Abstract: Water is key for understanding the habitability of present-day Mars, and may exist as thin brine films, groundwater aquifers, and surface flows. To understand how water might form on Mars, we recently traveled to the McMudro Dry Valleys of Antarctica, one of the best Mars analog sites on Earth. In the field, we observed (and tasted) (1) salty groundwater outflows that form Don Juan Pond, an extremely unusual body of water that is 20x more salty than the sea. (2) Dark streaks on steep slopes that look suspiciously like recurring slope lineae on Mars. (3) Wet patches of soil that form when salts spontaneously absorb water from the atmosphere and liquefy. In this talk, I’ll present an overview of these observations and what they tell us about the formation of liquid water on Mars today.