Figure F1. Site map, Expedition 386. Bathymetric overview map of the Japan Trench (modified after Kioka et al., 2019) between the Daiichi Seamount in the south and the Erimo Seamount in the north.

Figure F2. Sites M0092 and M0095. Left: high-resolution bathymetric map with 5 m contours, site locations, and track lines and locations of previously acquired high-resolution subbottom profiles and short cores during the site survey cruise (Strasser et al., 2019). Right: site survey subbottom profiles showing depths (assuming 1500 m/s *P*-wave velocities) of the 20 and 40 m GPC barrels used to recover cores. Exact hole positions and depths are given in Table T1, Hydroacoustics, and Table T1 in the Expedition 386 methods chapter (Strasser et al., 2023a). SP = shotpoint.

Figure F3. Bathymetry and grid of subbottom profiler lines acquired around Sites M0092 and M0095 in Basin S2. Contour interval = 5 m.

Figure F4. Trench-perpendicular Line 386-Underway_100, the northernmost line of the survey, showing the acoustic character of Basin 2. SP = shotpoint.

Figure F5. Trench-perpendicular Line 386-Underway_099, in the central part of the basin, showing the acoustic character of Basin S2. SP = shotpoint.

Figure F6. Trench-perpendicular Line 386-Underway_097, the southernmost line of the survey, showing the acoustic character of Basin S2. SP = shotpoint.

Figure F7. Subbottom profiles around Site M0092.

Figure F8. Trench-parallel Line 386_Underway_096, which intersects Site M0092, showing the acoustic character at that site. SP = shotpoint.

Figure F9. Subbottom profiles around Site M0095.

Figure F10. Trench-perpendicular Line 386_Underway_101, which lies close to Site M0095, showing the acoustic character at that site. SP = shotpoint.

Figure F11. Trench-perpendicular Line 386_Underway_098, which intersects Site M0095, showing the acoustic character at that site. SP = shotpoint.

Figure F12. Lithostratigraphic summaries, Holes M0092A and M0092B. XCT = X-ray CT, VCD = visual core description, MS = magnetic susceptibility, cps = counts per second. (Continued on next page.)

Figure F13. Ternary diagrams of texture, Site M0092.

Figure F14. Ternary diagram of major components, Site M0095.

Figure F15. Smear slide summaries, Holes M0092A and M0092B. The most abundant lithogenics (clay, quartz, feldspar, and pyrite) are in a brown color gradient, the volcaniclastics/vitrics are pink, and the biogenics are in a blue gradient for the siliceous biogenics (diatoms, sponge spicules, and radiolaria) and are green for the calcareous microfossils. See legend in Figure F14 in the Expedition 386 methods chapter (Strasser et al., 2023a). XCT = X-ray CT, VCD = visual core description. (Continued on next page.)

Figure F16. Examples of sedimentary facies, Hole M0092B. Images are adjusted for contrast and color.

Figure F17. Lithostratigraphic summaries, Holes M0092C and M0092D. XCT = X-ray CT, VCD = visual core description, MS = magnetic susceptibility, cps = counts per second. (Continued on next page.)

Figure F18. Smear slide summaries, Holes M0092C and M0092D. The most abundant lithogenics (clay, quartz, feldspar, and pyrite) are in a brown color gradient, the volcaniclastics/vitrics are pink, and the biogenics are in a blue gradient for the siliceous biogenics (diatoms, sponge spicules, and radiolaria) and are green for the calcareous microfossils. See legend in Figure F14 in the Expedition 386 methods chapter (Strasser et al., 2023a). XCT = X-ray CT, VCD = visual core description. (Continued on next page.)

Figure F19. Lithostratigraphic summaries, Holes M0095A and M0095B. XCT = X-ray CT, VCD = visual core description, MS = magnetic susceptibility, cps = counts per second. (Continued on next page.)

Figure F20. Smear slide summaries, Holes M0095A and M0095B. The most abundant lithogenics (clay, quartz, feldspar, and pyrite) are in a brown color gradient, the volcaniclastics/vitrics are pink, and the biogenics are in a blue gradient for the siliceous biogenics (diatoms, sponge spicules, and radiolaria) and are green for the calcareous microfossils. See legend in Figure F14 in the Expedition 386 methods chapter (Strasser et al., 2023a). XCT = X-ray CT, VCD = visual core description. (Continued on next page.)

Figure F21. Carbonate nodule. Image is adjusted for contrast and color.

Figure F22. Core photo of Tephra M0092D-1H-28, 63.5 cm (brackets) in Basin S2 (386-M0092D-1H-28, 63–63.5 cm).

Figure F23. Smear slide of Tephra M0092D-1H-28, 63.5 cm (386-M0092D-1H-28, 63 cm).

Figure F24. Abundance of radiolarian species *L. setosa*, *C. davisiana,* and the *Tetrapyle* group, Holes M0092D and M0095B. See Micropaleontology in the Expedition 386 methods chapter (Strasser et al., 2023a) for explanations of radiolarian zonation and events.

Figure F25. IW salinity, total alkalinity, and ammonium concentrations, Site M0092.

Figure F26. IW salinity, total alkalinity, and ammonium concentrations, Site M0095.

Figure F27. IW V, Mo, and U concentrations, Site M0092.

Figure F28. IW V, Mo, and U concentrations, Site M0095.

Figure F29. IW Li, B, Si, Mn, Fe, Sr, and Ba concentrations, Site M0092.

Figure F30. IW Li, B, Si, Mn, Fe, Sr, and Ba concentrations, Site M0095.

Figure F31. IW Cl^-, Br^-, and SO_4^{2-} concentrations, Site M0092.

Figure F32. IW Cl^-, Br^-, and SO_4^{2-} concentrations, Site M0095.

Figure F33. Methane, ethane, and methane to ethane (C_1/C_2) ratio from Hole M0092D and one trigger core sample in Hole M0092C (red diamonds).

Figure F34. Methane, ethane, and methane to ethane (C_1/C_2) ratio from Hole M0095B and one trigger core sample in Hole M0095A (red diamonds).

Figure F35. Solid-phase XRF contents of Al, Ca, Si, Fe, and Mn, Site M0092. Open symbols = trigger core samples.

Figure F36. Solid-phase XRF contents of Al, Ca, Si, Fe, and Mn, Site M0095. Open symbols = trigger core samples.

Figure F37. Solid-phase contents of TC, TOC, TIC, and TS, Site M0092.

Figure F38. Solid-phase contents of TC, TOC, TIC, and TS, Site M0095.

Figure F39. Physical properties summary, Holes M0092A (orange) and M0092B (black). Bulk density: curves = MSCL, red dots = MAD. *P*-wave velocity: curves = MSCL, blue dots = laboratory-derived data with error bars of ± 50 m/s. Undrained shear strength measurements are from the penetrometer. cps = counts per second.

Figure F40. Physical properties summary, Holes M0092C (orange) and M0092D (black). Bulk density: curves = MSCL, red dots = MAD. *P*-wave velocity: curves = MSCL, blue dots = laboratory-derived data with error bars of ± 50 m/s.