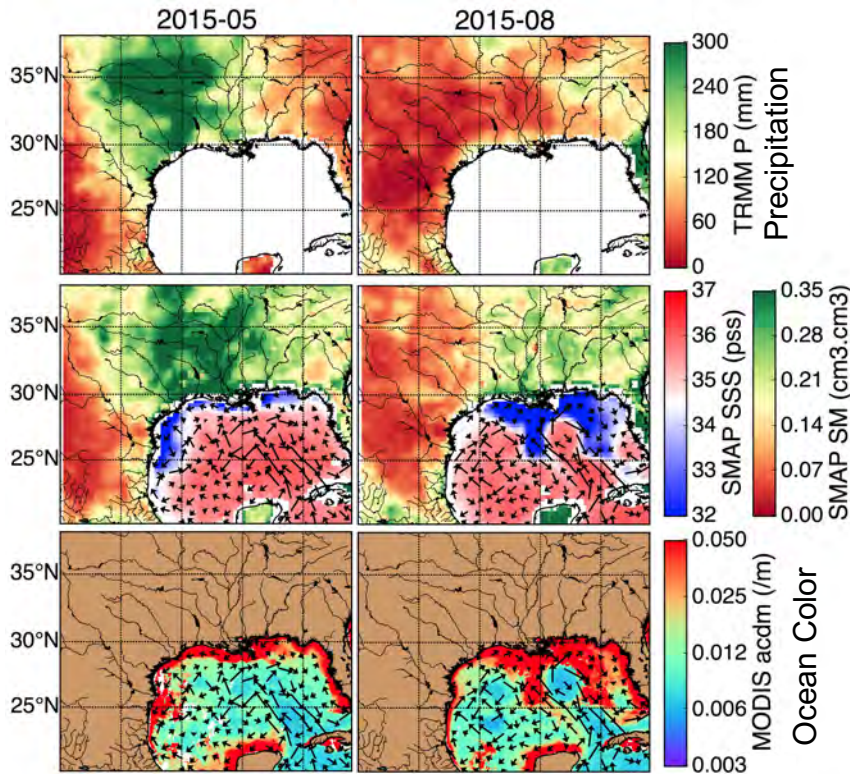


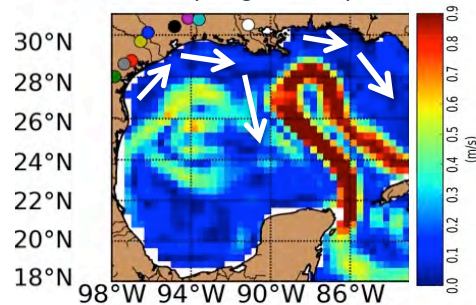
Land Soil Moisture and Gulf Salinity Dynamics Linked Through SMAP Measurements



Problem: Land freshwater outflow plume into the adjacent waterbodies impact the extent of the hypoxic (“dead”) zone and the coral reef ecosystem.

Finding: Intense rainfall in May 2015 over Texas caused saturated soils and record river discharges into the Gulf of Mexico. The unusually strong Loop Current and its eddy shaped the freshwater into a “horseshoe” pattern, affecting regions not normally influenced by freshwater river plume.

Current Speed & Schematic (Aug. 2015)



Impact: Simultaneous SMAP retrievals of soil moisture and surface sea salinity show evidence of a Loop Current in the Gulf of Mexico

Fournier, Reager, Lee, Vazquez-Cuervo, David, Gierach, 2016: SMAP observes flooding from land to sea: The Texas event of 2015, *Geophysical Research Letters*.