IAVCEI 2013

Numerical Simulation of Volcanic Ash Dispersion due to the Explosive Eruption of the Mt. Baegdu

Eun-Sk Jang, Sang-Heon Lee, Nam-Hee Choi

Hanzhong, South Korea

E-mail: esjang@hanzhong.ac.kr

Numerical Simulation of Volcanic Ash Dispersion due to the Explosive Eruption of the Mt. Baegdu

Eun-Suk Jang, Sang-Heon Lee, Nam-Hee Choi

Institute of Environmental Research, Hanzhong University, Gangwon 240-713,

South Korea

Abstract: Mt. Baegdu located in the north part of the Korean peninsula is known with rest volcanic activity, but recently various precursory signs appear so that the requirements to develop for the manual according to prevent the disasters after the volcanic erupted is getting increased. In order to clarify the characteristics of dispersion of volcanic tephra emitted from the Mt. Baegdu with various eruption environment, numerical analysis were performed using numerical models, Weather Research and Forecast (WRF) and FLEXPART. In this study, the amount of deposition erupted volcanic ash was calculated by the emitted amount at each intensity of the discrete eruption and the amount of its dispersion based on the various assumptions. Especially, these assumptions were made that the volcanic ash released from the Mt. Baegdu in the atmosphere, then transported with wind field, so that they could be affected to overestimate by the various factors. This study is based on the meteorological field which is predicted the direct damage by the volcanic ash from the Mt. Baegdu. Volcanic ash tends to be deposited easily in the eastern coastal area such as Gangneung and Busan, because of the inflow of ash from the East Sea and barrier effect of the Taeback Mountains along the east coast of the Korean Peninsula. Accumulated amount of ash deposition can be increased in short period in several urban areas. This study aims to quantify the disaster for the prevention after the Mt. Baegdu erupted, which can be used to make a predicting scenario according to damage from ashfall and applied as major fundamental references.