The volcanism of the Bakony–Balaton Highland Volcanic Field (BBHVF) is characterized by intraplate-type, small-volume, dominantly monogenetic eruption centres formed between 7.9 and 2.2 Ma ago on the basis of K-Ar and Ar-Ar radiometric datings. The numbers of phreatomagmatically dominated eruption centres are overwhelming (~28); in contrast the more magmatically dominated ones (~14). A slight shift in fragmentation styles (from phreatomagmatic to magmatic) can be observed in the late stage evolution of the volcanic field (~3 Ma). In order to understand this gradual changing in fragmentation styles, we have examined the age-pattern (K-Ar, Ar-Ar), pyroclastic successions (whether phreatomagmatically or magmatically dominated), preserved erupted volcanic rock volume (both from DRE and DEM-based calculations), paleoclimate (e.g. annual temperature and precipitation) and paleotopographic reconstruction during the entire evolution of the BBHVF. Based on this dataset, the basaltic volcanism of the BBHVF took place 6 more or less well-distinguished cycles with various time gaps (from 1.6 Ma to 0.06 Ma) between them. The eruption recurrence rate was ~0.1078 Ma/event. The systematic renewal of volcanism has been interpreted as the volcanism at the BBHVF was predominantly tectonically-controlled, time-predictable in behaviour with low-magma output rates (~0.53 km³/Ma). The total volume of erupted volcanics was at least 2.8 km³. The most significant factors that controlled the long-term shifting in style of volcanism are (1) the size of magma supply, (2) topographic position of the vent as well as the (3) long-term climate fluctuation from moderately humid to more dry climates from the Late Miocene to the Pliocene.