Figure F1. Multichannel Seismic Line HV96-6 crossing Site U1573 on the Outer SDR (for location see Figure F1D in Planke et al., 2023b). TWT = two-way traveltime.

Figure F2. Lithostratigraphic column, Hole U1573A. Epochs (Eocene) and informal ages (early) are constrained by biostratigraphic observations (see Biostratigraphy). B1, B2, B3, etc. = basaltic subunits; S1, S2, S3, etc. = sedimentary subunits.

Figure F3. Bioturbation and lamination, Hole U1573A. Dark greenish gray and dark gray claystone with moderate bioturbation alternates with very dark gray organic-rich claystone with sand and thin parallel lamination characteristic of Unit II.

Figure F4. Core composite images showing the base of Unit II (396-U1573A-10R-1, 0 cm) to the base of Unit IV (19R-1, 55 cm; bottom of hole).

Figure F5. Mineralogy and texture observed in the basaltic sequences of Unit IV, Hole U1573A. A. Olivine xenocrysts in sparsely augite-plagioclase phyric flow (10R-4, 70 cm). B. Clinopyroxene (cpx) and plagioclase (plg) microphenocrysts in cryptocrystalline groundmass (10R-4, 114 cm). C. Variolitic texture with radial cluster of plagioclase microliths and clinopyroxene in hypohyaline groundmass (13R-4, 85 cm). D. Contact between variolitic basalt and composite vein composed of calcite and sediments (13R-4, 85 cm). E. Basaltic andesite showing very angular vesicles delimited by plagioclase microphenocrysts and filled with saponite (sap) (14R-1, 66 cm). F. Subhedral plagioclase microphenocrysts and residual clinopyroxene grains in altered groundmass saponite (14R-1, 66 cm). Ol = olivine, cal = calcite.

Figure F6. Change of vesicularity in a single lava flow, Core 396-U1573A-17R. 9

Figure F7. Types of veins encountered in Unit IV, Hole U1573A.

Figure F8. Chemical stratigraphy of Unit IV, Hole U1573A. B1, B2, etc. = basaltic subunits; S1, S2, etc. = sedimentary subunits.

Figure F9. Interbasaltic sediments in Unit IV, Cores 396-U1573A-10R and 17R. 11

Figure F10. Litho- and magnetostratigraphy, Hole U1573A.

Figure F11. Magnetic coercivity parameters for Units I–IV, Hole U1573A.

Figure F12. IW alkalinity, pH, Cl, Br, NH_4^+, and PO_4^{3-}, Hole U1573A.

Figure F13. IW content of alkali and alkali earth metals (Li, Na, K, Mg, Ca, Sr, and Ba), Hole U1573A.

Figure F14. IW contents of B, Si, S, Mn, and Fe, Hole U1573A.

Figure F15. NGR-derived K, U, and Th content, Hole U1573A.

Figure F16. Volcanic rocks, Hole U1573A. A. Total alkali vs. silica (TAS) (Le Maitre IUGS 1989 normalized to 100% water free; Le Maitre, 1989). B. V vs. Ti (5.10 for basalts) (Shervais, 1982). C. Ti vs. Zr (5.2a Thol. basalts with CaO + MgO 12%–20%). D. Mg# vs. TiO_2. BAB = back-arc basin basalt, C-A bas = calc-alkaline basalt.

Figure F17. Carbonate, nitrogen, sulfur, and TOC contents from solid squeeze cake samples, Hole U1573A.

Figure F18. Physical properties summary, Hole U1573A. Filtered point data is presented alongside interpolated traces for selected data with a running average of 50 cm and a maximum interpolation gap of 50 cm applied (denoted "r" in headers). cps = counts per second, WR = WRMSL, G. = SHMG.

Figure F19. Physical properties measurements spanning the basaltic sequences and interbasaltic sediments of Unit IV, Hole U1573A. Filtered point data is presented alongside interpolated traces for selected data with a running average of 50 cm and a maximum interpolation gap of 50 cm applied (denoted "r" in headers). cps = counts per second, WR = WRMSL, G. = SHMG.