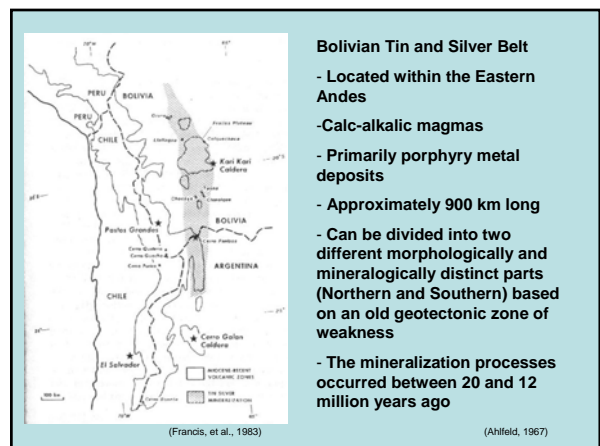
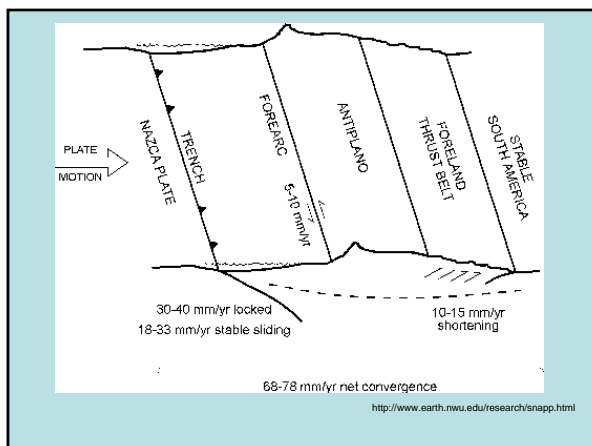
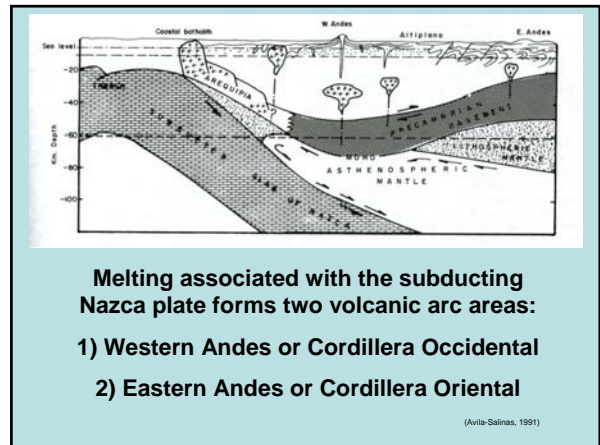


South American Central Volcanic Zone (CVZ)

- Diverse assortment of basaltic to rhyolitic volcanics
- On average, the volcanics are more silicic than those found in either northern or southern South America (56 to 66% SiO₂)
- Andesites and dacites are the most common CVZ volcanics, with basalts being rare

(Winter, 2001)



Northern E. Andes

- Strongly uplifted
- Deep-seated plutonic, granitic intrusions into early Paleozoic sediments that are faulted
- Batholithic structures
- Mineralization includes Au, Ag, W, Sb, Sn, Bi, Zn, and Pb

(Ahlfeld, 1967)

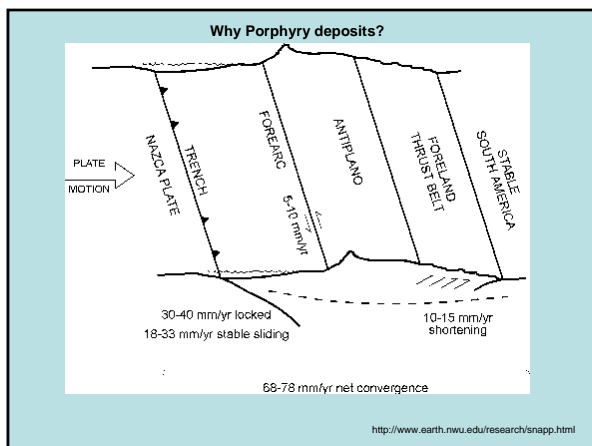
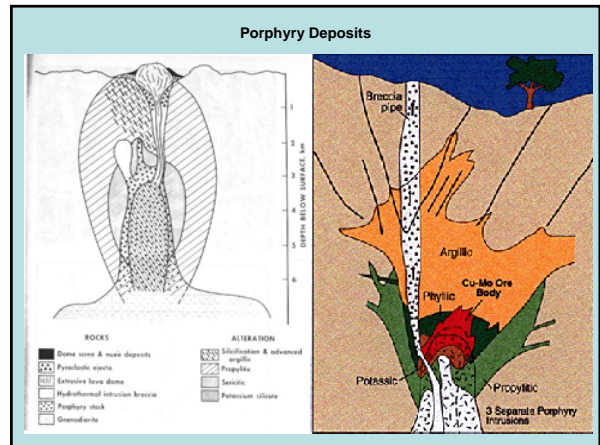
Southern E. Andes

- Deeply subsided
- Two phases of Tertiary mineralization, which can be differentiated
 - Plutonic Miocene mineralization
 - Subvolcanic Pliocene phase of mineralization
- This mineralization includes a similar mineral suite to that found in the North

(Ahlfeld, 1967)

Porphyry metal deposits

- Hydrothermally generated deposits related to igneous intrusions at high crustal levels
- Hydrothermal fluids are rich in elements with high solubilities, such as S, Na, K, Cu, Sn, Au, and W, and are saline
- Porphyry metal deposits are formed from the dissolution and alteration of oxide minerals by hydrothermal fluids and their subsequent replacement by sulfides
- Porphyry describes the texture of the rocks in which these metal deposits are found. In these rocks, mineral grains are about a tenth to a half inch in size and are surrounded by smaller grains



Bolivian mineralization

- Distinguished by the absence of andesitic stratovolcanos commonly associated with porphyry deposits
- The surface expression of this type of subvolcanic tin mineralization is an extrusive dome of quartz latite porphyry
- High initial strontium isotope ratios suggest that crustal contamination may have been of greater significance in the Eastern Andes than the Western Andes
- The Eastern Andes display a general shift from andesitic to silicic volcanism approximately 20 million years ago

(Francis, et al., 1983)

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