**Magma™**

Unlike other SDK and software development tools found in the oil and gas industry, Magma™ contains unique features that allow E&P and service companies to focus on their workflows and algorithms rather than ancillary problems related to software development. These unique features include viewers for any type of data, robust 3D structural frameworks and a geocellular grid builder, as well as the ability to read and write directly to and from all common industry databases including Petrel and OpenWorks.

The first application for Magma™ SDK is FracPredictor™, a solution developed for Fracgeo, The Woodlands, USA. FracPredictor™ is the first and only 3G software platform facilitating the complete integration of Geology, Geophysics and Geomechanics (3G) to solve GeoEngineering problems common in unconventional reservoirs.

**FracPredictor™** focuses on the estimation, throughout the reservoir volume, of stress gradients and subsurface properties acting sweet spots, landing zone, hydraulic fracturing and SRV development. The stress gradient simulation is driven by the modeled rock geomechanical properties, pore pressure, and natural fractures, and their interaction with regional stress before and during hydraulic fracture stimulation. The fracture geomechanical simulator uses new and fast continuum mechanics based computational tools integrating geoscience and engineering in a way that has not been done before, allowing engineers to quantitatively adapt hydraulic fracture treatments based on varying reservoir properties to achieve the optimal stimulation which accounts for spatially variable stress gradients.

Well downspacing workflows to mitigate the risk of well interference or frac hits include geomechanically constrained reservoir simulation to calculate depletion of modeled parent wells and the impact on the frac propagation during the child well stimulation to ensure optimum number of wells per section and ROI. Updates during drilling based on geomechanical logs, fracture index and pore pressure calculated from surface drilling data using MSE corrected for friction losses ensures staying in the planned landing zone and most fracable rock.