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SEM viewing of gypsiferous material and study of their influence on electrical resistivity

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ABSTRACT: The gypsum rich material is often linked to the cavity formation due to the high solubility of calcium carbonate in the presence of acidic media. This work is dedicated to a close-up look to the structure of materials rich of gypsum and material of less or traces of sulfate ions. Electrical resistivity measurements were conducted along extended lines on sections involving cavities and the resulting profiles were examined for any changes. Forms and features of gypsum and minerals containing sulfates were studied and compared to samples tested using SEM (scanning electron microscope). The chemical analyses (EDAX) using electron beam was carried out and the elements present within these samples were established. Quantitative chemical testing for some parameters including sulfate ions was carried out. Structural forms variation and changes are studied in view of the chemical composition. The electrical resistivity was measured using Syscal R1 electerical resis-tivity equipment for several spots near surface. Statistical correlations between sulfate ions content and elec-trical resistivity, for near surface soils, is presented. This study is aiming at utilizing the geophysical testing methods of sulfate rich soils and predicting future cavity formation in areas of high risk to cavities due to chemical weathering.