Cordilleran terrane collage

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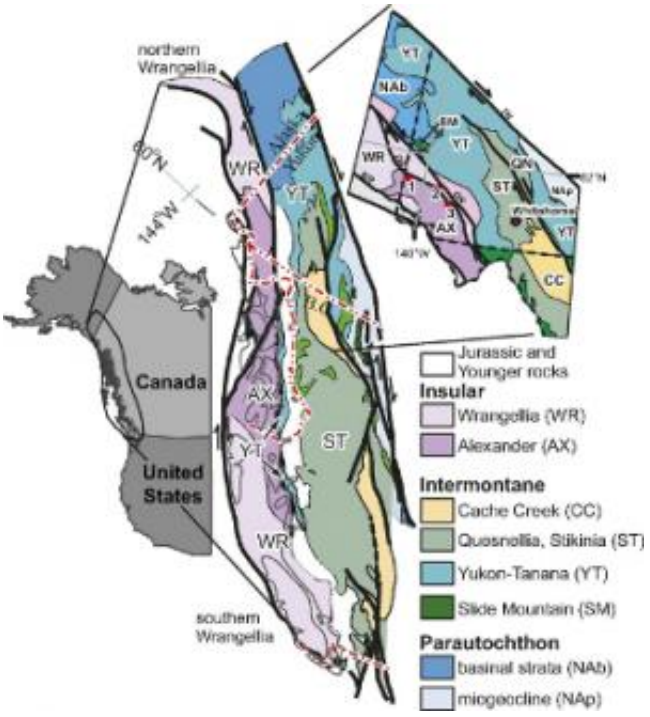

A Cordilleran terrane collage from S. Israel et al., August 2014. Credit: Steve Israel and colleagues, Aug. 2014 issue of *Lithosphere*.

In the August 2014 issue of *Lithosphere*, Steve Israel of the Yukon Geological Survey and colleagues provide conclusions regarding the North American Cordillera that they say "are provocative in that they blur the definition of tectonic terranes, showing that many observations of early geologists can be attributed to evolving geologic processes rather than disparate geologic histories."

Western North America is characterized by the Cordilleran accretionary mountain belt, which has seen episodic plate convergence since the early Paleozoic, about 253 million years ago. Israel and colleagues write that this long-lived accretionary history of the northern Cordillera has resulted in a "collage of terranes" and overlap assemblages that seemingly have quite disparate geologic histories.

Early geologic research in the North American Cordillera identified several tectonic terranes that were considered to be fundamentally different from one another based upon lithologic and age characteristics. Many of these terranes were thought to have traveled great distances before separately accreting to the ancient North American margin.

Two of the largest terranes, the Alexander terrane and Wrangellia, found along western British Columbia, southwest Yukon, and eastern Alaska, have long been considered to be exotic to each other and to North America. However, in their investigation of relationship between Wrangellia and the Alexander terrane, Israel and colleagues have found evidence that suggests that the two terranes have shared a history since the Latest Devonian (about 364 million years ago), and that portions of Wrangellia are built upon a basement composed of the Alexander terrane.

Israel and colleagues note that this conclusion would see the collage transformed into a more coherent picture with geologic ties between terranes that were previously thought of as complete separate entities. They conclude that this view of terranes adheres to the more traditional ideas of possible links between Laurentia and the accreted terranes with a few seemingly truly exotic pieces caught up in the collage.

More information: New ties between the Alexander terrane and Wrangellia and implications for North America Cordilleran evolution Steve Israel et al., Yukon Geological Survey, P.O. Box 2703(K-14),

Whitehorse, Yukon, Y1A 2C6, Canada. August 2014 issue; online at http://dx.doi.org/10.1130/L364.1.