Figure F1. Bathymetric and track chart, Site U1449. Projection is UTM Zone 45N. Multibeam bathymetry was acquired during R/V *Sonne* Cruises SO125 and SO188. Blue line = seismic Line SO125-GeoB97-027 with common depth point annotation. Contour interval is 20 m. A portion of the seismic profile is shown in Figure **F2** (red line).

Figure F2. Seismic Line SO125-GeoB97-027 across Site U1449. Total penetration depth is 213 m DSF, assuming an average velocity of 1640 m/s.

Figure F3. Lithostratigraphic summary, Hole U1449A. For legend, see Figure **F5** in the Expedition 354 methods chapter (France-Lanord et al., 2016a).

Figure F4. Line-scan images of major lithologies recovered in Hole U1449A. A. White to light gray nannofossil-rich calcareous clay with foraminifers, Unit III (18H-6, 47–64 cm). B. Brownish gray volcanic ash, Unit I (1H-2, 33–50 cm). C. Dark gray silty fine sand with mica, Unit IIa (2H-2, 28–45 cm). D. Dark gray silty clay, Unit IV (20H-2, 4–21 cm).

Figure F5. Representative smear slide images, Hole U1449A. A. Volcanic ash with abundant glass shards (1H-2, 63.5 cm; parallel nicols). B. Silty sand including quartz, feldspars, and various kinds of heavy minerals (7H-2, 77 cm; parallel nicols). C. Clay containing clay-sized grains and clay minerals (6F-3, 33 cm; parallel nicols). D. Foraminifer-rich calcareous clay with diatoms and radiolarians (1H-3, 9 cm; parallel nicols). E. Nannofossil-rich calcareous clay (7H-3, 65 cm; parallel nicols). F. Nannofossil-rich calcareous clay (7H-3, 65 cm; crossed nicols).

Figure F6. A. Three successive laminated silt to silty clay turbidite beds in Unit IV, Hole U1449A. Note sharp planar boundaries of the lower laminated silt units and gradational contacts with the upper silty clay units characterized by silt-clay couplet laminae (23F-2, 0–43 cm; 119.60–120.03 m CSF-A). Arrows indicate thickening to thinning upward trend. B. Lithologic log of Sections 23F-1 and 23F-2 (118.18–121.06 m CSF-A), showing two fining-upward sequences. VF = very fine, F = fine, M = medium, C = coarse.

Figure F7. Maximum grain size, Hole U1449A.

Figure F8. Ethylene glycol–treated X-ray diffractograms of oriented clay aggregates, Hole U1449A. $CaCO_3$ content of the clay sample is relatively high (42.1 wt% from inorganic geochemistry, among the highest values encountered at this site). <2 µm fraction calcite occurs in the diffractogram. Orange ovals indicate sample locations, except for the lower part, where the supernatant water was sampled.

Figure F9. X-ray diffractograms, Hole U1449A. A. Ethylene glycol–treated X-ray diffractogram of oriented clay aggregates. B, C. X-ray diffractograms of bulk samples. Orange ovals = sample locations.

Figure F10. NRM of archive section halves and discrete samples before and after 20 mT AF demagnetization, Hole U1449A. Light gray points = before demagnetization. Dark gray circles = intervals that do not meet quality criteria (see **Paleomagnetism** in the Expedition 354 methods chapter [France-Lanord et al, 2016a]). Blue dots = calcareous clay, red dots = volcanic ash, black dots = other lithology. Inclination and declination: dark green dots = principal component directions from discrete samples. Inclination: gray lines either side of 0° = expected inclinations from GAD. Declination: yellow = oriented cores. Declinations are in a geographic reference frame only where orientation data are available. Intensity: intensity of magnetization before and after demagnetization. Light green dots = before demagnetization, dark green dots = after demagnetization. Magnetic susceptibility (MS) = point measurements on archive section halves.

Figure F11. AF demagnetization diagrams (Kirschvink, 1980) of four discrete samples, Hole U1449A. Points = projected endpoints of remanent magnetization vector measured for each sample in core coordinates (azimuth not oriented). All samples have vertical overprint removed with 10–20 mT AF demagnetization. A, B. Typical demagnetizations indicating normal (Sample 17F-2, 19–21 cm) and reversed (Sample 20H-3, 27–29 cm) polarities. C, D. Demagnetization of samples for which the determination of ChRM was not straightforward.

Figure F12. Polarity interpretation, Core 354-U1449A-18H. Circles = measurements that do not pass quality control criteria. Blue dots = calcareous clay, black dots = other lithology, green dots = measurements on discrete samples. Declination is rotated and illustrates magnetostratigraphic interpretation. A single vertical axis rotation was applied to the entire core so that points interpreted as normal polarity plot near the 0° line. Intensity = intensity of magnetization after 20 mT AF demagnetization. Magnetic susceptibility (MS) = point measurements on archive section halves. Polarity: black = normal, white = reversed, gray = uncertain. Geomagnetic polarity timescale (GPTS) of Gradstein et al. (2012). J = Jaramillo Subchron, CM = Cobb Mountain Subchron.

Figure F13. Methane concentrations, Hole U1449A.

Figure F14. Variations of salinity, bromide, sulfate, phosphate, alkalinity, magnesium, calcium, sodium, potassium, and silicon concentrations in interstitial waters, Site U1449.

Figure F15. Variations of salinity, bromide, sulfate, phosphate, alkalinity, magnesium, calcium, sodium, potassium, and silicon concentrations in interstitial waters, Unit I, Hole U1449B.

Figure F16. TIC content, expressed as $CaCO_3$, and TOC content, Hole U1449A.

Figure F17. Fe/Si vs. Al/Si, Hole U1449A. Turbiditic sediments; $N = 9$. Carbonate content > 20 wt%; $N = 3$.

Figure F18. CaO vs. Sr, Hole U1449A.

Figure F19. Relationship between TOC content and Al/Si ratio, Hole U1449A. Calcareous clays: carbonate content > 20 wt%.

Figure F20. Physical property measurements, Hole U1449A.

Figure F21. Moisture and density results, Hole U1449A.

Figure F22. Tubiditic sequences, Core 354-U1449A-6F. Data identify four Bouma sequences fining-upward from sandy to muddy sediment of variable thickness (centimeter to meter).

Figure F23. APCT-3 temperature-time series (Core 354-U1449A-8H) with an extrapolated formation temperature estimate of 3.3°C at 39.5 mbsf.

Figure F24. Seismic Line SO125-GeoB97-027, Site U1449. Seismically identified units: L = levee, IS = interlevee, H = hemipelagic. For lithologic legend, see Figure **F5** in the Expedition 354 methods chapter (France-Lanord et al., 2016a). Magnetic susceptibility is sensitive to grain size and mineral composition. Pink bars = intervals with higher variability of physical properties. Horizontal orange lines = distinct reflectors, which correlate with lithologic boundaries and changes in physical property variability. For a larger version of this figure, see STRATSYNTH in **Supplementary material**.

Figure F25. Compilation of biostratigraphic and chronostratigraphic markers, Site U1449. Calcareous nannofossil and foraminiferal biozones follow Gradstein et al. (2012; based on Martini [1971] and Okada and Bukry [1980]) and Wade et al. (2011), respectively. Biomarkers are calculated as midpoints. Paleomagnetic reversals follow the chronostratigraphic scheme of Gradstein et al. (2012); boundaries are at the lower depth of the identified reversal. See text for discussion of this figure.

Figure F26. Age-depth plot, Hole U1449A. Interpreted lithology proposes the most probable lithologies in intervals of nonrecovery. Nannofossil and foraminiferal biomarkers are plotted as midpoints; error bars = uncertainty in depth. For biomarkers: right arrow = first occurrence, left arrow = last occurrence. Dashed lines = ash layers. Except for the Toba ash (cross at 74 ka), no ages are assigned to these ash layers. We plan to date these post-expedition and could add new tie points to the depth-age correlation. Black arrows = selected accumulation rates.