239-SYMPOSIUM
ANCIENT LANDSCAPES AND COSMIC CITIES OUT OF EURASIA:
TRANSDISCIPLINARY STUDIES WITH NEW LIDAR MAPPING
Room: Marriott Studio 4&5
Time: 8:00 a.m.–10:00 a.m.
Chair: Saburo Sugiyama

Orientation of Tsukuriyama Kofun Tumulus
- Examination from Lidar Survey -

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From Google Earth pro

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Similarity of the two mounds

Tsukuriyama-kofun in Okayama Prefecture is a large (350 m), keyhole-shaped tumulus built in the first half of the 5th century. Researchers have noticed that the tumulus's scale and plan are similar to those of the Ishizuoka-kofun (said to be Emperor Richu's tomb) in Osaka Prefecture.

What is the reason for determining the orientation of these common burial mounds?

These two burial mounds shared the same basic design, with a major axis deviation of approximately 29 degrees east from the true north.

Two mounds may have been oriented and constructed by similar directional beliefs.

* Furthermore, the axis of the Daisen-kofun, presumed to be Emperor Nintoku's burial site, measures 480 meters in length and is situated close to the Ishizuoka-kofun, is inclined about 28.6 degrees eastward from True North.

The layout of Kofun reflects the spatiotemporal consciousness and faith of the people who built it.

What is the meaning of these common orientations of kofuns?

What is the reason for determining the orientation of these common burial mounds?

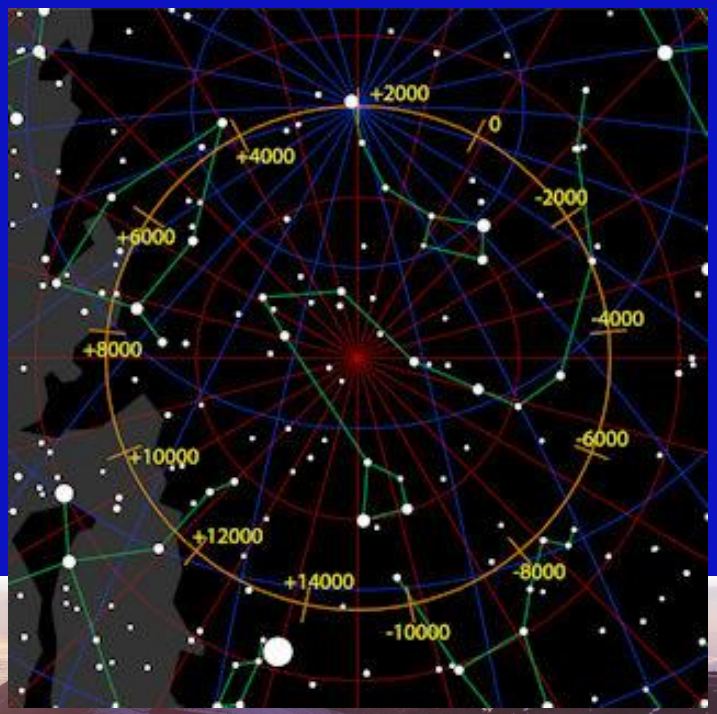
・One suggested reason for this directional choice is the Token (Big Dipper) faith in the 5th century.

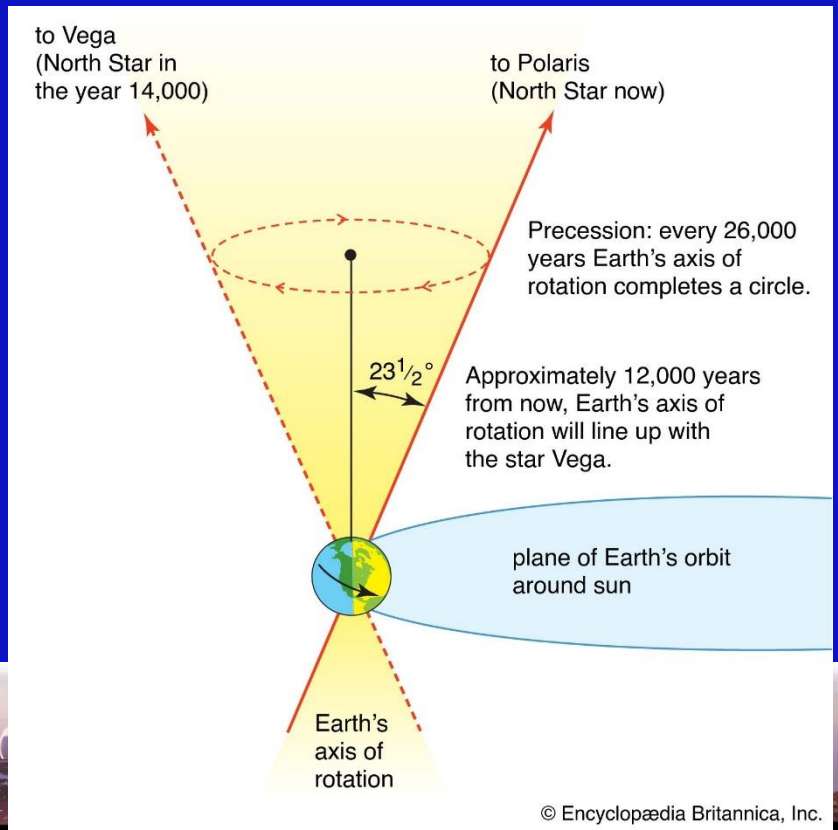
・Another perspective posits that a 90-degree rotation of this angle would nearly correspond to the sunrise direction during the winter solstice.

To test these hypotheses, it is necessary to reproduce and verify the relationship between the background topography and the sun's and stars' positions on the celestial sphere at a specific date (time) and place (position) in the past.

Reproducing ancient space–time landscapes

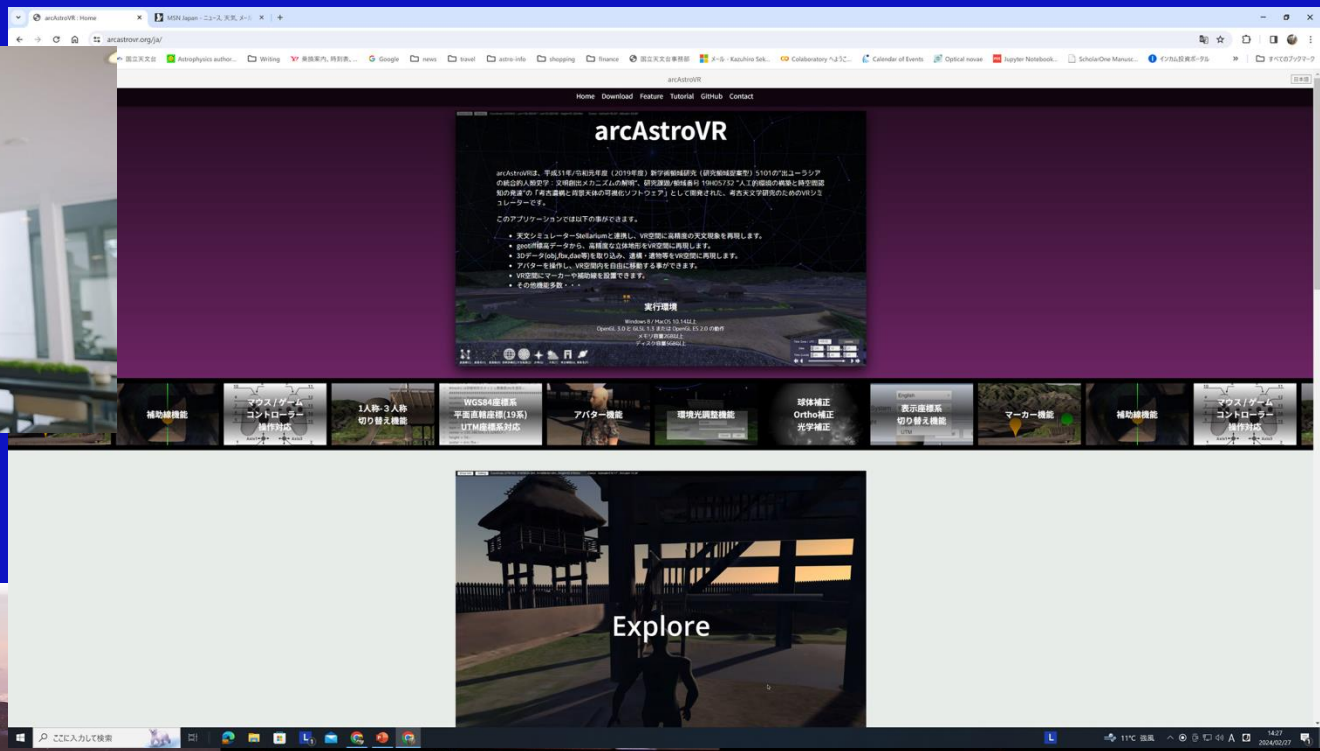
However, due to the effects of the Earth's precession and other factors, the positions of celestial bodies we see today are different from those of ancient people. Therefore, it is necessary to go back in time and visually represent and verify the positional relationship between celestial bodies and the terrestrial landscape, including archaeological structures.





Reproducing ancient space–time landscapes

arcAstro-VR (https://arcastrovr.org/ja/) was developed as a system for such visual analysis. It reproduces the precise placement of archaeological structures, surrounding landscapes, and corresponding past celestial bodies in a virtual 3D space for archaeoastronomical and cultural astronomical investigations.




arcAstroVR
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