

Relation between depth of the continental shelf and surface mass loads around the Antarctica

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The depth of the continental margin around the Antarctica has been observed about -500~-900 m depth, and there is the place that reaches -1,000 m in some places. Clearly, the depth of the continental shelf around the Antarctica is very deep in comparison with that of the other continental margins in the world. These characteristics are expected to come from the surface mass loading by Antarctic ice sheet and ocean sediments around the Antarctica. However, very few quantitative evaluations have been reported on the relation between the depth of continental margin and surface mass loads in the Antarctica. In order to know the effect of the ice sheet fluctuation and accumulation of the sediment on the surface elevation change, we need to evaluate the isostatic deformation process due to surface mass loads numerically. In this presentation, we show the quantitative differences of the continental depth between the Antarctica and the other continents, and using the glacial isostatic adjustment (GIA) modelling, we estimate the effects of ice sheet and sediment loads on the depth distribution around the Antarctica.

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