Stratigraphy and palaeoenvironment of early Jurassic volcaniclastic strata at Djupadalsmölla, central Scania, Sweden

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The youngest magmatic rocks in Sweden can be found in the southern most province of Skåne, in an area called the Central Skåne Volcanic Province (CSVP). Here, roughly 200 basaltic outcrops are known as well as 3 volcaniclastic outcrops. The largest and best exposed volcaniclastic deposit can be found along the southern bank of the Rönne river, at Djupadalsmölla. In this study the only known drill core (KBH2) through these volcaniclastics were studied to gain a better understanding of the stratigraphy, depositional processes, time of deposition and the paleoenvironment in the area during deposition.

Conclusions

- The 20 m thick volcaniclastic deposit is comprises of a massive calcite cemented lapilli tuff replaced by swelling clay minerals.
- The deposit could be formed either from a pyroclastic flow or by a lahar.
- The emplacement took place in the late Pliensbachian (ca 183Ma).
- The area was in a lagoon or protected bay with both marine and lacustrine influences with a warm and humid climate .
- A thick forest cover dominated by swamp cypresses, other conifers, ginkgoes, and seed ferns spread out in the sky while the ground was covered by a thick understory and ground cover, both with different kinds of ferns.

Figure 1. Interpretation of the area around Djupadalsmölla in the early Jurassic with a lahar as the depositional process for the volcaniclastics.

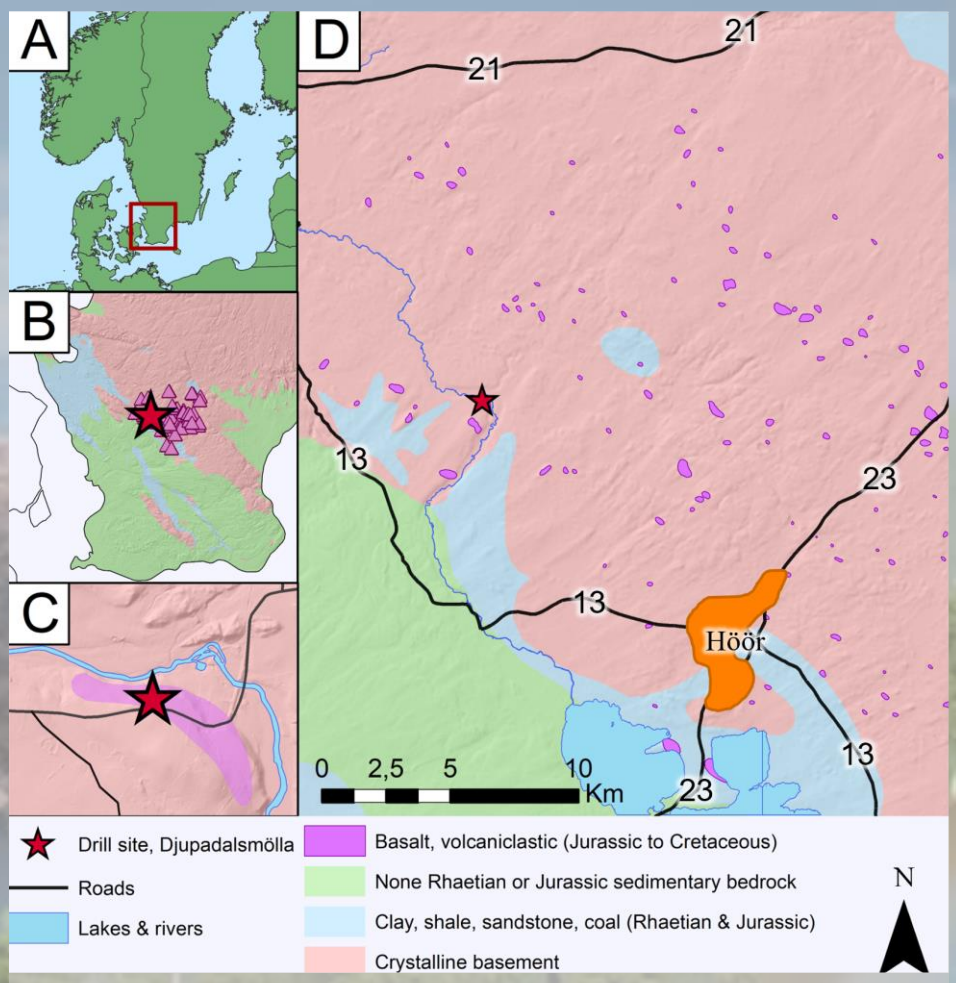

Figure 2. A) Map of Sweden showing the area of **B. B**) Geological map of Skåne overlain a height model. The red star marks the coring location, Djupadalsmölla, while the purple triangles represents the volcanic rocks in the CSVP. **C**) Geological map of Djupadalsmölla and the drill site. **D**) Close up of larger parts of the CSVP showing most of the volcanic outcrops, main roads and larger city of Höör.

The succession in the drill core is composed of a 6.3m unit of wheatear gneiss at the bottom, followed by a 0.3m unit of mudstone and lastly a 19.5m unit of volcaniclastics. The mudstone and volcaniclastics could be corelate to be of the same age, namely late Pliensbachian which were obtained from palynology studies of the mudstone.

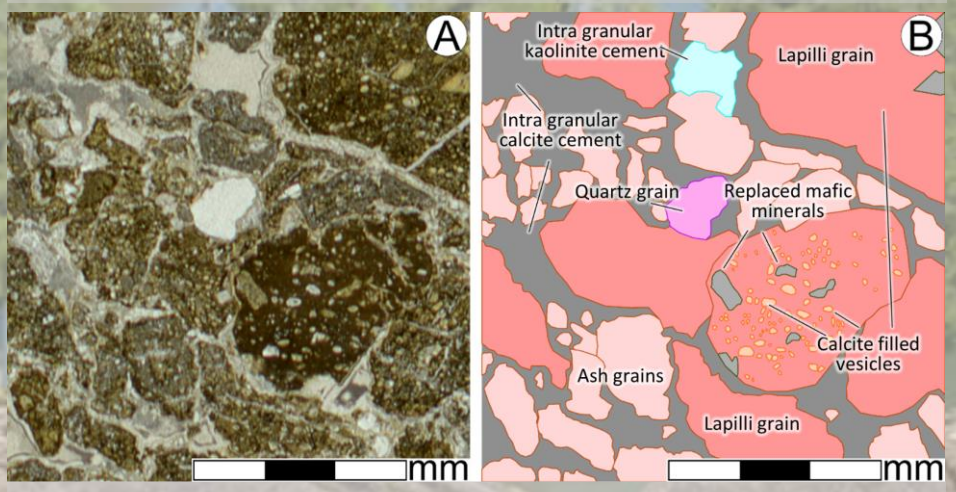

Figure 1. Example of volcaniclastic texture from one of the best-preserved parts of the core. **A** shows the colour of the thinsection in plane polarized light while **B** is a schematic picture with explanations.

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