

determine a plurality of transfer functions that convert the plurality of predicted direct arrival signals to the particular predicted direct arrival signal;

apply the plurality of transfer functions to a respective plurality of measurements received at the plurality of seismic receivers to estimate a plurality of direct arrival
5 signals at the particular location; and

average the plurality of direct arrival signals as a single estimated direct arrival signal at the particular location.

16. The medium of claim 15, wherein the instructions to determine the
10 plurality of predicted direct arrival signals include instructions to adjust at least one of:

an assumed distance between the seismic source and one of the plurality of seismic receivers; and

an assumed distance between the seismic source and a sea surface; to reduce a difference between one of the plurality of predicted direct arrival signals and a
15 corresponding one of the plurality of measurements.

17. The medium of claim 15, wherein the instructions to determine the notional source signatures comprise instructions to determine the notional source signatures based on a near-field measurement of the seismic source.

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18. The medium of claim 15, wherein the instructions to determine the notional source signatures comprise instructions to determine the notional source signatures based on modeled notional source signatures.

19. The medium of claim 15, wherein the particular location is directly under the seismic source.

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20. The medium of claim 15, wherein the seismic source comprises a source array associated with one of the group including a narrow-azimuth geometry survey, a
30 multi-azimuth geometry survey, and a wide-azimuth geometry survey.