

Figure 4. (a) The location map, labelling the different subduction situations. The age of the Nazca plate at the trench being A: ~ 6 Ma; B: ~ 3 Ma; C: ~ 0 Ma; D: ~ 2 Ma; E: ~ 4 Ma. Here negative values mean that the mid-ocean ridge subducted that many years ago. Profile 7 is also marked on this map for reference as a black solid line. The tectonic features are the same as in Figure 1. (b) P tomography profile 7, annotated with the predicted positions of the top of the subducting Nazca plate segments from the model discussed as horizontal white lines. The scale is the same as for the previous plot, Figure 3.

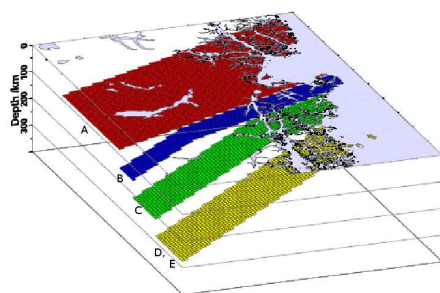


Figure 5. The proposed tectonic model based on the P tomography interpretation. The region is now viewed from the northeast, at an oblique angle. The model shows the different slab segments (shown in different colours) which subduct at an angle of 11° initially before changing to a steeper angle of 40° , however, the position of the 'hinge point' between these two subduction angles varies depending on the age of the subducting slab.

tomographic model compliments the P tomographic model well and is in agreement with the conclusions drawn from the P structure within the limits of the resolution. The S -wave tomography is particularly sensitive to the thermal effects of ridge subduction in this region, and better resolution is necessary to draw definite conclusions about the structure of the mantle due to ridge subduction. A diagram of the slab structure beneath the region based on the P -wave tomography analysis is shown in Figure 5.