Holocene monogenetic volcanoes in Southern Andes are mostly related to the main branch of the Liquiñe-Ofqui Fault Zone (LOFZ), a 1200 km long intra-arc fault system that runs from Copahue volcano at 38ºS to the Golfo de Penas at 47ºS. Previous work speculated about the postglacial rebound as a trigger of LOFZ-related monogenetic volcanism but emergent 14C dates suggest the entire time span since the fast ice retreat after the Last Glacial Maxima. For example, Carburgua cones (39.2ºS) have ages bracketed between ca. 8 and 5 ka; Rupanco cluster (40.9ºS) was dated in ca. 2 ka; Cayutue cluster (41.3ºS) has a 14C calibrated age of cal AD 1430-1530 and/or cal AD 1560-1630 (at 2 sigma uncertainty level), which is close to the Spanish conquest period; and nearby Ralun cluster (41.4ºS) have ages bracketed between ~1730 and 1310 yBP for the more recent eruptive stage. Thus, fault-related monogenetic volcanism seems to be a steady-state process at geological scale. We hypothesize that LOFZ-related monogenetic volcanism would be produced by decompression melting when sporadic major adjustments occur along the LOFZ. Our results suggest that this process could be a recurrent, perhaps time-predictable (and hence tectonically-controlled) process. In that scenario, the LOFZ would provide a conduit to the surface for small magma batches that normally would be underplated.

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