

1 **Content**

2 This Supplement material includes three figures complementing the main manuscript. Figure S1
3 shows the manual traveltime picks on all five OBS/OBH stations and all three acquisition circles.
4 Figure S2 shows the uncertainties associated with fitting the cosine function and Figure S3 shows the
5 uncertainties related to the location of the OBS/OBH on the seafloor.

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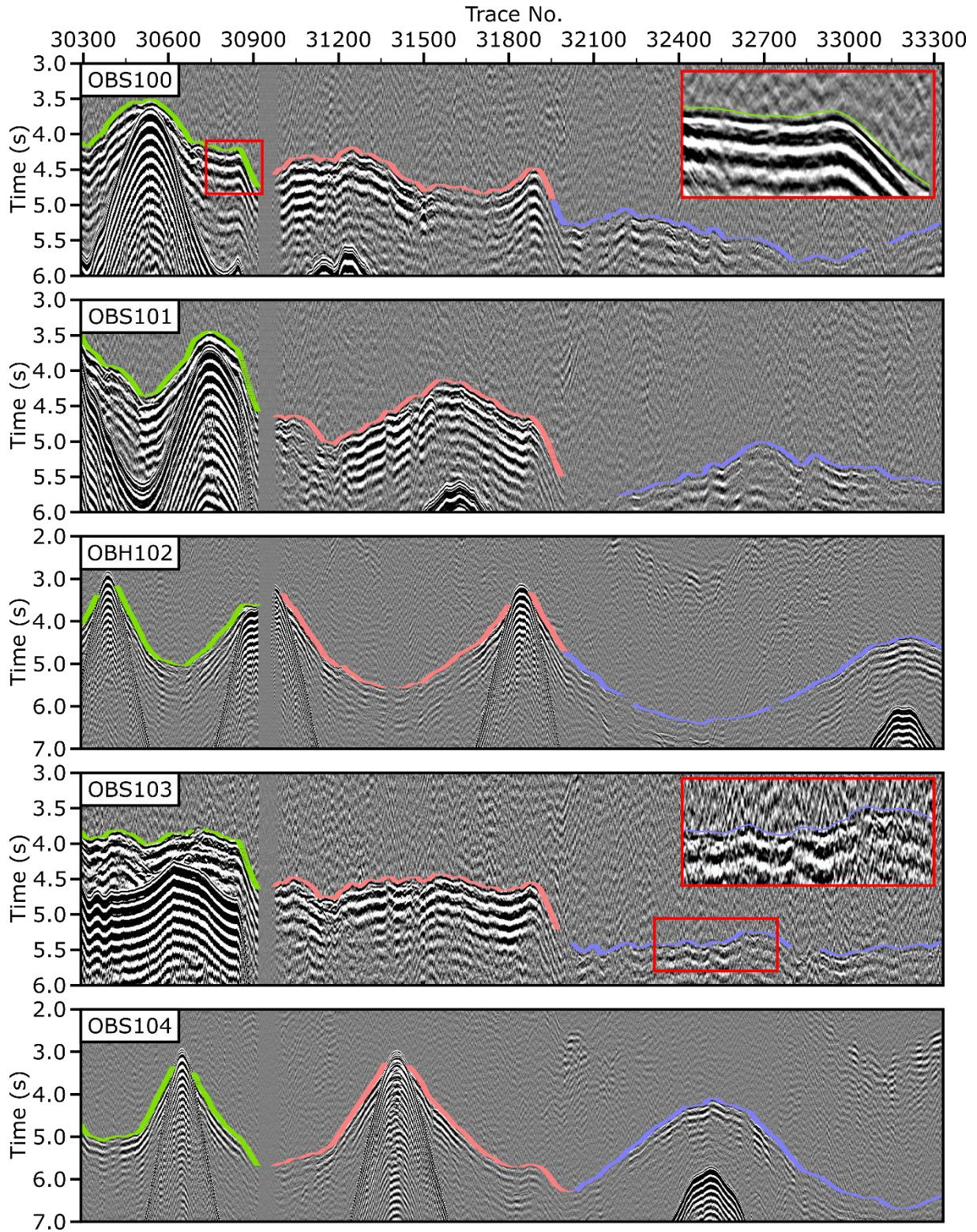


Figure S1: Seismic records of all stations with crustal refracted traveltime picks (Pg-picks). The colors represent the three acquisition circles. They are differentiated for visualization purposes only, with no effect on the forward modeling. OBS100 and OBS103 show close-ups of the first-arrival phase for the small and large acquisition circle, respectively.

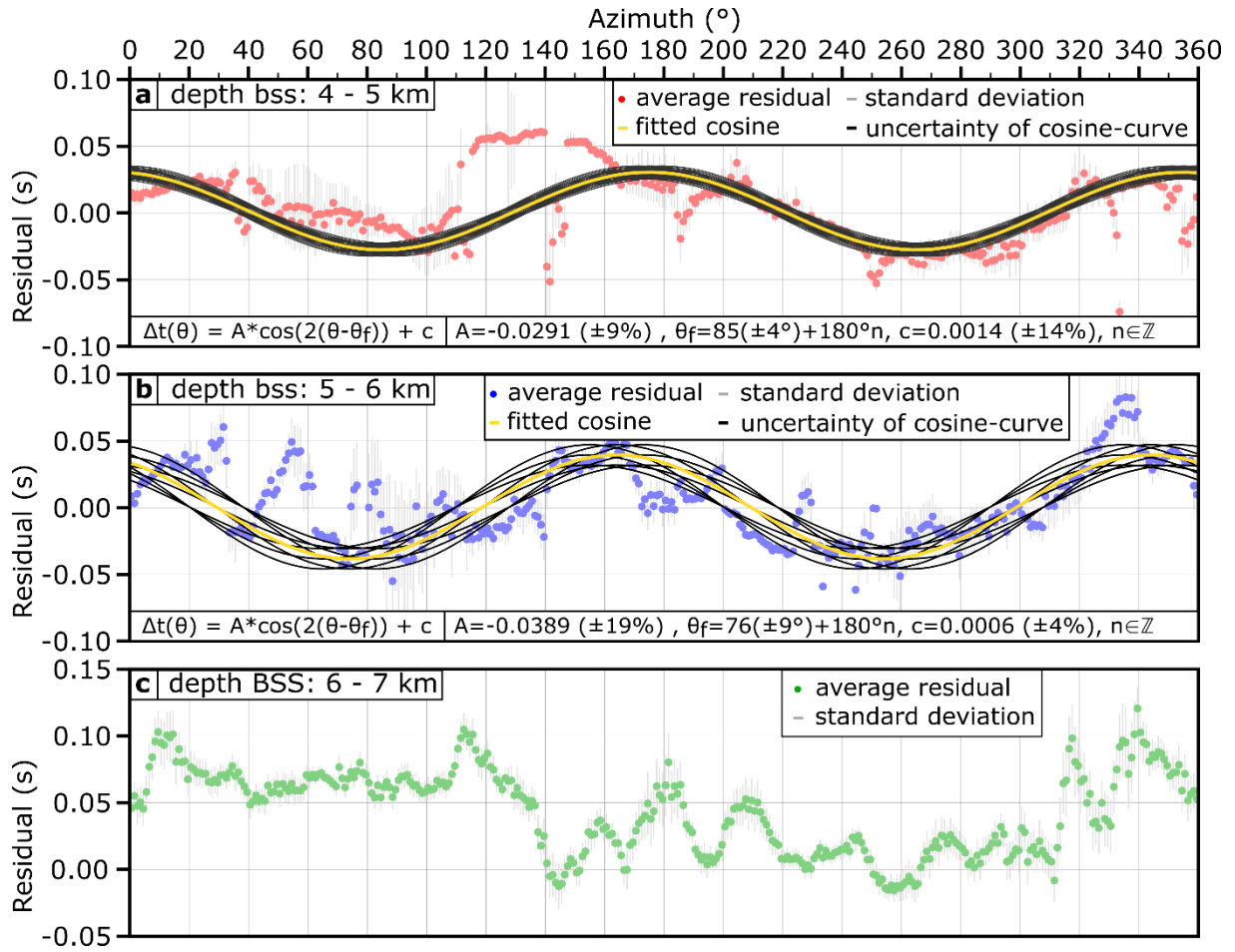


Figure S2: Averaged traveltime residuals for OBS100, OBS101, OBH102, OBS103 and OBS104 for all depth intervals as well as the fitted cosine curves and their uncertainties for the shallowest and intermediate depth intervals. The black curves give the range of possible cosine curves with respect to the individual uncertainties for each parameter. The gray lines denote the standard deviation for each averaged residual.

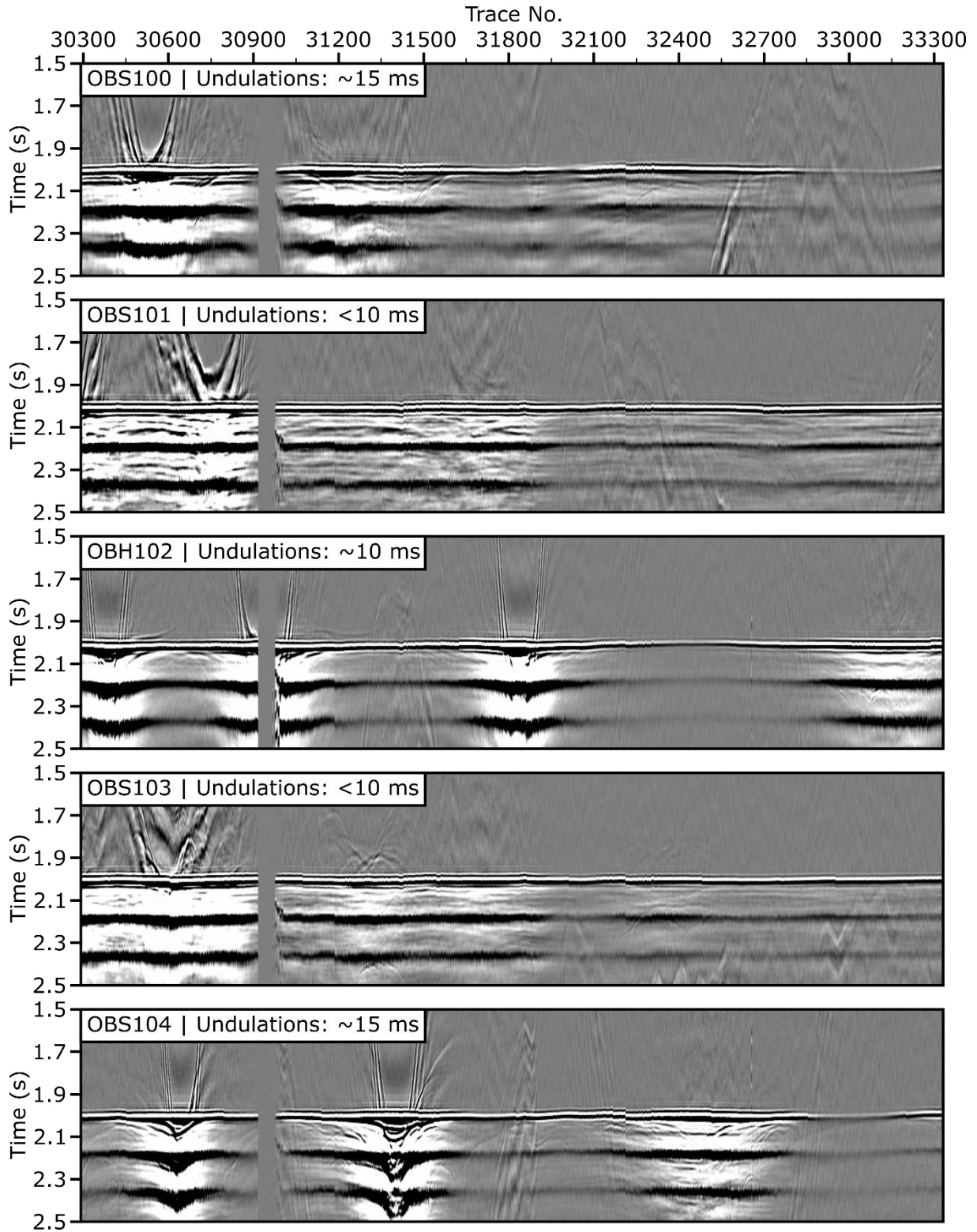


Figure S3: Seismic records of all stations with applied water wave correction. Undulations indicate inaccurate OBS/OBH position or depth.