

Evolution of late Cenozoic NE Honshu island arc and formation of large-scale collapsed calderas

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The changes of the mode of igneous activity correlated with the stress regime controlled by the plate motion, and with the evolutionary stage of arc magmatism. Nearly sixty calderas were formed under a condition of neutral to weak compressional stress field associated with gentle uplift of the Backbone Ranges of late Cenozoic NE Honshu. The formation of these large-scale collapse calderas suggests the emplacements of shallow, felsic magma reservoirs. Focal mechanisms of inland earthquakes and the locations of crustal low-velocity areas are closely related with the distributions of the collapsed calderas, and suggest that present thermal structure in the upper crust of NE Honshu volcanic arc mainly controlled by the Late-Cenozoic caldera-formed felsic plutons.