

Why do horizontally shortening sedimentary basins subside?

IIO, Yoshihisa^{1*}

¹DPRI., Kyoto Univ.

It is mysterious that horizontally shortening sedimentary basins subside. In the region shortened horizontally, it is possible that material excess occurs and that the crust becomes thicken. Then, the topography becomes high there. However, the sedimentary basins in Japan, for example, the Niigata and Osaka basins, are subsiding and also shortening. It is difficult to explain these phenomena by thrust faulting, since the amount of uplifts by thrust faulting on the hanging wall side is much smaller than that in the foot wall side. It is plausible that increasing differential stress due to subsidence accelerates horizontal shortening, since the vertical principal stress decreases by the subsidence.

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