

## Development of e-learning materials for high school education on topography using GIS

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Geomorphology education concerning characteristics of topography is important for learning the basic elements of natural environment and disaster prevention. However, geography education on topography in Japanese high schools faces difficulties in various aspects such as reading contour lines and understanding the development processes of landforms. A reason for this is that most high school teachers who teach topography did not learn a lot about geomorphology in universities. In Japanese high schools, a new geography course will become compulsory in 2022, and in the course GIS (Geographic Information Systems) have to be taught to all students. Therefore we started developing e-learning materials for geomorphology education in high schools using GIS. The materials under development consist of three components: 1) online text explaining geomorphology using digital maps, 2) utilization of 3D-printed topographic models and VR viewing, and 3) utilization of GIS software to analyze DEMs (Digital Elevation Models). In this presentation, we introduce the construction processes of the materials.

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