**Appendix A. Supplementary data**

*Acquisition and Processing of the seismic data*

The seismic data used in this study are from three cruises between 2006 and 2019 (Sigurdsson et al., 2006; Hübscher et al., 2006; Karstens et al., 2020). Single-channel seismic data were acquired in 2006 during the THERA project on RV Aegaeo. As the seismic source, a G-pulser was used with a volume of 10 in3. The general processing comprised simple bandpass filtering (15-500 Hz), de-spiking, predictive deconvolution for the suppression of a strong bubble signal, and spherical divergence correction. In order to migrate the data, we binned the shot points into a regular spacing of 10 m. After migration, we applied a top-mute and white-noise removal. The vertical resolution of these data can be approximated to 8-15 m (using the λ/4- or λ/2-approximation) within Unit 4 (v=1900 m/s).

For the cruise POS338 with RV Poseidon, a GI-pulser was used and operated in true GI mode with a primary (Generator) volume of 45 in3 and a secondary (Injector) volume of 105 in3. Using a 600 m analog streamer with 24 Channels, we defined a CMP-spacing of 12.5 m. Processing of these data comprised trace-editing, simple frequency filtering (10-500 Hz), suppression of a receiver-ghost signal by predictive deconvolution, surface-related multiple elimination as well as spherical divergence correction, pre-stack time migration followed by top-muting and white-noise removal. These data have a main frequency of 60 Hz indicating a vertical resolution of approx. 8-15 m within Unit 4.

During the most recent cruise POS538 in 2019, we acquired seismic data with a much higher lateral resolution (CMP spacing of ~1.56 m). As a seismic source, we used a GI-pulser that was operated in harmonic mode with primary and secondary volumes of 45 in3. Seismic energy was recorded by multiple concatenated Geometrics GeoEel streamer segments, resulting in active streamer sections ranging from 190 m to 250 m in length. Processing comprised trace-editing, simple frequency filtering (15-1500 Hz), and multiple suppression by means of surface-related multiple elimination (SRME). This was followed by spherical divergence correction, time-variant frequency filtering, pre-stack time migration, top-muting, and white-noise removal. With a main frequency of 125 Hz, the vertical resolution can be approximated to approx. 4-8 m within Unit 4.