

Text mining analysis of newspaper coverage with volcanic disaster risk

*Kou Yamada¹

1. Waseda University

Japan has been hit by many deadly volcanic eruptions. Public awareness of volcanic disaster risk and the volcanic risk reduction education are important to strengthen disaster preparedness for effective response. Mass media are one of primary channels in the permeation of expert knowledge to public. Mass media are therefore considered to have large influence on the public understanding of risk, leading to preventing and mitigating harm from volcanic disasters. Transmission of volcanic risk knowledge to public through media coverage is a key component of risk communication. During volcanic crisis, risk related information is frequently released through news media by experts or administrative agencies. Previous studies have paid attention on the risk communication in a short period just after large volcanic disasters. However, risk communication in peace time is also very essential in order to achieve the volcanic disaster reduction and risk awareness of citizen to the higher level and how volcanic risk related issues are framed by mass media in peace time as well as at the time of crisis remains still unsolved.

The Asahi Shimbun, Mainichi Shimbun, and Yomiuri Shimbun were chosen for this study. They are the representative national newspapers in Japan and have a circulation of several million. Almost all news articles published by these newspaper companies have been archived from the 1990s onward. These databases allow us to design the comprehensive research. Although it seems that volcanic risk may be the local problem, damages of volcanic ash widely spread once massive eruption occurs. In addition, an evacuation plan must be supported by not only municipality but also government. Thus, volcanic disaster risk can be a non-negligible national political concern. By examining the national newspaper, one can find which agenda related to volcanic disaster risk typical newspaper media extensively set as the national political concern.

The newspaper articles including two keywords “eruption” and “volcano” , which are published from January 1990 to December 2016, were selected, using these databases. The research methodology is the quantitative text mining analysis with the help of the LDA (Latent Dirichlet Allocation) which is a way of automatically extracting topics that texts potentially contain, on the base of distinctive patterns of lexical density. LDA can divide articles into several sub-groups of objects that share common characteristic and enables to identify volcanic disaster risk related articles. This study will exhibit when they are intensively distributed and what types of issues in the volcanic disaster risk are significantly framed by newspaper media. In this presentation, the feature that newspaper media mainly take up the volcanic hazard topic of Mt. Fuji will be presented.

Keywords: text mining, volcanic risk, mass media, news analysis