



## **Developing a new synthesis of Arctic Ocean tectonics**

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Tectonic models for the Mesozoic opening of the Amerasia Basin are dominated by the "windshield wiper" model, first articulated by Sam Carey in 1958. This theory was developed in the context of an expanding earth paradigm for global tectonics. While the expanding earth theory has been rejected, this zombie hypothesis for the development of the Amerasia Basin lingers on.

Most models for the development of the Mesozoic Arctic Ocean work from the large scale down, assuming the overall pattern for the tectonic development of the Amerasia Basin is effectively described by a scissors-like opening, a separation of northern Alaska and Siberia from the conjugate margin of northern Canada, rotating apart around a pivot in the Mackenzie Delta. The problem for these models is how to resolve the space problems caused by the ridges that subdivide the basin. The most prominent of these being the Chukchi Borderland, a large block of extended continental crust, which projects out northward into the basin from the continental shelf north of the Bering Strait.

A new approach can be based on first understanding the features in the basin and their inter-relationships, then using that knowledge to infer the larger scale basin tectonics, building a tectonic model from local observations. This approach will be discussed in the light of new results from recent studies in the Amerasia Basin and plans for future activities.