

Salt plays an important role in our daily lives. True, salt makes our food tastier, but perhaps its most significant role is as an ingredient in Earth's climate. Measurements of sea surface salinity, or the concentration of salt at the ocean's surface, gives scientists vital information on global ocean circulation and how fresh water moves between the ocean and other reservoirs. How does water move, you might ask? Through the water cycle, the process by which water circulates from the ocean, to the atmosphere, to the land, and then back to the ocean. Water on the ocean's surface evaporates, can travel as clouds or vapor over land, fall as rain or snow, and then work its way back to the ocean through rivers, surface runoff, or as icebergs. In other words, the ocean plays a major role in the water cycle. In fact, 86% of all global evaporation and 78% of global precipitation occurs over the ocean. As the water cycle changes, so does salinity! Ocean salinity is affected by the water cycle. As salt water evaporates or freezes, the salt is left behind and salinity increases. But precipitation and runoff dilute salt water, decreasing salinity. Now, while these changes in salinity may seem insignificant compared to the size of the ocean, they make a huge difference in how water circulates. Scientists need a breadth of information to understand the ocean's processes. And that's where Aquarius comes in. The sensor will use advanced technologies to give NASA its first space-based measurements of sea surface salinity, helping scientists to improve predictions of future climate trends and events.