 UT, it means that the moon is born after the day begins at the IDL, and the monthly cycle of the moon is not completed yet. So, the month begins on the evening of the next day.

- Use of UT makes it easy to compare the New Moon Birth Time that is always given as UT in Almanacs and other observatories web sites. So that any ordinary informed Muslim will be able to make the Islamic calendar without any calculations.

## **Benefits of Adopting Global Islamic Calendar**

- Muslims would not have to wait for actual sighting and for the decision by the authorities until past mid-night.
- Chaos of mistaken claims of sighting would be eliminated.
- Knowing the Islamic dates ahead of time will remove unnecessary financial burdens in planning and making arrangements for Eidain.
- Muslims of the world will be more united in observance of Ramadan, Eidain, and other Islamic holidays.
- Muslims in Non-Muslim countries can get there Islamic Holidays officially recognized, by the school and college systems and the governments.

## **Conclusions**

Allah subhanahu wa ta'ala has given us knowledge about motions of earth and moon, which he talks about in Qur'an. Calculations meet the intent of Qur'an and Sunnah and the benefits greatly surpass the consequences faced by false claims and waiting for a decision past mid-night. Global Islamic calendar will unite all Muslims in the world for religious observances.

Alhamdu-lillah, Fiqh Council of North America (FCNA) accepted this suggested calendar in 2006, and since then every year more and more communities in North America are following FCNA's decision. The same suggestion was discussed in detail in 'The Experts' Meeting to Study the Subject of Lunar Months' Calculation among Muslims in *Rabat, Morocco, 9-10 November 2006*.

We pray to Allah subhanahu wa ta'ala to keep us on the right path and help us keep our minds open for ideas that are consistent with new knowledge without contradicting the basic principles of Islam. Ameen!

## **About the Author**

Khalid Shaukat has made significant contribution in research work in visibility of the crescent moon. He collected actual sighting information from different places all over the world and correlated observations with calculations of parameters important for visibility. For over 30 years, he has been developing and improving the criteria to predict the visibility of the crescent moon. He has published several articles on moon sighting in Islamic Science Journal, and periodicals of the Islamic Society of North America (ISNA), and of the Islamic Circle of North America (ICNA). He has presented papers at Islamic seminars on various occasions, including the ISNA Annual Conventions for many years every year. He has given lectures on Moon-sighting in many countries (USA, Canada, Bermuda, Trinidad & Tobago, Guyana, UK, Morocco, and Kenya).

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