

Wenqing (Wendy) Tang

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Education

Ph.D., Physics, Michigan State University, East Lansing, Michigan (1987)
M.S., Computer Science, Michigan State University, East Lansing, Michigan (1987)
M.S., Physics, Michigan State University, East Lansing, Michigan (1984)
B. S., Physics, East China Normal University, Shanghai, China (1981)

Professional Experience Summary

Wenqing Tang has extensive experiences on Earth remote sensing retrieval algorithm development and scientific data applications. She is currently on NASA Aquarius calibration/validation team, and Co-Investigator of NASA Ocean Vector Wind Science Team (OVWST), Global Precipitation Measurement (GPM), and Cyclone Global Navigation Satellite System (CYGNSS). Her recent research activities include: Aquarius radar/radiometer geophysical model functions and Combined Active Passive (CAP) algorithm; the effect of geophysical parameters on L-band microwave including rain, SST and air-sea stability; using SSS to estimate the moisture supply and apply to study the Indian monsoon onset; deriving the surface wind diurnal cycle from constellation of satellites; relating wind and stress under tropical cyclones using scatterometer; and collaboration with Univ. of Texas team on US Great Plain drought early warning system using SMAP soil moisture data.

Selected Profession Community Service

Associated editor of IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (J-STARS).

Working History

Jet Propulsion Laboratory (Pasadena, CA), October 1989 – present.
Austin Peay State University (Clarksville, TN), Assistant Professor in the Department of Mathematics and Computer Science, January 1988 – September 1989.
Rutgers University (Piscataway, NJ), Research Scientist in the Department of Physics, August 1987 – December 1987.
East China Normal University (Shanghai, China), Assistant Professor in the Department of Physics, January 1980 – August 1982.

Awards

JPL Team Award (329) (Soil Moisture Active Passive Mission), 2016.
JPL Mariner Award (Rain effect on Aquarius Sea Surface Salinity retrieval), 2014.
IEEE Geoscience and Remote Sensing Society Transactions Prize Paper Award (L-band Passive and Active Microwave Geophysical Model Functions of Ocean Surface Winds and Applications to Aquarius Retrieval), 2014.
NASA Group Achievement Award (Aquarius Science Calibration and Validation), 2013.

NASA Group Achievement Award (Aquarius Launch, Early Orbit Ops, and Commissioning), 2012.
JPL Team Award (324) (Aquarius Instrument commissioning activities), 2012.
JPL Team Award (324) (Wind Power estimation from scatterometer), 2009.
NASA Group Achievement Award (NASA Scatterometer), 1998.

Publications

[P]-Refereed Journal Papers; [C]-Conference Abstracts; [B]-Reviewed Book Chapters; [R]-Report, Proceedings, etc.

2018

- [P] Tang, W., S. Yueh, D. Yang, A. Fore, A. Hayashi, T. Lee, S. Fournier, and B. Holt, 2018. The potential and challenges of using SMAP SSS to monitor Arctic Ocean freshwater changes. *Remote Sens.*, doi:10.3390/rs10060869, June 2018.
- [P] Fore, A., S. H. Yueh, B. W. Stiles, W. Tang, and A. K. Hayashi, 2018. SMAP Radiometer-Only Tropical Cyclone Intensity and Size Validation. *Geoscience and Remote Sensing Letters*, submitted.

2017

- [P] Tang, W., A. Fore, S. Yueh, T. Lee, A. Hayashi, A. Sanchez-Franks, B. King, D. Baranowski, and J. Martinez, 2016: Validating SMAP SSS with in situ measurements. *RSE*, pp. 326-340. DOI: 10.1016/j.rse.2017.08.021.

2016

- [P] Fore, A.G., S.H. Yueh, W. Tang, B. Stiles, and A. Hayashi, 2016: Combined Active / Passive Retrievals of Ocean Vector Wind and Sea Surface Salinity with SMAP. *IEEE Trans. Geoscience and Remote Sensing*, 54 (12), 7396-7404. DOI: 10.1109/TGRS.2016.2601486.
- [P] Yueh, S. H., A. Fore, W. Tang, A. Hayashi, B. Stiles, N. Reul, Y. Weng and F. Zhang (2016), SMAP L-Band Passive Microwave Observations Of Ocean Surface Wind During Severe Storms, *IEEE Trans. Geoscience and Remote Sensing*, 54 (12), 7339-7350. DOI: 10.1109/TGRS.2016.2600239.
- [P] Tang, W., W. T. Liu, S. H. Yueh, A. G. Fore, A. Hayashi, and R. Bindlish, 2016, Detecting the influence of ocean process on the moisture supply for India summer monsoon from Aquarius Sea Surface Salinity. Submitted to JGR Ocean.
- [P] Liu, W. Timothy and W. Tang, 2016, Relating wind and stress under tropical cyclones with scatterometer. *J. of Atmos. And Oceanic Tech.*, 33, 1151-1158. DOI: 10.1175/JTECH-D-16-0047.1.

- [C] Fore, A., Yueh, S. H., W. Tang, B. Stiles and A. Hayashi, 2016, COMBINED ACTIVE / PASSIVE RETRIEVALS OF OCEAN VECTOR WINDS AND SALINITIES FROM SMAP, *IGARSS 2016 Paper #1746*.
- [C] Yueh, S. H., A. G. Fore, W. Tang, A. Hayashi and B. Stiles, 2016, L-BAND ACTIVE-PASSIVE MICROWAVE REMOTE SENSING OF OCEAN SURFACE WIND DURING HURRICANES, *IGARSS 2016 Paper #4127*.

2015

- [P] Boutin, J., Y. Chao, W.E. Asher, T. Delcroix, R. Drucker, K. Drushka, N. Kolodziejczyk, T. Lee, N. Reul, G. Reverdin, J. Schanze, A. Soloviev, L. Yu, J. Anderson, L. Brucker, E. Dinnat, A.S. Garcia, W.L. Jones, C. Maes, T. Meissner, W. Tang, N. Vinogradova, B. Ward, 2015, Satellite and *In Situ* Salinity: Understanding Near-surface Stratification and Sub-footprint Variability. *Bull. Amer. Meteor. Soc.* DOI: 10.1175/BAMS-D-15-00032.1.
- [P] Tang, W., S. H. Yueh, A. Hayashi, A. G. Fore, W. L. Jones, A. Santos-Garcia, and M. M. Jacob, 2015, Rain-induced near surface salinity stratification and rain roughness correction for Aquarius SSS retrieval. *The Special Issue of the IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS)* “Aquarius/SACD mission calibration/validation performance and retrieval algorithms”, 8 (12), 5474-5484, DOI: 10.1109/JSTARS.2015.2463768.
- [P] Yueh, S. H., W. Tang, A. G. Fore, and A. Hayashi, 2015, Impact of Ocean Wave Height on L-band Passive and Active Microwave Observation of Sea Surfaces. *The Special Issue of the IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS)* “Aquarius/SACD mission calibration/validation performance and retrieval algorithms”, 8 (12), 5491-5499, DOI: 10.1109/JSTARS.2015.2432134.
- [P] Fore, A., G. Neumann, A. P. Freedman, M. J. Chaubell, W. Tang, A. Hayashi, and S. H. Yueh, 2015, Aquarius Scatterometer Calibration. *The Special Issue of the IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS)* “Aquarius/SACD mission calibration/validation performance and retrieval algorithms”, 8 (12), 5424-5432, DOI: 10.1109/JSTARS.2015.2493449.
- [R] Tang, W. S. Yueh, A. Fore, and A. Hayashi, 2015, EFFECT OF RAIN ON SALINITY RETRIEVAL, *IGARSS 2015 Paper #1419*.
- [R] Liu, W. T., X. Xie, W. Tang, 2015, MEASURING WIND AND STRESS VECTORS OVER OCEAN, *IGARSS 2015 Paper #6900*.
- [R] Fore, A., G. Neumann, A. P. Freedman, M. J. Chaubell, W. Tang, A. Hayashi, and S. H. Yueh, 2015, Aquarius Scatterometer Calibration and Wind Retrieval, *IGARSS 2015 Paper #7268*.

[C] Yueh, S., A. Fore, W. Tang, B. Stiles, 2015, L-Band High Resolution Remote Sensing of Ocean Surface Winds, IOVWST Science Team Meeting, Portland, May 2015.

[C] Liu, W. T., W. Tang, and X. Xie, 2015, Measuring Surface Stress in Tropical Cyclones with Scatterometers, International Hurricane Conference, Jacksonville, FL, March 2015.

[C] Liu, W. T., W. Tang, and X. Xie, 2015, Diurnal Cycle of Wind, CYGNSS Science Team Meeting, Jacksonville, FL, March 2015.

2014

[P] **Tang, W.**, S. H. Yueh, A. G. Fore, A. Hayashi, T. Lee, and G. Lagerloef, 2014, Uncertainty of Aquarius sea surface salinity retrieved under rainy conditions and its implication on the water cycle study. *J. Geophys. Res.-Oceans*, DOI: 10.1002/2014JC009834.

[P] **Tang, W.**, S. H. Yueh, A. G. Fore, A. Hayashi, 2014, Validation of Aquarius sea surface salinity with in situ measurements from ARGO floats and moored buoys. *J. Geophys. Res.-Oceans*, DOI: 10.1002/2014JC010101.

[P] Yueh, S. H., **W. Tang**, A. G. Fore, A. Hayashi, and Y. T. Song, 2014, Aquarius Geophysical Model Function and Combined Active Passive Algorithm for Ocean Surface Salinity and Wind Retrieval. *J. Geophys. Res.-Oceans*, DOI: 10.1002/2014JC009939.

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[C] Liu, W. T. and W. Tang, 2014, Characterization of surface wind and stress in hurricanes with scatterometer. AGU Fall Meeting, San Francisco, CA, December 2014.

[C] Tang, W. S. Yueh, A. Fore, and A. Hayashi, 2014, The effect of rain-induced stratification and surface roughness on Aquarius SSS retrieval. Aquarius / SAC-D Science Team Meeting, Seattle, WA, November, 2014.

[C] Tang, W. S. Yueh, A. Fore, and A. Hayashi, 2014, AQUARIUS' COMBINED ACTIVE PASSIVE ALGORITHM FOR OCEAN SURFACE SALINITY AND WIND RETRIEVAL. Pen Ocean Remote Sensing Conference, Bali, Indonesia, November 2014.

[C] Tang, W. and W. T. Liu, 2014, Water cycle associated with Indian monsoon as

observed by multiple remote sensing satellites. Pen Ocean Remote Sensing Conference, Bali, Indonesia, November 2014.

- [R] Tang, W. S. Yueh, A. Fore, and A. Hayashi, 2014, *AQUARIUS' COMBINED ACTIVE PASSIVE ALGORITHM FOR OCEAN SURFACE SALINITY AND WIND RETRIEVAL*. *URSI GASS Paper #1190*.
- [R] Tang, W. S. Yueh, A. Fore, A. Hayashi, T. Lee, G. Lagerloef, 2014, *AQUARIUS SEA SURFACE SALINITY RETRIEVAL UNDER RAINY CONDITIONS*, *IGARSS 2014 Paper #1431*. Quebec, Canada, July 2014.
- [R] Yueh, S., W. Tang, A. Fore, A. Hayashi, Y. Song, 2014, *AQUARIUS' COMBINED ACTIVE PASSIVE ALGORITHM FOR OCEAN SURFACE SALINITY AND WIND RETRIEVAL*. *IGARSS 2014 Paper #1993*. Quebec, Canada, July 2014.
- [R] Fore, A., S. Yueh, W. Tang, A. Hayashi, G. Lagerloef, 2014, *AQUARIUS SCATTEROMETER WIND SPEED PRODUCTS*, *IGARSS 2014 Paper #3442*. Quebec, Canada, July 2014.
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- [C] Liu, W. T., W. Tang, and X. Xie, 2014, *Retrieving Hurricane Scale Wind and Stress from scatterometers*. International Vector Wind Science Team (IOVWST) Meeting, Brest, France, June 2014.
- [C] Tang, W., S. Yueh, G. Lagerloef, A. Fore and A. Hiyashi, 2014, *The rain effect on Aquarius' sea surface salinity retrieval*. *MicroRad 2014 Paper #1099*, Pasadena, CA, March 2014.
- [C] Yueh, S., W. Tang, A. Fore, A. Hayashi, Y. Song, T. Lee, 2014, *Aquarius' Combined Active Passive Algorithm for Ocean Surface Salinity and Wind Retrieval*. *MicroRad 2014 Paper #1109*, Pasadena, CA, March 2014.
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- [C] Liu, W. T., W. Tang, and X. Xie, 2014, *Wind-stress relations in tropical cyclones revealed by spacebased sensors*. *Ocean Science*, Honolulu, HI, February 2014.

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- [P] Liu, W.T., **W. Tang**, R. T. Pinker, X. Niu, T. Lee 2013, Solar warming of south central Pacific. *International Journal of Remote Sensing*, DOI:10.1080/01431161.2014.926426.,
- [P] Fore, A., S. Yueh, **W. Tang**, A. Hayashi, and G. Lagerloef, 2013, Aquarius Wind Speed Products: Algorithms and Validation. *IEEE Trans. Geoscience and Remote Sensing*, 52 (5), 2920-2927, DOI: 10.1109/TGRS.2013.2267616.
- [P] **Tang, W.**, S. Yueh, A. Fore, G. Neumann, A. Hayashi, and G. Lagerloef, 2013, The rain effect on Aquarius' L-band sea surface brightness temperature and radar backscatter. *Remote Sensing of Environment*, 137, 147-157.
- [P] **Tang, W.**, W. T. Liu, B. Stiles and A. Fore, 2013, The diurnal cycle of ocean surface wind from space-based observations. *International Journal of Remote Sensing*, DOI: 10.1080/01431161.2014.926413.
- [R] Yueh, S. H., W. Tang, A. Fore, J. Chabell, A. Hayashi, G. Lagerloef, R. Bindlish, 2013: Aquarius Salinity and Wind Retrieval Using The Cap Algorithm and Application to Water Cycle Research in the Indian Ocean And Subcontinent. *IGARSS 2013*.
- [P] Yueh, S. H., **W. Tang**, A. Fore, G. Neumann, A. Hayashi, A. Freedman, J. Chabell, and G. Lagerloef, 2013, L-band Passive and Active Microwave Geophysical Model Functions of Ocean Surface Winds and Applications to Aquarius Retrieval. *IEEE Trans. Geoscience and Remote Sensing*, 51 (9), 4619-4632, DOI: 10.1109/TGRS.2013.2266915.

2012

- [C] Tang, W., S. Yueh, A. Fore, G. Neumann, and A. Hayashi, 2012, Rain effect on Aquarius L-band Emissivity and Backscatter Model Functions. AGU Fall Meeting, 2012, San Francisco, CA.
- [C] Yueh, S., W. Tang, A. Fore, A. Freedman, G. Neumann, A. Hayashi, and G. Lagerloef, 2012, Aquarius Wind and SSS Retrieved Using the Combined Active-Passive Algorithm under All Weather Conditions. AGU Fall Meeting, 2012, San Francisco, CA.
- [C] Liu, W. T., W. Tang and X. Xie, 2012, Relating Ocean Surface Wind and Rain. IGARSS 2012, Munich, Germany.
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- [R] Tang, W. and W. T. Liu, 2012: Relating Ocean Surface Wind and Rain. AMS Annual Meeting, 2012, https://ams.confex.com/ams/92Annual/Tang_AMS2012_191.pdf.

[C] Liu, W. T., X. Xie, and W. Tang, 2012: Scatterometers Reveal the Differences Between Wind and Stress Over Ocean. AMS Annual Meeting, 2012, New Orleans, LA.

2001-2010

[R] Ho, S. S., W. Tang, and W. T. Liu, 2010, Tropical Cyclone Event Sequence Similarity Search via Dimensionality Reduction and Metric Learning, in Proc. 16th ACM SIGKDD Int. Conf. on Knowledge Discovery and Data Mining (KDD), pp. 135–144. (Industrial Track Acceptance: 20/102)

[R] Ho, S. S., W. Tang, W. T. Liu, and M. Schneider, 2010, A Framework for Moving Sensor Data Query and Retrieval for Dynamic Atmospheric Events, in Proc. 22nd International Conference on Scientific and Statistical Database Management (SSDBM), LNCS 6187, pp. 96-113. (Full Paper Acceptance Rate: 30/81)

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[C] Tang, W., and W. T. Liu, 2009: Dependence of Hurricane Asymmetry and Intensification on Translation Speed Revealed by a Decade of QuikSCAT Measurements. *NASA Ocean Vector Wind Science Team Meeting*, Boulder, Colorado, May 18-20, 2009.

[C] Talukder, A., S-S. Ho, W.T. Liu, W. Tang, A. Bingham, 2008: Automated Historical and Near Real-Time Cyclone Discovery With Multimodal Remote Satellite Measurements, *AGU Fall 2008 meeting*, San Francisco, California, December 2008.

[C] Tang, W. and W. T. Liu, 2008: Surface Wind/Stress Structure under Hurricanes, *SeaWinds Science Working Team meeting*, Seattle, Washington, November 2008.

[P] Lee, T., O. Wang, W. Tang and W. T. Liu, 2008: Wind stress measurements from the QuikSCAT-SeaWinds tandem mission and the impact on an ocean model, *J. of Geo. Res. – Oceans*, 113, C12019, doi:10.1029/2008JC004855.

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- [P] Liu, W.T., X. Xie, W. Tang, and V. Zlotnicki, 2006: Spacebased Observations of Annual Variation of South American Water Balance, *Geophys. Res. Lett.*, doi:10.1029/2006GL025683.
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