Elucidation of the cause that the H / L value of volcanic sector collapse is very small compared to non-volcanic landslides

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On case of volcanic sector collapse of stratovolcanoes, it has a ratio (H / L value) of the reach distance L of the debris avalanche and the height difference H, which is a very small value that can never be realized by general non-volcanic land sliding. Namely, it is known from previous studies that it has an very large flow distance L, but the cause is still unknown(Iguchi 2005, Moriwaki 1987). Therefore, I aim to elucidate the cause and mechanism, and to use it for the prediction and prevention of large-scale volcanic disasters due to the expected collapse of stratovolcanoes around the world in the future, including Mt. Fuji. Based on the verification results of the ballistic emission mechanism from the magma phreatic crater at the Izu Oshima’ s Habuminato explosion crater in 838, I applied the mechanism by simulation to following three cases, that is, (1) 1952 Myojinsho shallow submarine collapse, (2) 1888 Bandai collapse, and (3)1980 Mount St. Helens one. As a result, in each case, a part of the crater edge of the mountaintop was lifted vertically by the initial steam explosion, and almost at the same time, the slope of the collapse side started to slide down like a rigid plate. Therefore, it has been foreseen that by the reaction of the explosion will gain momentum and kinetic energy. And then, I came to think that the possibility of elucidating mystery of the small value H / L at the time of the sector collapse may become to rearise. Furthermore, there is a possibility that my assumption can well explain some field survey results of topographical changes, for example, Avalanche valley and so on.

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