Continued juvenile arc accretion: Narsajuaq, Pembine-Wausau; Wopmay orogen; Southeast thrusting along Snowbird tectonic zone

1.86-1.84 Ga
1.3-0.95 Ga

Grenville orogen: Granitoids intrude juvenile belts as far west as Colorado

(Whitmeyer and Karlstrom, 2007)
4D Earth Initiative
A Community Geologic/Tectonic Model
The Vision

We envision a new interdisciplinary 4D-Earth Initiative as a natural successor to the very successful EarthScope program, aimed at

(1) expanding the primarily 3-dimensional geophysical focus that captured a snapshot of present day North America into the 4th dimension of time, and

(2) Illuminating the crustal component that was below the resolution of much of the USArray image.

Like EarthScope, this initiative will integrate new infrastructure and new science. The overarching scientific motivation is to develop a Community Geologic Model for the 4-D Evolution of the North American continent.

The goal is to unravel how and why the continent evolved to the current state and to firmly answer long-standing questions of how the time-integrated processes of plate tectonics and surface processes produce the crustal structures we see today.

This effort will bring to fruition one of the original goals of the EarthScope program, to build a 4-dimensional image of the continent, and will also usher in a new way of conducting Earth science research.