



Metamorphic core complexes and the legacy of fixism vs. mobilism debate

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First proposed in the late 1970s, the field-based concept of 'metamorphic core complexes' (MCCs) fundamentally changed our understanding of lithosphere extension. Even though MCCs have been identified in a variety of geodynamic settings around the world, the concept's application remains controversial in many cases. To fully appreciate MCCs in modern geodynamic research, it is important to understand the historical context of the development of the concept.

This presentation explores the scientific history of the concept of MCCs in relation to the fixism vs. mobilism debate. The question whether tectonic movements on Earth occur predominantly vertical (fixism) or horizontal (mobilism) represents one of the great controversies in the history of the earth sciences. I will introduce the historic context that explains why the fixism vs. mobilism debate was not resolved until the acceptance of continental drift and plate tectonics in the late 1960s. Examples from geologic research in different parts of the North Atlantic Caledonides offer insights into the evolution of historic and modern tectonic concepts. I will examine how the change from fixism to mobilism interfered with the successive development of new ideas and eventually allowed the discovery of extensional detachments and associated MCCs in the North American Cordillera. This presentation discusses the influence of fixist as well as mobilist ideas on the development of the concept of MCCs and its role in geodynamic research until today.