



How exceptional was the 2017 Hurricane season and is the insurance sector prepared?

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2017 presented an outstanding loss year for the global insurance sector. In particular the Hurricanes Harvey, Irma and Maria (HIM) have been driving insured losses to unprecedented levels of currently estimated USD 136mn. But, how likely was this cluster of intense Hurricanes 2017 from an insurance view?

Here we present an in-depth analysis of the 2017 Hurricane season properties and its predictability. The study analyses the distribution of the number of hurricanes per season and intra-seasonal correlations based on Hurricane observations between 1891-2008. Furthermore, a simple probabilistic relationship between Accumulated Cyclone Energy (ACE) and loss estimates is presented. Model results are extracted from Swiss Re internal wind & surge loss estimates for an US market portfolio. External loss estimates for historical storms are shown for reference and conceptual validation. In a further step, event-count statistics are calculated for historical storms using modelled loss estimates for these events. The pure historical view is then compared to estimates based on an annual loss view from the Swiss Re loss model.

While for the basin-wide analysis shows a positive intra-seasonal correlation for the number of storms, no significant correlation was found for loss-generating storms on the US market portfolio. However, the last decade of storm activity features a concentration of seasons with above-average number of storms in the North Atlantic basin. The average number of storms and the Panjer factor increase with increasing ACE threshold, especially for low to medium loss thresholds. This is significant with respect of both trend and variability during periods that allow for intense-storm development in the investigated basin.

For 2017 the ACE relationship was rather weak, showing the limited forecast skill of ACE for actual losses. I.e. during Harvey we have observed very low ACE values. Also during Irma with substantial ACE of 66, the responding losses are above the expected value derived from the joint probability density. The total ACE for the Hurricane season was 226, and ranks historically around number 5-7 in line with 1995 and 2004 known for a very high number of Hurricanes (11 Cat1+) and destructive Hurricanes (Jeanne, Ivan, Charley) respectively. The largest ACE value in comparison was observed 1933 with 259, which featured 9 landfalls with Hurricane intensity over the Caribbean, U.S. and Mexico.