

Development of the Petro-Sonde

Since its first introduction in 1984, the Petro-Sonde has passed through many stages of development. The overall advancement of technology along with the aggressive in-house R&D efforts in the past decade is credited with this profound development of the Petro-Sonde.

In the early days data acquisition and data processing were done simultaneously in the field. Since there was no available method of data recording the data was processed as it was being acquired. In the field the operator (a geologist trained in telluric signal interpretation) would listen to the signal being generated by the Petro-Sonde while scanning through the different depths and would record his observations on paper. The observations were documented in a format similar to that of a downhole log for purposes of correlation. To conduct a telluric survey the operator had to travel to the location of interest and conduct the survey from station to station until the survey was completed.

Since the actual signal was never recorded, once the survey was completed it was not possible to modify the survey, review a different window, or simply re-analyze a given station. Having to send an operator to every survey location and sometimes more than once to recheck a station significantly added to the cost of the survey and its timely execution.

Today, the operator no longer has to go to the field at all, as a "recording module" has been developed that can be operated by the client. The client simply uses our recording module to make a recording of the telluric signal at the stations of interest and then sends the digital tapes to Geophysics International (GI) for analysis. The recorded telluric signal contains and preserves the lithologic information from surface to basement for each location. At any time a different vertical window from the same location can be investigated by simply analyzing a different component of the recorded signal. It is no longer necessary to repeat the field procedure unless a new location needs to be investigated. This eliminated field and travel expenses and added extreme flexibility to our telluric survey.

Our R&D efforts for data processing and interpretation have also been very fruitful. Over the last 10 years, experience with thousands of surveys has allowed us to uncover some subtle details in the telluric signal that has important lithologic meaning which was simply overlooked in the past. The incorporation of the subtle details in the telluric signal into our data interpretation and processing phases allowed for a more accurate and consistent lithologic interpretation.

Our R&D efforts have also been successful in signal enhancement through improvements to the receiver design. Since the signal quality was improved, fine changes in the signal are now detectable which allow for a more detailed and a more precise interpretation of the lithology. The receiver design has also allowed for more consistent signal quality regardless of the orientation of the recording module.

In short, our successful efforts in the past decade have allowed us to improve the quality of the final product while lowering the costs to the customers through our improved efficiency. While we are very proud of the many Petro-Sonde developments over the past decade our aggressive R&D efforts will continue to allow us to triumph over the challenges of tomorrow.