

MASAIL FIQHIYAH EDUCATION ON HISAB AND RUKYAT: COMPARATIVE STUDY OF THE VIEWS OF NAHDLATUL ULAMA AND MUHAMMADIYAH

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Abstract

This study investigates the discourse of *hisab* and *rukyat* within *masā'il fiqhiyyah* education by comparatively examining the perspectives of Nahdlatul Ulama (NU) and Muhammadiyah figures in East Java regarding the determination of the beginning of the Qamariyah month, particularly Shawwal. The research aims to analyze the ontological foundations, interpretative paradigms, and practical implications of both approaches in responding to contemporary developments in astronomy. This study employs a descriptive-comparative method with an astronomical-fiqh-fiqh approach. Primary data were obtained through in-depth interviews with NU and Muhammadiyah scholars in East Java. In contrast, secondary data were collected from organizational decrees, classical and contemporary fiqh texts, astronomical calculations, and relevant literature. The research was conducted in several regions of East Java. Data were collected through interviews, documentation, and literature review, and analyzed using qualitative comparative analysis supported by astronomical interpretation. The findings reveal that NU scholars predominantly prioritize *ru'yah al-hilal* supported by *hisab*. In contrast, Muhammadiyah scholars determine the Qamariyah month based on *hisab* with the *wujud al-hilal* criterion. The differences arise mainly from divergent interpretations of *syar'i* texts and outdated visibility criteria that are no longer consistent with modern astronomical science. Despite these differences, the study identifies the potential for reconciliation through the harmonization of criteria rather than the dichotomy of methods. The study concludes that integrating astronomical accuracy with fiqh interpretation is essential to resolving recurring polemics and strengthening rational Islamic legal discourse.

Keywords

Astronomy, Sigh, Qamariyah Month, Ru'yah Al-Hilal, Shawwal.



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INTRODUCTION

The determination of the beginning of the month of Qamariyah is a crucial issue in the religious practice of Muslims because it is directly related to the implementation of mahdhah worship, such as fasting during Ramadan, Eid al-Fitr, and Eid al-Adha. The accuracy of determining the beginning of the month not only affects the technical aspects of worship but also impacts the legal, theological, and socio-religious dimensions of the practice (Hartono & Yunus, 2025). In the Islamic tradition, the moon is used as the main marker of the turn of the month, as reflected in the Qur'an and the hadith of the Prophet Muhammad SAW. Along with the development of science, especially astronomy, the method of determining the beginning of the moon has experienced a dynamic shift from a purely observational approach to a science-based calculative approach. This development demonstrates that Islam has a wide scope for *ijtihad* and rationality in responding to changing times. However, these differences in approaches also give rise to various interpretations and practices among Muslims, especially in Indonesia, which has a diversity of large religious organizations (Hutabarat, 2023).

In Indonesia, the difference in determining the beginning of the month of Qamariyah is most evident in the practice carried out by Nahdlatul Ulama (NU) and Muhammadiyah. NU tends to prioritize rukyatul hilal as the main method, with hisab as an auxiliary tool. At the same time, Muhammadiyah uses the hilal as the basis for determining the beginning of the month, based on the criteria of its visibility. This paradigmatic difference often leads to discrepancies in determining the beginning and end of Ramadan and holidays, which in turn confuses the community. This problem is not solely a technical astronomical issue, but also related to the interpretation of shari'i postulates, religious authority, and the acceptance of modern science's development. The polemic that is repeated every year demonstrates that the issues of hisab and rukyat have not been resolved, despite both aiming to ensure the certainty of the law of worship for Muslims (Herman et al., 2024, 2025).

Several previous studies have explored the issue of hisab and rukyat from various perspectives. (Awaludin & Rahman, 2022; Jannah, 2022; Putra, 2023; Vivit Fitriyanti, 2022) examines the encyclopedia of hisab rukyat and shows the diversity of hilal visibility criteria in contemporary Islamic practice. (Idris et al., 2022; Jailani, 2025; Oktavia, 2025; Yaqin & Khasna, 2024) highlighted the problem of differences in Eid al-Fitr and its impact on the social cohesion of the ummah. (Fauzi, 2025; Labib, 2025; Marwadi, 2021; Musadad & Pujiati, 2025) emphasized the importance of the fiqh hisab rukyat approach to bridge the differences between NU and Muhammadiyah. (Alwi, 2020;

Hartono & Yunus, 2025; Karim & Mahsun, 2024; Zain & Asshiddiqy, 2025) Conducted a study on the Conducted of the new moon, drawing on modern astronomy and critiquing classical criteria that are no longer scientifically relevant. Meanwhile (Abdillah, 2025; Hidayat& Nurwahid, 2025; Ouared, 2023; Ritonga et al., 2025) proposed the idea of a science-based global Islamic calendar as a long-term solution. These studies make an important contribution to enriching the discourse of hisab and rukyat, both from the aspects of fiqh and astronomy.

Although previous studies have discussed hisab and rukyat in depth, most of them are still normative-theoretical or focus on the level of organizational policy in general. Studies that specifically examine the views of NU and Muhammadiyah figures at the regional level, especially in East Java, are still relatively limited. In addition, many studies tend to oppose hisab and rukyat as two opposing methods, without placing them within the framework of astronomy as a parent discipline that should be integrative. The criteria for the visibility of the moon used in previous studies are also often accepted on a taken-for-granted basis without criticism based on the latest astronomical data. This condition opens up space for further research that not only describes the differences but also analyzes the epistemological and ontological roots of these differences more comprehensively.

Based on these limitations, this study offers novelty by focusing on the responses and ideas of NU and Muhammadiyah figures in East Java regarding the determination of the beginning of the month of Qamariyah in the context of modern astronomy development. This research not only compares the methods of hisab and rukyat, but also examines how each figure constructs the ontology of the hilal and interprets the postulates of shari'a within the framework of contemporary science. Another novelty lies in the attempt to criticize the classical chants that are still used by both organists and throughons with a modern astronomical approach, while also offering the possibility of harmonizing criteria without negating their respective religious authority. Thus, this study seeks to go beyond the dichotomy between rukyat and towards an integrative approach based on science and fiqh.

Departing from this description, this study aims to analyze the views of NU and Muhammadiyah figures in East Java regarding the determination of the beginning of the month of Qaramin in a comparative manner. This study aims to uncover the ontological and epistemological basis of the use of hisab and rukyat, identify the factors that cause differences in determining the beginning of the month, and assess the relevance of the criteria used to the development of modern

astronomy. In addition, this research also aims to offer an analytical framework that allows the integration between hisab and rukyat as two complementary approaches. The results of the research are expected to make an academic contribution to the development of fiqh falak and serve as a practical reference in efforts to minimize the polemics surrounding the determination of the beginning of the month of Qamariyah in Indonesia.

METHOD

This study employs a qualitative research design with a descriptive-comparative approach (Siedlecki, 2020), aiming to describe and systematically compare the views of Nahdlatul Ulama (NU) and Muhammadiyah figures in East Java regarding the determination of the beginning of the month of Qamariyah. The approach employed is the fiqh-astronomical approach, which combines normative-juridical studies of shari'i postulates with scientific analysis of astronomical data. This approach was chosen because the issue of hisab and rukyat cannot be understood in part, but must be viewed as a relationship between religious texts, ijihad traditions, and the development of modern science. Through this approach, the research not only describes the differences in methods but also examines the ontological and epistemological basis behind the use of hisab and rukyat by each organization. Thus, this study aims to provide a comprehensive and contextual analysis of the dynamics involved in determining the beginning of the month of Qamariyah.

The data in this study comprises both primary and secondary sources. Primary data was obtained through in-depth interviews with figures and astronomers from NU and Muhammadiyah in East Java who have authority and direct involvement in determining the beginning of the month of Qamariyah. Secondary data is sourced from official organizational documents, such as the decisions of the congress, the results of tarjih deliberations, the guidelines for hisab and rukyat, as well as classical and contemporary literature in the fields of fiqh and astronomy. Additionally, astronomical data, including calculations of the moon's and sun's positions, are also used as supporting analysis materials. Data collection techniques were employed through interviews, document studies, and literature reviews. These three techniques are used simultaneously to ensure the completeness and depth of data, as well as to perform triangulation, thereby increasing the validity of the research findings.

The data analysis in this study employed comparative qualitative analysis techniques. The data from interviews, documentation, and literature reviews were first classified based on themes,

including normative bases, astronomical criteria, and the paradigm for determining the beginning of the month (Oana et al., 2021). Furthermore, the data was analyzed by comparing the views of NU and Muhammadiyah figures to identify similarities, differences, and common points between the two. The interpretation of astronomical data strengthens this analysis to assess the relevance of the hisab and rukyat criteria in the context of modern astronomy. The final step involves inductive conclusions to formulate the theoretical and practical implications of the research findings. Through this process, the research is expected to provide a comprehensive picture, as well as critical and objective arguments, regarding the dynamics of determining the beginning of the month of Qamariyah.

FINDINGS AND DISCUSSION

Findings

Views of East Java NU Figures on the Beginning of the Month of Qamariyah

This subchapter presents the results of research in the form of empirical data on the views of Nahdlatul Ulama (NU) figures in East Java regarding the determination of the beginning of the month of Qamariyah. The data displayed are the results of interviews and documentation that focus on the methods used, normative basis, hisab positions, and attitudes towards government decisions. The presentation of data in this subchapter aims to present objective field facts without accompanying analytical interpretation.

The data on the views of NU East Java figures is summarized in a table to facilitate easier reading of general patterns, similarities, and differences in attitudes among the figures. The following table presents the key aspects that consistently appear in the research data.

Table 1. Views of East Java NU Leaders on the Determination of the Beginning of the Month of Qamariyah

Aspects Examined	Data Findings
Main methods	Rukyatul Hilal
The role of hisab	Rukyat Tools
Additional principles	Istikmal (30 days)
Visibility criteria	Imkan al-rukya
Attitude towards itsbat	Follow government decisions
Region of Applicability	National (NKRI)

Remarks: Data Obtained from Interviews and Official Documents of NU East Java

Table 1 shows that all East Java NU figures who became informants considered rukyatul hilal as the primary method for determining the beginning of the month of Qamariyah. Hisab is used as a technical support to determine the time and location of rukyat. The data also shows that the istikmal principle is applied when the hilal is not visible. The criteria used refer to the imkan al-rukyat, and the final decision follows the government's itsbat with the national enforcement.

Views of Muhammadiyah Leaders in East Java on the Beginning of the Month of Qamariyah

This subchapter presents the results of research on the views of Muhammadiyah figures in East Java regarding the determination of the lunar month's beginning. The data is focused on the method used, the basis for determining the beginning of the month, the astronomical criteria, and the principle of the area of applicability of the decision. All data are presented descriptively as field findings.

To facilitate the identification of the characteristics of Muhammadiyah's views, the data from the research are presented in the form of a summary table containing the main elements that determine the beginning of the month of Qamariyah.

Table 2. Views of East Java Muhammadiyah Leaders on the Determination of the Beginning of the Month of Qamariyah

Aspects Examined	Data Findings
Main methods	Hisab
Determination criteria	Wujudul Hilal
The Role of Rukyat	Not specifying
Main parameters	Ijtima' and the position of the moon
Attitude towards itsbat	Following the decision of the Central Executive of Muhammadiyah
Region of Applicability	National Championship (Scotland)

Description: Data Obtained from Interviews and Official Documents of Muhammadiyah East Java

Table 2 shows that Muhammadiyah figures in East Java consistently use hisab as the main method of determining the beginning of the month of Qamariyah. The criteria used are the manifestation of the hilal with emphasis on the occurrence of ijtima' and the position of the moon above the horizon. Rukyat is not used as a determining factor in decisions. The decision is valid nationally based on the principle of wilayatul hukmi and follows the decision of the Central Executive of Muhammadiyah.

Comparison of NU and Muhammadiyah East Java Data on the Beginning of the Month of Qamariyah

This subchapter presents the results of a comparison of pure data between the views of NU and Muhammadiyah figures in East Java regarding the determination of the beginning of the month of Qamariyah. Comparisons are made on technical and administrative aspects without including normative assessments or conceptual analysis.

Comparative data are summarized in a single table to illustrate the factual differences and similarities between the two organizations.

Table 3. Comparison of Data on the Determination of the Beginning of the Month of Qamariyah NU and Muhammadiyah

Aspects	NU East Java	Muhammadiyah East Java
Main methods	Rukyat	Hisab
Hisab position	Supporters of Rukyat	Key determinants
Rukyat position	Key determinants	Not specifying
Criteria	Imkan al-rukya	Wujudul Hilal
Final verdict	Itsbat government	Muhammadiyah Central Committee
Applicable regions	National	National

Remarks: The Table is a Summary of the Data from Field Research

Table 3 illustrates the fundamental difference between NU and Muhammadiyah in the primary method and criteria used to determine the beginning of the lunar month. NU places rukyat as the main determinant, with hisab as a supporting factor, while Muhammadiyah bases its determination on hisab without relying on rukyat. Despite the different methods and criteria, both organizations applied the principle of national applicability in their decision at the beginning of the month.

Discussion

Views of East Java NU Leaders on the Determination of the Beginning of the Month of Qamariyah

The results of the study show that East Java NU figures consistently place rukyatul hilal as the main method in determining the beginning of the month of Qamariyah. This finding confirms that NU views the determination of the beginning of the month not only as a technical issue, but also as having a dimension of worship and normative obedience to the Prophet's sunnah. From the perspective of classical fiqh, rukyat is considered a literal implementation of the command "shumu li ru'yatihi," which is understood as the act of direct vision. This approach aligns with traditional

fiqh theory, which emphasizes the empirical presence of the new moon as a condition for its entry. Some previous studies, such as (n(ayah, 2have 025), also demonstrate that NU established rukyat as the primary foundation in the practice of falak. Thus, the findings of this study confirm the previous view that rukyat in NU is not merely a method, but rather an integral part of the theological and juridical construction of worship.

The use of hisab by NU East Java as a rukyat tool shows an acceptance of rationality and science, although it is not used as the main determinant. Theoretically, this reflects an integrative fiqh approach, where hisab functions as a supporting means to facilitate the implementation of rukyat. In the study of falak fiqh, hisab is often positioned as wasilah, not ghayah. This finding (Marwadi, 2021) is based on the view that NU does not reject hisab, but rather limits its function so as not to replace rukyat. However, this study also shows that these restrictions have the potential to cause tension when modern hisab data show the impossibility of moon visibility, while rukyat is still normatively enforced. At this point, this research critiques NU's practices, which have not fully reflected the development of modern astronomy.

The application of the istikmal principle in NU East Java demonstrates a cautious approach to maintaining the certainty of the law of worship. From the perspective of Islamic legal theory, istikmal functions as an emergency mechanism when rukyat cannot be done or does not produce certainty. This finding is consistent with the views of scholars of the Shafi'i school, which NU widely embraces. Previous research by (Nurfadilah et al., 2025) also emphasized that istikmal is a legitimate fiqhi solution. However, this study found that repeated reliance on istikmal is often not accompanied by a critical evaluation of the technical factors of rukyat. In the context of modern astronomy, this condition can be seen as less than optimal because it ignores increasingly accurate hisab data. Therefore, this study not only affirms istikmal practices, but also encourages critical reflection on their use.

The attitude of NU East Java in participating in the government's itsbat shows social and national orientation in determining the beginning of the month of Qamariyah. This finding aligns with the theory of fiqh siyawhi chh, which posits that state authority serves as the guardian of the public interest. Previous research, such (Sodikin & Munawir, 2025) has shown that NU tends to integrate state authority into religious practices to maintain the unity of the ummah. This study affirms these findings by showing that NU views its bat as a unifying instrument, both religiously and otherwise. However, over time, this study's dependence on state decisions has the potential to

reduce the space for internal *ijtihad*. In this case, this research is critical by emphasizing that harmonization between state authorities and scientific authorities still requires a strong scientific foundation.

The *imkan al-rukya*t criteria used by NU East Java indicate an attempt to compromise between *rukya*t and *hisab*. Theoretically, these criteria are intended to bridge the gap between empirical and calculative approaches. Previous research by (Faid (al., 2024) has demonstrated that the criteria for moon visibility are dynamic and must be adjusted to account for astronomical developments. However, the findings of this study show that the criteria of *imkan al-rukya*t used by NU still refer to old boundaries that are considered astronomically less relevant. Thus, this research is antithesis to the assumption that the NU criteria have been fully scientific. This finding confirms the need to update the criteria without abandoning the *rukya*t principle as NU's methodological identity.

Overall, this discussion reveals that the view of NU East Java represents a normative and traditional approach that is somewhat adaptable to modern science. This research affirms previous studies that position NU as the guardian of the *rukya*t tradition, while simultaneously criticizing the stagnation of the criteria used. From the perspective of contemporary *fiqh*, the Napproach has maintained the legitimacy of *sharia*, but it requires an epistemological renewal to remain relevant. Thus, the findings of this study do not place NU in the wrong or right position, but rather reveal the dynamics of *ijtihad* that are still open to development within the framework of integrating *fiqh* and astronomy

Views of East Java Muhammadiyah Leaders on the Determination of the Beginning of the Month of Qamariyah

The results of the study show that Muhammadiyah figures in East Java consistently make *hisab* the main basis for determining the beginning of the month of Qamariyah. This finding reflects the character of Muhammadiyah's *ijtihad*, which is rational and oriented towards scientific certainty. In modern *fiqh* theory, this approach aligns with the principles of *sharia maqashid*, particularly in terms of legal convenience and certainty. Previous research by Fauzi (2025), Labib (2025), Marwadi (2021), and Musadad & Pujiati (2025) also shows that Muhammadiyah views *hisab* as a means of actualizing *shari'i* commands within the context of scientific development. Thus, the findings of this study confirm the position of Muhammadiyah as an organization that prioritizes science as a key partner of *fiqh* in decision-making regarding worship.

The non-literal meaning of ru'yah, as understood by Muhammadiyah, represents an epistemological shift from physical observation to rational knowledge. In Islamic legal hermeneutic theory, this approach can be understood as the contextualization of texts according to social and scientific realities. Previous research by (Lusdianto, 2023; Musonnif, 2021) supports the view that modern hisab can replace the traditional rukyat functionally. However, the study also notes that this approach is often perceived as a disregard for the Sunnah by other groups. Thus, this research supports the rationality of Muhammadiyah, but also emphasizes the need for an epistemological dialogue to prevent differences from leading to polarization.

The criteria for the manifestation of the hilal used by Muhammadiyah emphasize the geometric existence of the moon, rather than empirical visibility. From an astronomical perspective, this criterion provides a high degree of calculation certainty. Research by (Berchtold et al., 2022) shows that the geometric approach has advantages in terms of calendar consistency. However, this study criticizes the criteria for the manifestation of the moon as part of astronomical phenomena. Therefore, this finding is antithesis to the claim that Muhammadiyah's hisab fully reflects the integration of science and tradition.

The principle of wilayatul hukmi, as applied by Muhammadiyah, demonstrates a strong administrative and organizational orientation. From the perspective of fiqh al-siyasa, this principle seeks to maintain uniformity in worship practices. Previous research by (Nuryami et al., 2024) also noted the tendency of Muhammadiyah in building an independent internal legal system. This study affirms these findings, but also shows that this approach has the potential to widen the distance from the religiogovernmental community that government initiatives aim to achieve, thereby addressing the methodological exclusivity of Muhammadiyah.

The neglect of rukyat as a determining factor by Muhammadiyah shows full trust in modern hisab. In astronomical theory, observation and calculation should complement each other (Afifi & Abbas, 2022). This research demonstrates that the dichotomy does not originate from science, but rather from the construction of fiqh. Thus, this finding critiques previous research that posits hisab and rukyat as two poles that cannot be reconciled. This research actually shows that the conflict is paradigmatic, not scientific.

Overall, the view of Muhammadiyah in East Java represents a progressive modernist ijtihad, but tends to be reductive in its consideration of the observational tradition. This research affirms the superiority of Muhammadiyah's rationality, while also proposing constructive criticism to prevent

the hisab approach from being trapped in the claims of scientific absolutism. Thus, Muhammadiyah remains in the dynamics of open *ijtihad*.

Synthesis and Integration of Hisab–Rukyat in the Determination of the Beginning of the Month of Qamariyah

The results of the data comparison between NU and Muhammadiyah East Java indicate that the difference in determining the beginning of the month of Qamariyah does not stem from the use of astronomy, but rather from the variation in interpreting the astronomical results. Both organizations utilize hisab data, which is technically sourced from similar astronomical formulas and software. However, differences arise at the stage of determining the Sharia criteria that are used as the basis for decisions. Theoretically, this condition suggests that the hisab-rukya conflict is not a conflict between science and religion, but rather an epistemological conflict within Islamic jurisprudence (*fiqh*). This finding aligns with the view (Fauzi, 2025; Labib, 2025; Marwadi, 2021; Musadad & Pujiati, 2025) that different interpretations emphasize the differences in the Islamic calendar and the discrepancies in astronomical data. Thus, this study affirms that the root of the problem lies in the area of interpretation, not in the validity of science.

From the perspective of modern astronomical theory, hisab and rukyat are two complementary scientific activities. Observations are used to verify the results of calculations, while calculations are used to predict and evaluate possible observations. The findings of this study suggest that the dichotomy between hisab and rukyat, which has emerged in the Indonesian *fiqh* discourse, does not accurately reflect the practice of astronomy as a scientific discipline. Previous research by (Al-Rajab et al., 2023; Shen et al., 2020) confirms that the visibility of the moon cannot be separated from mathematical and physical parameters that can be calculated accurately. Therefore, this research is antithesis to the view that positions hisab and rukyat as two methods that affirm each other. On the contrary, this study emphasizes that the conflicts that occur are more of a socio-religious construction than a scientific problem.

The synthesis of the findings from this study reveals that the different factors of authority and organizational tradition also influence the differences between NU and an-Muhammadiyah, and maintain rukyat as a symbol of the continuity of the classical scholastic tradition. At the same time, Muhammadiyah makes hisab a symbol of progress and rationality. In the sociology of Islamic law, this distinction reflects two models of religious authority: traditional authority and rational-legal authority. Previous research by (Menchik, 2022; Usman et al., 2020) corroborates this finding

by showing that the dynamics of fatwa in Indonesia cannot be separated from the institutional context of Islamic organizations. This study affirms this view, while adding that this difference in authority has a direct impact on resistance to the renewal of the criteria for determining the beginning of the month of Qamariyah.

The study also found that the criteria for determining the beginning of the month used by the two organizations still refer to old parameters that have astronomically developed. The criteria of imkan al-rukyat and the manifestation of the hilal are often used without a critical evaluation of their empirical basis. Research (Utama & bin Zainon, 2022) indicates that the visibility criteria for the hilal are dynamic and must be adjusted to incorporate global observation data and cutting-edge technology. In this context, this research is antithesis to the assumption that the criteria used by NU and Muhammadiyah are final and qath'i. Challenges in research actually challenge the criteria for determining the within-month fall of the month, which is open to scientific renewal and correction.

The integration of hisab and rukyat offered in this study is not intended to erase the methodological identity of each organization, but rather to unify the basis of criteria for determining the beginning of the month. Within the framework of contemporary fiqh, this integration can be achieved by making hisab a determinant of the possible visibility of the hilal and rukyat as rational empirical verification. Previous research by (PWN Jawa Timur, 205) has proposed a similar approach, but has not explicitly placed it as a parent discipline. This research affirms this integrative idea, while simultaneously reinforcing it with the argument that the unification of the Islamic calendar is only possible through the agreement on criteria, not through the dominance of one method.

Overall, the discussion of this synthesis reveals that the difference between NU and Muhammadiyah in determining the beginning of the month of Qamariyah reflects the dynamics of Islamic ijtihad, which remains alive and evolving. This research confirms that the plurality of methods is the intellectual property of Islam, but must be managed through scientific dialogue based on astronomical data and fiqh principles. Thus, this study not only affirms the findings of previous research on the importance of integrating hisab and rukyat but also critiques the stagnation of criteria that are still in place. The main contribution of this research lies in affirming that the reconciliation of determining the beginning of the month of Qamariyah is not a purely theological problem, but an epistemological and methodological issue that can be solved through a scientific approach.

CONCLUSION

Based on the results of the discussion, this study concludes that the difference in determining the beginning of the month of Qamariyah between Nahdlatul Ulama and Muhammadiyah figures in East Java is not based on differences in astronomical data, but on differences in epistemological paradigms and fiqhiyah criteria in interpreting the results of hisab and rukyat. NU places rukyatul hilal as the main method with hisab as a support, while Muhammadiyah makes hisab as the basis for determination through the criteria of manifest hilal. These differences reflect the breadth of ijtihad in Islam and show that the hisab-rukya conflict is methodological, not theological. The strength of this research lies in its integrative approach to fiqh-astronomy and the empirical, data-driven analysis of regional figures. However, the limitation lies in the area's coverage, which is still limited to East Java, and the quantitative use of long-term hilal observation data.

In line with these findings, this study recommends the need for further studies involving a wider area and across religious organizations to obtain a more comprehensive picture of the dynamics of determining the beginning of the month of Qamariyah in Indonesia. Further research is also recommended to integrate long-term observational astronomical data with contemporary fiqh analysis to test the relevance of the lunar visibility criteria used today. In addition, interdisciplinary studies involving astronomers, scholars, and religious policymakers need to be developed to formulate criteria for determining the beginning of the month that are more accurate, applicable, and widely accepted. With this approach, it is hoped that the annual polemic related to determining the beginning of the month of Qamariyah can be minimized through a more solid scientific and fiqhi foundation.

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