

## Graptolite Extinction at the Llandovery-Wenlock Boundary

M.J. Melchin<sup>1</sup>

Graptolites are diverse and well-documented through the Late Llandovery (Telychian) and Early Wenlock (Sheinwoodian) of the Canadian Arctic Islands, British Isles and Lithuania. Published data allow the subdivision of this time interval into 14 zones and subzones, eight in the Telychian, six in the Sheinwoodian, that are correlatable between the three regions. These areas show comparable species diversities through most of this time interval.

Combined graptolite range data through this time interval reveal that survivorship rates from one zone to the next are between 56 and 85%. The only exception is the Llandovery-Wenlock boundary, in which only 19% of the taxa of the upper *sakmaricus/crenulata* Zone (8 of 42) survive into the *centrifugus* Zone.

Global sea level curves for this interval show a very high eustatic sea level stand in the late Telychian dropping rapidly to a low stand in the earliest Sheinwoodian, followed by a transgression. This has been attributed by some authors to continuing fluctuation of glacial activity in Gondwana during this time interval. The high rate of graptolite extinction that accompanies these sea level changes, as with the Ashgill graptolite extinction, may be attributed to changing oceanic temperatures, circulation patterns, oxygenation and/or productivity associated with the onset of a glacial maximum event.

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<sup>1</sup> Dept.of Geol., St. Francis Xavier Univ., POB 5000, Antigonish, Nova Scotia, B2G 1C0, Canada.

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Autor(en)/Author(s): Melchin M. J.

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