Figure F1. Corinth rift with primary rift-related faults (both active and currently inactive), multibeam bathymetry of the gulf, and Expedition 381 drill sites. Offshore fault traces are derived from Nixon et al. (2016), building on Bell et al. (2009) and Taylor et al. (2011). Onshore fault traces are derived from Ford et al. (2007, 2013) and Skourtsos and Kranis (2009). Bathymetry data provided by the Hellenic Centre for Marine Research and collected for R/V *Aegaeo* cruises (Sakellariou et al., 2007). Inset: tectonic setting of Corinth rift in Aegean region, Eastern Mediterranean Sea.

Figure F2. Site M0080 shown with *Maurice Ewing* Line 22 (Taylor et al., 2011) and interpretations from Nixon et al. (2016) (colored dotted lines and text). CDP = common depth point, TWT = two-way traveltime. Inset: seismic line and drill site locations.

Figure F3. Composite stratigraphic log, Hole M0080A. FA = facies association, Biot. int. = bioturbation intensity, MS = magnetic susceptibility. A. Legend. B. 0–300 mbsf. Lithostratigraphic subunits in Unit 1: blue = marine, green = isolated/semi-isolated. Unit 2–4 colors are purely for visual differentiation and do not have any paleoenvironmental meaning. (Continued on next page.)

Figure F3 (continued). C. 300–534.20 mbsf (bottom of hole).

Figure F4. A. Downhole major mineral distribution from XRD data, Hole M0080A. B. Detrital silty clay including moderately sorted, subrounded grains of calcite and quartz (7P-CC, 19–20 cm). Feldspars and micas are common. C. Calcareous silt containing moderately to well-sorted aragonite crystals (dominant) with common presence of calcite (56R-CC, 0–1 cm). D. Clast-supported conglomerate with sandy matrix and granules/pebbles and dominance of ophiolite-derived subangular to subrounded pebbles (71R-2, 20–45 cm). E. Clast-supported pebble conglomerate characterized by mixture of subrounded limestone, chert, and ophiolitic clasts (102R-2, 30–55 cm).

Figure F5. Facies change from FA3 (above) to FA1 (below) (22.83 mbsf) at the boundary between Subunits 1-2 and 1-3, Hole M0080A. This illustrates the change in facies between an isolated/semi-isolated interval (Subunit 1-2; above) and a marine interval (Subunit 1-3; below). Top of core image is at 22.38 mbsf.

Figure F6. A. FA12 light gray to buff bedded and bioturbated mud from Subunit 1-8 showing millimeter- to centimeter-scale burrows, Hole M0080A. Inset shows *Teichichnus* burrows with internal concave-up, concentric laminae. Top of core image is at 93.60 mbsf. B. FA12 highly bioturbated mud from Subunit 1-10 showing *Chondrites* burrow system with few visible branching tunnels. Top of core image is at 126.60 mbsf.

Figure F7. Erosive boundary between Units 1 and 2 at 27 cm (136.96 mbsf), Hole M0080A. Boundary separates FA1 greenish gray mud in Unit 1 (above) from FA12 white/light gray bioturbated mud in Unit 2 (below). Top of core image is at 136.80 mbsf.

Figure F8. Unit 2/3 boundary (256.82 mbsf) marked by an abrupt change from FA15 beige/greenish laminated silt in Unit 2 (above) to FA7 red/brown pebble conglomerate in Unit 3 (below), Hole M0080A. Top of core image is at 256.50 mbsf.

Figure F9. Clast-supported pebble to cobble conglomerate (FA7) at base of Hole M0080A (Subunit 4-3). Clast lithologies include various limestones, red chert, mafic/ultramafic rocks, and coarse pebbly sandstone. Top of core image is at 533.50 mbsf.

Figure F10. Fracture intensity (number of fractures per meter; log scale) and core images with examples of fault traces observed in the different lithostratigraphic units (left: interpreted, right: uninterpreted), Hole M0080A. Thick red lines = lithostratigraphic unit boundaries, dashed red line = boundary between Subunit 3-1 unconsolidated conglomerates (above) and Subunit 3-2 siltstones (below). Interpreted: thin red lines = faults. Note the absence of fractures from 101.70 to 367.60 mbsf (Unit 2 and Subunit 3-1).

Figure F11. Examples of tectonic faults observed in Hole M0080A cores. A. Normal faults in Unit 4 sandstones (FA16; 138R-3). Lower fault has a 2 cm thick fault gouge of black mud. B. Two sampled fault planes from Unit 3 with slickenlines on polished mirror surfaces indicating dip-slip (ss2) and oblique-slip (ss1) (Unit 3; FA9; 113R-2). C. Sampled fault surface (blackened) from Unit 4 with slickenlines indicating oblique-slip (ss3) (133R-2).

Figure F12. Lower hemisphere equal-area stereographic projections showing fault plane (great circles) and slickenline (red dots) orientations measured in the core reference frame from cores that have three or more sampled faults, Hole M0080A. Lithostratigraphic (A) Unit 1, (B) Subunit 3-2, and (C) Unit 4 cores. No faults were recorded in Unit 2 and Subunit 3-1.

Figure F13. Fault dip frequency measured in the core reference frame showing distribution around the mean dip of 61°, Hole M0080A. Note the presence of high fault dips: these dips correspond with oblique-slip and strike-slip motion senses observed in cores (e.g., 103R, 113R, 117R, 133R, and 145R) (see Figure F12).

Figure F14. DID intensity (0–4), Hole M0080A. Coring method is represented in shades of gray from push (P) to percussive (V) to rotary (R). White = no core recovery. Right: distribution of principal DID features (biscuiting and arching bedding) and natural faulting. Cg = conglomerate. Yellow dots = locations of DID in Figure F15.

Figure F15. Examples of DID, Hole M0080A (located on Figure F14). A. Fully mobilized muddy sediment, Unit 1 (6P-1; 17.16 mbsf). B. Arching bedding and lensing in muddy sediment, Unit 1 (12P-2; 37.84 mbsf). C. Axial flow in muddy sediment, Unit 1 (14P-1; 43.98 mbsf). D. Biscuiting and inflow between discs in conglomerates, Unit 3 (88R-1; 313.53 mbsf). E. Natural faulting affected by biscuiting and brecciation in sandstones, Unit 4 (131R-2; 482.16 mbsf). F. Biscuiting and brecciation (white) in sandstones, Unit 4 (127R-2; 462.82 mbsf).

Figure F16. Preliminary stratigraphic diagram of most common diatom taxa observed in Hole M0080A. Taxa abundances are shown as counts and total counts per sample. Relative proportions of taxa are grouped according to salinity, habitat, and nutrient preferences. Blue = marine microfossil assemblages, green = mixed microfossil assemblages, gray = undetermined assemblages.

Figure F17. Summary of micropaleontology assemblages by subunit, Hole M0080A. Blue = marine microfossil assemblages, green = mixed microfossil assemblages, gray = undetermined assemblages.

Figure F18. Pore water (A) salinity, (B) chloride, and (C) Cl^--based salinity, Hole M0080A. Solid lines = unit boundaries, gray = marine subunits in Unit 1, pink = Unit 3, dashed line = subunit boundary separating conglomerates above and silt below (see Lithostratigraphy).

Figure F19. Pore water (A) manganese, (B) iron, and (C) sulfate, Hole M0080A. Solid lines = unit boundaries, gray = marine subunits in Unit 1, pink = Unit 3, dashed line = subunit boundary separating conglomerates above and silt below (see Lithostratigraphy).

Figure F20. Pore water (A) ammonium, (B) phosphate, and (C) alkalinity (dots) and DIC (crosses), Hole M0080A. Solid lines = unit boundaries, gray = marine subunits in Unit 1, pink = Unit 3, dashed line = subunit boundary separating conglomerates above and silt below (see Lithostratigraphy).

Figure F21. Pore water (A) pH and (B) B/Cl^- and (C) Br^-/Cl^- ratios, Hole M0080A. Solid lines = unit boundaries, gray = marine subunits in Unit 1, pink

= Unit 3, horizontal dashed line = subunit boundary separating conglomerates above and silt below (see Lithostratigraphy). Vertical dashed line = seawater values.

Figure F22. Pore water (A) sodium, (B) potassium, and (C) barium and (D) Na^+/Cl^-, (E) K^+/Cl^-, and (F) Ba^{2+}/Cl^- ratios, Hole M0080A. Solid lines = unit boundaries, gray = marine subunits in Unit 1, pink = Unit 3, horizontal dashed line = subunit boundary separating conglomerates above and silt below (see Lithostratigraphy). Vertical dashed line = seawater values.

Figure F23. Pore water (A) calcium, (B) magnesium, and (C) strontium and (D) Ca^{2+}/Cl^-, (E) Mg^{2+}/Cl^-, and (F) Sr^{2+}/Cl^- ratios, Hole M0080A. Solid lines = unit boundaries, gray = marine subunits in Unit 1, pink = Unit 3, horizontal dashed line = subunit boundary separating conglomerates above and silt below (see Lithostratigraphy). Vertical dashed line = seawater values.

Figure F24. Pore water (A) dissolved silica and (B) lithium, Hole M0080A. Solid lines = unit boundaries, gray = marine subunits in Unit 1, pink = Unit 3, dashed line = subunit boundary separating conglomerates above and silt below (see Lithostratigraphy).

Figure F25. Solid-phase (A) TC, (B) TOC, and (C) TIC, Hole M0080A. Solid lines = unit boundaries, gray = marine subunits in Unit 1, pink = Unit 3, dashed line = subunit boundary separating conglomerates above and silt below (see Lithostratigraphy).

Figure F26. Solid-phase (A) calcium, (B) strontium, and (C) magnesium, Hole M0080A. Solid lines = unit boundaries, gray = marine subunits in Unit 1, pink = Unit 3, dashed line = subunit boundary separating conglomerates above and silt below (see Lithostratigraphy).

Figure F27. Solid-phase (A) silicon, (B) aluminum, and (C) potassium, Hole M0080A. Solid lines = unit boundaries, gray = marine subunits in Unit 1, pink = Unit 3, dashed line = subunit boundary separating conglomerates above and silt below (see Lithostratigraphy).

Figure F28. Solid-phase (A) rubidium and (B) zirconium, Hole M0080A. Solid lines = unit boundaries, gray = marine subunits in Unit 1, pink = Unit 3, dashed line = subunit boundary separating conglomerates above and silt below (see Lithostratigraphy).

Figure F29. Solid-phase (A) manganese and (B) iron, Hole M0080A. Solid lines = unit boundaries, gray = marine subunits in Unit 1, pink = Unit 3, dashed line = subunit boundary separating conglomerates above and silt below (see Lithostratigraphy).

Figure F30. Physical properties with lithostratigraphic units (see Lithostratigraphy), Hole M0080A. Red lines = unit boundaries. Elec. res. = electrical resistivity. cps = counts per second. Thermal conductivity data are not corrected to in situ conditions. Unit 2–4 colors do not have paleoenvironmental meaning.

Figure F31. Physical properties with facies associations (see Lithostratigraphy), Hole M0080A. Red lines = unit boundaries. Elec. res. = electrical resistivity. Thermal conductivity data are not corrected to in situ conditions.

Figure F32. Shear strength results, Hole M0080A.

Figure F33. MSCL NGR box and whisker plots grouped by subunits, Expedition 381. Top and bottom of boxes correspond to 1st and 3rd quartiles, solid line in middle of box shows the median, dashed line shows the mean. Ends of whiskers indicate minimum and maximum values. I/SI = isolated/semi-isolated, slump = slumped subunit.

Figure F34. MSCL magnetic susceptibility box and whisker plots grouped by subunits, Expedition 381. Top and bottom of boxes correspond to 1st and 3rd quartiles, solid line in middle of box shows the median, dashed line shows the mean. Ends of whiskers indicate minimum and maximum values. I/SI = isolated/semi-isolated, slump = slumped subunit.

Figure F35. *P*-wave velocity data, Hole M0080A.

Figure F36. (A) MSCL and downhole electrical resistivity, (B) MSCL electrical resistivity and theoretical Archie model predicted from porosity derived from MAD and salinity, (C) MAD porosity used for Archie model, and (D) offshore salinity from pore water (see Geochemistry) used for Archie model, Hole M0080A. DIL = dual induction tool, EM51 = magnetic susceptibility and conductivity tool.

Figure F37. MSCL electrical resistivity box and whisker plots grouped by subunits, Expedition 381. Top and bottom of boxes correspond to 1st and 3rd quartiles, solid line in middle of box shows the median, dashed line shows the mean. Ends of whiskers indicate minimum and maximum values. I/SI = isolated/semi-isolated, slump = slumped subunit.

Figure F38. Temperature and thermal conductivity data, Hole M0080A. A. Seafloor and CPT temperature data. B. Thermal resistance vs. temperature derived from Bullard method. C. Thermal conductivity (corrected to in situ conditions). Note that A and C are plotted against depth (different depth intervals), and B is plotted against thermal resistance.

Figure F39. L*a*b* color reflectance data box and whisker plots grouped by units, Expedition 381. Top and bottom of boxes correspond to 1st and 3rd quartiles, solid line in middle of box shows the median, dashed line shows the mean. Ends of whiskers indicate minimum and maximum values. I/SI = isolated/semi-isolated, slump = slumped subunit.

Figure F40. Magnetic susceptibility frequency distribution from (A) discrete samples and (B) whole core sections (MSCL), Hole M0080A.

Figure F41. (A) NRM intensity, (B) magnetic susceptibility, (C) NRM on log scale, (D) magnetic susceptibility on log scale, (E) magnetic susceptibility from offshore MSCL (gray) and OSP discrete samples (red), and (F) lithostratigraphic unit/subunit boundaries (see Lithostratigraphy), Hole M0080A. Unit 1: blue = marine, green = isolated/semi-isolated (see Lithostratigraphy). Unit 2–4 colors do not have any paleoenvironmental meaning.

Figure F42. NRM intensity vs. magnetic susceptibility, Hole M0080A.

Figure F43. Low-field susceptibility vs. temperature (k-T) experiment results for six samples obtained before the OSP, Hole M0080A. Red = heating path from room temperature to 700°C, blue = cooling path from 700°C back to room temperature.

Figure F44. A–D. Right: orthogonal projections (Zijderveld diagrams; solid symbols = projection onto horizontal plane, open symbols = projection onto vertical plane). Left: relative decay paths of remanence after AF demagnetization steps for four representative samples, Hole M0080A.

Figure F45. Lower hemisphere equal-area stereographic projections of remanence directions for all Hole M0080A samples after application of (A) 30 mT and (B) 40 mT AF. Red dashed circle = geocentric axial dipole expected inclination (i.e., 57.5°) for the site latitude. Solid dots = directions with a positive (normal polarity) inclination, open dots = directions with a negative (reversed polarity) inclination.

Figure F46. A. Inclination of the remanence after demagnetization at 30 mT, Hole M0080A. Red dashed lines = expected magnetic field inclination at the site latitude (i.e., +57.5° and −57.5°). B. Lithostratigraphic unit/subunit boundaries (see Lithostratigraphy). Unit 1: blue = marine, green = isolated/semi-isolated. Unit 2–4 colors do not have any paleoenvironmental meaning. C. Preliminary magnetostratigraphy. Black = normal polarity, white = reversed polarity. See Micropaleontology for details of available biostratigraphy data (nannofossils *I. semenenko* and *A. primus*) in Unit 4. D. GITS after

Singer (2014), with possible correlation (dashed line with question mark) to Hole M0080A magnetostratigraphy. Dashed line with question mark indicates the only correlation between site magnetostratigraphy and GITS, and it is speculative at the time report was prepared. M/B = Matuyama/Brunhes.

Figure F47. Wireline log data and comparison with data from cores, Hole M0080A. Wireline logs are on WSF depth scale; MSCL data are on mbsf depth scale. Unit 1: blue = marine, green = isolated/semi-isolated (see Lithostratigraphy). Unit 2–4 colors do not have paleoenvironmental meaning. SGR = spectral gamma ray. Velocity: red line = smoothed V_P log data.

Figure F48. Wireline log data showing detail of Unit 1, Hole M0080A. Wireline logs are on WSF depth scale; MSCL data are on mbsf depth scale. Subunits: blue = marine, green = isolated/semi-isolated (see Lithostratigraphy). SGR = spectral gamma ray. Velocity: black line = V_P log, red line = smoothed V_P log data, dots = discrete sample measurements (see Physical properties).

Figure F49. (Left) Semblance generated for the four sonic receivers and (Right) comparison with manual picking (dashed line). Red lines visible at 470 and 500 m WSF are data artifacts.

Figure F50. V_P data sets available for 0–300 mbsf, Site M0080. Comparison of pre-expedition linear V_P model (see Core-log-seismic integration in the Expedition 381 methods chapter [McNeill et al., 2019b] for details), filtered (discrete sample V_P (gray = low values that were filtered out, blue = retained data, blue line = 10-point average smoothed), downhole sonic V_P log, and 7.5 m average smoothed downhole log. The comparison suggests that discrete sample V_P measurements yielded more realistic velocity values than the downhole log to about 140 mbsf.

Figure F51. V_P data sets available for 300–530 mbsf, Site M0080. Comparison of pre-expedition linear V_P model (see Core-log-seismic integration in the Expedition 381 methods chapter [McNeill et al., 2019b] for details), offshore MSCL V_P, 3 m average smoothed MSCL V_P, discrete sample V_P, downhole sonic V_P log, and 7.5 m average smoothed downhole log. The comparison suggests similar trends in downhole and MSCL records but potentially overestimated V_P in the downhole log or underestimated V_P in the MSCL data.

Figure F52. Two versions of composite V_P data used for synthetics generation with original data sets in gray (see Figures F50 and F51 for details), Site M0080. Both versions are based on smoothed V_P from discrete samples measurements in the upper 140 mbsf and smoothed downhole log from 140 to 310 mbsf. The difference is in the deeper section: smoothed downhole sonic log was used in Version 1 and smoothed MSCL data were used in Version 2.

Figure F53. Comparison of synthetic seismograms based on reflection coefficient series generated from three different input velocity profiles. A. Linear velocity model. B. Velocity derived from discrete and logging data (Version 1, Figure F52). C. Velocity derived from discrete, logging, and core MSCL data (Version 2, Figure F52). All three versions used the linear velocity model as a starting point for time-depth conversion, which was slightly adjusted to achieve ties between major horizons. Only the deeper part of the section is shown, where the differences are most pronounced. Tracks display true vertical depth (TVD), TWT, input density and velocity, computed reflection coefficient series, ten traces of *Maurice Ewing* Line 22 west–east profile crossing Site M0080 (see Figure F2), synthetic seismogram, ten more traces of the same seismic line, and final interval velocity profile resulting from tying the synthetic to the seismic data. Areas under interval velocity curves are filled to emphasize the differences, with color scaled by interval velocity values (cold colors = low values, warm colors = high values).

Figure F54. Synthetic seismogram based on input velocity profile generated from discrete and downhole logging data (Version 1, Figure F52) showing TVD, TWT, input density and velocity, computed reflection coefficient series, ten traces of *Maurice Ewing* Line 22 west–east profile crossing Site M0080 (see Figure F2), synthetic seismogram, ten more traces of the same seismic line, and final interval velocity profile resulting from tying the synthetic to the seismic data. Area under interval velocity curve is filled to emphasize the differences, with color scaled by interval velocity values (cold colors = low velocity, warm colors = high velocity).

Figure F55. Synthetic seismogram based on input velocity profile generated from discrete, downhole logging, and core MSCL data (Version 2, Figure F52) showing TVD, TWT, input density and velocity, computed reflection coefficient series, ten traces of *Maurice Ewing* Line 22 west–east profile crossing Site M0080 (see Figure F2), synthetic seismogram, ten more traces of the same seismic line, and final interval velocity profile resulting from tying the synthetic to the seismic data. Area under interval velocity curve is filled to emphasize the differences, with color scaled by interval velocity values (cold colors = low values, warm colors = high values).

Figure F56. Comparison of final (top) interval velocity values and (bottom) TDRs for two "end-member" synthetics generated from MSCL-based velocity profile (Version 2) and downhole log–based profile (Version 1) showing the main differences in velocity structure and TDR in the lower ~100 m of Hole M0080A.

Figure F57. Lithostratigraphic boundaries determined from cores compared with synthetic seismograms and seismic data, Site M0080. Dashed lines = interpretations from Nixon et al (2016). Synthetics and interval velocity values from (A) lower bound MSCL-based velocity profile (Version 2) and (B) upper bound downhole log–based velocity profile (Version 1). Good correspondence between differences in seismic reflector pattern and lithostratigraphic Units 1 through 3 but greater uncertainty in core-seismic links at the base of the hole.