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Hazard estimates for El Chichón volcano, Chiapa México: a statistical approach for complex erupt histories

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Abstract. The El Chichón volcano (Chiapas, México) most recent er occurred in 1982 causing the worst volcanic disaster in the recorde history of Mexico. Prior to the eruption, El Chichón volcano was not considered a very hazardous volcano, a perception mostly caused low eruption rate of the past eruptions. The correct assessment of hazard is the first step to prevent a disaster. In this paper, we ana two periods of the reported eruptive history of El Chichón volcano the Holocene, searching for the eruption rates of different VEI mag categories and testing their time dependence. One period account eruptions of the last 3707 years before the last eruption (BLE) is a to be complete, with no missing relevant events. More scarce infor of a period extending to 7772 years BLE is then added. We then a Non-Homogeneous Generalized Pareto-Poisson Process (NHGPPP) Mixture of Exponentials Distribution (MOED) methods to estimate t volcanic hazard of El Chichón considering both periods. The results compared with the probabilities obtained from the homogeneous P and Weibull distributions. In this case the MOED and the Weibull distribution are rather insensitive to the inclusion of the extended In contrast, the NHGPPP is strongly influenced by the extended per

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