

Deep seismic structure beneath volcanic arcs

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The subduction zone system on the Earth is over 40,000 km long. The active processes -brittle deformation, metamorphism, convection and volcanism- beneath volcanic arcs are all linked with slab-derived fluids. Here I review seismological observations in subduction zones and show that a low-velocity zone is observed in the mantle wedge beneath all volcanic arcs. Interestingly, geometries of the low-velocity zone, however, vary depending on the dip and age of the subducting slab. I also present deep crustal structure in NE Japan and discuss how the crustal structure changes along the volcanic front, providing a clue to understand deep origins of arc magmas and ongoing processes beneath volcanic arcs.

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