Figure F1. Mahanadi basin with locations of Sites U1445 and U1446. Map was generated using GeoMapApp (**http://www.geomapapp.org**).

Figure F2. Detailed bathymetry showing location of Site U1446, after Mazumdar et al. (2014).

Figure F3. Seismic sections showing location of Site U1446, Mahanadi offshore basin. TWT = two-way traveltime.

Figure F4. Lithostratigraphic summary for Site U1446, plotted relative to Hole U1446A. Details of each core are available in the visual core description logs.

Figure F5. Lithostratigraphic summary with selected physical property and geochemical data from Holes U1446A (red) and U1446C (blue).

Figure F6. Smear slide data, Holes U1446A (red) and U1446C (blue).

Figure F7. Line-scan images, Site U1446. A. Volcanic ash associated with the Toba eruption. B. Pyrite-, foraminifer-, and shell fragment–rich sandy patch in foraminifer-rich clay with biosilica. C. Scaphopod in nannofossil-rich clay with foraminifers. D. Wood fragments in clay. E. Large dark gray burrow filled with the overlying sediment. F. Core disturbance (cracks) due to gas release when core liner was drilled on the catwalk. G. Minor core disturbance due to mud and water flow-in along the edges of the liner (~1 cm thickness).

Figure F8. Line-scan images of main lithologies, Site U1446. A. Biosilica-rich clay with foraminifers, Unit I. B. Foraminifer-rich clay with biosilica, Unit I. C. Clay with nannofossils, Unit I. D. Clay with biosilica, Unit I.

Figure F9. Photomicrographs of the main lithologic types, Site U1446. A. Nannofossil-rich clay. B. Clay with nannofossils. C. Biosilica-rich clay. D. Clay with biosilica. E. Quartz-rich white bleb. F. Volcanic ash (associated with the Toba eruption). PPL = plane-polarized light, XPL = cross-polarized light.

Figure F10. Line scan and SEM images of millimeter-scale whitish quartz-rich blebs observed throughout Site U1446.

Figure F11. Summary of biostratigraphic events identified in Hole U1446A. T = top (last occurrence), B = bottom (first occurrence), LO = last occurrence. For biozone schemes used, see **Biostratigraphy** in the Expedition 353 methods chapter (Clemens et al., 2016a).

Figure F12. Biostratigraphy and paleomagnetic reversal-based age-depth plot, Hole U1446A. Vertical error bars show the depth range of the identified biostratigraphic events (e.g., between two core catchers or two core sections). Horizontal error bars show the age range for certain bioevents.

Figure F13. Methane and ethane concentrations, Hole U1446A.

Figure F14. Calcium carbonate and TOC contents, Hole U1446A.

Figure F15. Pore water alkalinity, NH_4^+, Ba, Ca, Mg, K, SO_4^{2-}, Fe, Mn, B, Sr, and Si, Site U1446. Error bars represent two standard deviations of repeated measurements of International Association for the Physical Sciences of the Oceans (IAPSO) seawater or a pore water sample (see **Geochemistry** and Tables **T5** and **T6**, all in the Expedition 353 methods chapter [Clemens et al., 2016a]).

Figure F16. Downhole variations in declination, inclination, and intensity, Hole U1446A. Gray and black symbols = before and after 10 mT AF demagnetization, respectively. The inferred polarity pattern for Hole U1446A is also shown (black = normal polarity, white = reversed, gray = uncertain boundary).

Figure F17. Downhole variations in declination, inclination, and intensity, Hole U1446C. Gray and black symbols = before and after 10 mT AF demagnetization, respectively. The inferred polarity pattern for Hole U1446C is also shown (black = normal polarity, white = reversed, gray = uncertain boundary, hatched = no data).

Figure F18. A–B. Stepwise AF demagnetization results, Hole U1446A. For the orthogonal vector plot, red symbols = points used in PCA, blue lines = calculated ChRM direction. NRM = natural remanent magnetization.

Figure F19. Downhole variation in ChRM inclination of discrete samples, Hole U1446A. The inferred polarity pattern is also shown (black = normal polarity, white = reversed, gray = uncertain boundary, hatched = no data). B/M = Brunhes/Matuyama boundary.

Figure F20. Depth variation in ARM, Hole U1446A. A. The entire data set highlighting a decrease at ~30 m CSF-A, reflecting reductive diagenesis. B. Rescaled plot showing data deeper than ~40 m CSF-A.

Figure F21. Physical properties showing downhole variability in magnetic susceptibility from WRMSL, STMSL, and point SHMSL; density from WRMSL, STMSL, and MAD (red points); porosity; and NGR, Hole U1446A. Gray bar = span of Core 16H, which had a shattered liner.

Figure F22. Physical properties showing downhole variability in magnetic susceptibility from WRMSL, STMSL, and point SHMSL; density from STMSL and WRMSL; and NGR, Hole U1446C.

Figure F23. Physical properties showing downhole variability in magnetic susceptibility from WRMSL, STMSL, and point SHMSL; density from STMSL and WRMSL; and NGR, Hole U1446B.

Figure F24. L*, a*, and b* data, Hole U1446A. Gray bar = span of Core 16H, which had a shattered liner.

Figure F25. L*, a*, and b* data, Hole U1446B.

Figure F26. L*, a*, and b* data, Hole U1446C.

Figure F27. SHIL RGB color data, Hole U1446A. Gray bar = span of Core 16H, which had shattered liner.

Figure F28. SHIL RGB color data, Hole U1446B.

Figure F29. SHIL RGB color data, Hole U1446C.

Figure F30. Downhole temperature data, Hole U1446A. The geothermal gradient is ~50°C/km.

Figure F31. Core alignment exemplified using (A) RGB blue (used in lieu of green due to availability of outlier-cleaned data), (B) NGR, and (C) MS profiles, Holes U1446A–U1446C. Spliced profile is also shown. Splice tie points are indicated by black vertical lines. Original KaleidaGraph files are available in STRATCOR in **Supplementary material**.