The model of Schindler and Stumm (1987) assumes the surface of an oxide mineral at which both cations and anions are exposed (see Panel 1 below). Because cations almost inevitably have greater ionic potential than anions, the charge of the cations dominates the interaction of the surface with $\text{H}_2\text{O}$ molecules by attracting the negative ends of those molecules (as shown in Panel 2 below). Dissociation of the $\text{H}_2\text{O}$ molecules and transfer of one $\text{H}^+$ ion from each $\text{H}_2\text{O}$ to an adjacent $\text{O}^{2-}$ of the mineral surface creates a surface of positive charge (as shown in Panel 3). However, as the next page in this series shows, further pH-dependent dissociation of $\text{H}^+$ may leave the surface with a net negative charge to which cations may be attracted.

"Oxide" is used in quotation marks here as a reminder that the model might be used for an $\text{O}^{2-}$-bearing mineral, such as a carbonate or sulfate - and in fact perhaps for sulfides as well.

Panels 4 and 5 will lead us into what happens as the ions in the solution interact with this surface.