



James A. Smith^a, Gabriele Villarini^{a, b}, Mary Lynn Baeck^a, Daniel B. Wright^a, and Witold F. Krajewski^c

^a Department of Civil and Environmental Engineering, Princeton University, New Jersey, U.S.A.

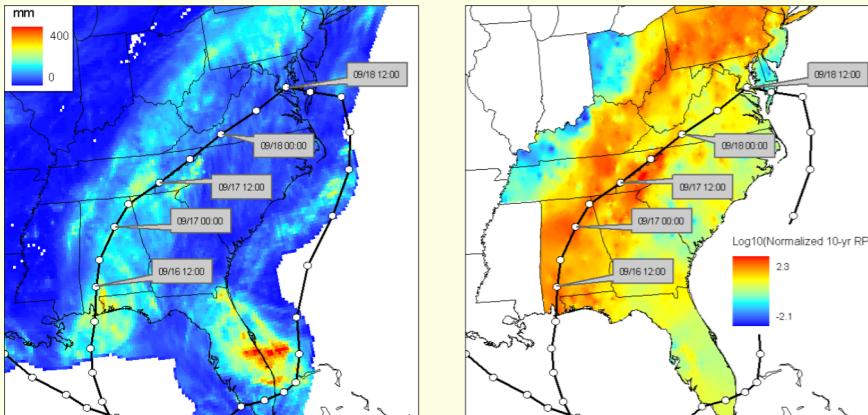
^b Willis Research Network, London, United Kingdom

^c IIHR-Hydroscience & Engineering, The University of Iowa, Iowa City, Iowa, U.S.A.

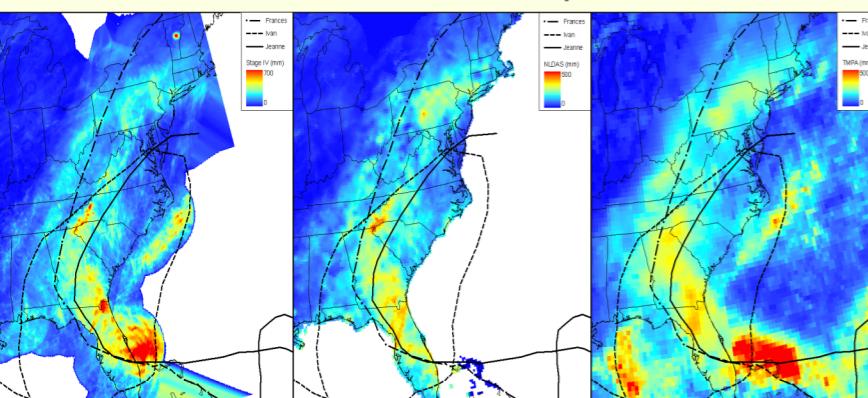
e-mail: jsmith@princeton.edu

Tropical Cyclones and Floods

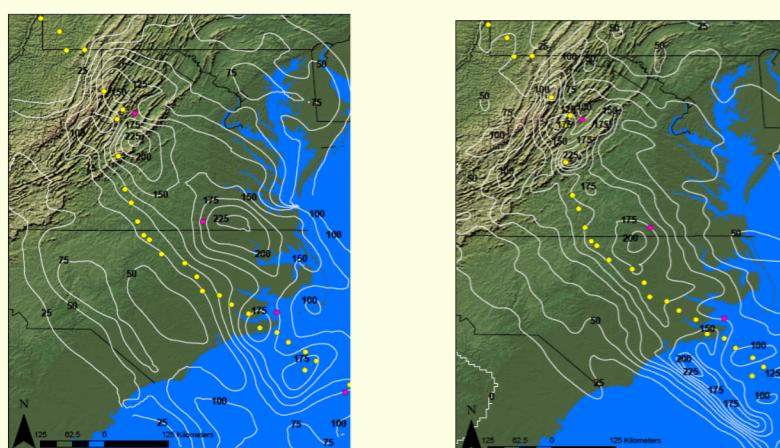
Hurricane Ivan (2004)



Storm total accumulation for September 2004

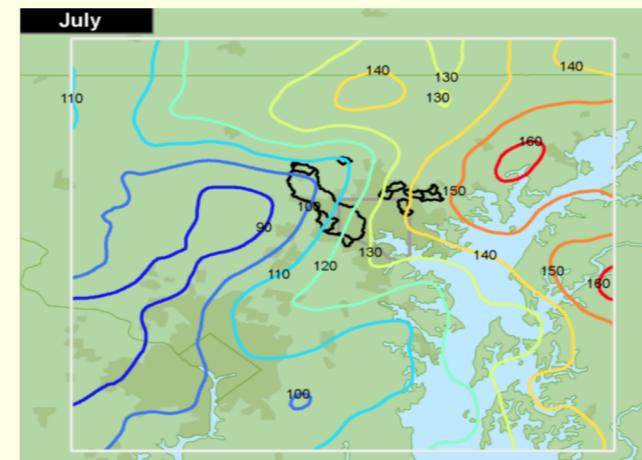


Hurricane Isabel (2003)

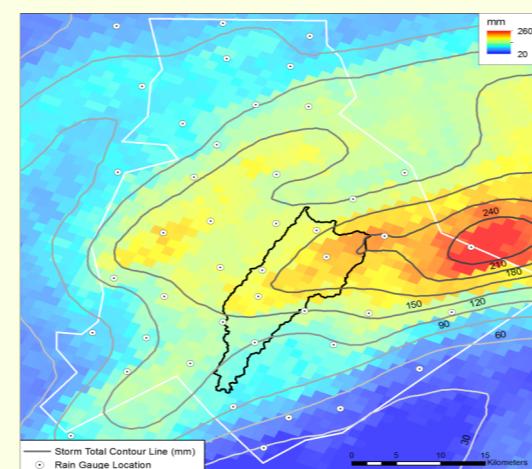


Urban Rainfall and Floods

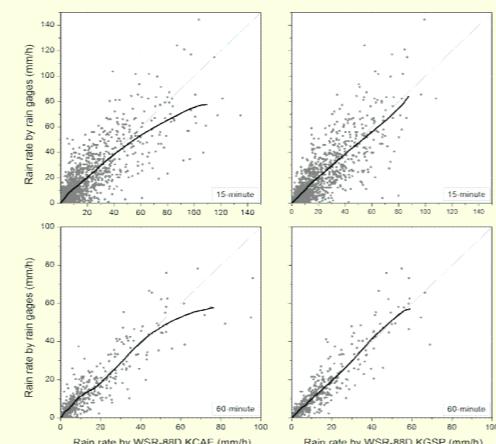
July



Baltimore
Mean monthly rainfall (in mm) for July based on a 10-year high resolution radar-rainfall



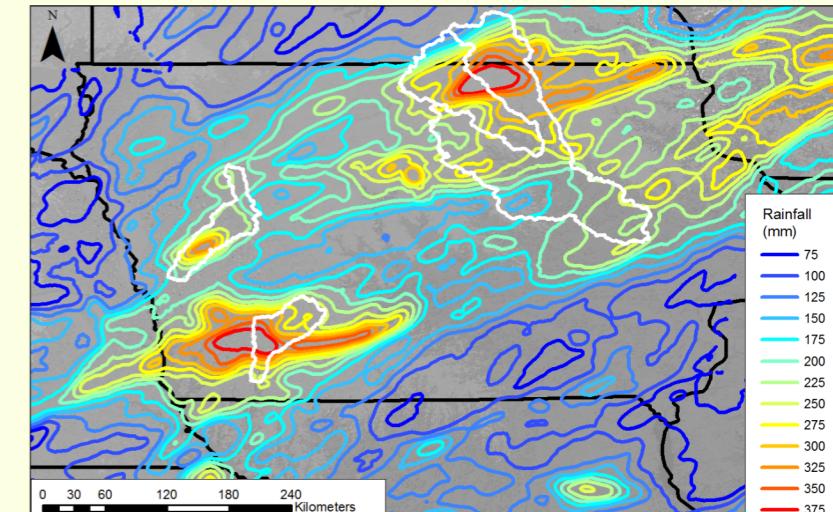
Charlotte
Storm total accumulation for Hurricane Danny (23 July 1997) based on the bias-corrected radar-rainfall estimates by the Greer



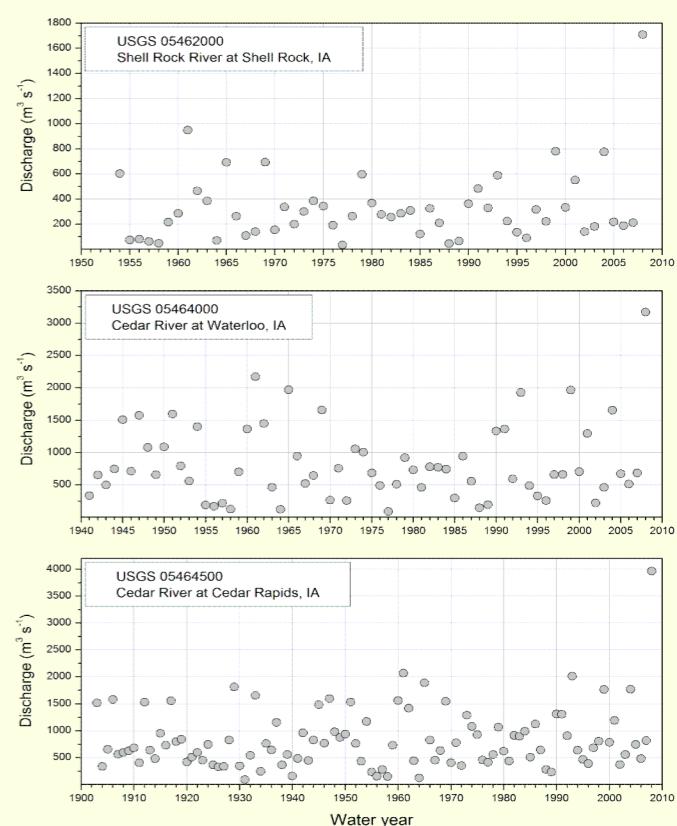
Scatterplots of Columbia (KCAE) and Greer (KGSP) radars versus rain gage at the 15-min and hourly time scales. The radar data are bias-corrected. The black solid line represents the conditional bias.

Iowa Floods

Total rainfall (mm) from 4 - 12 June 2008



Annual flood peak time series



Lin, N., J.A. Smith, G. Villarini, T.P. Marchok, and M.L. Baeck, Modeling extreme rainfall, winds, and surge from Hurricane Isabel (2003), *Weather Forecast*, 25, 1342-1361, 2010.

Smith, J.A., G. Villarini, and M.L. Baeck, Mixture distributions and the climatology of extreme rainfall and flooding in the Eastern US, *J Hydrometeorol*, 12(2), 294-309, 2011.

Villarini, G., J.A. Smith, M.L. Baeck, T. Marchok, and G.A. Vecchi, Characterization of rainfall distribution and flooding associated with U.S. landfalling tropical cyclones: analyses of Hurricanes Frances, Ivan, and Jeanne (2004), *J Geophys Res*, 2011 (in press).

Smith, J.A., M.L. Baeck, G. Villarini, C. Welty, A. J. Miller, and W.F. Krajewski, Analyses of a long-term high-resolution radar rainfall data set for the Baltimore metropolitan area, *Water Resour Res*, 2011 (submitted).

Wright, D.B., J.A. Smith, G. Villarini, and M.L. Baeck, The hydroclimatology of flash flooding in Atlanta, submitted to *Water Resour Res*, 2011 (submitted).

Villarini, G., J.A. Smith, M.L. Baeck, P. Sturdevant-Rees, and W.F. Krajewski, Radar analyses of extreme rainfall and flooding in urban drainage basins, *J Hydrol*, 381(3-4), 266-286, 2010.

Smith, J.A., M.L. Baeck, G. Villarini, D.B. Wright, and W.F. Krajewski, Extreme flood response: The June 2008 flooding in Iowa, *Water Resour Res*, 2011 (near submission).

Villarini, G., J.A. Smith, M.L. Baeck, R. Vitolo, D.B. Stephenson, and W.F. Krajewski, On the frequency of heavy rainfall for the Midwest of the United States, *J Hydrol*, 400(1-2), 103-120, 2011.

Villarini, G., J.A. Smith, M.L. Baeck, and W.F. Krajewski Examining flood frequency distributions in the Midwest U.S., *J Am Water Resour As*, 47(3), 447-463, 2011.