



Cyclo and chemostratigraphic characteristics of the Middle Silurian in Gotland, Sweden

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The cumulative work of geoscientists over the past decades has shown that the Silurian Period which was once thought as warm and climatically stable time interval is in fact punctuated by numerous paleoenvironmental perturbations or events. These Silurian events follow a similar pattern where a minor extinction event precedes a substantial carbon isotope excursion. Many theories have been brought forward to explain these events ranging from glaciations, to changes in precipitations patterns, ocean currents and ocean anoxia. Constraints on the duration and timing of these extinction events and subsequent positive carbon isotope excursions are weak, which hampers a full understanding of the processes at play.

The data from the Altajme core from Gotland, Sweden provides us with a unique opportunity to look at two of these climatic perturbations during the Silurian. The Altajme core spans both the Sheinwoodian Ireviken event and the Homerian Mulde event. The Altajme core dataset includes a litholog, high-resolution $\delta^{13}\text{C}$ data, correlated bentonites with U-Pb dates and a high-resolution XRF core scan: important data required for and integrated stratigraphic study. The U-Pb-dated bentonites give us age constraints. The $\delta^{13}\text{C}$ data in combination with the high resolution XRF scan gives us insights into the changes in the ocean before during and after the events, while the XRF is also used to build cyclostratigraphic age constraints for the events and for the whole core. This stratigraphic study will provide us with a palaeoclimatological insights to explain these two events and provide us with a cyclostratigraphy based age model for the Middle Silurian.