Peninsular Ranges Batholith Field Trip Figures

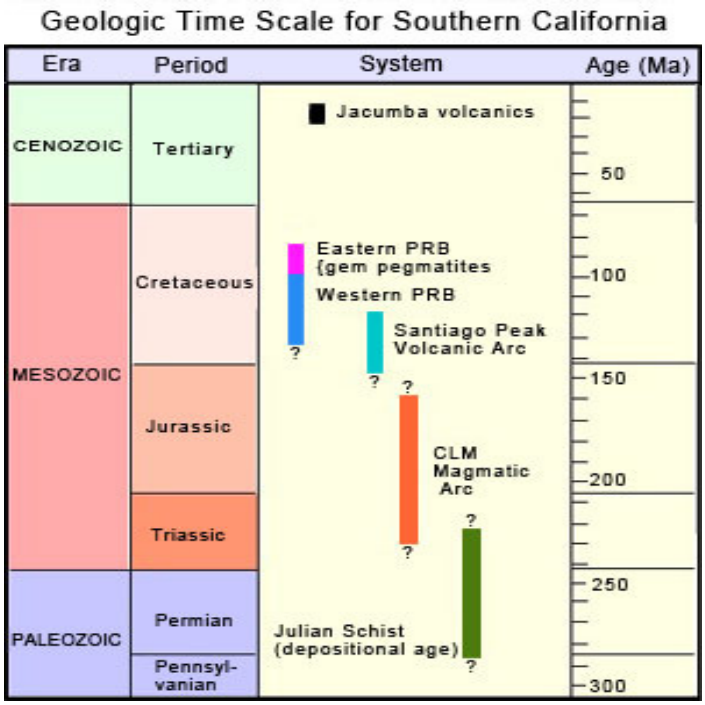
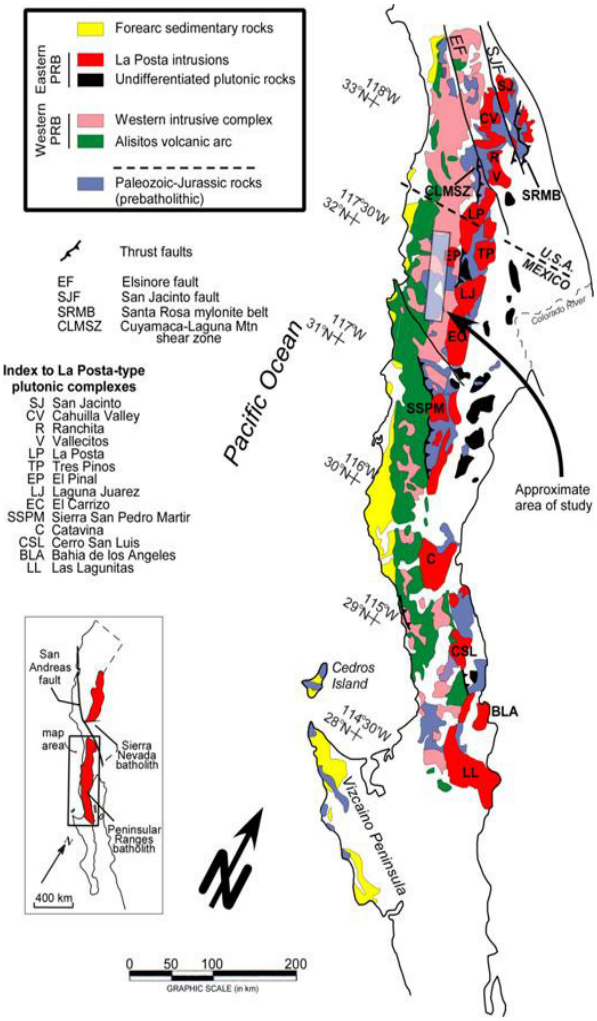
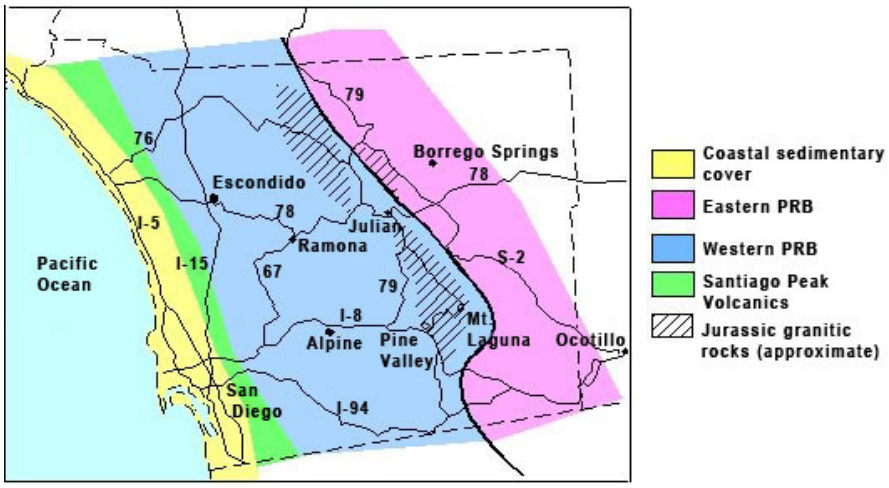
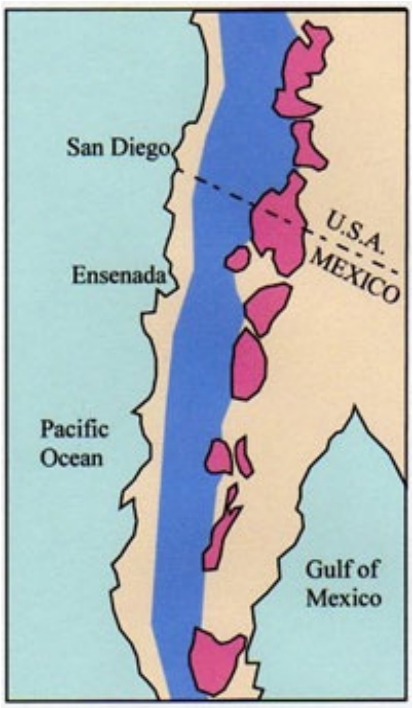


Figure 1: Geologic time scale of San Diego County showing the temporal distribution of the geologic rock units, including the western and eastern zones of the PRB.

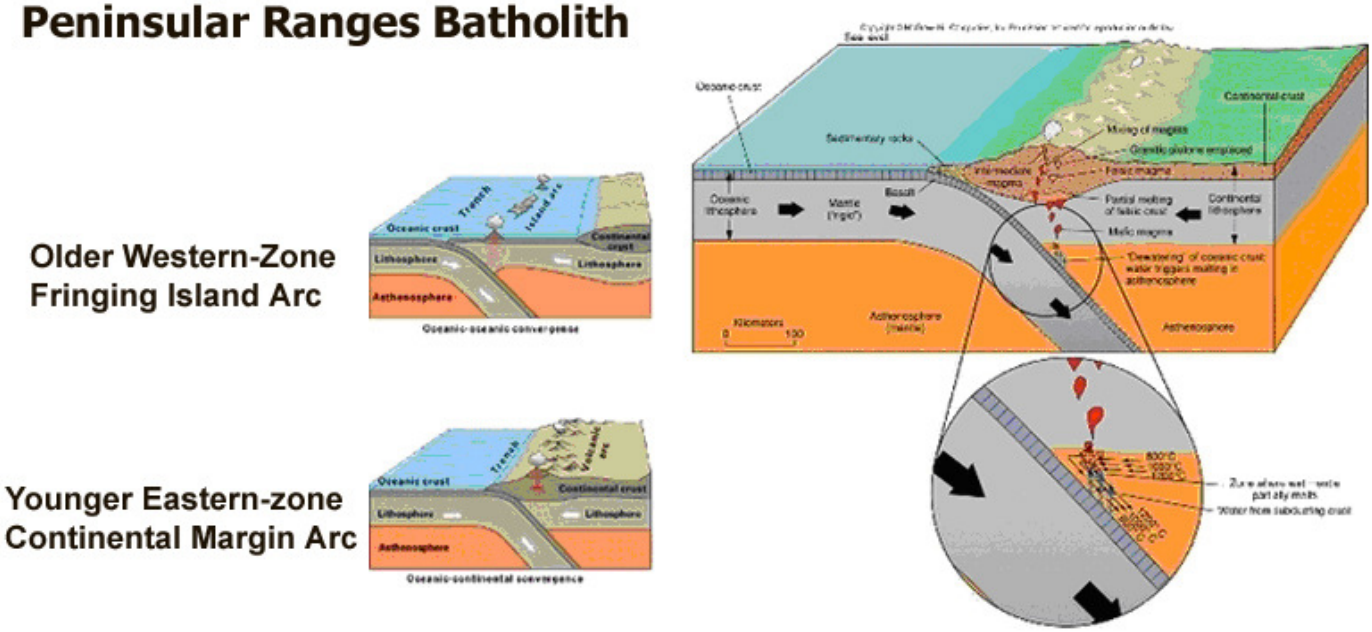


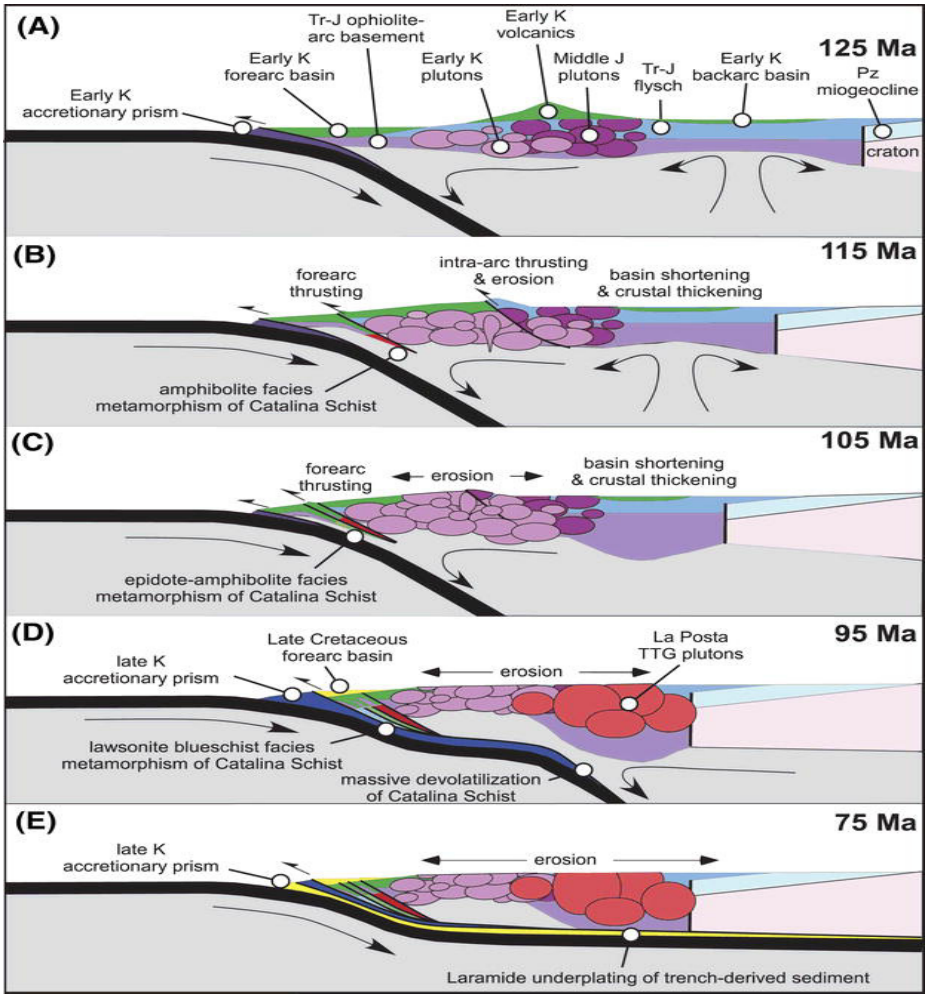




Figures 2, 3, and 4: Geologic maps of Peninsular Ranges Batholith showing the distribution of the geologic zones and plutons, including the older western PRB (blue) and younger eastern PRB (pink).

Two-Stage Tectonic Development of the Peninsular Ranges Batholith





Figures 5 and 6: Time-transgressive cross-sections of Peninsular Ranges Batholith and its changing eastward-dipping subduction zone. Panels A through E show the changes in the subduction system - from the time of the formation of the fringing volcanic arc of the older western zone, to after the formation of the younger continental margin arc of the eastern zone of the batholith - from 160 to 75 million years ago.

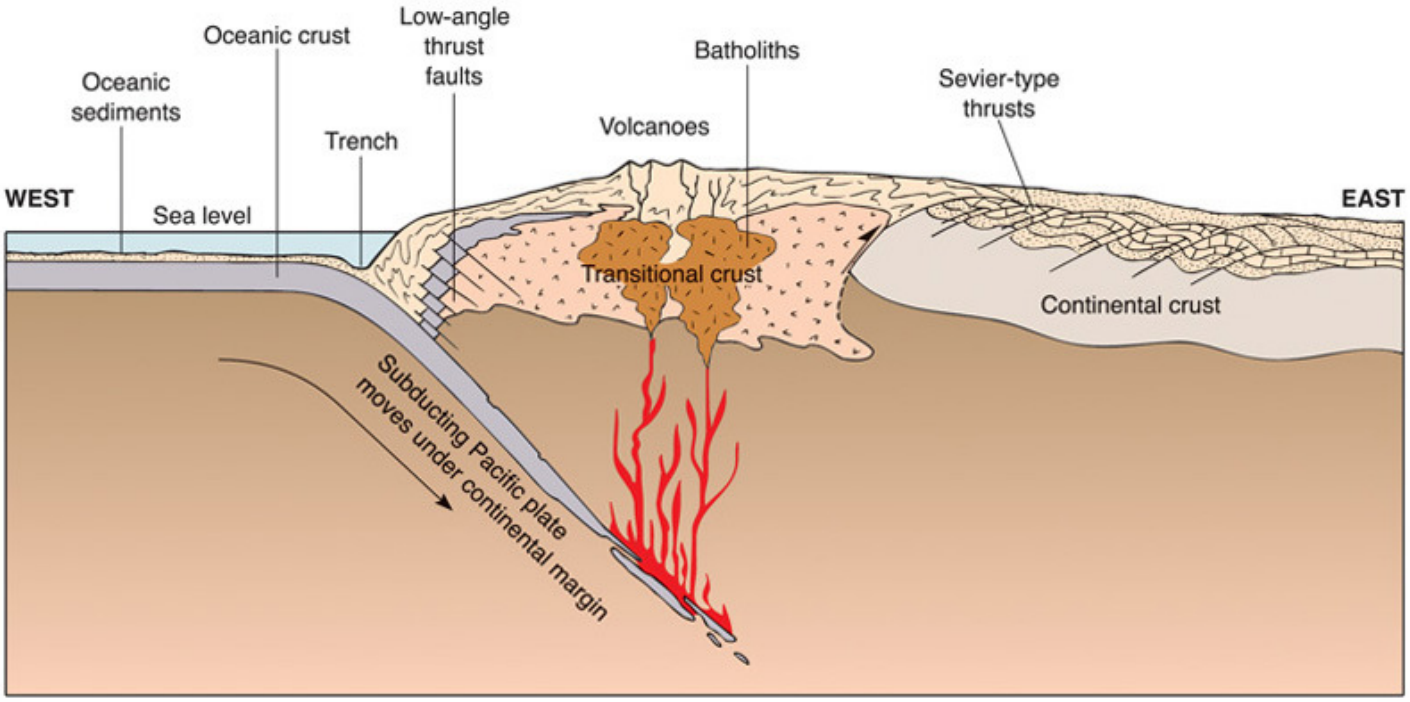


Figure 7: Simple illustration of a continental margin arc, showing emplacement of pluton intrusions, and the development of a batholith. Similar to the PRB around 100 MA.

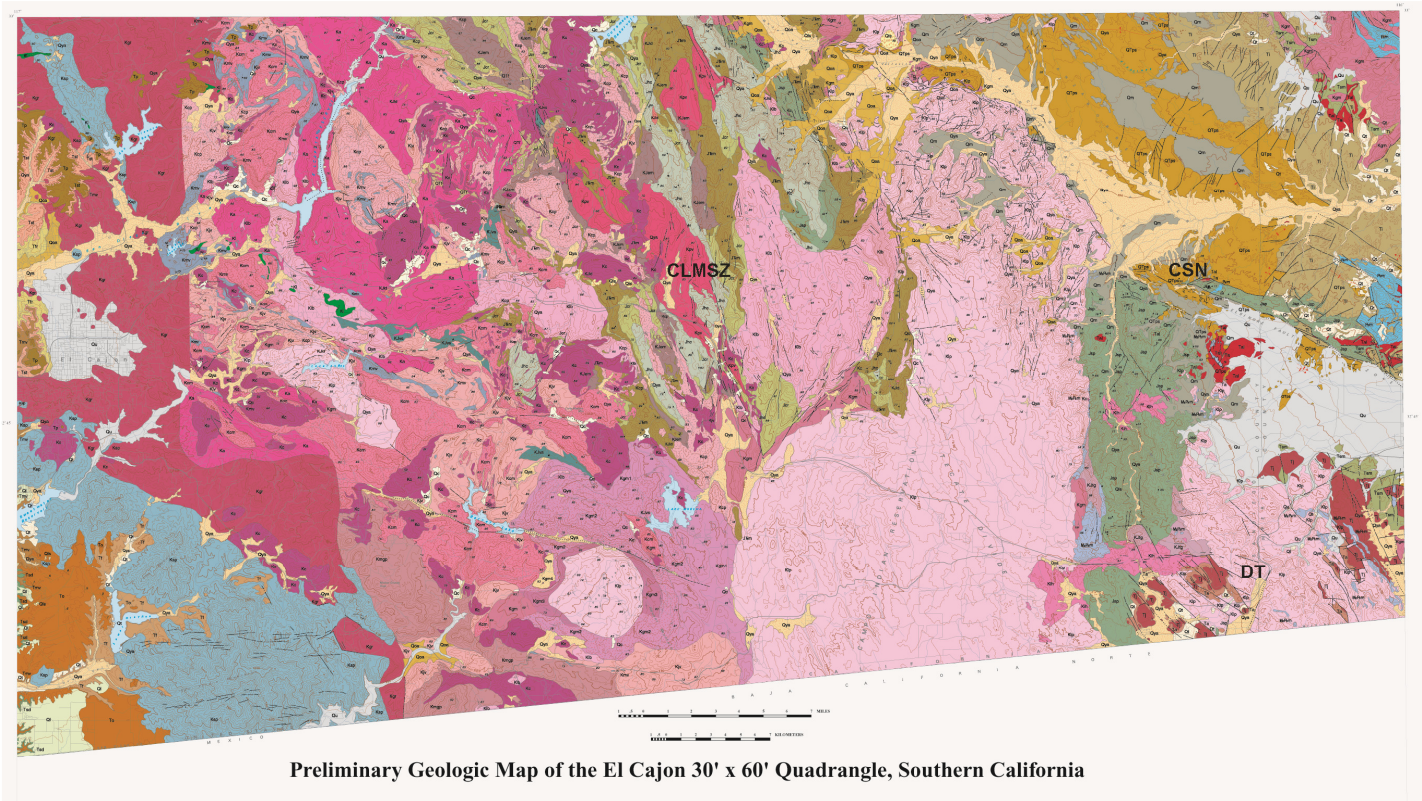


Figure 8: Geologic map of El Cajon 30-x60-minute quadrangle of the Peninsular Ranges batholith, showing the distribution of the western and eastern zone plutons, and the CLMSZ.

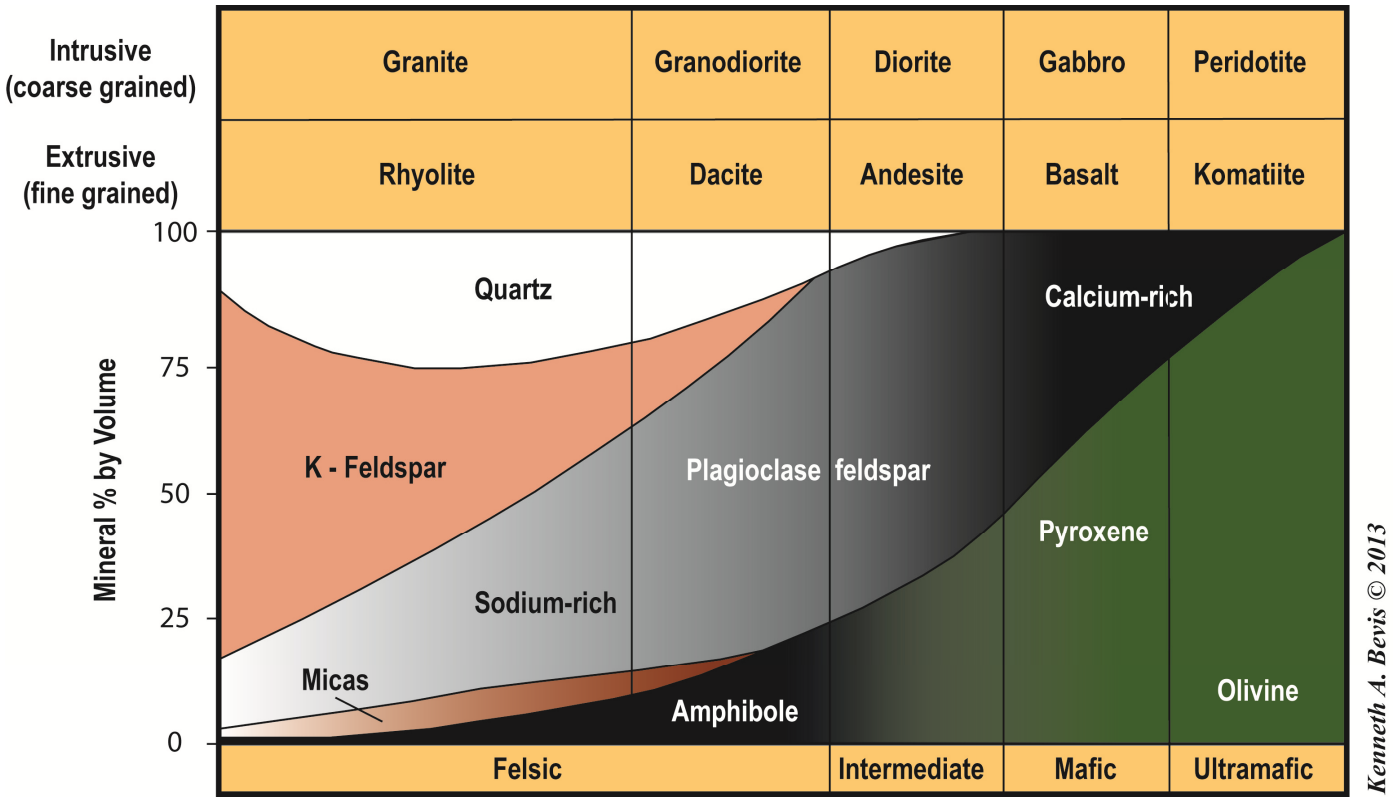


Figure 9: Igneous rock classification chart. Five compositional groups, based on mineralogy: felsic to ultramafic; Two textural groups, based on grain size: course grained versus fine-grained

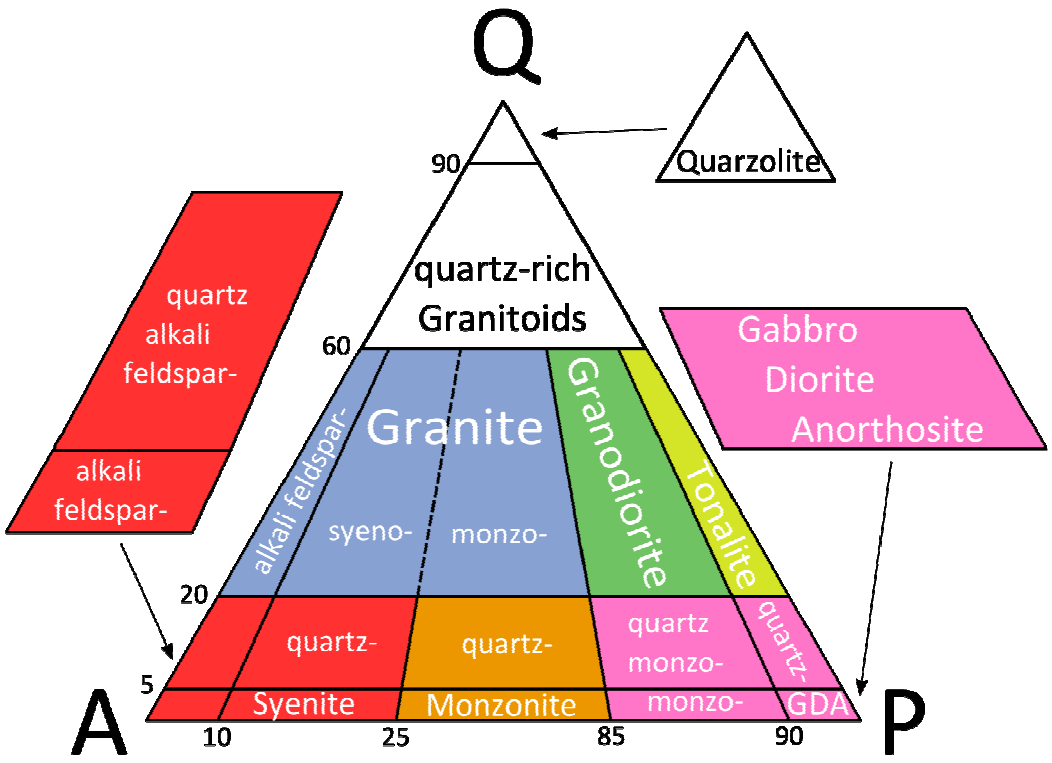


Figure 10: Plutonic rock ternary classification pyramid: Q = quartz; P = plagioclase; A = K-spar

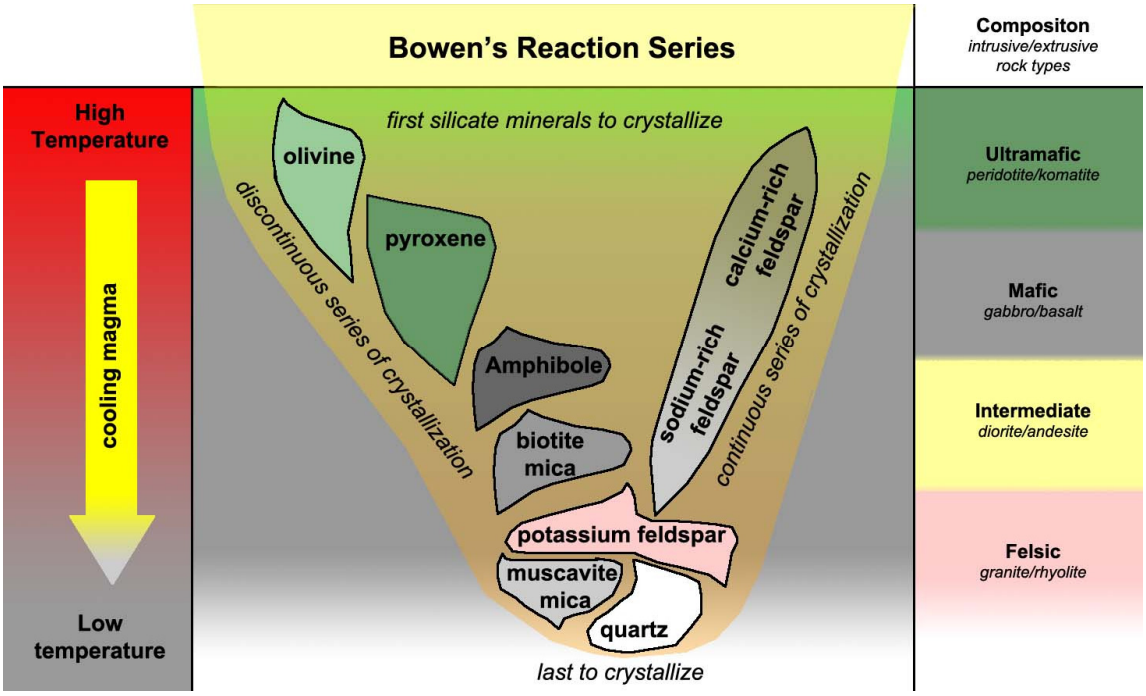


Figure 11: Bowens Reaction Series Chart. Two crystallization series: discontinuous and continuous. Top of both series are high-temperature, early-forming minerals like olivine and Ca-plag; bottom of series are low-temperature, late-forming minerals, like quartz and potassium feldspar.