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Introducing a Revolutionary Method of Prospecting for Salt

ATS Electro-Seismic Mapping of Salt Deposits of Swiss Salines at Riburg, Switzerland

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In March 2016, ATS Group approached Salt Partners with a proposal to test the ATS electro-seismic technology over some known salt deposits. The ATS electro-seismic technology facilitates mapping of geological structures, determination of their hydro-geological properties and 3D modelling of the results.

Salt Partners are active in the field of salt production and processing. It includes consultancy concerning feasibility of exploitation of salt and brine deposits. This requires drilling and core sampling, but the number of boreholes can be reduced if the extent of the deposit is determined, for example, by seismic exploration. If the ATS electro-seismic method would be faster, more precise and cheaper, Salt Partners would adopt it for their future work.

In April 2016, Salt Partners approached Swiss Salines with the request to permit electro-seismic mapping of the salt deposit located to the north of the Riburg saltworks. The ATS electro-seismic mapping was performed on 22.6.16 by Yannick Schauwecker and Vladimir M. Sedivy of Salt Partners. Erica Sedivy was shooting pictures. The required equipment consisted of a GPS camera, 250 mm diameter metal plate, 2 metal electrodes, stereo recorder and a sledge hammer. 30 mapping points in 3 lines along field roads were selected for the test. Along the roads, the mapping points were approx. 70 m apart. The lines were approx. 100 m apart. The GPS and stereo recordings were sent to ATS Group for evaluation. Their report, including a 3D model of the surveyed site, was issued on 30.6.16. Information available from Swiss Salines concerning the known salt deposit profiles and qualities was then incorporated into the model. Substantial amount of work was then carried out concerning the seismic velocities and their correlation with salt physical and chemical properties. Anomalies observed at some mapping points were explained considering the influence of underground pipelines and cables, pumping station and overhead power lines crossing the mapped field. The final report was issued on 12.10.17.

The ATS electro-seismic mapping method presented in this paper can determine the location of the salt layer and its profile with an accuracy of about +/- one or two meters or so. Accurate interpretation of the results is possible when correlated with drilling logs and core samples obtained from the investigated geological formation. In addition, detailed information concerning the formations overlying the salt deposit, such as porosity and water content, is made available for planning of the productive boreholes. The ATS electro-seismic mapping method can be employed to depths exceeding 5’000 meters. However, the accuracy of such application remains yet to be tested.

The ATS electro-seismic mapping method is a revolutionary advancement in prospecting for salt. It is fast, accurate and substantially more economic than conventional drilling and seismic explorations. Salt Partners are pleased to announce the availability of ATS electro-seismic mapping method for commercial applications.

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