

Figure F1. Site map. Red = Site U1596, yellow = other sites. Inset: location map. See Figure F1 in the Site U1589 chapter (Druitt et al., 2024) for citations for the swath data on which this map is based. KVC = Kolumbo volcanic chain.

Figure F2. Top: seismic profile across the Santorini caldera with Seismic Units S1–S4, Sites U1594–U1597. Depths in meters. TWT = two-way traveltime. Bottom left: profile of Sites U1596 and U1597. Right: locations of the four intracaldera sites. Red = Site U1596, yellow = other sites.

Figure F3. Lithostratigraphy, Site U1596. Unit color = dominant lithology.

Figure F4. Relative percentages of volcanic, tuffaceous, and nonvolcanic lithologies, Site U1596. Unit I is volcanic dominated.

Figure F5. Grain size distribution of volcanic, tuffaceous, and nonvolcanic sediments. Length of colored bars = relative grain size (ash = <2 mm, lapilli = 2–64 mm, mud = <63 μm , sand = 0.063–2 mm), with separate scales shown for volcanic grain size (top) and nonvolcanic grain size (bottom, used for tuffaceous and nonvolcanic sediments). Mixed lithologies such as lapilli-ash (dark pink) that have relative grain sizes between two categories are plotted between ticks.

Figure F6. Core disturbances, Site U1596. A. Soupy. B. Artificial size and density segregation. C. Mixed sediment.

Figure F7. Dominant lithologies, Hole U1596A. A. Dark gray fine-grained ash. B. Gray to dark gray lapilli.

Figure F8. Ash in Subunit Ia, Hole U1596A.

Figure F9. A–C. Correlations of sediments, Holes U1596A and U1596B.

Figure F10. Selected XRD spectra of Subunit Ia lithologies, Hole U1596A. (A) Volcanic (ash) and (B) volcanic-dominated (ash to tuffaceous mud), with a characteristic hump at low 2θ , indicating the presence of volcanic glass. Identified

crystalline phases are Ca-rich plagioclase, clay minerals typical of the illite group, and halite. Pl = Ca-rich plagioclase, Hal = halite, Il = illite.

Figure F11. WRMSL-derived MS data, Holes U1596A and U1596B. MS data are on the CCSF-A depth scale, and the splice (right) is on the CCSF, Method D (CCSF-D), scale.

Figure F12. Splice, Site U1596. cps = counts per second.

Figure F13. CCSF-A versus CSF-A core top depths, Holes U1596A and U1596B. Lines fit through the core top depths of all holes give an estimate of the core expansion. At Site U1596, this is estimated to be 1%.

Figure F14. Planktonic foraminifer *Globoturbotalita* sp. (398-U1596A-1H-CC, 13–15 cm).

Figure F15. Calcareous nannofossil *Emiliana huxleyi* (Lohmann) Hay and Mohler (398-U1596B-1H-CC, 16–21 cm).

Figure F16. Physical properties, Site U1596. Dots = whole-round measurements of bulk density, *P*-wave velocity, MS, and NGR. Open symbols = discrete MAD bulk density and *x*-direction *P*-wave velocity. cps = counts per second.

Figure F17. Discrete physical property measurements, Site U1596. Dashed line = AVS measurement limit, solid lines = PP measurement limits.

Figure F18. IW salinity, alkalinity, and pH, Site U1596. Lithostratigraphic Unit I is described in Lithostratigraphy.

Figure F19. IC and ICP-AES concentrations of Br, Cl, B, Na, K, Mg, Ca, and SO_4^{2-} in IW samples, Site U1596. Lithostratigraphic Unit I is described in Lithostratigraphy.

Figure F20. ICP-AES concentrations of Li, Fe, Mn, Ba, Si, and Sr in IW samples, Site U1596. Lithostratigraphic Unit I is described in Lithostratigraphy.