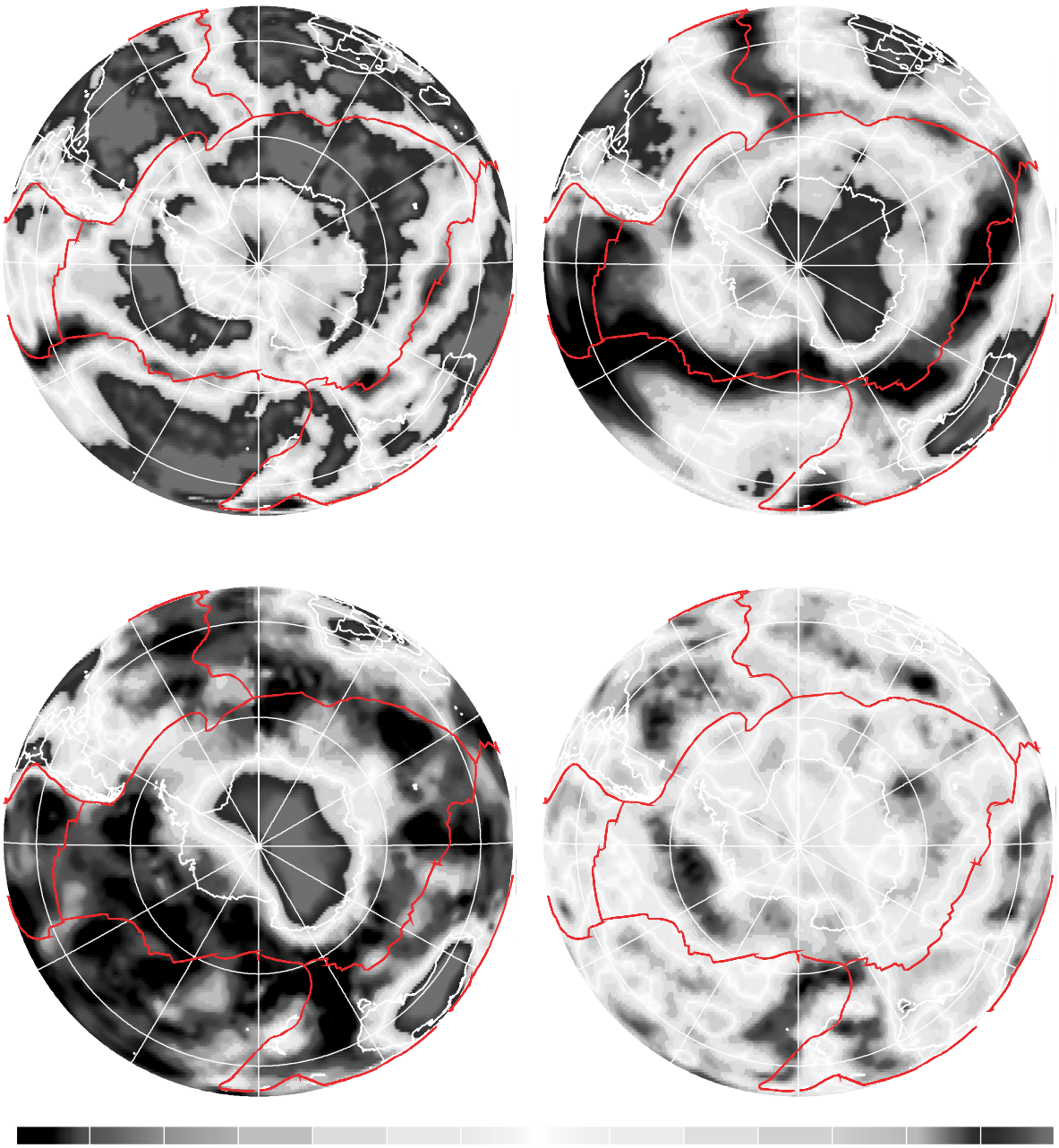

Plate 4. Horizontal slices of the median model at various depths. Isotropic shear velocity ($(v_{sh} + v_{sv})/2$) is percent relative to ak135.

elements under the ridges. In most regions this deep high-velocity anomaly is not a persistent feature of the median model, but it is persistent under some ridge segments such as the seismically very active East Australian–Antarctic Ridge (see Plate 5, slice A-A′). Further study is needed to establish confidence in this feature of the model.

4.4. Australian-Antarctic Discordance

The Australian-Antarctic Discordance (AAD) [*Weissel and Hayes*, 1971, 1974] is a portion of the Southeast Indian Ridge between about 120°E and 128°E characterized by a crenelated ridge pattern and a negative depth anomaly. The AAD is, in fact, the deepest segment of the world's mid-ocean ridge system and marks the boundary between Pacific and Indian type mid-ocean ridge basalts [*Klein et al.*, 1988]. It is believed that the AAD is a boundary between two different mantle provinces, with a magma deficit and thinner crust caused by cold upper mantle compared to adjacent ridge segments. Several models of the cause of the AAD have been proposed including the existence of a stable cold spot [*Hayes*, 1976]; convective downwelling [e.g., *Hayes*, 1988]; passive along-axis flow in response to colder temperatures along the ridge segment [e.g.,