# HFIP Publications 2016

### Journals and Periodicals


Abarca, S. F., and M. T. Montgomery, 2013: Essential dynamics of secondary eyewall formation. *J. Atmos. Sci.*, **70**, 3216–3230, doi:10.1175/JAS-D-12-0318.1

Alaka, G. L., X. Zhang, S. G. Gopalakrishnan, S. B. Goldenberg, and F. D. Marks, 2017: Performance of basin-scale HWRF tropical cyclone track forecasts. *Wea. Forecast*., Early online release, doi:10.1175/WAF-D-16-0150.1. [Available at http://journals.ametsoc.org/doi/pdf/10.1175/WAF-D-16-0150.1]

Bao, J.-W., S. A. Michelson and E. D. Grell, 2016: Pathways to the production of precipitating hydrometeors and tropical cyclone development. *Mon. Wea. Rev*., **114**, 2395-2420.

Bu, Y. P., R. G. Fovell, and K. L. Corbosiero, 2017: The influences of boundary layer mixing and cloud-radiative forcing on tropical cyclone size. *J. Atmos. Sci.*, **74**, 1273-1292.

Gao, C., and P. Zhu, 2016: Vortex Rossby wave propagation in baroclinic tropical-cyclone-like vortices, *Geophy. Res. Lett*., **43**(12), 578-12,589, doi:10.1002/2016GL071662.

Gao, K. and I. Ginis, 2016: On the equilibrium-state roll vortices and their effects in the hurricane boundary layer. *J. Atmos. Sci*., **73**, 1205-1221.

Kieu, C. Q., 2016: Retrograde waves in tropical cyclone inner-core. *Tellus A*., **68**, 31402.

Kieu, C. Q., and Z. Moon, 2016: Hurricane intensity predictability. *Bull. Amer. Meteor. Soc.*, **97**, 1847-1857.

Kieu, C. Q., V. Tallapragada, D.-L. Zhang, and Z. Moon, 2016: On the development of double warm-core structures in intense tropical cyclones. *J. Atmos. Sci*., **73**(11), 4487-4506.

Knaff, J. A., C. J. Slocum, K. D. Musgrave, C. R. Sampson, and B. R. Strahl, 2016: Using routinely available information to estimate tropical cyclone wind structure. *Mon. Wea. Rev.*, **144**, 1233-1247. doi: http://dx.doi.org/10.1175/MWR-D-15-0267.1

Lu, X., X. Wang, Y. Li, M. Tong, and X. Ma, 2016: GSI-based ensemble-variational hybrid data assimilation for HWRF for hurricane initialization and prediction: impact of various error covariances for airborne radar observation assimilation. *Q. J. R. Meteorol. Soc*., **143**: 223-239.

Pu, Z., S. Zhang, M. Tong, and V. Tallapragada, 2016: Influence of the self-consistent regional ensemble background error covariance on hurricane inner-core data assimilation with the GSI-based hybrid system for HWRF. *J. Atmos. Sci*., **73**(12), 4911-4925.

Reichl, B. G., I. Ginis, T. Hara, B. Thomas, T. Kukulka, and D. Wang, 2016: Impact of sea-state-dependent Langmuir turbulence on the ocean response to a tropical cyclone. *Mon. Wea. Rev*., **144**, 4569-4590.

Reichl, B. G., D. Wang, T. Hara, I. Ginis, and T. Kukulka, 2016: Langmuir turbulence parameterization in tropical cyclone conditions. *J. Phys. Oceanogr*., **46**, 863-886, doi: 10.1175/JPO-D-15-0106.1

Rios-Berrios, R., R. D. Torn, and C. A. Davis, 2016: An ensemble approach to investigate tropical cyclone intensification in sheared environments. Part II: Ophelia (2011). *J. Atmos. Sci.*, **73**(4), 1555-1575, doi: 10.1175/JAS-D-15-0245.1

Rios-Berrios, R., R. D. Torn, and C. Davis, 2016: An ensemble approach to investigate tropical cyclone intensification in sheared environments. Part I: Katia (2011). *J. Atmos. Sci.*, **73**(1), 71-93, doi: 10.1175/JAS-D-15-0052.1

Rogers, R. F., J. A. Zhang, J. Zawislak, H. Jiang, G. R. Alvey III, E. J. Zipser, and S. N. Stevenson, 2016: Observations of the structure and evolution of Hurricane Edouard (2014) during intensity change. Part II: Kinematic structure and the distribution of deep convection. *Mon. Wea. Rev*., **144**, 3355-3376.

Tallapragada, V., C. Kieu, S. Trahan, Q. Liu, W. Wang, Z. Zhang, M. Tong, B. Zhang, L. Zhu, and B. Strahl, 2016: Forecasting tropical cyclones in the western North Pacific basin using the NCEP operational HWRF model: Model upgrades and evaluation of real-time performance in 2013. *Wea. Forecast*., **31**(3), 877-894.

Tian, X. and X. Zou, 2016: ATMS derived warm core evolution from tropics to middle latitudes for Hurricane Sandy. *J. Geophy. Res.*, **121**(12), 630-12, 646. doi: 10.1002/2016JD025042.

Torn, R. D., 2016: Evaluation of atmosphere and ocean initial condition uncertainty and stochastic exchange coefficients on ensemble tropical cyclone intensity forecasts. *Mon. Wea. Rev*., **144**, 3487–3506, doi: 10.1175/MWR-D-16-0108.1

Tuleya, R. E., M. A. Bender, T. R. Knutson, J. J. Sirutis, B. Thomas, and I. Ginis, 2016: Impact of upper tropospheric temperature anomalies and vertical wind shear on tropical cyclone evolution using idealized version of the operational GFDL hurricane model. *J. Atmos. Sci.*, **73**(10), doi: 10.1175/JAS-D-16-0045.1

Zawislak, J., H. Jiang, G. R. Alvey III, E. J. Zipser, R. F. Rogers, J. A. Zhang, and S. N. Stevenson, 2016: Observations of the structure and evolution of Hurricane Edouard (2014) during intensity change. Part I: Relationship between the thermodynamic structure and precipitation. *Mon. Wea. Rev*., **144**, 3333-3354.

Zhang, B., R. S. Lindzen, V. Tallapragada, F. Weng, Q. Liu, J. A. Sippel, Z. Ma, and M. A. Bender, 2016: Increasing vertical resolution in US models to improve track forecasts of Hurricane Joaquin with HWRF as an example. *Proceedings of the National Academy of Sciences*, **113**(42), doi:10.1073/pnas.1613800113.

Zhang, B., V. Tallapragada, F. Weng, J. Sippel, and Z. Ma, 2016: Estimation and correction of model bias in the NASA/GMAO GEOS5 data assimilation system: Sequential implementation. *Adv. Atmos. Sci*., **33**(6), 659-672.

Zhang, J. A., R. F. Rogers, and V. Tallapragada, 2017: Impact of parameterized boundary layer structure on tropical cyclone rapid intensification forecasts in HWRF. *Mon. Wea. Rev*., **145**, 1413–1426, doi: 10.1175/MWR-D-16-0129.1.

Zhang, X., S. G. Gopalakrishnan, S. Trahan, T. S. Quirino, Q. Liu, Z. Zhang, G. Alaka, V. Tallapragada, 2016: Representing multiple scales in the hurricane weather research and forecasting modeling system: Design of multiple sets of movable multilevel nesting and the basin-scale HWRF forecast application. *Wea. Forecast*., **31**(6), 2019-2034.

Zou, X., Z. Qin and F. Weng, 2016: Impacts from assimilation of one data stream of AMSU-A and MHS radiances on quantitative precipitation forecasts. *Quart. J. Roy. Meteor. Soc*., **143**(703), 731-743. doi: 10.1002/qj.2960.

Zou, X., X. Zhuge and F. Weng, 2016: Characterization of bias of advanced Himawari imager infrared observations from NWP background simulations using CRTM and RTTOV. *J. Atmos. Oceanic Technol*., **33**, 2553-2567. doi: 10.1175/JTECH-D-16-0105.1.

**Publications in Print**

Aijaz, S., M. Ghantous, A. Babanin, I. Ginis, B. Thomas, and G. Wake 2017: Nonbreaking wave-induced mixing in upper ocean during tropical cyclones using coupled hurricane-ocean-wave modeling. *J. Geophys. Res. Oceans*., doi:10.1002/2016JC012219, in press.

Bernardet, L., L. Carson, and V. Tallapragada, 2016: The design of a modern information technology infrastructure to facilitate research to operations transition for NCEP's modeling suites. *Bull. Amer. Meteor. Soc*., doi:10.1175/BAMS-D-15-00139.1, in press.

Ma, Z., E. Maddy, B. Zhang, T. Zhu, and S. Boukabara, 2017: Impact assessment of Himawari-8 AHI data assimilation in NCEP GDAS/GFS with GSI. *J. Atmos. Oceanic Technol*., doi:10.1175/JTECH-D-16-0136.1, in press.

Nolan, D. S., and J. A. Zhang, 2017: Spiral gravity waves radiating from tropical cyclones. *Geophys. Res. Lett*., doi:10.1002/2017GL073572, in press.

Otkin, J. A., W. E. Lewis, A. Lenzen, B. McNoldy, and S. Majumdar, 2017: Assessing the accuracy of the cloud and water vapor fields in the Hurricane WRF (HWRF) model using satellite infrared brightness temperatures. *Mon. Wea. Rev*., in press.

Qin, Z., X. Zou and F. Weng, 2016: Impacts of AHI radiance assimilation on quantitative precipitation forecasts over eastern China. *J. Geophy. Res*., submitted.

Rogers, R. F., S. Aberson, M. M. Bell, D. Cecil, J. Doyle, T. Kimberlain, J. Morgerman, L. K. Shay, and C. Velden, 2017: Re-writing the tropical record books: The extraordinary intensity changes of Hurricane Patricia (2015). *Bull. Amer. Meteor. Soc*., doi: 10.1175/BAMS-D-16-0039.1, in press.

Rogers, R. F., P. D. Reasor, and J. A. Zhang, 2017: Reply to comments on "Multiscale structure and evolution of Hurricane Earl (2010) during rapid intensification". *Mon. Wea. Rev*., in press.

Zhang, F., Z. Pu, and C. Wang, 2017: Effects of boundary layer vertical mixing on the evolution of hurricanes over land. *Mon. Wea. Rev*., in press.

Zhang, J. A., J. J. Cione, E. A. Kalina, E. W. Uhlhorn, T. Hock and J. A. Smith, 2017: Observations of infrared sea surface temperature and air-sea interaction in Hurricane Edouard (2014) using GPS dropsondes. *J. Atmos. Ocean. Tech*, in press.

Zhang, J. A., R. F. Rogers, and V. Tallapragada, 2017: Impact of parameterized boundary layer structure on tropical cyclone rapid intensification forecasts in HWRF. *Mon. Wea. Rev*., in press.

**Publications in Review**

Alessandrini, S., L. D. Monache, C. M. Rozoff, and W. E. Lewis, 2017: Probabilistic prediction of tropical cyclone intensity with an analog ensemble. *Mon. Wea. Rev*., in review.

Blair A., I. Ginis, T. Hara, and E. Ulhorn, 2017: Impact of Langmuir turbulence on upper ocean response to Hurricane Edouard: model and observations. *J. Geophys. Res. Oceans*., in review.

Chen, H., S. Gopalakrishnan, J. A. Zhang, R. F. Rogers, Z. Zhang, and V. Tallapragada, 2017: Use of HWRF ensembles for providing improved understanding of hurricane RI problem: Case study of Hurricane Edouard (2014). *J. Atmos. Sci*., in review.

Doyle, J. D., J. Moskaitis, J. Feldmeier, R. Ferek, M. Beaubien, M. Bell, D. Cecil, R. Creasey, P. Duran, R. Elsberry, W. Komaromi, J. Molinari, D. Ryglicki, D. Stern, X. Wang, C. Velden, B. Barrett, T. Allen, P. Black, K. Emanuel, J. Dunion, E. Hendricks, P. Harr, L. Harrison, D. Herndon, W. Jeffries, S. Majumdar, J. Moore, Z. Pu, R. F. Rogers, E. Sanabia, G. Tripoli, D.-L. Zhang, 2017: A view of tropical cyclones from above: The TCI experiment. *Bull. Amer. Meteor. Soc*., in review.

Guimond, S. R., G. M. Heymsfield, P. D. Reasor, and A. C. Didlake Jr., 2016: The rapid intensification of Hurricane Karl (2010): New remote sensing observations of convective bursts from the Global Hawk Platform. *J. Atmos. Sci.*, submitted.

Hazelton, A. T., R. E. Hart, and R. F. Rogers, 2017: Analyzing simulated convective bursts in two Atlantic hurricanes. Part II: Intensity change due to convective bursts. *Mon. Wea. Rev*., in review.

Hazelton, A. T., R. F. Rogers, and R. E. Hart, 2017: Analyzing simulated convective bursts in two Atlantic hurricanes. Part I: Convective burst formation and development. *Mon. Wea. Rev*., in review.

Lu, X., and X. Wang, 2016: GSI-based, continuously cycled, dual resolution hybrid ensemble-variational data assimilation system for HWRF: System description and experiments with Edouard (2014). *Mon. Wea. Rev*., submitted.

Martinez, J., M. M. Bell, J. L. Vigh, and R. F. Rogers, 2017: Examination of tropical cyclone structure and intensification with the extended flight level dataset (FLIGHT$^+$) from 1999 to 2012. *Mon. Wea. Rev*., manuscript in review.

Melhauser, C., and F. Zhang, 2016: Application of a simplified co-plane wind retrieval using dual-beam airborne Doppler radar observations for tropical cyclone prediction. *Mon. Wea. Rev*., submitted.

Munsell, E. B., F. Zhang, J. A. Sippel, and S. A. Braun, 2016: Dynamics and predictability of the rapid intensification of Hurricane Edouard (2014). *J. Atmos. Sci.*, submitted.

Nguyen, L. T., R. F. Rogers, and P. D. Reasor, 2017: Thermodynamic and kinematic influences on precipitation symmetry in sheared tropical cyclones: Bertha and Cristobal (2014). *Mon. Wea. Rev*., in review.

Qin, Z., X. Zou and F. Weng, 2016: Impacts of AHI radiance assimilation on quantitative precipitation forecasts over eastern China. *J. Geophy. Res.*, submitted.

Reichl, B. G., I. Ginis, T. Hara, T. Kukulka, and D. Wang, 2016: Impact of sea-state dependent Langmuir turbulence on the ocean response to a tropical cyclone. *Mon. Wea. Rev*., in review.

Smith, R. K., and M. T. Montgomery, 2016: The efficiency of diabatic heating and tropical cyclone intensification. *Q. J. R. Meteorol. Soc*., doi:10.1002/qj.2804, in review.

Wadler, J., R. F. Rogers, and P. D. Reasor, 2017: Radial and azimuthal variations in convective burst structure in tropical cyclones from airborne Doppler observations. *Mon. Wea. Rev*., in internal review.

Weng, Y. and F. Zhang, 2016: Advances in convection-permitting tropical cyclone analysis and prediction through EnKF assimilation of reconnaissance aircraft observations. *J. Metrol. Soc. Japan*, accepted pending minor revisions, invited submission.

Zawislak, J. G., R. Alvey III, R. F. Rogers, J. A. Zhang, E. J. Zipser, and H. Jiang, 2016: Observations of the structure and evolution of Hurricane Edouard (2014) during intensity change. Part I: Relationship between the thermodynamic structure and precipitation. *Mon. Wea. Rev*., submitted.

Zhang, J. A., F. D. Marks, Jr., J. A. Sippel, X. Zhang, S. G. Gopalakrishnan, R. F. Rogers, and Z. Zhang, 2017: Improving hurricane model physics using aircraft observations: Horizontal diffusion parameterization in HWRF. *Wea. Forecast*., in review.

Zhang, J. A., R. F. Rogers, and V. Tallapragada, 2016: Impact of boundary layer vertical diffusion on HWRF forecasts of tropical cyclone rapid intensification. *Mon. Wea. Rev*., in review.

Zhang, W., L. Xie, B. Liu, and C. Guan, 2017: An integrated approach for assessing tropical cyclone track and intensity forecasts, *Wea. Forecast.*, accepted.

Zou, Z., D. Zhao, B. Liu, J. Zhang, and J. Huang, 2017: Observation-based parameterization of air-sea fluxes in terms of the wind speed and atmospheric stability in low-to-moderate wind conditions. *J. Geophys. Res*., in review.

**To Be Submitted for Review and Publication**

Wang, W., J. Sippel, S. Abarca, L. Zhu, B. Liu, Z. Zhang, A. Mehra, and V. Tallapragada, 2017: Improving HWRF simulations of surface wind and inflow angle in the eyewall area. *Wea. Forecast.*, to be submitted.

**Books, Chapters, Manuals, and Proceedings**

Tallapragada, V., 2016: In advanced numerical modeling and data assimilation techniques for tropical cyclone prediction, *Overview of the NOAA/NCEP operational Hurricane Weather Research and Forecast (HWRF) Modeling System.* U. C. Mohanty and S. G. Gopalakrishnan, Eds., Springer-Netherlands, 51-106.

**Technical Reports:**

Biswas, M. K., L. Carson, K. Newman, C. Holt, and L. Bernardet, 2016: Community HWRF users guide v3.8a *NOAA Technical Memorandum OAR GSD*-47, 141.

Gopalakrishnan, S., S. Forsythe-Newell, F. Toepfer, R. Gall, F. Marks, E. N. Rappaport, V. Tallapragada, J. Franklin, G. Alaka, S. Abarca, A. Aksoy, G. Alaka Jr., J. W. Bao, M. Bender, L. Bernardet, S. Chen, J. Cione, M. Biswas, J. Cangialosi, M. DeMaria, M. Morin, J. Doyle, J. L. Franklin, S. Goldenberg, George Halliwell, R. Hodur, C. Holt, S. Jason, H. Jin, Y. Jin, H. S. Kim, W. Komaromi, P. Kucera, B. Kuo, N. Lett, P. McCaslin, A. Mehra, M. Mills, J. Moskaitis, L. Nance, K. Newman, A. Penny, A. Reinecke, A. Simon, J. Sippel, S. Trahan, H. Tolman, R. Torn, S. Wang, X. Wang, J. Whitaker, D. A. Zelinsky, F. Zhang, X. Zhang, Z. Zhang, Lin Zhu, and J. M. Sprague-Hilderbrand, 2017: 2016 NOAA Hurricane forecast improvement project (HFIP) research and development activities summary: Recent results and operational implementation. HFIP technical report HFIP2016-1, 51. [Available at http://www.hfip.org/documents/HFIP_Publications_FY2016.pdf]

Tallapragada, V., L. Bernardet, M. K. Biswas, I. Ginis, Y. Kwon. Q. Liu, T. Marchok, D. Sheinin, B. Thomas, M. Tong, S. Trahan, W. Wang, R. Yablonsky, and X. Zhang, 2016: Hurricane Weather Research and Forecasting (HWRF) Model: 2015 Scientific documentation. *NCAR Technical Note doi:10.5065/D6ZP44B5*. NCAR/TN-522+STR, 122.

**Presentations**

Abarca, S., A. Mehra, V. Tallapragada, and J. W. Bao, 2017: Physics strategy. *2016 HFIP Annual Conference*, 11 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day1/1330PM-Abarca-PhysicsStrategy.pdf]

Abarca, S., and G. Sundararaman, 2017: High-res physics tiger team report. *2016 HFIP Annual Conference*, 11 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day1/1645PM-Abarca-TigerTeamReport.pdf]

Abarca, S., and V. Tallapragada, 2016: The tropical cyclone intensification ratio: HWRF and observations. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper293480.html]

Aksoy, A., 2016: A first look at the impact of Coyote UAS observations from Hurricane Edouard (2014) on tropical cyclone data assimilation and prediction. *96th Amer. Meteor. Soc. Annual Meeting*, 9-14 January 2016, New Orleans, LA. [Available online at https://ams.confex.com/ams/96Annual/webprogram/Paper288963.html]

Bao S., L. Bernardet, G. Thompson, C. Holt, M. Biswas, K. Newman, 2016: Evaluation of two microphysics and radiation schemes in HWRF using remote sensing data. 17th Annual WRF Users' Workshop, 27 June - 1 July 2017, Boulder, CO.

Bell, M. M., J. Martinez, J. D. Doyle, and R. F. Rogers, 2016: Inner core structure of Hurricane Patricia observed during TCI-2015. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR.

Biswas, M. K., L. Carson, C. Holt, K. Newman, L. Bernardet, J. Frimel and J. Halley-Gotway, 2016: Community support for the hurricane weather research and forecasting model. *17th Annual WRF Users' Workshop*, 27 June - 1 July 2016, Boulder, CO.

Biswas, M. [K.], J. H. Gotway, T. L. Jensen, B. G. Brown, S. Bao, L. R. Bernardet, and K. M. Newman. Tropical cyclone forecast verification, 2016: Some new ideas. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper293992.html]

Biswas, M. [K.], J. H. Gotway, T. Fowler, and L. R. Bernardet, 2016: Benchmarking and verification of rapid intensification/weakening of tropical cyclone forecasts by HWRF model. *23rd Conference on Probability and Statistics in the Atmospheric Sciences*, 10-14 January 2016, New Orleans, LA. [Available online at https://ams.confex.com/ams/96Annual/webprogram/Paper290802.html]

Black, T., S. Trahan, Y. C. Kwon, V. Tallapragada, X. Zhang, S. Gopalakrishnan, Z. Janjic, Z. Zhang, and D. Jovic, 2016: Telescopic nesting and impact on hurricane forecast skill. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper293565.html]

Cangialosi, J., and J. Franklin, 2017: National hurricane center 2016 forecast verification (preliminary). *2016 HFIP Annual Conference*, 11 January 2017, National Hurricane Center, Miami, FL. [Available online at https://drive.google.com/file/d/0B5dsMKloxTYJS1hiM09MRVFtbi01OWF5T3ZiN0JLdGRpV2Fr/view]

Chen, H., R. F. Rogers and S. Gopalakrishnan, 2016: Ensemble forecast of Hurricane Edouard (2014). *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR.

Cione, J., 2016: Coyote hurricane airborne observations and sensing (CHAOS). *96th Amer. Meteor. Soc. Annual Meeting*, 9-14 January 2016, New Orleans, LA.

DeMaria, M., G. Chirokova, J. Knaff, K. D. Musgrave, and M. L. Bozeman, 2016: Recent improvements to NHC's statistical-dynamical tropical cyclone intensity prediction models. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR.

Diaz, S. W., T. Quirino, S. Gopalakrishnan, V. Tallapragada, W. Wang, Q. Liu, L. Zhu, T. Black, M. Pyle, X. Zhang, J. Delgado, B. Liu, and S. Trahan, 2016: HNMMB: Weaving the proven successes of HWRF into the NEMS framework. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper293537.html]

DiCatarina, F., S. Abarca, W. Wang, Z. Zhang, and V. Tallapragada, 2016: Simulated secondary eyewall in operational HWRF. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper293482.html]

Doyle, J. D., J. Moskaitis, R. Hodur, S. Chen, H. Jin, Y. Jin, A. Reinecke, D. Stern, and S. Wang, 2016: Recent COAMPS-TC development and future plans, 13-16 March 2017, Miami, FL.

Doyle, J. D., J. Moskaitis, R. Hodur, S. Chen, H. Jin, Y. Jin, W. Komaromi, A. Reinecke, and S. Wang, 2017: COAMPS-TC 2016 version, performance, and future plans. *2016 HFIP Annual Conference*, 11 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day1/1100AM-Moskaitis-Doyle%20COAMPS-TC%20HFIP.pdf]

Doyle, J. D., R. M. Hodur, J. R. Moskaitis, S. Chen, E. A. Hendricks, H. Jin, Y. Jin, P. A. Reinecke, and S. Wang, 2016: Towards improved intensity prediction: An overview of recent COAMPS-TC advancements. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR.

Doyle, J. D., J. R. Moskaitis, D. Tyndall, and S. A. Braun, 2016: Impact of HS3 dropsonde observations on COAMPS-TC forecasts. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR.

Doyle, J. D., J. Moskaitis, R. Hodur, S. Chen, H. Jin, Y. Jin, A. Reinecke, D. Stern, and S. Wang, 2016: Most promising short and long-term directions to improve operational tropical cyclone forecast models. *Interdepartmental Hurricane Conference*, 15-17 March 2016, Miami, FL.

Ghosh, T., and T. N. Krishnamurti, 2017: Improvement in hurricane intensity forecast using neural networks. *2016 HFIP Annual Conference*, 12 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day2/1345%20PM-Ghosh_HFIP_Meeting2017_FSU.pdf]

Gopalakrishnan, S., 2017: Basin-scale and beyond. *2016 HFIP Annual Conference*, 12 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day2/1000%20AM_Gopal-HFIP2017_Basin_Scale_&_beyond-V1.pdf]

Gopalakrishnan, S. G., V. Tallapragada, X. Zhang, T. Quirino, F. Marks, and R. Atlas, 2016: A multi-scale modeling system for improved hurricane prediction. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper293374.html]

Gopalakrishnan, S., X. Zhang, L. Bernardet, T. Quirino, J. Frimel, V. Tallapragada, F. Marks, F. Toepfer, and B. Kuo, 2016: A multi-scale modeling system for improved hurricane prediction. *6th Conference on Transition of Research to Operations*, 10-14 January 2016, New Orleans, LA. [Available online at https://ams.confex.com/ams/96Annual/webprogram/Paper288732.html]

Gopalakrishnan, S., X. Zhang, L. R. Bernardet, T. Quirino, J. Frimel, V. Tallapragada, F. D. Marks, F. Toepfer, and B. Kuo, 2016: A multi-scale modeling system for improved hurricane prediction. *96th Amer. Meteor. Soc. Annual Meeting*, 9-14 January 2016, New Orleans, LA. [Available online at https://ams.confex.com/ams/96Annual/webprogram/Paper288732.html]

Harris, L., et al, 2017: Nested fvGFS development at GFDL. *2016 HFIP Annual Conference*, 12 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day2/0940%20AM-Harris%20HFIP%20Nesting%202017.pdf]

Holt, C., M. K. Biswas, Z. Zhang, S. Trahan, L. R. Bernardet, G. Thompson, and K. M. Newman, 2016. An evaluation of alternative species-advecting microphyiscs schemes in hurricane WRF. *17th Annual WRF Users' Workshop*, 27 June - 1 July 2016, Boulder, CO. [Available at http://www2.mmm.ucar.edu/wrf/users/workshops/WS2016/short_abstracts/7B.1.pdf]

Holt, C., M. K. Biswas, Z. Zhang, S. Trahan, L. R. Bernardet, G. Thompson, and K. M. Newman, 2016. An evaluation of alternative species-advecting microphyiscs schemes in hurricane WRF. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR.

Kalina, E. A., S. Y. Matrosov, F. D. Marks, J. J. Cione, D. E. Kingsmill, M. M. Bell, R. A. Black, J. C. Hubbert, W.-C. Lee, J. Vivekanandan, P. P. Dodge, and R. F. Rogers, 2016: The fall speeds and ice water paths of small and large ice species in Hurricane Arthur (2014). *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 20 Apr 2016, San Juan, PR.

Kieu, C., V. Tallapragada, S. Gopalakrishnan, S. Trahan, K. Keshavamurthy, and A. Downs, 2017: Predictability limit of the HWRF model on forecasting hurricane intensity at the 4-5 day lead times. *2016 HFIP Annual Conference*, 12 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day2/1305%20PM-Kieu_HFRF-Fcst%20Hurricane%20Intensity.pdf]

Kim, H.-S., G. Halliwell, P. Black, N. bond, S. Chen, J. Cione, M. Cronin, J. Dong, I. Ginis, B. Jaimes, S. Jayne, B. Liu, L. Miller, E. Sanabia, N. Shay, V. Tallapragada, B. Thomas, and L. Zhu, 2017: Ocean model impact tiger team (OMITT). *2016 HFIP Annual Conference*, 11 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day1/1625PM_Kim_OMITTAnnualReport_Jan112017_v2.pdf]

Kim, H.-S., G. R. Halliwell Jr., V. Tallapragada, P. G. Black, S. Chen, J. J. Cione, I. Ginis, B. Liu, L. Miller, S. Jayne, E. R. Sanabia, L. K. Shay, E. W. Uhlhorn, and L. Zhu, 2016: Ocean model impact study for coupled hurricane forecasting: An HFIP initiative. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper293001.html]

Kim, H.-S., G. R. Halliwell [Jr.], V. Tallapragada, P. G. Black, N. Bond, S. Chen, J. Cione, M. F. Cronin, I. Ginis, B. Liu, L. Miller, S. R. Jayne, E. Sanabia, L. K. Shay, E. Uhlhorn, and L. Zhu, 2016: Ocean model impact study for coupled hurricane forecasting, An HFIP initiative. *2016 Ocean Sciences Meeting*, 21–26 February 2016, New Orleans, LA.

Lewis, W. E., C. S. Velden, V. Tallapragada, and J. M. Daniels, 2016: Direct assimilation of satellite-derived AMVs into HWRF: First results. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper293370.html]

Liu, B., J. Meixner, A. Mehra, A. Chawla, I. Ginis, B. Thomas, B. Reichl, T. Hara, H.-S. Kim, D. Sheinin, Z. Zhang, and V. Tallapragada, 2017: Impacts of ocean initialization and three-way atmosphere-wave-ocean coupling on hurricane forecasting. *97th Amer. Meteor. Soc. Annual Meeting*, 22–26 January, 2017, Seattle, WA.

Liu, B., A. Mehra, V. Tallapragada, K. Newman, C. Holt, L. Bernardet, S. Trahan, Z. Zhang, M. Biswas, M. Tong, W. Wang, B. Zhang, L. Zhu, D. Sheinin, J. Sippel, Q. Liu, S. Abarca, H.-S. Kim, B. Thomas, I. Ginis, T. Marchok, L. Carson, J. Frimel, and J. Halley Gotway, 2016: Hurricane WRF: 2016 operational implementation and community support, 2016 update. *WRF Users' Workshop*, 27-30 June 2016, Boulder, CO.

Liu, B., J. Sippel, S. Abarca, S. Trahan, Z. Zhang, L. Zhu, Q. Liu, W. Wang, K. Wu, H.-S. Kim, M. Tong, and V. Tallapragada, 2016: Hook-Shaped features in hurricane inner core region by vertical wind shear and dry intrusion. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper293116.html]

Liu, B., H.-S. Kim, V. Tallapragada, L. Zhu, W. Wang, K. Wu, S. Trahan, Z. Zhang, 2016: Impacts of ocean coupling on HWRF forecasts for tropical cyclones over the western North Pacific basin in 2015. *2016 Ocean Sciences Meeting*, 21–26 February 2016, New Orleans, LA.

Lu, X. and X. Wang, 2016: Improving the prediction and understanding of hurricane rapid intensity change through assimilating TCI and IFEX field campaign and AMV data using the hybrid EnVar system. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April, 2017, San Juan, PR.

Lu, X. and X. Wang, 2016: Development and research of the GSI-based, cycled, dual resolution hybrid ensemble-variational data assimilation system for HWRF. *96th Amer. Meteor. Soc. Annual Meeting*, 11-15 January 2017, New Orleans, LA.

Lu, X. and X. Wang, 2016: A GSI-based, end-to-end cycled, dual resolution hybrid ensemble-variational data assimilation system for HWRF: System description and experiment results. *7th EnKF workshop*, May, 2016, State College.

Lu, X., and X. Wang, 2016: Improving high-resolution tropical cyclone prediction using a GSI-Based, cycled, dual resolution hybrid ensemble-variational data assimilation system for HWRF: System description and experimental results. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 21 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper291452.html; https://ams.confex.com/ams/32Hurr/webprogram/Session40399.html]

Marks, F., 2017: Recap of 2016 HFIP annual workshop. *2016 HFIP Annual Conference*, 12 January 2017, National Hurricane Center, Miami, FL. [Available online at https://drive.google.com/drive/folders/0B5dsMKloxTYJaHlmc3ZDME5RVE0]

Marks, F., F. Toepfer, E. Rappaport, V. Tallapragada, S. Gopalakrishnan, and R. L. Gall, 2016: The hurricane forecast improvement project: Progress in hurricane prediction since Hurricane Katrina, *96th Amer. Meteor. Soc. Annual Meeting*, 9-14 January 2016, New Orleans, LA. [Available online at https://ams.confex/ams/96thAnnual/webprogram/Paper287350.html]

Mehra, A., J. Meixner, B. Liu, H.-S. Kim, A. Chawla, B. Reichl, I. Ginis, and T. Hara, 2017: Replacing hurricane ocean wave model in NCEP operations. *2016 HFIP Annual Conference*, 12 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day2/0845%20AM-Mehra-Replacing-Operational-Hurricane-Wave_Model.pdf]

Mehra, A., V. Tallapragada, et al, 2017: HMON (HNMMB): Development of a new hurricane model for NWS/NCEP operations. *2016 HFIP Annual Conference*, 12 January 2017, National Hurricane Center, Miami, FL. {Available online at https://drive.google.com/drive/folders/0B5dsMKloxTYJaHlmc3ZDME5RVE0].

Mehra, A., V. Tallapragada, et al, 2017: Strategy for hurricane modeling in NEMS. *2016 HFIP Annual Conference*, 12 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day2/0920%20AM-Mehra_Strategy-Hurricanes-NEMS.pdf]

Mehra, A., 2017: Plans for operational hurricane modeling in FY17. *2016 HFIP Annual Conference*, 11 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day1/1010AM_Mehra_HFIP_17_HWRF_am5.pdf]

Mehra, A., 2016: SHOUT Global Hawk TC Forecast Demonstration Project. *NOAA Hurricane Conference*, 1st December 2016, National Hurricane Center, Miami, FL.

Meixner, J., B. Liu, H.-S. Kim, A. Chawla, A. Mehra, B. G. Reichl, I. Ginis, and T. Hara, 2016: Sea state dependent air-sea fluxes in coupled atmosphere-wave-ocean models. *2016 Amer.Geophys.Un., Fall Meeting*, 12–16 December, San Francisco, CA.

Meléndez, D., N. Dorst, H. Friedman, T. N. Krishnamurti, W. Gray. I. Matos, R. Méndez, R. Mojica, A. Monzón, J. Toohey-Morales, and E. J. Zipser, 2016: On the scientific accomplishments of Dr. José Angel Colón Pérez, the first hurricane researcher from Puerto Rico, *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR.

Meléndez, D., F. Toepfer, N. Lett, R. Gall, C. Hedge, V. Tallapragada, F. Marks, S. Gopalakrishnan, and M. DeMaria, 2016: The hurricane forecast improvement project awards: An integral step toward research-to-operations at the National Weather Service, *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical*

*Meteorology*, 17-22 April 2016, San Juan, PR. [Available at https://ams.confex.com/ams/32Hurr/webprogram/Paper293014.html]

Ming, J., J. A. Zhang and R. F. Rogers, 2016: Typhoon kinematic and thermodynamic boundary layer structure from dropsonde composites. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR.

Morin, M. J., T. P. Marchok, and M. A. Bender, 2016: Evaluation of a new ensemble mean weighting technique for the 2015 GFDL hurricane ensemble forecast system. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR.

Moskaitis, J., A. Reinecke, W. Komaromi, and J. Doyle, 2017: 2016 Real-time COAMPS-TC ensemble, *2016 HFIP Annual Conference*, 11 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day1/1120AM-Moskaitis-COAMPS-TC-Ensemble.pdf]

Musgrave, K. D., M. DeMaria, and J. Kaplan, 2016: Examination of tropical cyclone rapid intensification guidance with multiple dynamical model inputs. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR.

Musgrave, K. D., M. DeMaria, and B. D. McNoldy, 2016: Global expansion of a statistical-dynamical ensemble for tropical cyclone intensity prediction. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR.

Nance, L., Y. H. Kuo, L. Bernardet, T. Jensen, K. M. Newman, H. Shao, I. Jankov, and J. K. Wolff, 2016: Developmental Testbed Center: Facilitating R2O for numerical weather prediction. *6th Conference on Transition of Research to Operations*, 10-14 January, New Orleans, LA. [Available online at https://ams.confex.com/ams/96Annual/webprogram/Paper284187.html]

Newman, K. M., M. K. Biswas, L. Bernardet, G. Thompson, and J. Frimel: An evaluation of physics enhancements within Hurricane WRF. *28th Conference on Weather Analysis and Forecasting /24th Conference on Numerical Weather Prediction*, 22-26 January 2017, Seattle, WA.

Newman, K. M., Y. H. Kuo, and L. Nance, 2017: Developmental Testbed Center: Core activities for HFIP. *2016 HFIP Annual Conference*, 11 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day1/1530PM-Newman_DTC_HFIP2016.pdf]

Newman, K. M., C. Holt, M. K. Biswas, L. R. Bernardet, L. Carson, J. Frimel, J. Halley Gotway, S. Trahan, Z. Zhang, and V. Tallapragada, 2016: Transitioning research to the operational hurricane WRF model: Overview of the developmental testbed center support and testing activities. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper293849.html]

Otkin, J. A., W. Lewis, A. Lenzen, B. McNoldy, and S. Majumdar, 2016: Evaluation of microphysics and cumulus parameterization schemes in the HWRF model using satellite observations. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR.

Pu, Z. and Y. Yu, 2016: Studying the processes contributed to the hairpin turn of Hurricane Joaquin with WRF numerical simulations and TCI-2015 observations. *Amer.Geophys.Un., Fall Meeting*, 12-16 December 2016, San Francisco, CA.

Pu, Z., 2016: Towards improving hurricane vortex initialization through assimilation of radar and all-sky satellite observations. *32nd Amer. Meteor. Soc. Conference on Hurricane and Tropical Meteorology*, 17-22 April, 2016, San Juan, PR.

Pu, Z., S. Zhang, 2016: Improving HWRF vortex initialization through assimilation of hurricane inner-core observations with the GSI hybrid data assimilation system. *20th Conference on Integrated Observing and Assimilation Systems for the Atmosphere Oceans, and Land Surface (IOAS-AOLS), 96th AMS Annual Meeting*, 09-14 January 2016, New Orleans, LA.

Rogers, R. F., J. Zawislak, and L. Nguyen, 2017: Precipitation structure upshear and its role in tropical cyclone intensification. *Tropical Cyclone Operations and Research Forum/71st Interdepartmental Hurricane Conference*, March 2017, Miami, FL.

Rogers, R. F., 2016: Deep convection and tropical cyclone intensification. *2nd U.S./Taiwan Workshop on Extreme Precipitation*, September 2016, Honolulu, HI.

Rogers, R. F., 2016: Deep convection and tropical cyclone intensification. *JPL Technical Interchange Meeting on Hurricanes and the TCIS*, June 2016, Pasadena, CA.

Rogers, R. F., 2016: Observations of the structure and evolution of Hurricane Edouard (2014) during intensity change: Kinematic structure and the distribution of deep convection. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 18 April 2016, San Juan, PR.

Rogers, R. F., J. A. Zhang, J. Zawislak, G. R. Alvey III, E. J. Zipser, and H. Jiang, 2016: Observations of the structure and evolution of Hurricane Edouard (2014) during intensity change. Part II: Kinematic structure and the distribution of deep convection. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17 April 2016, San Juan, PR.

Rogers, R. F., 2016: NOAA's Hurricane Research Division: Advancing tropical cyclone research and prediction using aircraft observations. *Florida State University Seminar*, March 2016, Tallahassee, FL.

Rogers, R. F., 2016: NOAA's Hurricane Research Division: Advancing tropical cyclone research and prediction using aircraft observations. *National Hurricane Conference*, March 2016, Orlando, FL.

Rogers, R. F., F. D. Marks, Jr., S. D. Aberson, J. Cione, and J. Gamache, 2016: Intensity Forecasting Experiment. *Aircraft Operation Center (AOC) Stakeholders' Workshop*. March 2016, Tampa, FL.

Rogers, R. F., F. D. Marks, Jr., and J. J. Cione, 2016: Research opportunities for operational airborne fleet in 2030. *2016 Tropical Cyclone Operations and Research Forum (TCORF)/70th Interdepartmental Hurricane Conference*. March 2016, Miami, FL.

Rosado, K., V. Tallapragada, G. S. Jenkins, and L. Zhu, 2016: The impact of lightning on intensity forecasts using the HWRF model: Idealized tropical cyclone. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper293554.html]

Rozoff, C., L. D. Monache, S. Alessandrini, W. Lewis, and M. DeMaria, 2017: Probabilistic prediction of tropical cyclone track, intensity, and structure with an analog ensemble. *2016 HFIP Annual Conference*, 12 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day2/1425%20PM-Rozoff_project_rozoff.pdf]

Sampson, B., A. Schrader, M. Frost, M. DeMaria, M. Brennan, M. Bozeman, and C. Mattocks, 2017: ATCF update. *2016 HFIP Annual Conference*, 11 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day1/1450PM-DeMaria%20ATCF%20Update%20NRL-NHCv3.pdf]

Schumacher, A. B., and M. DeMaria, 2016: Incorporating global model uncertainty information into the Monte Carlo wind speed probability model. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR.

Slocum, C. J., 2016: Forced, balanced model of tropical cyclone intensification. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR.

Simon, A., and A. Penny, 2017: A description of the HFIP corrected consensus approach (HCCA). *2016 HFIP Annual Conference*, 11 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day1/1430PM-Simon_Penny_01112017_Final.pdf]

Sippel, J., et al, 2017: 2016-2017 HWRF DA testing and plans. *2016 HFIP Annual Conference*, 12 January 2017, National Hurricane Center, Miami, FL. [Available at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day2/0900%20AM-Sippel_HFIP_20170112_jsippel.pdf]

Sippel, J., M. Tong and V. Tallapragada, 2016: The Impact of HS3 data upon HWRF Forecasts. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper292848.html]

Strahl, B., 2017: 2016 year in review: JTWC TC activity, forecast challenges, and developmental priorities. *2016 HFIP Annual Conference*, 11 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day1/0925AM-Strahl-JTWC-2016_Year-End_Review.pdf]

Su, S., and K. Wu. 2016: Evaluation and Collaborative Visualization. *The 2016 International Conference on Collaboration Technologies and Systems (CTS 2016)*. 31 October-04 November 2016, Orlando. FL.

Subramanian, S., Y. Xia, Y. Wu, M. B. Ek, V. Tallapragada, and D. Niyogi, 2016: Impact of improved initial land surface conditions on HWRF simulations and HWRF coupled streamflow routing model. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper293940.html]

Tallapragada, V., 2017: Priorities for HFIP in 2017. *2016 HFIP Annual Conference*, 12 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day2/1040%20AM-Tallapragada_Day2_Priorities_for_HFIP.pdf]

Tallapragada, V., 2017: Long range plans for numerical guidance from NCEP: NGGPS/FV3 based unified coupling modeling system development at NCEP. *2016 HFIP Annual Conference*, 11 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day1/1140AM_Tallapragada_HFIP_Longrange_Plans_011117.pdf]

Tallapragada, V., 2016: Role of HFIP in advancing operational hurricane modeling at NCEP/EMC: Current status and future plans in the context of NGGPS. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper293472.html].

Tallapragada, V., 2016: Advancements in operational tropical cyclone forecast guidance from NOAA/NCEP's operational models: Current status and future plans. *70th IHC and TCORF*, 15-17 March 2016, Miami, FL. [Available online at http://www.ofcm.gov/meetings/TCORF/ihc16/Presentations/Panel%203/Tallapragada_IHC_03162016.pdf]

Tallapragada, V., H. Tolman and F. Toepfer, 2016: Advancements in operational hurricane forecast guidance from NCEP/EMC's HWRF modeling system: Progress in hurricane forecast improvements during the last decade since Hurricane Katrina. *96th Amer. Meteor. Soc. Annual Meeting*, 9-14 January 2016, New Orleans, LA. [Available online at https://ams.confex.com/ams/96Annual/webprogram/Paper285925.html]

Thompson, G., L. Bernardet, K. Newman, M. K. Biswas, and C. Holt, 2016: Towards improving explicitly resolved and sub-grid-scale clouds in Hurricane WRF. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper294070.html]

Toepfer, F., 2017: NWS funding. *2016 HFIP Annual Conference*, 12 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day2/1510%20PM-Toepfer-NWS-funding_1-9-2017.pdf]

Torn, R. D., 2017: Evaluating methods of parameterizing model error in the HWRF ensemble prediction system. *2016 HFIP Annual Conference*, 11 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day1/1615PM-torn-ffo-awards.pdf]

Torn, R. D., M. DeMaria, P. Kucera, et al, 2017: Ensemble products tiger team update. *2016 HFIP Annual Conference*, 11 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day1/1555PM-Torn-hfip-ensemble-products.pdf]

Torn, R. D. 2016: Evaluating the predictability of TC intensity using the HWRF ensemble prediction system. *32nd Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR.

Trahan, S., V. Tallapragada, Z. Zhang, M. Tong, W. Wang, Q. Liu, B. Zhang, B. Liu, S. Abarca, H.-S. Kim, D. Iredell, C. Kieu, Y. Kwon, J. Sippel, L. Zhu, T. Marchok, M. A. Bender, I. Ginis, B. Thomas, R. M. Yablonsky, G. Thompson, L. R. Bernardet, C. Holt, H. Tolman, and B. Lapenta, 2016: HWRF 2014-2016: Advancing the state of the art in hurricane numerical guidance. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper293469.html]

Wadler, J. and R. F. Rogers, 2016: Radial and azimuthal variations in convective burst structure in tropical cyclones from airborne Doppler observations. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR.

Wang, X., 2017: DA/Initialization/Ensemble development team milestones and priorities. *2016 HFIP Annual Conference*, 11-12 January 2017, National Hurricane Center, Miami, FL. [Available at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day1/1350PM-Xguang-Wang-DA-Initialization-Ensemble.pdf]

Wang, X. and X. Lu, 2016: Development and research of the GSI-based, cycled, dual-resolution hybrid ensemble-variational data assimilation system for HWRF. *2016 HFIP Annual Conference*, 11-12 January 2017, National Hurricane Center, Miami, FL.

Wang, X., V. Tallapragada, M. Tong, J. Sippel. J. Whitaker, and F. Marks, 2017: Further advancement of HWRF self-consistent ensemble-variational hybrid data assimilation system to improve high resolution hurricane vortex initialization. *2016 HFIP Annual Conference*, 11-12 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day2/1325%20PM-XuguangWang-HWRF-hybrid-IAU-v5.pdf]

Wang, X., 2016: GSI-based hybrid ensemble-variational data assimilation for global, hurricane, and storm scale numerical weather prediction. *NOAA/NCEP/EMC Seminar*, 8 August, 2016, University of Oklahoma, Norman, OK.

Wang, W., L. Zhu, S. Trahan, T. Black, Q. Liu, Z. Zhang, B. Liu, M. Tong, J. Sippel, S. Abarca, D. Sheinin, H.-S. Kim, K. Wu, and V. Tallapragada, 2016: The capability of regional NMMB for rapid intensification forecast: Insights from Hurricane Patricia. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper293373.html]

Weng, F., X. Zou, and L. Lin, 2016: New satellite observations for monitoring and forecasting hurricanes and severe storms, *Joint 21st Satellite Meteorology, Oceanography and Climatology Conference and 20th Conference on Air-Sea Interaction*, 15-19 August 2016, Madison, Wisconsin.

Wu, K., Z. Zhang, W. Wang, and V. Tallapragada, 2016: A multivariate visualization for uncertainties in hurricane model ensemble. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper293396.html]

Zawislak, J., G. R. Alvey III, R. F. Rogers, J. A. Zhang, E. J. Zipser, and H. Jiang, 2016: Observations of the structure and evolution of Hurricane Edouard (2014) during intensity change: Relationship between the thermodynamic structure and precipitation. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR.

Zelinsky, D., and M. DeMaria, 2017: 2016 HFIP annual review PPAV team report. *2016 HFIP Annual Conference*, 11 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day1/1410PM-Zelinsky-DeMaria%20HFIP-PPAV%20TeamReport.pdf

Zhang, B., V. Tallapragada, F. Weng, S. Trahan, Q. Liu, and M. Tong, 2016: IAU alike initialization applied to HWRF for hurricane forecast. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper293553.html]

Zhang, F. and Z. Pu, 2016: Examining the impact of different vertical mixing strengths on hurricane evolution over land. *22nd Amer. Meteor. Soc. Symposium on Boundary Layers and Turbulence*, 20-24 June 2017, 2016, Salt Lake City, UT.

Zhang, F. and Z. Pu, 2016: A modified vertical diffusion scheme and its impacts on numerical prediction of landfalling hurricanes with HWRF. *32nd Amer. Meteor. Soc. Conference on Hurricane and Tropical Meteorology*, 17-22 April 2016, San Juan, PR.

Zhang, J. A., F. D. Marks, J. A. Sippel, X. Zhang, S. Gopalakrishnan, R. F. Rogers, Z. Zhang, and V. Tallapragada, 2017: Improving physical parameterizations of the operational hurricane weather and research forecast (HWRF) model using aircraft observations, *97th Amer. Meteor. Soc. Annual Meeting*, 25 January 2017, Seattle, WA.

Zhang, J. A., R. F. Rogers, V. Tallapragada, and W. Wang, 2016: Effects of boundary layer vertical diffusion on forecasts of tropical cyclone rapid intensification. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available at https://ams.confex.com/ams/32Hurr/webprogram/Paper292985.html]

Zhang, S., Z. Pu, and C. Velden, 2016: Impact of enhanced atmospheric motion vectors on forecasts of rapid intensification of Hurricane Gonzalo with HWRF. *21st Amer. Meteor. Soc. Conference on Satellite Meteorology, Oceanography, and Climatology*. 15-19 August 2016, Madison, WI.

Zhang, S., Z. Pu, and C. Velden, 2016: The impacts of assimilating enhanced atmospheric motion vectors (AMVs) on HWRF analyses and forecasts of hurricanes. *20th Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAS-AOLS)/96th Amer. Meteor. Soc. Annual Meeting.* 09-14 January 2016, New Orleans, LA.

Zhang, X., G. Alaka, Jr. , B. Thomas, D. Sheinin, Z. Zhang, B. Liu, R. St. Fleur, S. Gopalakrishnan, and I. Ginis, 2017: Development on the ocean and atmosphere coupled basin-scale HWRF modeling system: Targeting research to operation transition, *97th Amer. Meteor. Soc. Annual Meeting*, 22-24 January 2017, Seattle, WA.

Zhang, X., and G. Alaka, Jr., 2017: Development of the basin-scale HWRF modeling system. *2016 HFIP Annual Conference*, 11 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day1/1310PM-Xuejin%20Zhang-2017%20HFIP%20Annual%20Meeting-final.pdf]

Zhang, Z. 2017: Performance and verification of HWRF ensemble prediction system in 2016 real time parallel experiment, *Hurricane Forecast Improvement Project (HFIP) Annual Review Meeting*, 11-12 January 2017, National Hurricane Center, Miami, FL. [Available at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day1/1120AM_Zhang_HFIP_AR_Ensemble_final.pdf]

Zhang, Z., A. Mehra, S. Trahan, M. Tong, Q. Liu, W. Wang, B. Liu, L. Zhu, J. Sippel, B. Zhang, S. Abarca, K. Wu, H.-S. Kim, D. Iredell, J. Dong, C.-S. Jin, and V. Tallapragada, 2017: HWRF performance verification in 2016. *2016 HFIP Annual Conference*, 11 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day1/0955AM_HFIP_AR2016_Zhang_final.pdf]

Zhang, Z., V. Tallapragada, R. Torn, S. Trahan, and K. Wu, 2016: An evaluation of HWRF based ensemble prediction system for 2015 Atlantic basin real time parallel experiment. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper293305.html]

Zhu, L., S. Abarca, W. Wang, Z. Zhang, and V. Tallapragada, 2016: Secondary eyewalls in idealized HWRF simulations. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper293235.html]

Zhu, L., H.-S. Kim, S. Abarca, and V. Tallapragada, 2016: Model evaluation of HWRF simulations for Hurricane Edouard (2014). *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper293249.html]

Zhu, P., B. Tyner, C. Gao, S. Gopalakrishnan, R. Black, F. Marks, V. Tallapragada, J. Zhang, and X. Zhang, 2017: Improving HWRF's ability to predict rapid change in tropical cyclone intensity governed by internal physical processes. *2016 HFIP Annual Conference*, 12 January 2017, National Hurricane Center, Miami, FL. [Available online at http://www.hfip.org/events/annual_meeting_jan_2017/presentations/Day2/1405%20PM-Zhu_HFIP_annual_meeting_Jan_17_FIU.pdf]

Zhu, P., Z. Zhu, S. Gopalakrishnan, R. A. Black, F. Marks, V. Tallapragada, J. A. Zhang, X. Zhang, and C. Gao, 2016: Impact of sub-grid scale processes on eyewall replacement cycle of tropical cyclones in [the] HWRF System. *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR. [Available online at https://ams.confex.com/ams/32Hurr/webprogram/Paper292902.html].

Zhuge, X., X. Zou, and F. Weng, 2016: Assimilation of AHI infrared radiance measurements for improved tropical cyclone forecasts using HWRF, *12th Annual Symposium on New Generation Operational Environmental Satellite Systems in 2016 AMS Annual Meeting*, 11-14 January 2016, New Orleans, Louisiana.

Zou, X., 2016: Improving prediction and monitoring of high impact landfall tropical cyclones over the US and Asia through satellite data assimilation, *Special Sessions on US-International Partnerships in 2016 AMS Annual Meeting*, 11-14 January 2016, New Orleans, Louisiana.

Zou, X. and F. Weng, 2016: Applications of CrIS full spectral resolution data in NWP models to improve the quality control of IR radiance assimilation", *Fourth AMS Symposium on the Joint Center for Satellite Data Assimilation (JCSDA) in 2016 AMS Annual Meeting*, 11-14 January 2016, New Orleans, Louisiana.

**Posters**

Bernardet, L., C. Holt, J. Frimel, L. Carson, K. Newman, M., Biswas, and J. Halley-Gotway, 2016: Streamlining transition of new developments to the Hurricane Weather Research and Forecasting model (Poster). *17th Annual WRF Users' Workshop*, 27 June 2016, Boulder, CO, USA.

Bernardet, L., C. Holt, J. Frimel, L. Carson, K. Newman, and M. Biswas, 2016: Streamlining transition of new developments to the Hurricane Weather Research and Forecasting model (Poster). *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 18 April 2016, San Juan, PR.

Bernardet, L., C. R. Holt, J. Frimel, L. Carson, M. Biswas, and K. Newman, 2016: Streamlining the Transition of New Developments to the HWRF Model (Poster). *CU CIRES Rendezvous*, 13 March 2016, Boulder, CO, USA

Musgrave, K. D., M. DeMaria, and B. D. McNoldy, 2016: Global expansion of a statistical-dynamical ensemble for tropical cyclone intensity prediction (Poster). *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, 17-22 April 2016, San Juan, PR.

Nguyen, L., R. F. Rogers, and P. D. Reasor, 2017: Thermodynamic and kinematic influences on precipitation symmetry in sheared tropical cyclones: Bertha and Cristobal (2014), (Poster). *97th Annual Amer. Meteor. Soc. Meeting* poster presentation, January 2017, Seattle, WA.

Rogers, R. F., and J. Zawislak, 2017: Precipitation structure upshear and its role in tropical cyclone intensification (Poster). *97th Annual Amer. Meteor. Soc. Meeting*, January 2017, Seattle, WA.

Slocum, C. J., 2016: Diagnosing large-scale tropical cyclone model moisture and exploring impacts on track and intensity (Poster). *32nd Amer. Meteor. Soc. Conference on Hurricanes and Tropical Meteorology*, April 17-22, San Juan, PR.