Origin of ash deposits on the flanks of Mauna Loa volcano, Hawai‘i

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Since the summit collapse in 2018, we have wondered whether we are entering an explosive phase for Kīlauea. Plenty of work has been done on the most recent explosive activity at Kīlauea, and yet, the timing or recurrence interval for overall explosive activity on the Island of Hawai‘i has not been well-defined.
Using stratigraphic relations, chemical analyses, and ^{14}C ages on ash deposits found on the south and east flanks of Mauna Loa, we embark to answer the questions of how frequently explosive eruptions occurred in the past.
In this study, we concentrated on three broad regions: Hilo, Pāhala, and Kalae. The ashes range in thicknesses from 0.10-5.5 m.

Although our study is far from comprehensive, we discovered, using the geochemical data from ED-XRF, that some samples have LOA chemical affinities similar to Mauna Loa or Hualālai, and other samples have KEA affinities comparable to Kīlauea or Mauna Kea.