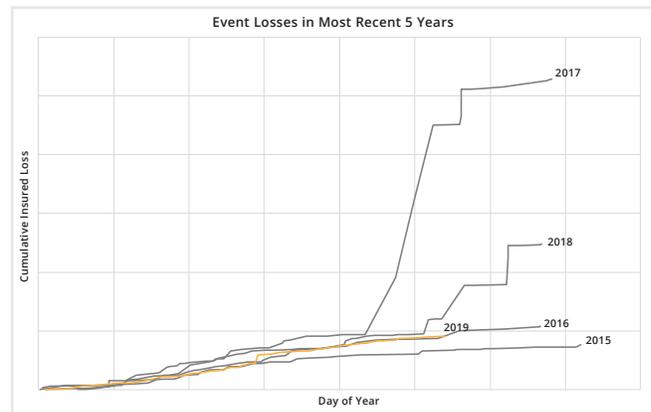
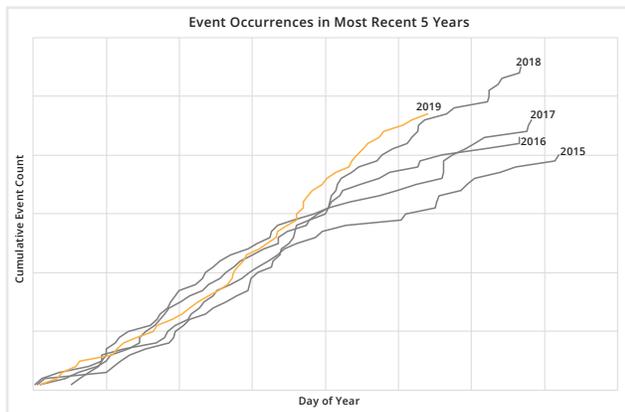


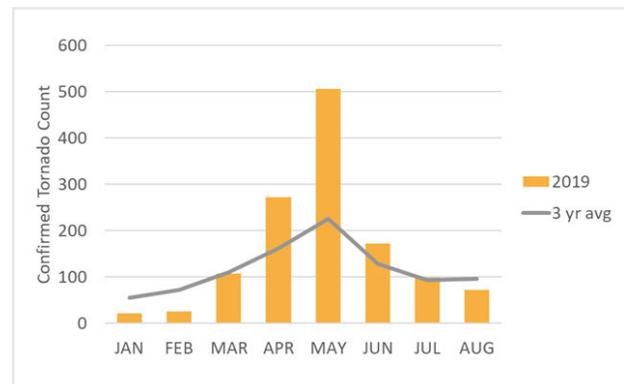
2019 Catastrophe Snapshot

2019 kept the insurance industry on its toes.

It wasn't necessarily a record-breaking year for losses, but events materialized in ways unseen in years past. The Midwest and Southeast US suffered several successive severe storms between March and July in addition to Mississippi River flooding that seemingly went on for half of 2019. Japan experienced multiple damaging typhoons. California was again threatened by multiple intense wildfires though ultimately resulting in relatively little damage compared to 2017 and 2018. In what could otherwise be characterized as a low intensity, high frequency year for catastrophes, 2019 is on track to be the least costly cat year for the US since 2015.

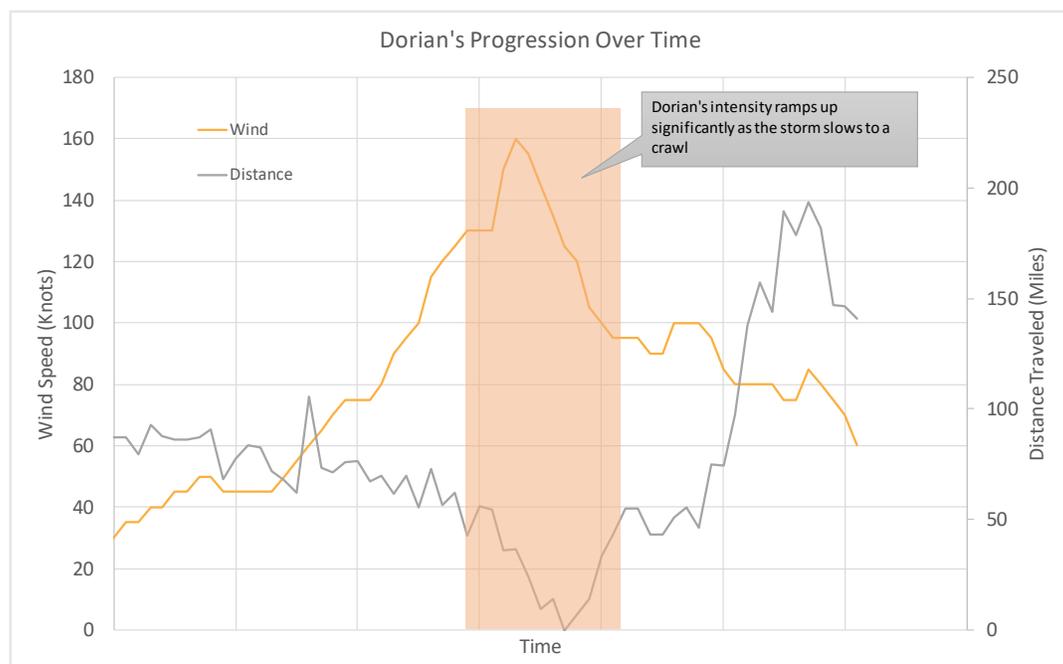


The severe storm season in the US was well above average with four consecutive months of above average Tornado activity (based on a near term view of prior 3 years). May topped out at over double the recent average Tornado count for the month. This elevated season was in addition to the late in the year October Dallas Tornado causing nearly \$1B in loss. When it comes to Severe Storm risk, having a solid philosophy on concentration management is key.

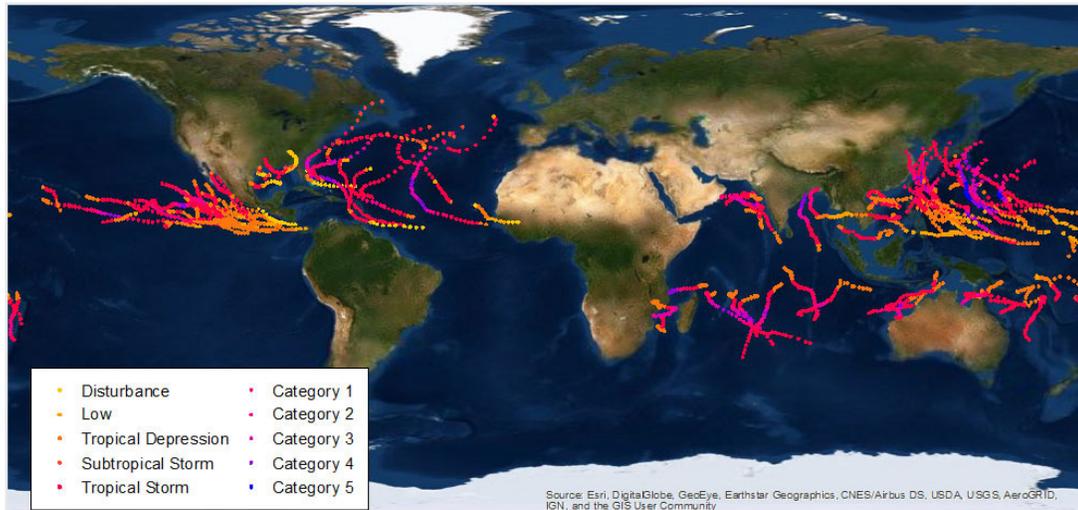


Major hurricane Dorian

Major hurricane Dorian will be a memorable storm of the 2019 North Atlantic hurricane season. Packing sustained winds of at least 185 MPH, it made landfall on the Abaco Islands in the Bahamas and stalled there for over 24 hours. Recent stalling storms have exhibited weak intensity at the start and throughout their stall, but history tells us that the intensity distribution of stalling storms generally follows the same distribution as non stalling storms, i.e. a storm's intensity does not make it more or less likely to stall. Dorian's impressive winds and stalling nature are displayed in the figure below. While early projections raised fears of a direct hit on Florida, the storm turned north before it could make any widespread damage along the Florida coast. The most significant US impacts were felt as a result of the flooding on the Outer Banks of North Carolina. On the other end of the intensity spectrum, the National Hurricane Center named the first storm of the season as Subtropical storm Andrea nearly two weeks before the official start of hurricane season. This is the second year in a row the season has started early with a named subtropical storm.

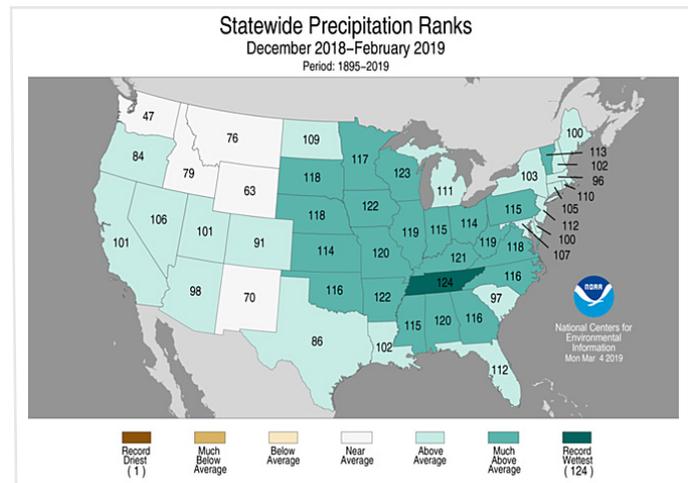


Though the US was largely spared from Hurricane damage in 2019, other parts of the world had a seemingly active year. Most notably, Japan sustained landfalls from two storms: Faxai (in September) and Hagibis (in October). Both storms made landfall along the same region of the eastern Japan coast. Though Faxai was a category 4 storm at landfall, it did not cause nearly the same level of damage as Hagibis did as a category 2. The majority of damage from Hagibis resulted from flooding and was no doubt on the high end given it followed shortly after Faxai. Together these storms will likely reach \$20B in insured losses.



Tracks of all 2019 tropical disturbances. While the northern hemisphere showed below average activity, the southern hemisphere was slightly above average.

As a result of an unusually wet winter, the Mississippi river maintained significant flooding levels for most of the first half of the year across the upper, middle and lower sections. The flooding can't be attributed to any one meteorological event, but rather a very long period of above average precipitation paired with unusually fast melting snow pack in the spring. That fast melting snow pack was a result of a bomb cyclone which affected most of the northern central US and caused significant flooding of the Missouri River – particularly between Omaha and Kansas City.



Two big near misses in 2019

Two events worth studying closely even though they ultimately didn't produce much insured loss: Hurricane Dorian, and the California Wildfires of late October. Each of these near misses had its own takeaway. Dorian highlighted the fact that not only large and low intensity hurricanes can stall out after Dorian sat motionless at category 5 strength for a harrowing 24 hour period. Dorian also highlighted the need to be prepared for successive years of major losses as Florida could have easily been hit by 3 years in row of major landfalling hurricanes if Dorian had not tracked north.

The California Wildfires in late October highlighted the complexity of this peril as it pertains to the peril's unique interaction with the built environment – such that the expanding development in the state puts new structures in known high risk areas, and more people, buildings, and infrastructure means more ignitions. Wildfire losses are directly subject to human intervention. One thing that became clear was that lessons learned by firefighting agencies from 2017 and 2018 wildfires helped to significantly reduce losses in 2019 despite the fires being more intense and just as nestled in the developed areas.

TigerRisk monitors the latest in catastrophe activity all year long and our annual review is just a start at looking back on lessons learned. Having a Tiger on your team will make sure you're prepared for what 2020 brings.