

Distribution of b-value in the Slab Descending beneath Kyushu District

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Wyss et al.(2001) examined the b-value distribution on the cross section of the Pacific plate, and showed the existence of high b-value area at the depth 140-160km on the upper seismic zone, and at the depth 15-40km beneath the active volcanoes. According to the distribution of the low S-wave velocity connecting two high b-value areas (Iwamori and Zhao, 2000), they suggested the process such as: the dehydration in the descending slab occurs at the depth around 150km, the exsolved water advances the melt of mantle material, the generated magma upwells through the mantle wedge to the magma reservoir beneath the active volcanoes. We performed the similar research for the Philippines Sea plate subducting beneath the Kyushu district (PHS-K). The b-value distribution in PHS-K reveals two high b-value regions, at the depth 60-80km and 140-160km. It is known that a remarkable seismic cluster at the depth 120-180km beneath Kagoshima prefecture. Higher b-value comparing with other region in PHS-K is found on this cluster. According to the low velocity zone through the mantle wedge to the bottom of the active volcanoes, we can conclude the similar process in the Tohoku district is working also in Kyushu, but found some differences.