

# Which Hilaal (Islamic Crescent) to Follow ?

## Reasons for Islamic dates confusion and their solution Insha'Allaah

Alhamdulillah. WaSalaatu WasSalaamu Ala Rasoolillaah. Aoothobillaahi  
MinasShaytaanirRajeem. BismillaahIrRahmaanIrRaheem. RabbishRahli Sadri Wa Yassirli Amri  
WahlulUqdatan Millisaani Yafqahoo Qauli.

### **Abstract**

There has been considerable confusion and bitterness about the dates of our Islamic festivals, especially for Muslims living in non-Muslim countries, where different approaches result in Eid etc. in the same town and sometimes in the same Masjid to be celebrated on two or even three different dates! This paper investigates the facts including important information from the Ulema and Astronomers of Saudi Arabia, and presents an approach to reach accurate dates acceptable to a very broad consensus of Ulema Insha'Allaah. It recommends procedures for accurate Islamic dates for "religious" purposes as well as proposals for "Civil" use Hejiri Calendar.

### **Motivation**

For a long time, many Muslims in many parts of the world have experienced considerable confusion and bitterness about the dates of our Islamic festivals, which should really be occasions for happiness and getting together. The celebrations of the Eids, and the fasting of Ramadaan have been marked by emotional and sometimes "un-brotherly" exchanges, devoid of mutual understanding, contrary to the very spirit of our Deen. This is especially true for Muslims living in non-Muslim lands like North America, where different Muslim groups tend to follow different approaches resulting in Eid etc. in the same town and sometimes in the same Masjid to be celebrated on two or even three different dates!

First of all, let me clarify that Insha'Allaah for all of us, the goals are the same: We would like Muslims to be united, and celebrate the Islamic occasions including start of Ramadaan, 27<sup>th</sup> of Ramadaan, EidUlFitr, EidUlAdha etc. together correctly Insha'Allaah. But often the approach to "Unity" is that "I am right, I won't listen to you, and just follow me". I humbly feel that honest search, open communication, mutual understanding, and trying to obtain the facts is an essential pre-requisite. And most importantly, we should sincerely make du'a that Allaah (SWT) forgive, guide and help us all. Aameen. All that is required from us is sincere & proper efforts & du'a. The results are in the hands of Allaah (SWT).

### **Background**

I recall since the 1400s AH / 1980s G, when I was a student in New York city, there were two main behaviors in the American Muslim community regarding Hilaal sighting and Ramadaan & Eid dates:

The first behavior, which was common among many immigrant Muslims was to follow their “own” Muslim countries rather than local sighting in North America. Some suggested that Muslims in North America had not yet matured to organize our own local sighting. With time there was a realization that Muslims in North America have made a good effort Alhamdulillah, to do local sighting, especially with the coordination of ISNA (Islamic Society of North America), ICNA, WDM and NC which together formed the Islamic Shooraa Council of North America Alhamdulillah. Most people then gave up on following their “own” countries. But still some insisted on following the announcement from Saudi Arabia, which was often ahead of sighting (including my personal sighting) in America, and also almost always one or often even two days ahead of sighting reported from countries east of Saudi Arabia e.g. India, Pakistan and Bangladesh. Others said that it was incorrect to fix any particular place (e.g. Saudi Arabia) for deciding the date worldwide, as there are only two opinions of the Ulema – Ikhtilaf AlMatale (every place do local sighting) and Ittihaad AlMatale (sighting in one place suffices for all). This second opinion means that sighting anywhere in the world e.g. USA / India / Libya / Nigeria etc. should be as valid in establishing the date worldwide including Saudi Arabia as the sighting in Saudi Arabia. Thus we can’t fix Saudi Arabia as the only sighting place for worldwide decision.

The other behavior was based on the idea that it was sufficient to follow the calculated dates while others insisted on actual physical Hilaal sighting in conformance with the Sunnah. Further, there were many “types” of calculations. I got into contact with good practicing Muslim astronomers like Dr. Mohib Durrani and Br. Khalid Shaukat, and learnt that first of all one has to do the calculations for the Visible Crescent, and not the calculations for the dark invisible astronomical new moon, which is typically one day before the Hilaal. Similarly Moonset after Sunset does NOT mean that the Hilaal will be visible. The main criterion for Hilaal visibility is the angular separation between the Sun and the Moon at sunset. There are excellent models for predicting naked-eye visibility of Hilaal now available Alhamdulillah including Shaukat, Durrani, Yallop, Ilyas, many on MoonCalc by Dr. Monzur Ahmed ([//www.ummah.net/ildl/mooncalc.html](http://www.ummah.net/ildl/mooncalc.html)). Also, there are about 20% cases when the calculation would not give a definite answer as the point of observation lay within the “zone of uncertainty” and then physical sighting would be the only recourse. My own sighting experience in America always confirmed the predictions of Br. Mohib and Br. Khalid. But usually the Saudi announcements were at least a day ahead of the predictions.

So the natural question was – is there some problem in the Saudi Announcement ? If the Saudi sighting is correct, then the Hilaal should be more easily seen in USA where the sunset is several hours later and hence there would be no conflict regarding the Eid date in America. Also, how come at times the Saudi announcement indicates sighting of Hilaal when the moon sets before sunset there, and even before the birth of the dark invisible astronomical new moon! Further, even the following simple reasoning cast doubt in Saudi dates: The world being a globe, any place round the world (on the same latitude), should over time be equally likely to be the *first place* to sight the Hilaal. Hence for some years, the sighting in USA should be before sighting in Saudi Arabia. But if every year the Saudi announcement is ahead of the sighting in USA, the question arises: Are there some errors ?

## **Stay in Saudi Arabia**

Against the backdrop of these questions, Allaah (SWT) gave me a chance to work and stay in Saudi Arabia for about 5 years (1416-1421H / 1995-2000G). I wanted to use my stay to find out about the system for Hilaal sighting there, and to check my personal sighting attempts there. I also wanted to find more about the “UmmUIQura Calendar”. First, as was perhaps expected, I found that most local people had no idea of any mistakes in the Saudi announcements for Hilaal, and an extremely small percentage of my local Saudi practicing Muslim friends had ever attempted to sight the Hilaal in their life. Then Alhamdulillah I was able to meet some Astronomers and also find that the UmmUIQura Calendar is designed in KACST – the prestigious King Abdul Aziz University for Science and Technology in Riyadh.

### **UmmUIQura Calendar**

The local Astronomers brothers I met were very warm and welcoming. I found that there has been a major change in the UmmUIQura Calendar computation criteria starting 1420H. Before that year, the UmmUIQura calendar was based on Greenwich and not Makkah. Also it was based on the dark invisible Astronomical new moon being born. Thus it was totally different from the actual Hilaal observation. Starting about 1420H, the new criterion is that the Moonset be after Sunset in Makkah (even by one second). Starting 1423H Insha’Allaah it will again change slightly to directly take the astronomical new moon (conjunction) also into account. But the main input I got was that the UmmUIQura calendar was for CIVIL use only, and NOT for predicting the Hilaal for religious dates. The Astronomers were well aware that the moonset needs to be after sunset by a long time, and not just one second (along with other factors) for the Hilaal to be visible. But the point was that the UmmUIQura calendar neither attempts nor claims to predict the Hilaal. It is merely used for the official dates in the Ministries, schools, Saudia Airlines, and indeed all over the country Alhamdulillah. Also, the local Astronomers were very well aware that there were a LOT of errors in the Saudi announced dates.

### **Official Saudi Hilaal Sighting Committees**

Further, I was found that due to the Saudi Government becoming aware of the complaints of errors in the announced dates, around 1419H, the ruling council ordered the formation of Hilaal sighting committees. Each such committee includes:

- one member of Qada (Islamic Scholar/Justice department),
- one member of KACST/Astronomer,
- one member of Imarah (ruling council of the city), and
- volunteers.

As of 1421H / 2000G there were six such committees in Saudi Arabia - near Makkah, Riyadh, Qassim, Hail, Tabuk and Asir. While they may carry a telescope with them, the official sighting of the committee is with *naked eye* only. Saudi scholars like Sheikh AlOthaimen (RH) are against use of telescopes. Sheikh AlOthaimen (RH) for example indicated that using telescopes increases the “Takalluf” (Burden) on Muslims, which Allaah (SWT) does not want.

These official committees seemed to be a wonderful news and excellent solution Alhamdulillah. So why should there still be a problem ? Well, the answer is as follows:

## **Variance of Results**

The problem is because even though these 6 official Hilaal sighting committees exist, the Justice department still accepts the witness of “any” Muslim and not just the 6 official committees mentioned above. Thus, often the new month is declared while NONE of these 6 official Hilaal sighting committees saw the Hilaal. In fact, most people, including scholars are unaware of the existence of these official committees. In the case of EidUIFitr 1420H, I myself went with the Makkah committee to a sighting point on a hilltop of Shamesi outside the city of Makkah Mukarramah on Thursday evening. Neither we, nor the other 5 committees sighted the Hilaal. But we came back to the Haram Shareef and were astounded to hear the announcement that EidUIFitr was next day (Friday). In fact moonset was before sunset in Makkah for Thursday evening. In this case the error was quite brazen. Later I learned that Sheikh Yusuf AlQaradawi issued a Fatwa indicating that Muslims who celebrated Eid 1420H on Friday following the Saudi announcement should make up one missed Ramadaan fast. (See Illustration 2). Further, the Solar eclipse of Feb 5, 2000G also proved the mistake in Eid date, according to Sheikh AlOthaimeen (RH)’s Fatwa on Solar Eclipse which implies that if there is a solar eclipse anywhere in the world after sunset in your city, then next day is not the 1st of lunar month for your city. The solar eclipse implied that if the Saudi announcement for EidUIFitr 1420 was correct, then Shawwal 1420 would be 31 days which is impossible. (See Illustration 6). I also learned that apparently it is the same few people at certain locations, reporting on those occasions when the claims are *extraordinarily* early in Saudi Arabia, year after year. Wallaahu A’alam! I wondered if the presence of numerous objects in the sky today could cause errors. (E.g. see Airplanes, wisp of clouds, crescent of planets, satellites, or even a white hair in the eye, etc.). I was also told by more than one knowledgeable local brothers that there have been some claims to journalist of Hilaal sighting BEFORE Maghrib from one of these regular extraordinarily early Hilaal sighter! Wallaahu A’alam!

Thus while Saudi Astronomers are quite aware of the problems, there seemed to be negligible awareness in the community at large. But then I was surprised to see that Saudi Press began limited discussions on the errors. I saw an excellent article in Arab News of February 11, 2000G about the inaccuracy of EidUIFitr 1420H (See Illustration 1). Subsequently I also saw nice articles in Arabic in AdDawah magazine, 6 Shawwal 1420H etc., and the article of Sheikh AlManea (of Makkah AlMukarramah) in AlJazeera, December 12, 1999. So while the coverage was still limited, at least there was some acknowledgement of the errors, though not officially.

## **Views of Islamic Scholars of Saudi Arabia**

I started writing letters to a lot of the respected Ulema of Saudi Arabia, mentioning in particular the EidUIFitr 1420H error as proven from the Solar Eclipse also (even without reference to calculations), and I attached the Fatwa of Sheikh AlOthaimeen (RH) about Solar Eclipse and Hejiri dates. I mentioned that these days there are so many artificial objects in the sky that it is possible for Muslims to mistake other objects for Hilaal. Hence the people who want to sight the Hilaal should accompany one of these official Hilaal sighting committees which include scholar,

astronomer, and local official. This would help check the testimony and reduce the errors Insha'Allaah. Most scholars seemed to be totally unaware of the problem. Some scholars, however like Sheikh AIOthaimeen (RH) and Sheikh AlManea (of Makkah AlMukarramah), we found have a broad knowledge in this field. We did not get much response to the scores of letters we sent. But then Alhamdulillah we managed to get a meeting with Sheikh AIOthaimeen (RH)!

### **Meeting with Sheikh AIOthaimeen (RH) in Unayzah**

Alhamdulillah Sheikh AIOthaimeen (RH) welcomed us at his big Masjid in Unayzah after the Friday prayers on 15/02/1421H (date per UmmUIQura Calendar) and gave us a special private audience after the 'Asr prayers. We found that Alhamdulillah Sheikh AIOthaimeen was himself aware of some of the errors from other complaints. But he indicated it would take time for most scholars to understand and fix the problem. He asked us to write a letter to the Majlis AlKabair AlUlema (Council of the Senior Ulema), which I believe meets twice a year in Taif. I personally did send a letter, but somehow did not receive any response. I also learned that scholars like Sheikh Abdullaah bin Sulaiman AlManea (Makkah Mukarramah) support using calculations to reduce errors.

### **Sheikh AIOthaimeen (RH) supports Ikhtilaaf AlMatale (Local Sighting) for all 12 months (including DhulHijja)**

I mentioned to Sheikh AIOthaimeen (RH) that for Muslims in America, the error in Saudi date announcements causes big problems, since some Muslims follow that, while others follow local sighting, thus resulting in multiple Eid celebrations in the same city, if not the same Masjid! I learned that Sheikh AIOthaimeen supports Ikhtilaaf AlMatale (local sighting) - Muslims outside Saudi Arabia should do their own Local Sighting (instead of calling Saudi Arabia). This is already published in the book: Fatawa Islamiya (Sheikh Bin Baaz, Sheikh AIOthaimeen & Sheikh AlJibreen, published by DarulWatan LilNashr – see Illustration 4). Sheikh AIOthaimeen also writes that Sheikh Ibn Taimiya supported Ikhtilaaf AlMatale. In fact Saudi Arabia itself practices Ikhtilaaf AlMatale (e.g. they did not follow Yemen's earlier sighting in 1420H). I mentioned that while most Muslims in America agree to local sighting for 11 months, some want to follow the Saudi announcement for EidUIAdha. Sheikh AIOthaimeen (RH) indicated that he supports Ikhtilaaf AlMatale for EidUIAdha also, and that the sighting process for all the 12 months should be the same (Thus Muslims outside Saudi Arabia should do their own Local Sighting for EidUIAdha also, instead of calling Saudi Arabia). He immediately wrote a Fatwa on this and gave me the original paper, while keeping a photocopy for his records (see Illustration 5). Thus in his opinion, Muslims in North America should not have multiple dates for Eid etc. and just go by local sighting, unaffected by the errors in Saudi announcements including Eid UIAdha. I learned that there are also other references from Sheikh AIOthaimeen (RH) supporting local sighting for EidUIAdha. (See <http://www.ummah.net/moonsighting/fatawah/saudalim.htm>). Also see at <http://www.ummah.net/moonsighting/fatawah/isnaqa.htm> that the Annual Session of Fiqh Academy, held in Jordan, October 11-16, 1986 attended by more than 100 outstanding scholars of Shari'ah adopted a resolution recommending that all Muslim countries should determine all the lunar months including Dhul-Hijjah on the same basis for both EidUIFitr and EidUIAdha. Also

available on the website is the Fatwa of Mufti Taqi Usmani from Pakistan supporting Ikhtilaaf AlMatale for EidUlAdha as well. Further, even those scholars who support Ittihaad AlMatale, say categorically that one cannot fix any one point on earth (e.g. Saudi Arabia) for worldwide decision on date. Thus, sighting in USA / India / Yemen / Nigeria / Fiji etc. should be as valid in establishing the date worldwide including Saudi Arabia as the sighting in Saudi Arabia, if one follows Ittihaad AlMatale. Thus to "Just follow Saudi date" is neither Ikhtilaaf AlMatale, nor Ittihaad AlMatale, and hence should have no basis in Shariah.

Also, we find in Tirmidhi: Reported on the authority of Ibn Umar (RA): Rasulallah (SAW) lived in Medina for ten years and made sacrifice each year. (Tirmidhi). Thus the EidUlAdha was instituted in the first year of Hijrah - several years *before* Hajj became obligatory in the sixth year of Hijrah (see lam'at commentary on Mishkat). Further, even after the 6<sup>th</sup> year of Hijrah, *there is no evidence from the Sunnah that the Prophet Muhammad SAW made any attempts to synchronize the EidUlAdha in Medinah etc. with the Hilaal sighting in Makkah, even though 10 nights and 9 days were enough to send a messenger between Makkah and Medinah.* Ofcourse the Salaah of Eid-ul-Adha is not wajib (incumbent) upon the Hujjaj. Moreover most of the Fuqaha of the the 4 main "Madhab" of Fiqh also support and practice Ikhtilaaf AlMatale (local sighting), and so do Sheikh Ibn Taimiya and Sheikh AlOthaimeen.

In any case following a sighting from Saudi Arabia to decide the date, is too late for people east of Saudi Arabia e.g. Indonesia or Japan, where it may too late in the night or even past Sohoor (Dawn) time by the time the news reaches them.

Further, if we fix Saudi Arabia sighting to decide the Eid in America, what if Hilaal is sighted in America before Saudi Arabia (the world is round, in certain years this should be true – e.g. see Illustration 8). Would we then ignore our earlier sighting in America ? Clearly wouldn't this violate the hadith of fasting on seeing the Hilaal and breaking on seeing it ? (Compiled by Bukhari 3-124: Abu Huraira (RA) has narrated that the Prophet (SAW) said: "Start fasting on seeing the crescent (of Ramadaan) and give up fasting on seeing the crescent (of Shawwal) and if the sky is overcast (and you cannot see it) complete thirty days of Sha'ban"). So shouldn't "Just follow Saudi date" be obviously incorrect in the Islamic Shariah for people living outside Saudi Arabia ?

### **Use Astronomy to *negate* Erroneous sighting, but *not* to *replace* sighting**

As Muslims, we believe that all knowledge is from Allaah (SWT), who is the ultimate source. Thus we find that the Qur'aan has no contradiction with established facts of science. In fact the description of the embryo in the womb of the mother, the stability provided by the mountains, the hydrology / water cycle, composition of living matter mostly with water, origin of the universe and the movement of both the sun and the moon are among the amazing examples of how accurately the Qur'aan revealed over 1400 years ago describes scientific facts discovered recently. The Qur'aan states in Sura ArRahmaan #55, Verse 5: (Yusuf Ali translation): The sun and the moon follow courses (exactly) computed. Thus I was happy to learn that several scholars including Sheikh AlManea (of Makkah Mukarramah) support using calculations to *negate* erroneous sightings. Similarly, historically, great Islamic Scholars like Imam Subki and others have also supported using Astronomy to negate erroneous hilaal sighting, comparing sighting report to

“Zan” (with doubt), while calculation (when confirmed) as “Yaqeen” (without doubt). Also, Sheikh Ibn Taimiya has written on how long it takes for the Hilaal to appear after the “old moon” (seen at Fajr) disappears. Of course, none of the Saudi scholars I know, support calculations to completely *replace* sighting.

Further I learned from reliable sources that that last Eid UIFitr (1421H), several “early witnesses” in Saudi Arabia were turned down due to the Solar eclipse. This is perhaps the first time I hear of “witnesses” being turned down in Saudi Arabia due to contradiction with basic scientific facts. Insha’Allaah this seems to be a new and good trend in Saudi Arabia, but there may not be a Solar Eclipse every time! (There is a Solar Eclipse on 29th of Ramadaan 1422H though). There should also be an investigation into the reasons for the errors. Perhaps the presence of numerous objects in the sky today could cause errors. (E.g. see Airplanes, wisp of clouds, crescent of planets, satellites, or even a white hair in the eye, etc.). Also, if Insha’Allaah all who wish to sight the Hilaal in Saudi Arabia should accompany one of these several existing Official Saudi Hilaal Sighting Committees which include Scholar, Astronomer & Government representative, the errors should be reduced considerably Insha’Allaah.

Thus as a “guide” to reduce errors, we should use Astronomical Calculations for Naked Eye Hilaal Sighting Criterion e.g. Dr. Durrani’s results or Br. Shaukat’s or Yallop’s criterion in MoonCalc. As mentioned before, however, it is important to use the correct calculations – not calculations for the astronomical dark new moon, or simply moonset after sunset, but calculations for naked eye visibility of the young crescent Hilaal. The time after astronomical new moon birth is NOT the best determining factor for hilaal visibility. Instead the angular separation between moon and sun at local sunset must be at least 7 or 8 degrees for Hilaal to be visible. (7 degrees is the theoretical minimum “Danjon limit” agreed by Astronomers). For different months this could lead to different minimum time between sunset and moonset for Hilaal to be visible by naked eye.

The calculations related to the position of moon, earth and the birth of the astronomical (dark) new moon are extremely precise. But due to the variations of atmospheric optics, as related earlier, there are certain cases (about 20%) when the calculations for *Hilaal visibility* would not give a definite answer as the western part of our Matala (e.g. California for North America) lies within the “zone of uncertainty”. Thus actual physical local naked eye sighting definitely has a role to play even from the point of view of Astronomers, and is of course closer to the Sunnah, which is very important. Practically speaking this means that Insha’Allaah for about 80% of the cases, the dates for Eid etc. would be predictable, while for about 20% of the cases the date could be one of the two days given by the Astronomers, who may also indicate which of the two dates is more likely. Latest research in Atmospheric Optics, such as that by Br. Mustafa Helvacı should be used to further reduce the “zone of uncertainty” and increase the predictability beyond the current 80% of the times Insha’Allaah.

### **Use Naked-Eye Sighting**

As mentioned before, scholars like Sheikh AIOthaimen (RH) support naked eye sighting rather than using telescopes. He indicated that using telescopes increases the “Takalluf” (Burden) on Muslims, which Allaah (SWT) does not want. Thus even though the Official Saudi Arabian Hilaal

committees may carry a telescope, the official witness is only on naked eye visibility. This also makes Islam easy for ordinary Muslims, no matter where, since the ordinary Muslim does not have a telescope. If the telescope criterion was used, the majority of Muslims would be effectively excluded from the Hilaal sighting process. Using naked eye sighting also appeals to the logic that whatever criterion we use today should back calculate to the same dates that were likely decided at the time of Prophet Muhammad (SAW). Thus for example Br. Yaser ElMenshawy, Chairman of the Majlis AshShoora (Council of Masajid) of New Jersey, USA, supports naked eye sighting, as this would result in the Hilaal (Islamic New moon Crescent) being typically One Day After the Astronomical new moon (Dark moon / Invisible / No moon) and thus makes 13,14,15 of month as “white fasts” (full moon) as mentioned in Seerah. Please see the Illustration 7 and also refer to <http://www.moonsighting.com/> and <http://www.columbia.edu/~mnd/> for more details. Of course I personally do not equate eye-glasses to telescopes. Since eye-glasses are meant to correct the vision, and make it equivalent to the normal naked eye. Further, the use of correctional eye-glasses does not introduce the “Takalluf” / burden (as referred to by Sheikh AlOthaimen (RH) above). Rather I feel that dis-allowing eye-glasses may introduce a burden.

### **Astronomical support for Ikhtilaaf AlMatale (Local sighting)**

Since the world is round like a globe, the First Hilaal Sighting (“Lunar Date Line” for a month) can occur anywhere Around the Globe. Programs like MoonCalc of Dr. Monzur Ahmed (obtain software from [//www.ummah.net/ildl/mooncalc.html](http://www.ummah.net/ildl/mooncalc.html)) can predict the first Hilaal sighting curve (see Illustration 8). Thus we see that Astronomy supports Ikhtilaaf AlMatale (Local sighting) since areas outside the “Lunar Date Line” Curve see the Hilaal on the Next day (Cross International Solar Date Line). Hence we should aim towards EidulFitr & EidUlAdha celebration around much of the world in about 24 hours (But Two “Solar Dates” because of the Artificial International Solar Date Line). We should NOT force an effort to artificially make the worldwide Lunar date coincide with a solar date. Also, note that at any ONE given moment of time, one part of the world has one solar day/date while another part of the earth has the NEXT solar day /date! E.g. at the exact time of my writing this sentence, it is Wednesday evening in USA, but Thursday morning in China / Japan! So we should focus on e.g.: Eid prayer around the globe in about 24 hours rather than one SOLAR date. Local sighting for Eid is as natural as local timings for prayer. After all, New York does not pray Fajr by Tokyo time!

Prof. Muhammad Ilyas of Malaysia, a pioneer in the calculations of Hilaal prediction, Masha’Allaah has hence proposed for civil use, a Tri-zonal Hejiri calendar: dividing the earth into 3 zones: Americas; Europe-Africa-West Asia; Asia-Pacific and calculating Hilaal visibility separately for each region. This Tri-Zonal Calendar concept has also gained support in the Jordanian Astronomical Society (Dr. Mohammed Odeh and others) and elsewhere Alhamdulillah. Please see <http://www.starlight.demon.co.uk/ildl/zone3> for details. Thus for example, sometimes Hilaal sighting in North America can be One Date *Before* Hilaal sighting in Saudi Arabia, e.g. see projection from MoonCalc in Illustration 8. Also see <http://www.ummah.net/moonsighting> for more details.



## Summary of the Saudi Arabian Process

This document threw some light on Reasons for Islamic dates confusion and their solution Insha'Allaah, based on first hand information on the Saudi UmmUIQura calendar, which is not calculated to predict the Hilaal, but for "Civil" purposes only, (NOT for determining religious dates). Also as we have found, the Official Saudi Hilaal Sighting Committees (which include Scholar, Astronomer and Government Representatives) differ from "Official" Saudi announcement of dates. Some Saudi Ulema (Sheikh AIOthaimeen RH etc.) and some Saudi Press are aware of errors (e.g. Arab News article February 11, 2000G about the inaccuracy of EidUIFitr 1420H, AdDawah magazine 6 Shawwal 1420H etc.; AlJazeera December 12, 1999G). But it may take some time to fix the problem there.

## Conclusions for Islamic Hejiri Dates for Religious Use

Insha'Allaah we all share the objective to Unite Muslims towards Correct Dates for Islamic Occasions. As explained earlier, for Muslims living outside Saudi Arabia, "Just follow Saudi announced date" should have no basis in Shariah, since it is neither Ikhtilaaf AlMatale, nor Ittihaad AlMatale (which means follow the first report of Hilaal- no matter which country it comes from). Saudi scholars like Sheikh AIOthaimeen (RH) support Ikhtilaaf AlMatale (Local sighting) for both EidUIAdha and EidUIFitr (& Saudi Arabia itself follows Ikhtilaaf AlMatale). Astronomy also supports Ikhtilaaf AlMatale (Local sighting). Also, scholars like Sheikh AlManea (Makkah Mukarramah) support using calculations to *negate* erroneous sightings, while Saudi scholars do not support calculations to *replace* sighting. The Hilaal, as seen by the naked eye, is typically one day after the Astronomical new moon (Dark moon / Invisible / No moon). This makes 13,14,15 of month as "white fasts" (full moon) and thus brother like Br. Yaser ElMenshawy, Chairman of Majlis Ash-Shoora of New Jersey supports naked eye sighting (No telescopes). Sheikh AIOthaimeen (RH) is also against use of telescopes. He indicates that it increases the "Takalluf" (Burden) on Muslims, which Allaah (SWT) does not want.

Thus I believe in order to unite Muslims towards correct Islamic dates Insha'Allaah, we should use Local Sighting as supported by Astronomy and recommended and used by Saudi scholars (e.g. Sheikh AIOthaimeen (RH), also referring to Sheikh Ibn Taimiya) & others for both EidUIFitr and EidUIAdha etc. Insha'Allaah. Hence Alhamdulillah the joint decision of ISNA, ICNA, WDM and NC (Islamic Shoora Council of North America) is an excellent one Insha'Allaah: Use Validated Local sighting in contiguous America (except Hawaii & Alaska) + Canada for both EidUIFitr & EidUIAdha, unless proven impossible by Astronomy i.e. (Less than 7 degree geocentric angular separation between sun & moon at local sunset implies impossible to sight Hilaal- Danjon Limit). These dates would also be completely predictable about 80% of the time, when the naked eye sighting criterion is used.

I believe that perhaps the best procedure in the world is already established in Saudi Arabia – the Official Hilaal sighting committees near Makkah, Riyadh, Qassim, Hail, Tabuk and Asir, each of which include an Islamic Scholar, an Astronomer and a Government Official in addition to any volunteer. But the results of these committee are often different from the official Saudi announcement. May Allaah (SWT) help in resolving that properly. Aameen.

A similar method (Hilaal sighting committees) is also adopted in India, Bangladesh and Pakistan (with over 400 Million Muslims just in these 3 countries), where Alhamdulillah year after year, the correct date is reached.

May Allaah (SWT) help in establishing similar appropriate efforts all over the world. Aameen.

### **Conclusions for Civil use Hejiri Calendar**

If there is a need for a Hejiri Calendar for Civil use in North America, calculations by Br. Khalid Shaukat or Dr. Mohib Durrani for prediction of Hilaal visibility by naked eye, should be the best Insha'Allaah. For the roughly 20% of the cases, these dates may differ from the actual naked eye Hilaal sighting.

For world wide civil Hejiri calendar purposes, the Tri-zonal calendar of Prof. Muhammad Ilyas of Malaysia seems quite good Masha'Allaah – doing 3 separate calculations for hilaal visibility for 3 zones of the earth: Americas; Europe-Africa-West Asia; Asia-Pacific (see <http://www.starlight.demon.co.uk/ildl/zone3> for details). This Tri-Zonal Calendar concept has also gained support in the Jordanian Astronomical Society (Dr. Mohammed Odeh and others) and elsewhere Alhamdulillah. These calculations may be done by any of the excellent existing models on MoonCalc for naked-eye criterion Insha'Allaah.

The UmmUIQura Calendar should Insha'Allaah also be updated to reflect the best calculations for naked eye visibility of Hilaal, and not just the moonset after sunset (even by one second). Note that the *single major* factor in predicting Hilaal visibility is NOT the time after astronomical new moon birth, nor the moonset – sunset lag. Instead, the *single biggest factor* is that the angular separation between moon and sun at local sunset must be at least 7 or 8 degrees for Hilaal to be visible. Good models (including Br. Shaukat's) are now available on MoonCalc.

### **Action Items**

In North America we are Insha'Allaah implementing the decision of the Islamic Shoor Council of North America: Local sighting in North America unless proven impossible by Astronomy i.e. (Less than 7 degree geocentric angular separation between sun & moon at local sunset implies impossible to sight Hilaal- Danjon Limit). We should also educate (with Hikmah) and encourage Muslims in other countries to adopt similar local sighting criteria validated by the Danjon astronomical impossibility limit Insha'Allaah. Alternatively, Hilaal sighting committees such as those in Saudi Arabia (which are not used fully yet) should be established for decision making in every countries. Such committees are used very effectively Alhamdulillah in India, Bangladesh and Pakistan (with over 400 Million Muslims), where Alhamdulillah year after year, the correct date is reached.

For improving the process in Saudi Arabia Insha'Allaah, I suggest that we write to the Ulema, Ambassadors, WazaratulAdal, the Crown Prince, Majlis AlQada AlAala, Masjlis AlKabair

AlUlema etc. of Saudi Arabia, and support that all who wish to sight the Hilaal in Saudi Arabia should accompany one of the several existing Official Saudi Hilaal Sighting Committees which include Scholar, Astronomer & Government representative, to reduce human errors Insha'Allaah.

We should also write to the UmmUIQura Calendar brothers to encourage an update to their model to reflect the best calculations for naked eye visibility of Hilaal, and not just the moonset after sunset (even by one second). Even though the UmmUIQura calendar is for "civil" use and not "religious" use, it sets the expectations, and makes it difficult in many cases for us to tell the Saudi authorities that their decision was Astronomically impossible. As mentioned before, the *single biggest* factor in predicting Hilaal visibility is NOT the time after astronomical new moon birth, nor the moonset – sunset lag. Instead, the *single biggest factor* is that the angular separation between moon and sun at local sunset must be at least 7 or 8 degrees for Hilaal to be visible. Alhamdulillah good models (including Br. Shaukat's) are now available on MoonCalc. At the very least UmmUIQura calendar should be updated Insha'Allaah to use the absolute minimum agreed by Astronomers – the Danjon limit - 7 degree geocentric angular separation between sun & moon at local sunset implies impossible to sight Hilaal.

We should also encourage Muslims Worldwide to Sight the Hilaal and report it (e.g. to ICOP - Islamic Crescent Observation Project of Jordanian Astronomical Society <http://www.jas.org.jo/icop.html> or CFCO (Br. Omar Afzal), and compare results to refine existing models towards increased confidence Insha'Allaah. (Similar to full confidence in calculated Salaah - Prayer Time). Latest research in Atmospheric Optics, such as that by Br. Mustafa Helvaci should be used to further reduce the “zone of uncertainty” and increase the predictability beyond the current 80% of the times Insha'Allaah. We should Continue Efforts AND Du'as for correction. (But please note: those going for Hajj must still follow the Saudi dates for Hajj, and not make “fitna”, for that can be worse – please confirm with your Ulema). We should also encourage dissemination / posting of information such as this essay Insha'Allaah, especially to the decision-makers / Muslim leadership throughout the world Insha'Allaah. Please obtain this article and illustrations from <http://www.jas.org.jo/~salman/> for forwarding / posting / publishing in Muslim newspapers / magazines / websites worldwide Insha'Allaah. For further details, I may be contacted at [s.shaikh@ieee.org](mailto:s.shaikh@ieee.org) Insha'Allaah.

Finally but most importantly, we should make du'a that Allaah (SWT) forgive any mistakes and help, guide & unite us all. May Allaah (SWT) open our hearts and give Ikhlas, Barakah, Hidayah, Mutual Understanding, Mutual Respect and Cooperation between all Muslims, no matter which organization or Islamic movement they work through – whether ISNA, ICNA, Jamaat Tabligh, MSA, Islamic Ministries, Local Masajid / Islamic School or any other sincere one. Aameen.

SubhanAllaahi Wa Bi Hamdihi. SubhanakAllaahumaa We BiHamdika Nashhadu ALLaa ilaaha Illa Anta, Nastghfiruka Wa Natoobu Ilayk. Aoothobillaahi MinashShaytaanirRajeem. Subhana Rabbika Rabbil Izzati Amma Yasifoon Wa Salaamun AlalMursaleen WalHamdulillaah RabbilAalameen. Aameen.