Figure F1. Bathymetry of Guaymas Basin with Baja California in the southwest and the Sonora margin in the northeast, showing all Leg 64 and Expedition 385 sites drilled in the area. Seismic = seismic transects conducted prior to Expedition 385. Inset: tectonic setting of the Gulf of California. Green shading = Guaymas Basin, blue box = main figure area. Contour lines = 200 m.

Figure F2. Bathymetric map, Site U1551. Multiple preexpedition seismic lines, including EW-tran3, are also shown. The seafloor bathymetry reflects the mode of predominant mass-gravity sediment deposition. Site U1551 is at the edge of a large slide deposit that is imaged in the seismic data. The locations of drilled holes are not distinguishable at the given scale. Contour lines = 10 m.

Figure F3. Seismic Line EW-tran3, depicting Site U1551 and nearby alternate Site GUAYM-11A. CDP = common depth point.

Figure F4. Lithostratigraphic column, Site U1551. NGR = natural gamma radiation, cps = counts per second, MS = magnetic susceptibility, WRMSL = Whole-Round Multisensor Logger.

Figure F5. Core 385-U1551A-3H contains a variety of lithologies (DC = diatom clay, SS = sandy silt, S = sand, OS = sulfide or organic-rich silty clay, Mi = micrite-rich intervals, CS = clayey silt and carbonate authigenic precipitates), sedimentary structures (white arrow = graded bedding, red curve = scoured base at Section 3H-2, ~120 cm), and evidence of synsedimentary deformation (tilting and folding of laminae are obvious starting at the bottom of Section 3H-2), as well as the Subunit IA/IB boundary at the very top of Section 3H-2 (red arrow) at the lithology change. Gray silty sand forms the base of a depositional unit that starts in Section 3H-2, 118 cm, and fines upward to silty clay and then diatom clay through Section 3H-1 extending uphole into Core 2H. The top of this depositional unit is at ~110 cm in Section 2H-3, amounting to a total thickness of ~8.7 m.

Figure F6. Apparently homogeneous sandy interval in Subunit IB (385-U1551A-9H-2, 77–107 cm). Left: core image shows mainly dark olive-gray homogeneous sand (77–102 cm) overlying clay-rich diatom ooze (102–106 cm) along an irregular, apparently modified contact. Right: X-ray photograph, however, highlights the presence of slightly downarching laminae (highlighted by dashed lines at ~82 cm) in the sand that are not otherwise visible on the photograph and were not described during visual core description. The presence of lamination indicates that the unconsolidated sand bed is in place and it is not the result of flow-in due to coring disturbance. Scale = cm.

Figure F7. A. Location of the Subunit IC/ID boundary on top of a sandy layer at ~66 cm (385-U1551A-13H-2, 63–73 cm). B. Example of indurated micritic layer (at 100 cm) and a faulted (dashed line) laminated interval below (5H-3, 90–120 cm). C. Fine-scale alternating layers of sand, silt, and diatom clay (dashed lines) in Subunit IB (9H-3, 50–65 cm). Scale = cm.

Figure F8. Faulting, folding, and soft-sediment deformation (385-U1551A-4H-1 through 4H-4; 21.6–27.5 mbsf). Color is digitally enhanced to highlight compositional differences of stratigraphic layers and contrast across faults. Red lines = significant faults.

Figure F9. Fault (dashed line) with at least 5 cm of apparent normal displacement between bottom of white layer at 33 cm in the hanging wall, above the fault, and expected bottom of white layer that is not found in the footwall and therefore must be outside the core at 29 cm or shallower (385-U1551A-10H-4, 24–36 cm).

Figure F10. Age-depth plot, Site U1551. See Table T4 for event details. T = top, B = bottom.

Figure F11. Inclination, declination, magnetic intensity, and magnetic susceptibility, Hole U1551A. Inclination data (A) before and (B) after alternating field demagnetization at 20 mT. Red squares = characteristic remanent magnetization inclination of discrete samples after principal component analysis. Expected geocentric axial dipole inclination (~45.8°) is indicated by green (reversed polarity) and blue (normal polarity) lines. C. Declination. Gray = before demagnetization, black = corrected using core orientation obtained from the Icefield MI-5 core orientation tool. D. Magnetic intensity (natural remanent magnetization). E. Section Half Multisensor Logger point magnetic susceptibility.

Figure F12. Alternating field (AF) demagnetization and principal component analysis results on discrete samples, Hole U1551A. A. Zijderveld demagnetization diagrams for selected discrete samples. B. Evolution of magnetization with applied AF for the same samples. C. Equal-area stereographic projection of discrete sample directions in specimen coordinates. NRM = natural remanent magnetization, ChRM = characteristic remanent magnetization.

Figure F13. Anisotropy of magnetic susceptibility, Hole U1551A.

Figure F14. Interstitial water chemistry, Site U1551. SMTZ = sulfate–methane transition zone.

Figure F15. $CaCO_3$, total organic carbon (TOC), TOC/total nitrogen (TN), and total sulfur (TS), Holes U1551A and U1551B.

Figure F16. Dissolved C_1–C_6 hydrocarbons concentrations and C_1/C_2 and C_1/C_+ in headspace gas samples, Holes U1551A and U1551B.

Figure F17. Dissolved H_2 and CO concentrations (headspace samples), Hole U1551B.

Figure F18. Microbial cell abundance, Hole U1551B. Images show microscopic field views used to count microbial cells (top: 1H-1; bottom: 5H-5).

Figure F19. Heat flow calculations, Site U1551. A. Formation temperature measurements. APCT = advanced piston corer temperature. B. Measured thermal conductivity. C. Heat flow (q), shown as the slope of the line relating T(z) to cumulative thermal resistance.

Figure F20. Physical properties, Holes U1551A and U1551B. A. Recovery plot and lithostratigraphic column. B. Density. GRA = gamma ray attenuation, MAD = moisture and density. C. Magnetic susceptibility (MS) (Whole-Round Multisensor Logger [WRMSL]) and point MS (Section Half Multisensor Logger). D. Sonic velocity (WRMSL and discrete caliper). E. Natural gamma radiation (NGR). cps = counts per second. NGRL = Natural Gamma Radiation Logger. F. Rheology. AVS = automated vane shear, PEN = pocket penetrometer. G. Porosity (MAD).