Figure F1. Bathymetric maps. A. Site C0026 with respect to Japan Trench axis and multichannel Seismic Lines HDMY001. B. Expedition 405 Holes C0026A–C0026E and site survey Seismic Lines HDMY001 and JTXC02.

Figure F2. Seismic Line HDMY001 showing location of Site C0026. A. Unannotated. B. Annotated version showing interpretation of seismic units and major faults. Seismic units defined after Nakamura et al. (2013, 2020) and their correlation to Site 436 (Shipboard Scientific Party, 1980). CDP = common depth point, VE = vertical exaggeration.

Figure F3. Mudline identification using gamma ray and resistivity logs from MicroScope resistivity tool (real-time data), Hole C0026A. Seafloor was identified by kick in gamma ray and resistivity logs at 6957.0 m BRT. RES_BS = shallow button resistivity, RES_BM = medium button resistivity, RES_BX = extra deep button resistivity.

Figure F4. Log quality control log, Hole C0026A. Borehole inclination and azimuth are also shown. CRPM_RT = collar rotations per minute, SWOB = surface weight on bit, STICK_RT = stick and slips, DHAP = mud pressure, DHAT = mud temperature.

Figure F5. LWD log data, Hole C0026A. Few *S*-wave velocity points were recorded.

Figure F6. QC of LWD sonic data, Hole C0026A. A. Coherence image used for QC of low-frequency monopole (SPJ_LP_ML_RT). B. Picked slowness corresponding to leaky-P data (DT_LP_ML_DH) overlain on A. C. Coherence image used for QC of high-frequency monopole (SPJ_MH_RT). D. Picked *P*-wave (compressional) slowness corresponding to high-frequency data (DTCO_RT) overlain on C. E. Picked shear slowness data (DTSH_QPI_DH) overlain on C. F. Compilation of sonic velocities.

Figure F7. Unit IV logs, Hole C0026A. RES_BS = shallow button resistivity, RES_BX = extra deep button resistivity.

Figure F8. Gamma ray, deep resistivity, and *P*-wave velocity measurements for logging units, Hole C0026A. Boxes delimit first and third quartiles, with middle line indicating median. Whiskers extend from box to farthest data point that lies within 1.5 times interquartile range.

Figure F9. Physical properties for logging units, Hole C0026A. A. Gamma ray versus extra deep resistivity. B. Extra deep resistivity versus *P*-wave velocity (V_P). C. Gamma ray versus *P*-wave velocity (V_P).

Figure F10. Preliminary interpretation of borehole images, Hole C0026A. RES_BX = extra deep button resistivity, GR = gamma ray, RT = real time.

Figure F11. Distribution of breakout azimuth and width, Hole C0026A. Borehole breakouts appear only at the base of Log Unit III.

Figure F12. Lithostratigraphic units, Site C0026.

Figure F13. TSCL core colorimetry showing major changes in redness, blueness, and lightness at unit boundaries, corresponding to significant changes in lithologies, Site C0026.

Figure F14. Representative XCT/TSCL linescan images from Subunits 1A–1C, Site C0026.

Figure F15. Ternary plots of sediment composition of representative lithologies from smear slides, Site C0026. Representative lithologies from all units show significant variations of volcanic, siliciclastic, and siliceous material.

Figure F16. A–H. Representative smear slides from Subunit 1A, Site C0026.

Figure F17. Representative XCT/TSCL linescan images from sedimentary structures, Site C0026.

Figure F18. XRD semiquantitative mineral abundance, Site C0026.

Figure F19. XRF major element compositions, Site C0026.

Figure F20. A–D. Representative smear slides from Subunit 1B, Site C0026.

Figure F21. A–D. Representative smear slides from Subunit 1C, Site C0026.

Figure F22. Representative XCT/TSCL linescan images from Unit 2, Site C0026.

Figure F23. A–D. Representative smear slides from Unit 2, Site C0026.

Figure F24. Representative XCT/TSCL linescan images from Unit 3, Site C0026.

Figure F25. A–F. Representative smear slides with color-banded clays and porcellanite chert from Unit 3, Site C0026.

Figure F26. XRD patterns for representative lithologies from Subunits 1A (olive-gray mud), 1B (gray mud), and 1C (dull yellowish brown mud) and Units 2 (brownish black clay) and 3 (chert), Site C0026. S = smectite, I = illite, K = kaolinite, C = calcite, Qz = quartz, CT = cristobalite, P = plagioclase.

Figure F27. Orientation and density of structural features, Holes C0026B–C0026E. Fractures were measured along working-half core surfaces and XCT images from Hole C0026B. Faults were found in Hole C0026B.

Figure F28. Typical characteristics of normal faults, Hole C0026B. These observations were made using XCT and core surface analysis (TSCL). Sketched interpretations are also shown.

Figure F29. Phacoids extracted from scaly fabrics, Hole C0026B. A. Phacoids were randomly spot-sampled from intervals of dull yellowish brown mud (20K-2, 71–100 cm; 245.75–246.04 mbsf). B. Close-up view of vitreous and striated surface from phacoid shown in A.

Figure F30. Sediment-filled veins, Hole C0026B. A. XCT. B. Visual core description (TSCL). C. Interpretation. D. Cross-section in XCT.

Figure F31. Stereoplots (lower-hemisphere projections) showing structural orientations of bedding and faults after paleomagnetic corrections, Holes C0026B and C0026E.

Figure F32. Drilling disturbance (flow-in) seen during piston coring, Hole C0026E.

Figure F33. Age-depth profile based on tentative interpretation of diatom and radiolarian biostratigraphy, Site C0026. (t) = top, (b) = bottom.

Figure F34. Stratigraphic distribution of selected radiolarian species, Holes C0026B–C0026E.

Figure F35. Selected Mesozoic and early Miocene radiolarians, Hole C0026B. 1. *Dorcadospyris simplex* (Riedel) (19K-CC, 0.0–5.0 cm; D46/4). 2. *Calocycletta* sp. (19K-CC, 0.0–5.0 cm; J48/2). 3. *Pseudodictyomitra*? sp. (30K-CC, 0.0–5.0 cm; W20/3). 4. *Dictyomitra*? sp. (30K-CC, 0.0–5.0 cm; T27/2). 5–10. *Acanthocircus* spp. (5: 27K-CC, 6.5–11.5 cm; N42/4; 6: 28K-CC, 18.0–23.0 cm; V28/2; 7: 30K-CC, 0.0–5.0 cm; H31/3; 8: 26K-CC, 14.5–19.5 cm; O21/1; 9: 30K-CC, 0.0–5.0 cm; P20/2; 10: 28K-CC, 18.0–23.0 cm; P21/4). 11. *Spumellaria* Fam. gen. et sp. indet. (30K-CC, 0.0–5.0 cm; U22/3).

Figure F36. Demagnetization behaviors of discrete samples during AF demagnetization experiments, Site C0026. Normal and reverse polarities from (A–D) Subunit 1A, (E, F) Subunit 1B, (G, H) Subunit 1C, (I, J) Unit 2, and (K, L) Unit 3. Intensity of remanent magnetization is plotted against treatment value. Zijderveld diagrams (Zijderveld, 1967; Lurcock and Wilson, 2012): solid symbols = declination, open symbols = inclination, red symbols and number = selected endpoints for PCA, blue line = fitting line for PCA. Stereographic plots: solid symbols = positive (down-pointing) inclination, open symbols = negative (up-pointing) inclination, circle = ChRM, squares = direction at each demagnetization step.

Figure F37. Histograms of NRM measurements on archive sections, Site C0026. A. Intensity of remanent magnetization. B. Inclination at room temperature. C. Declination at room temperature. D. Inclination after 20 or 25 mT demagnetization. E. Declination after 20 or 25 mT demagnetization. Black dashed lines = present-day inclination (~52°).

Figure F38. Paleomagnetism results, Site C0026. Polarity: black = normal, white = reversed.

Figure F39. AMS data, Site C0026. A. Lower hemisphere equal-area projection of AMS directions. K_1 = maximum principal axis, K_2 = intermediate principal axis, K_3 = minimum principal axis. B. Frequency distribution of the mean bulk MS (K_{mean}). C. Magnetic lineation vs. magnetic foliation. D. Shape parameter vs. corrected anisotropy degree.

Figure F40. AMS parameters, Site C0026. K_{max} = maximum principal axis, K_{int} = intermediate principal axis, K_{min} = minimum principal axis. Declination does not include horizontal data. Dashed lines = unit boundaries.

Figure F41. Magnetic polarities, paleontological age (see Biostratigraphy), and correlation to global polarity timescale (Gradstein et al., 2020), with resulting age-depth model constructed from shipboard paleomagnetic analysis, Site C0026.

Figure F42. GRA density, MS, *P*-wave velocity, and NGR, Site C0026. MAD bulk density and discrete *P*-wave velocity are shown for comparison. Light gray symbols = located within 4 cm of the top or bottom of the core sections. Data from the ends of the section are often anomalous and are excluded from analysis.

Figure F43. GRA density, MS, *P*-wave velocity, and NGR, focusing on the overlapping section between Holes C0026B and C0026E. MAD bulk density and discrete *P*-wave velocity are shown for comparison. Light gray symbols = located within 4 cm of the top or bottom of the core sections. Data from the ends of the section are often anomalous and are excluded from analysis.

Figure F44. Sections with characteristically high *P*-wave velocities associated with ash layers, Hole C0026E.

Figure F45. Bulk density, grain density, and porosity, Holes C0026B, C0026D, and C0026E. Top: to highlight smaller scale variations, plots do not show data for the chert in Unit K3. Bottom: plots include data for the lower 5 m of the hole, including chert.

Figure F46. Porosity estimates from Site C0026, DSDP Site 436 (Carson and Bruns, 1977), and ODP Site 1179 (Shipboard Scientific Party, 2001).

Figure F47. Electrical resistivity, absolute horizontal anisotropy, and vertical anisotropy measurements in the *x*-, *y*-, and *z*-directions of the core reference frame, Holes C0026B (discrete cube samples) and C0026D/C0026E (4-pin measurements). Top: to highlight smaller scale variations, plots do not show data for the chert in Unit K3. Bottom: plots include data for the lower 5 m of the hole, including chert.

Figure F48. Electrical resistivity as a function of porosity for discrete samples, Holes C0026B, C0026D, and C0026E.

Figure F49. *P*- and *S*-wave velocity measurements on discrete cube samples in the *x*-, *y*-, and *z*-directions of the core reference frame along with the associated *P*- and *S*-wave absolute horizontal and vertical anisotropies, Hole C0026B. Top: to highlight smaller scale variations, plots do not show data for the chert in Unit K3. Bottom: plots include data for the lower 5 m of the hole, including chert.

Figure F50. Average *P*-wave and *S*-wave velocity as a function of porosity for discrete samples, Hole C0026B.

Figure F51. Thermal conductivity measurements, Site C0026. Blue open triangles = 2 measurements taken in unconsolidated sediment using a full-space needle probe inserted into whole-round cores. Other measurements are all made on the working half of split cores using a half-space probe aligned parallel to the core axis.

Figure F52. Penetration strength measured by penetrometer and undrained shear strength estimated from the vane shear torque required to cause failure, Holes C0026D and C0026E.

Figure F53. Representative anelastic strain recovery, Section 405-C0026B-21K-2. A. Interval 405-C0026B-21K-2, 46–61 cm, with strain gauges attached. B. Magnitude of anelastic strains and temperature vs. elapsed time. C. Magnitude of three principal anelastic strains (ε_1, ε_2, and ε_3) and mean strain (ε_m) vs. elapsed time.

Figure F54. Raw data and postpenetration fitting of the APCT-3 formation temperature measurements, Cores 405-C0026D-1H and 405-C0026E-1H through 5H, 7H, 8H, and 10H. Data within the unshaded (white) area are used for fitting theoretical curves of postpenetration temperature decay. Estimates of the equilibrium temperature (horizontal pink dashed line) are reported in Table T18.

Figure F55. Estimated equilibrium formation temperatures, Holes C0026D and C0026E. Black dashed line = linear fit of the geothermal gradient. Data points represented by open symbols are not used for the fitting.

Figure F56. Dissolved chemical components in IW samples, Site C0026. Blue arrow = ambient seawater value. Solid and dashed lines = unit and subunit boundaries, respectively.

Figure F57. Major, minor, and trace element concentrations in IW samples, Site C0026. U. Blue arrow = ambient seawater value. Solid and dashed lines = unit and subunit boundaries, respectively.

Figure F58. Methane concentration in headspace gas samples, Site C0026. Solid and dashed lines = unit and subunit boundaries, respectively.

Figure F59. $CaCO_3$, TOC, TN, and TS contents and TOC/TN ratio, Site C0026. Solid and dashed lines = unit and subunit boundaries, respectively.

Figure F60. Seismic-well tie for high-resolution Seismic Line HDMY001, Site C0026. GR-RT = gamma ray, RES_BM_RT = resistivity (middle button), VP_LP = *P*-wave velocity, AI = acoustic impedance (original and resampled), RC = reflection coefficient. Input and output interval velocities are after stretch-squeeze adjustment. Yellow shading = Logging Unit 3 (chert layer).

Figure F61. Comparison of LWD gamma ray data, Hole C0026A, and COMET gamma ray profile, Holes C0026B and C0026E. A. Composite plot. B. LWD gamma ray curve. C. Gamma ray plots (red dots) and gamma ray curve (gray line). cps = counts per second. Logging and lithostratigraphic units in each hole are also shown.

Figure F62. Comparison of LWD electrical resistivity data (medium button), Hole C0026A, and electrical resistivity measured on core sections and discrete samples (*y*-direction), Holes C0026B and C0026E. A. Composite plot. B. LWD resistivity (button medium) curve. C. Resistivity (*y*-direction) measured on core sections and discrete samples (red dots) and resistivity curve (gray line). Logging and lithostratigraphic units in each hole are also shown.

Figure F63. Comparison of LWD *P*-wave velocity data (VP_LP), Hole C0026A, and *P*-wave velocity measured on discrete samples, Hole C0026B. A. Composite plot. B. LWD *P*-wave velocity data. C. *P*-wave velocity measured on discrete samples (red dots) and LWD *P*-wave velocity (gray line). Logging and lithostratigraphic units in each hole are also shown.

Figure F64. Dip data of planar structures identified from LWD and core samples, including bedding and fractures (LWD)/faults (core), Site C0026. Lithostratigraphic and logging units are shown for reference.

Figure F65. Seismic profile in two-way traveltime section with lithostratigraphic, logging, and seismic units and tied BRT depths, Site C0026.