

## PERFORMANCE AND EFFICIENCY OF SONAR SURVEYS IN NON-HALITE SALT CAVERNS

Andreas Reitze<sup>1)2)</sup> and Frank Hasselkus<sup>1)</sup>

<sup>1)</sup> SOCON Sonar Control Kavernenvermessung GmbH, Giesen, Germany

<sup>2)</sup> SOCON Sonar Well Services, Inc., Conroe, Texas, USA

### Abstract

The echometric surveillance of caverns is especially important with regards to their safe and effective operation. In brine production caverns sonar surveys are primarily employed to obtain proof of the cavern development and to guarantee an optimal extraction of the product. Sonar survey results represent the basis for a repeated update of the leaching simulation.

Applying the state-of-the-art sonar technology it is possible during an echometric survey to measure and process the geometry as well as the relevant parameters such as speed of sound, pressure and temperature with a single tool run.

In the first instance of the presentation the physical basics and the techniques used for surveying caverns are described in general with focusing on the surveying of non-halite salt caverns. Having this in mind specific characteristics of cavern shape development and the consequences for the execution and interpretation of sonar surveys in non-halite salt caverns will be elucidated. Subsequently some interesting results of individual sonar surveys in potash-caverns are presented.

**Key words:** Cavern Mapping (Sonar), Geophysics, Potash