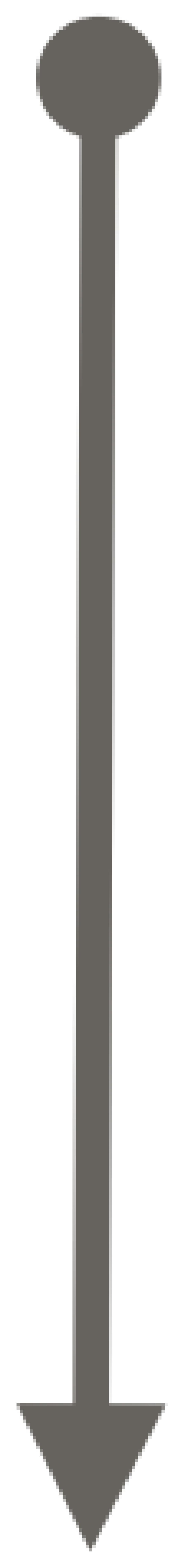


**Scholarship
of Geosciences**

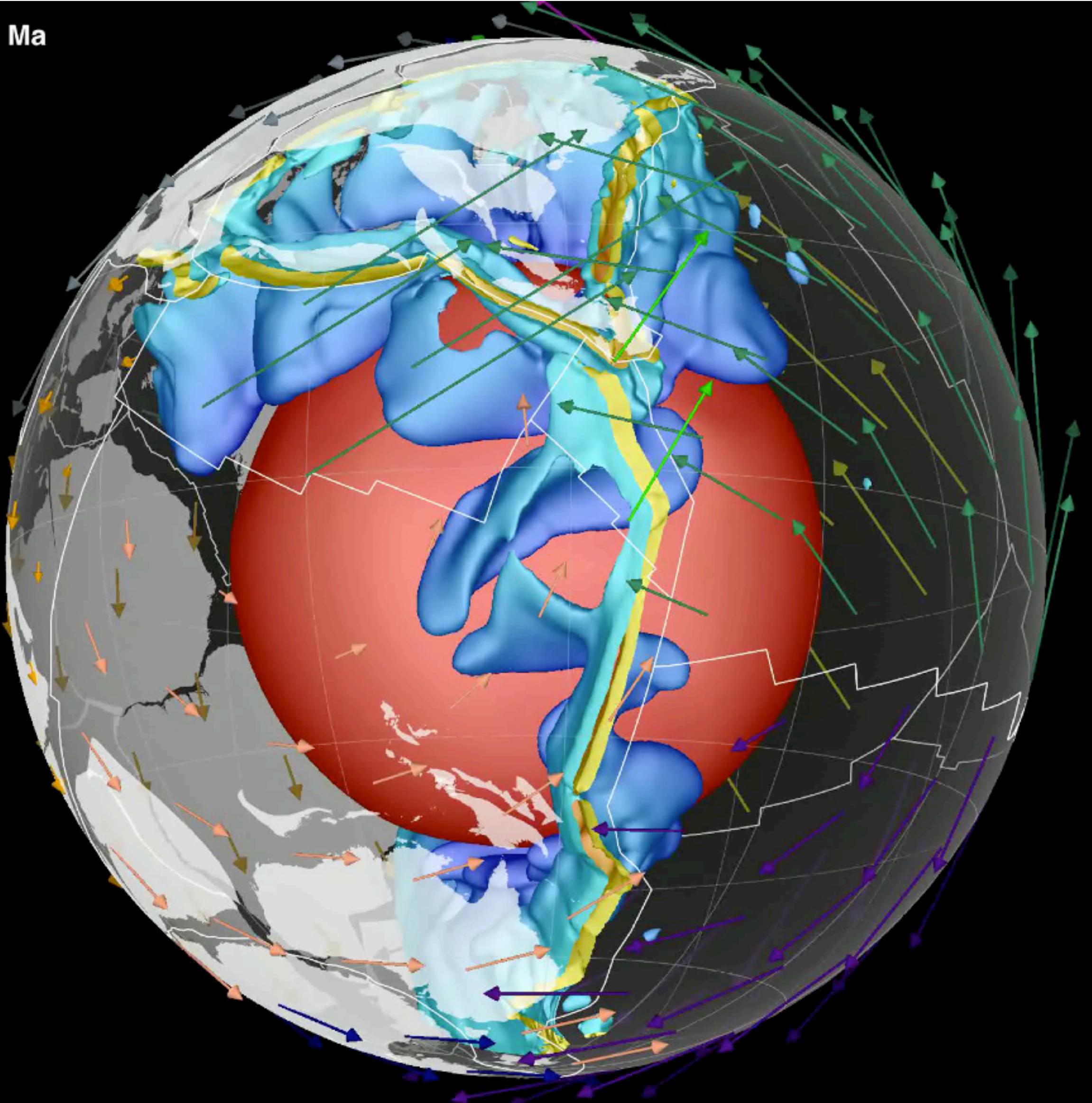
Adding sediment transport to dynamic topography

broad pattern of margin highlands
uplift phases



time-dependent interaction of plate
motion with mantle downwellings
and upwellings

159 Ma





COMPUTATIONAL
INFRASTRUCTURE
for GEODYNAMICS



SAM
AuScope
simulation, analysis, modelling

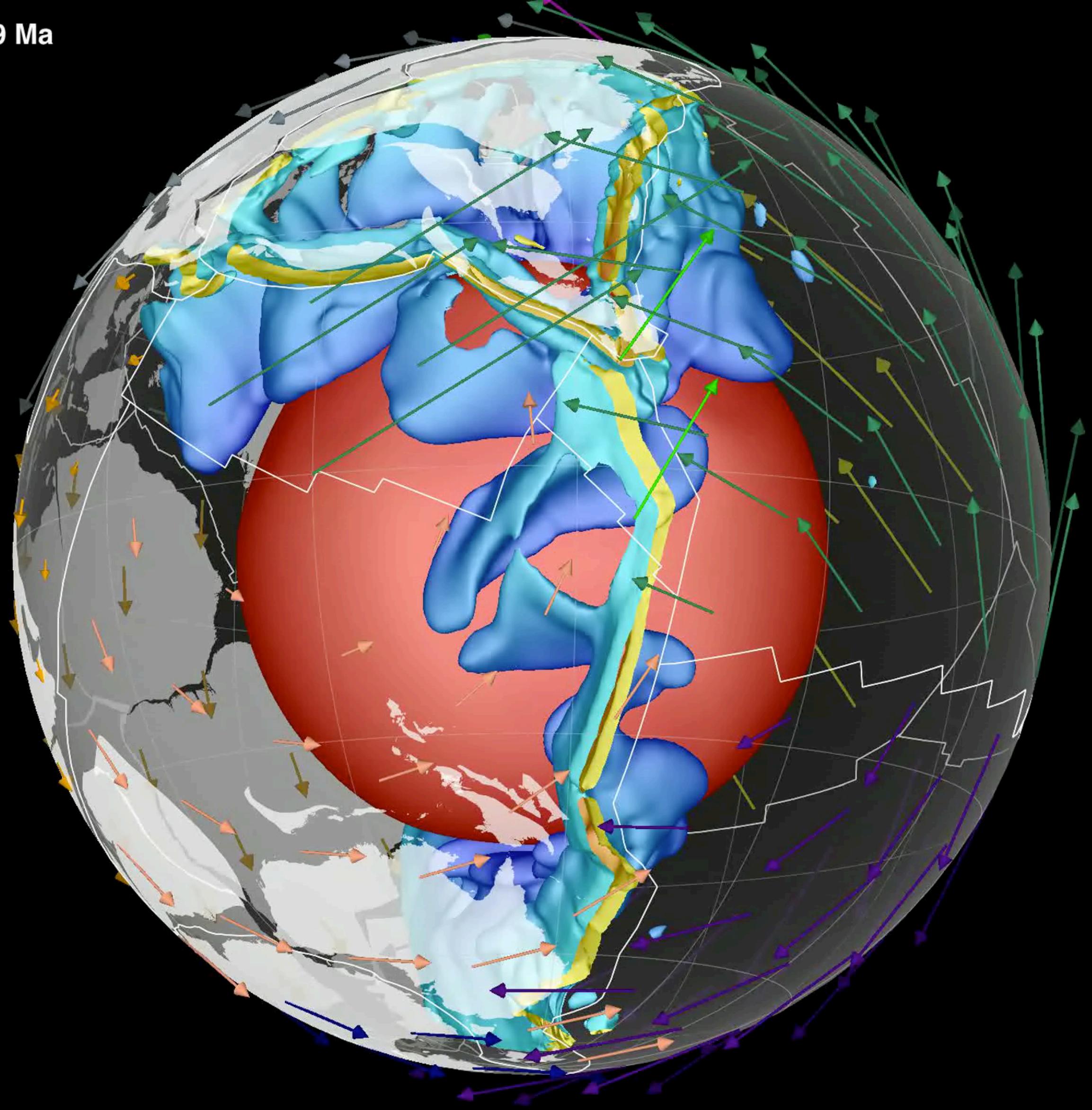
Citcons



Project 101

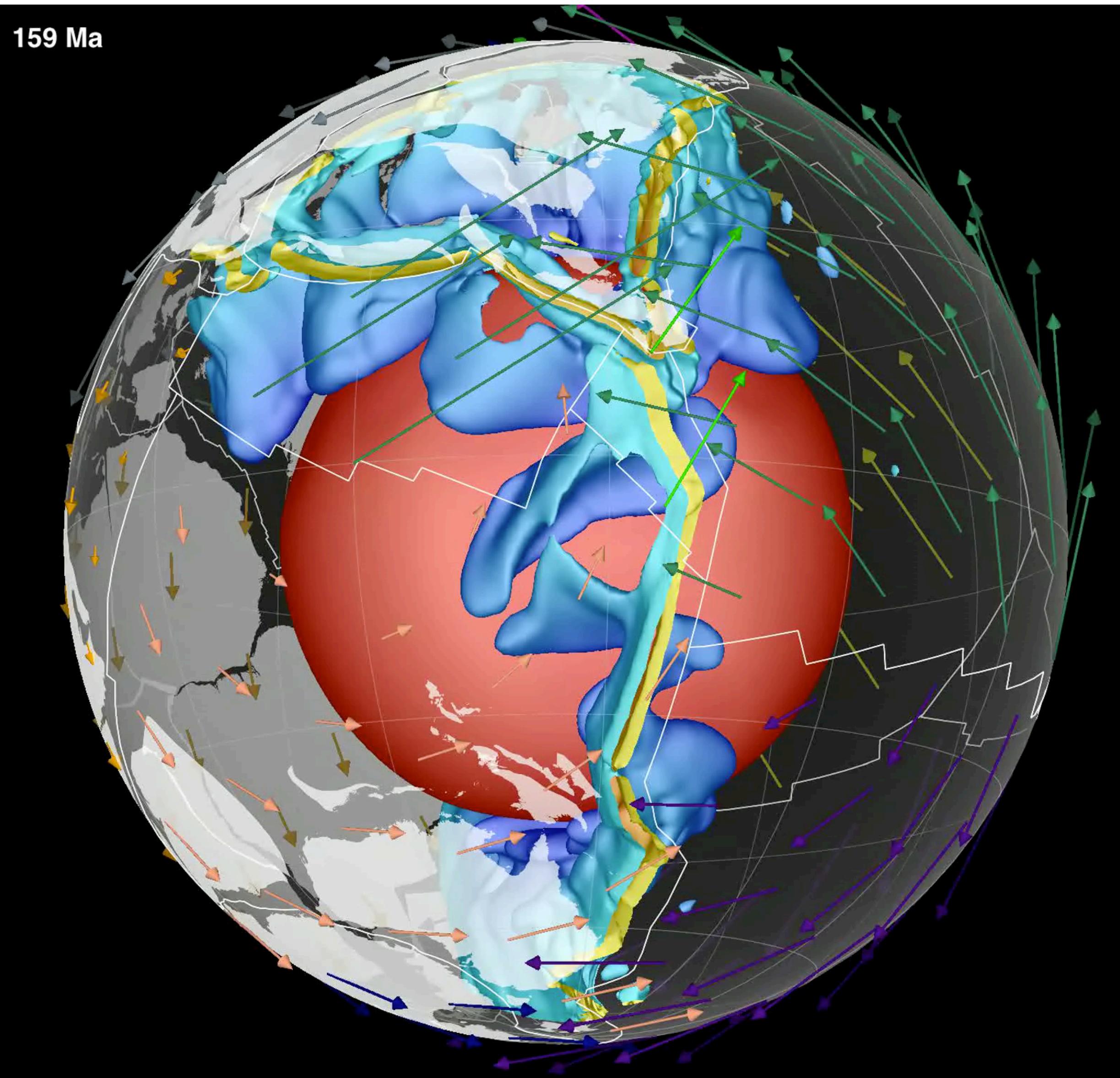
image acquisition

159 Ma



Adding sediment transport to dynamic topography

Formation of Australian continental margin highlands



time-dependent interaction of plate motion with mantle downwellings and upwellings

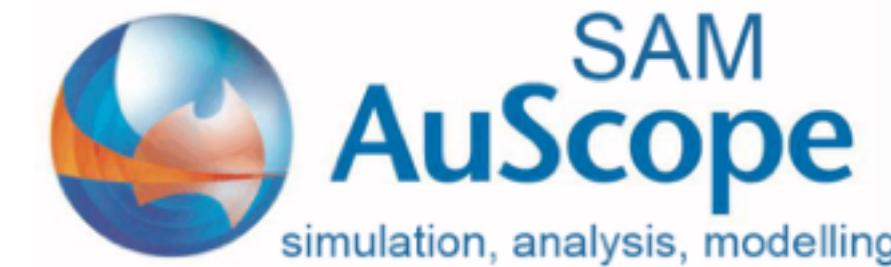


Plate tectonics

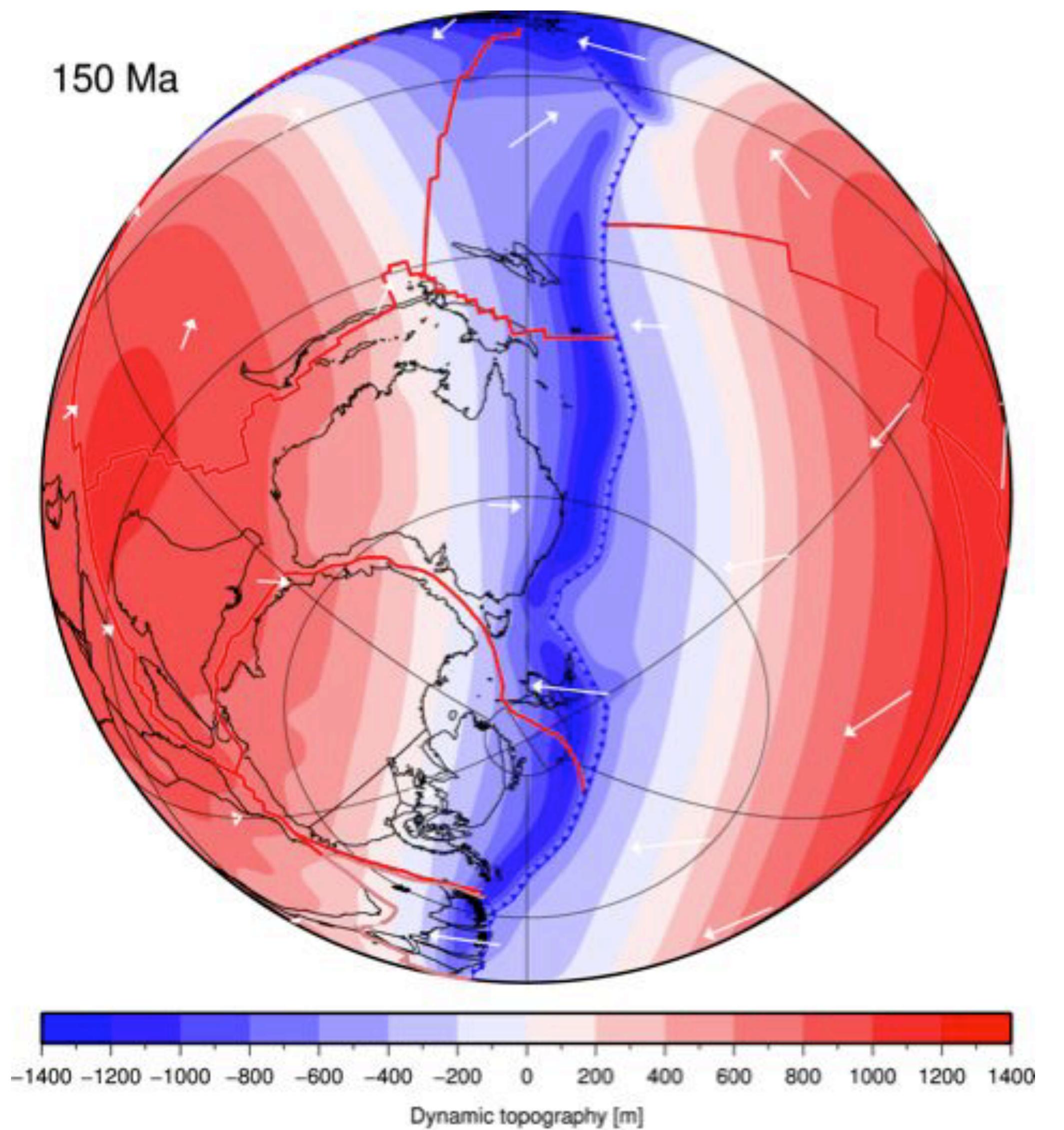


Mantle Convection

broad pattern of margin highlands uplift phases



Adding sediment transport to dynamic topography



- 120-80 Ma: dynamic uplift of 400-600 m driven by eastward motion of eastern Australia's margin away from the sinking eastern Gondwana slab,
- ~60 Ma: tectonic quiescence in the south
- 40-0 Ma: renewed uplift of ~700 m in the Snowy Mountains induced by gradual motion of the margin over the edge of the large Pacific mantle upwelling.
- What effect have these processes had on basin formation and evolution