The figures below show the results for the specific cases of the following storms: OPAL-1995 (Hurricane-4), BRET-1999 (Hurricane-4), ALBERTO-2000 (Hurricane-3), KATRINA-2005 (Hurricane-5), RITA-2005 (Hurricane-5).

The upper panel of the figures show the time-series of the Wind Speed Intensification (kt/h, filled curve), of the SST (oC, light blue line), of the T100 (oC, dark blue line), and of the TCHP (kJ/cm2, green line). The time-series for the oceanic parameters are displaced according to the lag of the best correlation with the wind speed intensification. The lower left panel show these correlation coefficients. Displayed on the lower right panel is the track of the storm on the top of the TCHP field for one day before the storm was a category one hurricane. The size and color of the circles represent the wind speed.

The segments of the curve filled in red in the upper panel indicate the periods of storm intensification, while the segments filled in black indicates the periods of decay in the storm intensity. The positive correlation coefficients indicates that the storm intensifies associated with higher values in the oceanic parameters (e.g. a higher intensification occurs along with a higher value of the TCHP). A positive lag (in hours) indicates that the wind speed intensification occurred X hours after passing a “hot” region.

In general, all of these five storms show a consistent relationship with the environmental parameter; a wind speed intensification is associated to warmer regions. For these storms, the maximum correlation coefficients are observed for lags ranging between 0-24 hours, but the lags are usually close to 0.









