

Figure F1. Depth scale types typically generated to reference samples and data on *JOIDES Resolution*, based on IODP depth scales terminology (<https://www.iodp.org/policies-and-guidelines/142-iodp-depth-scales-terminology-april-2011/file>). CCSF scales were not constructed during Expedition 399. Reports in this volume use mbrf for DRF and mbsf for CSF-A as well as WMSF. For detailed core-log correlation work, investigators must be aware that core data and log data with the same nominal mbsf depth do not in general represent exact same stratigraphic horizon.

Figure F2. CRF for structural and paleomagnetic orientation measurements used on *JOIDES Resolution*, Expedition 399. A. Primary orientation of each core piece is up and down along core axis. B. Coordinates in both archive and working (W) halves. C. Conventions for labeling samples and thin sections taken from working half.

Figure F3. Modal classification scheme for mafic-ultramafic plutonic igneous rocks (after Streckeisen, 1974), Expedition 399.

Figure F4. QAP modal classification scheme for plutonic igneous rocks (from Le Maitre, 1989), Expedition 399.

Figure F5. Textural classification for igneous rocks (modified from Cordier et al., 2005), Expedition 399. Pl = plagioclase, Cpx = clinopyroxene.

Figure F6. Characteristics of veins and vein network classifications used by structural geology and alteration petrology teams, Expedition 399.

Figure F7. Structure logging, Expedition 399. Top and bottom offsets from top of section of a structure are logged for whole interval or where a structure intersects center line of section half surface. A. Magmatic fabric is logged for interval over which it occurs and for its perpendicular thickness. B. If structural features do not cross center line of core (e.g., veins or fractures), their center point is logged as its interval. If a structural feature is a vein or fracture network, interval over which network occurs is logged.

Figure F8. Reference frame and method of measuring orientation of planar feature, Expedition 399. If a piece is cut perpendicular to strike of structural feature, dip/dip azimuth are measured directly. If structural feature is oblique to cut face, two measurements or apparent dip were made and true strike and dip were calculated.

Figure F9. Predicted distribution of random set of planar features showing bias effect introduced by sampling a vertical borehole; Shipboard Scientific Party, 1992c), Expedition 399.

Figure F10. Intensity ranks for macroscopic and microscopic observations of magmatic fabrics, fault rock deformation, crystal-plastic deformation, mantle CPFs, schistose fabrics, and serpentine foliation, Expedition 399.

Figure F11. Macroscopic classification of fracture morphology, fracture network, vein deformation, and vein/fracture density, Expedition 399.

Figure F12. Coulometry dilution experiment using pure CaCO_3 , CaCO_3 dilutions, and reference standards showing relationship between known weight percent carbon using elemental analysis (x-axis) and weight percent carbon measured by coulometry (y-axis), Expedition 399. Black dotted line = 1-to-1 relationship, black circles = reference standards in Table T7, red circles = dilutions made and run at 50 mg, green circles = dilutions made and run at 100 mg. For both runs, expected values were calculated based on percent carbon measured from parent dilutions and dilution factors. Blue circles = same data as green but with

expected values calculated using only masses measured for each dilution. Red dashed line at 0.01 wt% carbon = proposed quantification limit for coulometry results based on this experiment.

Figure F13. Overall workflow for handling, imaging, and sampling microbiology whole-round (MBIO WRND) samples, Expedition 399. WRC = whole-round core.

Figure F14. Steel high-pressure tubes used for pressure incubation experiments, Expedition 399.

Figure F15. Hand-operated, high-pressure pump system used to pressurize one subset of samples, Expedition 399.

Figure F16. Filtering process for whole and section half core, Expedition 399. Data filtering procedure using laser guide on SHMSL for Holes U1309D and U1601C.

Figure F17. Normalized response curve of MS2C Bartington MS meter on WRMSL (modified after Blum, 1997), Expedition 399. Normalized amplitude (A) of MS of thin discs against distance from center of MS2C coil (x). Amplitudes are normalized against peak value at zero distance. Black line = fitted curve based on inset equation, where fitted scaling length (C) is $\sim 1/4$ of coil diameter. Gray line = cumulative probability function for fitted curve, indicating that 90% of measured signal is sourced from within ± 4 cm of coil (8 cm interval).

Figure F18. NGRL detector space resolution and position (Vasiliev et al., 2011), Expedition 399. A. NGR internal space resolution defined as full width at half maximum (FWHM) from measurements with ^{137}Cs , ^{60}Co , and ^{152}Eu calibration sources as well as a Monte Carlo model. Experimental and model data (symbols) are shown together with Gaussian fit (line). B. Monte Carlo models for eight detector responses (NaI Detectors d1–d8). Each response curve is centered over a detector. Detector positions are indicated as distance from center of sample chamber as modeled by simulation program (Vasiliev et al., 2011). Response of Detector d8 is truncated because edge of 150 cm long core sample is positioned at center of detector. Similarly, response from Detector d1 is skewed because other edge of sample does not extend across entire region of Detector d1 sensitivity. cps = counts per second.

Figure F19. Niskin bottles deployed on VIT frame, Expedition 399.

Figure F20. A. MTFS comprises individual syringe-like units, each with a specific shape memory alloy trigger. A total of eleven units were assembled and raised into position using angle iron for strength and three tuggers. B. MTFS lowered into drill string (modified from Wheat et al., 2020), Expedition 399.

Figure F21. KFTS, Expedition 399.

Figure F22. ETBS, Expedition 399. RTD = resistance-temperature detector.

Figure F23. Petrophysical logging tools used in Hole U1601C with correct run number and configuration. HNGC = Hostile Natural Gamma Ray Spectrometry Cartridge, APS = Accelerator Porosity Sonde, HRLT = High-Resolution Laterolog Array.

Figure F24. VSI source and ship geometry, Expedition 399. MSL = mean sea level, SRD = seismic reference datum.

Figure F25. Ambient magnetic field profile inside thermal demagnetizer, measured with Applied Physics 3-axis fluxgate sensor, Expedition 399. Magnetic profile taken on 29 April 2023.