

## **Algorithm and implementation optimisation of a new internal multiple removal method**

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The Marchenko method can remove internal multiples from seismic data without any prior knowledge. This method is computational intensive. Optimisation of the implementation, together with changes in the algorithm and use of the method, makes it computationally feasible. We briefly introduce the problem of internal multiples and explain the basic algorithm.

Starting from this basic algorithm changes are proposed on three different levels:

The compute kernel can be optimised by using loop reordering, and the use of highly optimised DGEMM operations.

The algorithm can be made faster by using results from previous iterations in the current iteration.

By using plane-waves instead of point-sources initial results can be obtained at lower computational costs.

Examples illustrate the effectiveness of the multiple elimination method and the computational advantages.

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