Figure F1. Bathymetric and track chart, Site U1452. 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, 22 km).

Figure F2. Seismic Line SO125-GeoB97-027 across Site U1452. Total depth is 217.7 m DSF, assuming an average velocity of 1640 m/s.

Figure F3. Lithostratigraphic summary, Hole U1452B. For legend, see Figure **F5** in the Expedition 354 methods chapter (France-Lanord et al., 2016a).

Figure F4. Lithostratigraphic summary, Hole U1452C. For legend, see Figure **F5** in the Expedition 354 methods chapter (France-Lanord et al., 2016a).

Figure F5. Core image, lithology, $CaCO_3$ content from handheld XRF scanning, calcium and strontium values, and reflectance, Core 354-U1452B-37R.

Figure F6. Representative examples of major lithologies recovered in Hole U1451B. A. Nannofossil-rich calcareous clay (1H-2, 79–101 cm). B. Volcanic ash (1H-2, 10–42 cm). C. Silt-dominated turbidites (5H-2, 36–68 cm). D. Succession of clay-dominated turbidites (2H-1, 22–54 cm). E. Homogeneous fine sand (5H-3, 33–65 cm). F. Greenish gray nannofossil-rich clay with thin interbeds of light gray silt (33F-2, 101–133 cm).

Figure F7. A. Silt turbidite (Tb) bed thickness in Unit II, Holes U1452B and U1452C. Arrows indicate thickening to thinning upward trend. Blue dotted line = correlation based on trends of bed thickness variation. Red box = logging interval of B. B. Variations of lithology, *P*-wave velocity, and magnetic susceptibility (MS_L = whole-round measurements, MS_P = point measurements) from 31.6 to 36 m CSF-A, Hole U1452C. VF = very fine, F = fine, M = medium, C = coarse.

Figure F8. Representative examples of lithologies in smear slides, Hole U1452B. A. Volcanic ash (36F-CC, 34 cm; 184.46 m CSF-A). B. Mica-rich silty sand (20F-1, 81 cm; 105.21 m CSF-A). C. Well-sorted silt (20F-3, 90 cm; 108.11 m CSF-A).

Figure F9. Scanning electron microscope images of microtektite grains from Section 354-U1452B-36F-CC, 35.5–40.5 cm (184.52–179.52 m CSF-A).

Figure F10. Maximum grain size, Hole U1452B.

Figure F11. NRM decay (left) and AF demagnetization vector (right) diagrams of discrete samples, Site U1452. Points on demagnetization vector diagrams = projected endpoints of remanent magnetization vector measured for each sample in core coordinates (azimuth not oriented). A. Sample with positive principal component inclination, interpreted as normal polarity. Deviation of remanence vector toward *Y*-direction indicates acquisition of remanence (likely GRM) during AF treatment. B, C. Samples with anomalous horizontal ChRM vector, polarity undetermined. Note strong drilling overprint. D. Sample with steeply inclined ChRM vector in the vertical direction, interpreted as normal. E. Sample with distributed AF demagnetization spectrum and relatively small drilling overprint. Zigzag vector endpoints in the vertical plane indicate ARM acquisition during AF demagnetization.

Figure F12. NRM of archive section halves and discrete samples before and after 20 mT AF demagnetization, Hole U1452B. Gray dots = before demagnetization. Black dots = intervals that do not meet quality criteria (see **Paleomagnetism** in the Expedition 354 methods chapter [France-Lanord et al., 2016a]). Red dots = calcareous clay, blue 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. Large light green dots = before demagnetization, dark green dots = after demagnetization. Magnetic susceptibility (MS) = point measurements on archive section halves.

Figure F13. Polarity interpretation, Core 354-U1452B-37F. Gray dots = measurements that do not pass quality control criteria (see **Paleomagnetism** in the Expedition 354 methods chapter [France-Lanord et al., 2016a]). Red dots = calcareous clay, blue dots = other lithology. 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-half sections. Polarity: black = normal, white = reversed, gray = uncertain. Geomagnetic polarity timescale (GPTS) of Gradstein et al. (2012).

Figure F14. Variations of salinity, bromide, sulfate, phosphate, alkalinity, magnesium, calcium, sodium, potassium, and silicon concentrations in interstitial waters, Site U1452. The open symbol at 97 m CSF-A corresponds to the measured composition of free draining water from a fluidized sandy layer, and the data point constraining the solid line at that same depth is a concentration corrected from drilling contamination based on sulfate content (see text).

Figure F15. TIC content expressed as $CaCO_3$, Site U1452.

Figure F16. TOC contents, Site U1452.

Figure F17. Fe/Si and K/Si vs. Al/Si, Site U1452.

Figure F18. Variations in Ca content expressed as carbonate content, Ti/Ca ratio, Fe/Ca ratio, and K content, Core 354-U1452B-37F. MS = magnetic susceptibility.

Figure F19. Variations in Sr/Ca ratio vs. Ca content expressed as carbonate content, Core 354-U1452B-37F and Section 34F-2. The curve corresponds to the binary mixing of silicate and marine biogenic carbonate. The composition of the end-members have been chosen to best describe the data.

Figure F20. Physical property measurements, Hole U1451A.

Figure F21. Moisture and density results, Site U1450.

Figure F22. APCT-3 temperature-time series, Hole U1452B.

Figure F23. Seismic Line SO125-GeoB97-027, Site U1452. For lithologic legend, see Figure **F5** in the Expedition 354 methods chapter (France-Lanord et al., 2016a). Magnetic susceptibility (MS) is sensitive to grain size and mineral composition. Blue dashed line = gradual trend in MS and likely grain size. Phases of lobe and channel progradation are written next to the associated seismic units. Blue arrows = identified hemipelagic units described in cores as calcareous clay. For a larger version of this figure, see STRATSYNTH in **Supplementary material**.

Figure F24. Compilation of biostratigraphic and chronostratigraphic markers, Site U1452. 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 (Table **T6**); dashed lines = inferred biomarker midpoints. Paleomagnetic reversals follow the chronostratigraphic scheme of Gradstein et al. (2012); boundaries are the lower depth of the identified reversal (Table **T9**).

Figure F25. Age-depth plot, Site U1452. 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 (Table **T6**). For magnetic reversals, see Table **T9**. Dashed lines = ash layers. Cross = young Toba ash. The older ash layer is related to a microtektite layer dated to 790 ka. Black arrows = selected accumulation rates.