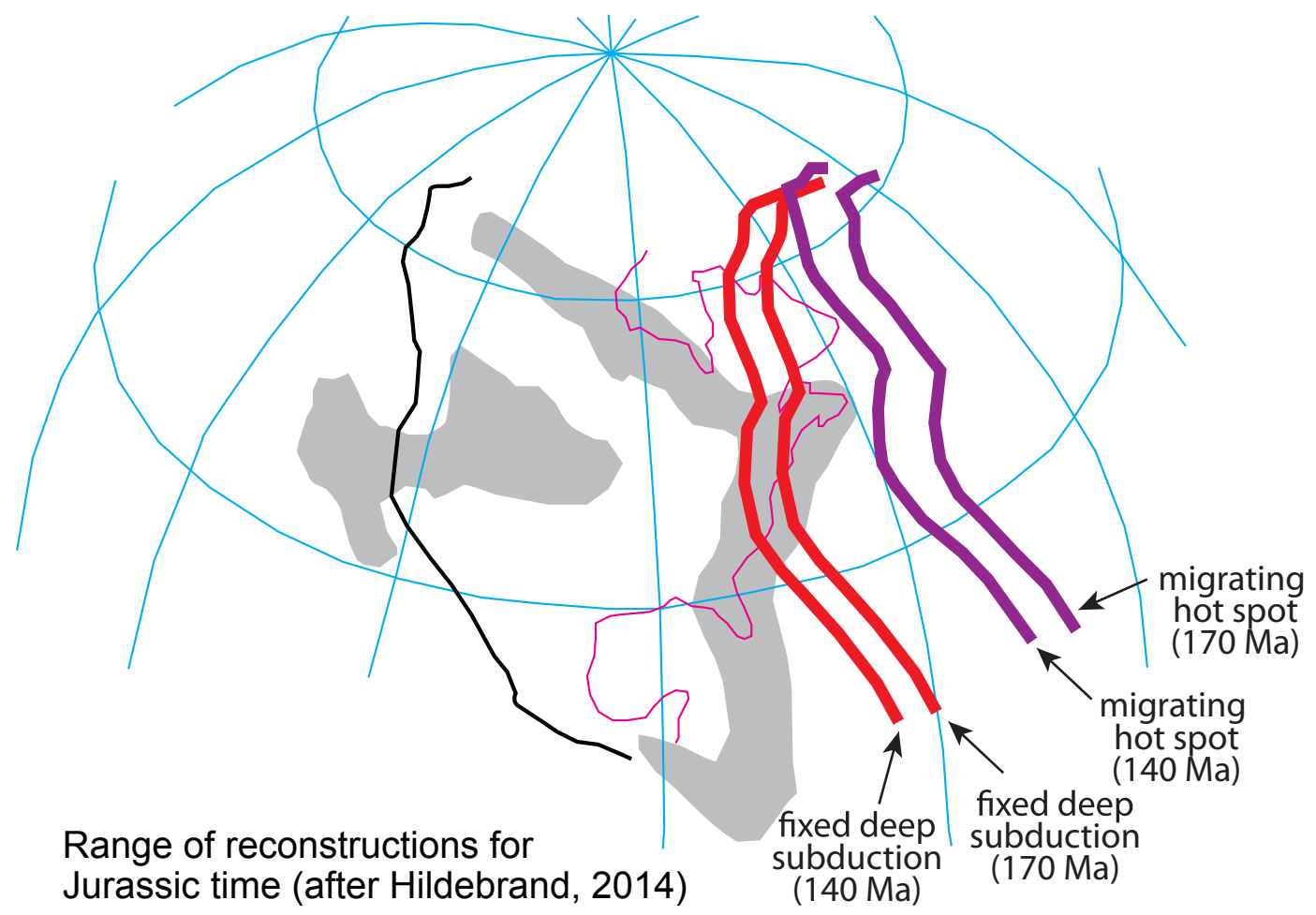
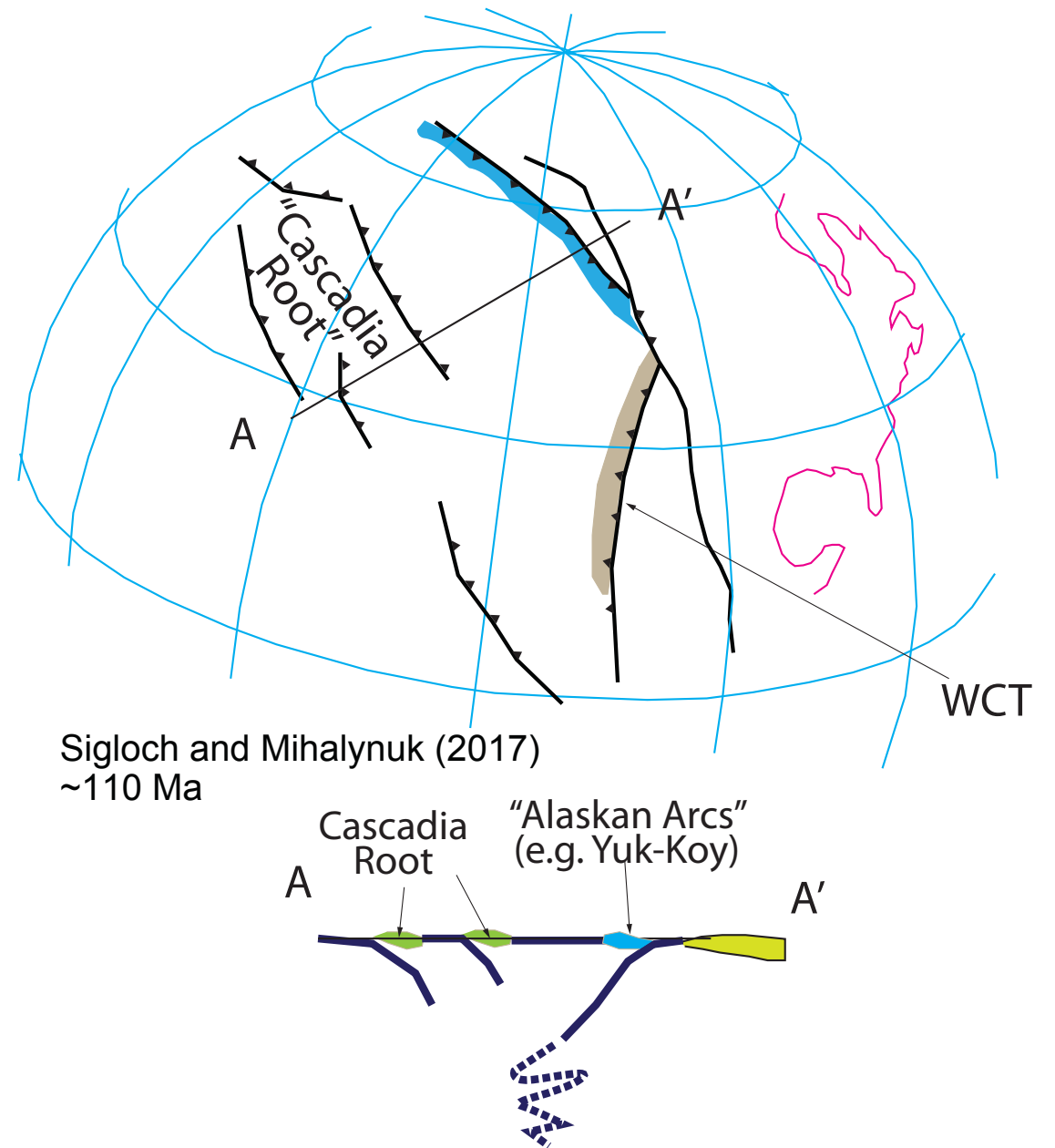


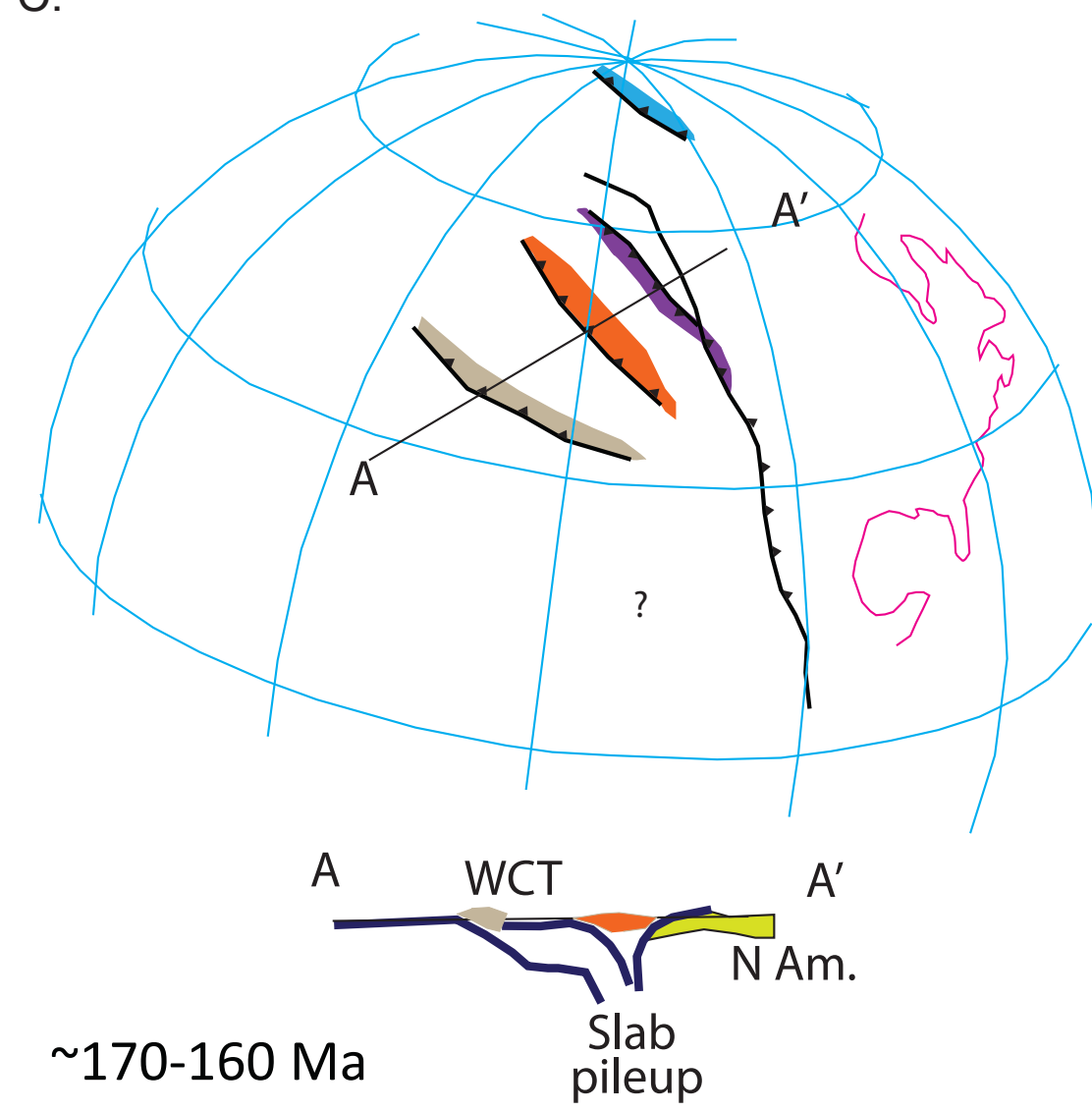
A.



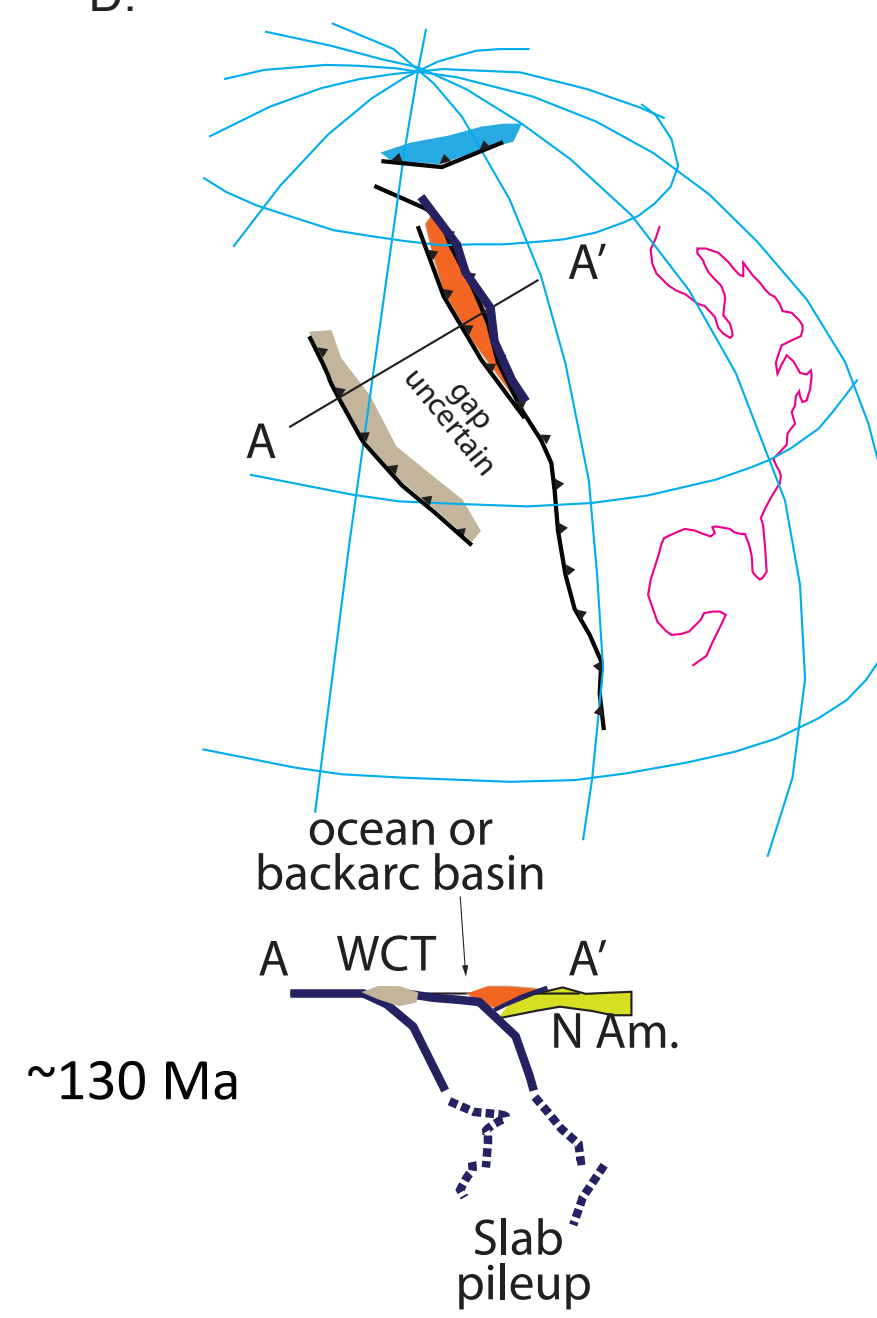
B.



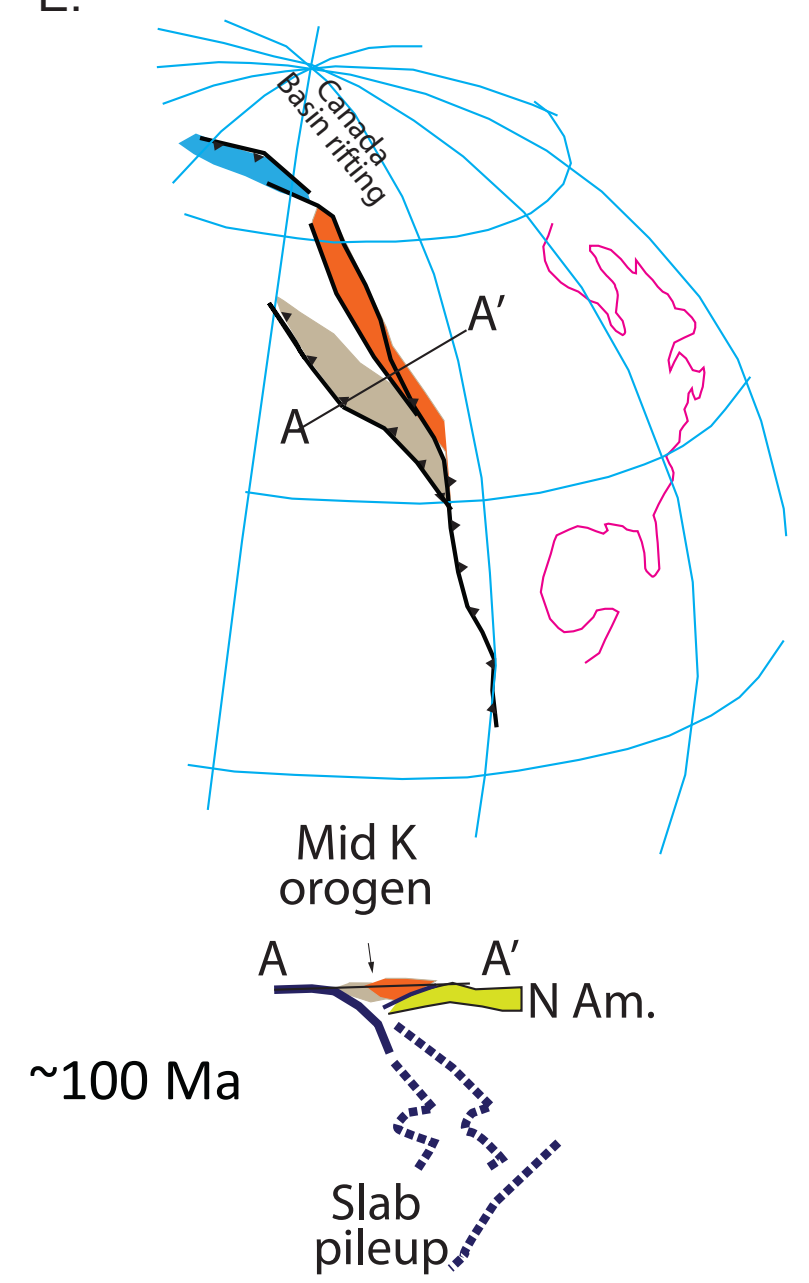
C.



D.



E.



- Wrangellia Composite terrane (WCT)
- Yukon-Koyuk
- Intermontaine terranes
- Slide Mountain/Seventy-mile/Sonomia

Figure DR1. Hemispheric-scale views of North America tectonics discussed in this paper. All figures show the present position of North America (black and pink outline) at specific time intervals based on plate reconstructions. (A) The position of North America relative to the deep mantle tomographic anomalies discussed here (gray) relative to the range of reconstructed positions of western North America during Jurassic time based on absolute plate motion models. Note that models assuming fixed deep subduction, which tie the deep anomalies to plate margins (subduction models) are consistent with North American subduction zones (with or without offshore arcs) forming the deep anomaly, whereas most hot-spot models place paleo-North America too far east to produce the anomaly; this contradicts a key argument for models of the persistence of west-dipping subduction zones through most of Cretaceous time (e.g., Sigloch and Mihalynuk, 2017). Modified from Hildebrand (2014). (B) Inferred subduction zone configurations ca. 110 Ma, from Sigloch and Mihalynuk (2017), showing west-dipping subduction under the Wrangellia composite terrane. Our preferred tectonic scenarios, shown as a temporal sequence from (C) Early Jurassic; (D) Early Cretaceous (lower middle); and (E) and late Early Cretaceous.

REFERENCE CITED

- Hildebrand, R.S., 2014, Geology, mantle tomography, and inclination corrected paleogeographic trajectories support westward subduction during Cretaceous orogenesis in the North American Cordillera: *Geoscience Canada*, v. 41, p. 207–224, doi:10.12789/geocanj.2014.41.032.
- Sigloch, K., and Mihalynuk, M.G., 2017, Mantle and geological evidence for a Late Jurassic–Cretaceous suture spanning North America: *Geological Society of America Bulletin*, v. 129, p. 1489–1520.