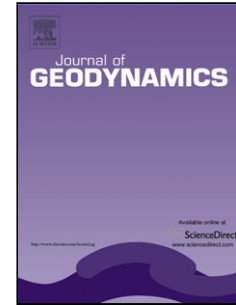


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Crustal architecture of the East Siberian Arctic Shelf and adjacent Arctic Ocean constrained by seismic data and gravity modeling results

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These are the major highlights of our research:

- The Lomonosov Ridge is completely detached from the continental margin.
- We define a new tectonic element, the collapsed Novaya Sibir' Fold Belt.
- De Long Massif continental crust does not extend north of the continental margin.
- North Chukchi Basin is underlain by thin lower continental crust/exhumed mantle.
- Mendeleev Ridge crust resembles crust of typical 'volcanic' intraoceanic ridges.

Abstract

The Eastern Siberian Arctic Shelf (ESAS) represents a geologically complex realm with a tectonic history that is related to the final stages of the formation of the Pangaea supercontinent during the Mesozoic and its subsequent disintegration during the Late Cretaceous and Cenozoic. It is a key region to constrain the origin of the deep-water basins and intervening ridges of the Amerasia Basin. We present results of gravity modeling of published seismic refraction and reflection profiles acquired between 1989 and 2012 over the ESAS and adjacent Arctic Ocean along five composite geotranssects using

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