Sea surface salinity (SSS) plays an important role as an indicator of the global water cycle. 76% of global precipitation and 86% of evaporation occurs over the ocean and has an impact on SSS. However, the relationship between SSS, evaporation and precipitation is not simple. Ocean dynamics help determine SSS, as does moisture transport by the atmosphere. In this study, we look at the seasonal variability of SSS using in situ instruments and Aquarius satellite data. We find areas with large seasonal cycles, like the intertropical convergence zone and the Amazon plume. There are other areas with almost no seasonal variability, including much of the Southern Hemisphere. On average, global salinity is highest in April and lowest in October, with an amplitude of about 0.07. This implies a global seasonal loss of water from the ocean surface of about 1 cm and a transport of water from ocean to atmosphere to land back to ocean that is still only dimly understood.