



Figure 2: How ocean carbonate chemistry and pH are related.

Bjerrum plot showing the relative proportions of $[HCO_3^-]$, $[CO_3^{2-}]$ and $[CO_2]$ to DIC in seawater with different temperature, salinity and pressure (heavy curves are for $S=35\text{‰}$, $T=25^\circ\text{C}$, $P=0\text{bar}$, narrow curves are $S=35$, $T=0^\circ\text{C}$, $P=0\text{bar}$, dashed curves are $S=35$, $T=0^\circ\text{C}$, $P=300\text{bar}$). The shaded region reflecting the range of modern (annual average) ocean surface, with the hashed region reflecting the corresponding projected year 2010 range: taken from the global ocean geochemistry model projections of Turley *et al.* (2010). To put ocean chemistry into some perspective, some common substances and their respective pH are shown at the bottom (scale is same as upper panel). pH values for foodstuffs are from Bridges & Mattice (1939), and for household products from (Hoffman *et al.* (1989). Note that different brands and preparations can give different pH values (up to ± 0.5 pH units) — typical measured values are shown.

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