EGU21-10046
https://doi.org/10.5194/egusphere-egu21-10046
EGU General Assembly 2021

Digitization of the multi-compositional Storkwitz carbonatite diatreme (Delitzsch Complex, Germany)

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The Storkwitz diatreme is a multiphase composite body within the Late Cretaceous Delitzsch Complex in north-western Saxony, Germany. The lithology of the Delitzsch Complex varies from rauhaugite and fenite aureole to ultramafic and alkaline lamprophyric intrusions (dykes, sills and pipe-shaped bodies) accompanied by the formation of diatremes of variable composition (Krüger et al., 2013; Röllig et al., 1990). The final stages are represented by beforsite and alvikite dykes (Röllig et al., 1990). The multi-component nature of the Storkwitz diatreme can be attributed to the formation of polymict breccias and numerous injections of compositionally varied carbonatites (Gevorgyan et al., 2020; Seifert et al., 2000).

The entire area was extensively explored through an intensive drilling campaign by the *SDAG Wismut* between 1972 and 1989, due to a locally increased REE content. For a better understanding of the development of the diatreme, detailed petrographical observations and new imaging methods on extensive drill core material were applied. The combination of microscopic images and high-resolution 2D-images allows to create 3D-models of drill core sections via photogrammetry. Identifying the components (xenoliths and intraclasts) and analyzing the pattern of their distribution in the 3D-models of drill cores will enable obtaining textural information of the minerals within the rocks.

Further investigations using Hyperspectral Imaging (HIS) for chemical information, to be carried out in cooperation with the *Institute for Mine Surveying and Geodesy, TU Bergakademie Freiberg*, combined with mineralogical information and 3D-models, will provide new insights into the shape and geometry of the diatreme body.

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