# Jin Wu

Assistant Professor
School of Biological Sciences, University of Hong Kong, Pokfulam Road, Hong Kong
Email: jinwu@hku.hk; Phone: 520-7045358
Google Scholar: https://scholar.google.com/citations?user=jChxiKUAAAAJ&hl=en
ORCID: https://orcid.org/0000-0001-8991-3970
Web page: https://www.wu-jin.weebly.com

## RESEARCH INTERESTS

I am a broadly trained environment scientist studying biophysical processes of vegetation-climate interactions from leaf to global scales. My background includes ecosystem ecology, plant physiology, global change, geospatial tools, and statistic analysis. I am especially keen to advance our understanding of land surface processes by using interdisciplinary approaches (e.g. experiments, field observations, cutting-edge remote sensing, geospatial analysis, and earth system modeling) across a wide range of scales (leaf, crown, landscape and global). My current research is focused on understanding fundamental processes (climatic and biotic) that regulate land plants metabolism (i.e. carbon and water fluxes) and their response to climate change.

## EDUCATION

2015    Ph.D., Ecology and Evolutionary Biology, University of Arizona.
        Advisor: Scott R. Saleska

2009    Equal. M.S., Remote Sensing and Geoinformatics, Beijing Normal University.
        Advisor: Jin Chen

2007    B.S., Geography and Geoinformatics (with honors), Wuhan University.

## PROFESSIONAL APPOINTMENTS

01/2019-          Assistant Professor, The University of Hong Kong, Hong Kong

04/2017-12/2018   Goldhaber fellow, Brookhaven National Laboratory, Upton, NY

11/2015-03/2017   Postdoctoral researcher, Brookhaven National Laboratory, Upton, NY

08/2009-07/2014   Graduate assistant, University of Arizona, Tucson, AZ

## SELECTED HORNORS, AWARDS, TRAVEL GRANTS & SCHOLARSHIPS

2018    The Best Young Investigator Paper Award, recognized by the Sino-Ecologists Association Overseas (Sino-Eco)

2017    Goldhaber Distinguished Fellowship, Brookhaven National Laboratory, Upton, NY
        *Three-year appointment with a starting annual salary of $86,000*

2015    Galileo Circle Scholars, College of Science, University of Arizona
        *Given to the finest graduate students in the college of science*

2014    NASA Earth and Space Science Fellowship (NESSF) ($30,000/year; 2014-2015)
        *Awarded to 54 out of 410 applicants nationwide*

2014    Graduate/Professional Student Council Travel Grant, University of Arizona
        *One of the two who got the full scores among all applicants university-wide*

2007     Best Undergraduate Thesis Award of Hubei Province, China

2006     Surveying Scholarship, Wuhan University, China

2005     The Second Prize in National Undergraduate Mathematic Modeling Contest, China

2004     Surveying Scholarship, Wuhan University, China


**PEER-REVIEWED PUBLICATIONS**

[J28]. Hayek, N.H., Longo, M., **Wu, J.,** Smith, M.N., Restrepo-Coupe, N., Tapajos, R., da Silva, R., Fitzjarald, D.R., Carmago, P.B., Hutyra, L.R., Alves, L.F., Daube, B., Munger, J.W., Wiedemann, K.T., Saleska, S.R., and Wofsy, S.C. (2018) Carbon exchange in an Amazon forest: from hours to years. Biogeosciences, 15, 4833-4848.

[J27]. Alves, E.G., Tota, J., Turnipseed, A., Guenther, A., Bustillos, V., Santana, R., Cirino, G., Tavares, J., Nelson, B., Souza, R., Gu, D., Stavrakou, T., Adams, D., **Wu, J.,** Saleska, S., and Manzi, A. (2018) Leaf phenology as one important driver of seasonal changes in isoprene emission in central Amazonia. *Biogeosciences*, 15, 4019-4032.

[J26]. Wang, X., **Wu, J.,** Chen, M., Wang, Z., Wang, B., Piao, S., Lin, W., Miao, G., Deng, M., Qiao, C., Wang, J., Xu, S., and Liu, L. (2018) Field evidence of the positive effects of aerosols on stem growth. *Global Change Biology*, , https://doi.org/10.1111/gcb.14339.

[J25]. Zhang, Y., Xiao, X., Wolf, S., **Wu, J.,** Wu, X., Gioli, B., Cesacatti, A., Tol, C., Wohlfahrt, G., Zhou, S., Gough, C., Gentine, P., Zhang, Y., Steinbrecher, R., and Adro, J. (2018) Sptatio-temporal convergence of maximum daily light use efficiency based on radiation absorption by chlorophylls of the canopy. *Geophysical Research Letters*, doi:10.1029/2017GL076354.

[J24]. Meng, R., **Wu, J.,** Zhao, F., Cook, B.D., Hanavan, R.P., and Serbin, S.P. (2018) Measuring post-fire canopy recovery across a Pine Barrens ecosystem using airborne spectroscopy and LiDAR. *Remote Sensing of Environment*, 210, 282-296.

[J23]. Miao, G., Guan, K., Yang, X., Bernacchi, C., Berry, J., DeLucia, E., **Wu, J.,** Moore, C., Kim, H., Cai, Y., Peng, B., Masters, M., and Meacham, K. (2018) Sun-induced chlorophyll fluorescence, photosynthesis, and light use efficiency of a soybean field. *Journal of Geophysical Research: Biogeosciences*, 123, 610-623.

   * Reported by: *ScienceDaily* and *Phys.org*

[J22]. Albert, L.P., **Wu, J.,** Prohaska, N., de Camargo, P.B., Huxman, T.E., Tribuzy, E., Ivanove, V.Y., Oliveira, R., Garcia, S., Smith, M., Oliveira, R.C., Restrepo-Coupe, N., da Silva, R., Stark, S., Martins, G., Penha, D.V., and Saleska, S.R. (2018) Age-dependent leaf physiology and consequences for crown-scale carbon uptake during the dry season in an Amazon evergreen forest. *New Phytologist*, in press, doi: 10.1111/nph.15056.

[J21]. **Wu, J.,** Kobayashi, H., Stark, S.C., Meng, R., Guan, K., Tran, N.N., Gao, S., Yang, W., Restrepo-Coupe, N., Miura, T., Oliviera, R.C., Rogers, A., Dye, D.G., Nelson, B.W., Serbin, S., Huete, A.R., and Saleska, S.R. (2018) Biological processes dominate seasonality of remotely sensed canopy greenness in an Amazon evergreen forest. *New Phytologist*, 217, 1507-1520.

   * Reported by: *BNL* and *NSF*

[J20]. de Moura, Y.M., Galvao, L.S., Hilker, T., **Wu, J.,** Saleska, S., do Amaral, C.H., Nelson, B.W., Lopes, A.P., Wiedemann, K.T., Prohaska, N., de Oliveira, R.C., Machado, C.B., and Aragao, L.E.O.C. (2017) Spectral analysis of Amazon canopy phenology during the dry season using a tower hyperspectral camera and MODIS observations. *ISPRS Journal of Photogrammetry and Remote Sensing*, 131, 52-64.

[J19]. Guan, K., **Wu, J.,** Kimball, J., Anderson, M.C., Frolkin, S., Li, B., and Lobell, D. (2017) The shared and unique value of optical, fluorescence, thermal and microwave satellite data for estimating large-scale crop yields. *Remote Sensing of Environment*, 199, 333-349.

[J18]. Xu, X., Medvigy, D., Wright, S.J., Kitajima, K., **Wu, J.,** Albert, L.P., Martins, G., Saleska, S.R., and Pacala, S. (2017) Variations of leaf longevity in tropical moist forests predicted by a trait-driven carbon optimality model. *Ecology Letters*, 20, 1097-1106.

[J17]. Wang, C., Chen, J., **Wu, J.,** Tang, Y., Shi, P., Black, T.A., and Zhu, K. (2017) A snow-free vegetation index for improved monitoring of vegetation spring green-up date in deciduous ecosystems. *Remote Sensing of Environment*, 196, 1-12.

[J16]. **Wu, J.,** Serbin, S.P., Xu, X., Albert, L.P., Chen, M., Meng, R., Saleska, S.R., and Rogers, A. (2017) The phenology of leaf quality and its within-canopy variation are essential for accurate modeling of photosynthesis in tropical evergreen forests. *Global Change Biology*, 23, 4814-4827.

[J15]. Hilker, T., Galvão, L.S., Aragão, L.E., de Moura, Y.M., do Amaral, C.H., Lyapustin, A.I., **Wu, J.,** Albert, L.P., Ferreira, M.J., Anderson, L.O., dos Santos, V.A.H.F., Prohaska, N., Tribuzy, E., Ceron, J.V.B., Saleska, S.R., Wang, Y., Goncalves, J.F., de Oliveira, R.C., Rodrigues, J.V.F.C., and Garcia, M.N. (2017) Vegetation chlorophyll estimates in the Amazon from multi-angle MODIS observations and canopy reflectance model. *International Journal of Applied Earth Observation and Geoinformation*, 58, 278-287.

[J14]. Chavana-Bryant, C., Malhi, Y., **Wu, J.,** Asner, G.P., Anastasiou, A., Enquist, B.J., Caravasi, C., Doughty, C.E., Saleska, S.R., Martin, R., and Gerard, F.F. (2017) Leaf aging of Amazonian canopy trees as revealed by spectral and physiochemical measurements. *New Phytologist*, 214, 1049-1063.

    \*     Highly cited paper (top 1%) in the field of Plant and Animal Sciences

[J13]. **Wu, J.,** Chavana-Bryant, C., Prohaska, N., Serbin, S.P., Guan, K., Albert, L.P., Yang, X., van Leeuwen, W.J.D., Garnello, A.J., Martins, G., Malhi, Y., Gerard, F., Oliviera, R.C., and Saleska, S.R. (2017) Convergence in relationships between leaf traits, spectra and age across diverse canopy environments and two contrasting tropical forests. *New Phytologist,* 214, 1033-1048.

[J12]. Meng, R., **Wu, J.,** Schwager, K., Brewer, K., Zhao, F., Dennison, P.E., Cook, B., Green, T.M., and Serbin, S.P. (2017) Using high spatial resolution satellite imagery to map forest burn severity: from crowns to landscape. *Remote Sensing of Environment*, 191, 95-109.

[J11]. **Wu, J.,** Guan, K., Hayek, M., Restrepo-Coupe, N., Wiedemann, K.T., Xu, X., Wehr, R., Christoffersen, B.O., Miao, G., da Silva, R., Araujo, A.C., Oliviera, R.C., Camargo, P.B., Monson, R.K., Huete, A.R., and Saleska, S.R. (2017) Partitioning controls on Amazon forest photosynthesis between environmental and biotic factors at hourly to inter-annual timescales. *Global Change Biology*, 23, 1240-1257.

[J10]. Restrepo-Coupe, N., Levine, N., Christoffersen, B.O., Albert, L.P., **Wu, J.,** Costa, M.H., Galbrath, D., Imbuzeiro, H., Martins, G., Araujo, A.C., Malhi, Y., Zeng, X., Moorcroft, P., and Saleska, S.R. (2017) Do dynamic global vegetation models capture the seasonality of carbon fluxes in the Amazon basin? A data-model inter-comparison. *Global Change Biology*, 23, 191-208.

    \*     Highly cited paper (top 1%) in the field of Environment and Ecology

[J9]. Lopes, A.P., Nelson, B.W., **Wu, J.,** Graca, P.M.L.A., Tavares, J.V., Prohaska, N., Martins, G.A., and Saleska, S.R. (2016) Leaf flush drives dry season green-up of the central Amazon. *Remote Sensing of Environment*, 180, 90-98.

[J8]. Yang, X., Tang, J., Mustard, J.F., **Wu, J.,** Zhao, K., Serbin, S.P., and Lee, J.E. (2016) Seasonal variability of multiple leaf traits captured by leaf spectroscopy at two temperate deciduous forests. *Remote Sensing of Environment*, 179, 1-12.

[J7]. **Wu, J.,** Albert, L.P., Lopes, A.P., Restrepo-Coupe, N., Hayek, M., Wiedemann, K.T., Guan, K., Stark, S.C., Christoffersen, B., Prohaska, N., Tavares, J.V., Marostica, S., Kobayashi, H., Ferreira, M.L., Campos, K.S., da Silva, R., Brando, P.M., Dye, D.G., Huxman, T.E., Huete, A.R., Nelson, B.W., and Saleska, S.R. (2016) Leaf development and demography explains photosynthetic seasonality in Amazon evergreen forests. *Science*, 351, 972-976.

- \* Featured as the cover story of *Science*
- \* Reported by: *Science*, *U. of Arizona*, *BNL*, *INPA*, *NSF* and *bioGraphic*
- \* Ranked as "the best paper of 2016" in Prof. Belinda Medlyn's journal club
- \* Highly cited paper (top 1%) in the field of Environment/Ecology

[J6]. Saleska, S.R., **Wu, J.,** Guan, K., Araujo, A.C., Huete, A.R., Nobre, A.D., and Restrepo-Coupe N. (2016) Dry-season greening of Amazon forests. *Nature*, 531, E4-E5.

- \* Reported by: *U. of Arizona*, *U. of Technology Sydney* and *ScienceDaily*

[J5]. Guan, K., Pan, M., Li, H., Wolf, A., **Wu, J.,** Medvigy, D., Caylor, K.K., Sheffield, J., Wood, E.F., Malhi, Y., Liang, M., Kimball, J.S., Saleska, S.R., Berry, J., Joiner, J., and Lyapustin, A.I. (2015) Photosynthetic seasonality of global tropical forests constrained by hydroclimate. *Nature Geoscience*, 8, 284-289.

- \* Reported by: *Princeton University*, *NASA* and *Phys.org*
- \* Highly cited paper (top 1%) in the field of Geosciences

[J4]. Stark, S.C., Leitold, V., **Wu, L.J.,** Hunter, M.O., de Castilho, C.V., Costa, F.R.C., McMahon, S.M., Parker, G.G., Shimabukuro, T., Lefsky, M.A., Keller, M., Alves, L.F., Schietti, J., Shimabukuro, Y.E., Brandao, D.O., Woodcock, T.K., Higuchi, N., Camargo, P.B., Oliveira, R.C., and Saleska, S.R. (2012) Amazon forest carbon dynamics predicted by profiles of canopy leaf area and light environment. *Ecology Letters*, 15, 1406-1414.

[J3]. Chen, X., Chen, J., Jia, X., Sommers, B., **Wu, J.,** and Coppin, P. (2011) A quantitative analysis of virtual endmembers' increased impact on the collinearity effect in spectral unmixing. *IEEE Transactions on Geoscience and Remote Sensing*, 49, 2945-2956.

[J2]. **Wu, J.,** Yu, F., Chen, Z., and Chen, J. (2009) Global sensitivity analysis of growth simulation parameters of winter wheat based on EPIC model (in Chinese). *Transactions of the Chinese Society of Agricultural Engineering*, 25, 136-142.

[J1]. Zhu, X.L., Li, Q., Shen, M.G., Chen, J., and **Wu, J.** (2008) A methodology for multiple cropping index extraction based on NDVI time-series (in Chinese). *Journal of Natural Resources*, 23, 534-543.

**SELECTED INVITED TALKS**

[I18]. **Wu, J., et al.** "Vegetation spectroscopy of tropical forests: scaling from leaves to landscapes", ESA annual meeting, New Orleans, LA, August 2017.

[I17]. **Wu, J.** "Scaling carbon cycling from leaves to ecosystems: an integrative approach to predicting tropical forest response to climate change", Department of Land Surveying and Geo-informatics, The Hong Kong Polytechnic University, May 2018.

[I16]. **Wu, J.** "Scaling carbon cycling from leaves to ecosystems: an integrative approach to predicting tropical forest response to climate change", School of Biological Sciences, The University of Hong Kong, Hong Kong, March 2018.

[I15]. **Wu, J.** "Scaling carbon cycling from leaves to ecosystems: an integrative approach to predicting tropical forest response to climate change", Tupper Seminar, Smithsonian Tropical Research Institute, Panama City, Panama, February 2018.

[I14]. **Wu, J.** "Mechanistic controls of carbon and water cycles in the tropics: integrating mutli-scale remote sensing and ecological theories", School of Resource and Environmental Sciences, Wuhan University, Wuhan, China, November 2017.

[I13]. **Wu, J.** "Vegetation spectroscopy enables improved understanding of carbon and water dynamics in the tropics", Department of Energy NGEE-Tropics Early Career Talk (online), Upton, NY, September 2017.

[I12]. **Wu, J.** "Understanding fundamental controls on tropical evergreen forest photosynthesis: integrating observations, theories, and process-based models", Tupper Seminar, Smithsonian Tropical Research Institute, Panama City, Panama, August 2017.

[I11]. **W, J., et al.** "A convergent spectroscopy-based approach for $V_{c,max}$ across leaf age and growth environments", ESA annual meeting, Portland, OR, August 2017.

[I10]. **Wu, J.** "Understanding fundamental controls on tropical evergreen forest carbon and water cycles: integrating observations, theories, and process-based models", Department of Biology, University of Alabama, Tuscaloosa, AL, January 2017.

[I9]. **Wu, J.** "An integrated approach to assess ecological processes of tropical forest photosynthesis", Xiangshan-Ecology Forum, Institute of Botany, The Chinese Academy of Science, Beijing, China, October 2016.

[I8]. **Wu, J.** "Ecology of tropical evergreen forest photosynthesis: from leaves to forest canopies", International Institute for Earth System Science, Nanjing University, Nanjing, China, October 2016.

[I7]. **Wu, J.** "Biotic and abiotic drivers of tropical forest photosynthesis: integrating field, eddy flux, satellite measurements and modelling", Department of Plant Biology, University of Illinois at Urbana-Champaign, Champaign, IL, June 2016.

[I6]. **Wu, J.** "Leaf quality drives forests' ability to absorb carbon", Department of Energy NGEE-Tropics All Hand Monthly Meeting (online), Upton, NY, May 2016.

[I5]. **Wu, J.** "Mechanistic controls on tropical forest photosynthesis: insights from tropical phenology", State Key Laboratory of Earth Surface Processes and Resource Ecology, Beijing Normal University, Beijing, China, January 2016.

[I4]. **Wu, J, et al.** "An innovative way to monitor leaf age demographics in a tropical evergreen forest", ESA annual meeting, Baltimore, MD, August 2015.

[I3]. **Wu, J.** "How do Amazonian evergreen tropical forest systems photosynthesize: Insights from tropical phenology", Geophysical Fluid Dynamics Laboratory, Princeton, NJ, April 2015.

[I2]. **Wu, J.** "Partitioning the climatic and biological controls on photosynthetic fluxes in Amazonian tropical evergreen forests", United States Geological Survey, Western Geographic Science Center, Flagstaff, AZ, February 2015.

[I1]. **Wu, J.** "Partitioning the climatic and biological controls on photosynthetic fluxes in Amazonian tropical evergreen forests", Environmental Science and Engineering Seminar, Harvard University, Cambridge, MA, November 2014.

**PROFESSIONAL SERVICE**

*Editorial service*

<u>02/2018-present.</u> Editorial Board of Frontiers in Forests and Global Change (section of forest ecophysiology).

<u>11/2017-present.</u> Editorial Board of Remote Sensing (section of land surface fluxes).

*Proposal reviewer*

<u>04/2017.</u> NASA Earth and Space Science Fellowship Review Panelist (Carbon Cycle & Ecosystems Focus Area), Washington, D.C.

*Manuscript reviewer (total paper reviewed to date, n=41).*

Acta Amazonia (2016); Annal of Botany (2016); Agricultural and Forest Meteorology (2014x3; 2018); Ecology Letters (2016); Ecosystem (2016); Environmental Modelling & Software (2011); Environmental Research Letters (2015, 2016x3; 2017x3); Global Change Biology (2014; 2016x2; 2017); ISPRS Journal of Photogrammetry and Remote Sensing (2018), Journal of Plant Ecology (2016x2; 2017); Journal of Geophysical Research-Biogeosciences (2017); New Phytologist (2016; 2017x2; 2018x2); Physical Biology (2016x2); Remote Sensing (2017x4); Remote Sensing of Environment (2017); Sensors (2017x3); Water Resources Research (2018)

*Synergistic activities*

<u>12/2017.</u> Convener (with Xiangtao Xu, Forrest M. Hoffman, and William W. Hargrove), B082. "Vegetation phenology as forcing and response across diverse biomes: detection, attribution, prediction and implications", AGU fall meeting, New Orleans, LA.

<u>12/2016.</u> Convener (with Xiaolin Zhu, Xiangtao Xu, and Min Chen), B095. "Vegetation phenology in terrestrial ecosystems: advances in observations, mechanisms, modeling, and applications", AGU fall meeting, San Francisco, CA.

<u>12/2015.</u> Session chair (with Xi Yang, Scott Saleska, and Kaiyu Guan), B051. "Climatic controls on vegetation dynamics in tropical forests", AGU fall meeting, San Francisco, CA.

**MEMBERSHIPS**

2012-present, American Geophysical Union (AGU).

2011-present, Ecological Society of American (ESA).