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Eruptive history of Zhupanovsky volcano as a base for hazard evaluation.

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Volcanic hazard evaluation should consider characteristics of volcanic events as well as their spatial and temporal distribution. Studying the history of eruptive activity of different volcanoes for long periods is one of the important approaches for volcanic hazard assessment. Herein we report first results of reconstruction of eruptive history for Zhupanovsky volcano, Kamchatka, which represents wide range of events occurred during the Holocene: several pulses of activity, changing the style of activity, and spatial shift of erupted vents. This volcano, situated 70 km NNW of Petropavlovsk-Kamchatsky, consists of 4 coalesced cones which aligned SE-NW, normally to the subduction zone direction. Last eruption occurred in 1957 AD, now volcano demonstrates only fumarole activity. To establish the age of prehistoric eruptions we used detail tephrochronological scheme, developed during the field work. It comprises more than 10 marker ash layers which represent distal ashfall deposits of largest eruption of Kamchatka volcanoes during the Holocene. Additionally more than 50 14C dates were obtained to assure the age of the eruptions. Two stages of Zhupanovsky volcano activity during the Holocene were revealed. First one, started probably at the Late Pleistocene, continued to 5700 14C yrs BP. More than 20 large eruptions were recognized, their products were mainly mafic (basalts, basaltic andesites) in composition. Several of them caused partial melting of the summit glaciers and formation the large lahars which form a thick proluvial fan at the slope of the volcano. Second stage started at about 3000 14C yrs BP, after 2700 14C yrs repose period. Often eruption of different power occurred till 900-1000 14C yrs BP, followed by weakening of volcanic activity (repose period?). Magma composition changed to silic andesites. The largest eruption of the stage took place about 2100 14C yrs BP being accompanied with pyroclastic flows and surges formation. During the repose period 5700-3000 14C BP, volcanic activity occurred at the western foot of the volcano,

where several monogenetic vents with thick but very long lava flows were formed. Their chemical composition corresponds to mafic andesites. Last eruption at this place took place about 1600 14C BP, simultaneously with activity of Zhupanovsky volcano. The revealed spatial and temporal pattern of Zhupanovsky volcano activity could be the base for investigation on quantitative and qualitative characteristics of future eruptions and evaluation of potential hazards of this volcano. This research was supported by RFBR grant.