Figure F1. Seismic Line AWI-98011 showing Site U1582. Preliminary interpretation of seismic units according to the chronostratigraphic model is shown. The marked purple reflection corresponds in structure to the top of basement (see Figure F4 in the Expedition 392 summary chapter [Uenzelmann-Neben et al., 2023b]), the magenta reflection to Reflector M, the blue reflection to Reflector LE, and the green reflection to Reflector LO. CDP = common depth point, TWT = two-way traveltime.

Figure F2. Lithostratigraphic summary, Site U1582.

Figure F3. Major lithologies, Site U1582. A. Light yellowish brown and light brown nannofossil ooze (392-U1582A-1R-1, 45–55 cm). B. Light yellowish brown and light brown nannofossil ooze with manganese staining and nodules (2R-3, 70–80 cm). C. Light brown clayey nannofossil ooze with an increased proportion of sand and manganese nodules (3R-3, 3–13 cm). D. Light brown clayey nannofossil ooze with sand (3R-3, 40–50 cm). E. Pale yellow and light gray limestone with clasts and manganese dendrites (392-U1582B-2R-1, 3–13 cm). F. Pale yellow limestone with clasts and weak parallel lamination (2R-1, 36.5–46.5 cm).

Figure F4. Intrabasalt sediments, Holes U1582A and U1582B. A. Pale yellow limestone with clasts (392-U1582A-6R-1, 1–22 cm). B. Pale green limestone (392-U1582B-3R-1, 38.5–58.5 cm). C, D. Pale olive limestone (4R-1, 15.2–27 cm, and 5R-1, 61.7–67 cm, respectively).

Figure F5. A. Manganese nodule (392-U1582A-2R-1, 11.2–17.5 cm). B. Manganese nodule with a possible inoceramid (bivalve) shell fragment at the center (7R-1, 0.8–6 cm). C. Manganese dendrites showing branching appearance on the surface of limestone (6R-1, 139–147 cm). D. Inoceramid shell fragment (1R-CC, 10 cm).

Figure F6. Major sedimentary lithologies, Site U1582. Left: plane-polarized light (PPL), right: cross-polarized light (XPL).

Figure F7. Main sedimentary component abundance compilation, Site U1582. 0 = not present, T = trace (0%–1%), R = rare (1%–10%), C = common (10%–25%), A = abundant (25%–50%), D = dominant (>50%).

Figure F8. Bulk sediment XRD in the clayey nannofossil ooze of Lithostratigraphic Subunit Ia, Hole U1582A. Dominant minerals are clinoptilolite-Ca, quartz, anorthite (feldspar), calcite, and montmorillonite + illite (mixture).

Figure F9. Stratigraphic summary, Hole U1582A.

Figure F10. Two pillow lava lobes (Igneous Units 10 and 11; 392-U1582A-7R-2). Solid red lines = curved chilled margins, dashed red lines = extrapolation of the margins. The rocks of Igneous Unit 11 show radial bands of vesicles trains (filled with white carbonate), which are typical for pillow lava lobes. Note the broad reddish brown oxidation halo running subparallel inward of the margins. A small piece of green carbonate sediment, visible at the top left of Igneous Unit 10, represents interpillow sediment.

Figure F11. Irregular contact between glassy lava (dark) of Igneous Unit 4 and carbonate sediment (light green) suggesting mingling of plastic lava with still unconsolidated (wet) sediment, a facies termed peperite (392-U1582A-6R-2, 45–58 cm). Note the small enclave of sediment at 56–57 cm surrounded by a sharp glass (chilled) margin. The white strip is a secondary calcite filled vein, which formed after the rock solidified.

Figure F12. Stratigraphic summary, Hole U1582B. Physical properties data include color reflectance recorded relative to opponent color axes with a* (blue dots) displaying negative values toward green and positive values toward red and the b* (red dots) depicting negative numbers toward blue and positive values toward yellow. Accordingly, positive a*+b* values reflect a reddish brown color, corresponding to alteration Type A, and negative values reflect the gray color of alteration Type B. Deconvolved K content (in atomic weight percent) is inferred from NGR. Intervals of enriched K concentrations (predominantly >1 wt%) correspond to intervals with reddish brown alteration Type A (positive reflectance), whereas values around 1 wt% and below overlap with the gray alteration Type B (negative reflectance).

Figure F13. Examples of intervals displaying alteration Types A, B, and C with measured color reflectance data, Hole U1582B. These are recorded relative to opponent color axes with a* (blue dots) displaying negative values toward green and positive values toward red and the b* (red dots) depicting negative numbers toward blue and positive values toward yellow. Accordingly, positive a*+b* values reflect a reddish brown color, corresponding to alteration Type A, and negative values reflect the gray color of alteration Type B.

Figure F14. Large plagioclase (Plag) phenocryst and a glomerocryst of plagioclase, clinopyroxene (Cpx), and olivine (Ol) pseudomorphs (replaced with calcite) (392-U1582B-3R-1, 0–3 cm [XPL]). The surrounding groundmass is almost completely altered, and vesicles filled with clay minerals are also shown.

Figure F15. Overview of the preservation and abundance of nannofossils and planktonic foraminifera studied at Site U1582. Preservation: P = poor, M = moderate, G = good, VG = very good. Abundance: B = barren, P = present, R = rare, F = few, C = common, A = abundant, D = dominant. Nannofossil preservation: tick mark between P and M indicates poor–moderate preservation; tick mark between M and G indicates moderate–good preservation.

Figure F16. Selected calcareous nannofossils, Site U1582. Scale bar = 10 µm. (Parts A–L: Hole U1582A; M–P: Hole U1582B.) A. *Discoaster barbadiensis* (2R-1, 8 cm). B. *Isthmolithus recurvus* (2R-1, 8 cm). C. *Nannotetrina cristata* (2R-2, 131 cm). D. *Furcatolithus predistentus* (1R-CC). E. *Seribiscutum primitivum* (3R-2, 110 cm). F. *Stoverius achylosus* (3R-2, 110 cm). G. *Thiersteinia ecclesiastica* (4R-CC). H. *Eiffellithus eximius* sensu Verbeek (6R-1, 106 cm). I. *Reinhardtites anthophorus* (6R-2, 48 cm). J. *Radiolithus planus* (6R-2, 48 cm). K. *Helicolithus trabeculatus* (6R-2, 48 cm). L. *Eprolithus moratus* (6R-2, 71–72 cm). M. *Zeugrhabdotus bicrescenticus* (2R-2, 28 cm). N. *Tranolithus orionatus* (3R-2, 58 cm). O. *Chiastozygus platyrhethus* (3R-2, 58 cm). P. *Eiffellithus gorkae* (3R-2, 58 cm).

Figure F17. Magnetostratigraphic results, Hole U1582A. Dark blue dots = NRM intensity and inclination before AF demagnetization. Cyan dots = NRM intensity and inclination after 15 mT AF cleaning of the archive halves. Black line in inclination column = 5 point moving average, red dots = discrete samples. Magnetic polarity plot is generated from the moving average: negative (up-pointing) inclination indicates deposition during a normal geomagnetic polarity field (black bands). Gray bands = undetermined intervals (e.g., core gaps). In Hole U1582A, a reliable correlation with the GPTS was not possible.

Figure F18. Magnetostratigraphic results, Hole U1582B. Dark blue dots = NRM intensity before AF demagnetization. Cyan dots = NRM intensity and inclination after 15 mT AF cleaning of the archive halves. Black line in inclination column = 5 point moving average. The magnetic polarity plot is generated from the moving average: negative (up-pointing) inclination indicates deposition during a normal geomagnetic polarity field (black bands). Gray bands = undetermined intervals (e.g., core gaps). In Hole U1582B, a reliable correlation with the GPTS was not possible.

Figure F19. Discrete sample demagnetization results, Hole U1582A. A. Representative vector endpoint diagram (left panel), equal area projection (round panel), and a graph showing natural magnetization (M) decay during demagnetization (top right) from sedimentary Lithostratigraphic Unit I. B. Representative vector endpoint diagram (left panel), equal area projection (round panel), and a graph showing natural magnetization (M) decay during demagnetization (top right) from igneous rocks (Lithostratigraphic Unit II). White symbols = projections onto the vertical plane, black symbols = projections onto the horizontal plane, X and Y = axes of the working halves, and Up = vertical up-pointing (–Z-)axis of the core. Equal-area projections: open symbols = negative (up-pointing) directions, black symbols = positive (down-pointing) directions. All plots: red symbols = steps used to determine the characteristic remanent directions.

Figure F20. Histogram of all archive-half magnetic inclination data from Holes (A) U1582A and (B) U1582B.

Figure F21. Age-depth model primarily based on calcareous nannofossil biostratigraphy and magnetostratigraphy, Site U1582. Numbers for bioevents correspond to those in Table T4. GTS2020 = Geologic Time Scale 2020 (Gradstein et al., 2020). Colored boxes = approximate ages of sediment packages based on inferred in situ nannofossil assemblages; background color correlates to the geologic timescale. Events n21 and n22 are tentative because they are based on single specimens in only a few samples. Black undulating line = unconformity.

Figure F22. Physical properties, Holes U1582A and U1582B. cps = counts per second.

Figure F23. Deconvolved NGR data, Hole U1582B.

Figure F24. MAD and thermal conductivity results, Site U1582.

Figure F25. MAD results, Site U1582. A. MAD bulk density vs. thermal conductivity. B. MAD porosity vs. thermal conductivity. C. MAD porosity vs. MAD bulk density. D. MAD bulk density vs. MAD grain density. For cross-plotting, thermal conductivity data were paired with the closest MAD measurement with a maximum depth offset of 1.24 m between observations.