

## On the volcanic risk to the Chisong nuclear power plant in China by probable eruption of the Baitoushan volcano

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In the last presentation, I omitted the talk about the volcano risk to Chisong nuclear power plant by time restrictions. I will focus on this point and performs the talk this time.

The activity of an earthquake and the upheaval of the summit of Baitoushan volcano which started in 2002 ceased in 2005. Six years afterward, the 2011 off the Pacific coast of Tohoku Earthquake occurred and it had worries about an eruption also in Baitoushan volcano like the active volcano in Japan. For example, in North Korea, the law about an earthquake and an eruption was newly built in August, 2011. On the other hand, in China, a construction plan of the nuclear power plant (NPP) was pushed forward in Jingyu County approximately 100km away from the Baitoushan volcano. The plan was stopped by the 3.11 megathrust earthquake, but it restarted and construction is now pushed forward. Doesn't an eruption do a risk to the nuclear power plant? Supposing it does, what kind of risk is there? And what is the defense method?

This NPP uses the lake water which dammed up the source of Songhua River running down from the Baitoushan volcano as the source for cooling. Judging from a geographic characteristic, the western half of pyroclastic materials piled up on the mountaintop will change to lahar by mixing with rain or snow water, and will attack the NPP setting spot. In addition, according to the satellite image, the risk of the large-scale collapse of the western flank of mountain edifice is pointed out. This can also cause the lahar in the 100 km distant place. According to the geological map by Wei H. (personal com.), the lahar by 10th century eruption arrived at the installation predetermined area of the NPP. Even if the NPP (AP1000) of the schedule installed cannot obtain cooling water from the river, for three days, it can bear and is a nuclear reactor of new type which stops safely by air cooling after that. At this point it may be reliable to the lahar risk. Although the pyroclastic flow of 10th century could not reach to the NPP site, another probable risk may be the ash fall accompanied to the ash cloud due to the pyroclastic flow.

There are more than 15 million inhabitants in China and Russia along the river more downstream than the NPP. Therefore the examination of the thorough enforcement of the field survey and certain safety measures is necessary. Furthermore, organization establishment for the joint research among related countries of East Asia including North Korea is also desired.

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