

Figure 12.14. Porewater profiles of oxygen concentration and ΔpH (the pH difference between the value in the porewater and the value in bottom water) in the top c.10 cm of sediments from two locations on the Ceara Rise in the Equatorial Atlantic. Points are individual measurements, sometimes from different electrodes (different symbols) on the same deployment. Solid symbols in the overlying water are measurements in the bottom water after the porewater profile. Solid and dashed curves are model solutions. The dashed lines indicate the predicted ΔpH if there were no CaCO_3 dissolution caused by organic matter degradation in the sediments. Solid lines are the predicted pH for CaCO_3 dissolution in response to organic matter degradation using a dissolution rate more than 100 times slower than that determined in the laboratory experiments of Figure 12.13. In the top graphs (Station C), the bottom waters are saturated or supersaturated with respect to calcite. In the bottom graphs (Station G), bottom waters are undersaturated with respect to calcite. Redrafted from Hales and Emerson (1997b).

