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Development and Educational Benefits of Interactive Content for Visualizing Cosmic Ray Air Showers in a 3D Panoramic Sphere

High-energy cosmic rays induce extensive air showers (EAS) that develop from an altitude of approximately 10 km and reach the ground with footprints spanning several kilometers in diameter. Most cosmic ray exhibits in science museums rely on real-time detection of natural radiation at ground level, with limited emphasis on effectively conveying the dynamic nature of cosmic ray air showers. To address this, we have developed an interactive visualization tool that represents cosmic ray air showers within a three-dimensional (3D) panoramic celestial sphere. This content is designed for use in science museum exhibitions and educational events to enhance public interest in cosmic rays. Additionally, it serves as a valuable resource for STEAM education and elementary-level instruction on natural radiation. In this report, we present an analysis of the educational benefits of utilizing this content in science museum exhibits and elementary school classrooms in Japan.

Collaboration(s)

Telescope Array

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