

High Resolution Aeromagnetic Surveying

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Historically aeromagnetic data was regarded as an early-phase regional exploration tool limited to the identification of prospective areas worthy of further more expensive geophysical techniques. Some 15 years ago it became apparent that acquiring data on a closely sampled grid, an approach already established in the mining industry, could benefit hydrocarbon exploration. Termed “high-resolution” data, this provided not only the traditional benefits in early exploration but could also be of benefit later in the exploration cycle by integration with seismic and well data to constrain interpretations at a prospect level.

This paper reviews the developments over this period in the acquisition and processing of aeromagnetic data and, by comparing such data with more regional marine surveys, shows the uplift obtained. Examples of the use of the data from locations worldwide are also presented. These include a case study from the Faroes-Shetland Basin where aeromagnetic data acquired to help in the understanding of what was then a frontier area is now being used with seismic data to help identify sub-basalt sediments.