

# Earth Structure, Chemistry, and Dynamics I: The Upper Mantle

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# Sigloch et al. [2008]

- Method: finite-frequency body wave tomography
- Results
  - Multiple fragments of Farallon slab apparent (high vel.)
  - Plumes evident (low velocities)
  - Very low velocities beneath entire Snake River Plain
- Interpretation
  - Farallon slab tears (perhaps multiple times) during westward slab rollback
  - Other slab gaps explained by plumes

# Roth et al. [2008]

- Method: ray-based body wave tomography

## ➤ Results

- JdF slab (high velocities) evident at high resolution
- Several regions of low vel. near magmatic centers
- Columns of high vel. beneath Nevada & Idaho Batholith

## ➤ Interpretation

- “Slab gap” actually artifact of inversion method & data coverage
- Bifurcated JdF slab near Mendocino Triple Junction (slablet? slab tear?)

# Further Discussion

## ➤ Results / Interpretation

- Depth resolution: is it good enough for interpreted structures in each model?
- Are interpretations consistent with geodynamics?
- Are there obvious methodology differences responsible for model differences?
- What are most compelling model similarities?

# Further Discussion

## ➤ Improvements / Future Work

- What is needed to make next advancement in this type of study? More data? More sensors? More method?
- If you take the most trusted part of models (e.g., biggest amplitude, and common to different models), are there geodynamic implications for next thing to happen?
- Were figures good? How could they have improved them?
- General ways to make papers better/more clear?