

Lightning analysis – A remote imaging exploration tool

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New geophysical data types trigger a step change in new revenues and cost avoidance for natural-resource exploration companies. Synergies accompanying integration of multiple data types historically generates new opportunities and higher profits. The NSEM (Natural Sourced Electromagnetic Method) integrates a new non-seismic geophysical technique with seismic, well, and production data. NSEM is a passive geophysical approach, based on datamining lightning databases (Nelson, et al, 2013). Because lightning occurs virtually everywhere. The lightning detection sensors can be 500 miles away from a strike location, which is a new type of remote imaging. Instead of satellite or plane imagery, or setting out electrical sources and receivers, attributes from thousands-to-millions of triangulated lightning strikes are “stacked” and evaluated. NSEM technology can be integrated into multi-disciplinary frameworks for geophysical and geological studies in natural-resource exploration environments worldwide (Denham, et al, 2013). Lightning analysis over an Arizona copper mine, a South Utah exploration project with seismic controlled interpretation, and a North Nevada mining opportunity, each in areas with significant topographic changes, will be presented.