Mesozoic-Cenozoic Plate Tectonics I:
Plate Motions

Reference:
Condie (1978) GSA Memoir 152, Ch. 2

Early to Middle Jurassic

- Volcano-Plutonic terranes along Pacific margin
- Andean type in the south
- Island arcs in the north
- Several “suspect” terranes separated by ophiolites form the cratonic rocks

Late Jurassic to Late Cretaceous

- Well-developed volcano-plutonic belt
- Accreted subduction assemblages (Franciscan)
- Associated fore-arc deposits (Great Valley)
- Foreland east-verging thrust belts (Sevier Orogeny)
- Cordilleran metamorphic core complexes

Late Cretaceous to Late Eocene

- Andean type orogen
- Well-defined volcano-plutonic belt
- Laramide “igneous gap”
- Thick-skinned deformation in Rocky Mts.
- Contemporaneous deformation throughout the cordillera

Inferred Farallon and N.A. plate motions
Late Eocene to Early Miocene

- Widespread erosion
- Ignimbrite “flare-up”
- Young hot oceanic lithosphere subducted
- Metamorphic core complexes
- Ridge system Subducted
- Initiation of Caribbean Plate

Early Miocene to the Present

- Initiation of extensional faulting in Basin and Range
- Bimodal basaltic volcanism
- Growth of plate-bounding transform faults (San Andreas system)
- Outpouring of flood basalts
- Snake River Plain hot spot