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## New insights into tectonics and evolution of the Amerasia Basin

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### ABSTRACT

Two alternative tectonic models for the formation of the Amerasia Basin are presented. The models provide a series of paleoreconstructions based on comprehensive analysis of bathymetry, gravity, and magnetic fields of the Arctic region, combined with available seismic survey and geological data. The two equally probable alternatives for the kinematics behind the early stage formation of the proto-Canada Basin, rely on three alternative age models for the timing of the tectonic events. The first two models date the opening of the central, oceanic part of the Canada Basin to before or after ~124 Ma. The third model considers that the formation of the entire basin, including the lateral parts, occurred after ~125 Ma.

Six possible plate kinematic models have been developed by combining the three age models with the two series of the paleoreconstructions; i.e. two “older” kinematic models (1A and 1B) and four “younger” ones (2A, 2B, 3A, and 3B). The preferred option is the “older” models, which suggests that the first stage of the Canada Basin formation took place in the Jurassic – Berriasian, and that the central oceanic part of the Basin was developed in Valanginian (?) – Barremian. This concurs with the active phase of the final stage of the Arctida craton breakup and the main phase of the High Arctic Igneous Province emplacement.

Large sinistral strike-slip, i.e. the Alpha-Chukchi and Alpha-Mendeleev fracture zones, as well as an inferred dextral Podvodnikov-Mendeleev fracture zone, were developed during the

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