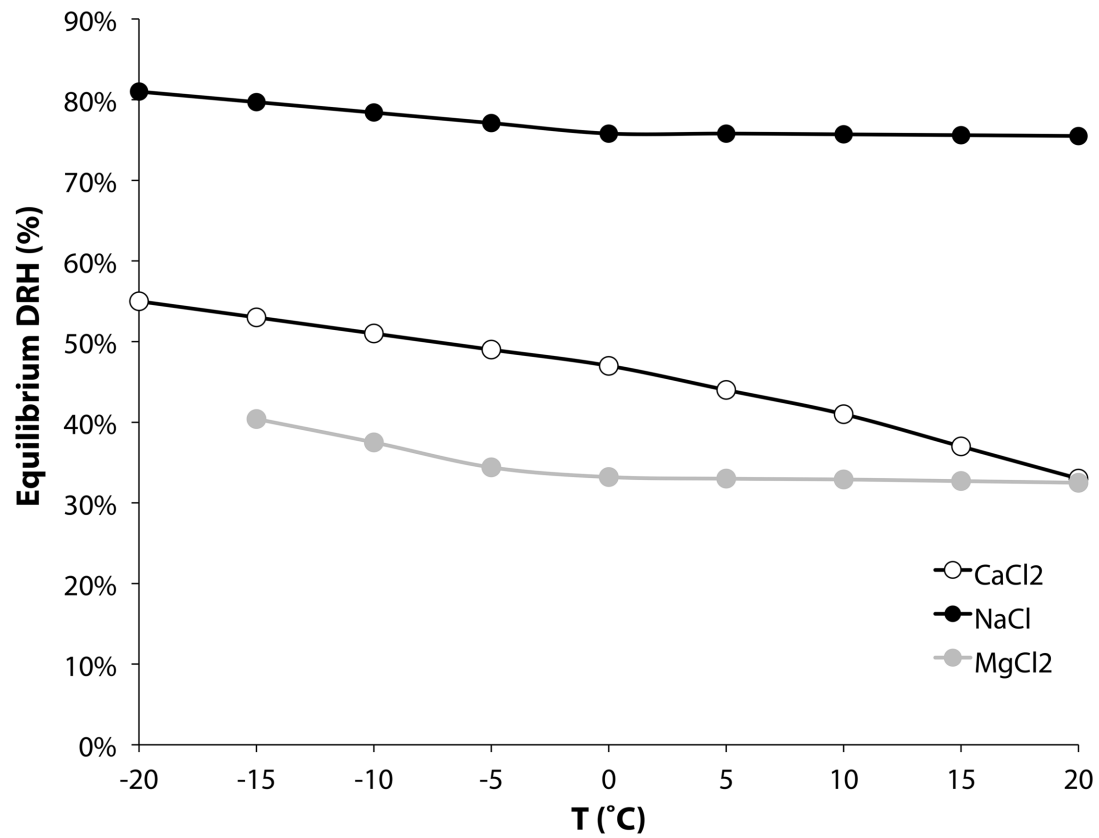


Supplementary Figure 1. Plot showing cumulative hydration at 20 days under 100% RH conditions versus initial weight percent of salts in soil, by sample type. IC indicates ice-cemented soil, OT indicates soil collected “off track” of a water track. SE indicates a salt efflorescence on the strand line around Lake Hoare. WP is wet patch soils. WT is water track soils. G indicates soils from freshwater streams or gullies. Inset shows expanded view of the lower left corner of the plot.



Supplementary Figure 2. Plot of equilibrium deliquescence relative humidity (DRH) for three salts common to Taylor Valley versus temperature. RH conditions are commonly above the DRH of MgCl₂ and CaCl₂, but rarely climb above the DRH of NaCl for extended periods of time.

Supplementary Data Table. Full experimental dataset results.

Supplementary Video. Time lapse movie showing hourly images of a soil sample (021C) in a 100% RH hydration chamber. The sample is uniformly illuminated during the movie, and can be seen to darken, and subsequently become water-saturated, leading to specular reflection. We interpret the formation of bright, reflective pixels in the sediment sample to be locations where soil salts deliquesce and form a brine, which grows until it drips to the bottom of the sample container, resulting in the bright pixel vanishing from the surface of the sample.

