Tianchi volcano is the biggest volcano in Northeast China. The largest eruption is in 1215 (±15), producing a great mass of pyroclastic-flow which spread in a vast area with a radius of 60 km around the volcano. There are lots of distal pyroclastic-flow deposits lying on the old valley channels. Pyroclastic-flow transporting over water may easily occur at the distal part. But the interaction between pyroclastic-flow and water is rarely involved in previous research in Tianchi area. Through the field work, a stratum with crosslayers has been found which are different from the typical pyroclastic-flow strata. It may come from ground-surge. We study its origin with grain-size and SEM. Based on the geology work, grain-size analysis and SEM have been used to study the pyroclasts in Tianchi volcano. Characteristics of grain-size distribution show that it is similar with the ash cloud. Through the SEM analyses, we have found some quench structures with less damaged on the surfaces of the vitric pumices. These phenomena indicate that there has been a hydration in the transportation processes at the distal of pyroclastic-flow. It has partly changed the transportation mechanism of pyroclastic-flow which transition is from density flow to dilute flow. We have developed a new distal pyroclastic-flow model in Tianchi volcano which can be divided into three stages. They are quench stage, expanding stage and depositing stage.