# Cause of the horizontal deformation of the Philippine Sea plate subducting beneath southwestern Japan

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The Philippine Sea plate subducting in southwestern Japan shows an interesting feature that it undergoes horizontal deformation after subduction. However, the cause of the significant deformation remain poorly understood. Therefore, this study investigates the horizontal deformation of the Philippine Sea plate in terms of the geometrical interaction with the Pacific plate.

First, we confirm that the observed eastern limit of the Philippine Sea plate beneath Kanto can be well reproduced with the subduction of the Philippine Sea plate onto the Pacific plate at dip angles of 12º down to a depth of 40 km and 40º at greater depths. Next, we apply the method that can expand a deformed plane surface to an undeformed geometry using lattice points assigned on the subducted Philippine Sea plate. Based on the two analyses, we conclude that the deformation of Philippine Sea plate is controlled by the shape of Pacific plate.

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