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Cultural Astronomy: On the Connection Between the Moon and Gedeo Society

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Abstract

The Gedeo society, indigenous to the Ethiopian Highlands, exhibits a profound cultural connection with lunar phases, integrating celestial observations into their social and agricultural practices. This study explores the multifaceted roles of the Moon within Gedeo traditions, highlighting how lunar cycles influence marriage customs, agricultural activities, and communal rituals. During the Sa'imarroo (new moon), marriage ceremonies are traditionally prohibited, reflecting the society's adherence to lunar cycles in regulating social events. The Baatii (first quarter moon) phase is associated with hope and marks the commencement of permissible periods for marriage among young men and women, while also serving predictive purposes. As the moon approaches fullness, elders observe "Konchora," a signal prompting preparation for the full moon. The Goobana (full moon) holds a pivotal role, serving as an indicator for significant events such as war, peace, rainfall, and disease. These practices exemplify the Gedeo's sophisticated understanding of lunar cycles and their application in regulating social, agricultural, and environmental activities. Such indigenous knowledge systems not only preserve cultural identity but also offer valuable perspectives on sustainable living and environmental stewardship.

Keywords: Caltural astronomy, Sa'imarroo (new moon), Baatii (first day moon), Goobana (full Moon)

1 Introduction

Cultural astronomy is the study of the human relationship with the sky. These relations include: time management, wither prediction for agricultural activities, seasonal calendar, navigation, and artistic purposes. According to Campion (1997, 2017), cultural astronomy is the study of application the astronomical knowledge for varies practices: beliefs, influencing social forms and ideologies, through its broad categories termed as ethno-astronomy and archeoastronomy.

Archeoastronomy related with the field of archaeology that studies the ancient cultural astronomical sites built to understand at list seasons, while, ethnoastronomy studies the astronomical beliefs and practices of specific cultures which mainly link the knowledge of anthropology and Astronomy.

The indicators of cultural astronomy: astronomical symbolism and alignments exist across Africa, such as Great Zimbabwe, Namorotunga in Kenya, and the pyramids of Egypt (Selin 1999; Lynch and Robbins 1978; Holbrook 2007). However, studies also indicate that there are a large number of indigenous peoples with living traditions throughout Africa (Ruggles 1987; Snedegar 1998; Bennett 1899) mainly in Ethiopia. However, most of active researches on Cultural astronomy do not focuses on knowledge of Africa. The limited studies have been conducted in the field in Ethiopia. The Borena calendar for example, is the indicator of cultural astronomy studies made in the country (Ruggles 1987; Tadesse 2017). However, there are such a traditional astronomical knowledge practised by the different Ethiopian societies. Among these, Gedeo is one of the indigenous people located in between Sidama and Oromia regions of Ethiopia. They are at 369 km from the capital, Addis Ababa on the Addis Ababa to Moyale main road (McClellan 1988; Degefa 2016). They believed to exercise the knowledge of astronomy, but their activities in this regard has not been reported yet. Therefore, we have to look in to our indigenous knowledge of cultural astronomy particularly the practice by Gedeo society. This study aims to explore the connection between the Moon and the experience of the Gedeo Society and to show the main application of the lunar cycle according to the their understanding.

To conduct this study we mainly use qualitative research method in which approaches such in-interview, case study, and observation is adopted. We used the local elders of the Gedeo Society as a primary source of data. We also used the captured image of the Moon and related celestial object as an additional information. Significantly, we used DeepSeek AI tool to generate images based on elders' interview. In Section 2 the methodology used in this study is introduced. The results and discussions are presented in Section 3. In the last section, we present the conclusions.

2 Methodology

2.1 Scope of the research

The scope of this research is limited to Gedeo society in the Gedeo zone and outside the zone. This zone is between Ethiopia's Oromia and Sidama region, 369 km from the capital, Addis Ababa on the Addis Ababa to Moyale main road. Figure 1 (upper panel) shows the location of the Gedeo society and the people.

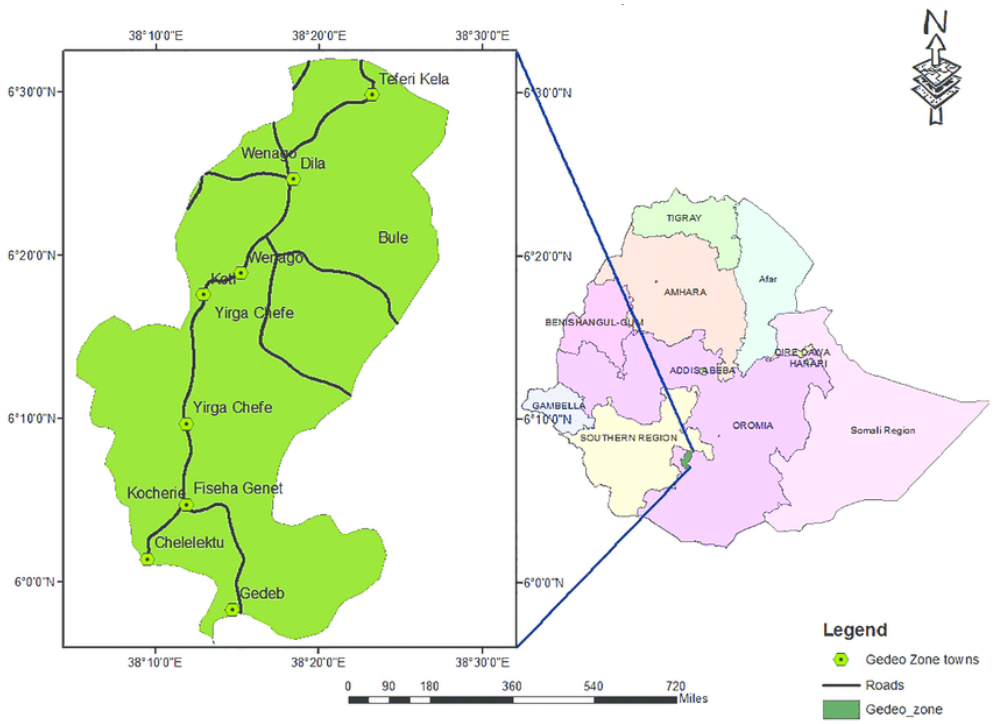




Fig. 1 Map of Gedeo zone adopted from (Degefa 2016) (upper panel) and Gedeo people (lower panel) with their traditional wearing stle. Credit Gedeo Zone Culture and Tourism Affairs.

2.2 Research Design and Approach

To explore the cultural astronomical practice of Gedoe society, we used exploratory research design by implementing a qualitative research approach. A qualitative approach is employed for recording In-depth interviews, Case studies, Observation. Hence, the research was undertaken by using Ethnographic. The ethnographic research method is particularly beneficial in areas where the nature and character of social life are critical for understanding all phenomena, particularly at small-scale and local levels. It is also good in areas where there is the need to understand various aspects and strands of social activities and cultural configurations (Chukwuezi 2008)

2.3 Data Source

In addition to the taken photos, the elders in the area known as "Woyyuu Roqa or Faanshoo" are the main source of our data. The elders in the area who are knowledgeable about cultural astronomy were chosen. Their knowledge serves as the selection criterion. These elderly people came from high and low Gedeo's lands. The images associated with the findings of in-depth interviews conducted using a qualitative research methodology are also used as data sources.

2.4 Method of data collection

2.4.1 In-depth interview

In-depth interviewing is one of the data-collecting approaches for understanding how people in a group or individually perceive their surroundings. This aids in comprehending the personal, communal, and argumentative thoughts, beliefs, and values of the local community within their natural and social surroundings (Chukwuezi 2008; Bernard 2017). In this study, we first proposed the questions to be raised to the selected individuals. Based on this, the in-depth interview was made with the selected individuals from the society.

2.4.2 Sky Observation

According to McClellan (1988), the qualitative method involves collecting data on social phenomena by carefully observing the social processes, events, activities, behaviors, actions, etc as they take place. Every significant event, action, location, object, and so on must be observed and recorded. A careful observation takes place during the field visit. The observed objects are continuously captured using a camera. The collected images will be stored for further analysis.

2.4.3 Tools

In this study, we used tools: Audiovisual devices to have an interview with elders. We also used DeepSeek AI tool to generate various images based on the explanation of elders.

2.5 Method of data analysis and interpretation

During analysis, three things were done: data was structured and reduced through summary and categorisation, and patterns and themes were recognised and linked in the data. Data analysis was done while the researcher was still in the field (Kawulich 2004).

During our fieldwork, all electronically recorded documents were translated into written forms. Moreover, all collected data were then organised, summarised, and coded based on guiding research questions and based on their relevance to the current study.

After the summarising and categorisations of data based on current research questions, it is then analysed through triangulation of the various sources. This is used to increase the validity and reliability of the findings of the study by giving due attention to observed non-verbal expressions of the respondents. Therefore, we integrated and presented all data obtained through different data collection methods in a proper and meaningful way.

3 Result and Discussion

3.1 The Moon

In Gedeo culture, the Moon holds significant importance in the context of marriage and various other aspects. It is categorized into four distinct types: Sa'imarro (new Moon), Baatii (day one Moon), Koncora (Waxing Gibbous before the full Moon), and Gobana (the full Moon).

3.1.1 Sa'imaroo (The New Moon)

Two days preceding the first day moon hold particular significance among the Gedeo community, known as "Sa'imarroo." (the figure is not provided) During Sa'imarroo, the environment is neither as dark as night nor as bright as the first day moon. Marriages are prohibited during these days due to the belief that unions formed during this period will be marred by difficulties, leading to issues such as economic hardships, reduced productivity, lack of peace, and other challenges. The likelihood of a harmonious marital life is deemed low. Consequently, both the prospective bride and groom patiently await the arrival of the first day of the moon, known as Baatii, to initiate their marriage. Thus, the new moon forms a strong bond with Gedeo society, influencing their daily practices and traditions.

3.1.2 Baatii (The first Day Moon)

Figure 2 displays an image of "Baatii" as observed in the sky of the Gedeo region. "Baatii", the first day moon, holds a central position in the Gedeo culture. According to Gedeo beliefs, "Baatii" manifests in three distinct orientations: directed to the right, left, and upwards. The upward-facing "Baatii", as depicted in the figure, is particularly significant when it aligns with other celestial bodies, notably Venus.

Furthermore, in Gedeo understanding, the shape of "Baatii" carved to the right and left, which has some alignment with Venus called "Bakkalcha"is utilised for various purposes. The alignment of "Baatii" with "Bakkalcha", particularly when the "Bakkalcha" located to the lower right of the "Baatii" as shown in the figure. This alignment can serve as an indicator of several phenomena, including rain, snow, war, peace, disease, and the dynamics between people and government. The intricate integration of "Baatii's" constellation for forecasting natural occurrences represents a potential area for future exploration and study within Gedeo society.



Fig. 2 Image of Baatii aligned with Venus (Bakkalcha) in the lower right captured 23 Jan,2023 .

3.1.3 Konchora (The Waxing Gibbous)

Figure 3 presents an image of Konchora, observed in the skies above Gedeo. Konchora signifies the moon that emerges one day before the full Moon. During this phase, the Moon is on the verge of becoming a complete circle, shining brightly across its entire surface. Despite this luminosity, it has not yet reached the full Moon stage. When Konchora appears, the elders of the Gedeo community convene and prepare themselves to witness the full moon the following day. Consequently, this moon serves as a crucial indicator signalising the impending arrival of the full moon.

3.1.4 Goobana (The Full Moon)

The full Moon, known as "Goobana", plays a multifaceted role in the socio-economic activities of the Gedeo society. This community shares a profound connection with



Fig. 3 Image of Konchora captured 24 Nove,2023 just after Sun set.

this celestial object, utilising it as a predictor of significant events such as war, disease, and peace/rainfall within their society.

The Full Moon As Indicator of War

Figure 4 illustrates the symbolic significance attributed by the Gedeo society to the full moon in predicting impending conflict within their homeland of Ethiopia. According to their beliefs, if the full moon is encompassed by a red hue resembling blood, it foretells trouble, often in the form of warfare. In response to this omen, the elders assemble beneath a sacred tree (refer to Figure 5) situated on the revered land known as "Banko", engaging in a continuous prayer ritual until a change is perceived. Should war be deemed inevitable, the elders relay this information to the community, urging them to prepare for and confront the impending disaster.

Figure 4(right panel) shows the real image that confirmed the believes. Since the phenomena happened, (7 Sep 2025) in the Ethiopian space, there is a wide spread war and conflicts in various regions of Ethiopia. Particularly, in Oromia and Amhara states of Ethiopia, which covers largest area of the country, the strong war is happening until the date of this report.

The Full Moon As Indicator of Disease

According to Gedeo societal beliefs, the full Moon plays a crucial role in predicting the outbreak of predominantly endemic diseases. In Figure 6, the full Moon is depicted



Fig. 4 The full moon image generated by AI based on the Elders interview (the left panel) and real image captured 7 September 2025 in the sky of Ethiopia (the right panel). The bloody colour encircled the full moon predicts that the war is coming to the home land Ethiopia.



Fig. 5 The spacial tree on the Holy land Banko, where the Gedeo elders gather under and pray to their God.

as a harbinger of impending disease, with black dots symbolising the symptoms that will afflict the community. In such occurrences, the elders issue a warning to the community and then convene beneath a significant tree (refer to Figure 5) for collective prayers. The intricacies of this prayer ritual constitute a complex process that remains an open question for anthropologists to explore.



Fig. 6 The full moon image generated by AI based on the Elders interview. The black dotes on the surface of the moon refers the symbol of disease.

The Full Moon As Indicator of Peace/Rain

The full moon serves as a significant predictor of positive outcomes within the community. Figure 7 illustrates the full moon symbolising peace or rain, where the moon is depicted partially shrouded by a cloud. This cloud is emblematic of the forthcoming rain or tranquillity, there is no any war expected. During such periods, the elders disseminate this information to the community, prompting them to express gratitude beneath the same tree depicted in Figure 5. Furthermore, anticipating the arrival of rain, they advise the society to ready themselves for the agricultural activities ahead.

4 Conclusions

The Gedeo society, indigenous to the Ethiopian Highlands, possesses a profound cultural heritage deeply intertwined with lunar phases. Their indigenous knowledge, particularly concerning cultural astronomy, offers significant socio-economic insights. The relationship between the Gedeo people and the Moon manifests in several key practices:

1. **Sa'imarroo (New Moon):** The Gedeo place considerable importance on the Sa'imarroo, or new moon. During this period, certain activities, notably marriage ceremonies, are traditionally prohibited. This practice underscores the society's adherence to lunar cycles in regulating social events.
2. **Baatii (First Quarter Moon):** The Baatii phase is associated with hope and marks the commencement of permissible periods for marriage among young men



Fig. 7 The full moon image generated by AI based on the Elders interview. The full Moon with cloud.

and women. Additionally, this phase is utilised for predictive purposes, reflecting the Gedeo's reliance on lunar observations for societal planning.

3. **Konchora (Signal to Full Moon):** As the moon approaches fullness, elders in the Gedeo community observe "Konchora," a signal prompting them to prepare for the full moon. This practice highlights the anticipatory role of lunar phases in their cultural observances.
4. **Goobana (Full Moon):** The full moon, or Goobana, holds a pivotal role within Gedeo society. It serves as an indicator for various significant events, including war, peace, rainfall, and disease. This multifaceted role illustrates the Moon's integral position in the Gedeo's socio-cultural and environmental interpretations.

These practices exemplify the Gedeo's sophisticated understanding of lunar cycles and their application in regulating social, agricultural, and environmental activities. Such indigenous knowledge systems not only preserve cultural identity but also offer valuable perspectives on sustainable living and environmental stewardship.

5 Acknowledgment

This study is partially supported by Dilla university, grant number DU/2015/12. Gedeo elders and Gedio communication have some contribution. We also use GPT version 3.5 for language correction

6 Declaration of generative AI and AI-assisted technologies in the manuscript preparation process

During the preparation of this work the author(s) used DeepSeeek in order to generate images and GPT-3.5 turbo for language correction. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the published article.

7 A conflict of interest

On behalf of all authors, the corresponding author states that there is no conflict of interest.

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