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Sea Surface Salinity Observations from Space: a new tool to monitor the oceanic freshwater cycle as well as ocean/land & ocean/ atmosphere interactions

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Two new satellite sensors, the ESA Soil Moisture and Ocean Salinity Mission (SMOS) and the NASA Aquarius SAC-D missions are now providing space borne measurements of the sea surface salinity (SSS). In this talk we will present the main characteristics of the products derived at the Ifremer salinity center from the SMOS sensor. In particular, we will illustrate the new capability of monitoring the space-time variability of some of the world largest oceanic freshwater pools such as the Amazon-Orinoco and Congo river plumes as well as the western and eastern pacific warm pools.

Synergetic analyses of these new surface salinity data sets with sea surface temperature, dynamical height and currents from altimetry, surface wind, ocean color, in situ observations and rain fall estimates will be shown to help clarifying the freshwater budget in key oceanic tropical areas. A particular focused will be given to the use of SSS from space as a key tracer of ocean-atmopshere interactions in Tropical Cyclones occurring in oceanic regions where the salinity dominates over temperature in the determination of the oceanic mixed layer density.