

Figure F1. Bathymetric map of South Atlantic Ocean with location of sites drilled during Expeditions 390 and 393. DSDP Leg 3 sites are included for reference. Figure modified from Teagle et al. (2023). RGR = Rio Grande Rise, ERGR = eastern Rio Grande Rise, MAR = Mid-Atlantic Ridge, TdC = Tristan da Cunha hotspot.

Figure F2. Crossplots of selected element raw counts of common paleoceanographically important elements from XRF scanning, Site U1583. A. Fe versus Ca. B. Ti versus Fe. C. Al versus Ar. D. Si versus Ca. E. K versus Fe. F. Ti versus Ca. G. Si versus Ti. H. Ba versus Br. I. Sr versus Ca. See Figure F3 for Spearman's rank correlation.

Figure F3. Correlogram for elements above XRF detection limits (>1000 counts/s), Site U1583 splice. Spearman's rank correlation was used to determine the correlation between elements. Green to yellow colors indicate a positive cor-

relation (black ρ values), and teal to purple colors indicate a negative correlation (white ρ values). The more spherical the shapes are within the correlogram, the less correlated the elements are, whereas greater ellipticity of the shapes is indicative of a higher correlation. The ρ values for each correlation are plotted in the center of each correlated element pair. The following elements were used from the 10 kV excitation energy: Al, Si, S, K, Ca, Ti, Mn, and Fe; from the 30 kV excitation energy: Ni, Br, Sr, Zr; and from the 50 kV excitation energy: Ba.

Figure F4. MS, spectral gamma ray, and scanning XRF counts of selected elements, Site U1583. MS uses whole-round measurements. The three arrows on the MS curve denote the three steps observed in all data sets. NGR data are shown for concentrations of the individual radioactive elements: U (parts per million), Th (parts per million), and K (weight percent). See Figure F3 for the excitation energies for each element.