

# ICAM8 Abstracts

## Arctic Evolution and Plate tectonic models

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### Tectonic model of the Arctic

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The new International Tectonic map of the Arctic was finished in 2018. The work started in 2003, carried out by geological surveys of the Arctic countries, participation of universities, and national academies, under the aegis of the UNESCO CGMW. The map is based on over 35,000 km of refraction and DSS lines, analyses of bottom samples from central Arctic highs and geological mapping of Arctic areas.

One of the main achievements of this work was the creation of a modern plate tectonic model of the Arctic. It shows that the present-day tectonic structure of the region is controlled by interaction of three lithospheric plates: two continental (North American and Eurasian) and one oceanic (Pacific). The young Arctic Ocean developing along Gakkel Ridge, the Nansen and Amundsen Basins is early Cenozoic to present in age.

The Amerasian and Eurasian basins, margins of the North American and Eurasian plates, document intraplate modern tectonic processes. It is confirmed by intraplate trap magmatism, continental and transitional types of the crust of the Alpha-Mendeleev and Lomonosov Ridges, and their close structural ties with the shallow shelf. The sedimentary cover reaches >10-12 km thickness in the Canadian basin, the Podvodnikov and Makarov basins, typical of deep intraplate sedimentary basins, such as the South Barents or Caspian basins.

The Pacific oceanic plate descends under the North American and Eurasian plates leading to active continental margins. The seismicity delineating the boundaries of modern lithospheric plates indicates these modern tectonic processes.