Earthquakes, Landforms and Japanese Geoparks

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The horizontal force on the Japanese archipelago has changed from extension to compression about 3Ma. This compressive force is one of the major factors that give each geopark the valuable landforms currently in front of us. This compressive force is also a factor in causing large earthquakes with terrible disasters to human society.

Earthquakes are caused by subsurface faulting. A fault movement causes uplift and subsidence of the ground. Repeating fault movements forms various landforms, that is, mountains, plains, basins, terraces, and fans, which are scenic spots. Thus, we can say that the diversity of geoparks in Japan is brought not only by the geological diversity but also by the geographical diversity created by seismic activity on various time scales.

One of the characteristics of Japanese geoparks is the transmission of natural disasters and efforts for disaster prevention. Surface ruptures and fault scalps on the surface accompanied with a large earthquake, and collapsed areas due to severe ground motion are maintained as geosites. Monuments of past earthquakes and tsunamis, together with their transmission, are used for geopark activities. These are used for education of possible future earthquake disasters.

Faults not only cause earthquakes, but also moisturize people's lives. Since a fault is a water path, there are famous waters and hot springs along the fault. Valleys formed by faults have been used as a highway that carries people and goods. Diverse landforms created by the faulting, combined with climatic features, have also provided a place for local specialties or outdoor activities.

The history of Japan is the history of symbiosis with natural disasters. Earthquakes occur under the earth where we live. The wisdom of living with earthquakes will disappear without efforts to convey it. To know the origin of the earth through geoparks is to look to the past, understand the present, and think about the future.

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