HURRICANE DATA PROVISIONS (HDP)

2020 AND SUCCEEDING CROP YEARS

The HDP documents the procedures for determining the counties where a loss is triggered for *Hurricane Insurance Protection – Wind Index* (HIP-WI).

1. Definitions

   Basin – An ocean basin, such as the North Atlantic.

   Insurance Period – As defined under "Insurance Period" in Section 1 of the HIP-WI Endorsement

   ISO-Time – Time of the event in universal time coordinates to include 'YYYY-MM-DD HH:mm:ss'

   Name – Storm name provided by National Oceanic Atmospheric Administration (NOAA).

   Season – The calendar year the hurricane was formed in, as determined by NOAA.

   Wind Extents - Hurricane force wind reach extents which indicate how far hurricane force winds extend, in nautical miles (M), in each quadrant (Northeast, Northwest, Southeast, Southwest), or the calculated values described herein.

2. Data

The data used to determine the trigger counties for HIP-WI is the International Best Track Archive for Climate Stewardship (IBTrACS) dataset from the National Climatic Data Center within the National Hurricane Center operated by NOAA. The variables used are name, season, basin, Saffir-Simpson Hurricane Scale (SSHS), wind extents per bearing quadrant (USA_R64_NE [NW, SW, SE]), and the unique Storm Identifier (SID). These variables are generally recorded every three hours.

3. Loss Triggers

NOAA generally publishes IBTrACS datasets approximately two weeks following the occurrence of a hurricane landfall. Once published, RMA will obtain the IBTrACS dataset and determine the trigger counties. If NOAA publishes an updated final IBTrACS dataset prior to the start of the following hurricane season, which begins June 1st of the following year, RMA will process the updated data to determine if a loss is triggered for any additional counties but will not remove any previously triggered counties.

The storm center points used to determine the trigger counties are those where the hurricane strength is greater than or equal to a Category 1 (USA_SSHS > = 1) , as well as one tropical storm (USA_SSHS = 0) point that directly follows the last hurricane strength point on land. This

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last point is used to cover the time between the 3-hour interval of the last hurricane point. The storm center points are projected in a continental USA Albers Equal-Area projection.

The storm center points are mapped, and the maximum distance of the wind extents is used to create a circle around each storm point. These are referred to as hurricane buffers.

> **Example**
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> Suppose the maximum distance of the hurricane wind extent from the storm center point is 35 M for northeast quadrant, 40 M for the southeast quadrant, 45 M for the southwest quadrant, and 50 M for the northwest quadrant. In this case the maximum distance of the hurricane wind extent from the storm center is 50 M (northwest quadrant). The hurricane buffer is then a 50 M radius circle around the storm center point.

The wind extent for the final storm center point (the storm center point that directly follows the last hurricane strength center point) is calculated as 50 percent of the maximum wind extent from the preceding hurricane strength center point.

> **Example**
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> If the last hurricane strength center point had wind extents at a maximum distance of 50 M, then the hurricane buffer is calculated as a 25 M circle around the final storm center point.

When the storm center points and corresponding hurricane buffers are calculated, in the result is a series of (often overlapping) circles. Line segments are then drawn between each pair of hurricane buffers that are tangent to both hurricane buffers to develop a smoothed area of wind extent. The smoothed area of wind extent is determined as either the tangent lines or the tangent lines and arcs of the wind buffers, whichever is more distant from the storm center points.

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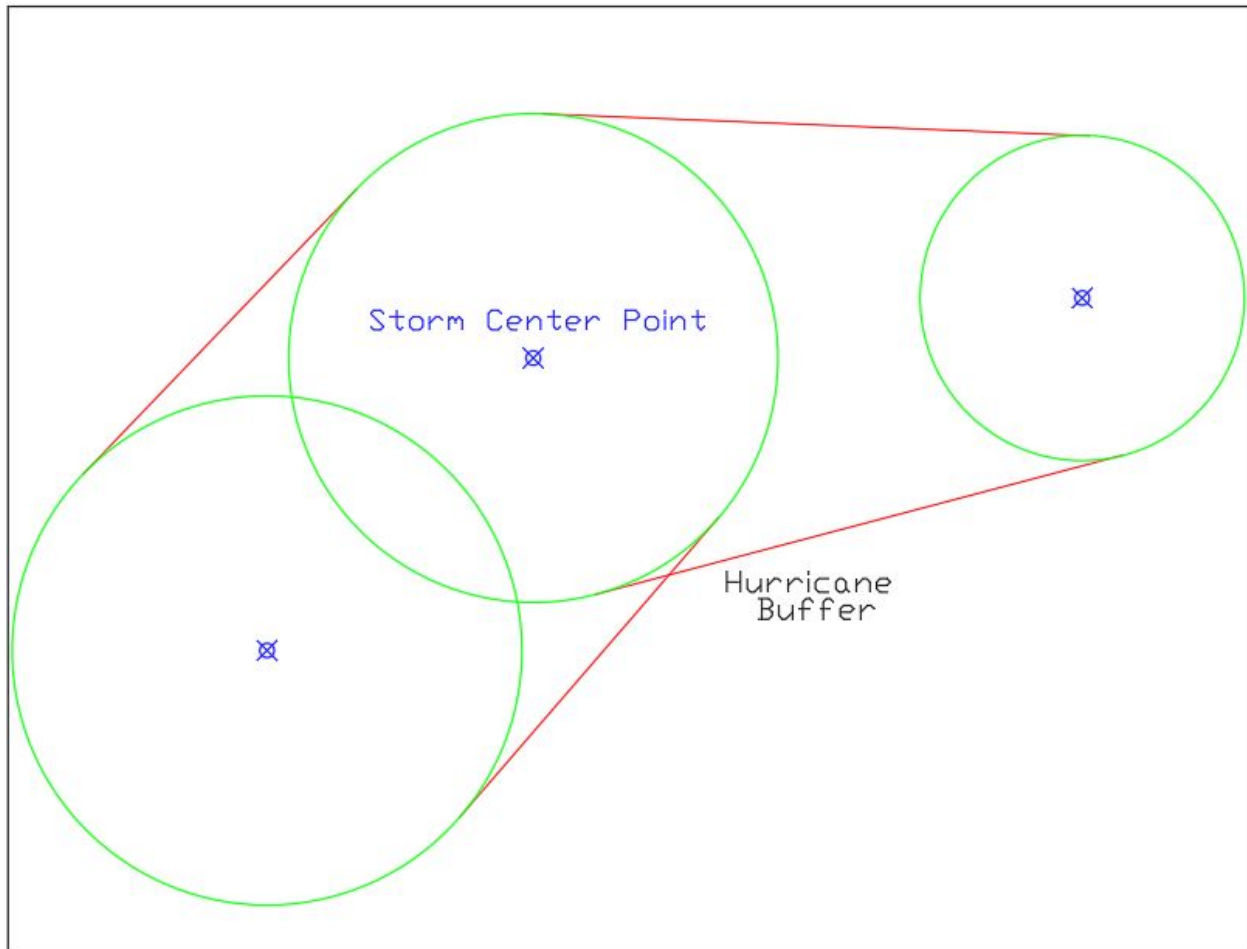
The smoothed area of wind extent is then applied to the continental USA Albers Equal-Area projection. Any county that intersects the smoothed area of hurricane wind extent is determined to be a trigger county. Any counties adjacent to counties that intersect the smoothed area of hurricane wind extent (based on the US census counties dataset) are also determined to be trigger counties. The trigger counties will be published in the actuarial documents. The storm date will be provided from the NOAA data from the ISO-time. Payments will be issued in accordance with the HIP-WI endorsement.