Special Seminar
Texas Hurricane Center for Innovative Technology (THC-IT)
Department of Civil and Environmental Engineering
Department of Industrial Engineering

University of Houston

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Stennis Space Center unit

A review of hurricane rainfall prediction guidance and probability distribution function formulations for flood mitigation

Wednesday, September 19, 2018

2:45-3:45 p.m., N61–D Engineering Building-No. 1, University of Houston

ABSTRACT

As evidenced by Hurricane Harvey and, recently, Hurricane Lane, hurricane rainfall can produce catastrophic impacts, compounded by predictability limits related to track, wind structure, and intensity. This seminar will overview intensity and track forecasting guidance, and how those are utilized for rainfall prediction. State-of-the-art inundation products, such as NOAA's Water Model and the storm surge ADCIRC model, will also be discussed.

Proper mitigation using return-level studies for rainfall events is also a necessary strategy for future storm preparation. This talk will review a simple empirical formulation recently published in the *Natural Hazards Journal* — the PDF Precipitation-Climatology and Persistence, or P-CLIPER.

Time will also be allocated for general questions on future models and hurricane observation platforms.

Bio - Pat Fitzpatrick, Ph.D.

Fitzpatrick has conducted research and developed forecast applications on hurricanes, storm surge, severe weather, and climatology in the academic and private sector for 23 years. He has written 24 peer-review publications, 2 books on hurricanes, and 6 book chapters/encyclopedia articles on hurricanes He actively collaborates with government personnel at the National Hurricane Center, Hurricane Research Division, National Center for Environmental Prediction, and the Naval Research Laboratory. These research interests overlapped an incubator commercialization program which resulted in storm surge, ocean, and weather products provided in a subscription service and for television stations. Other private sector activities include inundation return level assessment support for FEMA, the Nuclear Regulatory Commission, and NASA; hurricane forecasting; and legal expert witness activities. Prior to MSU, he taught at Jackson State University where he still maintains an adjunct teaching position. Related websites are http://drfitz.net (research), http://worldwindsinc.com (industry), http://weathercsi.net (legal and forensic), http://weatherclasses.com (teaching).

Fitzpatrick graduated with a Bachelor of Science and Master of Science from Texas A&M University. He then completed a Ph.D. in atmospheric science at Colorado State University, where his advisor was Dr. Bill Gray. Prior to college, Fitzpatrick attended Katy High School, and has family in the Houston area.