For strong storms, both SSS and SST wakes develop to the right of storm’s track (Fig. 1). The present global satellite-based analysis also emphasizes the influences of salt-stratified barrier layers. As anticipated and unambiguously revealed, SSS and SST responses to TCs do not behave similarly in such conditions. In particular, we found reduced SST cooling and increased SSS salinification after the passage of TCs over thick BLs (Fig. 2). To first-order, satellite SSS can thus inform about the expected resulting strength of hurricane-induced mixing and upwelling, and should be incorporated into metrics of TC-induced SST cooling. It is also found that barrier layers lead to saltier and warmer storm wakes compared to wakes produced over barrier layer free areas.

- Sea surface salinity drops after passing of tropical depressions and storms, with minima to the left of the storm track
- Above hurricane force, post-storm salinification dominates to the right, with higher magnitude for intense slowly-moving storms
- Pre-storm upper ocean vertical salinity gradients control haline and thermal wakes. River plumes exhibit the strongest salinity wakes


Editor highlight: https://eos.org/editor-highlights/hurricanes-wakes-show-asymmetrical-response-in-ocean-salinity