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**Tectonics, Paleoclimates, and Paleobiology of Africa's Western Rift Valley**

The world's largest extant tectonic lakes contain remarkable levels of endemism and biological diversity. This presentation 1) explores the structural framework of the western branch of Africa's Great Rift Valley, through the lens of geophysical (seismic reflection) data sets from some of the world's largest and oldest lakes, and 2) considers records of tropical African climate variability documented from scientific drill cores. By studying different basins along a common plate boundary, I consider how rift structure modifies regional drainage patterns, rates of basin infilling, and lake morphometry and stratigraphy. The variable normal fault framework and rift segmentation geometries, combined with extreme hydroclimate variability influence the lifespans of individual lake basins, and subsequently their relative biodiversity and species richness.