



Evolution of Assessment of Wind Speeds in Tornadoes



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Abstract

Tornadoes are windstorms that are unpredictable and short lived. As a result, it is difficult to put wind-measuring instruments in the path of a tornado. Wind speeds in tornadoes are assessed with indirect methods of physical evidence of damage or with remote sensing. This presentation discusses evolution of assessment of wind speed in tornadoes since 1970. In particular, it traces engineering based estimated (calculated where possible) wind speeds from damage, the development of F-scale by Dr. Ted Fujita in 1970 and its enhancement into EF-scale in this millennium. The presentation also describes current efforts to improve EF-scale and current/future efforts in remote sensing procedures using radars.

Biography

Dr. Mehta is P.W. Horn Professor of Civil, Environmental and Construction Engineering at Texas Tech University. He was Program Director for the Structural and Architectural Engineering and Co-Program Director for the Engineering for Natural Hazards at the National Science Foundation in Washington, D.C. from 2011-2015. He received BS and MS degrees in Civil Engineering from the University of Michigan and PhD in Structural Engineering from the University of Texas-Austin. He is former Director of the Wind Science and Engineering Research Center (now the National Wind Institute) at Texas Tech. He was elected to the Distinguished Membership of the American Society of Civil Engineers in 2002 and to the National Academy of Engineers (USA) in 2004. He has been pursuing research in wind loads on buildings and structures since 1970. He chaired the committee of the American Society of Civil Engineers from 1976-1995 which produced the ASCE 7 wind load standards. He was Principal in developing EF-scale to assess intensity of tornadoes; NWS implemented the use of the scale in 2007. At Texas Tech he developed an interdisciplinary doctoral degree program in Wind Science and Engineering with NSF funding. This one-of-a kind program has graduated 30 students with PhDs to date. He has more than 170 publications to his credit.