

## **Impact of Independent Simultaneous Source (ISS) Survey in Arctic Alaska**

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### **ABSTRACT**

Independent Simultaneous Sources (ISS) was deployed in the Arctic for the first time in order to achieve a step change in data quality by acquiring high trace density, broadband, vibroseis data. Data quality, noise, HSE, and productivity issues were analyzed in an effort to more efficiently deliver the data in fewer days than previous surveys. Data acquisition faces numerous challenges including a short operating season bounded by tundra closure, ice thickness, extreme weather conditions and darkness. Additionally, legacy data has been challenged with issues such as wind noise, cultural noise in a major oil field and flex wave on floating ice. The ISS method combined with autonomous node recording technology offered operational advantages delivering an order of magnitude increase in trace density and source productivity (over 11,000 VPs on the best day). This efficiency improvement translated to less HSE exposure hours and allowed us to complete the survey in fewer days during the short operating season. Additionally, improved imaging was required to resolve structures and position faults with less uncertainty for future well placement. This acquisition method provided data that produce a significant uplift in imaging quality, attributes, S/N ratio, delivered broadband reflectivity and ability to build a more accurate velocity model. In addition to the operational advantages, we will show examples of the uplift and impact the data has had on business delivery and discuss the overall improvement in data quality.