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SUBDUCTION EROSION CONTROLLED ADAKITES: EXAMPLES FROM THE BONETE/INCAPILLO-CENTRAL ANDEAN AND CENTRAL AMERICAN MARGINS

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Striking similarities between the onset of *extreme* adakitic magmatism ($La/Yb > 30$, $Sm/Yb > 5$, $Sr/Yb > 600$), arc migration, and slab shallowing allow for a direct comparison of arc magmas within the Bonete/Incapillo region (27°S to 28°S) of the southern Andean Central Volcanic Zone (CVZ) and along the southernmost extent of the Central American margin (8°N-10°N, 80°W-84°W) in order to assess the processes responsible for the geochemical conversion from normal calc-alkaline to adakitic magmas. In the Bonete/Incapillo region, extreme adakites occur in the transitory (8 to 3.5 Ma) and terminal (2.9-1.1 Ma) stages of arc migration above a progressively shallowing slab, whereas Central American adakites first appear at ~4.6 Ma and become dominant <2.5 Ma. In southern Central America, this period is marked by the initiation of flat slab subduction triggered by the ~5 Ma collision of the Cocos Ridge with the volcanic arc. Though different in crustal thicknesses, these two nonaccretionary convergent margins are linked by the widespread occurrence of forearc subduction erosion inboard of the trench. The sporadic transport of pieces of eroded forearc basement into the melt zone of these magmas is accelerated during periods of slab shallowing, resulting in spatially and temporally transient extreme adakitic magmas along these two margins.