**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 M0083 and M0089. 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 profile lines acquired around Sites M0083 and M0089 in Basin C2. Contour interval = 5 m.

**Figure F4.** Trench-perpendicular Line 386-Underway_076, showing the acoustic character of Basin C2, which changes from north to south in the basin. SP = shotpoint.

**Figure F5.** Trench-perpendicular Line 386-Underway_073, which passes north of Site M0083, showing the acoustic character of Basin C2. SP = shotpoint.

**Figure F6.** Trench-perpendicular Line 386-Underway_071, which bounds Site M0083, showing the acoustic character at Site M0083. SP = shotpoint.

**Figure F7.** Trench-perpendicular Line 386-Underway_068, which passes between Sites M0083 and M0089, showing the acoustic character of Basin C2. SP = shotpoint.

**Figure F8.** Trench-perpendicular Line 386-Underway_028, which intersects Site M0089, showing the acoustic character at Site M0089. SP = shotpoint.

**Figure F9.** Trench-perpendicular Line 386-Underway_064, the southernmost line in Basin C2, showing the acoustic character of Basin C2. SP = shotpoint.

**Figure F10.** Subbottom profile lines around Site M0083.

**Figure F11.** Trench-perpendicular Line 386-Underway_021, which passes through Site M0083 and west of Site M0089, showing the acoustic character of Basin C2. SP = shotpoint.

**Figure F12.** Trench-parallel Line 386_Underway_019, which intersects Sites M0083 and M0089, showing the main acoustic elements for both sites and Basin C2. SP = shotpoint.

**Figure F13.** Subbottom profile lines around Site M0089.

**Figure F14.** Sedimentary facies Types 1–4, Hole M0083D.

**Figure F15.** Lithostratigraphic summary, Holes M0083A and M0083B. XCT = X-ray CT, MS = magnetic susceptibility, cps = counts per second.

**Figure F16.** Ternary diagrams of major components and grain size, Site M0083.

**Figure F17.** Smear slide photomicrographs, Site M0083.

**Figure F18.** Smear slide summary, Holes M0083A and M0083B. 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.

**Figure F19.** Lithostratigraphic summary, Holes M0083C and M0083D. XCT = X-ray CT, MS = magnetic susceptibility, cps = counts per second. (Continued on next page.)

**Figure F20.** Smear slide summary, Holes M0083C and M0083D. 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. (Continued on next page.)

**Figure F21.** Sedimentary structures and tephras, Sites M0083 and M0089.

**Figure F22.** Smear slide summary, Holes M0083E and M0083F. 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. (Continued on next page.)

**Figure F23.** Lithostratigraphic summary, Holes M0089A and M0089B. XCT = X-ray CT, MS = magnetic susceptibility, cps = counts per second.

**Figure F24.** Smear slide summary, Holes M0089A and M0089B. 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.

**Figure F25.** Ternary diagrams of major components and grain size, Site M0089.

**Figure F26.** Lithostratigraphic summary, Holes M0089C and M0089D. XCT = X-ray CT, MS = magnetic susceptibility, cps = counts per second. (Continued on next page.)

**Figure F27.** Smear slide summary, Holes M0089C and M0089D. 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. (Continued on next page.)

**Figure F28.** Lithostratigraphic summary, Holes M0083E and M0083F. XCT = X-ray CT, MS = magnetic susceptibility, cps = counts per second. (Continued on next page.)

**Figure F29.** X-ray mineralogy, Holes M0083D and M0089D.

**Figure F30.** Tephras (brackets) in Basin C2, Sites M0083 and M0089. A. M0083B-1H-16, 27 cm (386-M0083B-1H-16, 26.5–27 cm). B. M0083B-1H-17, 22 cm (386-M0083B-1H-17, 21.2–22 cm). C. M0083B-1H-21, 12.5 cm (386-M0083D-1H-21, 11.2–12.5 cm). D. M0089B-1H-23, 40 cm (386-M0089D-1H-23, 39.5–40 cm). E. M0089D-1H-23, 58 cm (386-M0089D-1H-23, 55–58 cm). F. M0089D-1H-26, 102.6 cm (386-M0089D-1H-26, 103.5–104 cm), M0089D-1H-26, 104 cm (386-M0089D-1H-26, 103.5–104 cm), and M0089D-1H-26, 105.7 cm (386-M0089D-1H-26, 104.5–105.7 cm). G. M0089D-1H-31, 63 cm (386-M0089D-1H-31, 61–63 cm).

**Figure F31.** Tephra layer M0083D-1H-21, 12.5 cm, showing rounded volcanic glass shards (arrows) (386-M0083D-1H-21, 12 cm). Most of the volcanic glass shards in the image have rounded profiles, indicating that they are reworked sediments.

**Figure F32.** Tephra layer potentially enabling intersite correlation, Holes M0089D and M0090D. Possible correlation (parallel lines) is proposed based on characteristic facies, the shape of the volcanic glass shards, and mineral composition.

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**Figure F33.** Abundance changes of radiolarian species *L. setosa*, *C. davisiana*, and the *Tetrapyle* group and their probable correlation between Holes M0083D and M0089D. See Micropaleontology in the Expedition 386 methods chapter (Strasser et al., 2023a) for explanations of radiolarian zonation and events.

**Figure F34.** IW salinity, total alkalinity, and ammonium ($NH_4^+$) concentrations, Site M0083.

**Figure F35.** IW salinity, total alkalinity, and ammonium ($NH_4^+$) concentrations, Site M0089.

**Figure F36.** IW V, Mo, and U concentrations, Site M0083.

**Figure F37.** IW V, Mo, and U concentrations, Site M0089.

**Figure F38.** IW Li, B, Si, Mn, Fe, Sr, and Ba concentrations, Site M0083.

**Figure F39.** IW Li, B, Si, Mn, Fe, Sr, and Ba concentrations, Site M0089.

**Figure F40.** IW $Cl^-$, $Br^-$, and $SO_4^{2-}$ concentrations, Site M0083.

**Figure F41.** IW $Cl^-$, $Br^-$, and $SO_4^{2-}$ concentrations, Site M0089.

**Figure F42.** Methane, ethane, and methane to ethane ($C_1/C_2$) ratio (red diamonds), Holes M0083C and M0083D.

**Figure F43.** Methane, ethane, and methane to ethane ($C_1/C_2$) ratio (red diamonds), Holes M0089C and M0089D.

**Figure F44.** Solid-phase X-ray fluorescence contents of Al, Ca, Fe, Mn, and Si, Site M0083. Open symbols = trigger core samples.

**Figure F45.** Solid-phase X-ray fluorescence contents of Al, Ca, Fe, Mn, and Si, Site M0089. Open symbols = trigger core samples.

**Figure F46.** Solid-phase contents of TC, TOC, TIC, TN, and TS, Site M0083.

**Figure F47.** Solid-phase contents of TC, TOC, TIC, TN, and TS, Site M0089.

**Figure F48.** Physical properties summary, Holes M0083A and M0083B. Orange = trigger core, black = GPC core. Blue dots = trigger core MAD density and laboratory-derived *P*-wave velocity, red dots = GPC core MAD densities and laboratory-derived *P*-wave velocities. Error bars = ±50 m/s. Undrained shear strength was measured using the handheld penetrometer. MS = magnetic susceptibility, cps = counts per second.

**Figure F49.** Physical properties summary, Holes M0083C and M0083D. Orange = trigger core, black = GPC core. Blue dots = trigger core MAD density and laboratory-derived *P*-wave velocity, red dots = GPC core MAD densities and laboratory-derived *P*-wave velocities. Error bars = ±50 m/s. Undrained shear strength was measured using the handheld penetrometer. MS = magnetic susceptibility, cps = counts per second.

**Figure F50.** Physical properties summary, Holes M0083E and M0083F. Orange = trigger core, black = GPC core. Blue dots = trigger core MAD density and laboratory-derived *P*-wave velocity, red dots = GPC core MAD densities and laboratory-derived *P*-wave velocities. Error bars = ±50 m/s. Undrained shear strength was measured using the handheld penetrometer. MS = magnetic susceptibility, cps = counts per second.

**Figure F51.** Physical properties summary, Holes M0089A and M0089B. Orange = trigger core, black = GPC core. Blue dots = trigger core MAD density and laboratory-derived *P*-wave velocity, red dots = GPC core MAD densities and laboratory-derived *P*-wave velocities. Error bars = ±50 m/s. Undrained shear strength was measured using the handheld penetrometer. MS = magnetic susceptibility, cps = counts per second.

**Figure F52.** Physical properties summary, Holes M0089C and M0089D. Orange = trigger core, black = GPC core. Blue dots = trigger core MAD density and laboratory-derived *P*-wave velocity, red dots = GPC core MAD densities and laboratory-derived *P*-wave velocities. Error bars = ±50 m/s. Undrained shear strength was measured using the handheld penetrometer. MS = magnetic susceptibility, cps = counts per second.

**Figure F53.** Undrained shear strength from fall cone penetrometer and AVS, Site M0083.

**Figure F54.** Undrained shear strength from fall cone penetrometer and AVS, Site M0089.

**Figure F55.** MAD data, Holes M0083A and M0083B. Orange = trigger core, black = GPC core.

**Figure F56.** MAD data, Holes M0083C and M0083D. Orange = trigger core, black = GPC core.

**Figure F57.** MAD data, Holes M0083E and M0083F. Orange = trigger core, black = GPC core.

**Figure F58.** MAD data, Holes M0089A and M0089B. Orange = trigger core, black = GPC core.

**Figure F59.** MAD data, Holes M0089C and M0089D. Orange = trigger core, black = GPC core.

**Figure F60.** Color data, Holes M0083A and M0083B. Orange = trigger core, black = GPC core.

**Figure F61.** Color data, Holes M0083C and M0083D. Orange = trigger core, black = GPC core.

**Figure F62.** Color data, Holes M0083E and M0083F. Orange = trigger core, black = GPC core.

**Figure F63.** Color data, Holes M0089A and M0089B. Orange = trigger core, black = GPC core.

**Figure F64.** Color data, Holes M0089C and M0089D. Orange = trigger core, black = GPC core.

**Figure F65.** Intensity, inclination, and declination, Holes M0083A, M0083C, M0083E, M0089A, and M0089C.

**Figure F66.** Intensity, Holes M0083B, M0083D, M0083F, M0089B, and M0089D.

**Figure F67.** Declination, Holes M0083B, M0083D, M0083F, M0089B, and M0089D.

**Figure F68.** Rescaled declination, Holes M0083B, M0083D, and M0083F, and corrected declination, Holes M0089B and M0089D.

**Figure F69.** Inclination, Holes M0083B, M0083D, M0083F, M0089B, and M0089D.