



Hurricane Harvey and its associated intense rainfall in the Houston area

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On August 25th 2017, Hurricane Harvey made landfall near Corpus Christi, Texas as a category 4 hurricane with maximum sustained winds of 130 mph, produced highest rainfall totals of 50 inches in some areas of Houston, Texas, caused 77 deaths and estimated damages are still being calculated and have reached \$180 billion dollars. This study describes meteorological data from genesis to landfall of Hurricane Harvey and tries to pinpoint which of the tropical cyclone conditions allowed this storm to strengthen and produce the significant amount of rain during its lifespan in the Houston area. The favorable conditions that played a part in the genesis and intensification of Harvey include sea surface temperature, wind shear, convection and general atmospheric circulation along its trajectory. Special attention will be given to the spatial and temporal development of precipitation and wind speeds, as well as travel time and path of Harvey after landfall, since these conditions caused most of the damage. This work also investigates potential diurnal impacts, which have been proposed to cause deep moist convection as Hurricane Harvey continued to gain intensity in the nighttime hours causing rainfall rates and wind speeds to increase.