



Cover Page



CELESTIAL ORIENTATION, BURIAL AND RITUAL: RECONSIDERING THE RELIGIOUS SIGNIFICANCE OF SOUTH INDIAN MEGALITHIC MONUMENTS: *ANALYSIS AND INTERPRETATIONS*

Dr. Pallegogu Phanesh Babu

Research Consultant, National Museum, New Delhi

Abstract

This paper examines the religious significance of South Indian megalithic monuments through the field observations, measurements and interpretations presented in the research material. The study records alignments, menhirs, cup-mark stones, stone circles and burials at sites including Mudumala, Murardoddi, Wargal, Hasmatpet and Nagarjunakonda. Particular attention is given to east–west and north–south orientations, observations made around the equinox and solstice periods, cup-mark stones associated in the study with northern celestial directions, and the north–south disposition of skeletal remains at Nagarjunakonda. The evidence is combined with observations of monuments that have subsequently acquired local religious identities, especially the Niluvurallu Timmappa and Yallamma stones at Mudumala. The paper argues that celestial orientation and mortuary practice should be studied together rather than as separate aspects of megalithic culture. At the same time, the evidence does not permit a direct reconstruction of the beliefs or emotions of the builders. Astronomical interpretations—such as links with the Sun, Pole Star or constellations—remain hypotheses that require further archaeological, chronological and instrumental verification. The religious significance of the monuments is therefore best understood as a methodological problem: repeated orientation, burial, monumentality, landscape setting and later ritual memory together indicate a possible relationship between the sky, the dead and community ritual, without proving a single religious system.

Keywords: South Indian Megaliths; Archaeoastronomy; Celestial Orientation; Burial; Stone Circles; Menhirs; Mudumala; Wargal; Nagarjunakonda; Ritual Landscape; Cup Marks

1. Introduction

Megalithic monuments occupy an important position in the archaeology of South India because they preserve material evidence for mortuary practice, monument construction, landscape organization and collective memory. The monuments considered in the supplied research material include stone circles, alignments, avenues, menhirs and burial structures. Their present condition is uneven: some have been damaged, removed, submerged or altered, while others have acquired new meanings through local worship. This condition makes systematic field documentation particularly important.

The research material approaches the monuments through field drawings, exploration, photography, astronomical observation, GPS or compass orientation, Sun charts, Star Dial observations, Google Earth imagery and digitalization of drawings. The study area includes sites around Mudumala, Murardoddi, Gudalellore and Maktal, Wargal and its surroundings, and Nagarjunakonda and Vaddamanu. For some other areas, earlier drawings and maps prepared through archaeological exploration and excavation are used. The study therefore combines direct field observations with archaeological documentation already available to the researchers.

The central question for the present paper is not simply whether megalithic builders possessed astronomical knowledge. It is whether repeated celestial orientation, when found in monuments associated with burial, can contribute to an interpretation of ritual and religious significance. The distinction is essential. An orientation can be measured; its intended religious meaning cannot be measured in the same way. Similarly, the presence of a burial establishes a mortuary context, but it does not by itself identify the beliefs associated with death.

The evidence in the supplied research material encourages a combined approach. At Mudumala, alignments and menhirs are examined in relation to solar directions and northern orientation. At Nagarjunakonda, excavated stone circles contain skeletons whose reported disposition is predominantly north–south. At Wargal, stone circles and cist burials are documented together. At Mudumala, cup marks are interpreted as possible symbolic representations of celestial forms, while existing



local worship of Niluvurallu Timmappa and Yallamma demonstrates how megalithic stones can remain embedded in ritual landscapes. These observations form the basis for reconsidering the relationship among sky, stone, burial and ritual.

2. Sources, Fieldwork and Method

The principal source fieldwork as the primary means of collecting archaeological and archaeoastronomical data. The field procedure began with exploration of the physical setting, observation of water sources and surrounding landscape, determination of cardinal directions through GPS or compass, counting and description of monuments, observation of the sky with a Star Dial, and examination of the surrounding landscape through Google Earth.

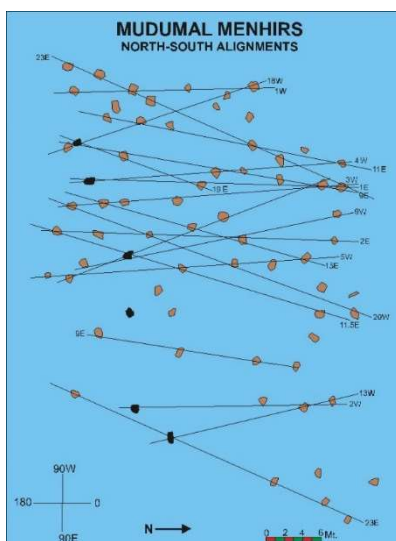
Mudumala received particular attention. The study records fieldwork beginning in May 2004 under a University of Hyderabad UGC/UPE project. The site is described as extending over approximately 250 acres and containing stone circles, alignments and avenues. A central area was documented at 1:100 scale, with 27 standing stones and 35 fallen stones, making 62 stones in total. The study notes that Allchin (1956) had listed the site as a non-sepulchral array with possible astronomical orientations.

At Wargal, a triangulation method was used to document individual stones of circles and cists. A north–south line was first established with a magnetic compass; an east–west line was then fixed. Known points were established at four-metre intervals and measurements from two known points were used to determine the position and form of each stone. Six to ten measurements were taken for individual stones, drawings were prepared at 1:50 and 1:100 scales, and the drawings were subsequently scanned or photographed and converted into digital drawings using CorelDRAW. GPS was used to record latitude, longitude and elevation and to trace the archaeological site.

The study also uses Sun charts to examine solar azimuths and describes Star Dial observations and the marking of the northern or Pole Star direction. These methods are valuable because they connect archaeological measurements with observable celestial geometry. However, the paper does not treat a measured alignment as proof of intention. A defensible archaeoastronomical interpretation requires a repeated pattern, a plausible observational mechanism, archaeological association and, where possible, chronological control.

3. Celestial Orientation at Mudumala

Mudumala provides the strongest case study for examining celestial orientation in relation to monument construction. The site contains a central alignment, stone circles, avenues, menhirs and cup-mark stones. The study records several north–south and east–west relationships and attempts to place the alignments against annual solar movement.



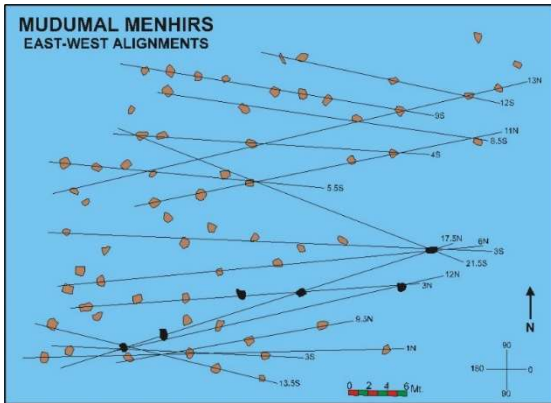


Figure 2. Mudumala menhirs showing East–West alignments. Source: the supplied research material, supplied research material.

The north–south orientation is treated differently. The study associates some alignments with the Pole Star and notes a cup-mark stone at Mudumala that appears to have a northern relationship with the Gudabellore hills. The two landscape points are described as being approximately seven kilometres apart and on the same longitude. The cup-mark stone is therefore discussed as a possible observation point or symbolic marker for the northern sky. The study further suggests that some cup marks may represent celestial configurations.

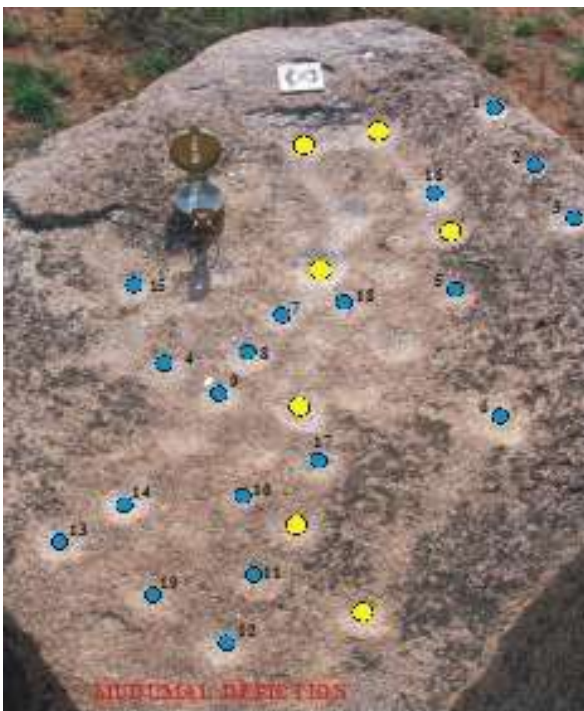


Figure 3. Mudumala cup-marked stone photographed and plotted during the field study. Source: the supplied research material, supplied research material.

This interpretation should be stated cautiously. The source itself uses expressions such as “might have” and “presumed” when connecting cup marks with the Pole Star or constellations. A cup mark can be symbolic, functional, or incidental, and the available evidence does not establish exactly what each mark meant. Nevertheless, the combination of cup marks, a northern landscape axis, monument alignments and astronomical observation makes the stone important for a research program on celestial symbolism.

The religious question arises because orientation is not occurring in an empty landscape. The monuments are associated with megalithic construction and, in several sites, burial. If a monument was intentionally positioned toward a celestial direction, that direction may have contributed to the social or ritual organization of the mortuary space. The celestial reference could have structured the movement of participants, the placement of the dead, seasonal ceremonies or collective memory. These possibilities are interpretive rather than demonstrated facts, but they provide a framework for further testing.

4. Burial, Stone Circles and the Direction of the Dead

The relationship between burial and orientation is particularly important at Nagarjunakonda. the supplied research material reports that the Archaeological Survey of India excavated approximately fifteen megaliths there and that these were stone circles. Skeletons were found in a north–south direction in the excavated examples discussed by the study. The study asks why the remains were arranged north–south rather than east–west and connects this question to the wider investigation of northern celestial orientation.

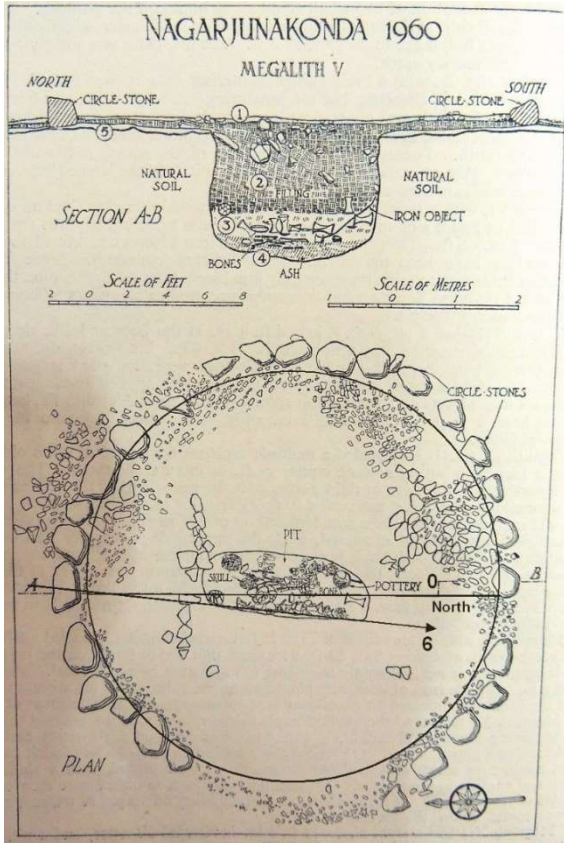
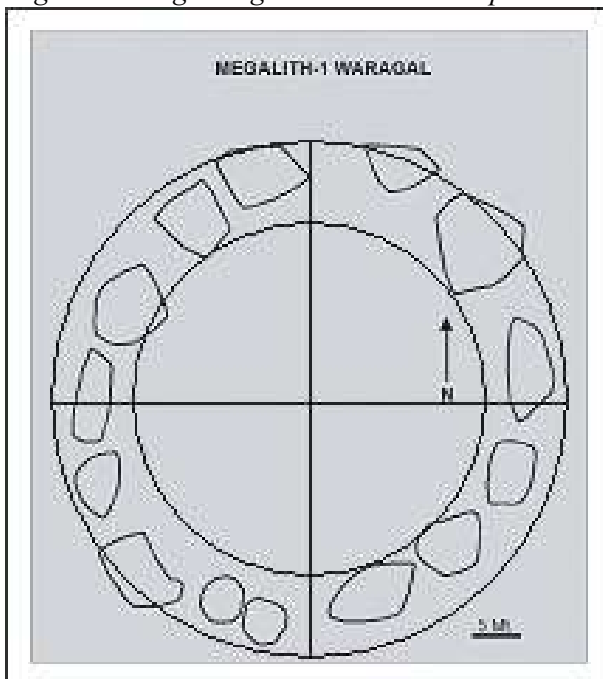


Figure 4. Nagarjunakonda megalithic stone-circle/burial drawing used for comparative mortuary analysis. Source: the supplied research material, supplied research material.

This observation is significant because a burial orientation is different from the orientation of a freestanding monument. In a monument, the direction may govern the structure; in a burial, it may govern the disposition of the body itself. If the pattern is repeated and chronologically coherent, the direction could have formed part of a mortuary convention. It could also have been influenced by the available space, constructional constraints, anatomy, local topography or other factors. Therefore, astronomical interpretation requires comparison with non-astronomical explanations.

Wargal adds another dimension. the supplied research material describes stone circles and cist burials and notes a large stone circle of approximately 20 metres diameter, containing 32 undressed stones, with a north-south orientation and an opening toward the northeast. A cist burial is described as having an east-west direction, while one side of the structure is discussed in relation to a solar azimuth. The coexistence of different orientations is important. It warns against assuming that every megalithic burial followed one universal astronomical rule.

Figure 5. Wargal megalithic stone-circle plan showing the monument geometry discussed in the supplied research material. Source: the supplied research material, supplied research material.



Hasmatpet provides further mortuary context. The study records a concentration of cairn circles near the village and refers to earlier observations and excavations by archaeologists including Meadows Taylor and later officials of the Hyderabad archaeological administration. The significance of Hasmatpet in this paper is comparative: cairn circles demonstrate the widespread use of stone-defined mortuary architecture, while the question of orientation requires site-specific measurement rather than a general assumption.

Taken together, Mudumala, Nagarjunakonda and Wargal suggest that celestial orientation and burial should be investigated as interconnected but variable components of megalithic practice. The evidence is strongest when an orientation is repeated, measurable and directly associated with a burial or monument. It becomes weaker when a single line is interpreted as celestial merely because it points approximately toward a known astronomical direction.



5. Cup Marks, Stars and Symbolic Landscape

Cup-mark stones occupy a distinctive position in the study because they potentially connect material marking with celestial observation. At Mudumala and Wargal, cup marks are described as impressions on stones. The Mudumala example is especially important: the study documents the stone, compass direction, plotting of the cup marks and their digital representation. The discussion proposes a possible relationship between the pattern of marks and the northern sky.

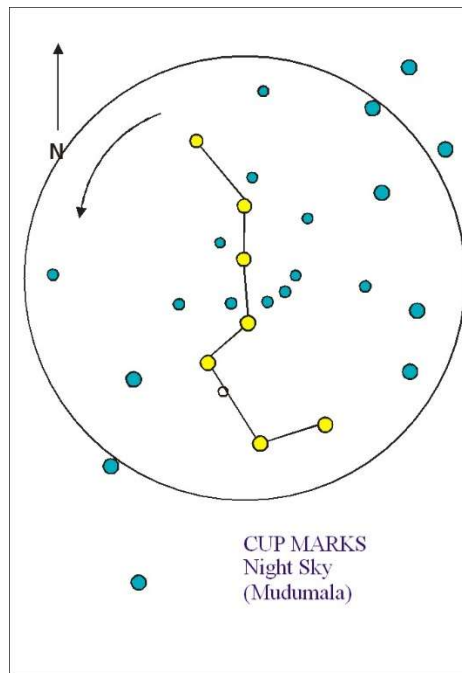


Figure 6. Cup Marks – Night Sky (Mudumala), illustrating the proposed relationship between the cup-mark pattern and the northern sky. Source: the supplied research material, supplied research material.

The cup marks with Ursa Major and the Pole Star, while also suggesting that additional marks might have represented other constellations or planetary movements. These statements should be understood as interpretive proposals rather than established identifications. Modern constellation names and configurations cannot automatically be transferred to an ancient context without considering chronology, precession, visibility, orientation and the visual conventions used by the community.

Nevertheless, the cup-mark phenomenon is relevant to ritual studies because symbolic marks on a monument can transform a physical stone into a mnemonic or sacred object. If a group repeatedly associated a particular stone with a direction, season, constellation or ancestral event, the stone could have served simultaneously as a landmark, ritual marker and repository of collective knowledge. Such a role would not require a modern conception of astronomy; naked-eye observation of the sky is sufficient for recognizing recurring seasonal and stellar patterns.

The study's landscape observation is also important. The Mudumala cup-mark stone and Gudabellore hills are described as being in a northern relationship, with the hills visible from the stone. This suggests that celestial observation may have been integrated with terrestrial landmarks. In such a landscape, the horizon itself could become a reference system: hills, stones, river, burial structures and celestial bodies could participate in a single spatial order.



Figure 7. Mudumala landscape/site image used to consider the relationship between monuments and the surrounding terrain. Source: the supplied research material, supplied research material.

across independently documented sites, precise orientation measurements, secure dating and comparison between marked and unmarked stones.

6. Menhirs, Local Deities and Ritual Continuity

Particularly valuable observation at Mudumala through the present-day religious association of megalithic stones with Niluvurallu Timmappa and Yallamma. The Timmappa monument is described as having once been a menhir that was later broken into two pieces. Yallamma is represented by a stone located to the north-west of Timmappa, with an alignment involving four medium-sized menhirs. The study records a distance of approximately 60 metres between the Timmappa and Yallamma monuments.



Figure 8. Timmappa and Yellamma monuments at Mudumala, illustrating the later ritual associations discussed in the supplied research material. Source: the supplied research material, supplied research material.

It cannot prove that present-day worship preserves the original religious meaning of the megalithic monuments. There is a substantial chronological gap between the megalithic period and contemporary local religious practice, and the study itself does not provide evidence that the present deities were worshipped at the site continuously from antiquity. However, the survival of sacred associations demonstrates that old stones can be incorporated into later ritual systems.

This distinction is essential. There are two different historical processes: first, the original use of megalithic monuments for burial and ritual; second, the later reinterpretation or incorporation of ancient stones into local religious traditions. The second process cannot simply be projected backwards to explain the first. Yet it can illuminate the cultural durability of stones as objects of memory and sacred attention.

The Timmappa–Yallamma example also demonstrates why religious significance should not be reduced to astronomy. A monument can have a directional orientation and a ritual identity at the same time. Its meaning may arise from the relationship among ancestors, landscape, deity, community and sky. The study's observation that monuments in other areas have been worshipped as local gods—such as Pandavagullu, Anjaneyuni Gudi and Poleramma Gudi—further indicates that megalithic stones have continued to acquire local religious meanings.



Cover Page



The evidence therefore supports a layered model of sacred landscape. The earliest layer is the construction and use of megalithic monuments; a second layer consists of later memory and local ritual identification; and a third layer is the modern archaeological interpretation of these remains. Keeping these layers separate allows researchers to study continuity without assuming uninterrupted religious identity.

7. From Monument Orientation to Ritual Meaning

What, then, can celestial orientation contribute to an interpretation of religion? The first contribution is spatial. A fixed astronomical direction can organize a monument and provide a shared reference point for a community. The second is temporal. Solar movement provides recurring annual events, including solstitial and equinoctial positions, that can structure seasonal activities. The third is mortuary. When orientation occurs in a burial context, the direction may have helped position the dead within a culturally meaningful landscape. The fourth is mnemonic. Repeated stones and alignments can preserve knowledge across generations.

The explicitly connects the observation of the Sun with agricultural and seasonal activities, noting that calendrical knowledge could have been important for sowing, cultivation and harvesting. This interpretation is plausible as a research hypothesis, but it should not be treated as demonstrated for every monument. The study also recognizes that the inner feelings and beliefs of the megalithic people cannot be directly recovered.

The religious significance of the monuments may therefore have been practical, symbolic and commemorative at the same time. A direction could have helped regulate ritual movement while also referring to a celestial event. A stone circle could delimit a burial while also structuring a visual horizon. A menhir could mark a person, lineage or sacred location while also serving as an astronomical sighting point. These functions are not mutually exclusive.

The evidence from South Indian megalithic sites also cautions against a single “megalithic religion.” The differences among alignments, circles, cists, menhirs and burial orientations indicate variation. The Wargal example alone includes different directional relationships, while Nagarjunakonda emphasizes north–south skeletal orientation. Mudumala provides both solar and northern astronomical hypotheses. Such diversity suggests local practices within a broader cultural tradition rather than a single uniform system.

A useful model is therefore one of “celestialized mortuary landscapes”: places where the dead, monument, horizon and sky could be related through repeated spatial practices. This is an analytical concept, not a claim that the builders themselves used such terminology. It allows archaeology to examine religion through measurable material relationships without pretending that belief can be reconstructed directly from orientation alone.

8. Digital Archaeoastronomy and Verification

The technical methods described in the supplied research material provide a foundation for testing the proposed relationships more rigorously. GPS establishes geographic position and elevation. Compass and triangulation methods document monument geometry. Digital drawings preserve field observations and allow measurements to be revisited. Google Earth provides a landscape-scale perspective. Sun charts permit examination of solar azimuths. Star Dial observations provide a field method for identifying northern celestial directions.

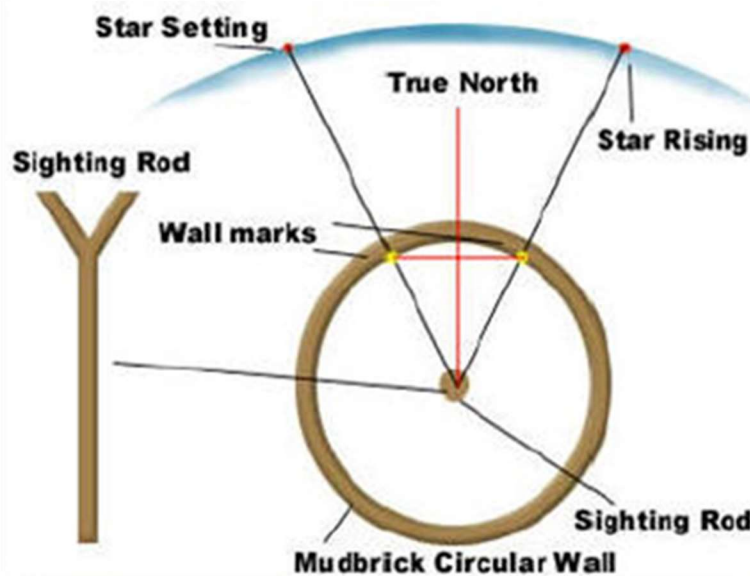


Figure 9. Sighting-rod diagram showing True North and star rising/setting, from the astronomical-method material in the supplied astronomical-method material. Source: the supplied astronomical-method material, supplied research material.

The study's approach is important because it moves interpretation away from visual impression alone. A monument that appears aligned from a photograph can be tested through measured coordinates and bearings. Similarly, a proposed relationship between a burial and a celestial direction can be compared against alternative directions and repeated across a group of monuments.

The next stage should involve a standardized database for every monument: geographic coordinates,

elevation, monument type, stone count, internal dimensions, axis azimuth, horizon altitude, burial position, skeletal orientation where available, associated artefacts, cup marks, surface modifications and archaeological chronology. Statistical testing can then determine whether the observed orientations cluster more strongly around astronomical directions than would be expected by chance.

The study does not document a completed Total Station survey; therefore, Total Station should be treated as a future or complementary method rather than as an instrument already used for all the reported observations. High-precision surveying could improve measurements of azimuth, slope, stone height and horizon profile. GIS could then combine monument geometry with terrain and astronomical calculations.

Such verification is especially important for religious interpretations. If a pattern survives precise measurement, chronological testing and comparison with control sites, the argument for intentional orientation becomes stronger. If the pattern disappears under improved measurement, the religious interpretation must be revised. Archaeological significance depends on this capacity for testing.

9. Discussion

The evidence assembled in the supplied research material supports a reconsideration of South Indian megalithic monuments as more than burial structures. They were built spaces in which stone, body, direction and landscape could interact. Mudumala provides evidence for multiple alignments, menhirs, stone circles and cup-mark stones. Wargal demonstrates the coexistence of stone circles and cist burials and provides a detailed example of archaeological field measurement. Nagarjunakonda contributes excavated mortuary evidence, including north-south skeletal orientation. Hasmatpet provides a comparative concentration of cairn circles. The Timmappa and Yallamma material shows the later ritual life of megalithic stones.

First, celestial orientation should be treated as one component of mortuary archaeology rather than as an isolated specialist subject. The astronomical significance of a direction becomes more meaningful when it is examined alongside the body, burial architecture, access routes, landscape and material culture.

Second, ritual significance should be inferred through converging evidence. A single alignment is insufficient. Stronger evidence would consist of repeated orientations, deliberate construction, visibility of the proposed celestial target, association with burial or ritual deposits, and chronological coherence. The Mudumala observations are therefore valuable as a fieldwork program, but several of the astronomical identifications remain hypotheses.

Third, later sacred use of megalithic stones deserves careful study without assuming direct continuity. The present worship of Timmappa and Yallamma demonstrates that monumental stones can remain meaningful in local landscapes. This does not establish that the same religious ideas existed in the megalithic period. Instead, it shows how archaeological monuments can accumulate layers of meaning.

The religious significance of South Indian megaliths may consequently be understood as a relationship between the visible world and an ordered cosmos. The builders selected stones, arranged bodies and monuments, and inhabited landscapes in which celestial cycles were observable. Whether the sky was conceived as divine, ancestral, calendrical, directional or symbolic cannot be determined from the available evidence alone. The appropriate archaeological conclusion is more modest but still important: celestial orientation appears to have been sufficiently relevant in some monuments to warrant systematic investigation of its relationship with burial and ritual.

10. Conclusion

The paper based on substantial field-based foundation for studying the relationship among celestial orientation, burial and ritual in South Indian megalithic archaeology. The documented evidence includes solar alignments at Mudumala, north-south and east-west monument orientations, cup-mark stones associated hypothetically with northern celestial observation, stone circles and burials at Wargal and Nagarjunakonda, cairn circles at Hasmatpet, and later sacred associations of megalithic stones with Timmappa and Yallamma.

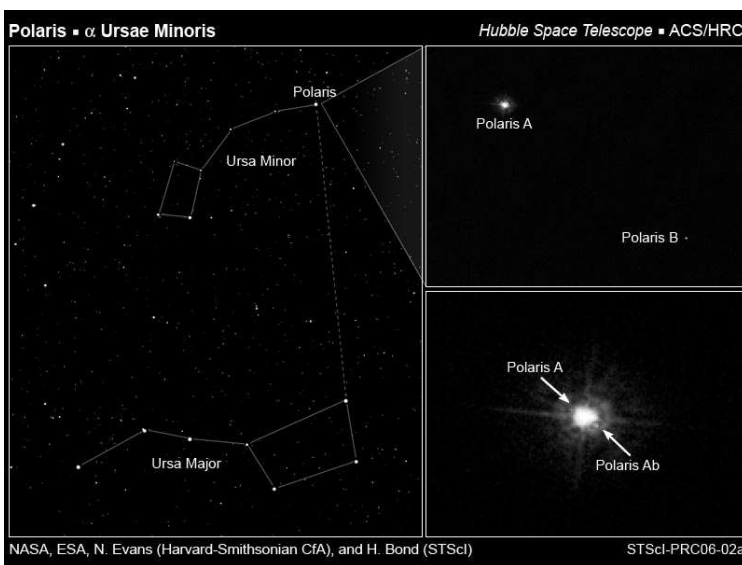


Figure 10. *Polaris and Ursa Minor, used in the supplied astronomical-method material for discussion of the northern celestial direction. Source: the supplied astronomical-method material, supplied research material.*

The evidence does not justify a simple conclusion that all South Indian megaliths were astronomical observatories or that their builders followed one standardized religion. Instead, it points toward a more productive interpretation: in some contexts, celestial observation may have contributed to the organization of mortuary monuments and ritual landscapes. The dead were placed within constructed spaces whose directions may have carried solar or stellar significance, while stones themselves could become durable markers of memory and sacred place.

The religious significance of South Indian megalithic monuments is therefore best approached through evidence rather than assumption. Celestial orientation, burial and ritual should be examined as interconnected dimensions of a material landscape in which communities organized the dead, remembered ancestors, marked territory and observed recurring patterns in the sky. This approach does not claim to recover the complete belief system of megalithic communities; rather, it provides a disciplined way to investigate how the sky may have entered the social and ritual world of the dead.

Notes

1. P. Phanesh Babu, field research material: fieldwork, monument types, site condition, local worship and source data.
2. P. Phanesh Babu, field research material: study areas, fieldwork procedure, Mudumala fieldwork beginning in May 2004, site extent, central drawing, and the 27 standing and 35 fallen stones.



Cover Page



3. P. Phanesh Babu, field research material: stone-circle dimensions, Mudumala alignments, north–south orientation, solar directions and related field drawings.
4. P. Phanesh Babu, field research material: equinox observations, east–west alignment and solar movement.
5. P. Phanesh Babu, field research material: cup marks at Mudumala, possible northern orientation, Gudabellore hills and related documentation.
6. P. Phanesh Babu, field research material: Wargal, Hasmatpet and Nagarjunakonda stone circles, cist burial and reported north–south skeletal orientation.
7. P. Phanesh Babu, field research material: Timmappa and Yallamma monuments at Mudumala and their reported spatial relationship.
8. P. Phanesh Babu, field research material: triangulation drawing method, GPS, digitalization, Star Dial and related field documentation.
9. The field research uses tentative language when associating cup marks and monument orientations with celestial bodies. In this paper, such associations are retained as hypotheses rather than converted into established facts.
10. The present paper does not claim that Total Station was used in the reported fieldwork. High-precision Total Station surveying is presented only as a future or complementary method for verification.

References

- Allchin, F. R. 1956. Work cited in the supplied research material in connection with the Mudumala megalithic array.
- Kameswara Rao, N., et al. 2011. “The Archaeoastronomical Significance of Niluvrallu, the Megalithic Stone Alignments at Murardoddi in Andhra Pradesh, India.” *Journal of Astronomical History and Heritage* 14(3): 211–220.
- Lee, H. J., and P. Phanesh Babu. 2007. “Megalithic Monuments in Vikukonda and Kumbum.” Paper presented at the South Indian History Congress, Anantapuram.
- Murty, M. L. K., ed. Pre- and Protohistoric Andhra Pradesh up to 500 B.C. Referenced in the supplied research material.
- Phanesh Babu, P. 2010. Orientations of Megalithic Monuments in the Middle Krishna Valley, Andhra Pradesh. Unpublished M.Phil. thesis, Potti Sreeramulu Telugu University.
- Rao, K. P., et al. “Viewing the Sky Through Past and Present Cultures.” Selected papers from the Oxford VII International Conference on Archaeoastronomy, 2005, as cited in the supplied research material.
- Taylor, Meadows. Megalithic Tombs and Other Ancient Remains in the Deccan. Referenced in the supplied research material in relation to Hasmatpet.
- Thom, Alexander. Works on megalithic astronomy and monument measurement cited/discussed in the supplied research material.
- Source note: This paper has been prepared from the supplied research material supplied by the author. Statements not supported by the supplied research material have been presented as methodological suggestions rather than as established source-derived facts.