Figure F1. IODP conventions for naming sites, holes, cores, sections, and samples, Expedition 385. mbsl = meters below sea level. m DSF = meters drilling depth below seafloor.

Figure F2. Coring systems used during Expedition 385. A. APC system. B. XCB system. C. RCB system. ID = inside diameter. OD = outside diameter. 1 inch = 2.54 cm. Note that the APC and XCB systems use the same bottom-hole assembly (see Figure F3 for schematic sketch). Modified from Graber et al. (2002). (Continued on next page.)

Figure F2 (continued).

Figure F3. Schematic of the APC/XCB and RCB bottom-hole assemblies. ID = inside diameter. 1 inch = 2.54 cm. Modified from Graber et al. (2002).

Figure F4. Example of a manual, analog core description sheet, Expedition 385. The form was generated once the core section was scanned, and a core image was inserted into this template. Other columns include Drilling disturbance, Color, Sedimentary structures (and bedding features), Bioturbation, and Samples. Lithology is described in the comments section.

Figure F5. Symbols used for sedimentary facies and structures, Expedition 385.

Figure F6. Grain size of terrigenous and volcanic particles (Wentworth, 1922). We use the 4 µm cut-off for clay-sized material and define the term "mud" as a mixture of silt and clay.

Figure F7. Sediment smear slide worksheet used to summarize and tally percentage data on various siliciclastic, volcanic, biogenic, and authigenic components of the sediment, Expedition 385.

Figure F8. Lithologic classification, Expedition 385. A. Classification of siliciclastic sediments according to Shepard (1954). B. Modifiers used for secondary sedimentary components (the displayed example represents biogenic and siliciclastic components).

Figure F9. Standard visual composition chart for estimating relative percentages of sedimentary components (Rothwell, 1989).

Figure F10. Example visual core description (VCD) form, Expedition 385. This VCD sheet was used to summarize data from core imaging, macroscopic description (including lithology, sedimentary structures, major disturbances), and physical properties measurements.

Figure F11. Example of visual core description (VCD) form for igneous rocks, displaying patterns and symbols used, Expedition 385 (modified from Expedition 367/368). This form was applied to summarize data obtained from core imaging, macroscopic description, and physical properties measurements. Note that the three different ranks of grain size distribution (bimodal, inequigranular, equigranular) are depicted as patterns in the legend of the plot for illustration purposes only, whereas the VCD form itself shows these ranks as vertical black lines in the grain size distribution column.

Figure F12. Comparison chart for describing vesicle sphericity and roundness in (sub)volcanic rocks, Expeditions 385 (modified from Wentworth, 1922; Li et al., 2015; Sun et al., 2018).

Figure F13. Descriptors used to characterize the texture of veins, Expedition 385 (modified from Li et al., 2015; Sun et al., 2018).

Figure F14. Example of thin section report for igneous rocks, Expedition 385.

Figure F15. Vein description scheme, Expedition 385 (from figure F17 of Sun et al., 2018).

Figure F16. Goniometer and plastic protractor template used during Expedition 385 to measure dip and dip direction of structures.

Figure F17. Diagram of core reference frame and coordinates used in orientation data calculation, Expedition 385.

Figure F18. Diagram of dip direction (α_d), right-hand rule strike (α_s), and dip (β) of a plane deduced from its normal azimuth (α_n) and dip (β_n). V_n denotes the unit vector normal to plane. A. $\beta_n < 0°$. B. $\beta_n > 0°$.

Figure F19. Diagrams of azimuth correction based on paleomagnetic data. α_p = paleomagnetic declination, α_d and α_s = dip direction and right-hand rule strike of a plane. A. $\beta_p > 0°$. B. $\beta_p < 0°$.

Figure F20. Calcareous nannofossil and marine diatom events and scaled ages, Expedition 385 (based on Gradstein et al., 2012). B = base, Ba = base acme, Bc = base common, T = top, Ta = top acme, Tc = top common, X = abundance crossover.

Figure F21. A. Coordinate systems for IODP paleomagnetic samples: archive and working halves. B. Natsuraha-Giken sampling box (7 cm^3) with cube coordinate system. Red hatched arrow is parallel to up arrow on sample cube and points in –*z*-direction. C. Coordinate system used for the SRM on *JOIDES Resolution*. D. Measurement positions in AGICO JR-6A dual speed spinner magnetometer. E. Example of sawn discrete cube sample and discrete sample in plastic sampling box.

Figure F22. Sampling scheme for gas analyses, Expedition 385. Section numbers, sample codes, and whole-round dimensions are shown. Void gases (VAC), samples for safety gas monitoring (HS), and H_2 samples (385GZH2) were directly collected on the core receiving platform. Samples for gas and solid-phase analysis were collected from COMGAS whole rounds. Moisture and density samples (MAD) were taken from the split working halves. For details see text. Sample codes are defined and provided in Table T13. CC = core catcher, CARB = total carbon/inorganic carbon.

Figure F23. The Kuster Flow Through Sampler (Kuster FTS) is used to obtain downhole fluid samples from an open borehole. A, B. Fluid sampling procedure upon recovery of the Kuster FTS during Expedition 385. The sample chamber is connected to a (A) syringe and (B) glass container used for sampling via two valves connected in series to regulate the fluid (and potential volatile) flow. C. The instrument consists of a sample chamber with a spring-loaded valve on each end. A latching mechanism connects the valves and holds them open. Above the chamber, a clock is used to program the closing time and a ball-operated tripping mechanism to release the valves. The lower end has a removable bullnose with ports to allow fluid to enter. When the valves are open on each end, fluids pass freely through the chamber. At an interval programmed on the surface, the valves close, trapping the fluid. The sample contained in the chamber remains in the same state as it was in the well, with no change in pressure. The sample can be removed from the sampler and transferred to a container suitable for storage without changing the pressure of the sample or contaminating it. Image showing the different Kuster FTS tool parts taken from de Ronde et al. (2019).

Figure F24. Example of hydrocarbon gas chromatogram (void gas Sample 385-U1547B-24F-1, 75 cm). Inset shows the expanded region of the chromatogram where additional compounds were observed. C_1 = methane, C_2 = ethane, C_3 = propane, iC_4 = *iso*-butane, nC_4 = linear butane, U = unknown, iC_5 = *iso*-pentane, nC_5 = linear pentane, 2,2D = 2,2-dimethylbutane, 2,3D = 2,3-dimethylbutane, iC_6 = *iso*-hexane, aC_6 = 3-methylpentane (*anteiso*-hexane), nC_6 = linear hexane. Stars = unknown compounds not monitored.

Figure F25. The Whole-Round Multisensor Logger (WRMSL) measures gamma ray attenuation (GRA) bulk density, magnetic susceptibility, and *P*-wave velocity. Track direction indicated.

Figure F26. Natural Gamma Radiation Logger (NGRL). Track direction indicated.

Figure F27. Shipboard thermal conductivity facility. A. Insulated closed box for whole-round and section half sediment measurements. B. Insulated closed box for hard rock measurements. C. Thermal sensors for whole-round measurement

in soft sediment (i.e., needle probe) and for measurements on section-half and half-space hard rock (i.e., puck).

Figure F28. Section Half Multisensor Logger (SHMSL).

Figure F29. Dual balance system for wet and dry mass measurements.

Figure F30. Hexapycnometer system for volume measurements.

Figure F31. Pocket penetrometers with and without foot adaptor.

Figure F32. The Section Half Measurement Gantry (SHMG) measures (A) shear strength (AVS) and (B) *P*-wave velocity on caliper and bayonet axis. Track direction indicated.

Figure F33. Illustration of the data cleaning procedure based on GRA bulk density data.

Figure F34. APCT-3 tool shoe (left) has a pocket to accept electronics, memory board, and battery (right) for temperature measurements while taking an APC core.

Figure F35. SET2 tool schematic.

Figure F36. Wireline logging tool strings used during Expedition 385. LEH-MT = logging equipment head-mud temperature, EDTC = Enhanced Digital Telemetry Cartridge, HNGS = Hostile Environment Natural Gamma Ray Sonde, APS = Accelerator Porosity Sonde, HLDS = Hostile Environment Litho-Density Sonde, HRLA = High-Resolution Laterolog Array, MSS = Magnetic Susceptibility Sonde, DSI = Dipole Sonic Imager, GPIT = General Purpose Inclinometry Tool. Triple combo tool string takes downhole measurements of hole diameter (caliper), natural gamma radiation (HNGS), bulk density (HLDS), electrical resistivity (HRLA), and magnetic susceptibility (MSS). FMS-sonic tool string takes borehole resistivity images and measures natural gamma radiation and *P*- and *S*-wave velocities. See Table T18.

Figure F37. Elevated Temperature Borehole Sensor (ETBS) is a slim-hole probe run on the coring line and contains internal and ultrahigh external temperature measuring devices, a pressure gauge, a multisensor memory unit, and a Dewar flask that acts as an insulator to maintain a stable temperature and cooldown rate for the tool.