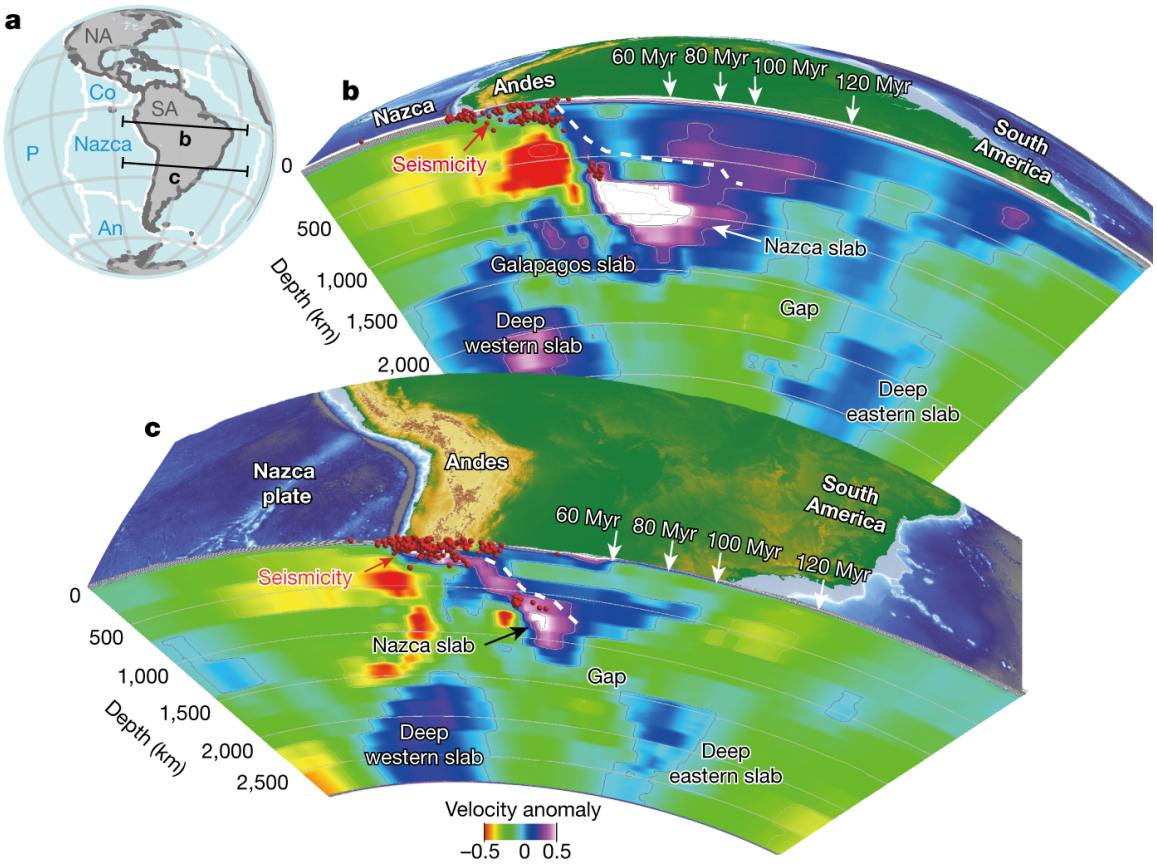
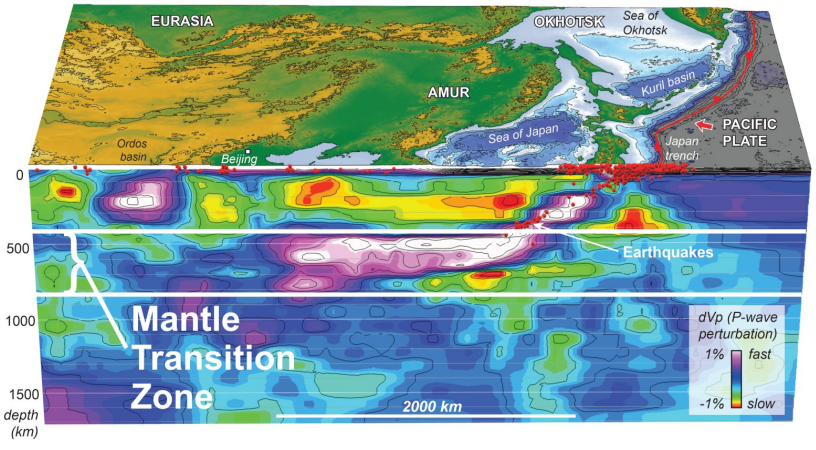


Figure Caption: Seismic tomography of the mantle beneath South America (above), and Japan & the western Pacific (below). The colors correspond to spatial variations in seismic velocity. Positive seismic anomalies (blue-purple-white) indicate regions where seismic waves travel faster that expected, which could be interpreted to be higher density or colder temperature rocks. Negative seismic anomalies (yellow-red) indicate regions where seismic waves travel slower than expected, which could be interpreted to be lower density or warmer temperature rocks.



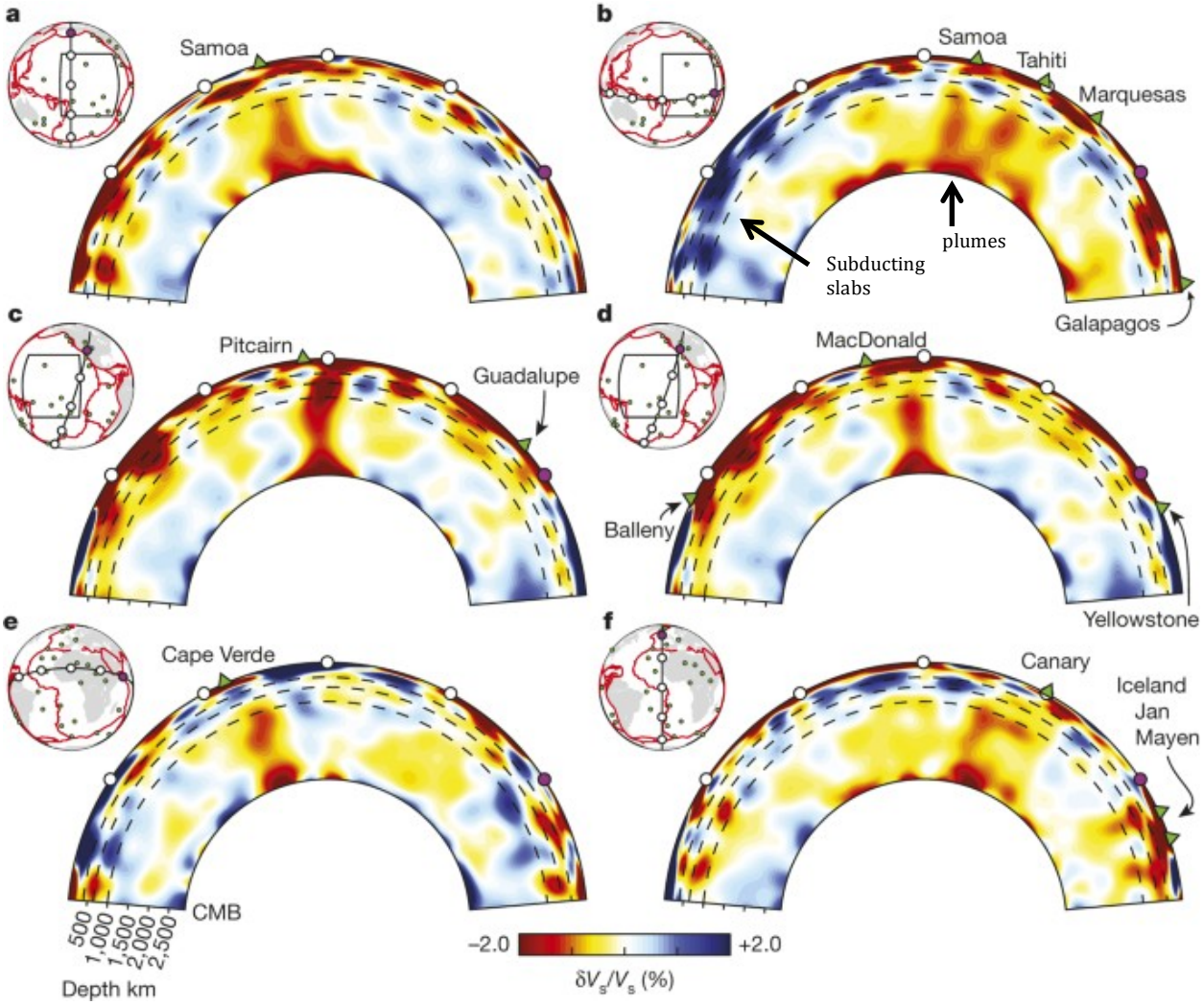


Figure Caption: Seismic tomography of the mantle beneath (a-d) the Pacific plate, and (e-f) the Atlantic Ocean and Africa. Positive seismic anomalies (blue) indicate regions where seismic waves travel faster that expected, which could be interpreted to be higher density or colder temperature rocks. Negative seismic anomalies (red) indicate regions where seismic waves travel slower than expected, which could be interpreted to be lower density or warmer temperature rocks. The spheres in the upper left indicate where the profile cuts through the earth, with the red lines indicate plate boundaries. On the mantle cross-sections, hotspots are indicated by green triangles. The dotted black lines indicate mineral phase transitions in the upper mantle.