



# Reforming the Islamic Calendar and Religious Authority: Dynamics of Hijri Calendar Calculation in Indonesia within Persatuan Islam's Thought

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**Abstract:** Differences in determining the start of Hijri calendar months, particularly Ramadan, Shawwal, and Zulhijah, remain a recurring issue in Indonesia due to the persistent divide between users of *hisab* (astronomical calculations) and *rukyat* (moon sightings), each adhering to different criteria without a shared standard. This study offers a novel examination of Persatuan Islam (Persis), a prominent Islamic organization historically aligned with *hisab*, which has now shifted its stance by integrating *rukyat* into its calculations. Using a qualitative library research approach, the study draws on documentation and interviews, analyzed through the lenses of the philosophy of science and sociology of knowledge, to understand this paradigm shift. The findings show that Persis has transitioned to a *hisab cum ruykat* method, a hybrid approach combining calculations with empirical observation. This methodological innovation marks a significant development in Indonesia's Hijri calendar discourse. The research highlights this evolving paradigm as a promising alternative for bridging the long-standing divide and fostering the potential unification of the Hijri calendar in Indonesia.

**Keywords:** *Hisab* Transformation, Indonesian Hijri Calendar, Persatuan Islam

**Abstrak:** Perbedaan dalam menentukan awal bulan kalender Hijriah khususnya Ramadan, Syawal, dan Zulhijah masih menjadi isu yang terus terjadi di Indonesia karena masih adanya kesenjangan antara pengguna *hisab* (perhitungan astronomi) dan *rukyat* (pengamatan bulan), yang masing-masing menggunakan kriteria yang berbeda tanpa standar yang sama. Penelitian ini menawarkan kajian baru terhadap Persatuan Islam (Persis), sebuah organisasi Islam terkemuka yang secara historis sejalan dengan *hisab*, yang kini telah mengubah pendiriannya dengan mengintegrasikan *rukyat* ke dalam perhitungannya. Dengan menggunakan pendekatan penelitian kepustakaan kualitatif, penelitian ini memanfaatkan dokumentasi dan wawancara, yang dianalisis melalui lensa filsafat ilmu dan sosiologi pengetahuan untuk memahami pergeseran paradigma ini. Temuan penelitian menunjukkan bahwa Persis telah beralih ke metode *hisab cum ruykat*, pendekatan hibrida yang menggabungkan perhitungan dengan observasi empiris. Inovasi metodologis ini menandai perkembangan signifikan dalam wacana kalender Hijriah Indonesia. Penelitian ini menyoroti paradigma yang berkembang ini sebagai alternatif yang menjanjikan untuk menjembatani kesenjangan yang telah lama ada dan mendorong potensi penyatuan kalender Hijriah di Indonesia.

**Kata Kunci:** Transformasi *Hisab*, Kalender Hijriah Indonesia, Persatuan Islam

## Introduction

Disagreements over the start of Hijri calendar months, especially Ramadan, Shawwal, and Zulhijah, continue to occur frequently in Indonesia today.<sup>1</sup> Differences have happened since the Colonial period, the independence period, and even the current reform period. During Dutch colonization in Indonesia, various regions experienced disputes over the beginning of Ramadan and Shawwal. In Minangkabau, from 1207 H or 1792 M, such differences were evident between the Syattariyah, which observed the moon (*rukyat*), and the Naqsyabandiyah, which used calculations (*hisab*) to determine the dates.<sup>2</sup> The differences emerged again between proponents of *rukyat* (moon sighting) and *hisab* (astronomical calculation) regarding the start of Ramadan. In response, the Dutch colonial government sought the assistance of a prominent Betawi scholar, Sayyid Usman, to mediate the disagreement by clarifying the various methods used by Islamic scholars to determine the beginning of the fasting month.<sup>3</sup>

Before the Reformation era, news of differences usually only concerned differences between the government and one of the community organizations, such as the Persatuan Islam, Muhammadiyah, and Nahdlatul Ulama. However, after entering the Reformation era, news of differences became increasingly widespread on social media. The differences, which sometimes reach several days, occur due to the determination of the beginning of the Hijriah month by the Islamic Aboge, the Tarekat Naqsyabandiyah on Padang, and the Gowa An-Nazir Group. Each group or congregation has a different method for determining the start of the month.<sup>4</sup> The difference at the beginning of the month in the Hijri calendar is because there is still disagreement between users of *hisab* and *rukyat*.

Persatuan Islam determines the beginning of the Hijri month using the *imkanur rukyat* criteria developed by LAPAN. This method, formulated by senior LAPAN astronomer T. Djamaluddin, stipulates that the new month begins if, after the astronomical conjunction, the moon's position at sunset over Indonesian territory meets two conditions: a minimum altitude difference between the moon and the sun of 4 degrees, and an angular separation (elongation) of at least 6.4 degrees.<sup>5</sup> The method and criteria for determining the beginning of the Hijriah month, Persatuan Islam also recorded using *hisab ijtimak qabla al-gurub* and *hisab wujudul hilal*.<sup>6</sup>

<sup>1</sup> Ali Trigiyanatno, "The Shortest and Longest Pregnancy Period According to Fiqh and Legislation of Muslim Countries," *Al-Adalah* 19, no. 1 (June 2022): 49–68, <https://doi.org/10.24042/adalah.v19i1.6643>.

<sup>2</sup> Muhamad Syazwan Faid et al., "Methods In Determining New Hijri Month: A Thematic Review From Islamic Jurisprudence Perspective," *Malaysian Journal of Syariah and Law* 13, no. 1 (March 2025): 75–99, <https://doi.org/10.33102/mjssl.vol13no1.687>.

<sup>3</sup> Nico J G Kaptein, *Islam, Colonialism and the Modern Age in the Netherlands East Indies: A Biography of Sayyid 'Uthman (1822–1914)*, vol. 4 (Brill, 2014).

<sup>4</sup> A.L.A.M. Nasir et al., "New Crescent Moon Detection Using Circular Hough Transform (CHT)," *Astronomy and Computing* 51 (April 2025): 100902, <https://doi.org/10.1016/j.ascom.2024.100902>; Ahmad Izzuddin, *Fiqh Hisab Rukyah Di Indonesia: Upaya Penyatuan Mazhab Rukyah Dengan Mazhab Hisab* (Logung Pustaka, 2003); Susiknan Azhari, "Penggunaan Sistem Hisab Dan Rukyah Di Indonesia," Yogyakarta: Pascasarjana UIN Sunan Kalijaga, 2006; Ahmad Izzuddin, "Hisab Rukyah Islam Kejawan (Studi Atas Metode Hisab Rukyah Sistem Aboge)," *Al-Manahij: Jurnal Kajian Hukum Islam* 9, no. 1 (2015): 123–40; Muhammad Fikri Maulana Nasution, "Khazanah Penentuan Awal Bulan Kamariah Di Indonesia," Yogyakarta: Calpulis, 2018; B Taufan, "Sosiologi Hukum Islam: Kajian Empirik Komunitas Sempalan," Yogyakarta: CV Budi Utama, 2016.

<sup>5</sup> Mohammed Gharaybeh, "Jurisprudential Reliance on Astronomical Calculations in Determining the Beginnings of the Hijri Month," 2025, 160–77, [https://doi.org/10.1007/978-981-96-3276-3\\_13](https://doi.org/10.1007/978-981-96-3276-3_13); Mohammad Iqbal Santoso, "Hisab Imkanur-Rukyah Kriteria Awal Bulan Hijriyyah Persatuan Islam," *Garut, Jumadil-Ula H 1433* (2023); Nazaruddin Umar et al., "Upaya Penyatuan Kalender Hijriyyah Indonesia; Sejak 1975 Hingga Kini," Pamekasan: Duta Media Publishing, 2018.

<sup>6</sup> Mohd Saiful Anwar Mohd Nawawi et al., "Hijri Month Determination in Southeast Asia: An Illustration Between Religion, Science, and Cultural Background," *Heliyon* 10, no. 20 (October 2024): e38668, <https://doi.org/10.1016/j.heliyon.2024.e38668>; Iqbal Santoso, "Hisab Imkanur-Rukyah Kriteria Awal Bulan Hijriyyah Persatuan Islam."

The reform of the Hijri calendar thought initiated by Persatuan Islam can be seen as consistent with the philosophy of science, as most scientific disciplines, whether in the natural sciences, social sciences, or religious studies, undergo paradigm shifts over time. Scientific inquiry is inherently historical, making it open to change, refinement, re-evaluation, and revision in the ongoing development of epistemology. In the context of efforts to unify the Hijri calendar in Indonesia, the renewal of the Hijri calendar thought by Persatuan Islam is a crucial subject to examine. This article explores how Persatuan Islam has reformed its approach to the Hijri calendar and assesses the implications of this renewal for realizing a unified Hijri calendar in Indonesia.

### Epistemological Renewal of the Hijri Calendar in the Thought of Persatuan Islam

Persis initially embraced the hisab method for determining the onset of the Hijri month, as seen in A. Hassan's response to inquiries about the permissibility of beginning and ending Ramadan. He supported the legitimacy of hisab as a valid method in Islamic jurisprudence.<sup>7</sup> According to A. Hasan, using *hisab* (astronomical calculation) is valid and proven more accurate than moon sighting (*rukyat*).<sup>8</sup> Using reckoning to determine the beginning of the month, especially the start of Ramadan and Shawwal, is also supported by Moenawar Chalil as an ulama figure in Persis.<sup>9</sup> The hisab referred to by A. Hassan and Moenawar Chalil are not known for certain whether it is the hisab of *ijtimak qabla al-gurub*, the *hisab wujudul hilal*, or the *hisab imkanur rukyat*.

Persis use of the hisab method is explicit in its official almanac, which applies the *ijtimak qabla al-ghurub* calculation to determine the start of the Hijri month. The criteria for *ijtimak qabla al-gurub* were used in Persis for almost 35 years, starting from 1960 - 1995 AD/1379-1416 AH, with the creation of an almanac by K.H. E. Abdurrahman.<sup>10</sup>

The rule adhered to by Persis is that the *ijtima* of the two lights (moon and sun) is a guideline for determining the boundaries of the two Hijriah months. The legal basis is the interpretation of the word *manazil* in Q.S. Yunus verse 5 and Q.S. Yasin verse 39, which is interpreted to mean that *ijtimak* is the *manzilah* at the beginning of the month, namely the appearance of the new moon.<sup>11</sup> The concept of *ijtimak qabla al-gurub* using the rule "*ijtimak al-nayyiraini isbatun bain al-syahrain*" was inspired by the book used as a reference book in carrying out the hisab at the beginning of the month, namely *Sullamun Nayyirain* by Muhammad Manshur bin Abdul Hamid ad-Dumairi, Jakarta. This hisab system seems to focus on pure astronomy, where astronomers say that a new moon occurs

<sup>7</sup> Imam Labib Hibaurrohman, Farah Nuril Izza, and Al Furqon Dono Hariyanto, "Tanthawi Jauhari's Interpretation of Celestial Movements and Its Fiqh Implications for Hijri Month Determination," *Jurnal Ilmiah Mizani: Wacana Hukum, Ekonomi Dan Keagamaan* 11, no. 2 (October 2024): 244, <https://doi.org/10.29300/mzn.v11i2.5344>; Abdulkadir Hassan, *Soal-Djawab Tentang Berbagai Masalah Agama*, vol. 2 (Diponegoro, 1969).

<sup>8</sup> Tiryono Ruby, "Determination of 1-Dzuhijjah Date in the Hijri Calendar System Using Angle Method Moon-Earth-Sunset (MES)," 2024, 030010, <https://doi.org/10.1063/5.0209643>; Ahmad Syarif Hakim, "Dinamika Kriteria Kalender Hijriyah Persis," in *Hisab Rukyat Evaluation Work Meeting In*, 2020.

<sup>9</sup> A. Jusran Kasim et al., "Determination of Hijri Calendar in Islamic History and Its Criteria in Southeast Asia," *Journal of Al-Tamaddun* 19, no. 1 (June 2024): 247–59, <https://doi.org/10.22452/JAT.vol19no1.18>.

<sup>10</sup> Musa Erkaya and Aktoro Imarah Uulu, "Kütüb-i Tis'a ve İlk Üç Asır Eserleri Bağlamında Abdallarla İlgili Rivâyetlerin Hadis Metodolojisi Açısından Değeri," *Hitit İlahiyat Dergisi* 23, no. 1 (June 2024): 432–74, <https://doi.org/10.14395/hid.1437977>; Abu Sabda, *Ilmu Falak: Rumusan Syar'i Dan Astronomi: 3* (Filosofis Indonesia Press, 2024).

<sup>11</sup> Roland Hodler, Paul A Raschky, and Anthony Strittmatter, "Religion and Terrorism: Evidence from Ramadan Fasting," *Journal of Peace Research* 61, no. 3 (May 2024): 351–65, <https://doi.org/10.1177/00223433221145641>; Iqbal Santoso, "Hisab Imkanur-Rukyat Kriteria Awal Bulan Hijriyah Persatuan Islam."

when the sun and moon are in conjunction.<sup>12</sup> This school is based only on *ijtimak* and ignores *rukyat*. According to this school, *Ijtimak* is the basis for separating two consecutive Hijriah months. The time before the *ijtima* occurs is the previous month, while the time after the *ijtima* occurs is the new month. It is rare to find someone who strictly adheres to these criteria. When determining the beginning of the Hijriah month, this sect usually combines the *ijtimak* time with other natural phenomena such as sunset, sunrise, and midnight, so the criteria develop and are accommodating.<sup>13</sup>

K.H. A. Ghazali then continued the creation of the Persis almanac as a student of K.H. E. Abdurrahman around the mid-1970s AD/1390s H. When the almanac was made by K.H. A. Ghazali, K.H. E. Abdurrahman only acted as a proofreader. At that time, the book used as a reference for creating the almanac was the book *Sullamun Nayyirain*. Furthermore, in the early 1980s AD/1400s AH, reference books for making almanacs were added to the book *Fathu Roufil Mannan* by Sheikh Dahlan, Semarang, and *al-Khulashatul Wafiyah* by Zubair Umar al-Jailani, Salatiga.<sup>14</sup> The first two books are included in the category of true reckoning *taqribi*, while the last is true reckoning *tahkiki*. The true reckoning of *taqribi* still uses lunar and solar data based on Ulugh Bek's data and tables, with a simple calculation process using only add, subtract, divide, and multiply. Meanwhile, the book of true reckoning, *Tahkiki*, uses corrected tables and relatively more complicated calculations and uses the science of measuring spherical triangles.<sup>15</sup> The references have been updated using books with more valid data and calculation processes.

The criteria for *ijtimak qabla al-gurub* stipulate that if the *ijtimak* occurs before sunset, starting at sunset that day, it will enter a new date. In contrast, if the *ijtimak* happens after sunset, then that night is still the 30th of the current month, the first day falls on sunset the day after tomorrow. This criterion believes that if the *ijtimak* occurs before sunset, the crescent must be positively above the horizon at sunset.<sup>16</sup>

Then, in 1996 AD/1417 AH, the criteria for *ijtimak qabla al-gurub* were updated with the criteria for *wujudul hilal*. K.H. A. Ghazali used this criterion in preparing the Exact Almanac for 6 years from 1995-2001 AD/1416-1422 H. Initially in May 1995 AD/Muharam 1416 H. The criteria for the form of the hilal include the requirements for the form of the hilal in Bandung from May 1995-August 2000 AD/Muharam 1416-Safar 1421 H, meaning that if at sunset in the city of Bandung, the new moon is

<sup>12</sup> Ryam Abdul Kareem Hussein, and Baydaa Hussein Awn, "Ramadan Fasting in Relation to Salivary Uric Acid and Selective Physical Parameters," *Diyala Journal of Medicine* 26, no. 1 (April 2024): 55-65, <https://doi.org/10.26505/djm.v26i1.1079>; Ahmad Izuddin and M Ag, "Ilmu Falak Praktis; Metode Hisab-Rukyat Praktis Dan Solusi Permasalahannya," *Pustaka Al-Hilal*, 2012; Iqnaul Umam Ashidiqi, "Irsyadul Murid Hisab Of The Beginning Islamic Lunar Month On Digital Falak Web-Based," *Syariah: Jurnal Hukum Dan Pemikiran* 19, no. 2 (2019): 141-50, <https://doi.org/10.18592/sjhp.v19i2.3134>.

<sup>13</sup> Norazman Alias and Nor Hafizi bin Yusof, "Eminence and Contributions of the Companions in the Development and Teaching of the Qur'an in the First Hijri Century," *Journal of Islamic Thought and Civilization* 14, no. 1 (June 2024): 191-208, <https://doi.org/10.32350/jitc.141.12>; Susiknan Azhari, *Ilmu Falak: Perjumpaan Khazanah Islam Dan Sains Modern* (Suara Muhammadiyah, 2007).

<sup>14</sup> Dodi Devianto et al., "An Innovative Model for Capturing Seasonal Patterns of Train Passenger Movement Using Exogenous Variables and Fuzzy Time Series Hybridization," *Journal of Open Innovation: Technology, Market, and Complexity* 10, no. 1 (March 2024): 100232, <https://doi.org/10.1016/j.joitmc.2024.100232>; Ahmad Syarief Hakim, "Sekilas Sejarah Almanak Persis," *Unpublished Paper*, 2013.

<sup>15</sup> Mohamed H Emara et al., "The Need for a Risk-Assessment Tool among Patients with Chronic Liver Diseases Interested in Intermittent Fasting: Ramadan Model," *Nutrition Reviews* 82, no. 2 (January 2024): 240-43, <https://doi.org/10.1093/nutrit/nuad046>; Muhammad Hasyim Manan and Muammal Hamidy, "Menuju Kesatuan Hari Raya," 1995.

<sup>16</sup> Jamrud Aminuddin, Sunardi, and Pakhrur Razi, "Additional of the Light Filter to the Telescope for Monitoring of the New Moon of the Hijri Calendar," 2024, 145-54, [https://doi.org/10.1007/978-981-97-5746-6\\_13](https://doi.org/10.1007/978-981-97-5746-6_13); Hakim, "Sekilas Sejarah Almanak Persis."

above 0° from the Mar'i horizon or the sun sets before the moon sets. That night and the following day, the 1st of the new Hijri month is set, and this applies throughout Indonesia, although there are cities or other areas where the *hilar* is still below the horizon.<sup>17</sup>

The update of the criteria for *ijtimak qabla al-gurub* to the requirements for *wujudul hilar* begins with an event where not every *ijtimak* occurs before sunset, the crescent must be positively above the horizon. For example, this case occurred on Sha'ban 29, 1411 AH/March 16, 1991 AD, *ijtimak* had occurred at 15:12:03 WIB, but the *hilar* was still below the horizon at sunset throughout Indonesia. Sunset in Sabang at 18:50:04 WIT, *hilar* height -0° 22'56 ", sunset in Merauke at 17:12:03 WIT, *hilar* height -2° 53'43". The Persis almanac determined that 1 Ramadan 1411 AH fell on Sunday, March 17, 1991 AD, following the *ijtima' qabla al-gurub* criteria. In contrast, in the Government Almanac, it fell on Monday, March 18, 1991. Realizing that there was an error in the *ijtima* criteria ' *qabla al-gurub*, and the results of communication with Wahyu Widiana, who at that time was Head of Sub-Directorate IV of the Directorate of Religious Justice, Ministry of Religion, who was in charge of hisab and rukyat, then K.H. A. Ghazali changed the criteria for *ijtimak qabla al-gurub* with the criteria for *wujudul hilar*. However, these changes were not made immediately after this event; they were only made in 1995, as mentioned above. It looks like K.H. A. Ghazali alone has not convinced the Hisbah Council to respect the criteria for K.H.E. Abdurrahman's legacy as their teacher and role model.

Furthermore, in September 2000 AD/ Rabiulawal 1421 AH, until 2001, the criteria for the *hilar*'s shape were the *hilar* throughout Indonesia. This means that the beginning of the month is determined when the new moon is positive throughout Indonesia.<sup>18</sup> The new moon's appearance criteria are applied uniformly across Indonesia because, in practice, the moon does not always set after the sun at sunset following the *ijtimak*; in some cases, the moon even sets before the sun. The legal for determining the new moon was not clearly defined at such times.<sup>19</sup> This renewal occurred after the new Hisab and Rukyat Council was formed at the 12th Persis Congress in 2000 AD/1421 AH. The entry of new members brought positive implications for the development of the Council, including discourse on the validity of the criteria for the existence of the *hilar*. Following their educational background and social environment, the new members think that the criteria for the appearance of the new moon do not follow Sharia guidelines. According to them, what follows *syar'i* guidance is the criteria for *imkanur rukyat*. These two opinions continued to be an internal problem for the Hisab and Rukyat Persis Councils, which could not be reconciled, so that finally, at the end of 2000 AD/1421 AH, PP Persis took the initiative to discuss this issue by inviting the Hisbah Council, Thomas Djamaluddin from LAPAN, and Moedji Raharto from ITB. The deliberation resulted in two decision dictums. First, the Exact Almanac is based on the criteria for the appearance of the new moon. Second, the new moon is positive throughout Indonesia. This decision is a middle ground between two opinions that have developed in the Hisbah Council, where the first group still wants to

<sup>17</sup> Irmawati Sagala and Tasnim Rahman Fitra, "The Use of the Aboqe Calender in the Jambi Manuscripts: Power and Cultural Relations between Sultanates," *Journal of Indonesian Islam* 18, no. 1 (June 2024): 127, <https://doi.org/10.15642/JIIS.2024.18.1.127-154>; Sabda, *Ilmu Falak: Rumusan Syar'i Dan Astronomi*: 3.

<sup>18</sup> Ahmad Choirul Rofiq, "Continuity and Change Process to Sanctify the Holy Month of Muharram in the Suroan Tradition," *Cogent Arts & Humanities* 11, no. 1 (December 2024), <https://doi.org/10.1080/23311983.2024.2335779>; Sabda, *Ilmu Falak: Rumusan Syar'i Dan Astronomi*: 3; Meirison Meirison, Desmadi Saharuddin, and Husnul Fatarib, "The Dynamics of Islamic Jurisprudence in The Eyes of Contemporary Muslims," *El-Mashlahah* 12, no. 1 (June 30, 2022): 70–83, <https://doi.org/10.23971/elma.v12i1.3939>.

<sup>19</sup> Murad Al-Rajab, Samia Loucif, and Yazan Al Rishah, "Predicting New Crescent Moon Visibility Applying Machine Learning Algorithms," *Scientific Reports* 13, no. 1 (April 2023): 6674, <https://doi.org/10.1038/s41598-023-32807-x>; Iqbal Santoso, "Hisab Imkanur-Rukyat Kriteria Awal Bulan Hijriyah Persatuan Islam."

maintain the criteria for wujudul hilal as they currently are. Still, the second group believes that the criteria for imkanur rukyat are following syar'i guidance and following the postulates that they got.<sup>20</sup>

The concept of *wujudul hilal* with the *matlak wilayatul hukmi* is essential because it relates to whether it is halal or haram to break the fast or Eid during the fasting period. When the new moon has not fully appeared in all parts of Indonesia, but it has been decided that the month of fasting or Eid has entered, some Muslims are forced to celebrate Eid because they follow some Muslims in areas where the new moon has already appeared.<sup>21</sup> According to Syarif Ahmad Hakim, if the hilal wujud line divides Indonesia into two regions, one positive (to the West) and one negative (to the East), then the western (positive) region should follow the eastern (negative) region. This approach is considered safer and more in line with the Sunnah. It allows Muslims in the Eastern region to complete 30 days of fasting during Ramadan. At the same time, those in the West can also fast on the same day, since at sunset on the 29th of Ramadan, the new moon is still obstructed (*gumma*) and not visible, consistent with several hadiths of the Prophet. This method can be likened to the principle of ihtiyat (precaution) in determining the beginning of prayer times. Ihtiyat involves adding a buffer to prayer times to ensure accuracy, particularly for Muslims living west of a central reference point. This is because prayer time calculations typically use the coordinates of the city center, making them directly applicable only to areas from the city center eastward. Without ihtiyat, Muslims in the West might perform prayers before their proper time, rendering the act invalid. Therefore, Muslims in the East should wait patiently before breaking their fast or praying, rather than having those in the West do so prematurely by following the Eastern timing. This principle appears to inform Saadod'din Djambek's understanding: if the 0° hilal visibility line cuts through a judge's jurisdiction, it should be shifted westward. In practice, Muslims in the western region follow the beginning of the month as determined by those in the East.<sup>22</sup>

Hisab, a method for determining the beginning of the Hijri month, was initially introduced through the early ideas of A.K.H. E. Abdurrahman and later developed by Hassan with the publication of an almanac. However, it had not yet received official recognition from Persis. It was not until 2001 CE (1422 AH) that Hisab was formally endorsed through an official decision affirming its validity for determining the lunar month's start in religious observances. To promote unity in the Islamic calendar, standardized guidelines for Hisab are essential. This endorsement is grounded in verses from the Qur'ān and hadith, which highlight the roles of the sun and moon in determining the beginning of lunar months and acts of ritual worship. The verse and hadith are Q.S. Al-Baqarah verse 89: "They ask you about the crescent moon, Say: "The crescent moon is a sign of time for people and (for the pilgrimage) of Hajj, and it is not a virtue to enter houses from behind them, but it is a virtue that is a virtue of people who is devout. and enter the houses from their doors; and fear Allah

<sup>20</sup> Kahraman Bulgurcu, "Kiraat İmamlarından Nafi', İbn Kesîr ve İbn Âmir'in Hadis Rivayetindeki Rolü," *Mütefekkir* 10, no. 20 (December 2023): 465–82, <https://doi.org/10.30523/mutefekkir.1405304>; Hakim, "Sekilas Sejarah Almanak Persis."

<sup>21</sup> Alimuddin Alimuddin, "Hijriyah Months and The Construction of Religious Moderation in The Sombaopu Community of Gowa, South Sulawesi," *Al-Adalah* 20, no. 1 (June 2023): 137, <https://doi.org/10.24042/adalah.v20i1.16818>.

<sup>22</sup> Mohammed I. Alotaibi et al., "Changes in Dietary and Lifestyle Behaviors and Mental Stress among Medical Students upon Ramadan Diurnal Intermittent Fasting: A Prospective Cohort Study from Taif/Saudi Arabia," *BMC Public Health* 23, no. 1 (July 2023): 1462, <https://doi.org/10.1186/s12889-023-16385-1>; Ahmad Syarief Hakim, "Kriteria Wujudul Hilal Dan Imkanur Ru'yah Dalam Tinjauan Syar'i," *Unpublished Paper*, 2007; Hamdan Mahmud et al., "Understanding Qibla Orientation through the 'Nagara' Artificial Compass: A Falak Legal Perspective," *Syariah: Jurnal Hukum Dan Pemikiran* 23, no. 1 (July 22, 2023): 78–91, <https://doi.org/10.18592/sjhp.v22i2.6492>; ABD Karim Faiz, "Moderasi Fiqh Penentuan Arah Kiblat: Akurasi Yang Fleksibel," *JIL: Journal of Islamic Law* 1, no. 1 (February 27, 2020): 83–99, <https://doi.org/10.24260/jil.v1i1.23>.

so that you will be successful.” Q.S. Yunus verse 5 “It is He who makes the sun shine and the moon shine and He appoints manzilahs (places) for the months, so that you know the number of years and the reckoning (time). God did not create it with such rights. He explains the signs (of His greatness) to those who know.” Q.S. al-Baqarah verse 185. “The specified days are the month of Ramadan, the month in which the Al-Quran was revealed (the beginning) as guidance for humankind and explanations regarding that guidance and the distinction (between what is right and what is false). Therefore, whoever among you is present (in the country where he lives) in that month, let him fast during that month, and whoever is sick or on a journey (and breaks the fast), then (he must fast), as many days as he missed, on other days. Allah desires ease for you, and does not desire hardship for you. Let you make the number sufficient and glorify Allah for the guidance He has given you, so that you may be grateful.” Hadith narrated by al-Bukhari “Fast you because you see the new moon, and break your fast because you see the new moon, if clouds cover it, then complete the number of Syakban thirty days.”<sup>23</sup>

Following the official recognition of *hisab* as a valid method for determining the beginning of the Hijri month, Persatuan Islam (Persis) adopted a new approach known as *hisab imkanur rukyat*. This method was first implemented in preparing the Islamic calendar in 1423 H (2002 AD), during the leadership of Abdurrahman KS. The criteria for *imkanur rukyat*, or the visibility of the new moon (*hilar*), were based on the standards established by the MABIMS agreement, a cooperative initiative among the Ministers of Religious Affairs from Brunei, Indonesia, Malaysia, and Singapore.<sup>24</sup> The change from using the *hilar* shape criteria to the *Imkanur Rukyat* criteria based on the MABIMS standard was the result of discussions between the *Hisab and Rukyat Council* and the *Hisbah Persis Council* in early 2002 AD (1423 AH) in Bandung. Almanacs from 1423 H (2002 AD) to 1433 H (2012 AD) were based on this new criterion.<sup>25</sup> This update is based on the opinion that, for the new moon to be called wujud, apart from the new moon having to be above the horizon at sunset after *ijtimak*, the new moon must also be able to be rukyat or imkanur rukyat. The *imkanur rukyat* method determines the beginning of the Hijri month based on the fulfillment of three key conditions: (1) *Ijtimak* (conjunction) must occur before sunset; (2) at sunset, the crescent moon (*hilar*) must be above the apparent horizon (*ufuq mar'i*); and (3) the *hilar* must be potentially visible. According to K.H. Usman Sholehuddin, a prominent figure in the *Hisbah Council of Persis*, the *hisab imkanur rukyat* method is the most appropriate approach, as it represents *al-jam'u*, a synthesis of the Qur'anic teachings, the Sunnah of the Prophet, direct field observations, and precise astronomical calculations.<sup>26</sup>

In 2012 AD/1433 AH, Persis again updated its thinking on the Hijri calendar by issuing a decision regarding the Criteria for Determining the Beginning of the Lunar Month between Wujudul Hilar and

<sup>23</sup> M.S. Faid, M.S.A. Mohd Nawawi, and M.H. Mohd Saadon, “Analysis Tool for Lunar Crescent Visibility Criterion Based on Integrated Lunar Crescent Database,” *Astronomy and Computing* 45 (October 2023): 100752, <https://doi.org/10.1016/j.ascom.2023.100752>; M Nashiruddin Al-Albani, *Ringkasan Shahih Muslim* (Gema Insani, 2005).

<sup>24</sup> J.A. Utama et al., “Young Lunar Crescent Detection Based on Video Data with Computer Vision Techniques,” *Astronomy and Computing* 44 (July 2023): 100731, <https://doi.org/10.1016/j.ascom.2023.100731>; Sabda, *Ilmu Falak: Rumusan Syar'i Dan Astronomi*: 3.

<sup>25</sup> Sulthan Al Rashid and Syed Ziaur Rahman, “Preventing and Controlling an Acute Attack of Migraine during the Fasting Month of Ramadan An Islamic and Scientific Perspective from Prophetic Medicine,” *Bangladesh Journal of Medical Science* 22, no. 2 (April 2023): 280–83, <https://doi.org/10.3329/bjms.v22i2.64985>; Hakim, “Sekilas Sejarah Almanak Persis.”

<sup>26</sup> Abdul Mufid and Thomas Djamaluddin, “The Implementation of New Minister of Religion of Brunei, Indonesia, Malaysia, and Singapore Criteria towards the Hijri Calendar Unification,” *HTS Teologiese Studies / Theological Studies* 79, no. 1 (June 2023), <https://doi.org/10.4102/hts.v79i1.8774>; Usman Sholehuddin, “Imkanur Rukyat: Metode Yang Paling Tepat,” *Risalah: Majalah Dakwah Islamiyah*, no. 9 (n.d.).

Imknur Rukyat. In the decision of the Hisbah Council, it was stated that Persis determined that the criteria for the start of the Hijriah month were imkanur rukyat or visibility of the new moon, and the criteria for visibility of the new moon used were handed over to the Persis Hisab and Rukyah Council. The basis used by Q.S. al-Baqarah verse 189, Q.S. Yunus verse 5, hadith narrated by al-Bukhari about the order to fast and break fast because of seeing the new moon, Abu Dawud's hadith about the Prophet's order to friend Bilal to announce fasting to other friends when there was a Bedouin who claimed to see the new moon, and the hadith Kuraib narrated by Muslim about *matlak*.

The above decision is a form of accommodation from the Hisab and Rukyat Persis Council. Furthermore, along the way, he received criticism from astronomers and other parties regarding the MABIMS version of the criteria for imkanur rukyat regarding the height limit of the new moon, the moon-sun arc distance, and the age of the new moon being too small. This caused the Hisab and Rukyat Persis Council to review these criteria and examine the results of research by astronomers on the youngest new moon observed by optical instruments. Based on the above thoughts, Persis on March 31 2012, AD /8 Jumadilawal 1433 H changed the MABIMS version of the rukyat imkanur criteria to astronomical rukyat imkanur criteria because these criteria have been scientifically tested. These criteria began to be applied in preparing the almanac 1434 H/2013 AD.<sup>27</sup>

The criteria for *imkanur rukyat*, or the visibility of the new moon as adopted by Persatuan Islam (Persis), are outlined in a Joint Decree between the Hisab and Rukyat Council and the Hisbah Council of Islamic Unity. This decree stipulates two main provisions: (1) The *imkanur rukyat* criteria must be based on scientifically grounded, empirically tested, and accountable principles of *hilar* visibility. (2) The current standard requires that at sunset, in any region within the Unitary State of the Republic of Indonesia, the altitude difference between the moon and the sun must be at least 4°, and the elongation (angular distance) between them must be no less than 6.4°. These criteria ensure consistency and reliability when determining the start of the Hijri month. Persis adopted this criterion for reckoning at the beginning of the Hijrah month because it has been scientifically tested.<sup>28</sup> The above criteria are a replacement for the MABIMS rukyat imkanur criteria, which are felt to no longer follow the reality on the ground and the development of astronomical science. This criterion was adopted from the Hisab Rukyat Indonesia criteria initiated by Thomas Djamaluddin, which was a refinement of the LAPAN criteria, which were initially intended to perfect the MABIMS criteria, whose provisions were: (1) The lifespan of the crescent moon must be more than 8 hours. (2) The moon-sun angle distance must be more than 5.6 degrees. (3) The height difference is more than 3 degrees (hilar height is more than 2 degrees) for an azimuth difference of 6 degrees, but if the azimuth difference is less than 6 degrees, an even greater height difference is needed. For an azimuth difference of 0°, the height difference must be more than 9°.<sup>29</sup>

<sup>27</sup> Eugenio Garosi, "The 'Year According to the Arabs': The Rise of the 'Hijra' -Era in the Context of the Administrative Structures in the Early Islamic Empire," *Islam and Christian-Muslim Relations* 34, no. 4 (October 2023): 337-64, <https://doi.org/10.1080/09596410.2023.2282844>; Hakim, "Sekilas Sejarah Almanak Persis."

<sup>28</sup> T Muliawati and D G Harbowo, "A Statistical Review of the Dates and Patterns of Volcanic Activity of Lewotolo Volcano, East Nusa Tenggara, Indonesia," *IOP Conference Series: Earth and Environmental Science* 1245, no. 1 (September 2023): 012006, <https://doi.org/10.1088/1755-1315/1245/1/012006>; Hakim, "Dinamika Kriteria Kalender Hijriyah Persis." East Nusa Tenggara (Lesser Sunda Islands

<sup>29</sup> Zufriani Zufriani et al., "Rukyat as Determination of the Lunar Month Beginning: A Method, Obstacles, and Debate in Indonesia," *JURIS (Jurnal Ilmiah Syariah)* 22, no. 1 (June 2023): 53, <https://doi.org/10.31958/juris.v22i1.6570>; Thomas Djamaluddin, "Visibilitas Hilal Di Indonesia," *Warta LAPAN* 2, no. 4 (2010); Thomas Djamaluddin, *Menggagas Fiqih Astronomi, and Telaah Hisab Rukyat, "Analisis Visibilitas Hilal Untuk Usulan Kriteria Tunggal Di Indonesia," Dalam Johan Muhammad, Dkk., Matahari*

The system used to calculate the beginning of the Hijri month based on the LAPAN 2012 *imkanur rukyat* criteria is known as the Exact Astronomical Reckoning. The solar and lunar data employed are called the Sun and Moon Data of the Hisab and Rukyat Council of Persis. This calculation system is termed the Persis Astronomical Reckoning System. The primary reference for generating astronomical data is *Astronomical Algorithms* by Jean Meeus, which provides highly accurate formulas for determining the positions of the Sun and the Moon. A Delta T correction is incorporated into the calculations, using a modified version of the Delta T polynomial formulas from NASA's *Five Millennium Canon of Solar Eclipses* (Espenak and Meeus). These modifications include simplifying the formula and adding input parameters for date, month, and year.<sup>30</sup>

According to the author's observations, the preparation of the Exact calendar, which is based on the LAPAN imkanur rukyat criteria above, is not a reference for determining the beginning of the Hijriah month, namely the three months of Ramadan, Shawwal, and Zulhijah. The circular has an additional clause regarding the early fall of these months. For example, there is a note in the initial circular letter of Ramadan, Shawwal and Zulhijah 1436 H/2015 AD in number 2. Suppose a rukyat hilal testimony report states that the hilal was seen on Thursday, July 16, 2015, after sunset. In that case, the Islamic Association will accept the rukyat testimony report if the testimony exists in more than one place, is proven by visual images of the hilal, and determines one Shawwal 1436 AH Friday, July 17 2015 M. However, suppose the rukyat report is not accompanied by valid visual evidence of the new moon. In that case, the Islamic Association will continue to carry out Eid al-Fitr one Syawal 1436 AH on Saturday, July 18, 2015 AD.

During the isbat session for the beginning of Syawal 1436 H/ 2015 AD which was held on Thursday July 16 2015, the government along with representatives from mass organizations and experts in astronomy and astronomy finally decided that Syawal 1436 H/ 2015 AD would fall on Friday July 17 2015 AD based on reckoning, and rukyat results in four locations. At that time, Persis decided that the fall of one Shawwal was the same as the government's decision, namely Friday, July 17, 2015, while in the Persis almanac, the date for the first Shawwal fell on Saturday, July 18, 2015 AD. It was previously stated by the secretary of the Persis Hisab and Rukyat Council, Syarif Ahmad Hakim, that Persis will follow the decision of the General Chairperson who attended the isbat session to determine the Eid al-Fitr holiday. According to the author, Persis's decision regarding the beginning of the month of Shawwal above certainly makes the published calendar appear not entirely consistent as a reference for activities, both muamalah and worship.

For the initial month calculation system, exact astronomical calculations in finding ijtima can be done in two ways; (1) Using the Meeus algorithm to see the New Moon, namely the time when the ecliptic longitude of the moon is the same as the ecliptic longitude of the sun, which includes various correction terms. (2) Using a formula like that used in the Ministry of Religion's Ephemeris System, the results will differ because the data collection source is different. Henceforth, the variables calculated are the same as those estimated in the Ephemeris of the Ministry of Religion, such as geocentric,

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Dan Lingkungan Antariksa. Jakarta: Dian Rakyat, 2010; Thomas Djameluddin, "Astronomi Memberi Solusi Penyatuan Ummat" (LAPAN, 2011).

<sup>30</sup> Abdulmajeed Bolade Hassan-Bello, "Sharia and Moon Sighting and Calculation Examining Moon Sighting Controversy in Nigeria," *Al-Ahkam* 30, no. 2 (October 2020): 215–52, <https://doi.org/10.21580/ahkam.2020.30.2.5635>; Ahmad Syarif Hakim, "Awal Bulan Ramadhan, Syawal, Dzulhijjah 1438 H Dan 1 Muharram 1439 H Menurut Hisab Astronomis Persatuan Islam (Persis)," *Papers, Presented in the Muzakarah Determination Event 1* (2017).

topocentric, hilal azimuth, and solar azimuth. Several additional variables are calculated, such as topocentric moon-sun height difference, topocentric moon-sun elongation, crescent width, and the approximate value of Q Odeh. Suppose the astronomical data of the Hisab and Rukyat Council are compared with those of the Hisab Rukyat Ministry of Religion. In that case, it will be found that: (1) The Ministry of Religion ephemeris data for hisab rukyat has not included Delta T corrections, while the Persis astronomical sun and lunar data have included Delta T corrections in their calculations. (2) Ephemeris data from the Ministry of Religion, in the lunar data in the apparent longitude column, it seems that it is not yet apparent longitude, but it is still true. It also does not include full lunar longitude correction terms.<sup>31</sup>

### Hisab Cum Rukyat as a Renewal of Islamic Unity Hijri Calendar Thought

Persis's renewal of the Hijri calendar thought was carried out systematically within an established system that integrates Islamic jurisprudence and scientific principles. The process unfolded in structured stages, beginning with the use of *hisab ijtimak qabla al-ghurub*, then transitioning to local *hisab wujudul hilal*, followed by national *hisab wujudul hilal*, and eventually adopting *hisab imkanur rukyat*, which was initially based on MABIMS criteria and later refined with LAPAN standards. Regarding calculation methods, Persis initially relied on classical texts classified as *hisab hakiki taqribi*, such as *Sullamun Nayyirain* and *Fathur Rauf al-Mannan*. These were later replaced by more accurate references from the *hisab hakiki tahkiki* category, like *al-Khulashatul Wafiyah*. Further advancements included adopting modern astronomical data, such as the Ephemeris Hisab Rukyat issued by Indonesia's Ministry of Religious Affairs, and ultimately using the Jean Meeus algorithm for precise astronomical reckoning.<sup>32</sup>

A close examination of Persis's renewal of the Hijri calendar reveals that it stemmed from a critical reassessment of the core principles underlying *rukayat* (moon sighting) and *hisab* (astronomical calculation). Persis identified that previous methods no longer met the standards of scientific accuracy, leading to a methodological anomaly. This reflects Thomas S. Kuhn's concept of a paradigm disruption, where inconsistencies within a scientific framework trigger a crisis. The gap between traditional religious practice and modern astronomical data created such a crisis. In response, scholars within the Hisab and Rukyat Council of Persis began searching for a more accurate and integrated approach. Their efforts marked the start of a paradigm shift, aiming to harmonize religious tradition with scientific precision. This transformation helped resolve the anomaly and establish a more credible and coherent system for determining the Hijri calendar.<sup>33</sup>

Persis has carried out a significant renewal of its Hijri calendar thought in various aspects. In determining the lunar month's start, it moved from *hisab ijtima' qabla al-ghurub* to *hisab wujudul hilal*, and later to *hisab imkanur rukyat*. Each transition was made to address the shortcomings and

<sup>31</sup> Muhamad Zainal Mawahib, Maskur Rosyid, and Muhammad Syarif Hidayat, "Astronomy and Local Culture Dialectics; Kiai Šalih Darat's Idea in the Integration of the Hijriyah Calendar," *Al-Ahkam* 29, no. 2 (November 2019): 233–58, <https://doi.org/10.21580/ahkam.2019.29.2.4408>; Hakim, "Awal Bulan Ramadhan, Syawwal, Dzulhijjah 1438 H Dan 1 Muharram 1439 H Menurut Hisab Astronomis Persatuan Islam (Persis)."

<sup>32</sup> Arisman Arisman, Adi Harmanto, and Imam Sobirin, "Implementation of Religious Moderation in Muslim Families Bagan Siapiapi, Riau in the Perspective of Fath Al-Dzari'ah," *Al-Adalah* 20, no. 2 (December 2023): 453, <https://doi.org/10.24042/adalah.v20i2.18415>.

<sup>33</sup> Ahmad Musonnif et al., "Government Position in Religious Authority Contestation in Indonesia: Reviewing the Government Authority in Determining the Beginning of Islamic Months," *De Jure: Jurnal Hukum Dan Syar'iah* 16, no. 2 (December 2024): 336–62, <https://doi.org/10.18860/j-fsh.v16i2.27517>.

inconsistencies of previous methods. This evolution reflects Persis's effort to resolve theoretical and practical issues by aligning religious principles with scientific progress. Additionally, Persis updated its reference sources, shifting from classical *hisab* texts to more accurate and scientifically advanced materials. This process eventually led to using contemporary astronomical data and computational methods, showing Persis's commitment to integrating Islamic tradition with modern scientific standards.

Persis also re-examined the Islamic legal arguments that form the basis for determining the start of the Hijri month. As a result of this re-evaluation, Persis concluded that the LAPAN-based *hisab imkanur rukyat* method is the most appropriate for determining the beginning of the Hijri month. However, *rukyat* (moon sighting) is still considered necessary to verify the reckoning results. Only sightings from at least two locations, supported by photographic evidence and proper documentation, are valid corrections to the calendar produced through *imkanur rukyat*. Persis maintains that *rukyat* is essential because *hisab* is historically derived from long-term *rukyat*, and *rukyat* is needed to assess the accuracy of various reckoning methods. Persis views *hisab imkanur rukyat* as a dynamic, continuously evolving based on observational data.<sup>34</sup>

The use of valid *rukyat* results as a determinant of entry into the beginning of the month if the height of the new moon at the end of the month does not meet the criteria for *imkanur rukyat* has never been used as a guide in the past. The use of valid *rukyat* results to correct the almanac was implemented starting in 2013 AD/1434 AH, along with the implementation of the LAPAN *rukyat imkanur hisab* as a guideline for determining the entry of the beginning of the month. Suppose *rukyat* results that meet the requirements are obtained. In that case, they can be immediately used to change the calendar in the existing almanac specifically for the beginning of the months of Ramadan, Shawwal, and Zulhijah, and in the long term will be used as material for evaluating the *rukyat imkanur* criteria currently being guided.<sup>35</sup>

### Renewing the Persatuan Islam's Thought of Islamic Hijri Calendar as a Middle Way to the Indonesian Hijri Calendar

With the development of the renewal of Persis' hijriah calendar thinking, it appears that Persis' mass organization's thinking is approaching the goal of realizing a national hijriah calendar. Currently, using *hisab imkanur rukyat* by continuing to carry out *rukyat* activities regularly to get accurate *imkanur rukyat* limits. Indeed, there are records that Persis, which previously used purely *hisab* without involving *rukyat* at all, has recently used accurate *rukyat* as a correction for its calendar, even though it only applies to three months, namely Ramadan, Shawwal, and Zulhijah. The results of the Persis *rukyat* are only used to improve the boundaries of the *rukyat imkanur*, which is now the basis for determining the start of the Hijriah month. The existence of a calendar system requires consistency so that it can be used as a reference in carrying out activities, and reckoning is the basis for this consistency.<sup>36</sup>

<sup>34</sup> Sabda, *Ilmu Falak: Rumusan Syar'i Dan Astronomi*: 3; Mohammad Iqbal Santosa, "Chairman of the Hisab and Rukyat Council of Persis for the 2015–2020" (2019).

<sup>35</sup> Interview with Usman Burhanuddin, one of the members of the Hisab and Rukyat Council of Persis for the 2015–2020 period, on December 19, 2020 CE / 3 Jumadil Awwal 1442 AH via WhatsApp.

<sup>36</sup> Marwadi Marwadi, "Renewing the Thoughts of the Hijri Calendar of Muhammadiyah, Nahdlatul Ulama and Persatuan Islam and Its Implications for Realization of National Hijri Calendar," *Al-Manahij: Jurnal Kajian Hukum Islam* 15, no. 1 (June 2021): 19–36, <https://doi.org/10.24090/mnh.v15i1.4870>.

By looking at the development of the renewal of Hijri calendar thinking in Persis, the author can say there has been a paradigm shift in thinking. Suppose we use the epistemological perspective put forward by al-Jabiri between the bayani, burhani, and irfani reasons. In that case, the change in the paradigm of thinking on the Persis hijri calendar can be called the burhani reason. Scientific development related to Hijri calendar thinking can be seen in Persis' progressiveness in adopting astronomical scientific developments to update the rukyat imkanur criteria. It is easier to change criteria based on science and technology. Even the criteria for calculating imkanur rukyat continue to be studied through rukyat or field observations. The rukyat that Persis continuously carries out to obtain valid imkanur rukyat criteria shows the use of the bayani reason, which is positioned in the same way as the burhani reason. Persis believes that reckoning and rukyat have the same important position. Persis is ready to change the criteria if new conclusions regarding the limits of imkanur rukyat are reached.

Efforts to review and reformulate the decisions resulting from the ijthid of previous religious authorities in Persis are very possible. Continuous review can produce ijthid products that are fresher and more up-to-date. What is called fresh ijthid through a multi, inter, and transdisciplinary approach can be part of solving the hijri calendar problem in Persis.<sup>37</sup> If such an ijthid effort is carried out, then the expression "unification is difficult but possible or unification is possible but difficult to achieve" to describe the response of the Indonesian people regarding the unification of the Hijri calendar<sup>38</sup>, according to the author, it can be transformed into the thought of Persatuan Islam's hijri calendar with the Hisab cum Rukyat paradigm as a solution for the Indonesian hijrah calendar.

## Conclusion

This study reveals the structured and dynamic renewal of Persis's Hijri calendar through five key stages, highlighting a significant yet underexplored contribution to the discourse on Islamic calendrical reform in Indonesia. From its early use of *ijtima' qabla al-ghurub* based on classical texts like *Sullamun Nayyirain* and *Fathur Raufil Manan*, to its eventual adoption of the *imkanur rukyat* method supported by advanced astronomical software and LAPAN criteria, Persis's methodological evolution reflects a conscious shift from *hisab taqribi* to *hisab tahkiki*, and ultimately to a scientifically robust, contemporary system. The novelty of this research lies in its comprehensive mapping of this transformation, particularly Persis's unique paradigm of *hisab cum rukyat*, which balances empirical accuracy with traditional religious practice. Recognizing rukyat as a valid corrective mechanism for hisab, especially during Ramadan, Shawwal, and Zulhijah Persis demonstrates a hybrid approach that addresses scientific and theological demands. This study contributes new insights into how localized

<sup>37</sup> Abdul Manan, "The Ritual Calendar of South Aceh, Indonesia," *Jurnal Ilmiah Peuradeun* 5, no. 1 (January 2017): 59, <https://doi.org/10.26811/peuradeun.v5i1.120>; M Amin Abdullah, *Fresh Ijthid: Manhaj Pemikiran Keislaman Muhammadiyah Di Era Disrupsi* (Suara Muhammadiyah, 2019); M Amin Abdullah and Interdisiplin Multidisiplin, "Transdisiplin Metode Studi Agama & Studi Islam Di Era Kontemporer," Yogyakarta: IB Pustaka, 2020.

<sup>38</sup> Linda Sari Bulan Siregar Nailur Rahmi, Muh Rizki, Nurul Azniah Fajriati, Nurlaila Nurlaila, Faisal Efendi, "Contestation of the Determination of 'Idul Adha and Its Implementation According to Muhammadiyah and Nahdatul 'Ulama," *Nurani: Jurnal Kajian Syari'ah Dan Masyarakat* 25, no. 1 (2025): 262-79, <https://doi.org/https://doi.org/10.19109/nurani.v25i1.26563>; Susiknan Azhari, "Penyatuan Kalender Islam: Mendialogkan Wujûd Al-Hilâl Dan Visibilitas Hilal," *AHKAM: Jurnal Ilmu Syariah* 13, no. 2 (August 2013), <https://doi.org/10.15408/ajis.v13i2.931>. particularly in Indonesia, the terms al-Hilâl and the sighting or "visibility" of the hilal (imkân al-ru'yah

Islamic organizations negotiate religious authority and scientific legitimacy, offering a practical and context-sensitive model for developing a unified Hijri calendar in Indonesia and beyond.

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