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DISSERTATION TITLE: *Stratigraphy and Depositional Environments of the Boreal and Tethyan Early Carnian (Triassic) – Evidenced by Palynology and Geochemistry*

Geokjemiske dataanalyser av pollen og sporer fra Spitsbergen og Østerrike, gir informasjon om avsetningsmiljø, lateral korrelasjon av stratigrafiske lag og klimaforhold av triasiske profiler. I trias var Spitsbergen en del av et deltasystem mens Østerrike befant seg på en grunn kontinentalsokkel. Analysene viser at klimaet i trias i hovedsak var tørt og kun avbrutt av korte perioder med økt fuktighet.

Rocks from the Triassic period record evidence for global changes in depositional environments and climate. The relatively drier climate of the Late Triassic was interrupted by a short period to more humid conditions during the Carnian (approx. 230 million years ago). This phase has been documented from Central Europe but data from the north are scarce. This PhD project describes the depositional environment and the paleoclimate of two areas. The Svalbard Archipelago located at the northern rim of the former continent Pangaea and central Austria which was located further to the south.

For Spitsbergen a study of sedimentary organic matter indicates an overall regressive depositional setting. Integration of different stratigraphic methods reveals their age and several bioevents were used to correlate the sections with sections from other studies. The reconstruction of the paleoclimate indicates that the initially drier climate changed to a period with more humidity. Further to the south in Austria, increased precipitation, due to a change in climate, resulted in a lithological change from carbonates to sandstones and back to carbonate sedimentation. Reconstruction of the paleoclimate shows a change from drier to wetter climatic conditions followed by a return to a dry climate.

The sections from Austria show some degree of similarity to the ones from Spitsbergen. However, due to deposition at a different paleolatitude they represent deposits from different climatic zones. Some palynomorphs from Spitsbergen are of a different age in Austria. This suggests that some plants may have migrated due to changing temperature and availability of water.

This project contributes to our understanding of the Triassic depositional setting, the lateral correlation and climate variations from Spitsbergen and Austria. This will help our understanding of past conditions during a time of widespread global change.