



ROCK SOLID IMAGES

+ CUSTOMER PROFILE

Rock Solid Images is an independent geoscience consulting firm offering quantitative reservoir characterization with the goal of reducing exploration drilling risk and optimizing reservoir appraisal and development plans. They are the leader in the integration of seismic data with well log, electromagnetic and other data, having performed rock physics modeling on more than 3,000 wells and applied seismic data analysis on hundreds of thousands of square kilometers in 2D and 3D seismic data.

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Lucy MacGregor
RSI Chief Technology Officer

RESTRUCTURED CODE STREAMLINES THE MODELING OF ELECTROMAGNETIC DATA

The Challenge

Rock Solid Images’ geophysical modeling capability includes a library for 3D controlled source electromagnetic (CSEM) simulations, originally developed at the University of Utah. Like many scientific algorithm research projects the library was developed in MATLAB®. Rock Solid Images faced the challenge of converting this research project into a practical commercial solution they could use in-house. “We required a fast, efficient and stable application that would integrate seamlessly with our existing geophysical software platforms,” said Lucy MacGregor, Chief Technology Officer at Rock Solid Images.

The Solution

Rock Solid Images turned to Acceleware to convert their multi-language 3D CSEM library to a single code base that improved the performance, usability and stability of the application. The Acceleware services team replaced the MATLAB® code with FORTRAN-90 allowing for direct integration into Rock Solid Images’ existing software platform. The FORTRAN code was then re-factored and modularized to professional software standards. The new code was tested for accuracy and performance and memory benchmarks were provided for specified architectures and hardware configurations.

The Impact

The integrated FORTRAN-90 library enabled Rock Solid Images to target cluster hardware as well as internal workstations. Written to professional software standards, the new code halved the base calculation time, providing shorter run times and enabling larger and more complex models to be processed. The single code base increased the readability of the code making it easier to maintain and add future features and advancements. “The improved code efficiency has allowed Rock Solid Images to complete modeling projects significantly faster than was previously possible. Modeling considerably larger and more complex earth models is also now tractable,” said Lucy MacGregor.

CUSTOMER BENEFITS

- + Enhanced performance and stability
- + Improved usability with direct integration into existing software platform
- + Reduced data processing time
- + Increased the maximum simulation size

ABOUT ACCELEWARE

Acceleware develops high performance software products for the Oil and Gas industry. As experts in programming for multi-core CPUs and massively parallel GPUs, Acceleware’s professional services team specializes in accelerating computationally intense applications for clients to speed up product design, analyze data and help make better business decisions.

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