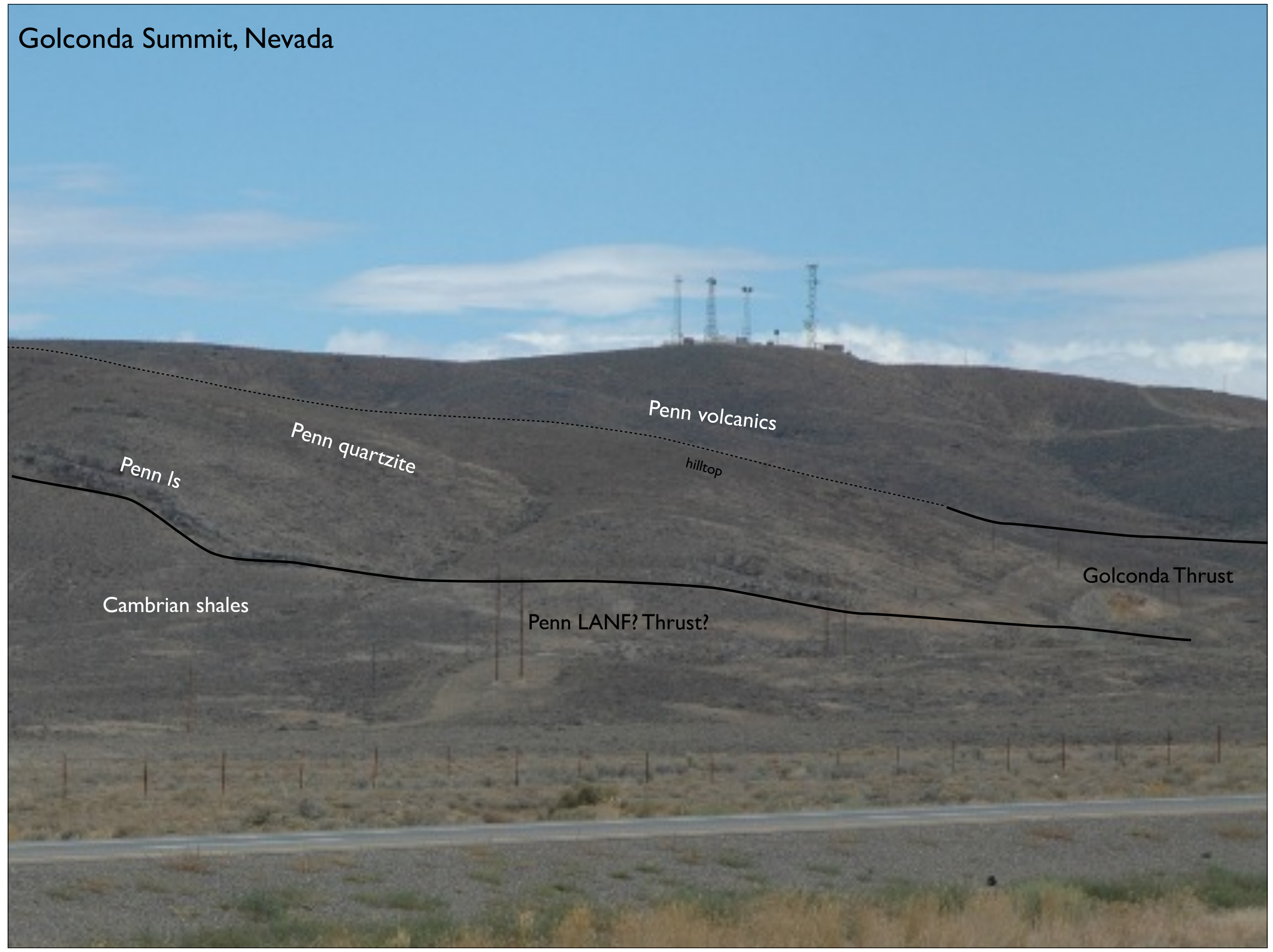
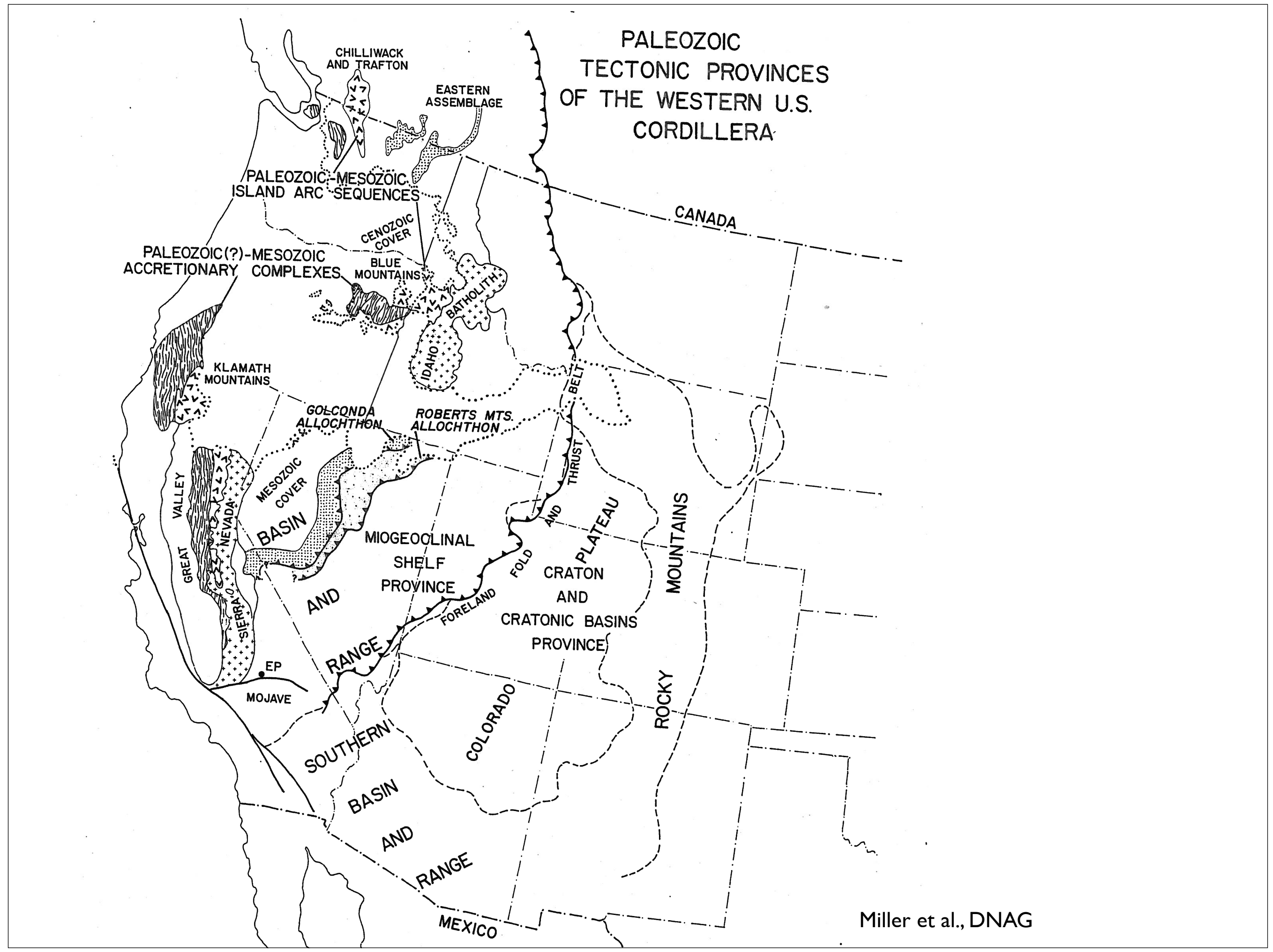
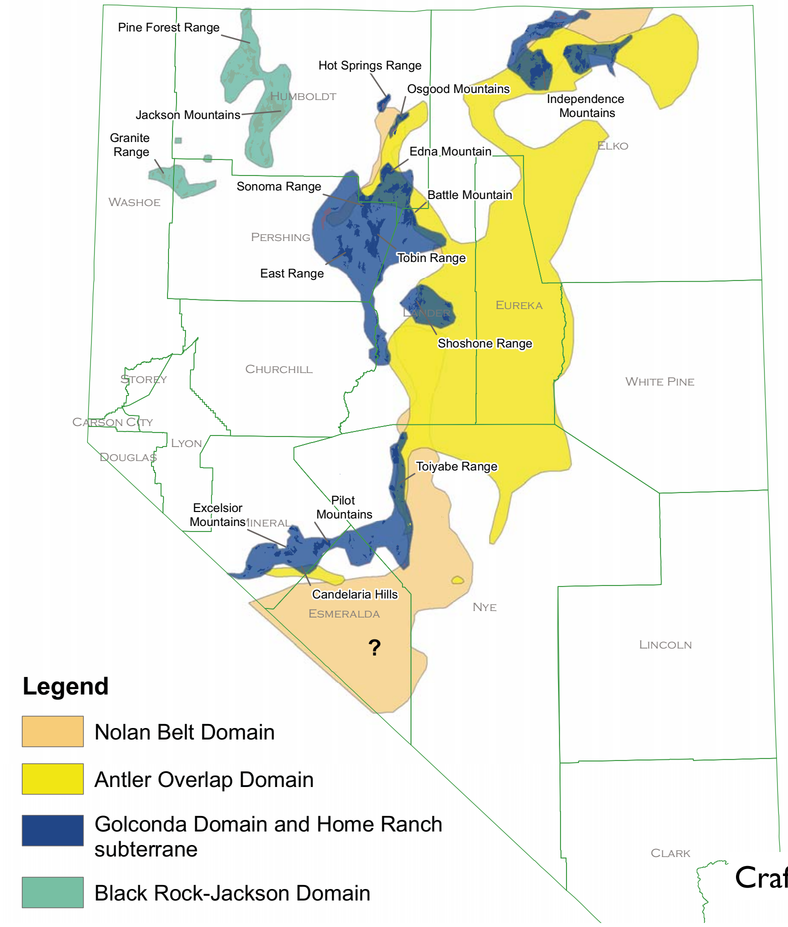


Golconda Summit, I80. Above highway where trucks are, Cambrian Preble Frm (phyllitic shale) under Antler Peak ls, Penn-Perm reef ls--juxtaposed on Iron Point fault (thrust on old maps, LANF in Cashman et al). Edna Mtn (Permian ss) at very top of hill. Small hill at right has Iron Point Thrust again within it. To left of highway, peak with antennae is Golconda Summit, which is Penn shale+chert of upper plate of Golconda allochthon. Ledge 1/3 way up is Antler Peak ls with brown Edna Mtn Frm above. Most of gray slopes behind is greenstone unit (basalts-andesites of Penn age) of upper plate of Golconda.

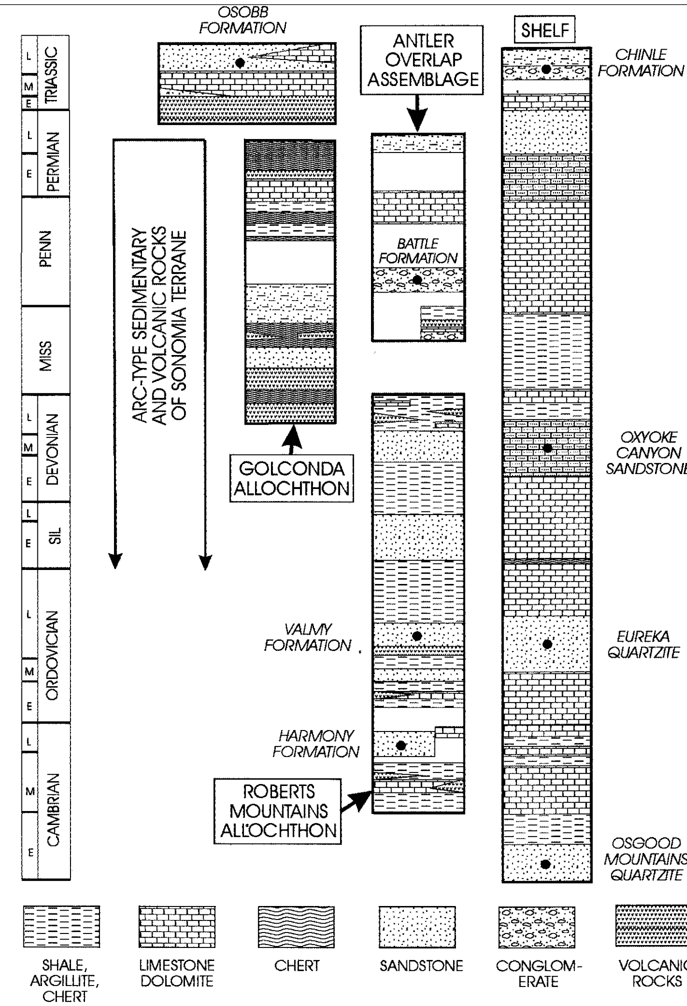


Miller et al., DNAG

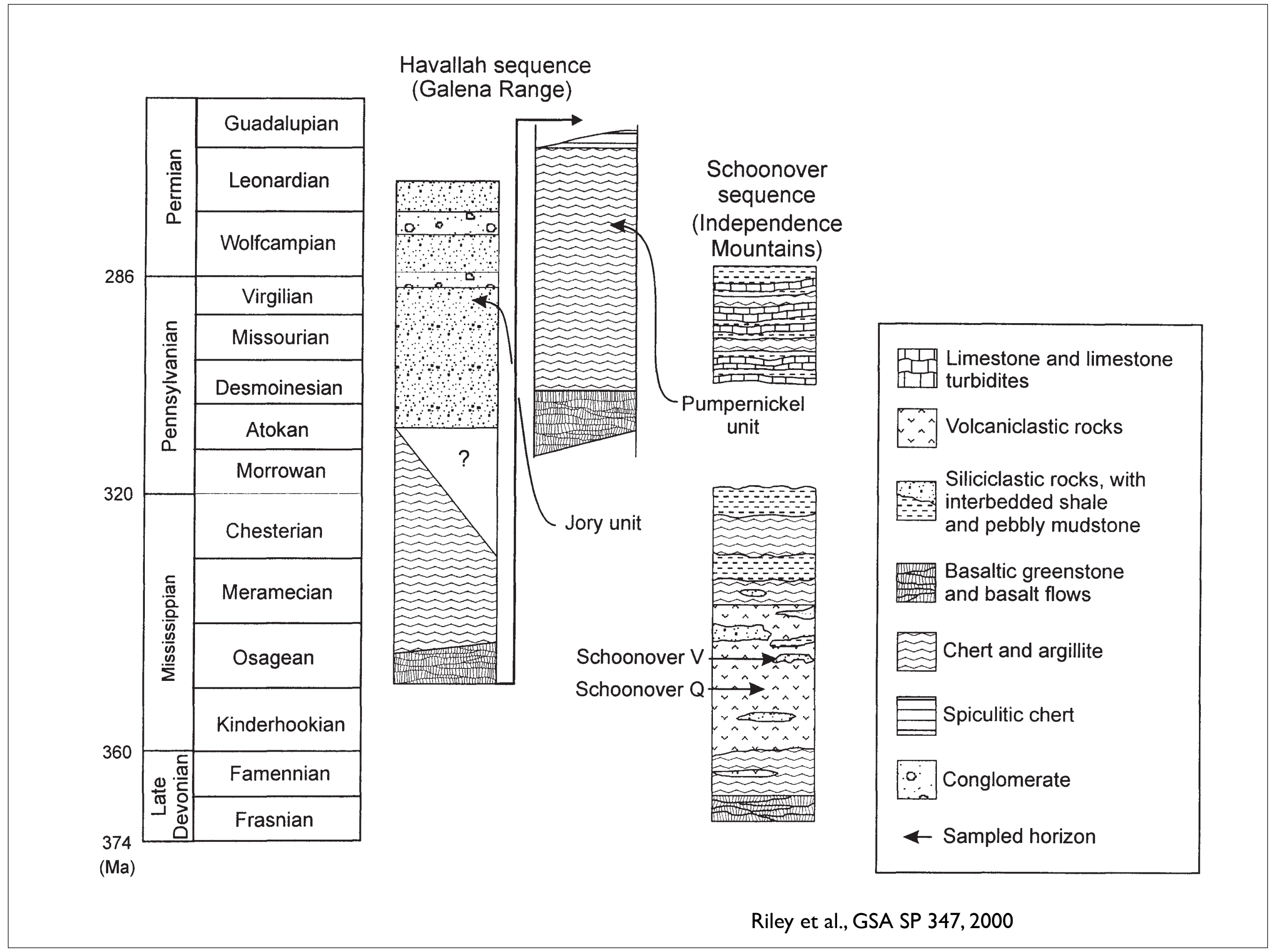


Crafford, *Geosphere*, 2008

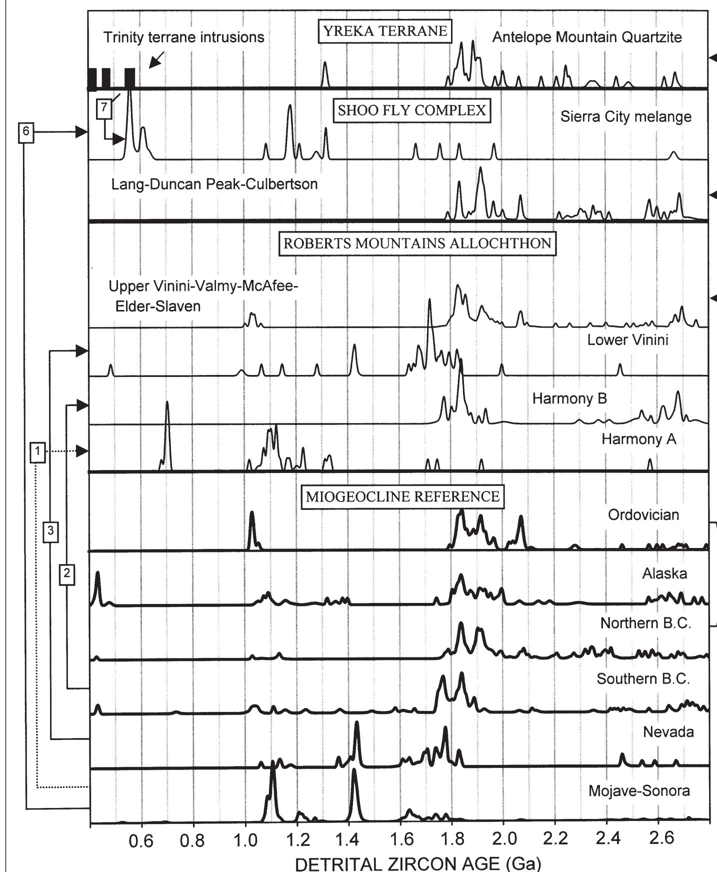
Crafford notes lower plate pretty undeformed, but upper plate hammered—in places relatively undeformed Tr on top. Also discuss Nolan belt, which is defined by Crafford as having continental affinity but higher grade metamorphism and west-verging thrusting in pre-mid-Penn

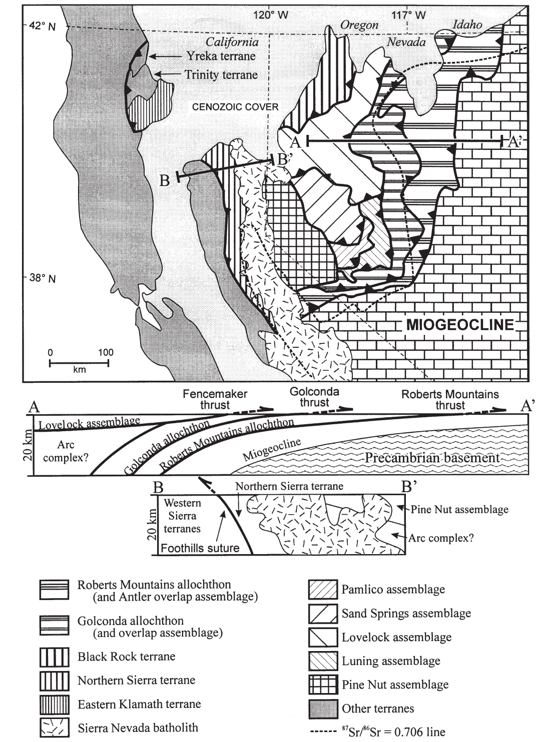


Gehrels and Dickinson, Am J Sci. 1995

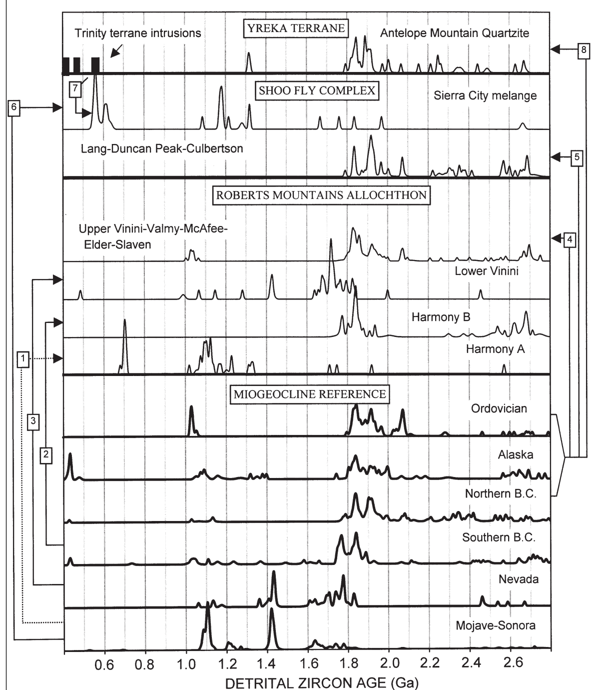


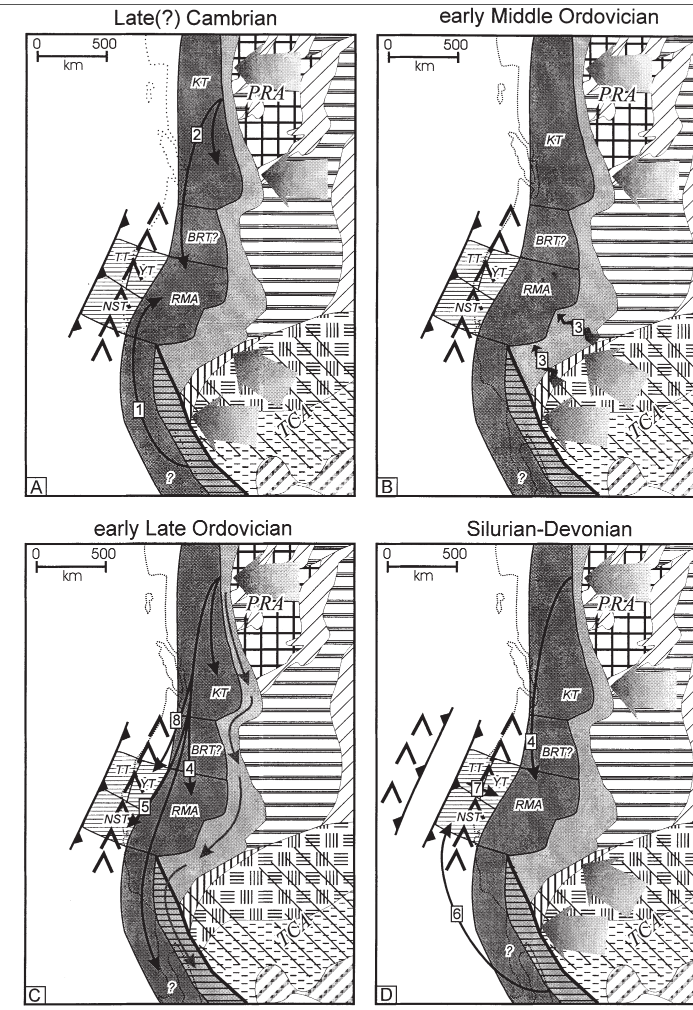
Both of these are Golconda allocthon sections. Independence Mtns in NE Nevada



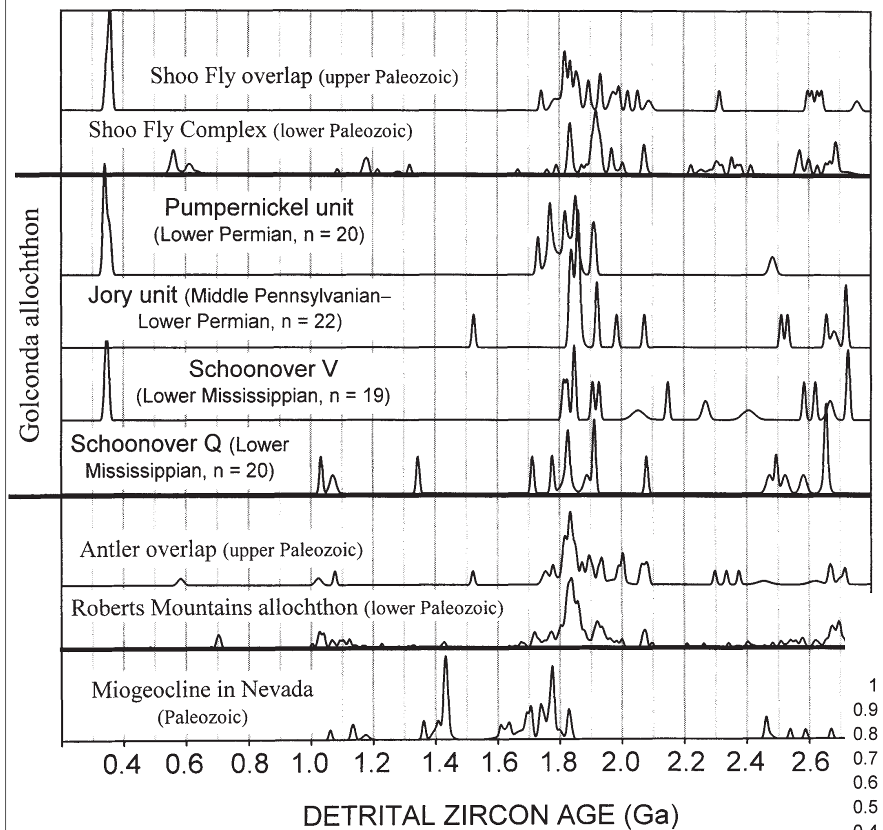


Gehrels et al., GSA SP
347, 2000

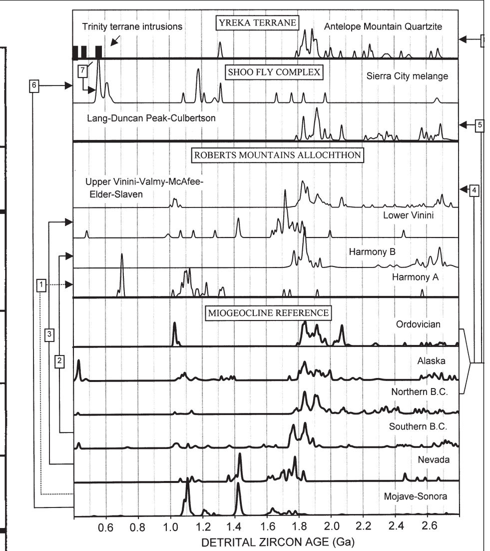




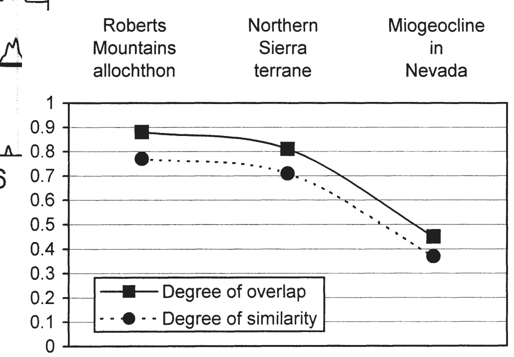
Gehrels et al., GSA SP 347, 2000

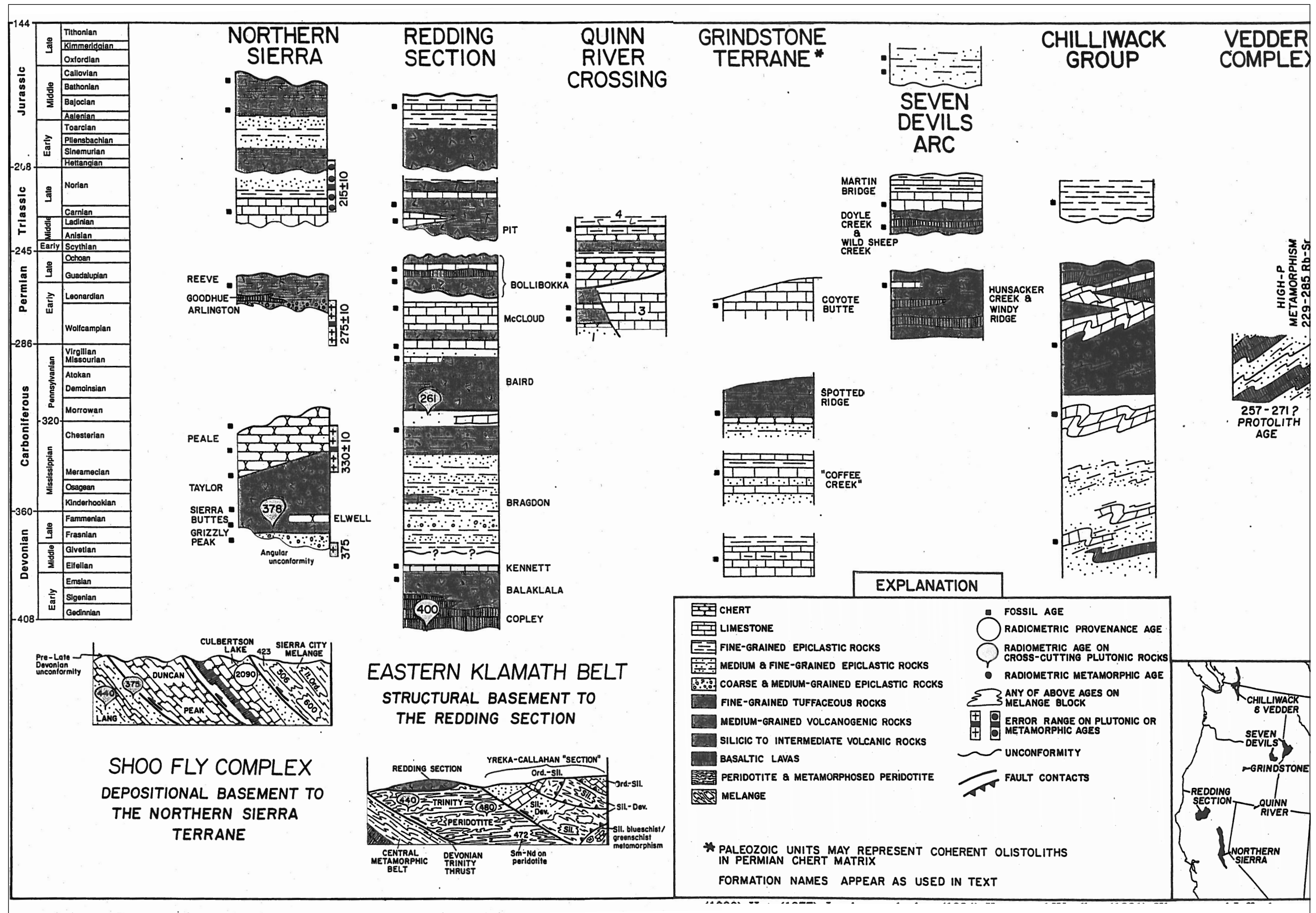


Riley et al., GSA SP 347, 2000

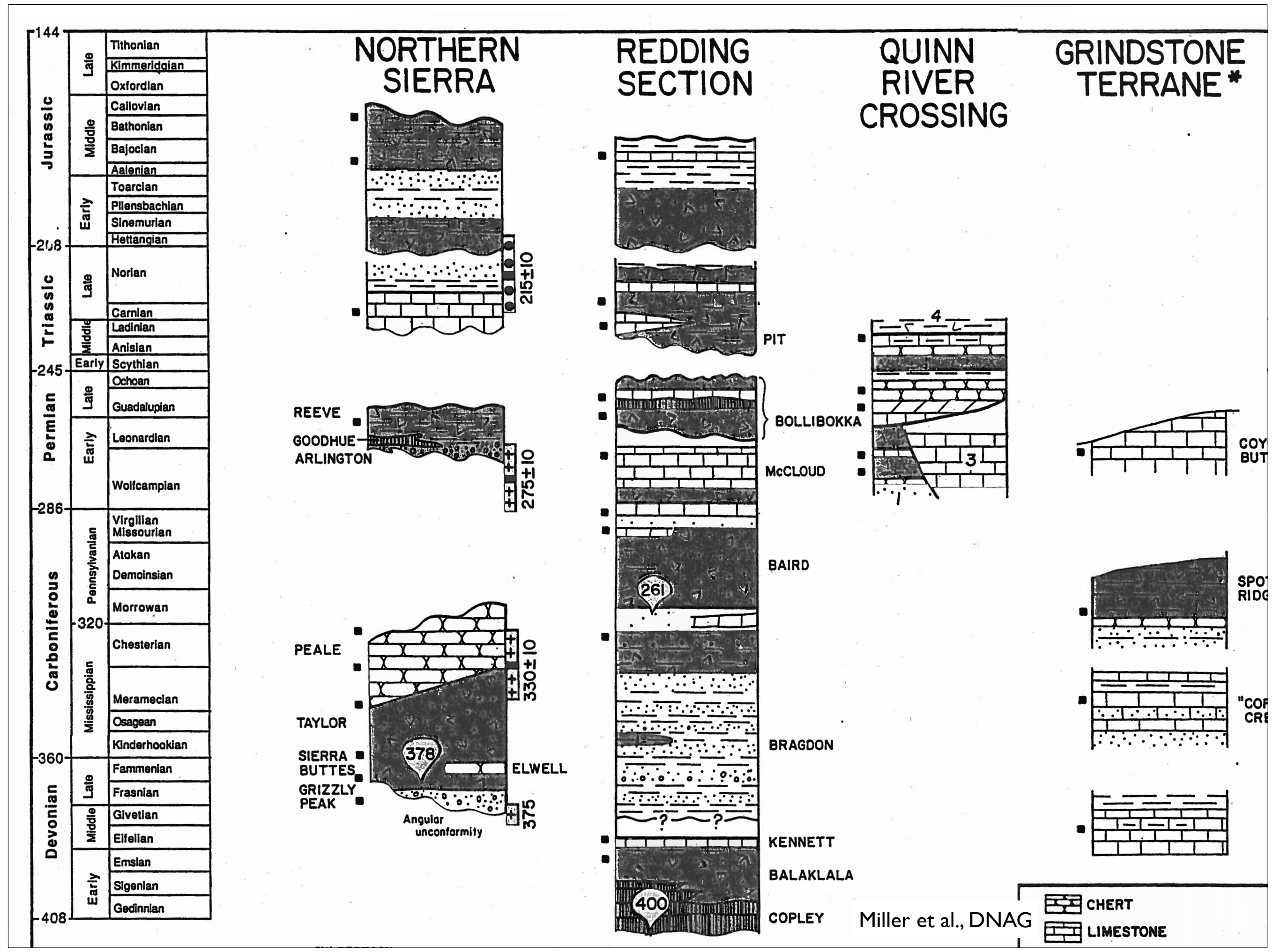


Gehrels et al., GSA SP 347, 2000

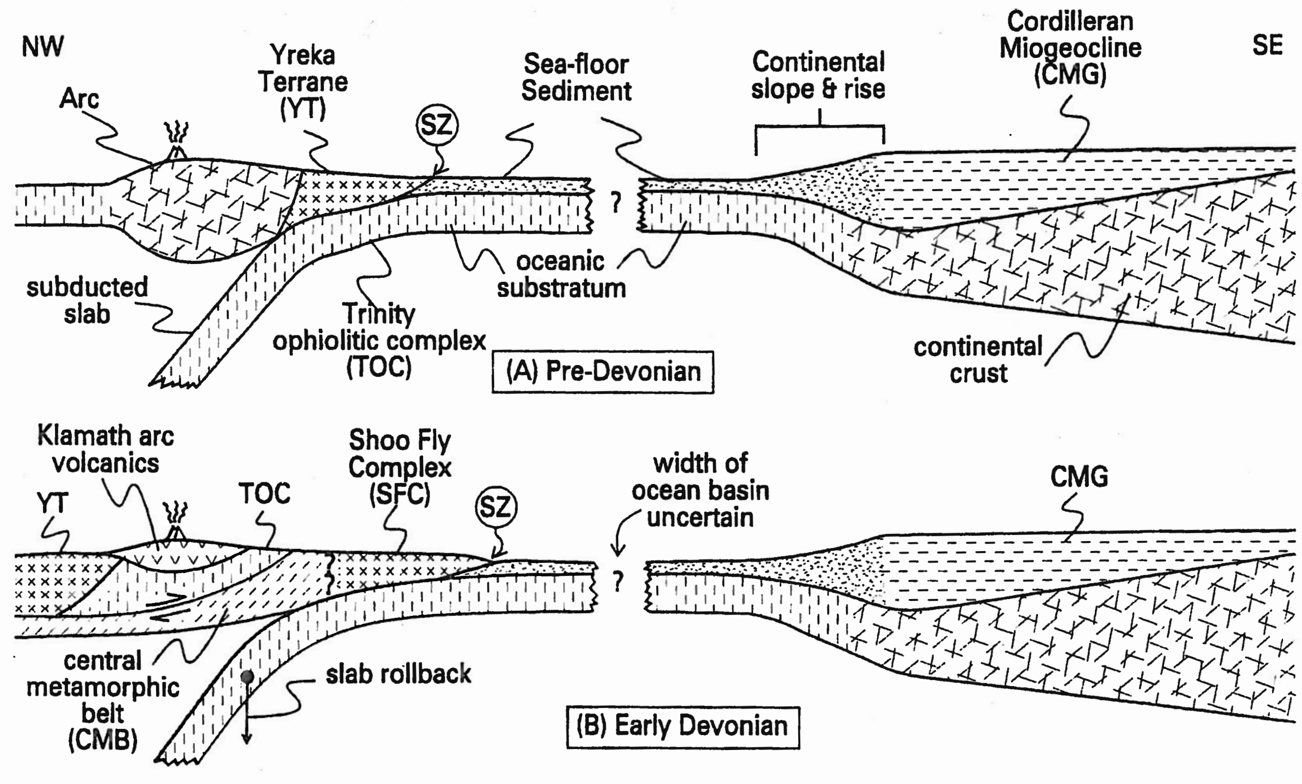




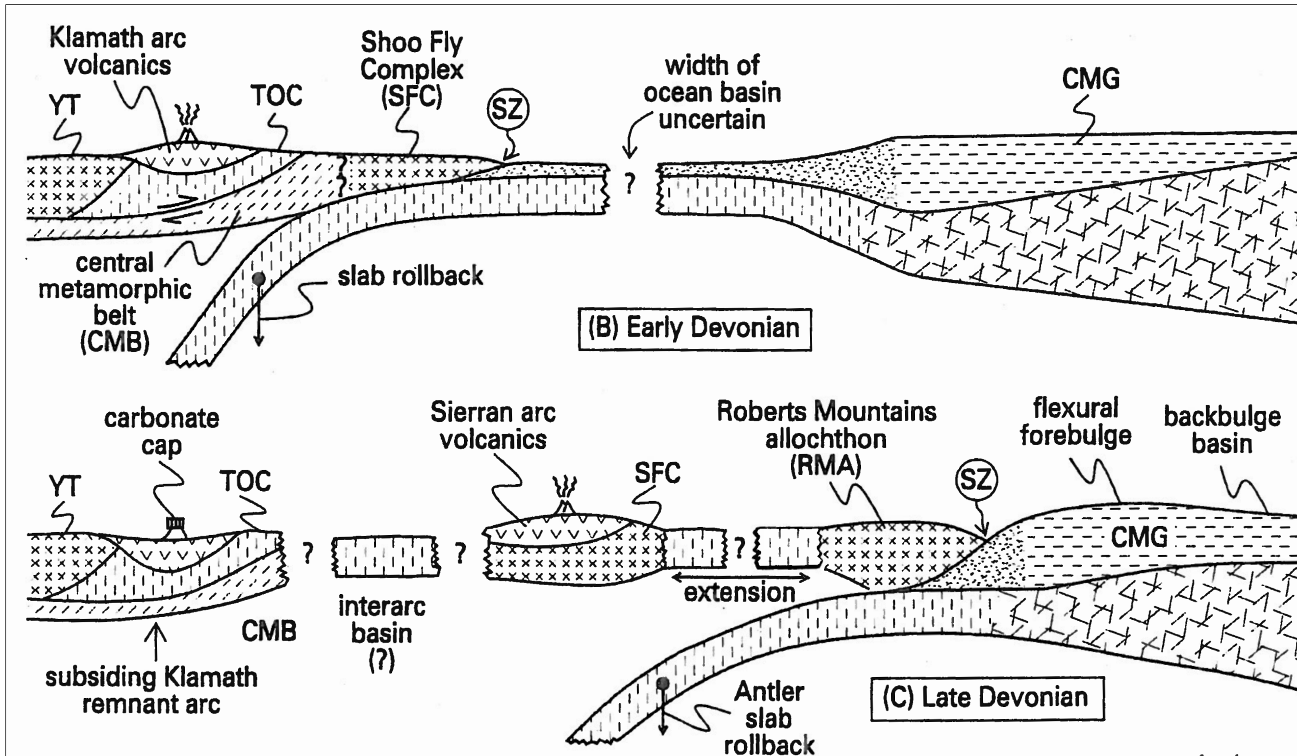
Miller et al., DNAG



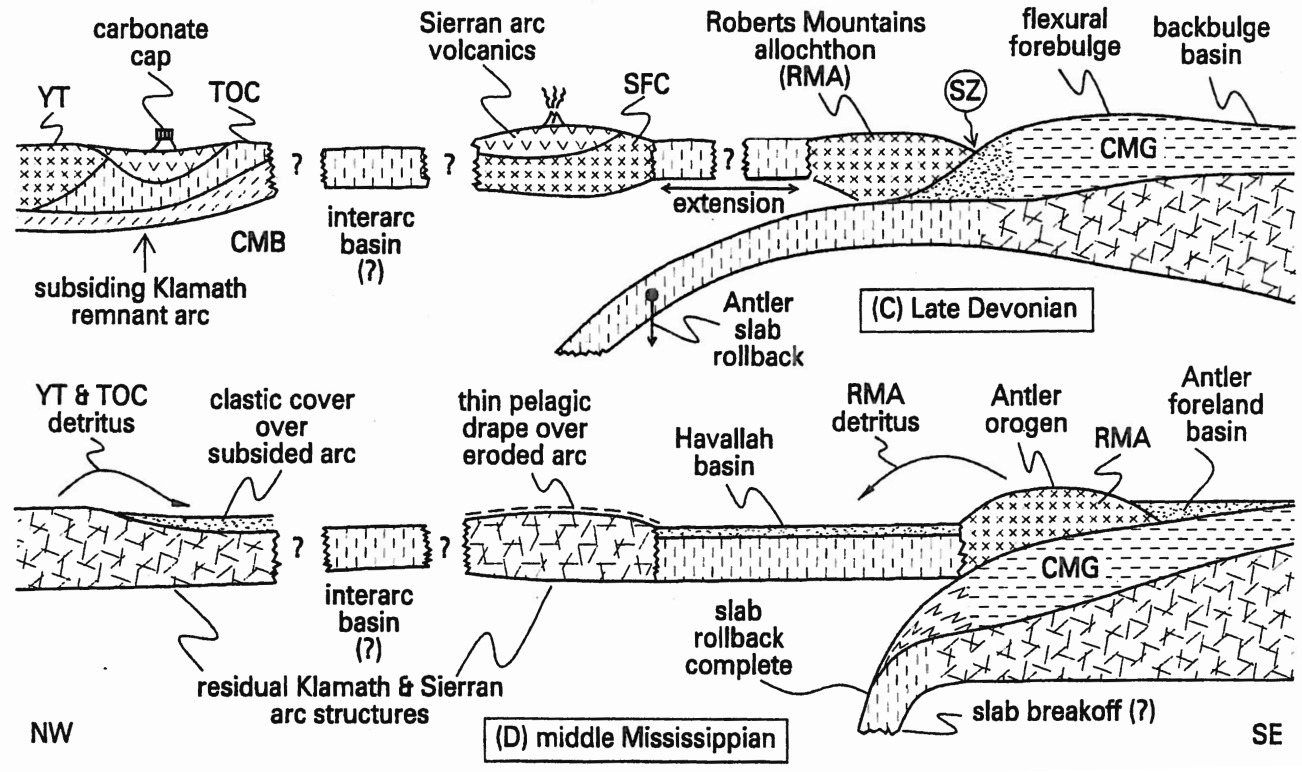
Note lots of volcaniclastics as well as plutonic rocks



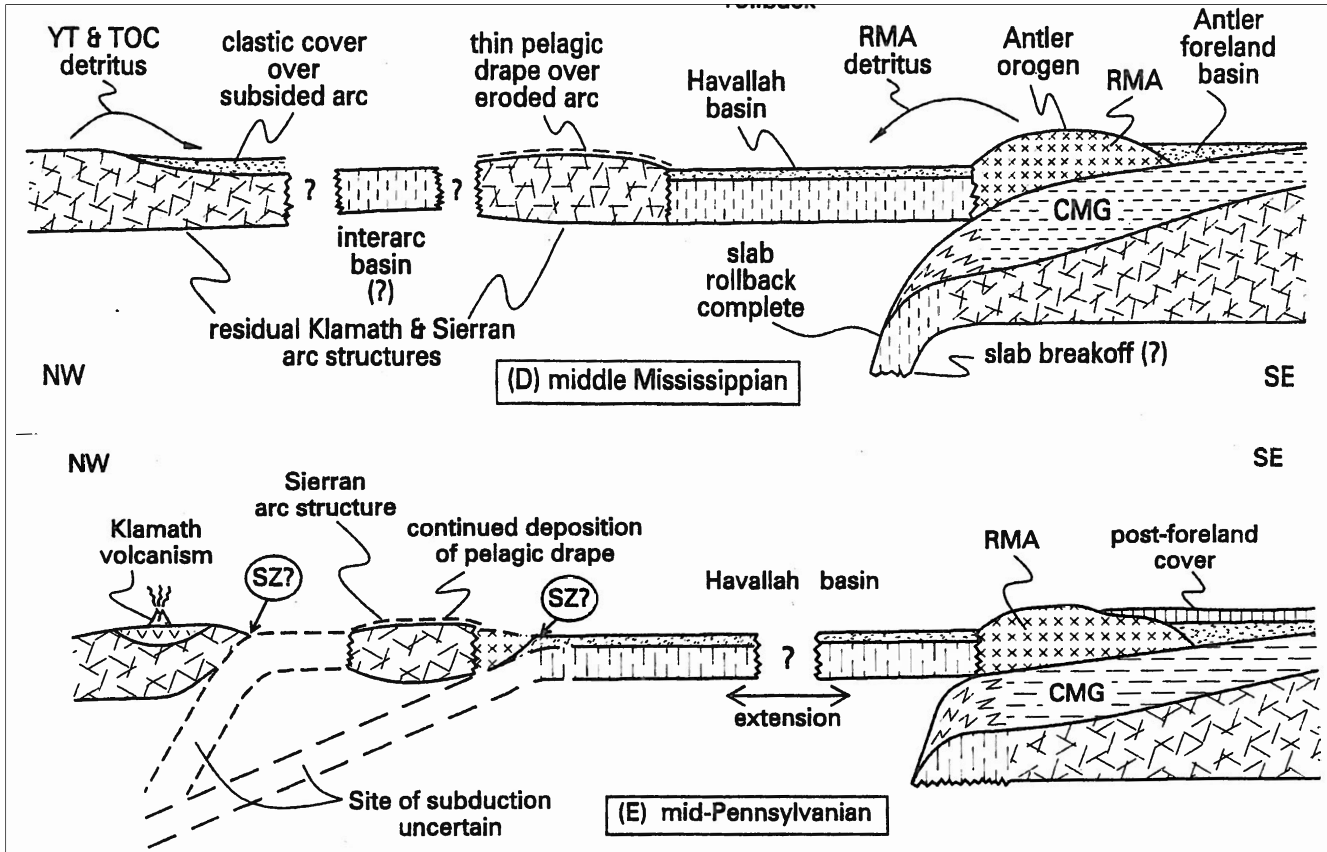
Miller et al., DNAG



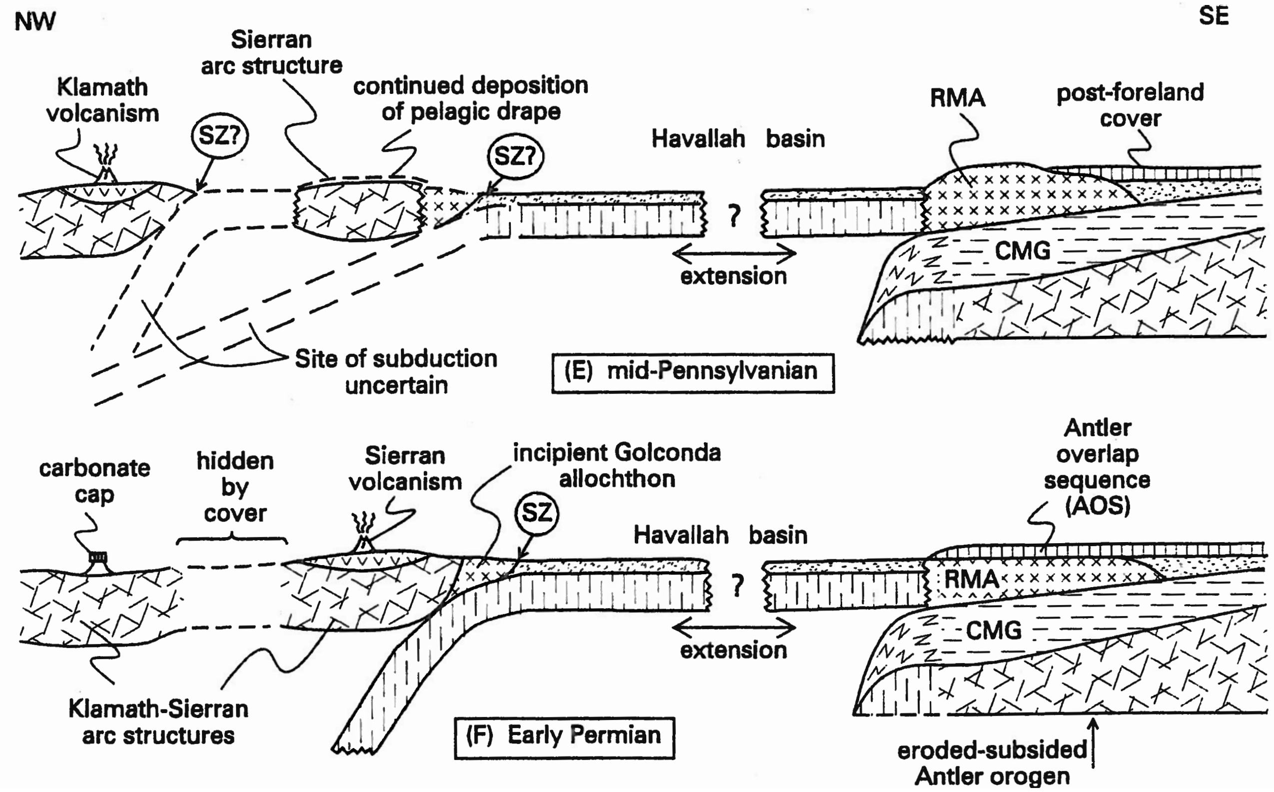
Miller et al., DNAG



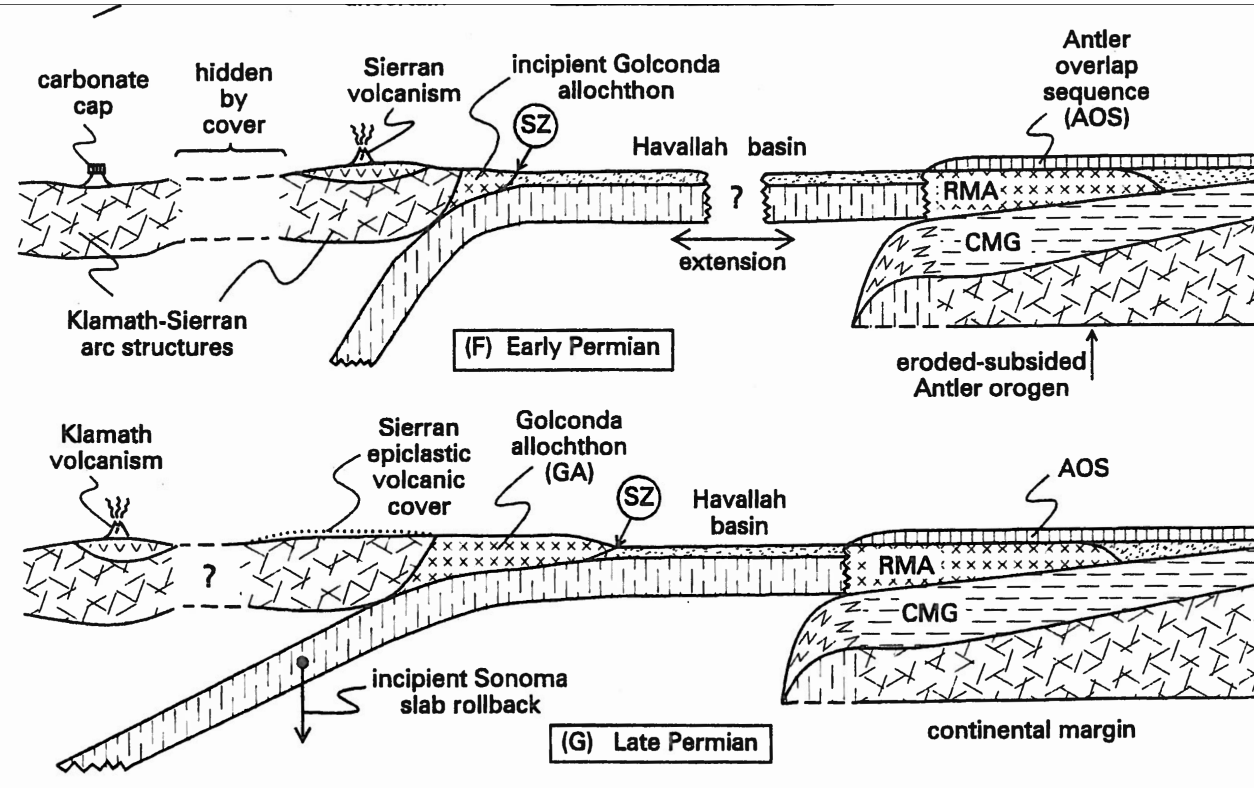
Miller et al., DNAG



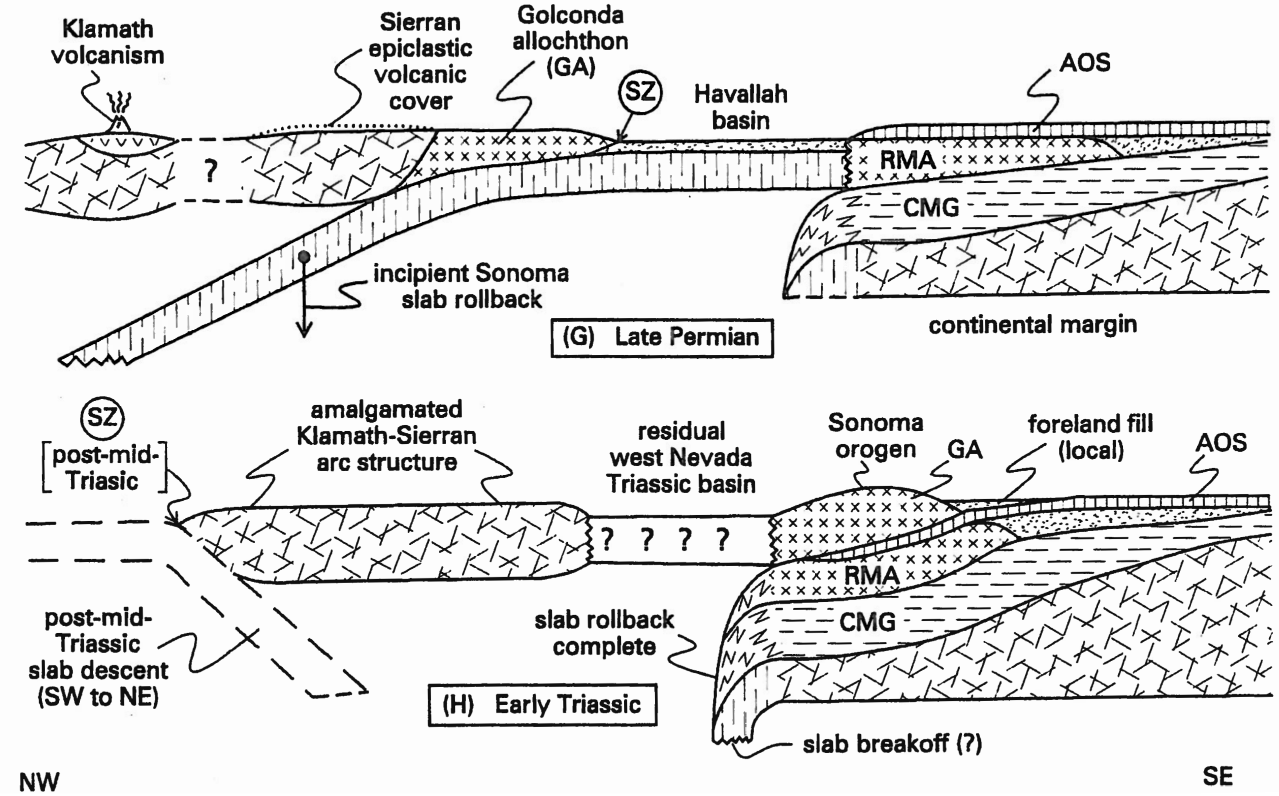
Miller et al., DNAG



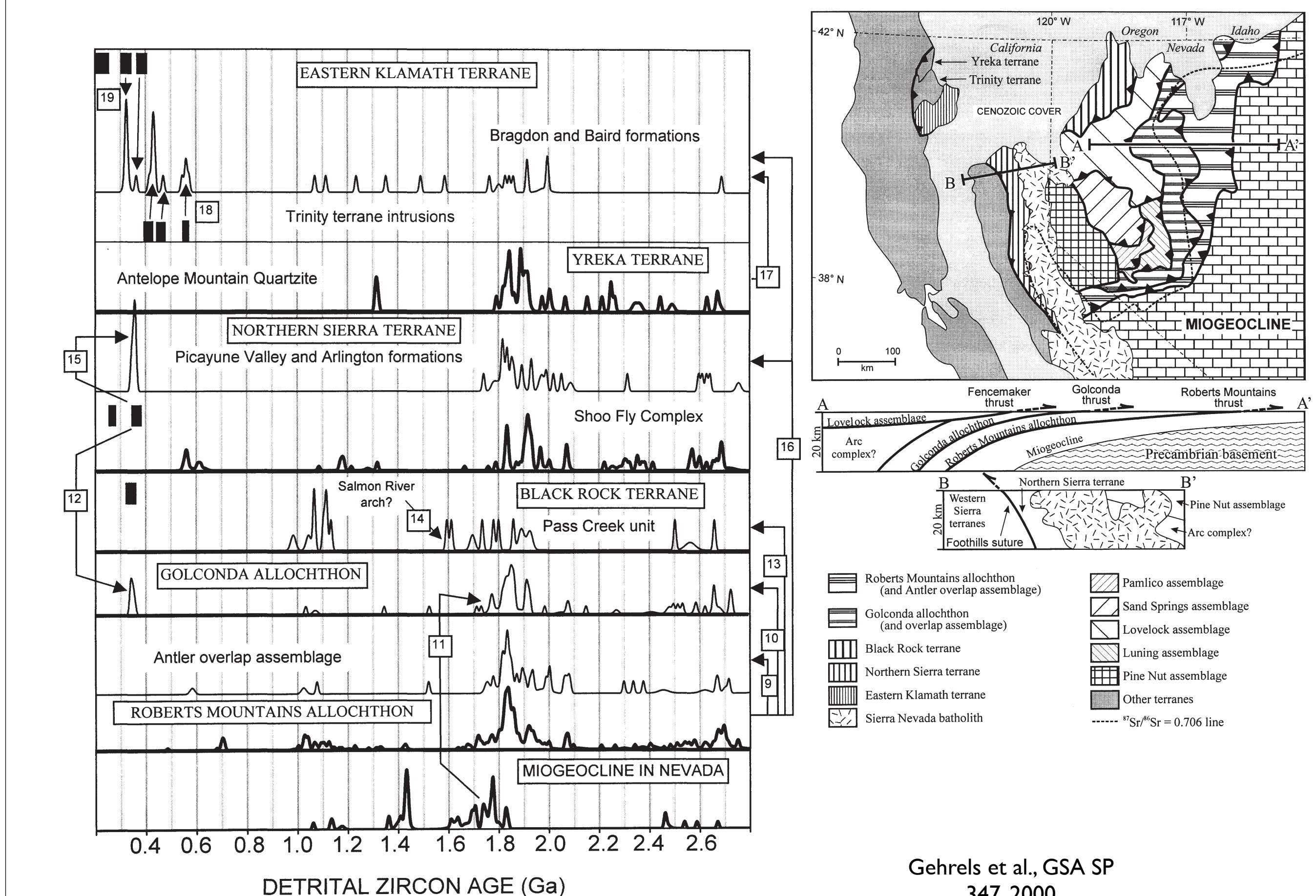
Miller et al., DNAG



Miller et al., DNAG

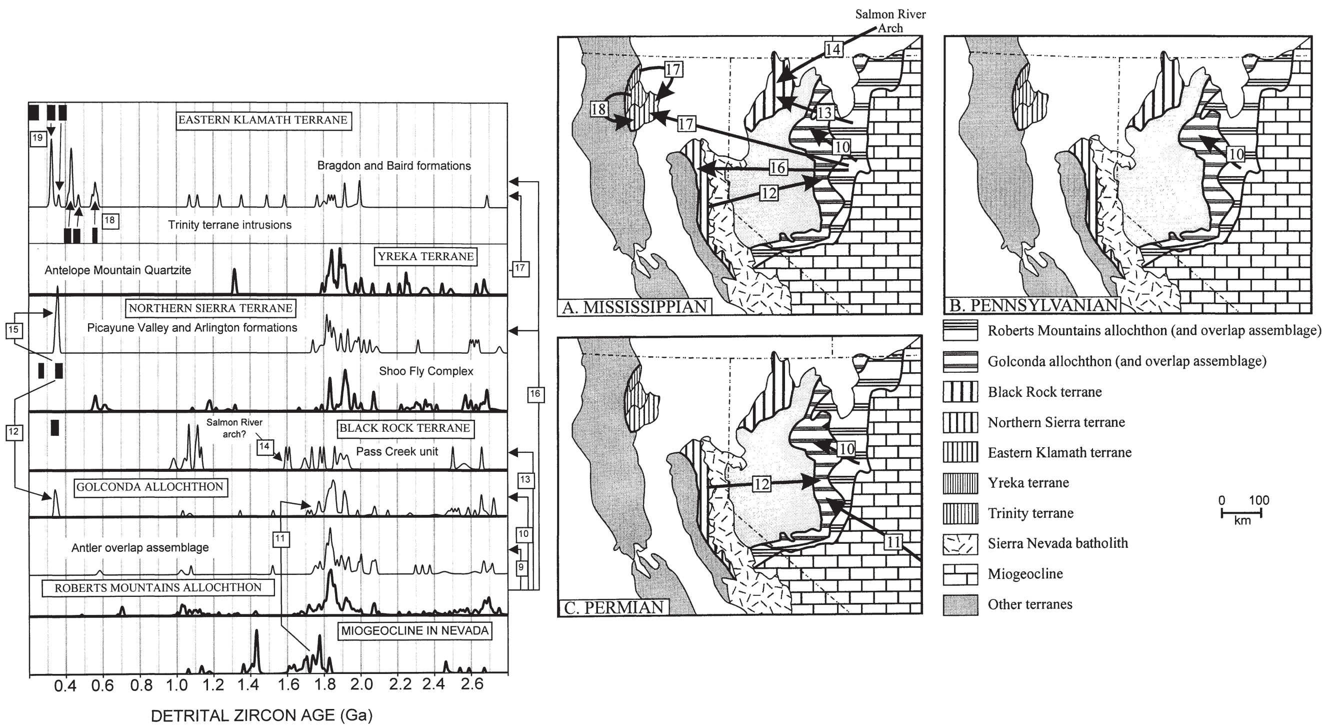


Miller et al., DNAG



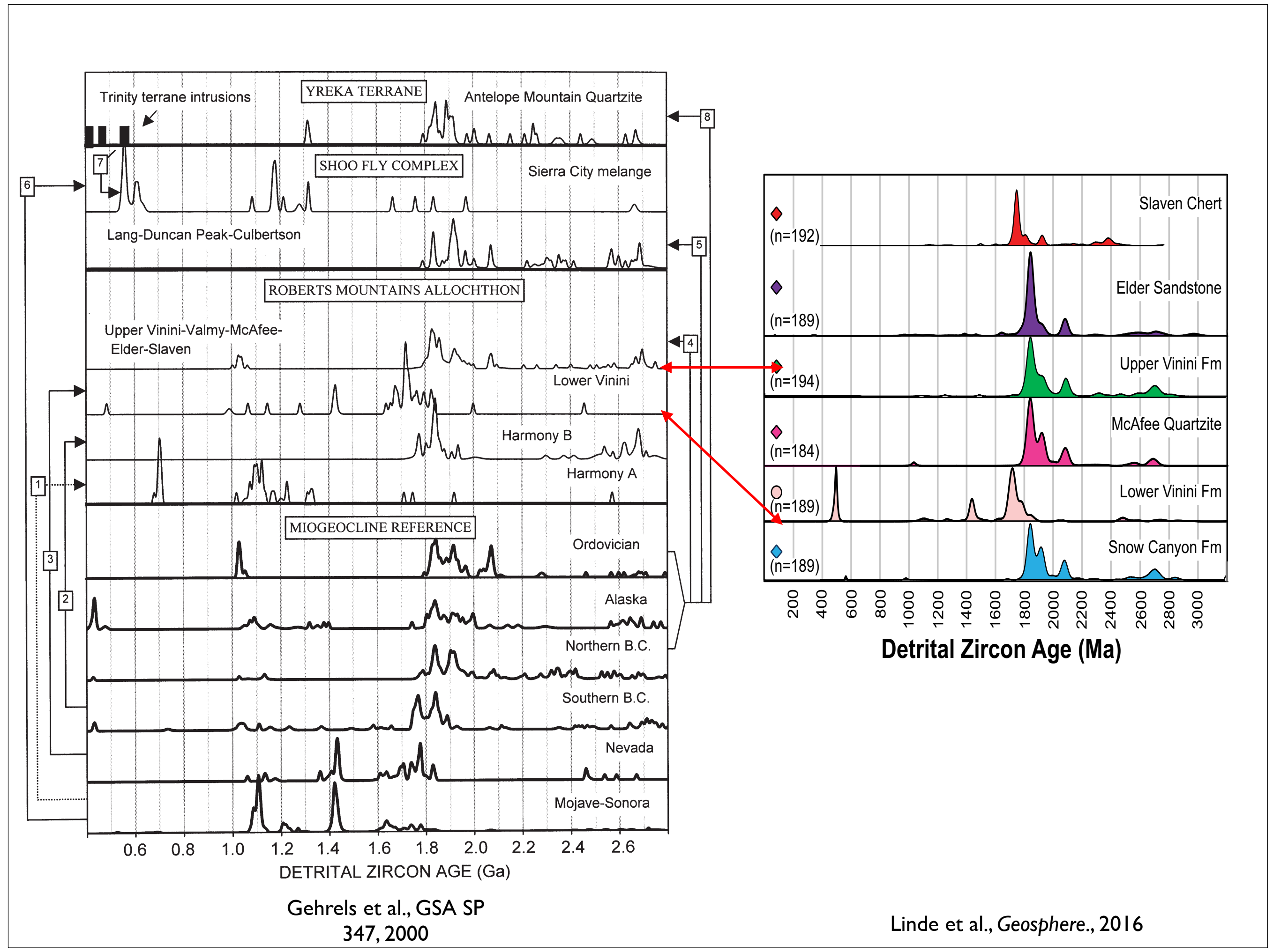
Gehrels et al., GSA SP 347, 2000

What is the relationship of the Golconda rocks to North America? Back to detrital zircons [which are only a small part of sediment volume]



Gehrels et al., GSA SP 347, 2000

Original interpretation in 2000 is that all the terranes were connected

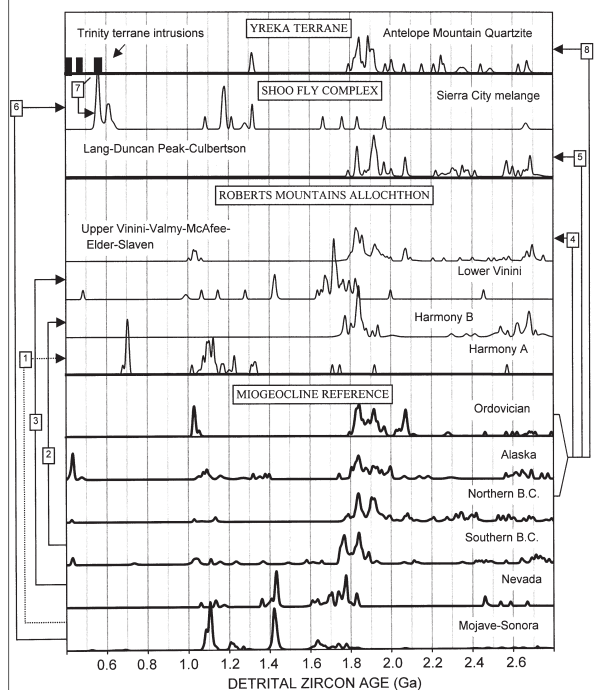


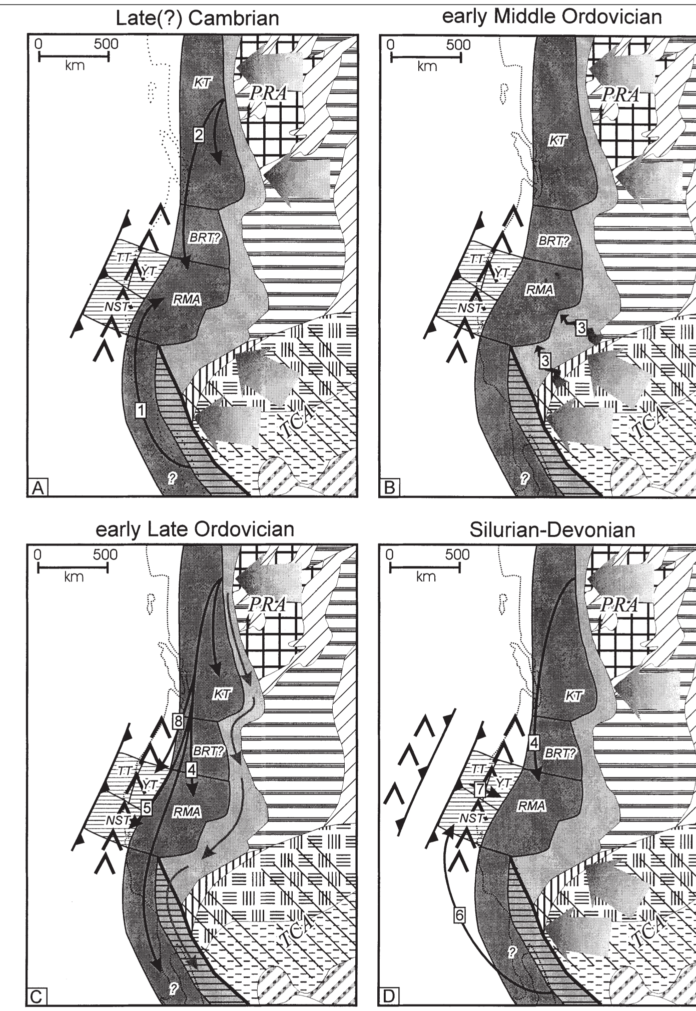
Gehrels et al., GSA SP 347, 2000

Linde et al., *Geosphere*., 2016

Worth recalling how the use of the LA-ICPMS measurements changed the interpretation of Gehrels's group. Note the Lower Vinini still has more of a southern Laurentian look—except for those 500 Ma ages, which Linde et al. attribute to materials now found as inliers in Idaho batholith and Challis volcanics areas.

2000 interpretation

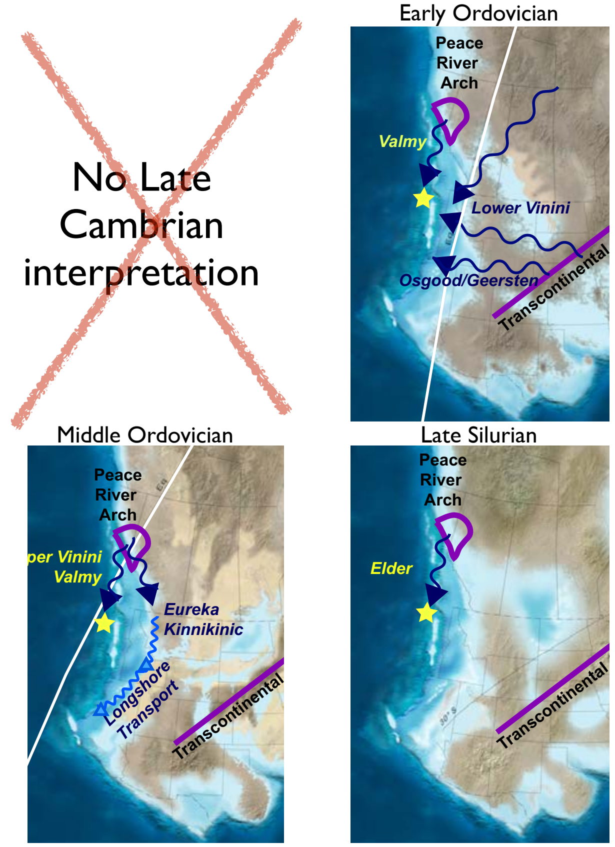




Gehrels et al., GSA SP 347, 133-150, 2000

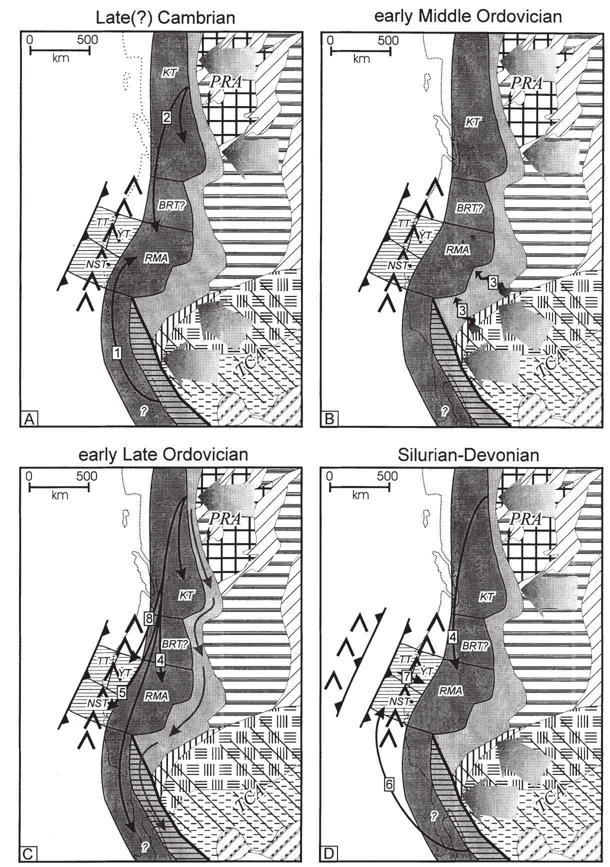
2016 interpretation

Linde et al., *Geosphere.*, 2016



2000 interpretation

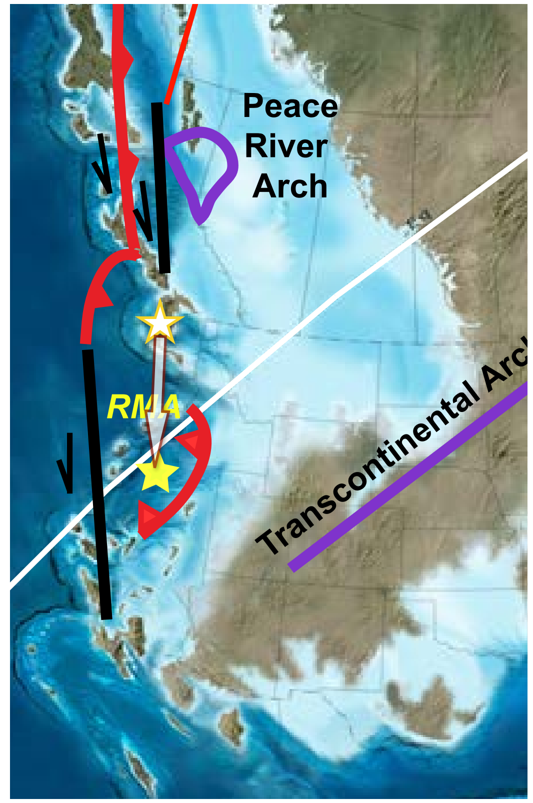
Gehrels et al., GSA SP 347, 133-150, 2000



2016 interpretation

Linde et al., *Geosphere*., 2016

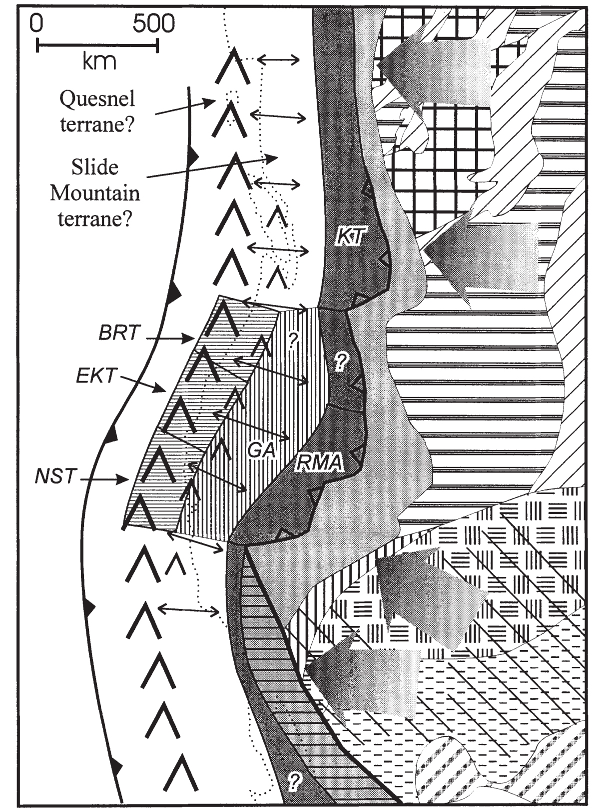
Late Devonian



2000 interpretation

Gehrels et al., GSA SP 347, 133-150, 2000

Mid to Late Paleozoic



Mid- to Late Paleozoic

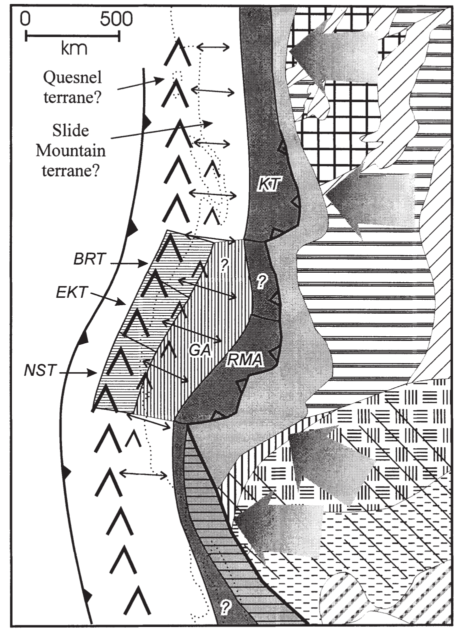


Figure 9. Schematic map of western North America showing our preferred paleogeography for Cordilleran margin during late Paleozoic time. Cratonal provinces and miogeoclinal strata are as shown in Figure 1. Horizontal ruled region represents arc-type terranes such as eastern Klamath terrane. Vertical ruled region represents basinal assemblages, such as Golconda allochthon, that formed in backarc basin setting. Small inverted V pattern represents extensional, east-facing arc active during emplacement of Roberts Mountains allochthon (following Burchfiel and Royden, 1991). Large inverted V pattern represents west-facing magmatic arc that is interpreted to have been active after Antler orogeny. Small black arrows show the inferred directions of crustal extension within this arc system. KT-Kootenay terrane, BRT-Black Rock terrane, GA-Golconda allochthon, EKT-eastern Klamath terrane, RMA-Roberts Mountains allochthon, NST-northern Sierra terrane. Large gray arrows reflect the general transport of sand that accumulated within miogeoclinal strata (Gehrels, Introduction).

Triassic

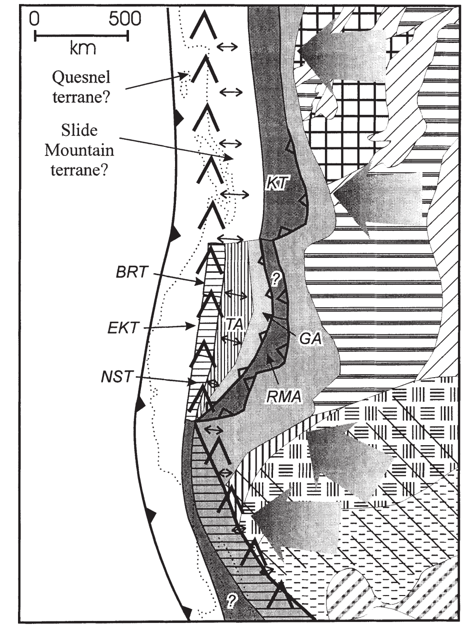
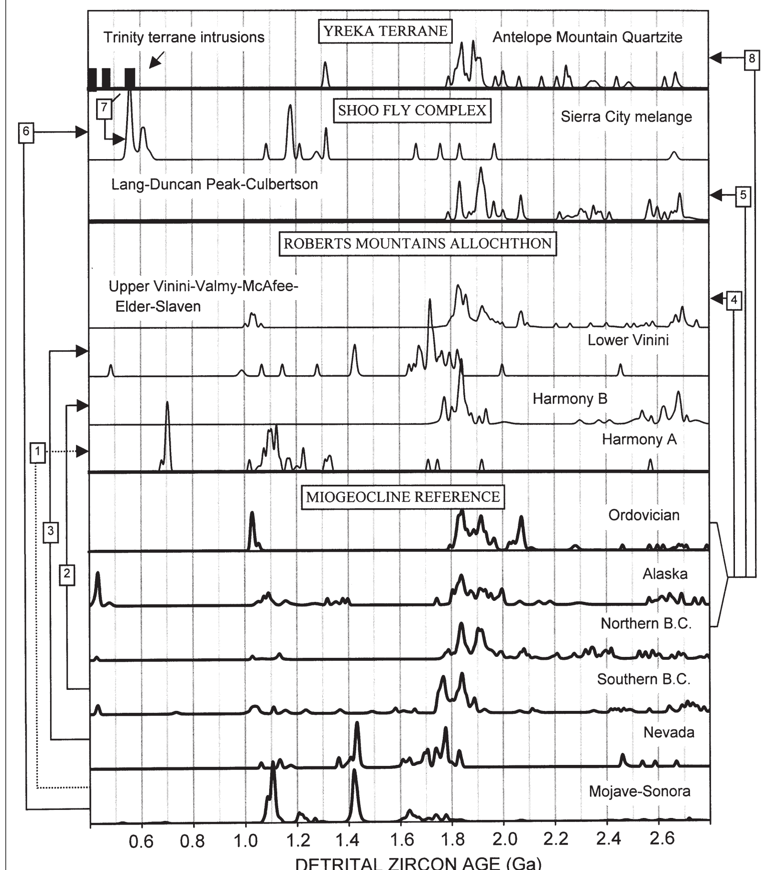
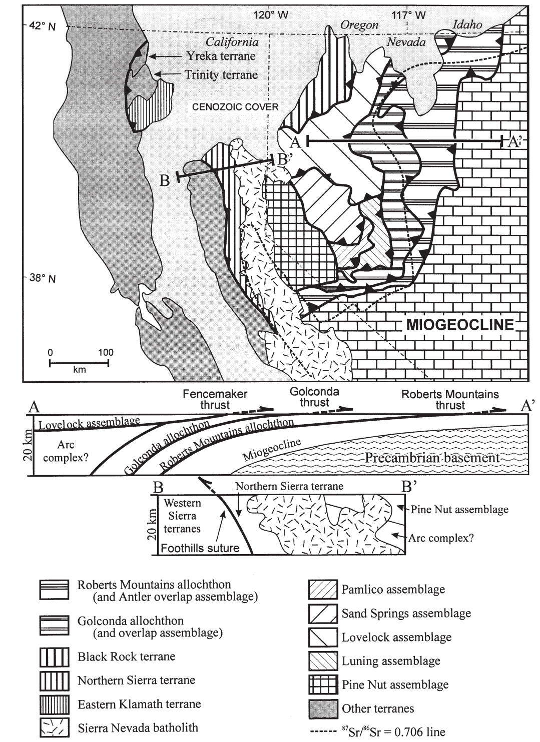


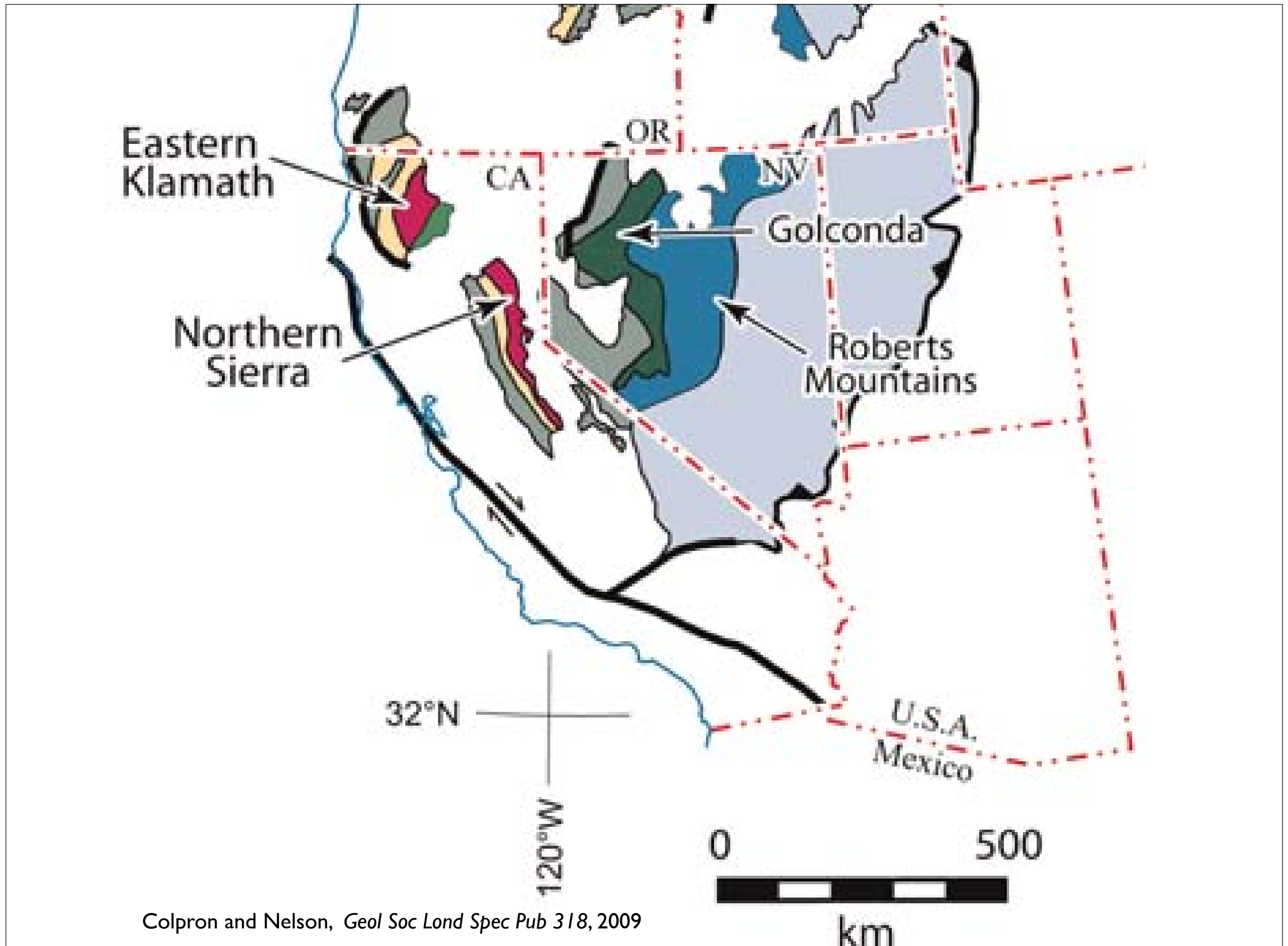
Figure 12. Schematic map of western North America showing our p ferred paleogeography for Cordilleran margin during Triassic time. C tonal provinces and miogeoclinal strata are as shown in Figure Horizontal ruled region represents arc-type terranes such as eastern K math terrane. Vertical ruled region represents basinal assemblages central Nevada that formed in backarc basin setting. Inverted V patt represents trace of west-facing magmatic arc outboard of Cordille margin. Small black arrows show inferred direction of crustal extens behind this arc system. Large gray arrows reflect the general transpor sand that accumulated within miogeoclinal strata (Gehrels, this volu Introduction). KT-Kootenay terrane, BRT-Black Rock terrane, TT-Trinity terrane, YT-Yreka terrane, GA-Golconda allochthon, EKT-eastern Klamath terrane, RMA-Roberts Mountains allochthon, NST-northern Sierra terrane, TA-Triassic assemblages.

Gehrels et al., GSA SP 347, 2000

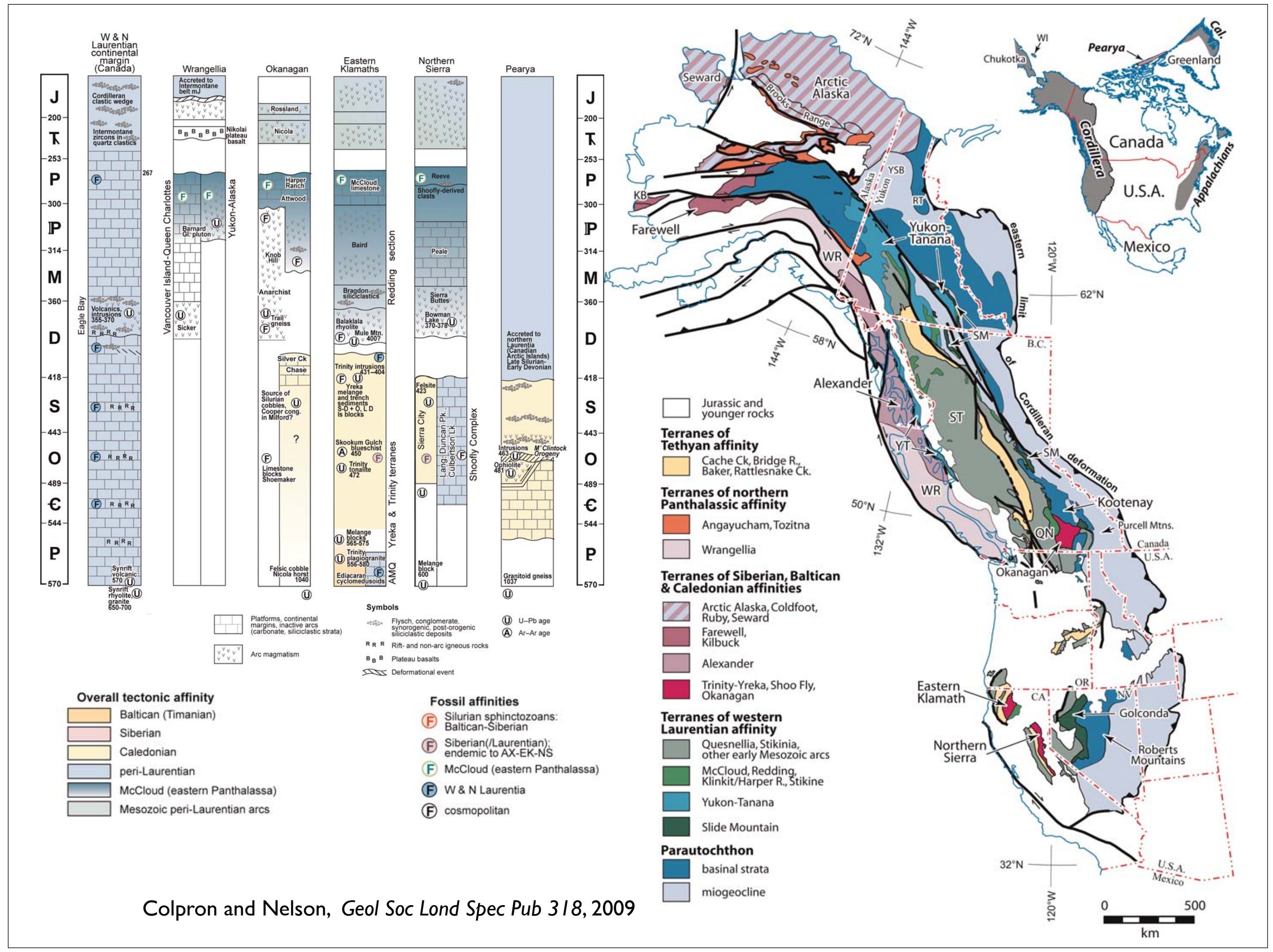




Gehrels et al., GSA SP 347, 2000

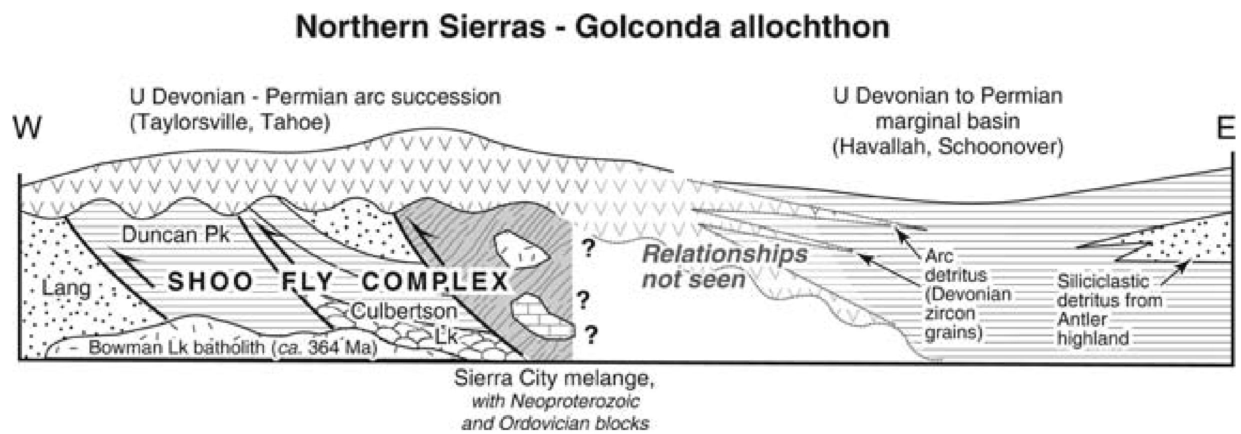


Colpron and Nelson, *Geol Soc Lond Spec Pub 318*, 2009

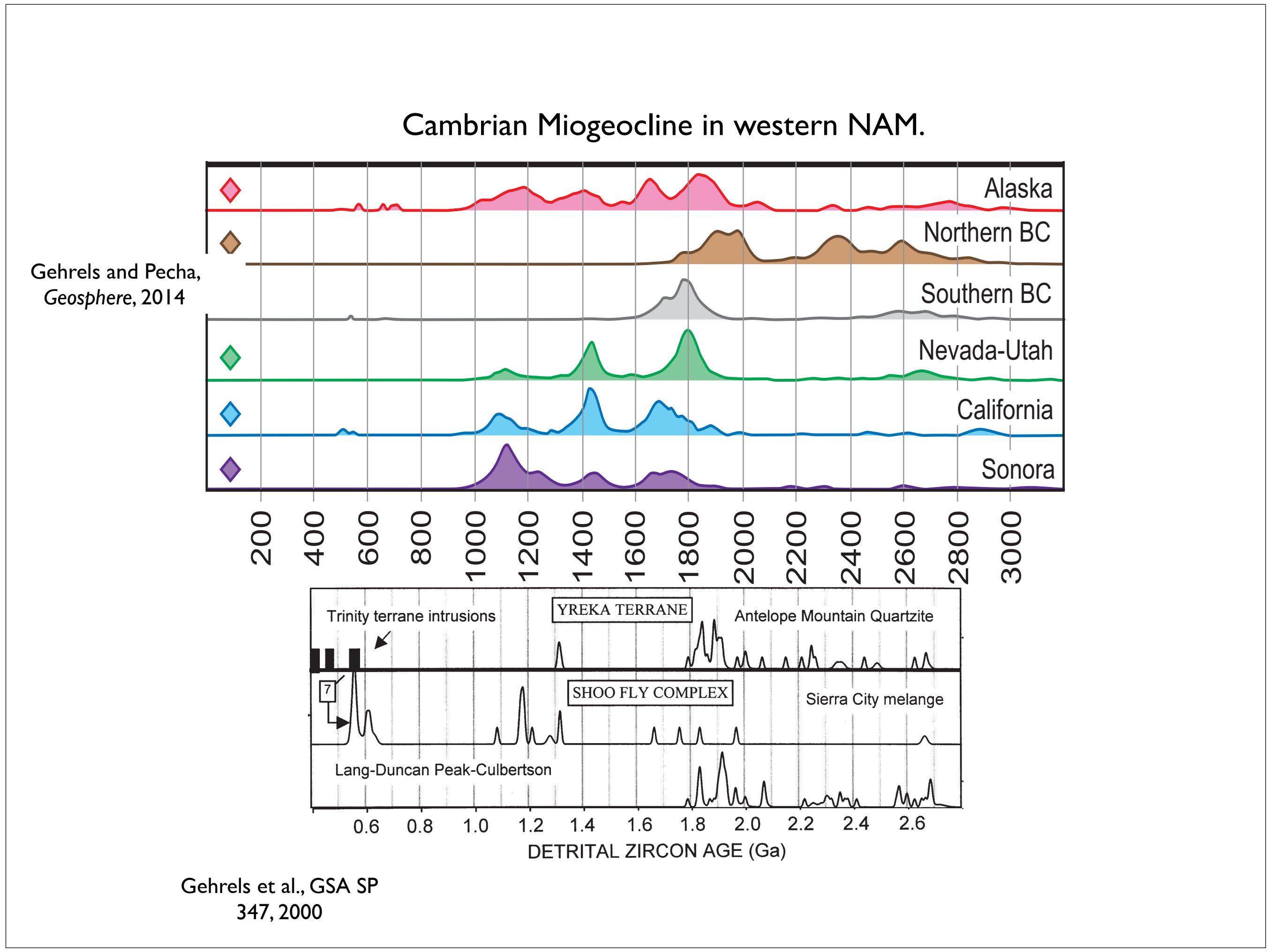


Colpron and Nelson, *Geol Soc Lond Spec Pub 318*, 2009

We need to start looking farther afield to see how to connect things up.



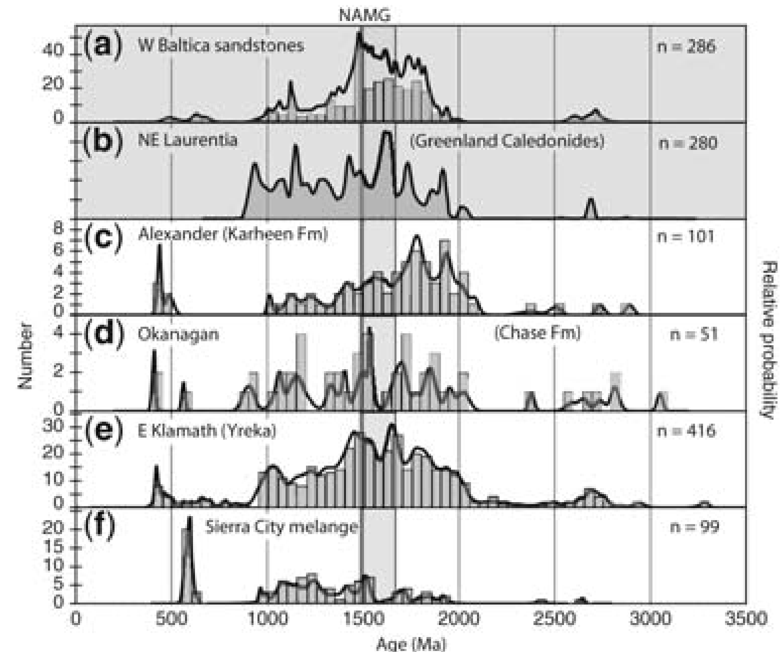
Colpron and Nelson, *Geol Soc Lond Spec Pub 318*, 2009



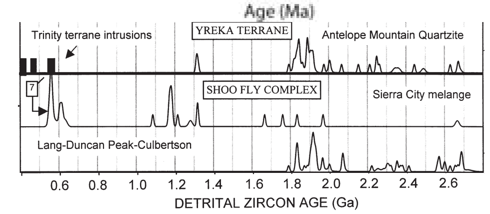
Colprin and Nelson connect allocthons in lower Shoo Fly with northern BC based on the older TIMS detrital zircon work. Here we compare with newer stuff, and maybe OK. Lang-Duncan Peak-Culbertson

Allochthons in western NAM.

Colpron and Nelson, *Geol Soc Lond Spec Pub 318*, 2009



Gehrels et al., GSA SP 347, 2000



Colprin and Nelson connect allocthons in lower Shoo Fly with northern BC based on the older TIMS detrital zircon work. Here we compare with newer stuff, and maybe OK. Lang-Duncan Peak-Culbertson

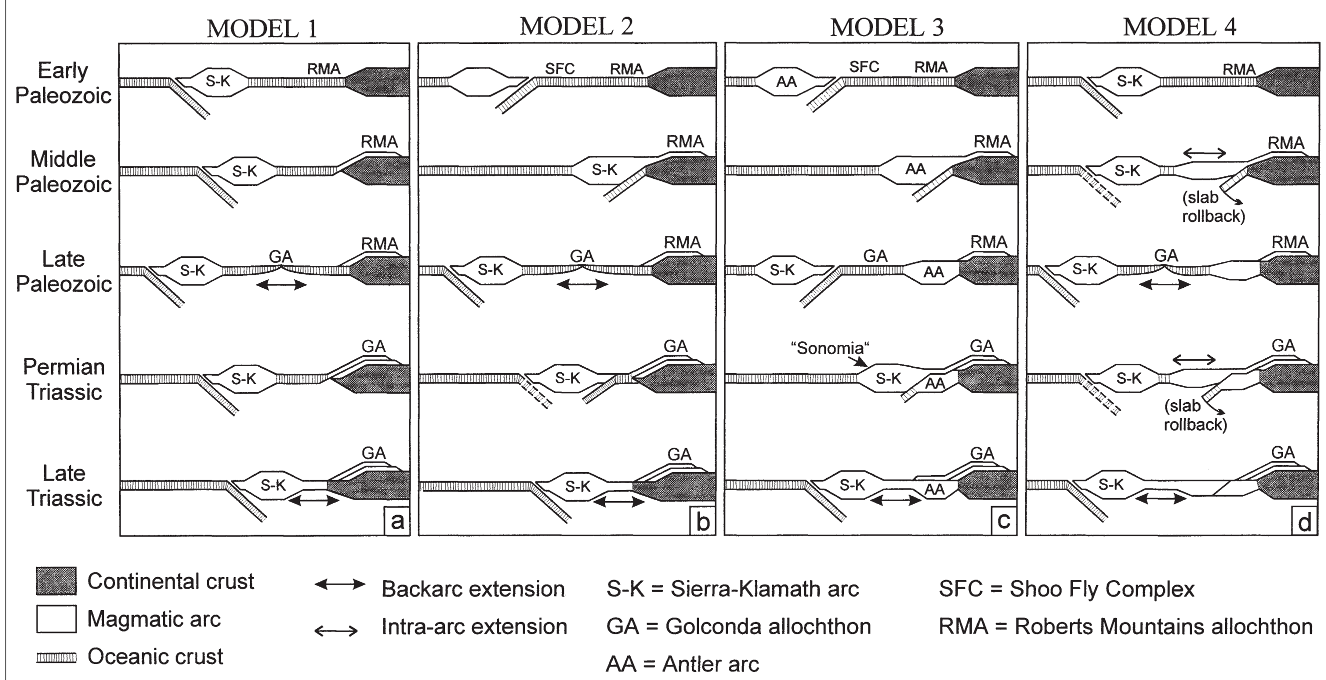


Figure 4. Summary of existing tectonic models for Cordilleran margin. A, Consistently west facing convergent margin with arc separated by series of marginal basins (Burchfiel and Davis, 1972, 1975; Churkin, 1974; Miller et al., 1984, 1992; Harwood and Murchey, 1990; Burchfiel et al., 1992). B, Collision of exotic arc during Antler orogeny followed by mainly west facing convergent margin (Schweickert and Snyder, 1981). C, Collision of two east-facing arc systems during Antler and Sonoma orogenies (Dickinson, 1977; Speed, 1979; Speed and Sleep, 1982; Dickinson et al., 1983). D, Generally west facing convergent margin with brief phases of east-facing subduction and extensional arc magmatism during Antler and Sonoma orogenies (Burchfiel and Royden, 1991; Burchfiel et al., 1992).

Gehrels et al., SP 347, 2000

Significance of Sonoman orogen: Seems to reflect the collapse of some marginal oceanic belt between Sierran-Klamath arc to west and Roberts Mtn stuff to east. But there seem to be issues at the early end of the spectrum…