



FIGURE 4.5. Controls on the mineralogy of modern carbonates. (A) Experimental data indicating the carbonate minerals that precipitate from $\text{Mg}-\text{Ca}-\text{Na}-\text{Cl}-\text{HCO}_3$ solutions as a function of total concentration (ionic strength) and the $\text{Mg}^{2+}/\text{Ca}^{2+}$ ratio of the solution. Data from Füchtbauer and Hardie (1976, 1980). The dashed line shows the ionic strength of seawater. (B) An experimentally determined curve showing the mole percentages of magnesium in magnesium calcites expected to precipitate from seawater at various temperatures (Füchtbauer and Hardie, 1976, 1980). Points give values of mole percentage of magnesium versus temperature for modern high-magnesium calcite cements. Figure courtesy of L. A. Hardie.