



## High-resolution stable carbon isotope record of the Permian to earliest Triassic from East Greenland

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The Late Permian and Early Triassic organic carbon isotope records show global major excursions probably triggered by episodic volcanic degassing of the Siberian Large Igneous Province. Important and rapid fluctuations of the global carbon cycle are also reflected in the biosphere. The geological record seems to comprise several major floral and marine faunal turnovers indicating short-lived biotic recoveries. In northwest Pangea, the active Early Triassic Greenland – Norway rifting system led to the accommodation of thick sedimentary sequences. This basin has a great potential for detailed studies of regional and global biotic and climatic changes with high temporal resolution during this critical interval in Earth's history. The western part of this basin is exposed in north-eastern Greenland and is represented by a succession of deltaic sediments organized in a general regressive trend ranging throughout the Griesbachian and the onset of the Dienerian. On the eastern side of the basin the succession has been drilled off the Norwegian coast. On Hold with Hope (East Greenland, 74°N) up to ca. 800m thick sections of the ammonoid-bearing Early Triassic Wordie Creek Formation have been logged and sampled. Here we present a high-resolution organic carbon isotope record and preliminary palynofacies data of a 500m thick composite section ranging from the Permian into the earliest Triassic. The organic carbon isotope record is closely comparable to the coeval section from the Trøndelag platform in Mid-Norway. The two records show a first major negative shift (ca. -6‰ representing the unconformity between the Ravnefjeld and the Wordie Creek formations, regionally known as the lithological Permian-Triassic boundary. Higher up, a second negative shift of ca. -4‰ correlates with the carbon shift associated with the GSSP Permian-Triassic boundary as defined at Meishan (China), represented by carbon isotope values around -30‰. This negative shift is followed by a steady positive trend, which is interrupted by two striking events, (a) a positive shift reaching values of ca. -22‰ comparable to the values of the Permian Ravnefjeld Formation, and (b) another negative shift of ca. -7‰ bringing the carbon record back to values around -31‰. Our data from north-eastern Greenland indicate multiple and major events recorded by the carbon cycle within less than a million years at the onset of the Triassic.