

Visualization of seismic tomographic model on Google Earth: development of conversion tool for European standard format to KML

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We have developed a visualization system exploiting Google Earth technologies for multidisciplinary geoscience data, which accept seismic tomographic models, geochemical datasets of rocks and geomagnetic field models. As Google Earth supports the ad hoc language, Keyhole Markup Language (KML), we have developed programs to convert the geoscience dataset to a KML file, which we call as 'KML generator'. The KML generator for the tomographic model enables us to display three dimensional (3-D) vertical and horizontal cross sections of the model on Google Earth, which would be useful to understand the Earth's interior. The previous version of the generator accepts text data files having grid-point data format internally. In this file, longitude, latitude, and seismic velocity anomaly, are written for each depth. Metadata, for example bibliographic reference, grid-point interval, depth, are described in other information file. Recently European seismology research projects, NEIRES -Network of Research Infrastructures for European Seismology-, advocates that the seismic tomographic model data should be standardized. They propose a new format, called 'Json', JavaScript Object Notation, format as a standard format of tomographic model. This format consists of two parts, which are metadata and grid-point data values. The Json format seems to be powerful to handle and to analyze the tomographic model, because the structure of the format is fully defined by Javascript objects, thus the elements are directly accessible by a script. In addition, there exist Jaon libraries for several programming languages. The International Federation of Digital Seismograph Network (FDSN) adapted this format as a FDSN standard format as a tomographic model. There might be a possibility that this format would not only be accepted by European seismologists but also be accepted as the world standard. Here we improve our KML generator for seismic tomographic model to accept the data file having Json format. We also improve the web application of the generator so that the Json formatted data file can be uploaded.