

Estimate for the thermal structure in subduction zones: comparison between the models with and without the effect of erosion

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We studied the importance of erosion and sedimentation to the estimate for the thermal structure in subduction zones, taking the regions of Hokkaido, northeast Japan and southwest Japan. Taking the effects of erosion and sedimentation into account, we obtain the temperature distribution which is low in the fore arc and high in the back arc. On the other hand, neglecting these effects, we obtain the temperature distribution which is well correlated with elevation. These results are completely different from each other, and the thermal structure which has been considered by many researchers is consistent with the former. It is dangerous to estimate the thermal structure in subduction zones, if the effects of erosion and sedimentation are neglected.