



Geoethics and decision science issues in Japan's disaster management system: case study in the 2011 Tohoku earthquake and tsunami

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The March 11, 2011 Tohoku earthquake and its tsunami killed 18,508 people, including the missing (National Police Agency report as of April 2014) and raise the Level 7 accident at TEPCO's Fukushima Dai-ichi nuclear power station in Japan. The problems revealed can be viewed as due to a combination of risk-management, risk-communication, and geoethics issues.

Japan's preparations for earthquakes and tsunamis are based on the magnitude of the anticipated earthquake for each region. The government organization coordinating the estimation of anticipated earthquakes is the "Headquarters for Earthquake Research Promotion" (HERP), which is under the Ministry of Education, Culture, Sports, Science and Technology (MEXT). Japan's disaster mitigation system is depicted schematically as consisting of three layers: seismology, civil engineering, and disaster mitigation planning.

This research explains students in geoscience should study geoethics as part of their education related Tohoku earthquake and the Level 7 accident at TEPCO's Fukushima Dai-ichi nuclear power station. Only when they become practicing professionals, they will be faced with real geoethical dilemmas. A crisis such as the 2011 earthquake, tsunami, and Fukushima Dai-ichi nuclear accident, will force many geoscientists to suddenly confront previously unanticipated geoethics and risk-communication issues. One hopes that previous training will help them to make appropriate decisions under stress. We name it "decision science".