
Adaptive Subtraction of Multiples: a Case History from the Middle East

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In this case study, examples are shown of the application of data-driven multiple removal techniques to land data sets from the Middle East. Typically, these data are characterized by the presence of severe noise, high-amplitude free-surface multiples & internal reverberations, and weak primaries. This paper will shed light on some of the practical aspects of applying these data-driven multiple removal techniques. In particular, the pre-conditioning of data is discussed, as well as how existing methodologies can be modified to subtract the predicted multiples from the data optimally while preserving weak primaries. Also, the role of forward modelling and QC & QA, procedures are discussed. Prestack or poststack modelling is used to identify the key internal boundaries that generate the multiples. By using reflectors present in the data, predicted multiples are compared to the multiples present in the data to verify their contribution to the multiple problem. Using this information, interbed multiple removal can be optimized to predict internal multiples effectively and efficiently. Finally, the paper discusses how QC tools can be used in production processing to ensure that only multiples are removed from the data while preserving the weak primaries.
