

# Recent Publications

(Alphabetized by lead author; EMC Federal authors in black boldface, EMC Contractor authors in red boldface; full author affiliations listed in the articles)

2021

**Abdolali, A., Van Der Westhuysen, A., Ma, Z., Mehra, A.,** Roland, A., and Moghimi, S., 2021: Evaluating the accuracy and uncertainty of atmospheric and wave model hindcasts during severe events using model ensembles. *Ocean Dynamics*, **71**, 19 pp. <https://doi.org/10.1007/s10236-020-01426-9> or <https://rdcu.be/cdfjB>

**Black, T. L., J. A. Abeles, B. T. Blake, D. Jovic, E. Rogers, X. Zhang, E. A. Aligo, L. C. Dawson, Y. Lin, E. Strobach, P. C. Shafran, and J. R. Carley,** 2021: A Limited Area Modeling Capability for the Finite-Volume Cubed-Sphere (FV3) Dynamical Core and Comparison with a Global Two-Way Nest. *Journal of Advances in Modeling Earth Systems*, **13(6)**, <https://doi.org/10.1029/2021MS002483>

Boukabara, S., **Krasnopolsky, V.**, Penny, S. G., Stewart, J. Q., McGovern, A., Hall, D., Ten Hoeve, J. E., Hickey, J., Allen Huang, H., Williams, J. K., Ide, K., Tissot, P., Haupt, S. E., Casey, K. S., Oza, N., Geer, A. J., Maddy, E. S., & Hoffman, R. N., 2021: Outlook for Exploiting Artificial Intelligence in the Earth and Environmental Sciences, *Bull. Amer. Meteor. Soc.* **102**, E1016-E1032. <https://doi.org/10.1175/BAMS-D-20-0031.1>

Brus, S. R., Wolfram, P.J., Van Roekel, L.P., and **Meixner, J.D.**, 2021: Unstructured global to coastal wave modeling for the Energy Exascale Earth System Model using WAVEWATCH III version 6.07. *Geosci. Model Dev.*, **14**, 2917-2938. <https://doi.org/10.5194/gmd-14-2917-2021>

**Carley, J. R.**, M. Matthews, **M. T. Morris, M. S. F. V. De Pondaca,** J. Colavito, and **R. Yang**, 2021: Variational assimilation of web camera-derived estimates of visibility for Alaska aviation. *Experimental Results*, **2**, e14. <http://dx.doi.org/10.1017/exp.2020.66>

Fan, Y., **V. Krasnopolsky**, H. van den Dool, C.-Y. Wu, and J. Gottschalck, 2021: Using Artificial Neural Networks to Improve CFS Week 3-4 Precipitation and 2-Meter Air Temperature Forecasts. *Wea. Forecasting*, **36**, <https://doi.org/10.1175/WAF-D-20-0014.1>

Hazelton, A., **Z. Zhang, B. Liu, J. Dong,** G. Alaka, **W. Wang,** T. Marchok, **A. Mehra,** S. Gopalakrishnan, X. Zhang, M. Bender, **V. Tallapragada,** and F. Marks, 2021: 2019 Atlantic Hurricane Forecasts from The Global-Nested Hurricane Analysis and Forecast System: Composite Statistics and Key Events. *Wea. Forecasting*, **36**, 519-538. <https://doi.org/10.1175/WAF-D-20-0044.1>

Huang, B., X. Wang, **D. T. Kleist**, and **T. Lei**, 2021: A simultaneous multiscale data assimilation using scale-dependent localization in GSI-based hybrid 4DEnVar for NCEP FV3-based GFS, *Mon. Wea. Rev.*, **149**, 479-501, <https://doi.org/10.1175/MWR-D-20-0166.1>

Ingleby, B., B. Candy, J. Eyre, T. Haiden, C. Hill, L. Isaksen, **D. Kleist**, F. Smith, P. Steinle, S. Taylor, W. Tennant, and C. Tingwell, 2021: The impacts of COVID-19 on weather forecasts: a balanced view, *Geophysical Res. Letters*, **48**, <https://doi.org/10.1029/2020GL090699>

Krishnamurthy, V., **Meixner, J.**, **Stefanova, L.**, **Wang, J.**, **Worthen, D.**, **Moorthi, S.**, **Bin, L.**, Sluka, T., and Stan, C., 2021: Sources of Subseasonal Predictability over CONUS during Boreal Summer. *J. Climate*, **34(9)**, 1372-1394. <https://doi.org/10.1175/JCLI-D-20-0586.1>

Li, J., **J. Du**, J. Xiong, and M. Wang, 2021: Perturbing Topography in a Convection-Allowing Ensemble Prediction System for Heavy Rain Forecasts. *JGR Atmospheres*, **126(14)**, 1-20, <https://doi.org/10.1029/2020JD033898>

Peters-Lidard, C. D., D. M. Mocko, L. Su, D. P. Lettenmaier, P. Gentine, and **M. Barlage**, 2021: Advances in Land Surface Models and Indicators for Drought Monitoring and Prediction. *Bull. Amer. Meteor. Soc.*, **102**, E1099-E1122. <https://doi.org/10.1175/BAMS-D-20-0087.1>

Qian, W.H., **J. Du**, and Y. Ai, 2021: A Review: anomaly-based versus full-field based weather analysis and forecasting. *Bull. Amer. Meteor. Soc.*, **102**, E849-E870. <https://doi.org/10.1175/BAMS-D-19-0297.1>

Qian, W.H., Y. Ai, J.-Y. Yu, and **J. Du**, 2021: Opposite anomalous synoptic patterns for potential California large wildfire spread and extinguishing in 2018 cases. *Atmospheric Research*, **262**, 1-16, <https://doi.org/10.1016/j.atmosres.2021.105804>

Tang, Y., H. Bian, Z. Tao, L. D. Oman, D. Tong, P. Lee, P. C. Campbell, B. Baker, C.-H. Lu, **L. Pan**, **J. Wang**, **J. McQueen**, and **I. Stajner**, 2021: Comparison of chemical lateral boundary conditions for air quality predictions over the contiguous United States during pollutant intrusion events. *Atmospheric Chemistry and Physics*, **21**, 2527-2550. <https://acp.copernicus.org/articles/21/2527/2021/acp-21-2527-2021.html>

**Wang, W.**, **B. Liu**, **L. Zhu**, **Z. Zhang**, **A. Mehra**, and **V. Tallapragada**, 2021: A New Horizontal Mixing-Length Formulation for Numerical Simulations of Tropical Cyclones. *Wea. Forecasting*, **36**, 679-695. <https://doi.org/10.1175/WAF-D-20-0134.1>

Williams, B., U. Kadri, and **A. Abdolali**, 2021: Acoustic-gravity waves from multi-fault rupture. *Journal of Fluid Mechanics*, **Volume 915**, A108. <https://doi.org/10.1017/jfm.2021.101>

**Zhang, Z.**, J. A. Zhang, G. J. Alaka, Jr., **K. Wu**, **A. Mehra**, and **V. Tallapragada**, 2021: A Statistical Analysis of High Frequency Track and Intensity Forecasts from NOAA's Operational Hurricane Weather Research and Forecast (HWRF) Modeling System, *Monthly Weather Review*, **149**, <https://doi.org/10.1175/MWR-D-21-0021.1>

Zheng, M., L. D. Monache, **X. Wu**, F. M. Ralph, B. Cornuelle, **V. Tallapragada**, J. S. Haase, A. M. Wilson, M. Mazloff, A. Subramanian, and F. Cannon, 2021: Data Gaps within Atmospheric Rivers over the Northeastern Pacific. *Bull. Amer. Meteor. Soc.*, **102**(3), E492–E524. <https://doi.org/10.1175/BAMS-D-19-0287.1>

## 2020

**Abdolali, A.**, Roland, A., **Van Der Westhuysen, A.**, **Meixner, J.**, **Chawla, A.**, Hesser, T., Smith, J.M. and M. Dutour Sikiric, 2020, Large-scale Hurricane Modeling Using Domain Decomposition Parallelization and Implicit Scheme Implemented in WAVEWATCH III Wave Model, *Coastal Engineering*, **157**, 103656, <https://doi.org/10.1016/j.coastaleng.2020.103656>

Alaka Jr., G.J., **D. Sheinin**, **B. Thomas**, L. Gramer, **Z. Zhang**, **B. Liu**, **H.-S. Kim** and **A. Mehra**, 2020: A Hydrodynamical Atmosphere/Ocean Coupled Modeling System for Multiple Tropical Cyclones. *Atmosphere*, **11**, 22 pp. <https://www.mdpi.com/2073-4433/11/8/869/pdf>

Bakhtyar, R., K. Maitaria, P. Velissariou, B. Trimble , H. Mashriqui, S. Moghimi, **A. Abdolali**, **A.J. Van der Westhuysen**, **Z. Ma**, T. Flowers (2020), A new 1D/2D Coupled Modeling Approach for a Riverine-Estuarine System under Storm Events: Application to Delaware River Basin, *Journal of Geophysical Research: Oceans*, <https://doi.org/10.1029/2019JC015822>

**Black, T.**, 2020: A documentation of the NMMB's nesting capabilities and mechanisms. NOAA/NCEP Office Note 503. <https://repository.library.noaa.gov/view/noaa/23887>

Campos, R. M., **V. Krasnopolsky**, **J.-H. Alves**, S. G. Penny, 2020: Improving NCEP's global-scale wave ensemble averages using neural networks. *Ocean Modelling*, **149**, May 2020, <https://doi.org/10.1016/j.ocemod.2020.101617>

Cangialosi, J. P., E. Blake, M. DeMaria, A. Penny, A. Latta, E. Rappaport, and **V. Tallapragada**, 2020: Recent Progress in Tropical Cyclone Intensity Forecasting at the National Hurricane Center. *Wea. Forecasting*, **35**, 1913-1922. <https://doi.org/10.1175/WAF-D-20-0059.1>

Chen, J., J. Z. Wang, **J. Du**, 2020: Forecast bias correction through model integration: A dynamical wholesale approach. *Quart. J. Roy. Meteor. Soc.*, **146**, 1149-1168, <https://doi.org/10.1002/qj.3730>.

**Dong, J.**, **B. Liu**, **Z. Zhang**, **W. Wang**, **A. Mehra**, A.T. Hazelton, **H.R. Winterbottom**, **L. Zhu**, **K. Wu**, **C. Zhang**, **V. Tallapragada**, X. Zhang, S. Gopalakrishnan, F. Marks, 2020:

The Evaluation of Real-Time Hurricane Analysis and Forecast System (HAFS) Stand-Alone Regional (SAR) Model Performance for the 2019 Atlantic Hurricane Season. *Atmosphere* 2020, **11**, 617. <https://doi.org/10.3390/atmos11060617>

Hao, Z., W. Li, V. P. Singh, **Y. Xia**, X. Zhang, and F. Hao, 2020: Impact of dependence changes on the likelihood of hot extremes under drought conditions in the United States, *J. Hydrol.*, **581**, 124410, <https://doi.org/10.1016/j.jhydrol.2019.124410>.

He, X., T. Xu, **Y. Xia**, S. M. Bateni, Z. Guo, S. Liu, K. Mao, Y. Zhang, H. Feng, and J. Zhao, 2020: Bayesian Three-Cornered Hat (BTCH) Method: Improving the Terrestrial Evapotranspiration Estimation. *Remote Sens.*, **12**, 878. <https://doi.org/10.3390/rs12050878>

Hristova-Veleva, S. M., P. P. Li, B. Knosp, Q. Vu, F. J. Turk, W. L. Poulsen, Z. Haddad, B. Lambriksen, B. W. Stiles, T.-P. Shen, N. Niamsuwan, S. Tanelli, O. Sy, E.-K. Seo, H. Su, D. G. Vane, Yi Chao, P. S. Callahan, R. S. Dunbar, M. Montgomery, M. Boothe, **V. Tallapragada**, S. Trahan, A. J. Wimmers, R. Holz, J. S. Reid, F. Marks, T. Vukicevic, S. Bhalachandran, H. Leighton, S. Gopalakrishnan, A. Navarro, and F. J. Tapiador, 2020: An Eye on the Storm: Integrating a Wealth of Data for Quickly Advancing the Physical Understanding and Forecasting of Tropical Cyclones. *Bull. Amer. Meteor. Soc.*, **101**, E1718-E1742. <https://doi.org/10.1175/BAMS-D-19-0020.1>

Lavers, D. A., N. B. Ingleby, A. C. Subramanian, D. S. Richardson, F. M. Ralph, J. D. Doyle, C. A. Reynolds, R. D. Torn, M. J. Rodwell, **V. Tallapragada**, and F. Pappenberger, 2020: Forecast Errors and Uncertainties in Atmospheric Rivers. *Wea. Forecasting*, **35**, 1447-1458. <https://doi.org/10.1175/WAF-D-20-0049.1>

**Liu, Q.**, X. Zhang, M. Tong, **Z. Zhang**, **B. Liu**, **W. Wang**, **L. Zhu**, B. Zhang, X. Xu, S. Trahan, L. Bernardet, **A. Mehra**, and **V. Tallapragada**, 2020: Vortex Initialization in the NCEP Operational Hurricane Models. *Atmosphere*, 11(9), <https://www.mdpi.com/2073-4433/11/9/968/pdf>

**Ma, Z.**, **Liu, B.**, **Mehra, A.**, **Abdolali, A.**, **van der Westhuysen, A.**, Moghimi, S.; Vinogradov, S., **Zhang, Z.**, **Zhu, L.**, **Wu, K.**, **Shrestha, R.**; Kumar, A., **Tallapragada, V.**, Kurkowski, N., 2020: Investigating the Impact of High-Resolution Land–Sea Masks on Hurricane Forecasts in HWRF. *Atmosphere* 2020, 11(9), 888, <https://doi.org/10.3390/atmos11090888>

Moghimi, S., **Van der Westhuysen, A.**, **Abdolali, A.**; Myers, E.; Vinogradov, S.; **Ma, Z.**; Liu, F.; **Mehra, A.**; Kurkowski, N. (2020), Development of an ESMF Based Flexible Coupling Application of ADCIRC and WAVEWATCH III for High Fidelity Coastal Inundation Studies. *J. Mar. Sci. Eng.* 2020, 8, 308. <https://doi.org/10.3390/jmse8050308>

**Morris, M. T.**, J. R. Carley, **E. Colón**, **A. Gibbs**, **M. S. F. V. De Pondaca**, and **S. Levine**, 2020: A Quality Assessment of the Real-Time Mesoscale Analysis (RTMA) for Aviation. *Wea. Forecasting*, **35**, 977–996, <https://doi.org/10.1175/WAF-D-19-0201.1>.

Potvin, C.K., **J.R. Carley**, A.J. Clark, L.J. Wicker, P.S. Skinner, A.E. Reinhart, B.T. Gallo, **J.S. Kain**, G.S. Romine, **E.A. Aligo**, K.A. Brewster, D.C. Dowell, L.M. Harris, I.L. Jirak, F. Kong, T.A. Supinie, K.W. Thomas, X. Wang, Y. Wang, and M. Xue, 2019: Systematic Comparison of Convection-Allowing Models during the 2017 NOAA HWT Spring Forecasting Experiment. *Wea. Forecasting*, **34**, 1395–1416, <https://doi.org/10.1175/WAF-D-19-0056.1>.

Potvin, C.K., P.S. Skinner, K.A. Hoogewind, M.C. Coniglio, J.A. Gibbs, A.J. Clark, M.L. Flora, A.E. Reinhart, **J.R. Carley**, and E.N. Smith, 2020: Assessing Systematic Impacts of PBL Schemes on Storm Evolution in the NOAA Warn-on-Forecast System. *Mon. Wea. Rev.*, **148**, 2567–2590, <https://doi.org/10.1175/MWR-D-19-0389.1>.

**Purser, R.J.**, 2020: Description and some formal properties of beta filters; compact support quasi-Gaussian convolution operators with applications to the construction of spatial covariances. NOAA/NCEP Office Note 498. <https://repository.library.noaa.gov/view/noaa/23195>

**Purser, R.J.**, 2020: A formulation of the hexad algorithm using the geometry of the Fano projective plane. NOAA/NCEP Office Note 499. <https://repository.library.noaa.gov/view/noaa/23059>

**Purser, R.J.**, 2020: A formulation of the decad algorithm using the symmetries of the Galois field, GF(16). NOAA/NCEP Office Note 500. <https://repository.library.noaa.gov/view/noaa/23060>

**Purser, R.J.**, 2020: Solving the Laplace equation in a right-angled bicorn and constructing smooth functions for conformal overset grids. NOAA/NCEP Office Note 501. <https://repository.library.noaa.gov/view/noaa/23441>

Ralph, F. M., F. Cannon, **V. Tallapragada**, C. A Davis, J. D. Doyle, F. Pappenberger, A. Subramanian, A. M. Wilson, D. A. Lavers, C. A Reynolds, J. S. Haase, L. Centurioni, B. Ingleby, J. J. Rutz, J. M. Cordeira, M. Zheng, C. Hecht, B. Kawzenuk, and L. D. Monache, 2020: West Coast forecast challenges and development of atmospheric river reconnaissance. *Bull. Amer. Meteor. Soc.*, 101, E1357–E1377. <https://doi.org/10.1175/BAMS-D-19-0183.1>

Rateb, A., B. R. Scanlon, D. R. Pool, A. Sun, Z. Zhang, J. Chen, B. Clark, C. C. Faunt, C. J. Haugh, M. Hill, C. Hobza, V. L. McGuire, M. Reitz, H. M. Schmied, E. H. Sutanudjaja, S. Swenson, D. Wiese, **Y. Xia**, and W. Zel, 2020: Comparison of groundwater storage changes from GRACE satellites with monitoring and modeling of major U.S. aquifers, *Water Resour. Res.*, **56**, e2020WR027556. <https://doi.org/10.1029/2020WR027556>.

Sawada, M., Z. Ma, **A. Mehra**, **V. Tallapragada**, R. Oyama, K. Shimoji, 2020: Assimilation of Himawari-8 rapid-scan atmospheric motion vectors on tropical cyclone in HWRF system. *Atmosphere* **2020**, **11**, 601, <https://www.mdpi.com/2073-4433/11/6/601/pdf>



Tong, M., **Yanqiu Zhu**, L. Zhou, **E. Liu**, M. Chen, Q. Liu, and S.-J. Lin, 2020: Multiple Hydrometeors All-Sky Microwave Radiance Assimilation in FV3GFS. *Mon. Wea. Rev.*, **148**, 2971-2995. <https://doi.org/10.1175/MWR-D-19-0231.1>

Wick, G. A., J. P. Dunion, P. G. Black, J. R. Walker, R. D. Torn, A. C. Kren, A. Aksoy, H. Christophersen, L. Cucurull, B. Dahl, J. M. English, **K. Friedman**, T. R. Peevey, K. Sellwood, J. A. Sippel, **V. Tallapragada**, J. Taylor, H. Wang, R. E. Hood, and P. Hall, 2020: NOAA's Sensing Hazards with Operational Unmanned Technology (SHOUT) Experiment Observations and Forecast Impacts. *Bull. Amer. Meteor. Soc*, **101**, E968-E987. <https://doi.org/10.1175/BAMS-D-18-0257.1>

**Yang, R., R. J. Purser, J. R. Carley, M. Pondeca, Yanqiu Zhu, and S. Levine**, 2020: Application of a Nonlinear Transformation Function to the Variational Analysis of Visibility and Ceiling Height. NCEP Office Note 502. 36 pp. <https://repository.library.noaa.gov/view/noaa/23885>

Zhang, B., **Y. Xia**, B. Long, M. Hobbins, X. Zhao, C. Hain, Y. Li, and M. Anderson, 2020: Evaluation and comparison of multiple evapotranspiration data models over the contiguous United States: Implications for the next phase of NLDAS (NLDAS-Testbed) development, *Agri. Forest Meteor.*, **280**, <https://doi.org/10.1016/j.agrformet.2019.107810>

**Zhang, Z.**, M. Tong, J. A. Sippel, **A. Mehra**, B. Zhang, **K. Wu, B. Liu, J. Dong, Z. Ma, H. Winterbottom, W. Wang, L. Zhu, Q. Liu, H.-S. Kim, B. Thomas, D. Sheinin, L. Bi, and V. Tallapragada**, 2020 : The Impact of Stochastic Physics-Based Hybrid GSI/EnKF Data Assimilation on Hurricane Forecasts Using EMC Operational Hurricane Modeling System, *Atmosphere*, **11**, 20 pp. <https://www.mdpi.com/2073-4433/11/8/801/pdf>

## 2019

**Abdolali, A.**, Kadri, U. & J.T. Kirby, 2019, Effect of Water Compressibility, Sea-floor Elasticity, and Field Gravitational Potential on Tsunami Phase Speed, Scientific Reports, *Nature*, <https://www.nature.com/articles/s41598-019-52475-0>

Alaka, G. J, Jr., X. Zhang, S. G. Gopalakrishnan, **Z. Zhang**, F. D. Marks, and R. Atlas, 2019: Track Uncertainty in High-Resolution HWRF Ensemble Forecasts of Hurricane Joaquin. *Wea. Forecasting*, **34**, 1889-1908. <https://doi.org/10.1175/WAF-D-19-0028.1>

An, N., R.T. Pinker, K. Wang, **E. Rogers**, and Z. Zuo, 2019: Evaluation of cloud base height in the North American Regional Reanalysis using ceilometer observations. *International Journal of Climatology*, <https://rmets.onlinelibrary.wiley.com/doi/full/10.1002/joc.6389>

Boukabara, S.-A., **V. Krasnopolsky**, J. Q. Stewart, E. S. Maddy, N. Shahroudi, and R. N. Hoffman, 2019: Leveraging Modern Artificial Intelligence for Remote Sensing and

NWP: Benefits and Challenges. *Bull. Amer. Meteor. Soc.*, **100**, ES473-ES491.  
<https://doi.org/10.1175/BAMS-D-18-0324.1>

Bender, M. A., T. Marchok, R. E. Tuleya, I. Ginis, **V. Tallapragada**, and S. J. Lord, 2019: Hurricane Model Development at GFDL: A Collaborative Success Story from a Historical Perspective. *Bull. Amer. Meteor. Soc.*, **100**, 1725-1736.

Campos, R. M., **V. Krasnopolsky**, **J.-H. GM Alves**, S. G Penny, 2019: Nonlinear wave ensemble averaging in the Gulf of Mexico using neural networks. *J. Atmos. Oceanic Tech.*, **36**(1), 113-127. <https://doi.org/10.1175/JTECH-D-18-0099.1>

Chen, S.-C., J. Benoit, J. Ritchie, Y. Zhang, **H.-M. H. Juang**, Y.-J. Chen, and T. Rolinski, 2019: FireBuster—A web application for high-resolution fire weather modeling. *USDA General Technical Report PSW-GTR264*, 22 pp.  
<https://www.fs.usda.gov/treearch/pubs/all/58247>

Crow, W., F. Chen, R. Reichle, and **Y. Xia**, 2019: Diagnosing bias in modeled soil moisture/runoff coupling strength using the SMAP Level 4 soil moisture product. *Water Resources Research*, **55**, 7010–7026. <https://doi.org/10.1029/2019WR025245>

Cui, Z., Z. Pu, **V. Tallapragada**, R. Atlas, C. S. Ruf, 2019: A Preliminary Impact Study of CYGNSS Ocean Surface Wind Speeds on Numerical Simulations of Hurricanes. *Geophysical Research Letters*, **46**(5), 2984-2992.  
<https://doi.org/10.1029/2019GL082236>

Domingues, R., Akira Kuwano-Yoshida, Patricia Chardon-Maldonado, Robert E Todd, George Robert Halliwell, **Hyun-Sook Kim**, I-I Lin, Katsufumi Sato, Tomoko Narazaki, Lynn K. Shay, Travis Miles, Scott Glenn, Jun A. Zhang, Steven Robert Jayne, Luca R Centurioni, Matthieu Le Hénaff, Gregory Foltz, Francis Bringas, MM Ali, Steven DiMarco, Shigeki Hosoda, Takuya Fukuoka, Benjamin LaCour, **Avichal Mehra**, Elizabeth R. Sanabia, John R. Gyakum, **Jili Dong**, John Knaff, Gustavo Jorge Goni, 2019: Ocean Observations in Support of Studies and Forecasts of Tropical and Extratropical Cyclones, *Frontiers in Marine Science*.  
<https://doi.org/10.3389/fmars.2019.00446>

**Du, J., B. Zhou, and J. Levit**, 2019: Measure of Forecast Challenge and Predictability Horizon Diagram Index for Ensemble Models. *Wea. Forecasting*, **34**, 603–615, <https://doi.org/10.1175/WAF-D-18-0114.1>.

Duda, J. D., X. Wang, Y. Wang, and **J. R. Carley**, 2019: Comparing the Assimilation of Radar Reflectivity Using the Direct GSI-Based Ensemble–Variational (EnVar) and Indirect Cloud Analysis Methods in Convection-Allowing Forecasts over the Continental United States. *Mon. Wea. Rev.*, **147**, 1655–1678,  
<https://doi.org/10.1175/MWR-D-18-0171.1>.

Gehne, M., T. M. Hamill, G. T. Bates, P. Pegion, and **W. Kolczynski**, 2019: Land Surface Parameter and State Perturbations in the Global Ensemble Forecast System. *Mon. Wea. Rev.*, **147**, 1319-1340. <https://doi.org/10.1175/MWR-D-18-0057.1>

**Guan, H., Yuejian Zhu, E. Sinsky, W. Li, X. Zhou, D. Hou, C. Melhauser and R. Wobus**, 2019: Systematic Error Analysis and Calibration of 2-m Temperature for the NCEP GEFS Reforecast of Subseasonal Experiment (SubX) Project. *Wea. Forecasting*, **34**, 361-376. <https://doi.org/10.1175/WAF-D-18-0100.1>

**Han, J.** and C. S. Bretherton, 2019: TKE-Based Moist Eddy-Diffusivity Mass-Flux (EDMF) Parameterization for Vertical Turbulent Mixing. *Wea. Forecasting*, **34**, 869-886. <https://doi.org/10.1175/WAF-D-18-0146.1>

He, B., P. Liu, **Yuejian Zhu**, W. Hu, 2019: Prediction and predictability of Northern Hemisphere persistent maxima of 500-hPa geopotential height eddies in the GEFS. *Clim. Dyn.*, **52**, 3773–3789 (2019). <https://doi.org/10.1007/s00382-018-4347-4>

**Janjic, Z.**, 2019: The Surface Layer Parameterization in the NMM Models. [NCEP Office Note #497](#)

**Li, W., Yuejian Zhu, X. Zhou, D. Hou, E. Sinsky, C. Melhauser, M. Pena, H. Guan and R. Wobus**, 2019: Evaluating the MJO Forecast Skill from Different Configurations of NCEP GEFS Extended Forecast. *Climate Dynamics*, **52**, 4923–4936. <https://doi.org/10.1007/s00382-018-4423-9>

Liao, W., D. Wang, G. Wang, and **Y. Xia**, 2019: Evaluation and Generation Process of the Quality-controlled Daily *in Situ* Soil Moisture in North American Soil Moisture Database. *J. Meteorological Research*, **33**, 501-519.

Lim, A. H. N., J. A. Jung, S. E. Nebuda, J. M. Daniels, W. Bresky, M. Tong, and **V. Tallapragada**, 2019: Tropical Cyclone Forecasts Impact Assessment from the Assimilation of Hourly Visible, Shortwave, and Clear-Air Water Vapor Atmospheric Motion Vectors in HWRF. *Wea. Forecasting*, **34**, 177-198. <https://doi.org/10.1175/WAF-D-18-0072.1>

**Lippi, D. E., J. R. Carley, and D. T. Kleist**, 2019: Improvements to the Assimilation of Doppler Radial Winds for Convection-Permitting Forecasts of a Heavy Rain Event. *Mon. Wea. Rev.*, **147**, 3609–3632, <https://doi.org/10.1175/MWR-D-18-0411.1>.

Lu, K., C. Wang, **K. Wu**, M. Gong, Y., and Y. Wang, 2019: A unified framework for exploring time-varying volumetric data based on block correspondence. *Visual Informatics*, Volume 3, Issue 4, 2019, 157-165, <https://www.sciencedirect.com/science/article/pii/S2468502X19300464?via%3Dihub>

Nguyen, T. V., K. V. Mai, P. N. B. Nguyen, **H.-M. H. Juang**, D. V. Nguyen, 2019: Evaluation of summer monsoon climate predictions over the Indochina peninsula using



regional spectral model. *Weather and Climate Extremes*, **23** (2019) 100195, 14 pp.  
<https://www.sciencedirect.com/science/article/pii/S2212094718301415>

Papangelis, K, D. Potena, W. W. Smari, E. Storti, and **K. Wu**, 2019: Advanced technologies and systems for collaboration and computer supported cooperative work. *Future Generation Computer Systems*, **95**, 2019, Pages 764-774,  
<https://doi.org/10.1016/j.future.2019.02.041>.

Pegion, K., B. P. Kirtman, E. Becker, D. C. Collins, E. LaJoie, R. Burgman, R. Bell, T. DelSole, D. Min, **Yuejian Zhu**, **W. Li**, **E. Sinsky**, **H. Guan**, J. Gottschalck, E. J. Metzger, N. P. Barton, D. Achuthavarier, J. Marshak, R. D. Koster, H. Lin, N. Gagnon, M. Bell, M. K. Tippett, A. W. Robertson, S. Sun, S. G. Benjamin, B. W. Green, R. Bleck, and H. Kim, 2019: The Subseasonal Experiment (SubX): A Multimodel Subseasonal Prediction Experiment. *Bull. Amer. Meteor. Soc.*, **100**, 2043-2060.  
<https://doi.org/10.1175/BAMS-D-18-0270.1>

Potvin, C. K., **J. R. Carley**, A. J. Clark, L. J. Wicker, P. S. Skinner, A. E. Reinhart, B. T. Gallo, **J. S. Kain**, G. S. Romine, **E. A. Aligo**, K. A. Brewster, D. C. Dowell, L. M. Harris, I. L. Jirak, F. Kong, T. A. Supinie, K. W. Thomas, X. Wang, Y. Wang, and M. Xue, 2019: Systematic Comparison of Convection-Allowing Models during the 2017 NOAA HWT Spring Forecasting Experiment. *Wea. Forecasting*, **34**, 1395-1416.  
<https://doi.org/10.1175/WAF-D-19-0056.1>

Pu, Z., C. Yu, **V. Tallapragada**, J. Jin, and W. McCarty, 2019: The Impact of Assimilation of GPM Microwave Imager Clear-Sky Radiance on Numerical Simulations of Hurricanes Joaquin (2015) and Matthew (2016) with the HWRF Model. *Mon. Wea. Rev.*, **147**, 175-198. <https://doi.org/10.1175/MWR-D-17-0200.1>

**Pyle, M. E.** and K. F. Brill, 2019: A Comparison of Two Methods for Bias Correcting Precipitation Skill Scores. *Wea. Forecasting*, **34**, 3-13. <https://doi.org/10.1175/WAF-D-18-0109.1>

Slivinski, L. C., G. P. Compo, J. S. Whitaker, P. D. Sardeshmukh, J.-W. A. Wang, **K. Friedman**, and C. McColl, 2019: What Is the Impact of Additional Tropical Observations on a Modern Data Assimilation System? *Mon. Wea. Rev.*, **147**, 2433-2449.  
<https://doi.org/10.1175/MWR-D-18-0120.1>

Xu, T, Z. Guo, **Y. Xia**, V.J. Ferriera, S. Liu, K. Wang, Y. Yao, X. Zhang, and C. Zhao, 2019: Evaluation of twelve evapotranspiration products from machine learning, remote sensing and land surface models over conterminous United States, *J. Hydrol.*, **578**, <https://doi.org/10.1016/j.jhydrol.2019.124105>.

**Xia, Y.**, Z. Hao, C. Shi, Y. Li, **J. Meng**, T. Xu, Y. Wu, and B. Zhang, 2019: Regional and Global Land Data Assimilation Systems: Innovations, Challenges, and Prospects. *J. Meteorological Research*, **33**, 159-189.

Xia, Y., J. Chen, **J. Du**, X. Zhi, J. Wang, and X. Li, 2019: A unified scheme of stochastic physics and bias correction in an ensemble model to reduce both random and systematic errors. *Wea. Forecasting*, **34**, 1675-1691, <https://journals.ametsoc.org/doi/pdf/10.1175/WAF-D-19-0032.1>

Zhang, B., **Y. Xia**, L.S. Hunting, G. Wei, G. Wang, and A. Aghakouchak, 2019: A framework for global multi-category and multi-scalar drought characterization accounting for snow processes, *Water Resour. Res.*, **55** (11), 9258-9278. <https://doi.org/10.1029/2019WR025529>

Zhang, B., G. Liu, **Yuejian Zhu**, N. Shi, 2019: Frequency of Persistent Blocking and Ridge Events Related to Precipitation over Eastern China during August and Its Preceding Atmospheric Signals. *Wea. Forecasting*, **34(6)**, 1705-1719. <https://doi.org/10.1175/WAF-D-19-0047.1>

**Zhu, Yanqiu, G. Gayno, R. J. Purser, X. Su**, and **R. Yang**, 2019: Expansion of the All-Sky Radiance Assimilation to ATMS at NCEP. *Mon. Wea. Rev.*, **147**, 2603-2620. <https://doi.org/10.1175/MWR-D-18-0228.1>

**Zhu, Yuejian, W. Li, X. Zhou**, and **D. Hou**, 2019: Stochastic Representation of NCEP GEFS to Improve Subseasonal Forecasts. *Current trends in the Representation of Physical Processes in Weather and Climate Models*, Editors: Randall, D.A., Srinivasan, J., Nanjundiah, R.A., Mukhopadhyay, P. Springer Atmospheric Sciences, 317-328

## 2018

**Abdolali, A.**, Kadri, U., Parsons, W., and Kirby, J., 2018, On the propagation of acoustic-gravity waves under elastic ice sheets. *Journal of Fluid Mechanics*, 837, 640-656. <https://doi.org/10.1017/jfm.2017.808>

**Aligo, E., B. Ferrier**, and **J. Carley**, 2018: Modified NAM Microphysics for Forecasts of Deep Convective Storms. *Mon. Wea. Rev.*, **146**, 4115-4153. <https://doi.org/10.1175/MWR-D-17-0277.1>

Banta, R. M, Y. L. Pichugina, W. A. Brewer, E. P. James, J. B. Olson, S. G. Benjamin, **J. R. Carley**, L. Bianco, I. V. Djalalova, J. M. Wilczak, R. M. Hardesty, J. Cline, and M. C. Marquis, 2018: Evaluating and Improving NWP Forecast Models for the Future: How the Needs of Offshore Wind Energy Can Point the Way. *Bull. Amer. Meteor. Soc.*, **99**, 1155-1176. <https://doi.org/10.1175/BAMS-D-16-0310.1>

**Bhattacharjee, P. S., J. Wang**, C.-H. Lu, and **V. Tallapragada**, 2018: The implementation of NEMS GFS Aerosol Component (NGAC) Version 2.0 for global multispecies forecasting at NOAA/NCEP-Part 2: Evaluation of aerosol optical thickness. *Geosci. Model Dev.*, **11**, 2333–2351, 2018. <https://doi.org/10.5194/gmd-11-2333-2018>

Buizza, R., **J. Du**, Z. Toth, and **D. Hou**, 2018: Major operational ensemble prediction systems (EPS) and the future of EPS. Handbook of Hydrometeorological Ensemble Forecasting (edited by Q. Duan et al.), Springer, Berlin, Heidelberg, pp 1-43, [https://doi.org/10.1007/978-3-642-40457-3\\_14-1](https://doi.org/10.1007/978-3-642-40457-3_14-1)

Campos, R. M., **J.-H. G. M. Alves**, S. G. Penny, and **V. Krasnopolsky**, 2018: Assessments of Surface Winds and Waves from the NCEP Ensemble Forecast System. *Wea. Forecasting*, **33**, 1533-1546. <https://doi.org/10.1175/WAF-D-18-0086.1>

Chen, S.-P., C.-H. Lu, **J. McQueen**, and P. Lee, 2018: Application of satellite observations in conjunction with aerosol reanalysis to characterize long-range transport of African and Asian dust on air quality in the contiguous US. *Atmospheric Environment*, **187**, August 2018, 174-195. <https://doi.org/10.1016/j.atmosenv.2018.05.038>

Clark, A. J., I. L. Jirak, S. R. Dembek, G. J. Creager, F. Kong, K. W. Thomas, K. H. Knopfmeier, B. T. Gallo, C. J. Melick, M. Xue, K. A. Brewster, Y. Jung, A. Kennedy, X. Dong, J. Markel, M. Gilmore, G. S. Romine, K. R. Fossell, R. A. Sobash, **J. R. Carley**, **B. S. Ferrier**, **M. Pyle**, C. R. Alexander, S. J. Weiss, J. S. Kain, L. J. Wicker, G. Thompson, R. D. Adams-Selin, and D. A. Imy, 2018: The Community Leveraged Unified Ensemble (CLUE) in the 2016 NOAA/Hazardous Weather Testbed Spring Forecasting Experiment. *Bull. Amer. Meteor. Soc.*, **99**, 1433-1448. <https://doi.org/10.1175/BAMS-D-16-0309.1>

Crow, W. T., Chen, F., Reichle, R. H., **Xia, Y.**, & Liu, Q., 2018: Exploiting soil moisture, precipitation, and streamflow observations to evaluate soil moisture/runoff coupling in land surface models. *Geophysical Research Letters*, **45**, 4869–4878. <https://doi.org/10.1029/2018GL077193>

**Chuang, H.-Y.**, **Y. Mao**, and **B. Zhou**, 2018: R2O Transition of NCAR's Icing and Turbulence Algorithms into NCEP's Operations. *Pure and Applied Geophysics*, **176**, 2057–2079(2019). <https://link.springer.com/article/10.1007/s00024-018-1975-x>

Dirmeyer, P. A., L. Chen, J. Wu, C.-S. Shin, B. Huang, B. A. Cash, M. G. Bosilovich, S. Mahanama, R. D. Koster, J. A. Santanello, **M. B. Ek**, G. Balsamo, E. Dutra, and D. M. Lawrence, 2018: Verification of Land–Atmosphere Coupling in Forecast Models, Reanalyses, and Land Surface Models Using Flux Site Observations. *J. Hydrometeor.*, **19**(2), 375-392. <https://doi.org/10.1175/JHM-D-17-0152.1>.

**Du, J.**, J. Berner, R. Buizza, M. Charron, P. Houtekamer, **D. Hou**, I. Jankov, M. Mu, X. Wang, **M. Wei**, and H. Yuan, 2018: Ensemble methods for meteorological predictions. Handbook of Hydrometeorological Ensemble Forecasting (edited by Q. Duan et al.), Springer, Berlin, Heidelberg, pp 1-52, [https://doi.org/10.1007/978-3-642-40457-3\\_13-1](https://doi.org/10.1007/978-3-642-40457-3_13-1)

Gustafsson, Nils, T. Janjić, C. Schraff, D. Leuenberger, M. Weissmann, H. Reich, P. Brousseau, T. Montmerle, E. Wattrelot, A. Bučánek, M. Mile, R. Hamdi, M. Lindsog, J. Barkmeijer, M. Dahlbom, B. Macpherson, S. Ballard, G. Inverarity, **J. Carley**, C. Alexander, D. Dowell, **S. Liu**, Y. Ikuta, and T. Fujita, 2018: Survey of data assimilation

methods for convective-scale numerical weather prediction at operational centres. *Q. J. R. Meteorol. Soc.*, **144**, 1218–1256.

<https://rmets.onlinelibrary.wiley.com/doi/pdfdirect/10.1002/qj.3179>

Hao, Z., F. Hao, VP Singh, **Y. Xia**, C. Shi, and X. Zhang, 2018: A multivariate approach for statistical assessments of compound extremes. *J. Hydrol.*, **565**, 87–94.

<https://doi.org/10.1016/j.jhydrol.2018.08.025>

Hao, Z., Singh, V. P., and **Xia, Y.**, 2018: Seasonal drought prediction: Advances, challenges, and future prospects. *Reviews of Geophysics*, **56**, 108–141.

<https://doi.org/10.1002/2016RG000549>

Hicks, B. B., W. R. Pendergrass, B. D. Baker, R. D. Saylor, D. L. O'Dell, N. S. Eash, and **J. T. McQueen**, 2018: On the Relevance of  $\ln(z_0/z_{0T})=kB^{-1}$ . *Boundary-Layer Meteorol.* **167**, 285–301 (2018). <https://doi.org/10.1007/s10546-017-0322-6>

Hoffman, V. K. Kumar, S.-A. Boukabara, K. Ide, **F. Yang**, and R. Atlas, 2018: Progress in Forecast Skill at Three Leading Global Operational NWP Centers during 2015–17 as Seen in Summary Assessment Metrics (SAMs). *Wea. Forecasting*, **33**, 1661–1679.

<https://doi.org/10.1175/WAF-D-18-0117.1>

**Krasnopolsky, V., S. Nadiga, A. Mehra**, and E. Bayler, 2018: Adjusting Neural Network to a Particular Problem: Neural Network-Based Empirical Biological Model for Chlorophyll Concentration in the Upper Ocean", *Applied Computational Intelligence and Soft Computing*, vol. 2018, Article ID 7057363, 10 pages, 2018. <https://doi.org/10.1155/2018/7057363>

Kieu, C, K. Keshavamurthy, **V. Tallapragada**, S. Gopalakrishnan, **S. Trahan**, 2018: On the growth of intensity forecast errors in the operational hurricane weather research and forecasting (HWRF) model. *Quart. J. Roy. Meteor. Soc.*, **144**, 1803–1819.

<https://doi.org/10.1002/qj.3344>

Lavers, D. A., M. J. Rodwell, D. S. Richardson, F. M. Ralph, J. D. Doyle, C. A. Reynolds, **V. Tallapragada**, and F. Pappenberger, 2018: The Gauging and Modeling of Rivers in the Sky. *Geophysical Research Letters*, **45(15)**, 7828–7834.

<https://doi.org/10.1029/2018GL079019>

Leighton, H., S. Gopalakrishnan, J. A. Zhang, R. F. Rogers, **Z. Zhang**, and **V. Tallapragada**, 2018: Azimuthal distribution of deep convection, environmental factors, and tropical cyclone rapid intensification: A perspective from HWRF ensemble forecasts of Hurricane Edouard (2014). *J. Atmos. Sci.*, **75(1)**, 275–295.

<https://doi.org/10.1175/JAS-D-17-0171.1>

Liu, P., **Yuejian Zhu**, Q. Zhang, J. Gottschalck, M. Zhang, **C. Melhauser, W. Li, H. Guan, X. Zhou, D. Hou, M. Peña**, G. Wu, Y. Liu, L. Zhou, B. He, W. Hu, and R.

Sukhdeo, 2018: *Clim. Dyn.*, **51**, 701–717 (2018). <https://doi.org/10.1007/s00382-017-3950-0>

**Mehra, A., Tallapragada, V., Zhang, Z., Liu, B., Zhu, L., Wang, W., Kim, H.S.**, 2018: Advancing the State of the Art in Operational Tropical Cyclone Forecasting at NCEP. *Tropical Cyclone Research and Review*, **7**(1), 51–56.

**Purser, R.J.**, 2018: Hilbert Curves Isometrically Filling a Spherical Shell, and their Application to the Estimation of Spatial Data Density. [NCEP Office Note #494](#)

**Purser, R.J.**, 2018: Convenient Parameterizations of Super-Logistic Probability Models of Effective Observation Error. [NCEP Office Note #495](#)

**Purser, R.J.**, 2018: Mobius Net Cubed-Sphere Gnomonic Grids. [NCEP Office Note #496](#)

Santanello, J. A., Jr., P. A. Dirmeyer, C. R. Ferguson, K. L. Findell, A. B. Tawfik, A. Berg, **M. Ek**, P. Gentile, B. P. Guillod, C. van Heerwaarden, J. Roundy, and V. Wulfmeyer, 2018: Land–Atmosphere Interactions: The LoCo Perspective. *Bull. Amer. Meteor. Soc.*, **99**, 1253–1272. <https://doi.org/10.1175/BAMS-D-17-0001.1>

Schröder, M., M. Lockhoff, F. Fell, J. Forsythe, T. Trent, R. Bennartz, E. Borbas, M. G. Bosilovich, E. Castelli, H. Hersbach, M. Kachi, S. Kobayashi, E. R. Kursinski, D. Loyola, C. Mears, R. Preusker, W. B. Rossow, and **S. Saha**, 2018: The GEWEX Water Vapor Assessment archive of water vapour products from satellite observations and reanalyses. *Earth Syst. Sci. Data*, **10**, 1093–1117, 2018. <https://doi.org/10.5194/essd-10-1093-2018>

Song, X., **Yuejian Zhu, J. Peng**, and **H. Guan**, 2018: Improving Multi-Model Ensemble Forecasts of Tropical Cyclone Intensity Using Bayesian Model Averaging. *J. Meteor. Res.*, **32**(5): 794-803. doi: [10.1007/s13351-018-7117-7](https://doi.org/10.1007/s13351-018-7117-7)

Sun, A.Y., **Y. Xia**, T.G. Caldwell, and Z. Hao, 2018: Patterns of precipitation and soil moisture extremes in Texas, US: A complex network analysis, *Adv. Water Resour.*, **112**, 203-213. <https://doi.org/10.1016/j.advwatres.2017.12.019>

Tong, M., J. A. Sippel, **V. Tallapragada, E. Liu, C. Kieu, I.-H. Kwon, W. Wang, Q. Liu, Y. Ling**, and **B. Zhang**, 2018: Impact of Assimilating Aircraft Reconnaissance Observations on Tropical Cyclone Initialization and Prediction Using Operational HWRP and GSI Ensemble–Variational Hybrid Data Assimilation. *Mon. Wea. Rev.*, **146**, 4155-4177. <https://doi.org/10.1175/MWR-D-17-0380.1>

Tyner, B., P. Zhu, J. A. Zhang, S. Gopalakrishnan, F. Marks Jr, and **V. Tallapragada**, 2018: A top-down pathway to secondary eyewall formation in simulated tropical cyclones. *JGR Atmospheres*, **123**(1), 174-197. <https://doi.org/10.1002/2017JD027410>

Wang, J., J. Chen, **J. Du**, Y. Zhang, Y. Xia; G. Deng, 2018: Sensitivity of Ensemble Forecast Verification to Model Bias. *Mon. Wea. Rev.*, **146**, 781–&96, <https://doi.org/10.1175/MWR-D-17-0223.1>



Wang, J., **P. S. Bhattacharjee**, **V. Tallapragada**, C.-H. Lu, S. Kondragunta, A. da Silva, X. Zhang, S.-P. Chen, S.-W. Wei, A. S. Darmanov, **J. McQueen**, P. Lee, P. Koner, and A. Harris, 2018: The implementation of NEMS GFS Aerosol Component (NGAC) Version 2.0 for global multispecies forecasting at NOAA/NCEP – Part 1: Model descriptions. *Geosci. Model Dev.*, **11**, 2315–2332, 2018. <https://doi.org/10.5194/gmd-11-2315-2018>

**Wang, W., J. A. Sippel, S. Abarca, L. Zhu, B. Liu, Z. Zhang, A. Mehra, and V. Tallapragada**, 2018: Improving NCEP HWRF Simulations of Surface Wind and Inflow Angle in the Eyewall Area. *Wea. Forecasting*, **33**, 887–898, <https://doi.org/10.1175/WAF-D-17-0115.1>

**Xia, Y.**, D.M. Mocko, S. Wang, M. Pan, S. V. Kumar, C. D. Peters-Lidard, **H. Wei**, D. Wang, and **M.B. Ek**, 2018: Comprehensive Evaluation of the Variable Infiltration Capacity (VIC) Model in the North American Land Data Assimilation System, *J. Hydrometeor.*, **19**(11), 1853–1879. <https://doi.org/10.1175/JHM-D-18-0139.1>

Xu, T., Guo, Z., Liu, S., He, X., Meng, Y., Xu, Z., **Xia, Y.**, J. Xiao, Y. Zhang, Y. Ma, and L. Song, 2018: Evaluating different machine learning methods for upscaling evapotranspiration from flux towers to the regional scale. *Journal of Geophysical Research: Atmospheres*, **123**, 8674–8690. <https://doi.org/10.1029/2018JD028447>

Xue, Y. I. Diallo, W. Li, J. D. Neelin, P. C. Chu, **R. Vasic**, W. Guo, Q. Li, D. A. Robinson, **Yuejian Zhu**, C. Fu, C. M. Oaida, 2018: Spring Land Surface and Subsurface Temperature Anomalies and Subsequent Downstream Late Spring-Summer Droughts/Floods in North America and East Asia. *JGR Atmospheres*, **123**(10), 5001–5019. <https://doi.org/10.1029/2017JD028246>

Zhang, J. A., F. D. Marks, J. A. Sippel, R. F. Rogers, X. Zhang, S. G. Gopalakrishnan, **Z. Zhang**, and **V. Tallapragada**, 2018: Evaluating the Impact of Improvement in the Horizontal Diffusion Parameterization on Hurricane Prediction in the Operational Hurricane Weather Research and Forecast (HWRF) Model. *Wea. Forecasting*, **34**, 317–329. <https://doi.org/10.1175/WAF-D-17-0097.1>

**Zheng, W.**, X. Zhan, J. J. Liu, and **M. Ek**, 2018: A Preliminary Assessment of the Impact of Assimilating Satellite Soil Moisture Data Products on NCEP Global Forecast System. *Advances in Meteorology*, vol. 2018, Article ID 7363194, 12 pages, 2018. <https://doi.org/10.1155/2018/7363194>

**Zhu, Yuejian, X. Zhou, W. Li, D. Hou, C. Melhauser, E. Sinsky, M. Pena, B. Fu, H. Guan, W. Kolczynski, R. Wobus and V. Tallapragada**, 2018: Towards the Improvement of Sub-Seasonal Prediction in the NCEP Global Ensemble Forecast System (GEFS). *Journal of Geophysical Research: Atmospheres*. **123**, 6732–6745. <https://doi.org/10.1029/2018JD028506>

2017

**Abdolali, A.** and Kirby, J. T., 2017, Role of compressibility on tsunami propagation. *Journal of Geophysical Research: Oceans*, **122**. <https://doi.org/10.1002/2017JC013054>

**Alves, J.-H. G. M.**, Campos, R., Soares, C. G., Parente, C. E, 2017: Improving Surface Wind Databases for Extreme Wind-Wave Simulation and Analysis in the South Atlantic Ocean. [NCEP Office Note #491](#).

Badia, A., O. Jorba, A. Voulgarakis, D. Dabdub, C. P. García-Pando, A. Hilboll, M. Gonçalves, and **Z. Janjic**, 2017: Description and evaluation of the Multiscale Online Nonhydrostatic Atmosphere Chemistry model (NMMB-MONARCH) version 1.0: gas-phase chemistry at global scale. *Geosci. Model Dev.*, **10**, 609–638, 2017. <https://doi.org/10.5194/gmd-10-609-2017>

Barbariol, F., **J.-H. GM Alves**, A. Benetazzo, F. Bergamasco, L. Bertotti, S. Carniel, L. Cavaleri, **Y. Y. Chao**, **A. Chawla**, A. Ricchi, M. Sclavo, and **H. Tolman**, 2017: Numerical modeling of space-time wave extremes using WAVEWATCH III. *Ocean Dynamics*, **67**, 535–549(2017). <https://doi.org/10.1007/s10236-016-1025-0>

Bernardet, L., L. Carson, and **V. Tallapragada**, 2017: The Design of a Modern Information Technology Infrastructure to Facilitate Research-to-Operations Transition for NCEP's Modeling Suites. *Bull. Amer. Meteor. Soc*, **98**, 899-904. <https://doi.org/10.1175/BAMS-D-15-00139.1>

Campos, R. M., **V. Krasnopolsky**, **J.-H. Alves**, and S. Penny, 2017: Improving NCEP's Probabilistic Wave Height Forecasts Using Neural Networks: A Pilot Study Using Buoy Data. [NCEP Office Note #490](#).

Chen, T.-C., J.-D. Tsay, J. Matsumoto, and **J. Alpert**, 2017: Forecast Advisory for a Cold-Season Heavy Rainfall/Flood Event That Developed from Multiple Interactions of the Cold-Surge Vortex with Cold-Surge Flows in the South China Sea. *Wea. Forecasting*, **32**, 797-819. <https://doi.org/10.1175/WAF-D-16-0148.1>

Chen, T.-C., J.-D. Tsay, J. Matsumoto, and **J. Alpert**, 2017: Impact of the Summer Monsoon Westerlies on the South China Sea Tropical Cyclone Genesis in May. *Wea. Forecasting*, **32**, 925-947. <https://doi.org/10.1175/WAF-D-16-0189.1>

**Dong, J.**, R. Domingues, G. Goni, G. Halliwell, **H.-S. Kim**, S. Lee, M. Mehari, F. Bringas, J. Morell, and L. Pomales, 2017: Impact of assimilating underwater glider data on Hurricane Gonzalo (2014) forecast. *Wea. Forecasting*, **32**, 1143-1159. <https://doi.org/10.1175/WAF-D-16-0182.1>

**Du, J.**, and **B. Zhou**, 2017: Ensemble fog prediction, in the book "Marine fog: challenges and advancements in observations, modeling, and forecasting" (eds. by D.

Koracin and C. E. Dorman). Springer, 477–509,  
doi: [https://link.springer.com/chapter/10.1007/978-3-319-45229-6\\_10](https://link.springer.com/chapter/10.1007/978-3-319-45229-6_10)

Goni, G., R.E. Todd, S.R. Jayne, G. Halliwell, S. Glenn, **J. Dong**, R. Curry, R. Dominigues, F. Bringas, L. Centurioni, S. F. DiMarco, T. Miles, J. Morell, L. Pomales, **H.-S. Kim**, P.E. Robbins, G. G. Gawarkiewicz, J. Wilkin, J. Heiderich, B. Baltes, J.J. Cione, G. Seroka, K. Knee, and E.R. Sanabia, 2017: Autonomous and Lagrangian Ocean Observations for Atlantic Tropical Cyclone Studies and Forecasts. *Oceanography*, June 2017, 84-95. <https://doi.org/10.5670/oceanog.2017.227>

**Guan, H.** and **Yuejian Zhu**, 2017: Development of Verification Methodology for Extreme Weather Forecasts. *Wea. Forecasting*, **32**, 470-491. <https://doi.org/10.1175/WAF-D-16-0123.1>

Halliwell, G.R., M. Mehari, L.K. Shay, V.H. Kourafalou, H. Kang, **H.-S. Kim**, **J. Dong**, and R. Atlas, 2017: OSSE quantitative assessment of rapid-response prestorm ocean surveys to improve coupled tropical cyclone prediction. *J. Geophys. Res. Oceans*, **122**, <https://doi.org/10.1002/2017JC012760>

Hao, Z., X. Yuan, **Y. Xia**, F. Hao, and V. Singh, 2017: An overview of drought monitoring and prediction systems at regional and global scales. *Bull. Amer. Meteorol. Soc.*, **98** (9), 1879-1896. <https://doi.org/10.1175/BAMS-D-15-00149.1>

**Han, J.**, **Wang, W.**, **Kwon, Y. C.**, Hong, S.-Y., **Tallapragada, V.**, and **Yang, F.**, 2017: Updates in the NCEP GFS cumulus convection schemes with scale and aerosol awareness. *Wea. Forecasting*, **32**(5), 2005–2017. <https://doi.org/10.1175/WAF-D-17-0046.1>

**Huang, J.**, **J. McQueen**, J. Wilczak, I. Djalalova, I. Stajner, **P. Shafran**, D. Allured, P. Lee, L. Pan, D. Tong, **H.-C. Huang**, **G. DiMego**, S. Upadhyay, and L. D. Monache, 2017: Improving NOAA NAQFC PM<sub>2.5</sub> Predictions with a Bias Correction Approach. *Wea. Forecasting*, **32**(2), 407-421. <https://doi.org/10.1175/WAF-D-16-0118.1>

Jiang, M., J. Feng, Z. Li, **R. Sun**, **Y.-T. Hou**, **Yuejian Zhu**, **S. Moorthi**, B. Wan, J. Gao, and M. Gribb, 2017: Potential influences of neglecting aerosol effects on the NCEP GFS precipitation forecast. *Atmos. Chem. Phys.*, **17**, 13967–13982, 2017. <https://doi.org/10.5194/acp-17-13967-2017>

**Juang, H.-M. Henry**, 2017: The Deep-Atmosphere Euler Equations in a Non-Approximated Shallow-Atmosphere-Alike Form. [NCEP Office Note #488](#).

**Krasnopolsky, V.**, **S. Nadiga**, **A. Mehra**, E. Bayler, and H.-C. Kim, 2017: Optimization of a Neural Network-Based Biological Model for Chlorophyll-a Concentration in the Upper Ocean. [NCEP Office Note #487](#)

Kumar, S. V., Wang, S., Mocko, D. M., Peters-Lidard, C. D., & **Xia, Y.**, 2017: Similarity assessment of land surface model outputs in the North American Land Data Assimilation System. *Water Resources Research*, **53**, 8941–8965. <https://doi.org/10.1002/2017WR020635>

Lee, P., **J. McQueen**, I. Stajner, **J. Huang**, L. Pan, D. Tong, H. Kim, Y. Tang, S. Kondragunta, M. Ruminski, S. Lu, **E. Rogers**, R. Saylor, **P. Shafran**, **H.-C. Huang**, J. Gorline, S. Upadhyay, and R. Artz, 2017: NAQFC Developmental Forecast Guidance for Fine Particulate Matter (PM<sub>2.5</sub>). *Wea. Forecasting*, **32**, 343-360. <https://doi.org/10.1175/WAF-D-15-0163.1>

Lim, T. K., M. Ignatius, M. Miguel, N. H. Wong, and **H.-M. Henry Juang**, 2017: Multi-scale urban system modeling for sustainable planning and design. *Energy and Buildings*, **157**, 78-91. <https://doi.org/10.1016/j.enbuild.2017.02.024>

Lu, X. X. Wang, **M. Tong**, and **V. Tallapragada**, 2017: GSI-Based, Continuously Cycled, Dual-Resolution Hybrid Ensemble–Variational Data Assimilation System for HWRF: System Description and Experiments with Edouard (2014). *Mon. Wea. Rev.*, **145**, 4877-4898. <https://doi.org/10.1175/MWR-D-17-0068.1>

Luo, Y., R. Zhang, Q. Wan, B. Wang, W. K. Wong, Z. Hu, B. J.-D. Jou, Y. Lin, R. H. Johnson, C.-P. Chang, **Yuejian Zhu**, X. Zhang, H. Wang, R. Xia, J. Ma, D.-L. Zhang, M. Gao, Y. Zhang, X. Liu, Y. Chen, H. Huang, X. Bao, Z. Ruan, Z. Cui, Z. Meng, J. Sun, M. Wu, H. Wang, X. Peng, W. Qian, K. Zhao, and Y. Xiao, 2017: The southern China monsoon rainfall experiment (SCMREX). *Bull. Amer. Meteor. Soc.*, **98(5)**, 999-1013. <https://doi.org/10.1175/BAMS-D-15-00235.1>

Ma, N., Niu, G. Y., **Xia, Y.**, Cai, X., Zhang, Y., Ma, Y., & Fang, Y., 2017: A systematic evaluation of Noah-MP in simulating land-atmosphere energy, water, and carbon exchanges over the continental United States. *Journal of Geophysical Research: Atmospheres*, **122**, 12,245–12,268. <https://doi.org/10.1002/2017JD027597>

Marti, A., A. Folch, O. Jorba, and **Z. Janjic**, 2017: Volcanic ash modeling with the online NMMB-MONARCH-ASH v1. 0 model: model description, case simulation, and evaluation. *Atmospheric Chemistry and Physics*, **17(6)**, 4005-4030. <https://acp.copernicus.org/preprints/acp-2016-881/acp-2016-881-manuscript-version4.pdf>

Ninneman, J., S. Lu, P. Lee, **J. McQueen**, **J. Huang**, K. Demerjian, and J. Schwab, 2017: Observed and model-derived ozone production efficiency over urban and rural New York State. *Atmosphere*, **8**, 15 pp. <https://www.mdpi.com/2073-4433/8/7/126/pdf>

Powers, J. G., J. B. Klemp, W. C. Skamarock, C. A. Davis, J. Dudhia, D. O. Gill, J. L. Coen, D. J. Gochis, R. Ahmadov, S. E. Peckham, G. A. Grell, J. Michalakes, **S. Trahan**, S. G. Benjamin, C. R. Alexander, **G. J. DiMego**, W. Wang, C. S. Schwartz, G. S.

Romine, Z. Liu, C. Snyder, F. Chen, M. J. Barlage, W. Yu, and M. G. Duda, 2017: The Weather Research and Forecasting Model: Overview, System Efforts, and Future Directions. *Bull. Amer. Meteor. Soc.*, **98**, 1717-1737. <https://doi.org/10.1175/BAMS-D-15-00308.1>

**Purser, R. J.**, and **M. Tong**, 2017: A Minor Modification of the Gnomonic Cubed-Sphere Grid that Offers Advantages in the Context of Implementing Moving Hurricane Nests. [NCEP Office Note #486](#)

**Purser, R. J.**, 2017: Sets of Optimally Diversified Polyhedral Orientations. [NCEP Office Note #489](#)

**Rančić, M., R. J. Purser, D. Jović, R. Vasic**, and **T. Black**, 2017: A Nonhydrostatic Multiscale Model on the Uniform Jacobian Cubed Sphere. *Mon. Wea. Rev.*, **145**, 1083-1105. <https://doi.org/10.1175/MWR-D-16-0178.1>

Schmidt, G. A., D. Bader, L. J. Donner, G. S. Elsaesser, J.-C. Golaz, C. Hannay, A. Molod, R. B. Neale, and **S. Saha**, 2017: Practice and philosophy of climate model tuning across six US modeling centers. *Geoscientific Model Development*, **10(9)**, 3207-3223. <https://gmd.copernicus.org/articles/10/3207/2017/gmd-10-3207-2017.pdf>

Qian, W.H., J. Leung, W. M. Luo, **J. Du**, and J. Gao, 2017: An index of anomalous convective instability to detect tornadic and hail storms. *Metor. Atmo. Phy. (MAP)*, **131**, 351–373 (2019). <https://link.springer.com/article/10.1007/s00703-017-0576-z>

Wang, D., Wang, G., Parr, D. T., Liao, W., **Xia, Y.**, and Fu, C, 2017: Incorporating remote sensing-based ET estimates into the Community Land Model version 4.5. *Hydrol. Earth Syst. Sci.*, **21**, 3557–3577. <https://doi.org/10.5194/hess-21-3557-2017>, 2017.

**Wu, W.-S., D. F. Parrish, E. Rogers, and Y. Lin**, 2017: Regional Ensemble–Variational Data Assimilation Using Global Ensemble Forecasts. *Wea. Forecasting*, **32**, 83-96. <https://doi.org/10.1175/WAF-D-16-0045.1>

**Xia, Y.**, D. M. Mocko, M. Huang, B. Li, M. Rodell, K. E. Mitchell, X. Cai, and **M. B. Ek**, 2017: Comparison and Assessment of Three Advanced Land Surface Models in Simulating Terrestrial Water Storage Components over the United States. *J. Hydrometeor.*, **18(3)**, 625-649. <https://doi.org/10.1175/JHM-D-16-0112.1>

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(4)**, 1413-1426. <https://doi.org/10.1175/MWR-D-16-0129.1>

Zheng, M., E. K. M. Chang, B. A. Colle, **Y. Lou** and **Yuejian Zhu**, 2017: Applying Fuzzy Clustering to a Multimodel Ensemble for U.S. East Coast Winter Storms: Scenario



Identification and Forecast Verification. *Wea. Forecasting*, **32(3)**, 881-903.  
<https://doi.org/10.1175/WAF-D-16-0112.1>

**Zheng, W.**, **M. Ek**, K. Mitchell, **H. Wei**, and **J. Meng**, 2017: Improving the Stable Surface Layer in the NCEP Global Forecast System. *Mon. Wea. Rev.*, **145**, 3969-3987.  
<https://doi.org/10.1175/MWR-D-16-0438.1>

**Zhou, X.**, **Yuejian Zhu**, **D. Hou**, **Y. Luo**, **J. Peng** and **R. Wobus**, 2017: Performance of the New NCEP Global Ensemble Forecast System in a Parallel Experiment. *Wea. Forecasting*, **32**, 1989-2004. <https://doi.org/10.1175/WAF-D-17-0023.1>

**Zhu, Yuejian**, **X. Zhou**, **M. Pena**, **W. Li**, **C. Melhauser** and **D. Hou**, 2017: Impact of Sea Surface Temperature Forcing on Weeks 3 & 4 Forecast Skill in the NCEP Global Ensemble Forecasting System. *Wea. Forecasting*, **32**, 2159-2173.  
<https://doi.org/10.1175/WAF-D-17-0093.1>

## 2016

**Badia, A.**, **O. Jorba**, **A. Voulgarakis**, **D. Dabdub**, **C. Pérez**, **A. Hilboll**, **M. Gonçalves**, and **Z. Janjic**, 2016: Gas-phase chemistry in the online multiscale NMMB/BSC Chemical Transport Model: Description and evaluation at global scale. *Geosci. Model Dev*, **9**, 47 pp. <https://upcommons.upc.edu/bitstream/handle/2117/88524/Gas-phase%20chemistry%20in%20the%20online%20multiscale%20NMMB.pdf>

**Benjamin, S. G.**, **S. S. Weygandt**, **J. M. Brown**, **M. Hu**, **C. R. Alexander**, **T. G. Smirnova**, **J. B. Olson**, **E. P. James**, **D. C. Dowell**, **G. A. Grell**, **H. Lin**, **S. E. Peckham**, **T. L. Smith**, **W. R. Moninger**, **J. S. Kenyon**, and **G. S. Manikin**, 2016: A North American Hourly Assimilation and Model Forecast Cycle: The Rapid Refresh. *Mon. Wea. Rev.* **144**, 1669-1694. <https://doi.org/10.1175/MWR-D-15-0242.1>

**Bernier, N. B.**, **J.-H. G. M. Alves**, **H. Tolman**, **A. Chawla**, **S. Peel**, **B. Pouliot**, **J.-M. Bélanger**, **P. Pellerin**, **M. Lépine**, and **M. Roch**, 2016: Operational Wave Prediction System at Environment Canada: Going Global to Improve Regional Forecast Skill. *Wea. Forecasting*, **31**, 353-360. <https://doi.org/10.1175/WAF-D-15-0087.1>

**Boukabara, S.-A.**, **I. Moradi**, **R. Atlas**, **S. P. F. Casey**, **L. Cucurull**, **R. N. Hoffman**, **K. Ide**, **V. Krishna Kumar**, **R. Li**, **Z. Li**, **M. Masutani**, **N. Shahroudi**, **J. Woollen**, and **Y. Zhou**, 2016: Community Global Observing System Simulation Experiment (OSSE) Package (CGOP): Description and Usage. *J. Atmo. Ocean Tech.*, **33(8)**, 1759–1777.  
<https://doi.org/10.1175/JTECH-D-16-0012.1>

**Boukabara, S. A.**, **T. Zhu**, **H. L. Tolman**, **S. Lord**, **S. Goodman**, **R. Atlas**, **M. Goldberg**, **T. Auligne**, **B. Pierce**, **L. Cucurull**, **M. Zupanski**, **M. Zhang**, **I. Moradi**, **J. Otkin**, **D. Santek**, **B. Hoover**, **Z. Pu**, **X. Zhan**, **C. Hain**, **E. Kalnay**, **D. Hotta**, **S. Nolin**, **E. Bayler**, **A. Mehra**, **S. P. F. Casey**, **D. Lindsey**, **L. Grasso**, **V. K. Kumar**, **A. Powell**, **J. Xu**, **T. Greenwald**, **J. Zajic**, **J. Li**, **J. Li**, **Bin Li**, **J. Liu**, **L. Fang**, **P. Wang**, and **T.-C. Chen**, 2016: S4: An

O2R/R2O Infrastructure for Optimizing Satellite Data Utilization in NOAA Numerical Modeling Systems: A Step Toward Bridging the Gap between Research and Operations. *Bull. Amer. Meteor. Soc.*, **97**, 2358-2378. <https://doi.org/10.1175/BAMS-D-14-00188.1>

Cai, M., Y. Yu, Y. Deng, H. M. van den Dool, R. Ren, **S. Saha**, **X. Wu**, and J. Huang, 2016: Feeling the Pulse of the Stratosphere: An Emerging Opportunity for Predicting Continental-Scale Cold-Air Outbreaks 1 Month in Advance. *Bull. Amer. Meteor. Soc.*, **97**, 1475-1489. <https://doi.org/10.1175/BAMS-D-14-00287.1>

Dirmeyer, P. A., J. Wu, H. E. Norton, W. A. Dorigo, S. M. Quiring, T. W. Ford, J. A. Santanello Jr., M. G. Bosilovich, **M. B. Ek**, R. D. Koster, G. Balsamo, and D. M. Lawrence, 2016: Confronting Weather and Climate Models with Observational Data from Soil Moisture Networks over the United States. *J. Hydrometeor.*, **17**(4), 1049-1067. <https://doi.org/10.1175/JHM-D-15-0196.1>

**Garraffo, Z. D., H.-C. Kim, A. Mehra, T. Spindler, I. Rivin, and H. L. Tolman**, 2016: Modeling of <sup>137</sup>Cs as a Tracer in a Regional Model for the Western Pacific, after the Fukushima–Daichi Nuclear Power Plant Accident of March 2011. *Wea. Forecasting*, **31**, 553-579. <https://doi.org/10.1175/WAF-D-13-00101.1>

Han, J.-Y., S.-Y. Hong, K.-S. Lim, and **J. Han**, 2016: Sensitivity of a Cumulus Parameterization Scheme to Precipitation Production Representation and Its Impact on a Heavy Rain Event over Korea. *Mon. Wea. Rev.*, **144**, 2125-2135. <https://doi.org/10.1175/MWR-D-15-0255.1>

**Han, J.**, M. L. Witek, J. Teixeira, **R. Sun, H.-L. Pan**, J. K. Fletcher, and C. S. Bretherton, 2016: Implementation in the NCEP GFS of a Hybrid Eddy-Diffusivity Mass-Flux (EDMF) Boundary Layer Parameterization with Dissipative Heating and Modified Stable Boundary Layer Mixing. *Wea. Forecasting*, **31**, 341-352. <https://doi.org/10.1175/WAF-D-15-0053.1>

Haughton, N. G. Abramowitz, A. J. Pitman, D. Or, M. J. Best, H. R. Johnson, G. Balsamo, A. Boone, M. Cuntz, B. Decharme, P. A. Dirmeyer, **J. Dong**, **M. Ek**, Z. Guo, V. Haverd, B. J. J. van den Hurk, G. S. Nearing, B. Pak, J. A. Santanello Jr., L. E. Stevens, and N. Vuichard, 2016: The Plumbing of Land Surface Models: Is Poor Performance a Result of Methodology or Data Quality? *J. Hydrometeor.*, **17**(6), 1705–1723. <https://doi.org/10.1175/JHM-D-15-0171.1>

Jiang, N., W. H. Qian, **J. Du**, R. H. Grumm, and J. L. Fu, 2016: A comprehensive approach from the raw and normalized anomalies to the analysis and prediction of the Beijing extreme rainfall on 21 July 2012. *Nat. Hazards*, **84**, 1551. doi:10.1007/s11069-016-2500-0.

**Krasnopolsky, V., S. Nadiga, A. Mehra, E. Bayler and D. Behringer**, 2016: Neural Networks Technique for Filling Gaps in Satellite Measurements: Application to Ocean

Color Observations. *Computational Intelligence and Neuroscience*, vol. 2016, Article ID 6156513, 9 pages, 2016. <https://doi.org/10.1155/2016/6156513>

Kieu, C., **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. <https://doi.org/10.1175/JAS-D-16-0015.1>

Kumar, S. V., B. F. Zaitchik, C. D. Peters-Lidard, M. Rodell, R. Reichle, B. Li, M. Jasinski, D. Mocko, A. Getirana, G. De Lannoy, M. H. Cosh, C. R. Hain, M. Anderson, K. R. Arsenault, **Y. Xia**, and **M. Ek**, 2016: Assimilation of Gridded GRACE Terrestrial Water Storage Estimates in the North American Land Data Assimilation System. *J. Hydrometeor.*, **17**(7), 1951–1972. <https://doi.org/10.1175/JHM-D-15-0157.1>

Liu, P., Q. Zhang, C. Zhang, **Yuejian Zhu**, M. Khairoutdinov, H.-M. Kim, C. Schumacher, and M. Zhang, 2016: A Revised Real-Time Multivariate MJO Index. *Mon. Wea. Rev.*, **144**, 627–642. <https://doi.org/10.1175/MWR-D-15-0237.1>

**Liu, S.**, **G. DiMego**, S. Guan, V. Krishna Kumar, **D. Keyser**, Q. Xu, K. Nai, P. Zhang, L. Liu, J. Zhang, K. Howard, and J. Ator, 2016: WSR-88D Radar Data Processing at NCEP. *Wea. Forecasting*, **31**, 2047–2055. <https://doi.org/10.1175/WAF-D-16-0003.1>

**Lu, C.-H.**, A. da Silva, **J. Wang**, **S. Moorthi**, M. Chin, P. Colarco, Y. Tang, **P. S. Bhattacharjee**, S.-P. Chen, **H.-Y. Chuang**, **H.-M. Henry Juang**, **J. McQueen**, and **M. Iredell**, 2016: The implementation of NEMS GFS Aerosol Component (NGAC) Version 1.0 for global dust forecasting at NOAA/NCEP. *Geoscientific Model Development*, 9(5), 1905–1919. <https://gmd.copernicus.org/articles/9/1905/2016/gmd-9-1905-2016.pdf>

Mao, M., **A. J. Van Der Westhuysen**, M. Xia, D. J. Schwab, and **A. Chawla**, 2016: Modeling wind waves from deep to shallow waters in Lake Michigan using unstructured SWAN. *Journal of Geophysical Research: Oceans*, 121(6), 3836–3865. <https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1002/2015JC011340>

Nearing, G. S, D. M. Mocko, C. D. Peters-Lidard, S. V. Kumar, and **Y. Xia**, 2016: Benchmarking NLDAS-2 Soil Moisture and Evapotranspiration to Separate Uncertainty Contributions. *J. Hydrometeor.*, **17**(3), 745–759. <https://doi.org/10.1175/JHM-D-15-0063.1>

Prakash, S., I. M. Momin, A. K. Mitra, **P. S. Bhattacharjee**, **F. Yang**, and **V. Tallapragada**, 2016: An early assessment of medium range monsoon precipitation forecasts from the latest high-resolution NCEP-GFS (T1534) model over South Asia. *Pure and Applied Geophysics*, **173**, 2215–2225 (2016). <https://link.springer.com/article/10.1007/s00024-016-1248-5>

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. <https://doi.org/10.1175/JAS-D-16-0017.1>

**Purser, R. J.**, and **Yanqiu Zhu**, 2016: Comparison of Finite Differencing, Time Smoothing and Spline Fitting Algorithms for Estimating Airspeed Metadata from Coarse-Resolution Aircraft Position and Wind Reports. [NCEP Office Note #485](#)

Qian, W.H., N. Jiang and **J. Du**, 2016: Mathematical and physical representation of the moist vorticity and moist divergence as well as their application to precipitation: Reply to comments. *Wea. and Forecasting*, **31**, 1397-1405. <https://doi.org/10.1175/WAF-D-16-0111.1>

Qian, W.H., J. Huang, and **J. Du**, 2016: Examination of Hurricane Sandy (2012): Structure and Intensity Evolution from Full-field and Anomaly-field Analyses. *Tellus A*, **68:1**, 29029, <https://doi.org/10.3402/tellusa.v68.29029>

Qian, W. H., N. Jiang, and **J. Du**, 2016: Anomaly based weather analysis versus traditional total-field based weather analysis for depicting regional heavy rain events. *Wea. and Forecasting*, **31**, 71-93. <https://doi.org/10.1175/WAF-D-15-0074.1>

Qian, W. H., T. Yu, and **J. Du**, 2016: A unified approach to trace surface heat and cold events by using height anomaly. *Climate Dynamics*, **46(5-6)**: 1647-1664.

Reid, M. J. Gunn, S. Shah, M. Donovan, R. Eggo, S. Babin, I. Stajner, **E. Rogers**, K. B. Ensor, L. Raun, J. I. Levy, I. Painter, W. Phipatanakul, F. Yip, A. Nath, L. Streichert, C. Tong and H. Burkom, 2016: Cross-Disciplinary Consultancy to Enhance Predictions of Asthma Exacerbation Risk in Boston. *Online Journal of Public Health Informatics*, **8**, 29 pp. <https://doi.org/10.5210/ojphi.v8i3.6902>

Shao, H., **J. Derber**, X.-Y. Huang, M. Hu, K. Newman, D. Stark, **M. Lueken**, C. Zhou, L. Nance, Y.-H. Kuo, and B. Brown, 2016: Bridging Research to Operations Transitions: Status and Plans of Community GSI. *Bull. Amer. Meteor. Soc.*, **97**, 1427-1440. <https://doi.org/10.1175/BAMS-D-13-00245.1>

**Tallapragada, V.**, 2016: Overview of the NOAA/NCEP Operational Hurricane Weather Research and Forecast (HWRF) Modelling System. In: Mohanty U.C., Gopalakrishnan S.G. (eds) *Advanced Numerical Modeling and Data Assimilation Techniques for Tropical Cyclone Prediction*, pages 51-106. Springer, Dordrecht. [https://doi.org/10.5822/978-94-024-0896-6\\_3](https://doi.org/10.5822/978-94-024-0896-6_3)

**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. Forecasting*, **31**, 877-894. <https://doi.org/10.1175/WAF-D-14-00139.1>

Theurich, G., C. DeLuca, T. Campbell, F. Liu, K. Saint, M. Vertenstein, J. Chen, R. Oehmke, J. Doyle, T. Whitcomb, A. Wallcraft, **M. Iredell, T. Black**, A. M. Da Silva, T. Clune, R. Ferraro, P. Li, M. Kelley, I. Aleinov, V. Balaji, N. Zadeh, R. Jacob, B. Kirtman, F. Giraldo, D. McCarren, S. Sandgathe, S. Peckham, and R. Dunlap IV, 2016: The Earth System Prediction Suite: Toward a Coordinated U.S. Modeling Capability. *Bull. Amer. Meteor. Soc.*, **96**, 1229-1247. <https://doi.org/10.1175/BAMS-D-14-00164.1>

Wolff, J. K., M. Harrold, T. Hertneky, **E. Aligo, J. R. Carley, B. Ferrier, G. DiMego**, L. Nance, and Y.-H. Kuo, 2016: Mesoscale Model Evaluation Testbed (MMET): A Resource for Transitioning NWP Innovations from Research to Operations (R2O). *Bull. Amer. Meteor. Soc.*, **97**, 2135-2147. <https://doi.org/10.1175/BAMS-D-15-00001.1>

**Xia, Y.**, B. A. Cosgrove, K. E. Mitchell, C. D. Peters-Lidard, **M. B. Ek**, S. Kumar, D. Mocko, and **H. Wei**, 2016: Basin-scale assessment of the land surface energy budget in the National Centers for Environmental Prediction operational and research NLDAS-2 systems. *J. Geophys. Res. Atmos.*, **121(1)**, 196-220. <https://doi.org/10.1002/2015JD023889>

**Xia, Y.**, B. A. Cosgrove, K. E. Mitchell, C. D. Peters-Lidard, **M. B. Ek**, M. Brewer, D. Mocko, S. V. Kumar, **H. Wei, J. Meng**, L. Luo, 2016: Basin-scale assessment of the land surface water budget in the National Centers for Environmental Prediction operational and research NLDAS-2 systems. *J. Geophys. Res. Atmos.*, **121(6)**, 2750-2779. <https://doi.org/10.1002/2015JD023733>

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. *Advances in Atmospheric Sciences*, **33**, 659–672 (2016). <https://link.springer.com/article/10.1007/s00376-015-5155-y>

Zhang, X, S. G. Gopalakrishnan, **S. Trahan**, T. S. Quirino, **Q. Liu, Z. Zhang**, G. Alaka, and **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. Forecasting*, **31**, 2019-2034. <https://doi.org/10.1175/WAF-D-16-0087.1>

**Zhou, X.**, Yuejian Zhu, **D. Hou**, and D. Kleist, 2016: Comparison of the Ensemble Transform and the Ensemble Kalman Filter in the NCEP Global Ensemble Forecast System. *Wea. Forecasting*, **31** (6), 2058-2074. <https://doi.org/10.1175/WAF-D-16-0109.1>

**Zhu, Yanqiu, E. Liu, R. Mahajan, C. Thomas, D. Groff, P. Van Delst, A. Collard**, D. Kleist, **R. Treadon**, and **J. C. Derber**, 2016: All-Sky Microwave Radiance Assimilation in NCEP's GSI Analysis System. *Mon. Wea. Rev.*, **144**, 4709-4735. <https://doi.org/10.1175/MWR-D-15-0445.1>



## 2015

**Alves, J.-H. G.M.**, S. Stripling, **A. Chawla**, **H. Tolman**, and **A. van der Westhuysen**, 2015: Operational Wave Guidance at the U.S. National Weather Service during Tropical/Post-Tropical Storm Sandy, October 2012. *Mon. Wea. Rev.*, **143**, 1687-1702. <https://doi.org/10.1175/MWR-D-14-00143.1>

Atlas, R., **V. Tallapragada**, and S. Gopalakrishnan, 2015: Advances in tropical cyclone intensity forecasts. *Marine Technology Society Journal*, **49**, 149-160. [https://repository.library.noaa.gov/view/noaa/15129/noaa\\_15129\\_DS1.pdf](https://repository.library.noaa.gov/view/noaa/15129/noaa_15129_DS1.pdf)

Bernardet, L., **V. Tallapragada**, S. Bao, **S. Trahan**, **Y. Kwon**, **Q. Liu**, **M. Tong**, M. Biswas, T. Brown, D. Stark, L. Carson, R. Yablonsky, E. Uhlhorn, S. Gopalakrishnan, X. Zhang, T. Marchok, B. Kuo, and R. Gall, 2015: Community Support and Transition of Research to Operations for the Hurricane Weather Research and Forecasting Model. *Bull. Amer. Meteor. Soc.*, **96**, 953-960. <https://doi.org/10.1175/BAMS-D-13-00093.1>

Best, M. J., G. Abramowitz, H. R. Johnson, A. J. Pitman, G. Balsamo, A. Boone, M. Cuntz, B. Decharme, P. A. Dirmeyer, **J. Dong**, **M. Ek**, Z. Guo, V. Haverd, B. J. J. van den Hurk, G. S. Nearing, B. Pak, C. Peters-Lidard, J. A. Santanello Jr., L. Stevens, and N. Vuichard, 2015: The Plumbing of Land Surface Models: Benchmarking Model Performance. *J. Hydrometeor.*, **16**(3), 1425–1442. <https://doi.org/10.1175/JHM-D-14-0158.1>

Brennan, M. J., **D. T. Kleist**, **K. Howard**, and S. J. Majumdar, 2015: The Impact of Supplemental Dropwindsonde Data on the Structure and Intensity of Tropical Storm Karen (2013) in the NCEP Global Forecast System. *Wea. Forecasting*, **30**(3), 683–691. <https://doi.org/10.1175/WAF-D-15-0002.1>

Chen, T.-C., J.-D. Tsay, J. Matsumoto, **J. Alpert**, 2015: Development and formation mechanism of the Southeast Asian winter heavy rainfall events around the South China Sea. Part I: Formation and propagation of cold surge vortex. *J. Climate*, **28**(4), 1417–1443. <https://doi.org/10.1175/JCLI-D-14-00170.1>

Cleary, P. A., N. Fuhrman, L. Schulz, J. Schafer, J. Fillingham, H. Bootsma, **J. McQueen**, **Y. Tang**, T. Langel, S. McKeen, E. J. Williams, and S. S. Brown, 2015: Ozone distributions over southern Lake Michigan: comparisons between ferry-based observations, shoreline-based DOAS observations and model forecasts. *Atmos. Chem. Phys.*, **15**, 5109–5122, 2015. <https://acp.copernicus.org/articles/15/5109/2015/acp-15-5109-2015.pdf>

Das, A. K., Y. V. Rama Rao, **V. Tallapragada**, **Z. Zhang**, S.K. Roy Bhowmik, and A. Sharma, 2015: Evaluation of the Hurricane Weather Research and Forecasting (HWRF) model for tropical cyclone forecasts over the North Indian Ocean (NIO). *Nat Hazards* **75**, 1205–1221 (2015). <https://doi.org/10.1007/s11069-014-1362-6>

Domingues, R., G. Goni, F. Bringas, S.-K. Lee, **H.-S. Kim**, G. Halliwell, **J. Dong**, J. Morell, and L. Pomales, 2015: Upper ocean response to Hurricane Gonzalo (2014): Salinity effects revealed by targeted and sustained underwater glider observations. *Geophysical Research Letters*, **42**(17), 7131-7138.  
<https://doi.org/10.1002/2015GL065378>

Goldenberg, S. B., S. G. Gopalakrishnan, **V. Tallapragada**, T. Quirino, F. Marks, Jr., **S. Trahan**, X. Zhang, and R. Atlas, 2015: The 2012 Triply Nested, High-Resolution Operational Version of the Hurricane Weather Research and Forecasting Model (HWRF): Track and Intensity Forecast Verifications. *Wea. Forecasting*, **30**, 710-729.  
<https://doi.org/10.1175/WAF-D-14-00098.1>

**Guan, H. B. Cui**, and **Yuejian Zhu**, 2015: Improvement of Statistical Postprocessing Using GEFS Reforecast Information. *Wea. Forecasting*, **30**, 841-854.  
<https://doi.org/10.1175/WAF-D-14-00126.1>

Huang, J., **J. Du**, W. Qian, 2015: A Comparison between a Generalized Beta–Advection Model and a Classical Beta–Advection Model in Predicting and Understanding Unusual Typhoon Tracks in Eastern China Seas. *Wea. Forecasting*, **30**, 771-792.  
<https://doi.org/10.1175/WAF-D-14-00073.1>

Huang, M., **D. Tong**, P. Lee, L. Pan, **Y. Tang**, I. Stajner, R. B. Pierce, **J. McQueen**, J. Wang, 2015: Toward enhanced capability for detecting and predicting dust events in the western United States: the Arizona case study. *Atmospheric Chemistry and Physics*, **15**(21), 12595-12610. <https://acp.copernicus.org/articles/15/12595/2015/acp-15-12595-2015.pdf>

Johnson, A., X. Wang, **J. R. Carley**, L. J. Wicker, and C. Karstens, 2015: A comparison of multiscale GSI-based EnKF and 3DVar data assimilation using radar and conventional observations for midlatitude convective-scale precipitation forecasts. *Mon. Wea. Rev.*, **143**(8), 3087-3018. <https://doi.org/10.1175/MWR-D-14-00345.1>

Kumar, A., M. Chen, Y. Xue, and **D. Behringer**, 2015: An Analysis of the Temporal Evolution of ENSO Prediction Skill in the Context of the Equatorial Pacific Ocean Observing System. *Mon. Wea. Rev.*, **143**, 3204-3213. <https://doi.org/10.1175/MWR-D-15-0035.1>

**Liu, L.**, **C. Lozano**, and **D. Iredell**, 2015: Time–Space SST Variability in the Atlantic during 2013: Seasonal Cycle. *J. Atmos. Ocean. Tech.*, **32**(9), 1689–1705.  
<https://doi.org/10.1175/JTECH-D-15-0028.1>

Ma, Z., L. P. Riishøjgaard, M. Masutani, **J. S. Woollen**, and G. D. Emmitt, 2015: Impact of Different Satellite Wind Lidar Telescope Configurations on NCEP GFS Forecast Skill in Observing System Simulation Experiments. *J. Atmos. Ocean. Tech.*, **32**(3), 478–495.  
<https://doi.org/10.1175/JTECH-D-14-00057.1>

Mohanty, U. C., K. K. Osuri, **V. Tallapragada**, F. D. Marks, S. Pattanayak, M. Mohapatra, L. S. Rathore, S. G. Gopalakrishnan, and D. Niyogi, 2015: A Great Escape from the Bay of Bengal “Super Sapphire–Phailin” Tropical Cyclone: A Case of Improved Weather Forecast and Societal Response for Disaster Mitigation. *Earth Interactions*, **19**(17), 1-11. <https://doi.org/10.1175/EI-D-14-0032.1>

Müller, M. D., and **Z. Janjic**, 2015: Verification of the New Nonhydrostatic Multiscale Model on the B Grid (NMMB): A View on Global Predictability of Surface Parameters. *Wea. Forecasting*, **30**, 827-840. <https://doi.org/10.1175/WAF-D-14-00049.1>

**Nadiga, S., V. Krasnopolsky**, E. Bayler, **H.-C. Kim**, **A. Mehra**, and **D. Behringer**, 2015: Neural Network Technique for Gap-Filling Satellite Ocean Color Observations. [NCEP Office Note #483](#).

**Purser, R. J.**, 2015: A Theoretical Examination of the Construction and Characterization of Super-Observations Obtained by Optimality Principles Guided by Information Theory. [NCEP Office Note #481](#)

**Purser, R. J.**, 2015: Robustness of Implicit Rung-Kutta Schemes with Respect to Errors in the Specification of the System's Complex Frequencies. [NCEP Office Note #482](#).

Qian, W. H., **J. Du**, X. Shan and N. Jiang, 2015: Incorporating the effects of moisture into a dynamical parameter: moist vorticity and moist divergence. *Wea. and Forecasting*, **30**, 1411-1428. <https://doi.org/10.1175/WAF-D-14-00154.1>

Sessions, W. R., J. S. Reid, A. Benedetti, P. R. Colarco, A. da Silva, **S. Lu**, T. Sekiyama, T.-Y. Tanaka, J.M. Baldasano, S. Basart, M. E. Brooks, T. F. Eck, **M. Iredell**, J. A. Hansen, O. C. Jorba, **H.-M. Henry Juang**, P. Lynch, J.-J. Morcrette, **S. Moorthi**, J. Mulcahy, Y. Pradhan, M. Razingar, C.B. Sampson, **J. Wang**, and D. L. Westphal, 2015: Development towards a global operational aerosol consensus: basic climatological characteristics of the International Cooperative for Aerosol Prediction Multi-Model Ensemble (ICAP-MME). *Atmos. Chem. Phys.*, **15**, 335–362, 2015. <https://acp.copernicus.org/articles/15/335/2015/acp-15-335-2015.pdf>

Sun, Y., Fu, R., Dickinson, R., Joiner, J., Frankenberg, C., Gu, L., **Xia, Y.**, and Fernando, N., 2015: Drought onset mechanisms revealed by satellite solar-induced chlorophyll fluorescence: Insights from two contrasting extreme events, *J. Geophys. Res. Biogeosci.*, **120**, 2427– 2440. <https://doi.org/10.1002/2015JG003150>

**Tallapragada, V., C. Kieu, S. Trahan, Z. Zhang, Q. Liu, W. Wang, M. Tong, B. Zhang**, and B. Strahl, 2015: Forecasting Tropical Cyclones in the Western North Pacific Basin Using the NCEP Operational HWRF: Real-Time Implementation in 2012. *Wea. Forecasting*, **30**, 1355-1373. <https://doi.org/10.1175/WAF-D-14-00138.1>

**Xia, Y., M. B. Ek, Y. Wu,** T. Ford, and S. M. Quiring, 2015: Comparison of NLDAS-2 Simulated and NASMD Observed Daily Soil Moisture. Part I: Comparison and Analysis. *J. Hydrometeorol.*, **16**(5), 1962-1980. <https://doi.org/10.1175/JHM-D-14-0096.1>

**Xia, Y., M. B. Ek, Y. Wu,** T. Ford, and S. M. Quiring, 2015: Comparison of NLDAS-2 Simulated and NASMD Observed Daily Soil Moisture. Part II: Impact of Soil Texture Classification and Vegetation Type Mismatches, *J. Hydrometeorol.*, **16**(5), 1981-2000. <https://doi.org/10.1175/JHM-D-14-0097.1>

**Xia, Y.,** T. W. Ford, **Y. Wu,** S. M. Quiring, and **M. B. Ek,** 2015: Automated quality control of in Situ Soil Moisture from the North American Soil Moisture Database (NASMD) Using NLDAS-2 Products. *J. Appl. Meteor. Climatol.*, **54**, 1267–1282. <https://doi.org/10.1175/JAMC-D-14-0275.1>

**Xia, Y.,** Peter-Lidard, C. D., Huang, M., **Wei, H.,** and **Ek, M.,** 2015: Improved NLDAS-2 Noah-simulated hydrometeorological products with an interim run, *Hydrol. Process.*, **29**, 780–792. <https://doi.org/10.1002/hyp.10190>

**Xia, Y.,** Hobbins, M. T., Mu, Q. and **Ek, M.,** 2015: Evaluation of NLDAS-2 evapotranspiration against tower flux site observations. *Hydrol. Process.*, **29**, 1757–1771. <https://doi.org/10.1002/hyp.10299>

Yablonsky, R. M., I. Ginis, B. Thomas, **V. Tallapragada, D. Sheinin,** L. Bernardet, 2015: Description and analysis of the ocean component of NOAA's operational Hurricane Weather Research and Forecasting Model (HWRF). *J. Atmos. Ocean. Tech.*, **32**(1), 144–163. <https://doi.org/10.1175/JTECH-D-14-00063.1>

**Yang, R., M. Ek, and J. Meng,** 2015: Surface Water and Energy Budgets for the Mississippi River Basin in Three NCEP Reanalyses. *J. Hydrometeorol.*, **16**(2), 857-873. <https://doi.org/10.1175/JHM-D-14-0056.1>

Zhang, B., **Tallapragada, V.,** Weng, F. Sippel, J. and Ma, Z., 2015: Use of incremental analysis updates in 4D-Var data assimilation. *Adv. Atmos. Sci.*, **32**, 1575–1582 (2015). <https://doi.org/10.1007/s00376-015-5041-7>

Zhang, D.-L., L. Zhu, X. Zhang, and **V. Tallapragada,** 2015: Sensitivity of Idealized Hurricane Intensity and Structures under Varying Background Flows and Initial Vortex Intensities to Different Vertical Resolutions in HWRF. *Mon. Wea. Rev.*, **143**, 914-932. <https://doi.org/10.1175/MWR-D-14-00102.1>

Zhang, J. A., D. S. Nolan, R. F. Rogers, **V. Tallapragada,** 2015: Evaluating the impact of improvements in the boundary layer parameterization on hurricane intensity and structure forecasts in HWRF. *Mon. Wea. Rev.*, **143**(8), 3136–3155, <https://doi.org/10.1175/MWR-D-14-00339.1>

Zhu, P, Z. Zhu, S. Gopalakrishnan, R. Black, F. D. Marks, **V. Tallapragada**, J. A. Zhang, X. Zhang, and Cen Gao, 2015: Impact of subgrid-scale processes on eyewall replacement cycle of tropical cyclones in HWRF system. *Geophysical Research Letters*, **42(22)**, 10,027-10,036. <https://doi.org/10.1002/2015GL066436>

**Zhu, Yanqiu, J. C. Derber, R. J. Purser, B. A. Ballish**, and **J. Whiting**, 2015: Variational Correction of Aircraft Temperature Bias in the NCEP's GSI Analysis System. *Mon. Wea. Rev.*, **143**, 3774-3803. <https://doi.org/10.1175/MWR-D-14-00235.1>

**Zhu, Yuejian**, and **Y. Luo**, 2015: Precipitation Calibration Based on the Frequency-Matching Method. *Wea. and Forecasting*, **30**, 1109-1124. <https://doi.org/10.1175/WAF-D-13-00049.1>

Zou, X., F. Weng, **V. Tallapragada**, L. Lin, B. Zhang, C. Wu, and Z. Qin, 2015: Satellite data assimilation of upper-level sounding channels in HWRF with two different model tops. *J. Meteorol. Res.*, **29**, 1–27 (2015). <https://doi.org/10.1007/s13351-015-4108-9>