



Figure S2. Schematic cartoon of the Hawaiian plume structure based on triple spike Pb isotope data in Hawaiian lavas. A. Illustration of the Mauna Kea HSDP-2 stratigraphic section where different streaks of plume material (center to periphery) are sampled as a function of time, with T0, T1 and T2 corresponding to the three Kea Pb isotope arrays (Eisele et al., 2003).

B. Lateral heterogeneities of the Hawaiian plume illustrated by streaks, filament or "spaghetti", which are sampled by individual volcanoes, as they are carried laterally over the plume due to the plate motion. Colour coding of volcano and "spaghetti" indicates that each volcano samples, at a given stage, a distinct streak consisting of two Pb components as shown by the Pb isotope arrays (Fig. S1). The "blue" and "red" illustrates the large-scale bilateral Loa-Kea compositional division. This model is consistent with the recent 3D numerical results of Farnetani and Samuel (2004).