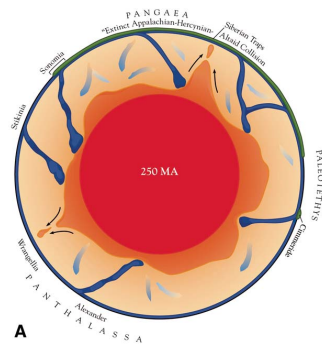


## SSE's FOR MODELING PROCESSES IN THE MANTLE

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**A**  
Schematic cross section of  
Earth 250 million years ago

- ▶ Discontinuous Galerkin Method with Bound Preserving limiters
- ▶ Volume-of-Fluid interface tracking algorithm
- ▶ Active tracer particles
- ▶ First two SSEs are new in the computational mantle convection community
- ▶ New mathematical demonstrations that the particle algorithms converge to the *exact* solution of the Stokes equations
- ▶ All SSEs are implemented in the open-source, community driven code ASPECT