

Jun Zhang
Curriculum Vita

ADDRESS

4301 Rickenbacker Causeway, Miami, FL 33149

Email: jun.zhang@noaa.gov

Phone: 305-361-4557 (office);

EDUCATION

Ph. D in Rosenstiel School of Marine and atmospheric Science, Applied Marine Physics
University of Miami (May, 2005~December, 2007) **M.S.** in Rosenstiel School of Marine
and atmospheric Science,

Applied Marine Physics University of Miami (August, 2002~May 2005) **B.S.** in Dalian
University of Technology (August, 1996~July 2000) Naval Architecture and Ocean
Engineering

PROFESSIONAL EXPERIENCE

Scientist
NOAA/AOML/ Hurricane Research Division with
University of Miami/CIMAS
June, 2017- present

Associate Scientist
NOAA/AOML/ Hurricane Research Division with
University of Miami/CIMAS
January, 2013- May, 2017

Assistant Scientist
NOAA/AOML/ Hurricane Research Division with
University of Miami/CIMAS
May, 2010- December 2012

Postdoctoral Fellow
National Research Council Fellow
NOAA/AOML/ Hurricane Research Division
January 2008 - April 2010

HONORS AND AWARDS

Banner I. Miller Award (2020)
Aviation Laureate Award for Unmanned Aircraft Hurricane Observations (2018)
NOAA AOML Award for Doppler Wind Lidar Operations (2016)
NASA Hurricane and Severe Storm Sentinel Group Achievement Award for HS3 (2015)

University of Miami Gold Medal equivalent to NOAA Gold Medal (2015)
 NOAA AOML Outstanding Research Paper Award (2011)
 National Research Council Postdoctoral Research Associate Fellowship Award (2008-2010)
 University of Miami Fellowship Award (2002-2005)

FUNDED AND PENDING RESEARCH PROJECTS

19. **PI**, Assessing air-sea coupling processes in tropical cyclones using unmanned observations for Improved Intensity Prediction (NOAA), 10/1/20-09/30/23, \$227,394.
18. Co-PI, Autonomous Measurements of Air-Sea Interaction from Saildrones for Improved Hurricane Intensity Prediction (NOAA), 08/01/21-07/31/23, \$ 599,545. ¹⁷
- Co-PI, Transitioning the Tropical Cyclone Air-Deployed sUAS CONOP to Operations (NOAA), 07/01/21-06/30/24, \$ 2,129,315.
16. **PI**, Employing Small Unmanned Aircraft Systems to Improve Situational Awareness and Operational Physical Routines Used to Predict Tropical Cyclone Structure and Intensity (NOAA), 09/01/21-08/31/23, \$576,591.
15. Co-PI, Boundary-layer processes associated with rapid intensification in tropical cyclones (ONR), 10/01/20-09/30/23, \$191,148.
14. Co-PI, Enhancing the prediction of landfalling hurricanes through improved HWRF regional data assimilation and boundary layer physical parameterization (NOAA). 03/01/19-2/28/22, \$399,817.
13. **PI**, Collaborative Research: EAGER: Effects of Eddy Forcing Induced by Eyewall and Rainband Convection on Tropical Cyclone Rapid Intensification (NSF), 03/01/2017-02/18/2020, \$81,244.
12. Co-PI, Investigating the Spectrum of Gravity Waves Radiating from Tropical Cyclones with Observations, Simulations, and Theoretical Modeling (NSF), 04/01/2017-03/31/2020, \$678,970.
11. Co-PI, Mechanisms of Intensity Change in Sheared Tropical Cyclone, (NSF), 05/01/2016-04/31/2019, \$687,580.
10. **PI**, Improving HWRF's Ability to Predict Rapid Change in Tropical Cyclone Intensity Governed by Internal Physical Processes (NOAA), 09/01/2016-08/31/2018, \$399,160.
9. Co-PI, Services to support the hurricane forecast improvement project. National Oceanic and Atmospheric Administration (NOAA), 10/01/2014-09/30/2016, \$1027,950.
8. Co-PI, Using NOAA unmanned aircraft systems assets to investigate tropical cyclone track, intensity change and cirrus canopy structure. National Oceanic and

Atmospheric Administration (NOAA), 06/01/2014-06/31/2017, \$637,804.

7. Co-PI, The impact of emerging observing technologies on future predictions of hurricane structure and intensity change. National Oceanic and Atmospheric Administration (NOAA), 10/01/2014-09/31/2016, \$1272,191.

2

6. **PI**, Calculating tropical cyclone inflow and boundary layer processes from ocean vector wind remote sensors. National Aeronautics and Space Administration (NASA), 09/01/2014-08/31/2018, \$655,567.
5. **PI**, Understanding the impact of sub-grid scale physics in HWRF on the predicted structure and intensity of tropical cyclones. National Oceanic and Atmospheric Administration (NOAA), 08/01/2014-07/31/2017, \$333,089.73.
4. **PI**, Addressing deficiencies in forecasting rapid intensifying tropical cyclones in HWRF. National Oceanic and Atmospheric Administration (NOAA), 08/01/2014-07/31/2017, \$389,332.
3. Co-PI, Investigation of HWRF model error associated with surface-layer and boundary-layer parameterizations to improve vortex-scale, ensemble-based data assimilation using HEDAS, National Oceanic and Atmospheric Administration (NOAA), 02/01/2012-01/31/2014, \$233,436.
2. **PI**, Advanced diagnostics of the inner core structure using aircraft observations. National Oceanic and Atmospheric Administration (NOAA), 02/01/2012-01/31/2014, \$202,592.
1. Co-PI, Enhancements to the SHIPS rapid intensification index. National Oceanic and Atmospheric Administration (NOAA), 07/01/2010-06/30/2012, \$92,400.

PUBLICATIONS

Peer-reviewed Journal Papers:

115. Chen, N., T. Tang, **J.A. Zhang**, L.-M. Ma, and H. Yu. On the distribution of helicity in the tropical cyclone boundary layer from dropsonde composites. *Atmospheric Research*, 249:105298, <https://doi.org/10.1016/j.atmosres.2020.105298> 2021
114. Chen, X., J.-F. Gu, **J.A. Zhang**, F.D. Marks, R.F. Rogers, and J.J. Cione. Boundary layer recovery and precipitation symmetrization preceding rapid intensification of tropical cyclones under shear. *Journal of the Atmospheric Sciences*, 78(5):1523-1544, <https://doi.org/10.1175/JAS-D-20-0252.1> 2021
113. Chen, X., M. Xue, B. Zhou, J. Feng, **J.A. Zhang**, and F.D. Marks. Effect of scale aware planetary boundary layer schemes on tropical cyclone intensification and structural changes in the gray zone. *Monthly Weather Review*, 149(7):2079-2095, <https://doi.org/10.1175/MWR-D-20-0297.1> 2021
112. Domingues, R., M. Le Henaff, G. Halliwell, **J.A. Zhang**, F. Bringas, P. Chardon, H.- S. Kim, J. Morell, and G. Goni. Ocean conditions and the intensification of three major Atlantic hurricanes of 2017. *Monthly Weather Review*, 149(5):1265- 1286, <https://doi.org/10.1175/MWR-D-20-0100.1> 2021

111. Gopalakrishnan, S., A. Hazelton, and **J.A. Zhang**. Improving hurricane boundary layer parameterization scheme based on observations. *Earth and Space Science*, 8(3):e2020EA001422, <https://doi.org/10.1029/2020EA001422> 2021
110. Huang, J., Z. Zou, Q. Zeng, P. Li, J. Song, L. Wu, **J.A. Zhang**, S. Li, and P-W. Chan. The turbulent structure of the marine atmospheric boundary layer during and before a cold front. *Journal of the Atmospheric Sciences*, 78(3):863-875, <https://doi.org/10.1175/JAS-D-19-0314.1> 2021
109. Kalina, E.A., M.K. Biswas, **J.A. Zhang**, and K.M. Newman. Sensitivity of an idealized tropical cyclone to the configuration of the Global Forecast System—eddy diffusivity mass flux planetary boundary layer scheme. *Atmosphere*, 12(2):284, <https://doi.org/10.3390/atmos12020284> 2021
108. Le Hénaff, M., R. Domingues, G. Halliwell, **J.A. Zhang**, H.-S. Kim, M. Aristizabal, T. Miles, S. Glenn, and G. Goni. The role of the Gulf of Mexico ocean conditions in the intensification of Hurricane Michael (2018). *Journal of Geophysical Research— Oceans*, 126(5):e2020JC016969, <https://doi.org/10.1029/2020JC016969> 2021
107. Lin, I.-I., R.F. Rogers, H.-C. Huang, Y.-C. Liao, D. Herndon, J.-Y. Yu, Y.-T. Chang, **J.A. Zhang**, C.M. Patricola, I.-F. Pun, and C.-C. Lien. A tale of two rapidly intensifying supertyphoons: Hagibis (2019) and Haiyan (2013). *Bulletin of the American Meteorological Society*, <https://doi.org/10.1175/BAMS-D-20-0223.1> 2021
106. Wadler, J.B., **J.A. Zhang**, R.F. Rogers, B. Jaimes, and L.K. Shay. The rapid intensification of Hurricane Michael (2018): Storm structure and the relationship to environmental and air-sea interactions. *Monthly Weather Review*, 149(1):245- 267, <https://doi.org/10.1175/MWR-D-20-0145.1> 2021
105. Wang, C., G. Zheng, X. Li, Q. Xu, B. Liu, and **J.A. Zhang**. Tropical cyclone intensity estimation from geostationary satellite imagery using deep convolutional neural networks. *IEEE Transactions on Geoscience and Remote Sensing*, <https://doi.org/10.1109/TGRS.2021.3066299> 2021
104. Wang, X., H. Jiang, X. Li, and **J.A. Zhang**. Observed shear-relative rainfall asymmetries associated with landfalling tropical cyclones. *Advances in Meteorology*, 2021:4676713, <https://doi.org/10.1155/2021/4676713> 2021
103. Zhang, B., Z. Zhu, W. Perrie, J. Tang, and **J.A. Zhang**. Estimating tropical cyclone wind structure and intensity from spaceborne radiometer and synthetic aperture radar. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 14:4043-4050, <https://doi.org/10.1109/JSTARS.2021.3065866> 2021
102. Alford, A.A., **J.A. Zhang**, M.I. Biggerstaff, P. Dodge, F.D. Marks, and D.J. Bodine. Transition of the hurricane boundary layer during the landfall of Hurricane Irene (2011). *Journal of the Atmospheric Sciences*, 77(10):3509-3531, <https://doi.org/10.1175/JAS-D-19-0290.1> 2020
101. Biswas, M.K., **J.A. Zhang**, E. Grell, E. Kalina, K. Newman, L. Bernardet, L. Carson, J. Frimel, and G. Grell. Evaluation of the Grell-Freitas convective scheme in the Hurricane

- Weather Research and Forecasting (HWRF) model. *Weather and Forecasting*, 35(3):1017-1033, <https://doi.org/10.1175/WAF-D-19-0124.1> 2020
100. Chen, S., F. Qiao, **J.A. Zhang**, H. Ma, Y. Xue, and S. Chen. Swell modulation on wind stress in the constant flux layer. *Geophysical Research Letters*, 47(20):e2020GL089883, <https://doi.org/10.1029/GL089883> 2020
99. Cione, J.J., G.H. Bryan, R. Dobosy, **J.A. Zhang**, G. de Boer, A. Aksoy, J.B. Wadler, E.A. Kalina, B.A. Dahl, K. Ryan, J. Neuhaus, E. Dumas, F.D. Marks, A.M. Farber, T. Hock, and X. Chen. Eye of the storm: Observing hurricanes with a small Unmanned Aircraft System. *Bulletin of the American Meteorological Society*, 101(2):E186-E205, <https://doi.org/10.1175/BAMS-D-19-0169.1> 2020
98. Hazelton, A.T., X. Zhang, S. Gopalakrishnan, W. Ramstrom, F. Marks, and **J.A. Zhang**. High-resolution ensemble HFV3 forecasts of Hurricane Michael (2018): Rapid intensification in shear. *Monthly Weather Review*, 148(5):2009-2032, <https://doi.org/10.1175/MWR-D-19-0275.1> 2020
97. Pan, X., M. Dresner, B. Mantin, and **J.A. Zhang**. Pre-hurricane consumer stockpiling and post-hurricane product availability: Empirical evidence from natural experiments. *Production and Operations Management*, 29(10):2350-2380, <https://doi.org/10.1111/poms.13230> 2020
96. Ren, Y., **J.A. Zhang**, J.L. Vigh, P. Zhu, H. Liu, X. Wang, and J.B. Wadler. An observational study of the symmetric boundary layer structure and tropical cyclone intensity. *Atmosphere*, 11(2):158, <https://doi.org/10.3390/atmos11020158> 2020
95. Wang, X., H. Jiang, **J.A. Zhang**, and K. Peng. Satellite-observed warm-core structure in relation to tropical cyclone intensity change. *Atmospheric Research*, 240:104931, <https://doi.org/10.1016/j.atmosres.2020.104931> 2020
94. **Zhang, J.A.**, E.A. Kalina, M.K. Biswas, R.F. Rogers, P. Zhu, and F.D. Marks. A review and evaluation of planetary boundary layer parameterizations in Hurricane Weather Research and Forecasting model using idealized simulations and observations. *Atmosphere*, 11(10):1091, <https://doi.org/10.3390/atmos11101091> 2020
93. Fan, S., B. Zhang, A.A. Mouche, W. Perrie, and **J.A. Zhang**. Estimation of wind direction in tropical cyclones using C-band dual-polarization synthetic aperture radar. *IEEE Transactions on Geoscience and Remote Sensing*, 58(2):1450-1462, <https://doi.org/10.1109/TGRS.2019.2946885> 2020
92. **Zhang, J.A.**, J.P. Dunion, and D.S. Nolan. In situ observations of the diurnal variation in the boundary layer of mature hurricanes. *Geophysical Research Letters*, 47(3):e2019GL086206, <https://doi.org/10.1029/2019GL086206> 2020
91. Zhao, Z., P.W. Chan, N. Wu, **J.A. Zhang**, and K.K. Hon. Aircraft observations of turbulent characteristics in the tropical cyclone boundary layer. *Boundary-Layer Meteorology*, 174(3):493-511, <https://doi.org/10.1007/s10546-019-00487-8> 2020
90. Ahren, K., M.A. Bourassa, R.E. Hart, **J.A. Zhang**, and R.F. Rogers. Observed

kinematic and thermodynamic structure in the hurricane boundary layer during intensity change. *Monthly Weather Review*, 147(8):2765-2785, doi:10.1175/MWR-D-18-0380.1 2019

89. Chen, X., **J.A. Zhang**, and F.D. Marks. A thermodynamic pathway leading to rapid intensification of tropical cyclones in shear. *Geophysical Research Letters*, 46(15):9241-9251, doi:10.1029/2019GL083667 2019
88. Domingues, R., A. Kuwano-Yoshida, P. Chardon-Maldonado, R.E. Todd, G. Halliwell, H.-S. Kim, I.-I. Lin, K. Sato, T. Narazaki, L.K. Shay, T. Miles, S. Glenn, **J.A. Zhang**, S.R. Jayne, L. Centurioni, M. Le Henaff, G. Foltz, F. Bringas, M.M. Ali, S.F. DiMarco, S. Hosoda, T. Fukuoka, B. LaCour, A. Mehra, E.R. Sanabia, J.R. Gyakum, J. Dong, J.A. Knaff, and G. Goni. Ocean observations in support of studies and forecasts of tropical and extratropical cyclones. *Frontiers in Marine Science*, 6:446, doi:10.3389/fmars.2019.00446 2019
87. Mayer, D.A., **J.A. Zhang**, and R.H. Weisberg. Surface layer turbulence parameters derived from 1-s wind observations on the West Florida Shelf. *Journal of Geophysical Research-Atmospheres*, 124(4):1992-2007, doi:10.1029/2018JD029392 2019
86. Molinari, J., **J.A. Zhang**, R.F. Rogers, and D. Vollaro. Repeated eyewall replacement cycles in Hurricane Frances (2004). *Monthly Weather Review*, 147(6):2009-2022, doi:10.1175/MWR-D-18-0345.1 2019
85. Nguyen, L.T., R. Rogers, J. Zawislak, and **J.A. Zhang**. Assessing the influence of convective downdrafts and surface enthalpy fluxes on tropical cyclone intensity change in moderate vertical wind shear. *Monthly Weather Review*, 147(10):3519-3534, <https://doi.org/10.1175/MWR-D-18-0461.1> 2019
84. Ren, Y., **J.A. Zhang**, S.R. Guimond, and X. Wang. Hurricane boundary layer height relative to storm motion from GPS dropsonde composites. *Atmosphere*, 10(6):339, doi:10.3390/atmos10060339 2019
83. Smith, A.W., B.K. Haus, and **J.A. Zhang**. Stability and sea state as limiting conditions for TKE dissipation and dissipative heating. *Journal of the Atmospheric Sciences*, 76(3):689-706, doi:10.1175/JAS-D-18-0142.1 2019
82. **Zhang, J.A.**, and R.F. Rogers. Effects of parameterized boundary layer structure on hurricane rapid intensification in shear. *Monthly Weather Review*, 147(3):853- 871, doi:10.1175/MWR-D-18-0010.1 2019
81. Zhu, P., B. Tyner, **J.A. Zhang**, E. Aligo, S. Gopalakrishnan, F.D. Marks, A. Mehra, and V. Tallapragada. Role of eyewall and rainband eddy forcing in tropical cyclone intensification. *Atmospheric Chemistry and Physics*, 19(22):14,289-14,310, <https://doi.org/10.5194/acp-19-14289-2019> 2019
80. Zou, Z., J. Song, P. Li, J. Huang, **J.A. Zhang**, Z. Wan, and S. Li. Effects of swell waves on atmospheric boundary layer turbulence: A low wind field study. *Journal of Geophysical Research-Oceans*, 124(8):5671-5685, doi:10.1029/2019JC015153 2019

79. Bucci, L.R., C. O’Handley, G.D. Emmitt, **J.A. Zhang**, K. Ryan, and R. Atlas. Validation of an airborne Doppler wind lidar in tropical cyclones. *Sensors*, 18(12):4288, doi:10.3390/s18124288 2018
78. Dougherty, E.M., J. Molinari, R.F. Rogers, **J.A. Zhang**, and J.P. Kossin. Hurricane Bonnie (1998): Maintaining intensity during high vertical wind shear and an eyewall replacement cycle. *Monthly Weather Review*, 146(10):3383-3399, doi:10.1175/MWR-D-18-0030.1 2018
77. Guimond, S.R., **J.A. Zhang**, J.W. Sapp, and S.J. Frasier. Coherent turbulence in the boundary layer of Hurricane Rita (2005) during an eyewall replacement cycle. *Journal of the Atmospheric Sciences*, 75(9):3071-3093, doi:10.1175/JAS-D-17-0347.1 2018
76. Huang, L., X. Li, B. Liu, **J.A. Zhang**, D. Shen, Z. Zhang, and W. Yu. Tropical cyclone boundary layer rolls in synthetic aperture radar imagery. *Journal of Geophysical Research-Oceans*, 123(4):2981-2996, doi:10.1029/2018JC013755 2018
- 6
75. Leighton, H., S. Gopalakrishnan, **J.A. Zhang**, R.F. Rogers, Z. Zhang, and V. Tallapragada. Azimuthal distribution of deep convection, environmental factors and tropical cyclone rapid intensification: A perspective from HWRf ensemble forecasts of Hurricane Edouard (2014). *Journal of the Atmospheric Sciences*, 75(1):275- 295, doi:10.1175/JAS-D-17-0171.1 2018
74. Ming, J., and **J.A. Zhang**. Direct measurements of momentum flux and dissipative heating in the surface layer of tropical cyclones during landfalls. *Journal of Geophysical Research-Atmospheres*, 123(10):4926-4938, doi:10.1029/2017JD028076 2018
73. Tang, J., **J.A. Zhang**, C. Kieu, and F.D. Marks. Sensitivity of hurricane intensity and structure to two types of planetary boundary layer parameterization schemes in idealized HWRf simulations. *Tropical Cyclone Research and Review*, 7(4):201- 211, doi:10.6057/2018TCRR04.01 2018
72. Tang, J., **J.A. Zhang**, S.D. Aberson, F.D. Marks, and X. Lei. Multilevel tower observations of vertical eddy diffusivity and mixing length in the tropical cyclone boundary layer during landfalls. *Journal of the Atmospheric Sciences*, 75(9):3159- 3168, doi:10.1175/JAS-D-17-0353.1 2018
71. Wadler, J.B., **J.A. Zhang**, B. Jaimes, and L.K. Shay. Downdrafts and the evolution of boundary layer thermodynamics in Hurricane Earl (2010) before and during rapid intensification. *Monthly Weather Review*, 146(11):3545-3565, doi:10.1175/MWR-D-18-0090.1 2018
70. **Zhang, J.A.**, F.D. Marks, J.A. Sippel, R.F. Rogers, X. Zhang, S.G. Gopalakrishnan, Z. Zhang, and V. Tallapragada. Evaluating the impact of improvement in the horizontal diffusion parameterization on hurricane prediction in the operational Hurricane Weather Research and Forecasting (HWRf) model. *Weather and Forecasting*, 33(1):317-329, doi:10.1175/WAF-D-17-0097.1 2018
69. **Zhang, J.A.**, R. Atlas, G.D. Emmitt, L. Bucci, and K. Ryan. Airborne Doppler wind lidar

- observations of the tropical cyclone boundary layer. *Remote Sensing*, 10(6):825, doi:10.3390/rs10060825 2018
68. Zou, Z., D. Zhao, **J.A. Zhang**, S. Li, Y. Cheng, H. Lv, and X. Ma. Influence of swell on the atmospheric boundary layer under nonneutral conditions. *Journal of Physical Oceanography*, 48(4):925-936, doi:10.1175/JPO-D-17-0195.1 2018
67. Aberson, S.D., **J.A. Zhang**, and K. Nunez-Ocasio. An extreme event in the eyewall of Hurricane Felix on 2 September 2007. *Monthly Weather Review*, 145(6):2083-2092, doi:10.1175/MWR-D-16-0364.1 2017
66. Aksoy, A., **J.A. Zhang**, B.W. Klotz, E.W. Uhlhorn, and J.J. Cione. Axisymmetric initialization of the atmosphere and ocean for idealized coupled hurricane simulations. *Journal of Advances in Modeling Earth Systems*, 9(7):2672-2695, doi:10.1002/2017MS000977 2017
65. Atlas, R., G.D. Emmitt, L. Bucci, K. Ryan, and **J.A. Zhang**. Application of Doppler wind lidar observations to hurricane analysis and prediction. *Proceedings, SPIE Symposium on Lidar Remote Sensing for Environmental Monitoring*, San Diego, CA, August 6-10, 2017. International Society for Optics and Photonics, SPIE Vol. 10406, 8 pp., 2017
64. Bryan, G.H., R.P. Worsnop, J.K. Lundquist, and **J.A. Zhang**. A simple method for simulating wind profiles in the boundary layer of tropical cyclones. *Boundary-Layer Meteorology*, 162(3):475-502, doi:10.1007/s10546-016-0207-0 2017
63. Jin S., S. Wang, X. Li, L. Jiao, and **J.A. Zhang**. Tropical cyclone center location in SAR images based on feature learning and visual saliency. In *Hurricane Monitoring with Spaceborne Synthetic Aperture Radar*, X. Li (ed.). Springer Singapore, 141-181, doi:10.1007/978-981-10-2893-9_8 2017
62. Jin, S., S. Wang, X. Li, L. Jiao, **J.A. Zhang**, and D. Shen. A salient region detection and pattern matching-based algorithm for center detection of a partially covered tropical cyclone in a SAR image. *IEEE Transactions on Geoscience and Remote Sensing*, 55(1):280-291, doi:10.1109/TGRS.2016.2605766 2017
61. Nolan, D.S., and **J.A. Zhang**. Spiral gravity waves radiating from tropical cyclones. *Geophysical Research Letters*, 44(8):3924-3931, doi:10.1002/2017GL073572 2017
60. Rogers, R.F., P.D. Reasor, and **J.A. Zhang**. Reply to "Comments on 'Multiscale structure and evolution of Hurricane Earl (2010) during rapid intensification.'" *Monthly Weather Review*, 145(4):1573-1575, doi:10.1175/MWR-D-16-0414.1 2017
59. Smith, R.K., **J.A. Zhang**, and M.T. Montgomery. The dynamics of intensification in an HWRF simulation of Hurricane Earl (2010). *Quarterly Journal of the Royal Meteorological Society*, 143(702):293-308, doi:10.1002/qj.2922 2017
58. Tyner, B., P. Zhu, **J.A. Zhang**, S. Gopalakrishnan, F. Marks, and V. Tallapragada. A top-down pathway to secondary eyewall formation in simulated tropical cyclones. *Journal of Geophysical Research-Atmospheres*, 123(1):174-197, doi:10.1002/2017JD027410 2017

57. Worsnop, R.P., G.H. Bryan, J.K. Lundquist, and **J.A. Zhang**. Using large-eddy simulations to define spectral and coherence characteristics of the hurricane boundary layer for wind-energy applications. *Boundary-Layer Meteorology*, 165(1):55- 86, doi:10.1007/s10546-017-0266x 2017
56. Zhang, G., W. Perrie, X. Li, and **J.A. Zhang**. A hurricane morphology and surface wind vector estimation model for C-band cross-polarization SAR. *IEEE Transactions on Geoscience and Remote Sensing*, 55(3):1743-1751, doi:10.1109/TGRS.2016.2631663 2017
55. **Zhang, J.A.**, and X. Li. Tropical cyclone multiscale wind features from spaceborne synthetic aperture radar. In *Hurricane Monitoring with Spaceborne Synthetic Aperture Radar*, X. Li (ed.). Springer Singapore, 25-39, doi:10.1007/978-981-10-2893-9_2 2017
54. **Zhang, J.A.**, J.J. Cione, E.A. Kalina, E.W. Uhlhorn, T. Hock, and J.A. Smith. Observations of infrared sea surface temperature and air-sea interaction in Hurricane Edouard (2014) using GPS dropsondes. *Journal of Oceanic and Atmospheric Technology*, 34(6):1333-1349, doi:10.1175/JTECH-D-16-0211.1 2017
53. **Zhang, J.A.**, R.F. Rogers, and V. Tallapragada. Impact of parameterized boundary layer structure on tropical cyclone rapid intensification forecasts in HWRF. *Monthly Weather Review*, 145(4):1413-1426, doi:10.1175/MWR-D-16-0129.1 2017
52. Zou, Z., D. Zhao, B. Liu, **J.A. Zhang**, and J. Huang. Observation-based parameterization of air-sea fluxes in terms of the wind speed and atmospheric stability under low-to-moderate wind conditions. *Journal of Geophysical Research Oceans*, 122(5):4123-4142, doi:10.1002/2016JC012399 2017
51. Atlas, R., G.D. Emmitt, L. Bucci, K. Ryan, and **J.A. Zhang**. Impact of Doppler wind lidar data on hurricane prediction. *Proceedings, 18th Coherent Laser Radar Conference*, Boulder, CO, June 27-July 1, 2016. Cooperative Institute for Research in Environmental Sciences, 4 pp., 2016
50. Mai, M., B. Zhang, X. Li, P.A. Hwang, and **J.A. Zhang**. Application of AMSR-E and AMSR2 low frequency channel brightness temperature data for hurricane wind retrievals. *IEEE Transactions on Geoscience and Remote Sensing*, 54(8):4501-4512, doi:10.1109/TGRS.2016.2543502 2016
49. Ming, J., and **J.A. Zhang**. Effects of surface flux parameterization on numerically simulated intensity and structure of Typhoon Morakot (2009). *Advances in Atmospheric Sciences*, 33(1):58-72, doi:10.1007/s00376-015-4202-z 2016
48. Rogers, R.F., **J.A. Zhang**, J. Zawislak, H. Jiang, G.R. Alvey, E.J. Zipser, and S.N. Stevenson. Observations of the structure and evolution of Hurricane Edouard (2014) during intensity change, Part II: Kinematic structure and the distribution of deep convection. *Monthly Weather Review*, 144(9):3355-3376, doi:10.1175/MWR-D-16-0017.1 2016
47. Zawislak, J., H. Jiang, G.R. Alvey, E.J. Zipser, R.F. Rogers, **J.A. Zhang**, and S.N.

- Stevenson. Observations of the structure and evolution of Hurricane Edouard (2014) during intensity change, Part 1: Relationship between the thermodynamic structure and precipitation. *Monthly Weather Review*, 144(9):3333-3354, doi:10.1175/MWR-D-16-0018-1 2016
46. Zhang, R., J. Huang, X. Wang, **J.A. Zhang**, and F. Huang. Effects of precipitation on sonic anemometer measurements of turbulent fluxes in the atmospheric surface layer. *Journal of Ocean University of China*, 15(3):389-398, doi:10.1007/s11802-016-2804-4 2016
45. Kaplan, J., C.M. Rozoff, M. DeMaria, C.R. Sampson, J.P. Kossin, C.S. Velden, J.J. Cione, J.P. Dunion, J.A. Knaff, **J.A. Zhang**, J.F. Dostalek, J.D. Hawkins, T.F. Lee, and J.E. Solbrig. Evaluating environmental impacts on tropical cyclone rapid intensification predictability utilizing statistical models. *Weather and Forecasting*, 30(5):1374-1396, doi:10.1175/WAF-D-15-0032.1 2015
44. Li, X., X. Yang, W. Zheng, **J.A. Zhang**, L.J. Pietrafesa, and W.G. Pichel. Synergistic use of satellite observations and numerical weather model to study atmospheric occluded fronts. *IEEE Transactions on Geoscience and Remote Sensing*, 53(9):5269- 5279, doi:10.1109/TGRS.2015.2420312 2015
43. Ming, J., **J.A. Zhang**, and R.F. Rogers. Typhoon kinematic and thermodynamic boundary layer structure from dropsonde composites. *Journal of Geophysical Research-Atmospheres*, 120(8):3158-3172, doi:10.1002/2014JD022640 2015
42. Rogers, R.F., P.D. Reasor, and **J.A. Zhang**. Multiscale structure and evolution of Earl (2010) during rapid intensification. *Monthly Weather Review*, 143(2):536- 562, doi:10.1175/MWR-D-14-00175.1 2015
41. Tang, J., D. Byrne, **J.A. Zhang**, Y. Wang, X. Lei, D. Wu, P. Fang, and B. Zhao. Horizontal transition of turbulent cascade in the near-surface layer of tropical cyclones. *Journal of the Atmospheric Sciences*, 72(12):4915-4925, doi:10.1175/JAS-D-14-0373.1 2015
40. Wang, J., K. Young, T. Hock, D. Lauritsen, D. Behringer, M. Black, P.G. Black, J. Franklin, J. Halverson, J. Molinari, L. Nguyen, T. Reale, J. Smith, B. Sun, Q. Wang, and **J.A. Zhang**. A long-term, high-quality, high vertical resolution GPS dropsonde dataset for hurricane and other studies. *Bulletin of the American Meteorological Society*, 96(6):961-973, doi:10.1175/BAMS-D-13.00203.1 2015
39. **Zhang, J.A.**, and F.D. Marks. Effects of horizontal diffusion on tropical cyclone intensity change and structure in idealized three-dimensional numerical simulations. *Monthly Weather Review*, 143(10):3981-3995, doi:10.1175/MWR-D-14-00341.1 2015
38. **Zhang, J.A.**, D.S. Nolan, R.F. Rogers, and V. Tallapragada. Evaluating the impact of improvements in the boundary layer parameterization on hurricane intensity and structure

- forecasts in HWRP. *Monthly Weather Review*, 143(8):3136-3155, doi:10.1175/MWR-D-14-00339.1 2015
37. Zhu, P., Z. Zhu, S. Gopalakrishnan, R. Black, F.D. Marks, V. Tallapragada, **J.A. Zhang**, X. Zhang, and C. Gao. Impact of sub-grid scale processes on eyewall replacement cycle of tropical cyclones in HWRP system. *Geophysical Research Letters*, 42(22):10027-10036, doi:10.1002/2015GL066436 2015
36. Gall, R., F. Toepfer, F. Marks, E.N. Rappaport, A. Aksoy, S. Aberson, J.W. Bao, M. Bender, S. Benjamin, L. Bernardet, M. Biswas, B. Brown, J. Cangialosi, C. Davis, M. DeMaria, J. Doyle, M. Fiorino, J. Franklin, I. Ginis, S. Gopalakrishnan, T. Hamill, R. Hodur, H.S. Kim, J. Knaff, T. Krishnamurti, P. Kucera, Y. Kwon, W. Lapenta, N. Lett, S. Lord, T. Marchok, E. Mifflin, M. Morin, K. Musgrave, L. Nance, C. Reynolds, V. Tallapragada, H. Tolman, R. Torn, G. Vandenberghe, T. Vukicevic, X. Wang, Y. Weng, J. Whittaker, R. Yablonsky, D.-L. Zhang, F. Zhang, J. Zhang, X. Zhang, and D.A. Delinsky. Hurricane Forecast Improvement Project: 2013 HFIP R&D activities summary—Recent results and operational implementation. HFIP Technical Report, HFIP2014-2, 50 pp., 2014
35. Ming, J., **J.A. Zhang**, R.F. Rogers, F.D. Marks, Y. Wang, and N. Cai. Multiplatform observations of boundary layer structure in the outer rainbands of landfalling typhoons. *Journal of the Geophysical Research-Atmospheres*, 119(13):7799- 7814, doi:10.1002/2014JD021637 2014
34. Montgomery, M.T., **J.A. Zhang**, and R.K. Smith. An analysis of the observed low level structure of rapidly intensifying and mature Hurricane Earl (2010). *Quarterly Journal of the Royal Meteorological Society*, 140(684):2132-2146, doi:10.1002/qj.2283 2014
33. Nolan, D.S., **J.A. Zhang**, and E.W. Uhlhorn. On the limits of estimating the maximum wind speeds in hurricanes. *Monthly Weather Review*, 142(8):2814-2837, doi:10.1175/MWR-D-13-00337.1 2014
32. Shpund, J., **J.A. Zhang**, M. Pinsky, and A. Khain. Microphysical structure of the marine boundary layer under strong wind and sea spray formation as seen from a 2-D explicit microphysical model. Part III: Parameterization of height-dependent droplet size distribution. *Journal of the Atmospheric Sciences*, 71(6):1914-1934, doi:10.1175/JAS-D-12-0201.1 2014
31. Zhang, B., W. Perrie, **J.A. Zhang**, E.W. Uhlhorn, and Y. He High-resolution hurricane vector winds from C-band dual-polarization SAR observations. *Journal of Oceanic and Atmospheric Technology*, 31(2):272-286, doi:10.1175/JTECH-D-13-00006.1 2014
30. **Zhang, J.A.**, M.T. Montgomery, F.D. Marks, and R.K. Smith. Comments on “Symmetric and asymmetric structures of hurricane boundary layer in coupled atmosphere-wave-ocean models and observations.” *Journal of the Atmospheric Sciences*, 71(7):2782-2785, doi:10.1175/JAS-D-13-0207.1 2014
29. Byrne, D., and **J.A. Zhang**. Height-dependent transition from 3-D to 2-D turbulence in

- the hurricane boundary layer. *Geophysical Research Letters*, 40(7):1439- 1442, doi:10.1002/grl.50335 2013
28. Cione, J.J., E.A. Kalina, **J.A. Zhang**, and E.W. Uhlhorn. Observations of air-sea interaction and intensity change in hurricanes. *Monthly Weather Review*, 141(7):2368-2382, doi:10.1175/MWR-D-12-00070.1 2013
27. Gopalakrishnan, S.G., F. Marks, **J.A. Zhang**, X. Zhang, J.-W. Bao, and V. Tallapragada. A study of the impacts of vertical diffusion on the structure and intensity of tropical cyclones using the high resolution HWRf system. *Journal of the Atmospheric Sciences*, 70(2):524-541, doi:10.1175/JAS-D-11-0340.1 2013
26. Li, X., **J.A. Zhang**, X. Yang, W.G. Pichel, M. DeMaria, D. Long, and Z. Li. Tropical cyclone morphology from spaceborne synthetic aperture radar. *Bulletin of the American Meteorological Society*, 94(2):215-230, doi:10.1175/BAMS-D-11-00211.1 2013
25. Li, X., W. Zheng, X. Yang, **J.A. Zhang**, W.G. Pichel, and Z. Li. Coexistence of atmospheric gravity waves and boundary layer rolls observed by SAR. *Journal of the Atmospheric Sciences*, 70(11):3448-3459, doi:10.1175/JAS-D-12-0347.1 2013
24. Rogers, R.F., S.D. Aberson, A. Aksoy, B. Annane, M. Black, J.J. Cione, N. Dorst, J. Dunion, J.F. Gamache, S.B. Goldenberg, S.G. Gopalakrishnan, J. Kaplan, B.W. Klotz, S. Lorsolo, F.D. Marks, S.T. Murillo, M.D. Powell, P.D. Reasor, K.J. Sellwood, E.W. Uhlhorn, T. Vukicevic, **J.A. Zhang**, and X. Zhang. NOAA's Hurricane Intensity Forecasting Experiment (IFEX): A progress report. *Bulletin of the American Meteorological Society*, 94(6):859-882, doi:10.1175/BAMS-D-12-00089 2013
23. **Zhang, J.A.**, R.F. Rogers, P.D. Reasor, E.W. Uhlhorn, and F.D. Marks. Asymmetric hurricane boundary layer structure from dropsonde composites in relation to the environmental vertical wind shear. *Monthly Weather Review*, 141(11):3968-3984, doi:10.1175/MWR-D-12-00335.1 2013
22. Shpund, J., **J.A. Zhang**, M. Pinsky, and A. Khain. Microphysical structure of the marine boundary layer under strong wind and spray formation as seen from simulations using a two-dimensional explicit microphysical model, Part II: The role of sea spray. *Journal of the Atmospheric Sciences*, 69(12):3501-3514, doi:10.1175/JAS-D-11-0281.1 2012
21. **Zhang, J.A.**, and E.W. Uhlhorn. Hurricane sea surface inflow angle and an observation-based parametric model. *Monthly Weather Review*, 140(11):3587-3605, doi:10.1175/MWR-D-11-00339.1 2012
20. **Zhang, J.A.**, and M.T. Montgomery. Observational estimates of the horizontal eddy diffusivity and mixing length in the low-level region of intense hurricanes. *Journal of the Atmospheric Sciences*, 69(4):1306-1316, doi:10.1175/JAS-D-11-0180.1 2012
19. **Zhang, J.A.**, and W.M. Drennan. An observational study of vertical eddy diffusivity in the hurricane boundary layer. *Journal of the Atmospheric Sciences*, 69(11):3223-3236, doi:10.1175/JAS-D-11-0348.1 2012

18. **Zhang, J.A.**, S. Gopalakrishnan, F.D. Marks, R.F. Rogers, and V. Tallapragada. A developmental framework for improving hurricane model physical parameterizations using aircraft observations. *Tropical Cyclone Research and Review*, 1(4):419- 429, doi:10.6057/2012TCRR04.01 2012
17. **Zhang, J.A.**, F.D. Marks, M.T. Montgomery, and S. Lorsolo. An estimation of turbulent characteristics in the low-level region of intense Hurricanes Allen (1980) and Hugo (1989). *Monthly Weather Review*, 139(5):1447-1462, doi:10.1175/2010MWR3435.1 2011
16. **Zhang, J.A.**, P. Zhu, F.J. Masters, R.F. Rogers, and F.D. Marks. On momentum transport and dissipative heating during hurricane landfalls. *Journal of the Atmospheric Sciences*, 68(6):1397-1404, doi:10.1175/JAS-D-10-05018.1 2011
15. **Zhang, J.A.**, R.F. Rogers, D.S. Nolan, and F.D. Marks. On the characteristic height scales of the hurricane boundary layer. *Monthly Weather Review*, 139(8):2523-2535, doi:10.1175/MWR-D-10-05017.1 2011
14. Haus, B.K., D. Jeong, M.A. Donelan, **J.A. Zhang**, and I. Savelyev. Relative rates of sea-air heat transfer and frictional drag in very high winds. *Geophysical Research Letters*, 37(7):L07802, 5 pp., doi:10.1029/2009GL042206 2010
13. Lorsolo, S., F.D. Marks, J.F. Gamache, and **J.A. Zhang**. Estimation and mapping of hurricane turbulent energy using airborne Doppler measurements. *Monthly Weather Review*, 138(9):3656-3670, doi:10.1175/2010MWR3183.1 2010
12. **Zhang, J.A.** Estimation of dissipative heating using low-level in-situ aircraft observations in the hurricane boundary layer. *Journal of the Atmospheric Sciences*, 67(6):1853-1862, doi:10.1175/2010JAS3397.1 2010
11. **Zhang, J.A.** Spectral characteristics of turbulence in the hurricane boundary layer over ocean between the outer rainbands. *Quarterly Journal of the Royal Meteorological Society*, 136(649):918-926, doi:10.1002/qj.610 2010

10. Zhu, P., **J.A. Zhang**, and F.J. Masters. Wavelet analyses of turbulence in the hurricane surface layer during landfalls. *Journal of the Atmospheric Sciences*, 67(12):3793-3805, doi:10.1175/2010JAS3437.1 2010
9. Nolan, D.S., **J.A. Zhang**, and D.P. Stern. Evaluation of planetary boundary layer parameterizations in tropical cyclones by comparison of in-situ observations and high-resolution simulations of Hurricane Isabel (2003), Part I: Initialization, maximum winds, and the outer core boundary layer. *Monthly Weather Review*, 137(11):3651-3674, doi:10.1175/2009MWR2785.1 2009
8. Nolan, S.D., D.P. Stern, and **J.A. Zhang**. Evaluation of planetary boundary layer parameterizations in tropical cyclones by comparison of in-situ observations and high-resolution simulations of Hurricane Isabel (2003), Part II: Inner-core boundary layer and eyewall structure. *Monthly Weather Review*, 137(11):3675-

3698, doi:10.1175/2009MWR2786.1 2009

7. **Zhang, J.A.**, W.M. Drennan, P.G. Black, and J.R. French. Turbulence structure of the hurricane boundary layer between the outer rain bands. *Journal of the Atmospheric Sciences*, 66(8):2455-2467, doi:10.1175/2009JAS2954.1 2009
6. Lørsolo, S., J. Gamache, F. Marks, P. Dodge, and **J.A. Zhang**. Characterization of hurricane turbulence using airborne Doppler measurements. *Extended Abstracts, 28th Conference on Hurricanes and Tropical Meteorology*, Orlando, FL, April 28-May 2, 2008. American Meteorological Society, Boston, 4 pp., 2008
5. **Zhang, J.A.**, K.B. Katsaros, P.G. Black, S. Lehner, J.R. French, and W.M. Drennan. Effects of roll vortices on turbulent fluxes in the hurricane boundary layer. *Boundary-Layer Meteorology*, 128(2):173-189, doi:10.1007/s10546-008-9281-2 2008
4. **Zhang, J.A.**, P.G. Black, J.R. French, and W.M. Drennan. First direct measurements of enthalpy flux in the hurricane boundary layer: The CBLAST results. *Geophysical Research Letters*, 35(11):L14813, 4 pp., doi:10.1029/2008GL034374 2008
3. Black, P.G., E.A. D'Asaro, W.M. Drennan, J.R. French, P.P. Niiler, T.B. Sanford, E.J. Terrill, E.J. Walsh, and **J.A. Zhang**. Air-sea exchange in hurricanes: Synthesis of observations from the Coupled Boundary Layer Air-Sea Transfer Experiment. *Bulletin of the American Meteorological Society*, 88(3):357- 374, doi:10.1175/BAMS-88-3-357 2007
2. Drennan, W.M., **J.A. Zhang**, J.F. French, C. McCormick, and P.G. Black. Turbulent fluxes in the hurricane boundary layer, Part II: Latent heat flux. *Journal of the Atmospheric Sciences*, 64(4):1103-1115, doi:10.1175/JAS3889.1 2007
1. French, J.F., W.M. Drennan, **J.A. Zhang**, and P.G. Black. Turbulent fluxes in the hurricane boundary layer, Part I: Momentum flux. *Journal of the Atmospheric Sciences*, 64(4):1089-1102, doi:10.1175/JAS3887.1 2007

Thesis and Dissertation:

Zhang, J. A., 2005: Humidity Flux Measurements in Hurricane Conditions, *Master Thesis*, University of Miami. Adviser: Prof. William Drennan

Zhang, J. A., 2007: An Airborne Investigation of the Atmospheric Boundary Layer Structure in the Hurricane Force Wind Regime, *Doctoral Dissertation*, University of Miami. Adviser: Prof. William Drennan

Conference Presentations and Posters:

134. **Zhang, J. A.**, 2019: Evaluating and improving hurricane model physics using aircraft observations in the atmospheric boundary layer. Invited talk at the University of South Florida.

133. Nolan, D., and **J. A. Zhang**, 2019: Spiral gravity waves radiating from tropical cyclones: Observations, simulations, and theoretical findings. EGU General Assembly, Vienna, Austria.
132. Chen, X., **J. A. Zhang**, F. Marks, 2019: The thermodynamic pathway leading to rapid intensification of tropical cyclones under shear. 18th Conference on Mesoscale Processes, Savannah, GA.
131. **Zhang, J. A.**, 2019: Airborne Doppler wind lidar observations of tropical cyclone structure and dynamics. Invited presentation at World Congress on Geology & Earth Science, London, England.
130. **Zhang, J. A.**, F. Marks, R. Rogers, J. Sippel, X. Zhang, S. Gopalakrishnan, Z. Zhan, and V. Tallapragada, 2019: Evaluating the impact of improvement in the horizontal diffusion parameterization on hurricane prediction in the operational HWRF model. American Meteorological Society Annual Meeting, Phoenix, AZ.
129. **Zhang, J. A.**, 2018: Impact of model physics on HWRF forecasts of hurricane rapid intensification. Invited talk at Developmental Testbed Center, National Center for Atmospheric Research, Boulder, CO.
128. **Zhang, J. A.**, R. F. Rogers, F. D. Marks, and V. Tallapragada, 2018: Evaluating the impact of parameterized turbulent mixing and boundary layer structure on hurricane intensification. Proceedings, 23rd Symposium on Boundary Layers and Turbulence, Oklahoma City, OK.
127. **Zhang, J. A.**, and R. F. Rogers, 2018: Observed difference in the axisymmetric boundary layer structure between intensifying and steady-state hurricanes. Proceedings, 33rd Conference on Hurricanes and Tropical Meteorology, Ponte Vedra, FL.
126. Ronald J. Dobosy, Oak Ridge, TN; and E. J. Dumas Jr., G. H. Bryan, E. A. Kalina, **J. A. Zhang**, C. Troudt, A. Farber, J. J. Cione, C. B. Baker, T. R. Lee, A. Aksoy, M. K. Biswas, G. de Boer, B. A. Dahl, C. Fairall, G. R. Halliwell Jr., B. Kent, B. W. Klotz, F. D. Marks, K. Ryan, R. Wiggins, and J. Zawislak, 2018: A first look at turbulence intensity at low altitude in the eyewall of a hurricane from coyote small unscrewed aircraft system. Proceedings, 33rd Conference on Hurricanes and Tropical Meteorology, Ponte Vedra, FL.
125. Rogers, R. F., L. Nguyen, P. Reasor, J. Zawislak, and **J. A. Zhang**, 2018: Vortex structural evolution during tropical cyclone intensification in moderate vertical shear. Proceedings, 33rd Conference on Hurricanes and Tropical Meteorology, Ponte Vedra, FL.
124. Shay, L. K., J. K. Brewster, E. Maturi, E. Leuliette, B. Jaimes, J. A. Zhang, D. Donahue, J. Rudzin, and L. Hiron, 2018: Observed ocean heat content variations from in-situ and satellite measurements during the 2017 hurricane season. Proceedings, 33rd Conference on Hurricanes and Tropical Meteorology, Ponte Vedra, FL.
123. Wadler, J. B., J. A. Zhang, B. Jaimes, and L. K. Shay, 2018: Convective downdrafts and boundary layer recovery in Hurricane Earl (2010) before and during rapid intensification. Proceedings, 33rd Conference on Hurricanes and Tropical

- Meteorology, Ponte Vedra, FL.
122. Nguyen, L., R. F. Rogers, J. Zawislak and **J. A. Zhang**, 2018: Assessing the influence of downdrafts and surface enthalpy fluxes on the intensity change of tropical cyclones in moderate vertical shear. Proceedings, 33rd Conference on Hurricanes and Tropical Meteorology, Ponte Vedra, FL.
 121. Foster, R. C., **J. A. Zhang**, and P. G. Black, 2018: Hurricane boundary layer wind profilers estimated from satellite SAR images. Proceedings, 33rd Conference on Hurricanes and Tropical Meteorology, Ponte Vedra, FL.
 120. Joseph J. Cione, A. Aksoy, K. Ryan, **J. A. Zhang**, B. A. Dahl, E. A. Kalina, E. J. Dumas Jr., R. J. Dobosy, G. H. Bryan, A. Farber, C. Troudt, B. Kent, B. B. Baker, M. S. Buban, R. Wiggins, T. R. Lee, F. D. Marks, G. deBoer, C. Fairall, B. W. Klotz, H. Holbach, J. Zawislak, and G. R. Halliwell Jr., 2018: Coyote UAS observations in Hurricane Maria (2017). Proceedings, 33rd Conference on Hurricanes and Tropical Meteorology, Ponte Vedra, FL.
 119. Bucci, L., G. D. Emmitt, **J. A. Zhang**, C. O'Handley, S. Greco, and R. Atlas, 2018: Dynamic characteristics of TC boundary layer from Doppler wind lidar observations. Proceedings, 33rd Conference on Hurricanes and Tropical Meteorology, Ponte Vedra, FL.
 118. Molinari, J. E., E. M. Dougherty, R. Rogers, **J. A. Zhang**, and J. P. Kossin, 2018: Eyewall cycles in vertically sheared and unsheared tropical cyclones. Proceedings, 33rd Conference on Hurricanes and Tropical Meteorology, Ponte Vedra, FL.
 117. Tyner, B., P. Zhu, **J. A. Zhang**, S. G. Gopalakrishnan, F. D. Marks, V. Tallapragada, 2018: A top-down pathway to secondary eyewall formation in simulated tropical cyclones. Proceedings, 33rd Conference on Hurricanes and Tropical Meteorology, Ponte Vedra, FL.
 116. Rogers, R., L. Nguyen, P. Reasor, J. Zawislak, and **J. A. Zhang**, 2017: Shear-relative vortex structural evolution during tropical cyclone intensification. Proceedings at International conference on mesoscale convective systems and high-impact weather in east Asia, Taipei, Taiwan.
 115. Bucci, L., D. Emmitt, **J. A. Zhang**, K. Ryan, and R. Atlas, 2017: Airborne Doppler Wind Lidar, Proceedings, NOAA Emerging Technologies for Observations Workshop, College Park, Maryland.
 114. Cione, J., **J. A. Zhang**, E. Kalina, T. Hock, and J. Smith, 2017: Infrared sea surface temperature measurements from GPS dropsonde observing platform. Proceedings, NOAA Emerging Technologies for Observations Workshop, College Park, Maryland.
 113. **Zhang, J. A.**, and R. Rogers, 2017: Effects of parameterized boundary layer structure

15

- on the rapid intensification of Hurricane Earl (2010) in shear. Proceedings, AGU Fall meeting, New Orleans, LA.
112. **Zhang, J. A.** 2017: A developmental framework for improving hurricane model physics using aircraft observations. Invited talk at the Hurricane Forecast and Improvement Program conference meeting.
 111. **Zhang, J. A.**, 2017: Physical parameterizations in hurricane models. Invited talk at the Department of Mathematics, Florida Internal University.

110. Atlas, R., G. D. Emmitt, L. Bucci, K. Ryan, and **J. A. Zhang**, 2017: Application of Doppler Wind Lidar observations to hurricane analysis and prediction. Proceedings, SPIE Symposium on Lidar Remote Sensing for Environmental Monitoring, San Diego, CA.
109. **Zhang, J. A.**, and R. F. Roger, 2017: Impact of boundary-layer parameterization on HWRF forecasts of Hurricane Rapid Intensification. Proceedings, Tropical Cyclone Operations and Research Forum/71st IHC, Miami, FL.
108. Zhang, B., W. Perrie, A. Mouche, J. A. Zhang, J. Yang, and Y. He, 2017: Typhoon observations by active radar and passive radiometer. Proceedings, 2017 IEEE International Geoscience and Remote Sensing Symposium, Fort Worth, Texas.
107. **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, Proceedings, January, 97th AMS Annual meeting, Seattle, WA.
107. **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, Proceedings, January, 97th AMS Annual meeting, Seattle, WA.
106. Bucci, L., D. Emmitt, C. O'Handley, **J. A. Zhang**, K. Ryan, and R. Atlas, 2017: Impacts of an Airborne Doppler Wind Lidar on Tropical Cyclone Analyses and Forecasts, Proceedings, January, 97th AMS Annual meeting, Seattle, WA.
105. **Zhang, J. A.**, L. Bucci, K. Ryan, D. Emmitt, C. O'Handley, R. Atlas, and F. D. Marks, 2016: The Boundary Layer of Tropical Storm Erika (2015) Observed by Airborne Doppler Wind Lidar. Proceedings, December, 2016 AGU Fall meeting, San Francisco, CA.
104. Chen, H., S. Gopalakrishnan, and J. A. Zhang, 2016: The role of shallow convection and deep convection in the intensity changes of Hurricanes. Proceedings, December, 2016 AGU Fall meeting, San Francisco, CA.
103. Atlas, R., G.D. Emmitt, L. Bucci, K. Ryan, and **J.A. Zhang**, 2016: Impact of Doppler wind lidar data on hurricane prediction. Proceedings, , June 27-July 1, 18th Coherent Laser Radar Conference, Boulder, CO.
102. **Zhang, J. A.**, J. J. Cione, T. Hock, and J. Smith, 2016: Novel observations of sea surface temperature in hurricanes from GPS dropsonde. May, NOAA AVAPS users group meeting, Boulder, CO.
101. **Zhang, J. A.**, R. F. Rogers, T. Tallapragada, and W. Wang, 2016: Effects of boundary layer vertical diffusion on forecasts of tropical cyclone rapid intensification. May, 32nd Conference on Hurricanes and Tropical Meteorology, San Juan, PR.

100. Ming, J., J. A. Zhang, and R. F. Rogers, 2016: Typhon kinematic and thermodynamic boundary layer structure from dropsonde composites. May, 32nd Conference on Hurricanes and Tropical Meteorology, San Juan, PR.
99. Chen, H., J. A. Zhang, S. Gopalakrishnan, and Z. Zhan, 2016: Sensitivity of hurricane

- intensity and structure to planetary boundary layer height in HWRF ensemble forecasts. May, 32nd Conference on Hurricanes and Tropical Meteorology, San Juan, PR.
98. Nolan, D. S., and **J. A. Zhang**, 2016: Simulated and observed gravity waves radiating from tropical cyclone and prospects for remote monitoring. May, 32nd Conference on Hurricanes and Tropical Meteorology, San Juan, PR.
97. Zhu, P., Z. Zhu, S. Gopalakrishnan, R. A. Black, F. Marks, T. Tallapragada, **J. A. Zhang**, and X. Zhang, Impact of Sub-grid Scale processes on eyewall replacement cyclone of tropical cyclones in HWRF system. May, 32nd Conference on Hurricanes and Tropical Meteorology, San Juan, PR.
96. Montgomery, M. T., R. K. Smith, and **J. A. Zhang**, 2016: The dynamics of intensification in an HWRF simulation of Hurricane Earl (2010). May, 32nd Conference on Hurricanes and Tropical Meteorology, San Juan, PR.
95. Bucci, L., G. D. Emmitt, **J. A. Zhang**, H. Christophersen, K. Ryan, C. O’Handley, A. Aksoy, B. Dahl, and R. Atlas, 2016: Impacts of an airborne Doppler Wind Lidar on tropical cyclone analysis and Forecasts. May, 32nd Conference on Hurricanes and Tropical Meteorology, San Juan, PR.
94. Rogers, R. F, **J. A. Zhang**, J. Zawislak, G.R. Alvery III, E. J. Zipser, and H. Jiang, Observations of the structure and evolution of Hurricane Edouard (2014) during intensity change: Kinematic structure and the distribution of the deep convection. May, 32nd Conference on Hurricanes and Tropical Meteorology, San Juan, PR.
93. Zawislak, J., G. R. Alvery 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. May, 32nd Conference on Hurricanes and Tropical Meteorology, San Juan, PR.
92. Foster, R. C., **J. A. Zhang**, and P. G. Black, 2016: Estimates of tropical cyclone surface wind inflow from satellite scatterometers. May, 32nd Conference on Hurricanes and Tropical Meteorology, San Juan, PR.
91. **Zhang, J. A.**, D. Nolan, H. Chen, and R. Rogers, 2016: Update on HFIP-funded project on evaluating HWRF forecasts of tropical cyclone rapid intensification. March, NOAA Hurricane Forecast and Improvement Project meeting, College Park, MA.
90. Chen, H., S. Gopalakrishnan, R. Rogers, **J. A. Zhang**, and G. Alaka, 2016: A study of the influence of shear on the rapid intensification of tropical cyclones using HWRF system, Part II: Why Isaac (2012) didn’t intensify rapidly? February, NOAA Hurricane Forecast and Improvement Project meeting, College Park, MA.
89. Bryan, G. H., R. Worsnop, J. K. Lundquist, and J. A. Zhang, 2015: A simple method for simulating tropical-cyclone boundary layers. December, AGU annual meeting, San Francisco, CA.
88. **Zhang, J. A.**, 2015: A developmental framework for improving hurricane model physics. November, Invited talk, Shanghai Typhoon Institute, Shanghai, China.

87. **Zhang, J. A.**, 2015: Improving hurricane model physics using aircraft observations. Invited talk, National Hurricane Center, Miami, FL.
86. Chen, H., S. Gopalakrishnan, **J. A. Zhang**, and R. Rogers, 2015: A study of the influence of shear on the rapid intensification of tropical cyclones using HWRF system. August, Boston, MA.
85. Rogers, R. **J. A. Zhang**, and J. Zawiskak, 2015: The distribution of deep convection in tropical cyclones and its role in intensification. October, NOAA Hurricane Forecast and Improvement Project conference meeting.
84. Zawislak, J. and **J. A. Zhang**, 2015: The thermodynamic and kinematic lifecycle of Hurricane Edouard as seen by dropsonde observations. May, NASA HS3 science team meeting, NASA Research Park, Moffett Field, CA.
83. Rogers, R., **J. A. Zhang**, J. Zawislak, E. Uhlhorn, 2015: Multiscale kinematic structure and evolution of Hurricane Edouard from 14-16 September using Global Hawk dropsonde and P-3 airborne Doppler radar. May, NASA HS3 science team meeting, NASA Research Park, Moffett Field, CA.
82. Shpund, J., A. Khain and **J. A. Zhang**, 2014: Ascent of sea spray in the hurricane boundary layer in the presence of strong rain. July, proceedings at the 14th conference on cloud physics, Boston, MA.
81. Rogers, R. F., P. D. Reasor, **J. A. Zhang**, and S. Guimond, 2014: Aircraft observations of the multiscale structure and evolution of rapidly intensifying tropical cyclones. 30 April, HS3 Science and Development Preparation Meeting, Moffett Field, CA.
80. Byrne, D., and **J. A. Zhang**, 2014: Observed 3D to 2D energy cascade in hurricanes. Proceedings at the 31th Conference on Hurricanes and Tropical Meteorology, Pone Vedra Beach, FL.
79. Rogers, R. F., P. D. Reasor, and **J. A. Zhang**, 2014: Multiple Structure and Evolution of Earl (2010) during Rapid Intensification. Proceedings at the 31th Conference on Hurricanes and Tropical Meteorology, Pone Vedra Beach, FL.
78. Li, X., Z. Zhao, B. Liu, **J. A. Zhang**, X. Yang, W. Pichel, and M. DeMaria, 2014: Analysis of hurricane morphology, internal waves and boundary layer rolls observed from satellite SAR images. Proceedings at the 31th Conference on Hurricanes and Tropical Meteorology, Pone Vedra Beach, FL.
77. Aksoy, A. B. W. Klotz, **J. A. Zhang**, E. Uhlhorn, and J. J. Cione, 2014: Model sensitivity to perturbations of Environment, structure, and model parameters in idealized ocean-coupled tropical cyclone simulations. Proceedings at the 31th Conference on Hurricanes and Tropical Meteorology, Pone Vedra Beach, FL.
76. Nolan, S. D., **J. A. Zhang**, and E. W. Uhlhorn, 2014: On the limits of measuring the maximum wind speeds in hurricanes. Proceedings at the 31th Conference on Hurricanes and Tropical Meteorology, Pone Vedra Beach, FL.
75. **Zhang, J. A.**, R. Rogers, P. Reasor, E. Uhlhorn, and F. Marks, 2014: Dropsonde composites of asymmetric hurricane boundary layer structure in relation to environmental vertical wind shear. Proceedings at the 31th Conference on Hurricanes and Tropical Meteorology, Pone Vedra Beach, FL.
74. **Zhang, J. A.**, 2013: Turbulent flux observations in the hurricane boundary layer and applications to hurricane models. Invited talk at the Institute of Tropical and Marine Meteorology, 30, October, Guangzhou, China.

73. **Zhang, J. A.**, 2013: A parametric model of hurricane sea-surface inflow angle based on aircraft observations. Invited talk at State Key Laboratory of Tropical Oceanography, South China Sea Institute of Oceanography, 31, October, Guangzhou, China.
72. **Zhang, J. A.**, 2013: A developmental framework for improving hurricane model physics using aircraft observations. Invited talk at Nanjing University, 1, November, Nanjing, China.
71. **Zhang, J. A.**, 2013: Improving hurricane model physics using aircraft observations. Invited talk at Shanghai Typhoon Institute, 1, November, Shanghai, China.
70. **Zhang, J. A.**, 2013: Diagnostics and comparisons of hurricane intensity and structure using idealized HWRf simulations with GFS and MYJ PBL schemes. Invited talk at Environmental Modeling Center HWRf modeling Meeting, 24 October, College Park, Maryland.
69. **Zhang, J. A.**, 2013: A developmental framework for improving hurricane model physics using aircraft observations. Invited talk at Florida International University, 11, October, Miami, FL.
68. Byrne, D., and **J. A. Zhang**, 2013: Three- to two-dimensional turbulence transition in the hurricane boundary layer. EGU General Assembly, April, Vienna, Austria.
67. Kwon, Y., K., V. Tallapragada, W. Wang and **J. A. Zhang**, 2013: Proposed 2013 PBL upgrade to the operational HWRf. EMC's HWRf internal meeting.
66. Kwon, Y., K. Chanh, W. Wang, S. Trahan, Q. Liu, Z. Zhang, V. Tallapragada, and **J. A. Zhang**, 2013: Potential Upgrades for the Radiation and Boundary Layer Physics in the Operational WRF Model. Preprints at the 67th Interdepartmental Hurricane Conference Tropical Cyclone Research Forum, 5 March, College Park, Maryland.
65. **Zhang, J. A.**, 2012: Investigation of hurricane wind and structure by SAR. SSR Science Team meeting, 25 October, College Park, Maryland.
64. Li, X., **J. A. Zhang**, X. Yang, W. G. Pichel, M. DeMaria, D. Long, and Z. Li, 2012: Ocean surface response to hurricanes observed by SAR. Geosicen and Remote Sensing Symposium (IGARSS), IEEE International, July, Munich, Germany.
63. **Zhang, J. A.**, 2012: Evaluation and Improvement of HWRf PBL physics using aircraft observations. Invited talk at HFIP Regional Modeling Physics Workshop, 18, September, Colledge Park, Maryland.
62. **Zhang, J. A.**, 2012: Improving the HWRf model physics using observations and model diagnostics. Invited talk at the NOAA Hurricane Forecast Improment Project monthly Teleconference, 25 April, Miami, FL.
61. **Zhang, J. A.**, 2012: Update on observed eddy diffusivity for improving HWRf model physics. Invited talk at the HWRf internal meeting at EMC, 22 May.
60. Bao, J.-W., S. A. Michelson, S. G. Gopalakrishnan, F. Marks, **J. A. Zhang**, and V. Tallapragada, 2012: Comparison and evaluation of two ABL mixing schemes in HWRf. Proceeding at the 66th Interdepartmental Hurricane Conference, 5 March, Atlanta, GA.
59. Montgomery, M. T., N. T. Sanger, **J. A. Zhang**, R. K. Smith, and M. M. Bell, 2012: An observational study of the dynamical spin-up probess of Typhoon Jangmi (2008) and Hurricane Earl (2010). 31 May, NASA GRIP science meeting, Wallops Island, VA.

58. Uhlhorn, E. W., and **J. A. Zhang**, 2012: Friction Residual of the Near-Surface Momentum Budget at the Eyewall: Role of the Radial Momentum Transport. Proceedings at the 30th Conference on Hurricanes and Tropical Meteorology, Pone Vendra Beach, FL.
57. Zhang, J. A., R. F. Rogers, P. D. Reasor, J. J. Cione, and E. W. Uhlhorn, 2012: On the low-level inner-core structure in relation to the environmental vertical wind shear. Proceedings at the 30th Conference on Hurricanes and Tropical Meteorology, Pone Vendra Beach, FL.
56. Zhang, J. A., and E. Uhlhorn, 2012: Hurricane sea-surface inflow angle and an observation-based parametric model of the two-dimensional wind field. Proceedings at the 30th Conference on Hurricanes and Tropical Meteorology, Pone Vendra Beach, FL.
55. Klotz, B. W., E. W. Uhlhorn, **J. A. Zhang**, and M. Fischer, 2012: Examining Surface Momentum Balance and Boundary Layer Conditions in Extreme Tropical Cyclones. Proceedings at the 30th Conference on Hurricanes and Tropical Meteorology, Pone Vendra Beach, FL.
54. **Zhang, J. A.**, M. T. Montgomery, F. D. Marks Jr., and S. Lorsolo, 2012: Observational estimates of turbulence characteristics in the low-level troposphere of intense hurricanes. Proceedings at the 30th Conference on Hurricanes and Tropical Meteorology, Pone Vendra Beach, FL.
53. Uhlhorn, E., M. Fischer, B. W. Klotz, and **J. A. Zhang**, 2012: Dynamical Boundary Layer Depths in Hurricanes Derived from Surface Wind Observations. Proceedings at the 30th Conference on Hurricanes and Tropical Meteorology, Pone Vendra Beach, FL.
52. Rogers, R., P. Reasor, S. Lorsolo, and **J. A. Zhang**, 2012: Observations of the Inner Core Structure of Rapidly Intensifying Tropical Cyclones. Proceedings at the 30th Conference on Hurricanes and Tropical Meteorology, Pone Vendra Beach, FL.
51. Gruskin, Z., G. J. Tripoli, W. E. Lewis, **J. A. Zhang**, and F. D. Marks Jr., 2012: Helical convective vortices in the hurricane boundary layer simulated with the University of Wisconsin Nonhydrostatic Modeling System (UW-NMS). Proceedings at the 30th Conference on Hurricanes and Tropical Meteorology, Pone Vendra Beach, FL.
50. Furst, J., P. Zhu and **J. A. Zhang**, 2012: Characterizing momentum transport, dissipative heating, and turbulence structure in the surface layer of landfalling hurricanes using high resolution tower observations. Proceedings at the 30th Conference on Hurricanes and Tropical Meteorology, Pone Vendra Beach, FL.
49. **Zhang, J. A.**, 2012: Improving boundary layer physics in hurricane models based on observations. Invited talk at AIR Worldwide, March, Boston, MA.
48. **Zhang, J. A.**, 2011: On hurricane boundary layer parameterizations: Lessons learned from observations. Invited talk at the NOAA Hurricane Forecast Improvement Project Physics Workshop, 9 August, 2011, Clinton, MD.
47. **Zhang, J. A.**, 2011: Probing the hurricane boundary layer using NOAA's research aircraft. Invited talk at NCAR, June 2, 2011, Boulder, CO.
46. Rogers, R., P. Reasor, S. Lorsolo, and **J. A. Zhang**, 2011: Vortex- and convective scale

evolution during the rapid intensification of Hurricane Earl (2010). NASA GRIP science meeting, 7 June, 2011, Los Angeles, CA.

20

45. **Zhang, J. A.**, 2011: Flight-level data from the NOAA WP-3D aircraft: An overview of the instrumentation and errors. Invited talk at the NOAA Hurricane Forecast Improvement Project Physics Workshop, 11 May, 2011, Miami, FL.
44. **Zhang, J. A.**, R. Rogers, D. S. Nolan, and F. D. Marks, 2011: On the characteristics of the hurricane boundary layer, for model evaluation purpose. Proceedings at the 65th Interdepartmental Hurricane Conference, February 23-March 3, 2011, Miami, FL.
43. Rogers, R., P. Reasor, S. Lorsolo, and **J. A. Zhang**, 2011: Tropical cyclone inner-core diagnostics. Proceedings at the 65th Interdepartmental Hurricane Conference, February 23-March 3, 2011, Miami, FL.
42. Kaplan, J., J. J. Cione, M. DeMaria, J. Knaff, J. Dunion, J. F. Dostalek, J. E. Solbrig, J. Hawkins, T. F. Lee, E. Kalina, **J. A. Zhang, J. A.**, Dostalek, and P. Leighton, 2011: Enhancements to the SHIPS rapid intensification index. Proceedings at the 65th Interdepartmental Hurricane Conference, February 23-March 3, 2011, Miami, FL.
41. **Zhang, J. A.**, F. D. Marks, M. T. Montgomery, and S. Lorsolo, 2010: Estimation of turbulent characteristics in the low-level eyewall and outer-core regions in intense Hurricanes Allen (1980) and Hugo (1989). Proceedings at the AGU Fall meeting, San Francisco, CA.
40. Aksoy, A., T. Vukicevic, K. J. Sellwood, S. Lorsolo, S. G. Gopalakrishnan, **J. A. Zhang**, S. Aberson, and F. Zhang, 2010: Vortex-scale hurricane data assimilation: OSSE results with airborne Doppler radar and dropsondes using NOAA/AOML/HRD's HWRF Ensemble Data Assimilation System (HEDAS) The 4th Ensemble Kalman Filter Workshop, April 2010, Albany, New York.
39. Kaplan, J., J. J. Cione, M. DeMaria, J. Knaff, J. Dunion, J. F. Dostalek, J. E. Solbrig, J. Hawkins, T. F. Lee, **J. A. Zhang**, E. Kalina, and P. Leighton, 2010: Enhancements of the operational SHIPS rapid intensification index. Proceedings at 64th Interdepartmental Hurricane Conference, March, Savannah, Georgia.
38. **Zhang, J. A.**, J. Stamates, S. Cummings, S. Kimball, and F. Marks, 2010: Shallow water wave measurements in the hurricane environment. Proceedings at the 29th Conference on Hurricanes and Tropical Meteorology, Tucson, AZ.
37. **Zhang, J. A.**, A. Aksoy, S. Lorsolo, R. Rogers, E. Uhlhorn, J. J. Cione, J. Dunion, J. Kaplan, K. Yeh, X. Zhang, S. G. Gopalakrishnan, T. Quirino, J. Cangialosi, and F. Marks, 2010: An observational and numerical study of the boundary layer processes during the intensification of Hurricane Bill (2009). Proceedings at the 29th Conference on Hurricanes and Tropical Meteorology, Tucson, AZ.
36. Kaplan, J., **J. A. Zhang**, S. Aberson, M. L. Black, E. Uhlhorn, J. Dunion, A. Aksoy, and R. Rogers, 2010: A multi-scale analysis of the rapid intensification of Hurricane Paloma (2008). Proceedings at the 29th Conference on Hurricanes and Tropical Meteorology, Tucson, AZ.
35. Kaplan, J., J. J. Cione, M. DeMaria, J. Knaff, J. Dunion, J. F. Dostalek, J. E. Solbrig, J. Hawkins, T. F. Lee, **J. A. Zhang**, E. Kalina, and P. Leighton, 2010: Enhancements to

- the operational SHIPS rapid intensification index. Proceedings at the 29th Conference on Hurricanes and Tropical Meteorology, Tucson, AZ.
34. Loruso, S., J. F. Gamache, F. Marks, P. Dodge, **J. A. Zhang**, 2010: Retrieval of hurricane turbulence parameters using airborne Doppler radar measurements.

21

- Proceedings at the 29th Conference on Hurricanes and Tropical Meteorology, Tucson, AZ.
33. Cione, J. J., **J. A. Zhang** and E. W. Uhlhorn, 2010: Near-surface temperature and moisture observations from tropical cyclones between 1975 and 2007: Axisymmetric and asymmetric structural analysis. Proceedings at the 29th Conference on Hurricanes and Tropical Meteorology, Tucson, AZ.
32. Zhu, P., **J. A. Zhang** and F. Masters, 2010: Wavelet analyses of turbulence in the hurricane boundary layer during landfalls. Proceedings at the 29th Conference on Hurricanes and Tropical Meteorology, Tucson, AZ.
31. Nolan, D. S., **J. A. Zhang**, M. D. Powell, and F. J. Masters, 2010: Evaluation of the Surface Wind Field in a High-Resolution Simulation of the Landfall of Hurricane Wilma (2005) by Comparison to In Situ Wind Measurements. Proceedings at the 29th Conference on Hurricanes and Tropical Meteorology, Tucson, AZ.
30. Wang, S., Y. Jin, P. Black, and **J. A. Zhang**, 2010: Analysis of NRL COAMPS simulated boundary layer of Hurricane Isabel (2003). Proceedings at the 29th Conference on Hurricanes and Tropical Meteorology, Tucson, AZ.
29. **Zhang, J. A.**, 2009: Aircraft observations of the hurricane boundary layer structure. Invited presentation at the National Hurricane Center, Miami, FL.
28. Nolan, D., **J. A. Zhang**, and D. Stern, 2009: Evaluation of planetary boundary layer parameterizations in tropical cyclones by comparison of in-situ observations and high resolution simulations of Hurricane Isabel (2003). Proceedings at the 63rd Interdepartmental Hurricane Conference, St. Petersburg, FL.
27. **Zhang, J. A.**, W. Drennan, and J. French, 2009: Direct measurements of momentum and enthalpy fluxes in the hurricane force wind regime. Proceedings at AMS 89th Annual Meeting, Phoenix, AZ.
26. **Zhang, J. A.**, and W. Drennan, 2009: Spectra and cospectra of turbulence in the hurricane boundary layer over the ocean. Proceedings at AMS 89th Annual Meeting, Phoenix, AZ.
25. Jeong, D., B. K. Haus, M. A. Donelan and **J. A. Zhang**, 2009: Laboratory measurements of the moist enthalpy transfer coefficient. Proceedings at AMS 89th Annual Meeting, Phoenix, AZ.
24. **Zhang, J. A.**, F. Marks, M. Montgomery, S. Loruso, and P. Black, 2008: Turbulence and coherent structure in the atmospheric boundary layer near the eyewall of category five Hurricane Hugo (1989). Poster at the AGU annual meeting, San Francisco, CA.
23. **Zhang, J. A.**, 2008: On the determination of the atmospheric boundary layer height in hurricanes. Proceedings at the AGU Assembly, Fort Lauderdale, FL.
22. Zhang, J., and W. M. Drennan, 2008: Aircraft Observations of the turbulence structure in the hurricane boundary layer. Proceedings at the 28th Conference on Hurricanes and Tropical

Meteorology, Orlando, FL.

21. **Zhang, J. A.**, P. G. Black and W. M. Drennan, 2008: Vertical profiles of mean structure of the hurricane boundary layer from the GPS dropsondes. Proceedings at the 28th Conference on Hurricanes and Tropical Meteorology, Orlando, FL.
20. Nolan, D. S., **J. A. Zhang**, D. P. Stern, and P. Kozich, 2007: The impacts of resolution and boundary layer parameterization on the structure of the wind field in high resolution simulations of Hurricane Isabel (2003). Proceedings at the 28th Conference on Hurricanes and Tropical Meteorology, Orlando, FL.

22

19. Lorsolo, S. J. Gamache, F. Marks, P. Dodge and **J. A. Zhang**, 2008: Characterization of hurricane turbulence using airborne Doppler measurements. Extended Abstracts, 28th Conference on Hurricane and Tropical Meteorology, Orlando, FL.
18. Dunkerton, T.J., B.A. Walter, W. Perrie, D.G. Long, **J. A. Zhang**, P. G. Black, and R. Rogers, 2006: Images of Hurricane Katrina (2005) Below the Cloud. Proceedings at the 28th Conference on Hurricanes and Tropical Meteorology, Orlando, FL.
17. Nolan, D. S., **J. A. Zhang**, D. P. Stern, and P. Kozich, 2007: The impacts of resolution and boundary layer parameterization on the structure of the wind field in high resolution simulations of Hurricane Isabel (2003). Poster at AGU 2007 Fall Meeting, San Francisco, CA.
16. **J. A. Zhang**, 2007: Aircraft Observation of the Hurricane Boundary Layer Structure. Invited Presentation at the Department of Earth Science, Florida International University.
15. Black, P.G., W.M. Drennan, **J. A. Zhang, J. A.**, R. French, E.A. D'Asaro, P.P. Niiler, T.B. Sanford, E.J. Terrill, E.J. Walsh, and K. Emanuel, 2006: Observations from the Coupled Boundary Layer Air-Sea Transfer Experiment in Hurricanes. Presentation at the AGU 2006 Fall Meeting, San Francisco, CA.
14. Black, P.G., E.A. D'Asaro, W.M. Drennan, J.R. French, P.P. Niiler, T.B. Sanford, E.J. Terrill, E.J. Walsh, and **J. A. Zhang**, 2006: Air-Sea Exchange in Hurricanes: Synthesis of Observations from the Coupled Boundary Layer Air-Sea Transfer Experiment. Presentation at the 27th Conference on Hurricanes and Tropical Meteorology, Monterey, CA.
13. Drennan, W.M., **J. A. Zhang, J. A.**, R. French, and P.G. Black, 2006: Latent Heat Fluxes in the Hurricane Boundary Layer. Presentation at the 27th Conference on Hurricanes and Tropical Meteorology, Monterey, CA.
12. Dunkerton, T.J., B.A. Walter, W. Perrie, D.G. Long, J. Zhang, P. G. Black, and R. Rogers, 2006: Images of Hurricane Katrina (2005) Below the Cloud. Presentation at the AGU 2006 Fall Meeting, San Francisco, CA.
11. Jeong, D., B.K. Haus, M.A. Donelan, and **J. A. Zhang**, 2006: Laboratory Measurements of Enthalpy Flux in High Winds. Poster at the AGU 2006 Fall Meeting, San Francisco, CA.
10. French, J.R., W.M. Drennan, **J. A. Zhang**, and P.G. Black, 2006: Direct Airborne Measurements of Momentum Flux in Hurricanes. Presentation at the 27th Conference on Hurricanes and Tropical Meteorology, Monterey, CA.
9. **Zhang, J. A.**, W. Drennan, J. French, and P. Black, 2006: Direct Measurements of

Sensible and Latent Heat Fluxes in the Hurricane Boundary Layer. Poster at the AGU 2006 Fall Meeting, San Francisco, CA.

8. **Zhang, J. A.**, W.M. Drennan, S. Lehner, K.B. Katsaros, and P.G. Black, 2006: The Effect of Roll Vortices on Turbulent Fluxes in the Hurricane Boundary Layer. Presentation at the 27th Conference on Hurricanes and Tropical Meteorology, Monterey, CA.
7. **Zhang, J. A.**, 2006: Evidence for Roll Vortex Boundary Layer Circulations in Tropical Cyclones. Invited Presentation at the EXTROP Workshop, Miami, FL.
6. Drennan, W.M., **J. A. Zhang**, C.A. McCormick, J. French and P. Black, 2005: Measurements of Humidity flux in Hurricanes Fabian and Isabel. Poster at the 37th

23

International Liège Colloquium on Ocean Dynamics, GAS TRANSFER AT WATER SURFACES, Liège, Belgium.

5. Drennan, W.M., **J. A. Zhang**, C.A. McCormick, J. French and P. Black, 2005: Measurements of Humidity flux in Hurricanes Fabian and Isabel. Poster (EGU05-A 10038) at the 2005 EGU Meeting, Vienna, Austria.
4. Drennan, W.M., **J. A. Zhang, J. A.**, R. French, and P.G. Black, 2005: Humidity Flux Measurements in Hurricane Fabian and Isabel. Presentation at the CBLAST Hurricane SCIENCE MEETING, Miami, FL.
3. Donelan, M.A., B. K. Haus and **J. A. Zhang**, 2005: Preliminary results from laboratory experiments on the Air-Sea Coupling Coefficients for sensible and latent heat in High Winds. Presentation at the CBLAST-Hurricane SCIENCE MEETING, Miami, FL.
2. French, J.R., W.M. Drennan, **J. A. Zhang**, and P.G. Black, 2005: CD and U* Estimates from Direct Measurements in Hurricanes Using Eddy Correlation. Presentation at the CBLAST-Hurricane SCIENCE MEETING, Miami, FL.
1. Drennan, W. M., C. A. McCormick, **J. A. Zhang, J. A.**, French and P. Black, 2004: Measurements of humidity fluxes in Hurricanes Fabian and Isabel with a modified LICOR hygrometer. Presentation at the 26th Conference on Hurricanes and Tropical Meteorology, Miami, FL.

SYNERGISTIC ACTIVITIES:

Model validation and development scientist for the Hurricane Weather and Research Forecast (HWRF) model as part of the Hurricane Forecast and Improvement Program (HFIP), providing observational and modeling guidance for improving the physical parameterizations of HWRF (2011-present)

Field project scientist, serving as lead project scientist, radar and dropsonde scientist in the Hurricane Research Division's Hurricane Field Program (2008 – present)

Field project scientist, Pls of flight modules for the Hurricane Research Division's Hurricane Field Program (2010 – 2019)

Visiting Scientist of National Center for Atmospheric Research (2012; 2017; 2018)

Participant of the Coupled Boundary Layer Air-Sea Transfer – Hurricane Experiment, in charge of instrumentation design, maintenance and data analysis (2002-2004)

Reviewer of manuscripts from Journal of the Atmospheric Sciences (2010 – 2020), Monthly Weather Review (2009-2020), Journal of Geophysical Research (2009-2020), Quarterly Journal of the Royal Meteorological Society (2010-2020), Nature (2013-2020), Boundary Layer of Meteorology (2010-2020)

Reviewer of proposals for the Physical and Dynamical Meteorology Division of the National Science Foundation (2013-2015) and for Office of Science of the Department of Energy (2010)

24

PROFESSIONAL MEMBERSHIP American

Meteorological Society since 2003 American

Geophysical Union since 2004

