Change to WDP formulation based on 2007 testing

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Tests conducted during the 2007 hurricane season indicated that the WDP calculation in Eqn 2 or Powell and Reinhold 2007 contains negative quadratic terms that produce too low WDP values from small values of $IKE_{25\text{-}40}$ and $IKE_{41\text{-}54}$.

Continuous damage multiplier functions were developed from the zip code level loss data described in Powell and Reinhold 2007. For gridded wind fields, the function is applied to determine the multiplier (M_G) as a function of the kinetic energy per unit volume (KE_v) in the grid cell,

$$M_G = 3.45 (49.785 * [1+ \text{TanH} (0.002469 * (KE_V - 1602.94))]) \quad \text{C1}$$

and all grid cell products of $M_G * KE_V *$ Area are summed to compute the storm total damage-weighted kinetic energy (IKE_{WT}) over a 1 m thick layer centered at 10 m, where area represents the area of a grid cell in m^2.

IKE_{WT} = SUM (MG * KE_V * Area) for all grid cells containing winds > 25 m s^{-1}

The revised WDP<4 is:

$$WDP<4 = .8828 + 0.0183 (IKE_{WT})^{.5} + 0.802 \text{Log}_{10} (IKE_{WT}) \quad \text{C2}$$

The revised WDP<4 is:

WDP>4 requires V_{MS} > 55 m s^{-1}

$$WDP>4 = 3.974 - 0.0002 IKE_{WT} + 0.0373 (IKE_{WT})^{.5} + 0.085 \text{Log}_{10} (IKE_{WT}) \quad \text{C3}$$

Units of IKE_{WT} in C2 and C3 are Terra-joules (1 TJ = 10^{12} J)