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Why evacuate when they do? Household behavior pre and post-watch and warning announcements during hurricane eventsPraveen Maghelal¹, Sudha Arlikatti² and Walter Gillis Peacock³¹Khalifa University, UAE²Rabdan Academy, UAE³Texas A&M University, USA

The spate of high intensity Atlantic hurricanes-Harvey, Irma and Maria, that made landfall in the United States in 2017, refocused attention on the importance of hurricane warnings and associated decisions to evacuate. Evidence suggests that the timing of evacuation decisions and actual evacuation vary and are influenced by various behavioral, awareness and household characteristics. It is important to understand the influence of these factors on the household's decision to evacuate and to actual evacuation, especially in relation to the timing of the official announcements of watch and warning. This study, therefore, empirically investigates the relationship of the social cues, source of information, access to channels, warning messages and household characteristics on pre-evacuation decision processes and both decisions to evacuate and actual evacuation. The Protective Action Decision Model framework was used to guide the data collection of Hurricane Rita (2005) evacuees from the coastal counties of Texas USA and to investigate if the characteristics of evacuees vary with the pre-watch, post-watch/pre-warning and post warning announcements. Multivariate regression was used to predict the probability to evacuate in one of these three time-periods using the evacuee responses for both; decisions to evacuate and actual evacuation. Preliminary investigation reveals that several households (e.g. licensed drivers), perception (e.g. risk of reaching destination safely) and behavioral variables (e.g., evacuating in multiple groups) influence the odds that a household would evacuate in post-warning and post-watch period in comparison to the pre-watch period. Recommendations to reduce delays and congestion from last minute evacuations and ensure the safety of not only the coastal residential populations but also emergency management personnel responding to their needs are offered. Recommendations are made to reduce delays and encourage earlier evacuation.

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