The Global Islamic Calendar as a Solution for Unified Religious Rituals: Its Relevance to Fiqh and Astronomy

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Abstract: Muslims had time differences in carrying out Islamic religious rituals. The last two international congresses in 2016 in Turkey and 2017 in Indonesia carried their own criteria and were used in several countries. Meanwhile, the majority of the calendars that Muslims refer to are the Ummul Qura' Calendar of Saudi Arabia. This article aims to compare the results of that three calendar regarding the determination of the beginning of the months of Ramadan, Shawwal, Dzulhijjah from 1444 to 1448 H. and the implication of each criterion in the aspects of sharia and astronomy. This article is a qualitative research with descriptive and comparative analysis. The result shows, the differences betweean the three calendar is 53.33% and the similarity is 46.67%. Turkey's criteria for 2016, are the most established to become the Global Islamic Calendar from fiqh and astronomy perspective, but there is a weakness in the application of the conditions for reporting new moon sighting until 00.00 UT, meaning that the day changes at midnight which results in areas that are more eastern have to wait a long time and can have an impact on the law of other worship. The Indonesia criteria have accommodated the weaknesses of Turkey criteria but the scope of the hilal visibility limits is too narrow. Ummul Qura' calendar does not meet the requirements of international congress so far. Therefore, three calendar above must complete each other to realize unified Islamic Global Calendar and new fiqh formulation of the global Islamic calendar and related worship.

Keywords: *Astronomy, Fiqh, Global Islamic Calendar*

Abstrak: *Umat Islam memiliki perbedaan waktu dalam menjalankan ritual keagamaan Islam. Dua kongres internasional terakhir tahun 2016 di Turki dan 2017 di Indonesia membawa kriteria tersendiri dan digunakan di beberapa negara. Sementara itu, mayoritas penanggalan yang dirujuk umat Islam adalah Kalender Ummul Qura' Arab Saudi. Artikel ini bertujuan membandingkan hasil ketiga penanggalan tersebut mengenai penentuan awal bulan Ramadhan, Syawal, Dzulhijjah dari tahun 1444 sampai 1448 H. dan implikasi dari masing-masing kriteria dalam aspek syariah dan astronomi. Artikel ini merupakan penelitian kualitatif dengan analisis deskriptif dan komparatif. Hasil penelitian menunjukkan selisih ketiga kalender tersebut sebesar*

53,33% dan kemiripan sebesar 46,67%. Kriteria Turki tahun 2016, paling mapan untuk menjadi Global Islamic Calendar dari segi fikih dan astronomi, namun terdapat kelemahan dalam penerapan ketentuan pelaporan penampakan hilal hingga pukul 00.00 UT, artinya pergantian hari pada tengah malam yang berakibat di daerah yang lebih timur harus menunggu lama dan bisa berdampak pada hukum ibadah lainnya. Kriteria Indonesia telah mengakomodir kelemahan kriteria Turki namun cakupan batas visibilitas hilal terlalu sempit. Kalender Ummul Qura' selama ini tidak memenuhi persyaratan kongres internasional. Sehingga, ketiga kalender di atas harus saling melengkapi untuk mewujudkan Kalender Global Islam yang terpadu dan formulasi fikih baru kalender Islam global dan ibadah terkait.

***Kata Kunci**: Astronomi, Fikih, Kalender Islam Global*

A. Intruduction

Muslims do not yet have the same unified time/calendar. Each country and religious organization have its own hijri calendar with different criteria. Even though some religious ritual activities such as Ramadan fasting, Eid al-Fitr and Eid al-Adha, pilgrimage, zakat fitrah, zakat mal are related to time.[1] While the certainty of that time becomes very important. Setting the time will make it easier for policy makers to determine religious holidays, certainty in applying for leave for workers, especially those living in Muslim minority countries, and certainty when entering to perform religious rituals.[2]

Calendar or "tarikh" or "taqwim" in Arabic, literally means "correct", "balance" and "limit". The calendar is a reflection of the applied time system carried out by humans based on the principles that have remained as guidelines, signs, and rules for the activities of daily human life throughout history.[3] A calendar consisting of units of days, weeks and years

[1] Siti Tatmainul Qulub, "Political Approach as Hijriyah Calendar Unification Strategy with Masehi Calendar," *Jurnal Bimas Islam* 10, no. 3 (2017): 451–72; Nur Anshari, "Kalender Islam Global Antara Dilema Dan Darurat," *Al-Marshad: Jurnal Astronomi Islam Dan Ilmu-Ilmu Berkaitan* 3, no. 1 (2017): 92, https://doi.org/https://doi.org/10.30596/jam.v3i1.1076.

[2] Maskufa and Syarif Hidayatullah, "Global Hijriyah Calendar as Challenges Fikih Astronomy," in *Advances in Social Science, Education and Humanities Research*, vol. 162 (International Conference on Law and Justice (ICLJ 2017), 2018), 188–92.

[3] Arwin Juli Rakhmadi and Muhammad Hidayat, "The Issues and Prospects of the Global Islamic Calendar," in *Advances in Social Science, Education and Humanities Research*,

requires predictable, accurate and unified units of time.[4] The uncertainty of time will result in difficulties in the syar'i, administrative and economic aspects. Some examples of syar'i difficulties are Ramadan fasting, Eid al-Fitr, Zakat fitrah, Eid al-Adha, wukuf.[5] While some administrative difficulties are the calendar on letters, schedule of activities in various institutions and others, and economic difficulties in business transactions on the real market and stock market.[6]

The idea of a Global Islamic Calendar emerged to answer the problem of the different calendar systems used by Muslims today. The event that initiated the idea of a Global Islamic Calendar began at the Qamari Month Initial Determination Conference (Mu'tamar Tahdid Awa'il asy-Syuhur al-Qamari) which was held from 26 to 29 Dzulhijjah 1398 H/27-30 November 1978 in Istanbul Turkey[7], one of the decisions is the imkanur ru'yah criterion (minimum elongation of 8° and hilal altitude of 5°. After the conference there were many more activities carried out to strive for the Global Islamic Calendar, the last two international conferences namely the International Hijri Calendar Unity Congress in 28 to 30 May 2016 M in Istanbul Turkey and the international conference of Fiqh Falak entitled "Opportunities and Challenges Implementation of Global Hijri Calendar" was held on 28 and 30 November 2017 in IndonesiaIndonesia. Both conferences were interesting because they produced the concept of an international Islamic calendar which has the same principle of consolidation based on imkanur ru'yah. [8] Currently, the majority of Islamic countries in determining the beginning of the month refer to the Ummul

vol. 477 (Proceedings of the International Conference on Community Development (ICCD 2020), 2020), 109–12.

[4] Syamsul Anwar, "Tinjauan Maqasid Syariah Terhadap Kalender Islam Global," *Al-Marshad: Jurnal Astronomi Islam Dan Ilmu-Ilmu Berkaitan* 5, no. 2 (2019): 209, https://doi.org/10.30596/jam.v5i2.3801.

[5] Muhammad Alwi Musyafa and Siti Tatmainul Qulub, "Urgensi Penyatuan Kalender Hijriyah Global," *EL-FALAKY: Jurnal Ilmu Falak* 5, no. 2 (2021): 258.

[6] Maskufa and Hidayatullah, "Global Hijriyah Calendar as Challenges Fikih Astronomy."

[7] Mahsun and Ahmad Adib Rofiuddin, "Optimist And Pessimist Moon-Sighting : The Study Of Islamic Calendar Determination In Indonesia," *Muḍṣarah: Jurnal Kajian Islam Kontemporer* 4, no. 2 (2022): 1, https://doi.org/10.18592/msr.v4i2.7543.

[8] Othman Zainon et al., "Comparing the New Moon Visibility Criteria for International Islamic Calendar Concept," in *Proceeding of the 2019 6th International Conference on Space Science and Communication (IconSpace)*, 2019, 28–30.

Qura' calendar which is the official calendar of the Kingdom of Saudi Arabia. Based on data from moonsighting.com (pioneered by Khalid Shaukat[9]) through the Moonsighting Committee Worldwide (MCW) which summarizes and announces the results of observations of the moon around the world, there are 42 countries out of 118 countries that follow the Ummul Qura calendar, equal to 36%.[10]

This paper aims to compare the results of the two conferences and the Ummul Qura Calendar on the determination of the beginning of the month of Ramadan, Shawwal, Dzulhijjah in 1444 to 1448 H. and the implementation of each criterion in the aspects of sharia and astronomy. This article is a qualitative research that uses a naturalistic approach to find understanding and understanding of a special phenomenon[11], and is classified as literature by using descriptive and comparative analysis methods. Data collection techniques by collecting data sources (documentation) in the form of books, journals and other sources. The descriptive analysis in this study is to describe the criteria and implementation of Turkish's Islamic Global Calendar 2016, Jakarta's Islamic Global Calendar 2017 and Ummul Qura' Calendar in Ramadhan, Shawwal, and Dzulhijjah from 1444 H untill 1448 H. The comparative analysis in this article is to compare the begining of Ramadhan, Shawwal, and Dzulhijjah from 1444 H untill 1448 H between three criterias in sharia and astronomy aspect.

B. Discussion

1. The History of Unification of the Global Islamic Calendar

Calendar unification is an important issue and has become a necessity of civilization because for so many centuries Muslims have not had an established calendar that can be used by all Muslims in the

[9] Herlina Nur Afida, Siti Marhamah, and Anisah Budiwati, "Global Islamic Calendar Digital Information Mapping," *Al-Marshad: Jurnal Astronomi Islam Dan Ilmu-Ilmu Berkaitan* 5, no. 1 (2019): 67, https://doi.org/10.30596/jam.v5i1.3023.

[10] Moonsighting Committe Worlwide, "Moonsighting for Dzulhijjah 1444," Worlwide, Moonsighting Committe, 2023.

[11] Lexy J. Moleong, Metodologi Penelitian Kualitatif, 35th ed. (Bandung: Remaja Rosdakarya, 2016), p.217.

world.[12] The discourse on the unification of the Global Islamic Calendar has been discussed since the end of the 20th century. The unification of calendars is in the form of functions, area coverage and systems used. In terms of its usefulness, the Islamic calendar can function as a time's sign for daily needs as well as for worship purposes. Meanwhile, in terms of area coverage, the Global Islamic Calendar is expected to apply globally like the Gregorian calendar.[13] Meanwhile, from the determination system, the Islamic calendar is expected to have a determination system that can be used as a reference by all Muslims in the world.[14] The following are some of the conferences that have become an important part of the unification of the Global Islamic Calendar:

The Qamari Month Initial Determination Conference (Mu'tamar Tahdid Awa'il asy-Syuhural-Qamari) took place from 26 to 29 Dzulhijjah 1398 H./27 to 30 November 1978 M. in Istanbul, Turkey. The results of this conference decision made a paradigm shift in the thinking of the Global Islamic Calendar. [15] There has been talk of making a Global Islamic Calendar, and the use of global mathla' and moon sighting /rukyatul hilal is still the strongest opinion, while calculation/hisab must have been include in the imkanur rukyah criteria.

The World Conference on International Islamic Calendar was held on 29 Rabiul Awal to 2 Rabiul Akhir 1412 H. (8 to 10 October 1991) at Universiti Sains Malaysia (USM) Penang. This meeting produced programs and steps towards unifying the International

[12] Anisah Budiwati, "Jamaluddin ' Abd Al-Razik 's Global Single Hijriah Calendar Preliminary Review (An Effort to Calendar Unification)," *Jurnal Bimas Islam* 10, no. 3 (2017): 410, https://doi.org/https://doi.org/10.37302/jbi.v10i3.29.

[13] Abdul Halim, Abdul Aziz, and Ahmed Kamil Ahmed, "A Unified Islamic Calendar Proposal for the World," *Middle-East Journal of Scientific Research* 22, no. 1 (2014): 115, https://doi.org/10.5829/idosi.mejsr.2014.22.01.21831.

[14] Hamdun, "Upaya Penyatuan Kalender Islam Internasional Oleh Organisasi Kerjasama Islam (OKI)," *Jurnal Bimas Islam* 10, no. 3 (2017): 479, https://doi.org/https://doi.org/10.37302/jbi.v10i3.32.

[15] Hamdun, "Upaya Penyatuan Kalender Islam Internasional Oleh Organisasi Kerjasama Islam (OKI)."

Islamic Calendar which is known as the "1991 Penang Declaration".[16] The results of the 1991 Penang Declaration received less attention, but the placement of the concept of the International Islamic Calendar/Global Islamic Calendar with the visibility of the new moon and the International Lunar Date Line (ILDL)[17] has opened new insights to the Islamic world in seeing how one calendar can be made.[18]

Ijtima 'al-Khubarai al-Tsani was held in Rabat Morocco from 15 to 16 Shawwal 1429 H./15 to 16 October 2008 AD[19], the results of this conference is that hisab is the only way to unify the Global Islamic Calendar[20] as is the use of hisab for islamic prayer times. The meeting also reviewed four proposed calendars, namely the Al-Husain Diallo Calendar, the Libyan Calendar, the Ummul Qura Calendar, and the Integrated Hijri Calendar (at-Taqwim al-Muwahhad).[21]

The Second Emirates Astronomical Conference was held from 16 to 18 Jamadil Akhir 1431 (30 May to 1 June 2010) in Abu Dhabi, United Arab Emirates (UAE). In this meeting, Jamaluddin Abdur Razik, Khalid Syawkat, and Muhibullah Durani really supported the realization of the Global Islamic Calendar. Jamaluddin is one of the figures who is very active in promoting the Integrated Islamic Calendar with the principle of one day and one date for the whole world through his important work entitled "At-Taqwim al-Qamary al-Islamy al-Muwahhad".[22]

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[16] Susiknan Azhari, "Cabaran Kalendar Islam Global Di Era Revolusi Industri 4 . 0 Global Islamic Calendar Challenge in Era," *Jurnal Fiqh* 18, no. 1 (2021): 117–34, https://doi.org/https://doi.org/10.22452/fiqh.vol18no1.4.

[17] ILDL was first coined by Ilyas (1984). It represents a natural partition line that divides the world into two regions, in one region a new crescent moon is expected to be seen and in another region it is not expected to be seen.Abdul Halim and Abdul Aziz, "A Robust Unified Islamic Calendar Proposal For The World," in *Prosiding Konferensi Integrasi Interkoneksi Islam Dan Sains*, vol. 5, 2023, 307.

[18] Hamdun, "Upaya Penyatuan Kalender Islam Internasional Oleh Organisasi Kerjasama Islam (OKI)."

[19] Hamdun.

[20] Tono Saksono, "Kalender Islam Global: Perspektif Syariah, Ekonomi, Dan Politik," *JURIS: Jurnal Ilmu Syariah* 15, no. 2 (2016): 143, https://doi.org/http://dx.doi.org/10.31958/juris.v15i2.495.

[21] Azhari, "CABARAN KALENDAR ISLAM GLOBAL DI ERA REVOLUSI INDUSTRI 4 . 0 Global Islamic Calendar Challenge in Era."

[22] Azhari.

According to Jamaluddin, there are three basic principles that must be accepted in order to create an international qamariyyah calendar. The three principles are first, hisab as the basis. This is because a calendar is intended as a future planning system and can see past times and this will not be possible if you do not use hisab as the basis; secondly, there is the principle of transfer of imkanur rukyah, namely imposing the possibility of the appearance of the new moon in the western part for areas in the east provided that the region has experienced conjunction at 00:00 local time, except for the GMT +14 hours area which uses conjunction before dawn; and third, making midnight on the international date line the first time and place of the day's beginning.[23]

The International Congress on the Unification of Hijri Calendar was held from 28 to 30 May 2016 in Istanbul, Turkey. This congress is faced with two choices: the use of the bizonal calendar which divides the world into two zones, namely the western and eastern zones or the unification calendar, which is one day and one date for the whole world, like the Gregorian calendar. After a voting process between the bizonal calendar or the unification calendar, congress finally chose the unification calendar.[24] The results of the congress include[25]:

The whole world is considered as one, that is, the new moon begins simultaneously in all regions;

[23] Nursodik, "Tinjauan Fikih Dan Astronomi Kalender Islam Terpadu Jamaluddin 'Abd Ar-Raziq Serta Pengaruhnya Terhadap Hari Arafah," *Al-Manahij: Jurnal Kajian Hukum Islam* 10, no. 1 (2016): 147, https://doi.org/https://doi.org/10.24090/mnh.v10i1.922; Budiwati, "Jamaluddin ' Abd Al-Razik 's Global Single Hijriah Calendar Preliminary Review (An Effort to Calendar Unification)."

[24] Muhammad Iqbal, "Penyatuan Kalender Islam Internasional: Perspektif Siyasah," *JURIS: Jurnal Ilmu Syariah* 15, no. 2 (2016): 169–70, https://doi.org/http://dx.doi.org/10.31958/juris.v15i2.497; Maskufa and Hidayatullah, "Global Hijriyah Calendar as Challenges Fikih Astronomy."

[25] Muhamad Zakuwa and Sa'adan Man, "Relevance of Uhadi Calendar with Conditions Determined by Istanbul Congress 2016 For Global Hijri Calendar," *Online Journal of Research in Islamic Studies* 8, no. 1 (2021): 2–3; Muhammad Himmatur Riza, "Kriteria Kalender Hijriyah Global Tunggal Turki 2016 Perspektif Tim Hisab Rukyat Kementerian Agama RI," *EL-FALAKY: Jurnal Ilmu Falak* 2, no. 1 (2018): 38, https://doi.org/https://doi.org/10.24252/ifk.v2i1.14157.

The new moon begins when anywhere before 24.00 GMT meets the following criteria: elongation of 8° or more and the altitude of the new moon above the horizon at sunset is at least 5°.

Correction of the calendar is made if the criteria above are met but after midnight, the new moon is determined with the following conditions:

If the Turkish imkanur rukyat 1978 Criterion Congress has taken place somewhere in the world and the ijtima in New Zealand takes place before dawn.

Imkanur rukyah mentioned in point (a) occurred in the Americas. The reckoning used to determine the begining of a new month in the unification calendar is hisab imkanur rukyah.

The International Fiqh Falak Conference was held in Indonesiafrom 28 to 30 November 2017. This activity was a response to the adoption of the single calendar concept at the 2016 international conference in Turkey. perceives the month, but in practice the calendar has weaknesses. The weaknesses are, for example, the use of global criteria and criteria for altitude of 5° with elongation of 8° anywhere in the world as long as New Zealand has not yet been published. This criterion becomes problematic because if these criteria have been met on the Americas, then during Maghrib in Southeast Asia, the Moon is still under the horizon. With this position, the determination of the beginning of the month will not be accepted by Muslims in Southeast Asia. Also because countries like MABIMS have their own dating criteria.

Based on the weaknesses of the Turkish calendar concept, at a meeting in Indonesiait was proposed the concept of the global Islamic calendar as a correction to the Turkish calendar criteria, with the following principles and criteria[26]:

The criteria for the beginning of the month are the elongation of the moon at least 6.4° and the altitude of the Moon at least 3° at the time of Maghrib, the westernmost region of Southeast Asia.

[26] Zainon et al., "Comparing the New Moon Visibility Criteria for International Islamic Calendar Concept."

The international date limit is used as the global Islamic Calendar date limit. The Organization of Islamic Cooperation (OIC) is the sole authority on the regulation of the Global Islamic Calendar.

The conclusion from the several conferences mentioned above is that efforts to unify the Global Islamic Calendar have experienced rapid development, starting with the debate on the use of rukyat and hisab (imkanur rukyah/hilal visibility), to an agreement to use hisab for the Global Islamic Calendar. After that, proposals for the concept of the Global Islamic Calendar came from various islamic astronomers and astronomers. These calendar proposals can be grouped into 2, namely the zone calendar system and unification. The concept of a zone calendar is a calendar system that divides the world into several date zones on the Earth's surface, such as 4 zones, 3 zones and 2 zones. While the unification calendar is a calendar system that makes the whole world on one date. Until it was agreed at the Turkish congress in 2016 to use the concept of a unification calendar with the imkanur rukyah criteria agreed at the congress. However, the results of the Turkish congress were responded by MABIMS countries by holding the Indonesia conference 2017 which proposed a new, lower imkanur rukyah criterion. Thus, the development of the unification of the Global Islamic Calendar has progressed, so far there is no agreement regarding the criteria for imkanur rukyah/hilal visibility.

2. Global Islamic Calendar from Fiqh Perspective

The enactment of the Global Islamic Calendar is one of the things that Muslims all over the world dream of. However, in its implementation there are several things that are being debated regarding the aspects of jurisprudence in the Global Islamic Calendar, as follows:

a. Hisab as the basis

Guided by hisab in determining the beginning of the Hijriyah month based on the Turkish conference in 1978 M, it must be based on the criteria of imakanur rukyah / hilal visibility.[27] In the

[27] Hamdun, "Upaya Penyatuan Kalender Islam Internasional Oleh Organisasi Kerjasama Islam (OKI)."

congress in Morocco in 2008 to solve the problem of unifying the Global Islamic Calendar must be based on hisab.[28]

According to Mustafa Muhammad az-Zarqa, the rejection of the use of hisab was nothing more than the state of astronomy at that time (especially regarding the determination of the beginning of the month) which was still speculative on a fragile scientific basis. Previous scholars were also faced with the problem of mixing and the close relationship between astrology, divination, magic and arithmetic. Yusuf Qardhawi also gave arguments regarding the use of reckoning, apart from reasoning with 'illat, Qardhawi also stated that reckoning nowadays has been transformed into a very good form with accuracy close to certainty. According to him, the use of definite reckoning must be accepted based on qiyas aulawi, meaning the hadith which prescribes the use of lower means and still contains doubts and uncertainties, namely rukyah is impossible to reject higher means, more perfect and more capable of realizing the needs of Muslims to get out of prolonged dissension, which is the use of hisab.[29]

b. Use of Imkanur Rukyah Transfer

Imkanur rukyah transfer is the possibility of the new moon being seen somewhere on earth that is transferred to another place so that it also applies to places (which do not meet the criteria for imkanur rukyah). this imkanur rukyah transfer is related to the mathla' problem. In fiqh there are two opinions regarding the application of rukyat from one area to another. The first opinion admits that there is a difference in terms of absolute terms. In this opinion, the new moon that has been seen in a place only applies in certain areas, does not apply as a whole throughout the world (ikhtilaful matali'). The second opinion calls for ittihadul Matali'. This means that according to this opinion if the new moon has been

[28] Hamdun.

[29] Tasnim Rahman Fitra, "Fikih Kalender Hijriah Unifikatif," *Istinbáth: Jurnal Hukum Dan Ekonomi Islam* 17, no. 2 (2018): 368, https://doi.org/https://doi.org/10.20414/ijhi.v17i2.96.

seen somewhere anywhere on earth, then other areas must follow it.[30]

Imam Syafi'i adheres to the differences in mathla' and states that when the new moon is seen in an area or country, the law only applies to that area and the area around it (in one mathla'). The Shafi'i school bases its opinion on the hadith of Kuraib and the hadith narrated by Ibn Umar. The Hadith of Kuraib has explained that for each country its respective rukyah applies. The decision of Ibn 'Abbas who did not follow the results of the rukyah of the people of Syam was a form of his obedience to the guidance of the Prophet. According to al-Zuhailiy, this group also emphasizes the difference in the mathla' of the month with the difference in prayer times because of the difference in the mathla' (place of rising) of the sun. Beside that, here is no argument indicating that there is an order to wait or guided by other areas that have seen the new moon, this indicates that each region applies its respective rukyah.

Meanwhile, the majority of scholars from among the Imams Hanafi, Maliki, Hanbali as well as several scholars among the Shafi`i adhere to the unity of matlak (ittihadul Matali') and are of the opinion that rukyatul hilal applies to all areas, both near and far. When the new moon is seen in a certain area, all other areas (near and far) must fast according to the results of the rukyat in that area. The argument used by the jumhur in ittihadul Matali' is the generality of the hadith of Abu Hurairah and other hadiths related to starting the month of Ramadan (fasting) and holidays. These hadiths are general without limiting the area of validity, so if there is already a report of sighting of new moon somewhere, it is obligatory for Muslims everywhere to follow it.[31] It should be noted that these scholars expressed their opinion at an era when the

[30] Muhamad Rofiq Muzakkir, "Landasan Fikih Dan Syariat Kalender Hijriah Global," *Jurnal Tarjih* 13, No. 1 (2016): 51.

[31] Fitra, "Fikih Kalender Hijriah Unifikatif."

science of astronomy had not made the progress it has achieved today.[32]

Implementation of the 2016 Turkish Global Islamic Calendar and 2017 Indonesia in Astronomy and Jurisprudence Perspectives

The enactment of the Global Islamic Calendar is still being debated. Several countries have used Turkish criteria in determining the beginning of the Islamic month. Comparative data for the beginning of the months of Ramadan, Shawwal and Dzulhijjah from 1444 H to 1448 H between the Turkish Global Islamic Calendar 2016 and Indonesia2017, as follows:

Table 1. Comparison of the Beginning of the Months of Ramadan, Shawwal, Dzulhijjah Criteria for Turkey 2016, Indonesia 2017 and Ummul Qura' from 1444 H to 1448 H

The Begining Month of	Turkish Criteria 2016	Indonesia Criteria 2017	Ummul Qura'
Ramadan 1444 H	23rd March 2023	23rd March 2023	23rd March 2023
Syawwal 1444 H	21st April 2023	22nd April 2023	21st April 2023
Dzulhijjah 1444 H	19th June 2023	20th June 2023	19th June 2023
Ramadan 1445 H	11th March 2024	12th March 2024	11th March 2024
Syawwal 1445 H	10th April 2024	10th April 2024	10th April 2024
Dzulhijjah 1445 H	7th June 2024	8th June 2024	7th June 2024
Ramadan 1446 H	1st March 2025	1st March 2025	1st March 2025
Syawwal 1446 H	30th March 2025	31st March 2025	30th March 2025
Dzulhijjah 1446 H	28th May 2025	28th May 2025	28th May 2025
Ramadan 1447 H	19th February 2026	19th February 2026	18th February 2026
Syawwal 1447 H	20th March 2026	20th March 2026	20th March 2026
Dzulhijjah 1447 H	18th May 2026	18th May 2026	18th May 2026
Ramadan 1448 H	8th February 2027	8th February 2027	8th February 2027
Syawwal 1448 H	10th March 2027	10th March 2027	9th March 2027
Dzulhijjah 1448 H	7th May 2027	8th May 2027	7th May 2027

[32] Arbisora Angkat, "Kalender Hijriah Global Dalam Perspektif Fikih," *Al-Marshad: Jurnal Astronomi Islam Dan Ilmu-Ilmu Berkaitan* 3, no. 2 (2017): 10, https://doi.org/https://doi.org/10.30596/jam.v3i2.1524.

Source: Result of calculation based on Microsoft excel program

Based on the data in Table 1., there is a difference of 8 out of 15 at the beginning of the month, meaning 53.33% of the simulated data with details of 2 different times at the beginning of Ramadan 1445 and 1447 H, 3 times at the beginning of Shawwal 1444 H, 1446, 1448 H and 4 times at the beginning of the month of Dzulhijjah in 1444, 1445 and 1448 H. From 8 different beginnings of the month 6 of them only distinguish Indonesia2017 which is different, while the criteria for Turkey 2016 and Ummul Qura' Calendar are the same. The other 2 are only the Ummul Qura calendar, which is different and the 2016 Turkey criteria and the 2017 Indonesiacriteria are the same.

The same results the begining of the month is 46.67% (7 out of 15 at the beginning of the month) with 3 times at the beginning of Ramadan 1444, 1446, 1448 H, 2 times at the beginning of Shawwal 1445 and 1447 H and 2 times at the beginning of Dzulhijjah 1446 and 1447 H.

Based on the comparison between three criteria of the calendars. Criteria for Türkiye 2016 with Criteria for Indonesia2017 differ 6 times. Türkiye's criteria for 2016 with Ummul Qura' Calendar differ 2 times. While the criteria for Indonesia2017 with the Ummul Qura Calendar differ 8 times.

Conclusion from Table 1. There are more differences in the beginning of the month and if you look at the differences between calendars. The 2017 Turkish characteristic calendar with the Ummul Qura Calendar is often convenient, only 2 times different. Meanwhile, the biggest difference occurred between the 2017 IndonesiaCriteria Calendar and the Ummul Qura Calendar differ 8 times. The following is a discussion regarding the differences between the criteria for the start of the month mentioned above:

c. The Begining Month of Syawwal 1444 H

The new moon has entered Turkey's criteria for 2017 with the First Visibility of the New Moon near London, England at 19:19 UT, while for the Ummul Qura Calendar it has entered the criteria because ijtima' occurs before ghurub on April 20, 2023 at 04:12

UT/07:12 Mecca time and the new moon was already above the horizon at an altitude of 5° 13' 35" when the sun set. The Indonesia2017 criteria: the first visibility occurs in the Komi Republic, Russia at 19:19 UT, so it does not meet the criteria because it has not been seen in the westernmost region of ASEAN. So, the beginning of the month of Shawwal 1444 H according to the Turkish criteria for 2017 and the Ummul Qura Calendar' falls on April 21 2023 and the Indonesiacriteria for 2017 on April 22 2023. [33]

d. The Begining Month of Dzulhijjah 1444 H

The new moon has entered Turkey's criteria for 2017 with the First Visibility of the New Crescent in Vologda Oblast, Russia at 18:35:54 UT, while for the Ummul Qura Calendar, it has entered the criteria because ijtima' has occurred before ghurub on June 18 2023 at 04:37 UT/07:37 Mecca time and the new moon was already above the horizon at an altitude of 5° 57' 42" at sunset. The Indonesia2017 criteria: the first visibility occurs in Sakha, Russia at 14:27:29 UT, so it has not meet the criteria because it has not been seen in the westernmost region of ASEAN. So, the beginning of the month of Dzulhijjah 1444 H according to the Turkish criteria for 2017 and the Ummul Qura Calendar falls on 19 June 2023 and the criteria for Indonesia2017 on 20 June 2023.[34]

e. The Begining Month of Ramadan 1445 H

The new moon has entered Turkey's 2017 criteria with the First Visibility of the New Crescent at the Presidente Hayes Department, Paraguay at 22:14:21 UT, while for the Ummul Qura Calendar' it has entered the criteria due to ijtima' occurred before ghurub on March 10 2024 at 09:00 UT/12:00 Mecca time and the new moon was already above the horizon at an altitude of 2° 56' 33" at sunset. The criteria for Indonesia2017: the first visibility occurs in the Atlantic Ocean at 19:24:17 UT, so it has not meet the criteria because it has not been seen in the westernmost region of

[33] Moonsighting Committe Worlwide, "Moonsighting for Shawwal 1444," Worlwide, Moonsighting Committe, 2023.

[34] Worlwide, "Moonsighting for Dzulhijjah 1444."

ASEAN. So, the beginning of the month of Ramadan 1445 H according to the Turkish criteria for 2017 and the Ummul Qura Calendar' falls on March 11 2024 and the criteria for Indonesia2017 on March 12 2024.[35]

f. The Begining Month of Dzulhijjah 1445 H

The hilal has entered Turkey's 2017 criteria even though the appearance of the first hilal / First Visibility in the Atlantic Ocean close to Greenland has passed from 00.00 UT, namely at 00:43:43 UT, Ijtima' occurs before dawn in New Zealand at 12:38 UT / 00:38 NZT, dawn in New Zealand occurs at 05:55 NZT. The Ummul Qura' calendar has meet the criteria because ijtima' occurs before ghurub on 6 June 2024 at 12:38 UT/15:38 Mecca time and the new moon is already above the horizon at an altitude of 2° 15' 14" at sunset. The Indonesia2017 criteria: the first visibility occurs in Karelia Republic, Russia at 20:49:47 UT, so it has not meet the criteria because it has not been seen in the westernmost region of ASEAN. So, the beginning of the month of Dzulhijjah 1445 H according to the 2017 Turkish criteria and the Ummul Qura Calendar 'falls on June 7 2024 and the 2017 Indonesia criteria on June 8 2024. [36]

g. The Begining Month of Syawwal 1446 H

The hilal has entered the Turkish criteria for 2017 even though the appearance of the first hilal / First Visibility in Nuvanut, Canada has passed from 00.00 UT, namely at 00:12:15 UT, Ijtima' occurs before dawn in New Zealand at 10:57 UT / 22:57 NZT, dawn in New Zealand occurs at 05.05 NZT, while for the Ummul Qura' Calendar it has entered the criteria because ijtima' occurs before ghurub on March 29 2025 at 10:57 UT/13:57 Mecca time and the new moon are above the horizon with a height of 1° 41' 58" at sunset. The criteria for Indonesia 2017 : the first visibility occurs in the Greenland Sea at 22:16:46 UT, so it has not meet the criteria because it has not been seen in the westernmost region of

[35] Moonsighting Committe Worlwide, "Moonsighting for Ramadan 1445," Worlwide, Moonsighting Committe, 2023.

[36] Moonsighting Committe Worlwide, "Moonsighting for Dzulhijjah 1445," Worlwide, Moonsighting Committe, 2023.

ASEAN. So, the beginning of the month of Shawwal 1446 H according to the Turkish criteria for 2017 and the Ummul Qura Calendar falls on March 30 2024 and the criteria for Indonesia 2017 on March 31 2024. [37]

h. The Begining Month of Ramadhan 1447 H

The hilal did not meet Turkey's 2017 criteria because of the First Visibility occurs in the middle of the Pacific Ocean at 03:42:01 UT, there were no residents nearby and it had passed 00.00 UT. While for the Ummul Qura' Calendar it meets the criteria because ijtima' occurs before sun set on February 17 2026 at 12:00 UT/15:00 Mecca time and the new moon is already above the horizon with an altitude of 00° 43' 54" at sunset. The Indonesia criteria are the appearance of the first hilal in the Pacific Ocean at 00:34:09 UT, so it has not meet the criteria because it has not been seen in the westernmost region of ASEAN. So, the beginning of the month of Ramadan 1447 H according to the Turkish criteria 2016 and the Indonesia criteria 2017 falls on 19 February 2026 and the Ummul Qura calendar falls on 18 February 2026.[38]

i. The Begining Month of Syawwal 1448 H

The hilal has not meet Turkey's 2017 criteria because of the First Visibility occurs in the Pacific Ocean at 00:48:21 UT, there were no residents nearby and it had passed 00.00 UT. Meanwhile for the Ummul Qura' Calendar it has meets the criteria because ijtima' occurs before sun set on March 8 2027 at 09:30 UT/13:30 Mecca time and the new moon is already above the horizon with an altitude of 01° 54' 43" when the sun sets. The Indonesia criteria 2017: the first visibility occurs in Atlantic Ocean at 21:19:22 UT, so it has not meet the criteria because it has not been seen in the westernmost region of ASEAN. So, the beginning of the month of Shawwal 1448 H according to the Turkish criteria 2016 and the

[37] Moonsighting Committe Worlwide, "Moonsighting for Shawwal 1446," Worlwide, Moonsighting Committe, 2023.

[38] Moonsighting Committe Worlwide, "Moonsighting for Ramadan 1447," Worlwide, Moonsighting Committe, 2023.

Indonesia criteria 2017 falls on March 10 2027 and the Ummul Qura calendar falls on March 9 2027. [39]

j. The Begining Month of Dzulhijjah 1448 H

The hilal has entered Turkey's 2017 criteria even though the appearance of the first hilal / First Visibility in the Norwegian Sea is close to Greenland at 22:23:53 UT, while for the Ummul Qura Calendar it has meet the criteria due to ijtima' occurred before ghurub on May 6 2027 at 11:00 UT/14:00 Mecca time and the new moon was already above the horizon at an altitude of 2° 14' 32" at sunset. Indonesia criteria 2017: the first visibility in the Autonomous Okrug of Yalia, Russia at 18:17:10 UT, so it has not meet the criteria because it has not been seen in the westernmost region of ASEAN. So, the beginning of the month of Dzulhijjah 1448 H according to the Turkish criteria for 2017 and the Ummul Qura Calendar falls on June 7 2027 and the Indonesia criteria 2017 on June 8 2027. [40]

The enactment of the Global Islamic Calendar still raises debates, especially in the field of fiqh. An example of the implementation of the 2016 Turkish Criteria at the beginning of the month of Shawwal 1444 H First visibility of the new moon near London, England on 20 April 2023 at 19:19 UT / 21 April 2023 at 03:19 WIB. From the time of the initial hilal sighting, we still have to wait until 21 April 2023 at 00:00 UT / 21 April 2023 at 08.00 WIB in western Indonesia to await reports of the sighting of the hilal. This resulted in the more eastern regions having to wait around 14 hours to determine the start of the month of Shawwal 1444 H, thus impacting other aspects of worship, such as the issue of the obligation to pay zakat fitrah. Zakat fitrah is zakat that must be paid by every Muslim with reference to waqt al-wujub, namely the deadline for the imposition of zakat obligations. The benchmark for the obligation of a Muslim to issue zakat fitrah is at ghurub (sunset) on the last day of Ramadan. The majority of fiqh scholars

[39] Worlwide.

[40] Moonsighting Committe Worlwide, "Moonsighting for Dzulhijjah 1448," Worlwide, Moonsighting Committe, 2023.

from the three schools of thought (except the Hanafi school) think so. Muslims who die after ghurub still have the obligation to pay zakat fitrah. Meanwhile, if he dies before ghurub it is not like that. Conversely, babies born after ghurub do not carry out zakat fitrah obligations. This is one of the reasons ghurub is used as a benchmark for changing days in the Hijri calendar.[41] Meanwhile, the change of day from the 2017 Türkiye criteria is at 00:00 UT. In addition to the weakness of the 2017 Turkey criteria which still requires reporting the sighting of the new moon until 00.00 UT.[42] The Turkish criterion in fiqh and astronomy has an advantage when viewed from the understanding of the unity of mathla' because it often starts the beginning of the month first (based on reports of new moon sightings) because its area covers the whole world. While the Indonesia criteria 2017 proposal, it is more likely to start the month late, because the coverage area for the appearance of the hilal is too narrow, namely the boundary in the westernmost region of ASEAN countries. Meanwhile, the Ummul Qura' calendar differs only 2 times from the 2016 Turkish calendar, namely the beginning of Ramadan 1446 H and Shawwal 1448 H, because the new moon at that time had already appeared, but did not meet the criteria for imkanur rukyah Turkey / Indonesia, so astronomically it could not be accepted. if the agreement on the permissibility of using hisab is imkanur rukyah.

C. Conclusion

The implementation of the Turkish Global Islamic Calendar 2016, Indonesia Global Islamic Calendar 2017 and Ummul Qura' in the months of Ramadan, Shawwal and Dzulhijjah from 1444 to 1448 there is a difference of 8 out of 15 the beginning of the month means 53.33% and the similarity of the begining of the month is 46.67% (7 of the the first 15 months). The 2017 Turkish criteria calendar with the Ummul Qura

[41] Angkat, "Kalender Hijriah Global Dalam Perspektif Fikih."

[42] Muhammad Hidayat, "Aplikasi Kriteria Kalender Islam Global Muktamar Turki 2016 Dan Rekomendasi Jakarta 2017," *Al-Marshad: Jurnal Astronomi Islam Dan Ilmu-Ilmu Berkaitan* 5729, no. June (2018): 69, https://doi.org/https://doi.org/10.30596/jam.v4i1.1936.

Calendar is often similar, only 2 times different. Meanwhile, the biggest difference occurred between the Indonesia Global Islamic Calendar 2017 and the Ummul Qura Calendar withs 8 times differences.

The implementation of the use of the three calendars has several advantages and disadvantages. Fiqhly, Turkey's criteria for 2016, if guided by the unity of mathla' and astronomy, are the most established to become the Global Islamic Calendar, but there is a weakness in the application of the conditions for reporting new moon sighting until 00.00 UT, meaning that the day changes at midnight which results in areas that are more eastern have to wait a long time and can have an impact on the law of other worship. The Indonesia criteria have accommodated the weaknesses of the Turkey criteria but the scope of the hilal visibility limits is too narrow, so it is often late to start the month compared to others. The Ummul Qura calendar based on the results of the congress which became an agreement on the permissibility of using hisab is imkanur rukyah (crescent visibility), so the calendar does not meet the requirements. Therefore, three calendar above must complete each other to realize unified Islamic Global Calendar and new fiqh formulation of the global Islamic calendar and related worship

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