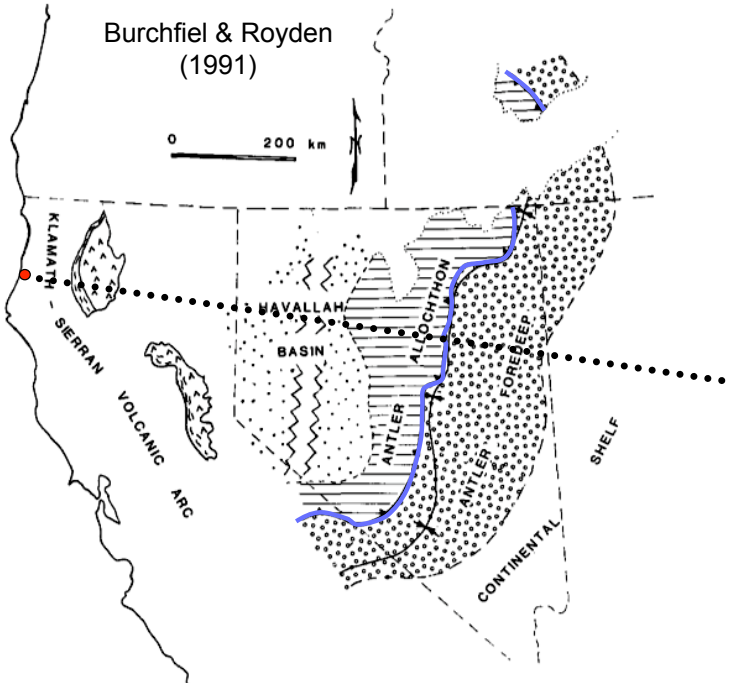
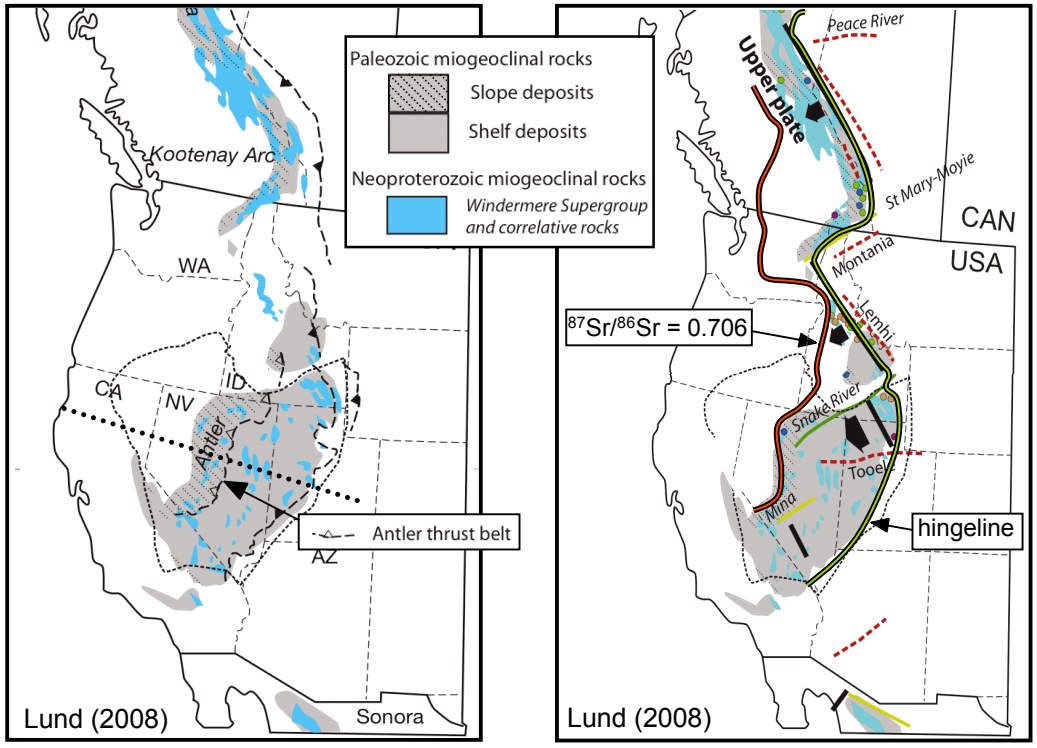
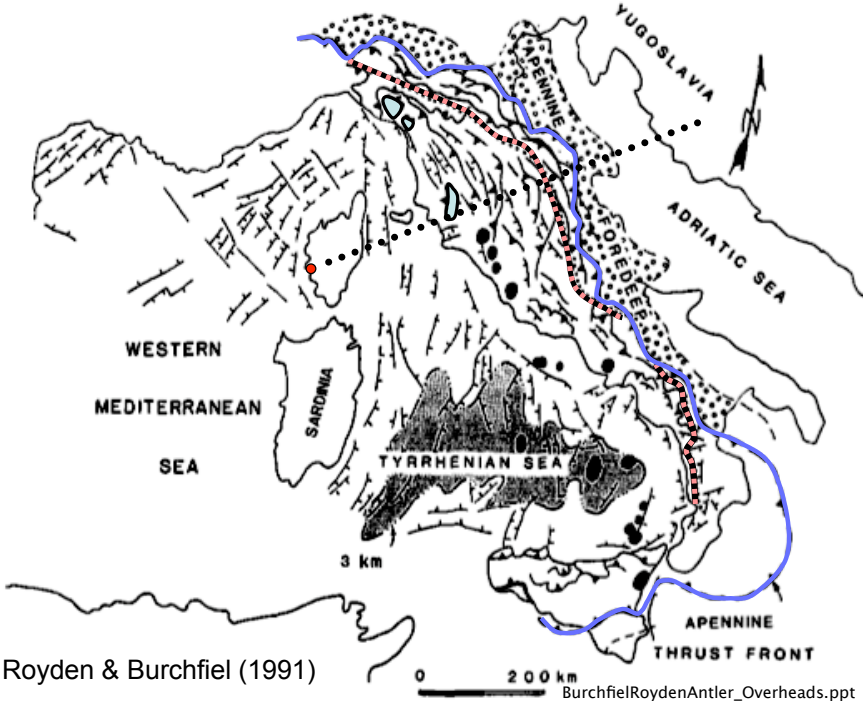


Italian cross section (recent)

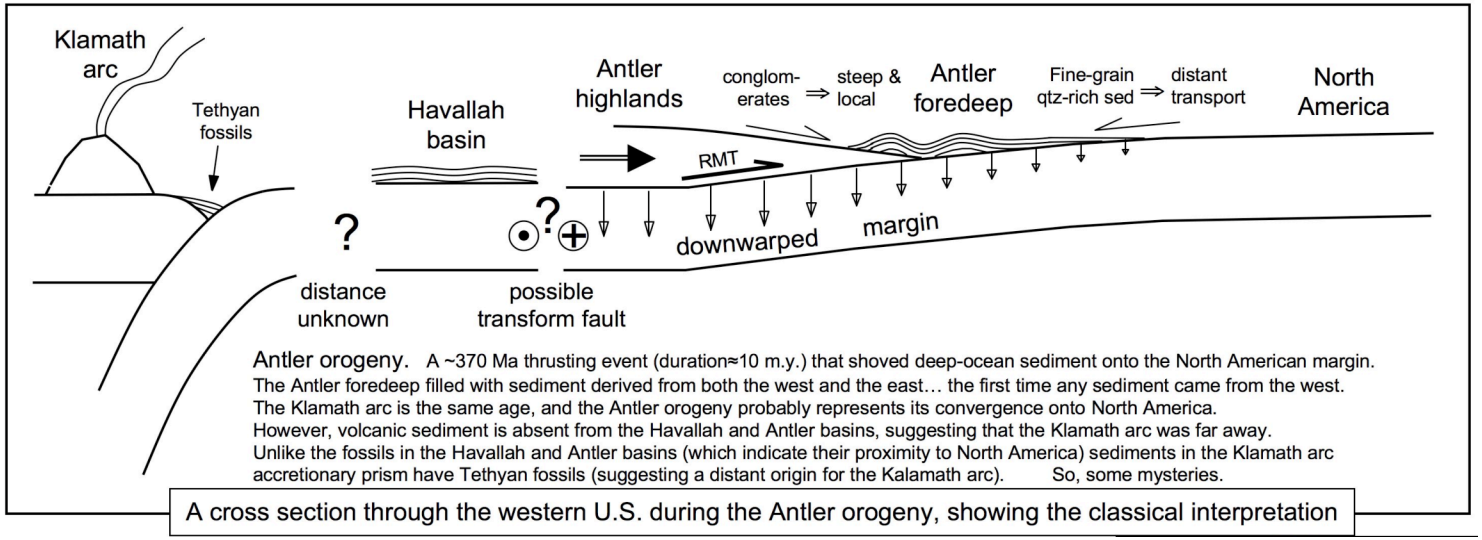
Western U.S. cross section (370 Ma)





Antler Orogeny
(again)

Draw two cross sections on the other side of this page, one across the region of modern Italy, the other across western U.S. at ~370 Ma (during the Antler orogeny).
List some of the major similarities and differences. On the western U.S. cross section, show the topographic divide.
The following passage is in Burchfiel and Royden:



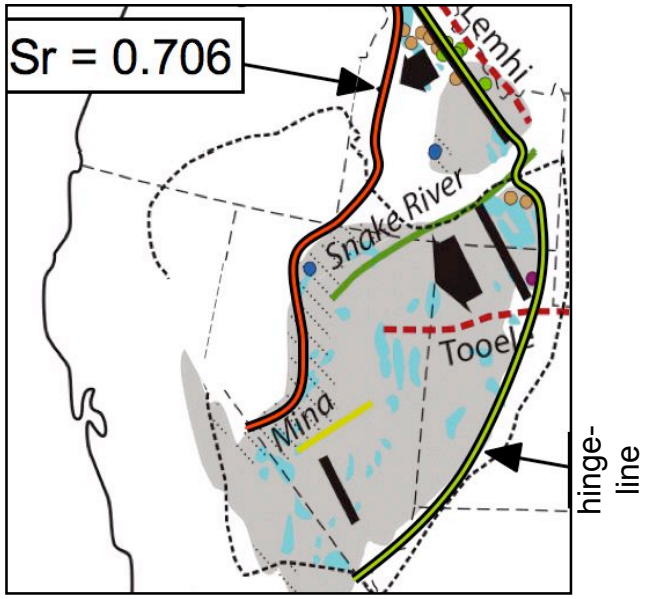
Antler orogeny. A ~370 Ma thrusting event (duration≈10 m.y.) that shoved deep-ocean sediment onto the North American margin.
The Antler foredeep filled with sediment derived from both the west and the east… the first time any sediment came from the west.
The Klamath arc is the same age, and the Antler orogeny probably represents its convergence onto North America.
However, volcanic sediment is absent from the Havallah and Antler basins, suggesting that the Klamath arc was far away.
Unlike the fossils in the Havallah and Antler basins (which indicate their proximity to North America) sediments in the Klamath arc accretionary prism have Tethyan fossils (suggesting a distant origin for the Kalamath arc). So, some mysteries.

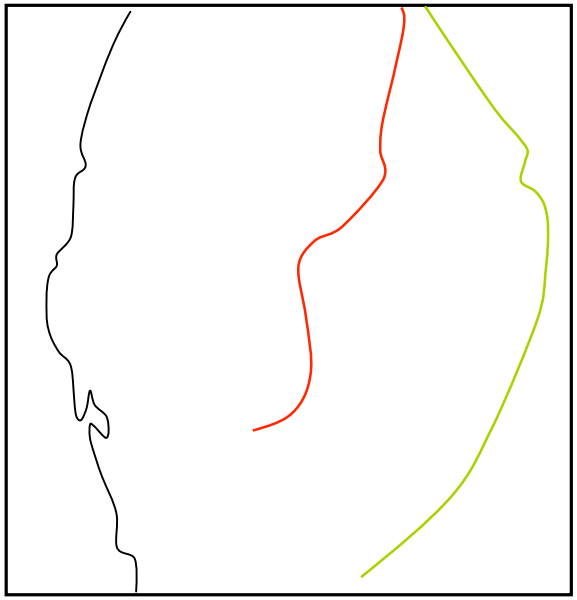
A cross section through the western U.S. during the Antler orogeny, showing the classical interpretation

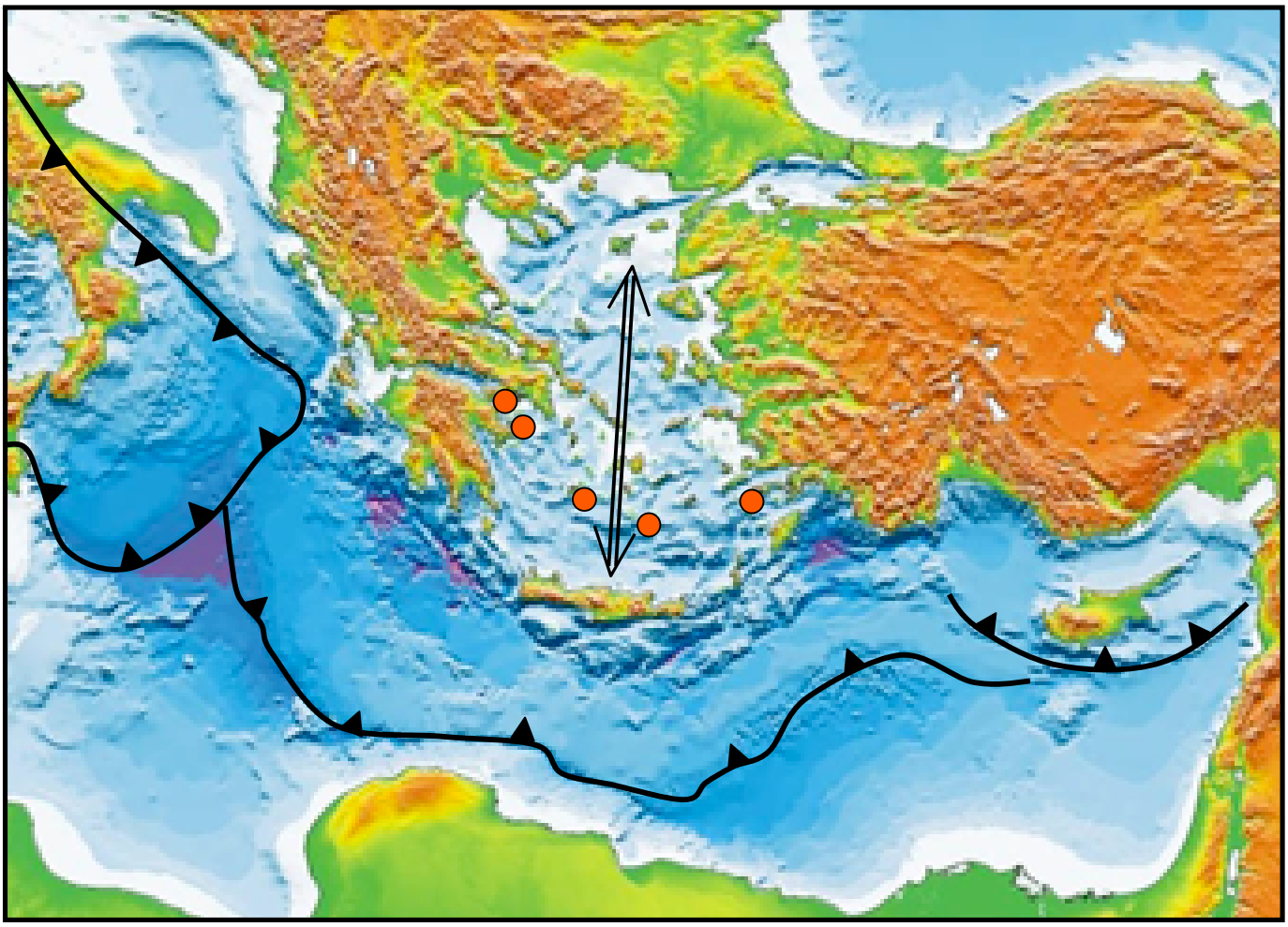
> Important relations observed in the Antler belt that are unexplained by arc-continent collision include (1) the arc that was west of North America and its structures appears to be west facing, not east facing; (2) deposition of sediments in the Havallah basin began before and continued during the emplacement of the Roberts Mountains allochthon; (3) deposition occurred in a paleogeographic position that should have been occupied by the collided arc; and (4) the Antler foredeep contains no volcanic material.

Explain briefly why each of these is important, and include these ideas in your cross section.

Following Burchfiel nd Royden, sketch the position of the Klamath-Sierran volcanic arc, Havallah Basin, Antler allochthon and Antler foredeep at an initial stage of development, and at a late stage of development. Show where extension is occurring, sediment transport (arrows going from source to sink), and the topographic divide.
(Basin and Range extension has widened the area between the hingeline and the rift margin.
Draw your sketch on the map shown, which is of the current locations.)







Eastern Mediterranean Sea, with Aegean Sea between Turkey and Greece.

The Aegean is highly extended continental crust pulled apart as the Hellenic subduction retreats to the south.

Volcanic arc (red-filled circles) lie within the extended Aegean Sea.

Crete is part of the topographic divide between thrust belt to the south and the Aegean to the north.