The 10th eruption of Baitoushan volcano forming the summit caldera can be divided into three phases, Phase 1 to 3 in ascending order, with a short dormancy. Juvenile ejecta ranges from comendite to shoshonite (SiO$_2$=53-76 wt.%, Na$_2$O + K$_2$O=6-13 wt.%). Major ejecta of the Phase 1 and 2 were comendite pumice, whereas those of Phase 3 were trachyte scoria. Based on the distribution of core compositions of phenocrystic minerals in a single sample, chemical trends on oxide-oxide diagrams and Nd isotope ratios, five magmas were separately present before the eruption, two types of comendite with higher and lower Nd isotope ratio (high-Nd and low-Nd), two types of trachyte with higher and lower SiO$_2$ content (high-Si and low-Si) and shoshonite magmas. During the eruption of each phase, magma mingling and mixing of two or three magmas occurred. The 10th eruption began with the withdrawal from low-Nd comendite magmas (Phase 1), and was followed by eruption from another comendite magma (high-Nd) after a dormancy (Phase 2). During the later stage of the both phases, mixed magma of the comendite, trachyte (high-Si) and shoshonite magmas also effused. In the final activity, Phase 3, voluminous trachyte magma (low-Si) was injected by shoshonite magma to effuse with small amount of the remnant comendite and trachyte (high-Si) magmas. It can be concluded that three eruption phases of the 10th eruption were related to withdrawal from isolated voluminous three magmas, two types of comendite and trachyte (low-Si) magmas, respectively.