

Though the last few years have been a difficult period for the Oil and Gas industry, Magnitude remains committed to providing our customers with the most accurate and dependable microseismic solutions available.

While many of our competitors have reduced their staff to only a bare minimum of operations, we have continued to invest in research and development resulting in significant advances in our technology.

In this September 2016 newsletter, I am excited to present our latest technology updates. As always, Magnitude will stay focused on product improvement and providing our clients with the best service in the industry.



Sincerely,



Fernando Lopez  
President, Magnitude

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Dear Valued Client:

Accurate microseismic event locations are the foundation of any interpretation and useful integration with other data. The more accurate the event locations, the more confident you can be that your interpretation is correct. At Magnitude, we constantly strive to improve this cornerstone, and devote much of our efforts to achieving the best location accuracy in the industry.

Microseismic event records contain a great deal of information: p-wave arrivals, s-wave arrivals, s-wave splitting (in cases of high anisotropy), reflected arrivals, headwave (evanescent) arrivals, etc. Most microseismic providers locate events using only two arrivals; p and s, headwave(s) or some permutation of two of these. Magnitude is proud to be the first in the industry to use all relevant arrival information to compute event locations. By utilizing p, sV, sH, reflected, direct and refracted arrivals, we can greatly improve overall location accuracy.

As always, our location algorithm combines both a 3C migration and time-picking. By integrating both methods, we offer superior QC to a migration alone, and a more constrained solution space to increase the migration accuracy.

VTI velocity models are also the standard in every project here at Magnitude. In high-anisotropy areas, the sH and sV splitting is used not only for more accurate event location, but also to refine our VTI velocity model. An anisotropic model can be crucial to event location accuracy in area of high anisotropy; including many of the unconventional shale plays in North and South America.

Finally, Magnitude launched Intellifrac – VSP-Enhanced Microseismic™ in 2015 as a way to increase accuracy of microseismic processing, and provide another proxy for fracturing effects that can be correlated with the microseismic event data. Today, we are proud to say that every microseismic job we do includes the Intellifrac™ service at no additional cost to our clients. The entry-level IntelliFrac™ service integrates a zero-offset VSP with microseismic; which results in better real-time results, increased location accuracy, and more realistic event magnitude calculations. For the most advanced projects, we offer Intellifrac Premier; which combines a 4D-VSP and microseismic monitoring to provide all of the above, plus a time-lapse 3D seismic volume, and a cellular grid of fracture density around the well which can be correlated with microseismic event data for enhanced interpretation of what the microseismicity actually means.

If you want to know more about our new technologies, we will be happy to schedule an in-house presentation at your convenience to show you first-hand our latest developments.

Sincerely,

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