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 T9_poster(General Edu. Build.C, 1-2F)

[1poster36-38] T9. geopark to enjoy and learn about the earth and human activities

[T9-P-2] Exhibiting the Coexistence of Volcanoes, Humans, and Nature at an Archaeological Museum: Attempts of Sakurajima-Kinkowan Geopark

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The Sakurajima-Kinkowan Geopark is currently developing an exhibition at an archaeological museum that expresses the coexistence of volcanoes, humans, and nature. This geopark area has experienced 17 Plinian eruptions following the massive Aira Caldera eruption approximately 30,000 years ago. The archaeological remains found in the region tell us how humans have overcome these volcanic events, passing their experiences on to future generations. The new exhibition integrates tephrochronology and paleogeographic reconstruction—methods commonly used in earth sciences—into archaeological interpretation to illustrate the spatial and temporal distribution and environmental adaptation of humans from the Paleolithic to the Jomon period.

By analyzing samples such as volcanic ash and fossilized plants, the exhibition reconstructs the climate and natural environment of past eras. In addition, archaeological materials such as stone tools and shell middens are analyzed to reveal the lifestyles of ancient peoples. Combining these approaches enables a multifaceted understanding of how volcanic activity, climate change, and marine environmental fluctuations influenced human settlement, culture, and diet.

The exhibition is organized into the following six themes:

Sea-Level Fluctuations and Human Migration

Visual reconstructions of lowered sea levels during glacial periods show how the current seabed of Kinko Bay was once land, allowing Paleolithic humans to migrate. Climate and environmental conditions are estimated from volcanic ash layers and plant fossils. Human movement and settlement are illustrated through obsidian artifacts and drawings.

Impact of the Aira Caldera Eruption

The Aira Caldera eruption occurred around 30,000 years ago during the Paleolithic period. Based on Takarada et al. (2022, Geological Survey of Japan), illustrations and distribution maps depict the scale of the eruption. Changes in human life before and after the eruption are introduced using archaeological evidence.

Distribution of Sakurajima-Satsuma Tephra

The Sakurajima-Satsuma eruption occurred 13,000 years ago during the earliest Jomon period. Base surge deposits reached up to 10 km from Sakurajima (Kobayashi et al., 2013,

Geological Survey of Japan). Archaeological data reveal the significant impact on Jomon populations. The theme concludes with connections to modern disaster education and geopark activities.

Jomon Period Sea-Level and Daily Life

The coastline during the Jomon transgression has been geologically reconstructed by studies such as Moriwaki et al. (2022, Bulletin of the Volcanological Society of Japan). Maps overlaying shell midden and dwelling locations help visualize how geological phenomena influenced human living environments.

Movement and Trade of Stone Tools

Petrographic analysis and provenance studies of stone tools found in the geopark area are possible. Maps showing the distribution routes of obsidian and jade help explain human exchange and trade networks.

Changes in Human Diet

Through tephrochronological analysis, transitions from Paleolithic hunting and gathering to Jomon fishing and shellfish collection are revealed. This theme highlights the close relationship between geological phenomena and diverse food resources from the sea, mountains, and rivers.

These exhibits combine visual materials (maps, photos, illustrations) with physical artifacts (stone tools, volcanic ash) to allow visitors to experience the relationship between geology and humanity. As a rare example of integrated geological and archaeological data, this initiative contributes to experiential learning and strengthens disaster and environmental education. It is expected to serve as a new model for exhibitions in geoparks and museums nationwide.