Comparison of destructive wind forces of Hurricane Irma and other hurricanes impacting NASA Kennedy Space Center, 2004 - 2017

David Sharp
National Weather Service, Melbourne, Florida

Katherine A. Winters
45th Weather Squadron, Patrick AFB, Florida

Lisa L. Huddleston
NASA, John F. Kennedy Space Center, Florida

Kristin A. Smith
NASA, John F. Kennedy Space Center, Florida

Hurricane Irma produced sustained hurricane force winds (lowest altitude occurrence at 54-ft) resulting in facility damage at Kennedy Space Center (KSC) on September 10-11, 2017. Irma's large destructive wind footprint also caused significant wind damage across the adjacent communities within Brevard County. Wind damage was augmented by frequent gusts of higher magnitude, along with several embedded tornadoes. Hurricanes have previously impacted and produced significant wind damage to infrastructure at KSC as a result of kinetic energy dissipated, in part, through contact with man-made structures. This paper is intended to provide information specific to the destructive force of Hurricane Irma's sustained winds and previous hurricanes of 2004, 2005 and 2016 as calculated from sustained 10 m/s wind speeds measured from wind towers at KSC for the onset and cessation of destructive forces. Other factors such as pre-existing condition of impacted infrastructure, upstream structures causing turbulent wind patterns, and associated severe convective weather, are contributing factors but are not analyzed here.