

Yulan Hong

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Education

Ph.D. (2017), M.S. (2014), Meteorology, Florida State University, Tallahassee, FL, USA

B.S. (2012), Atmospheric Physics, University of Science and Technology of China, Hefei, Anhui, China

Employment

2017-current, Postdoctoral Research Associate, University of Illinois at Urbana-Champaign

2012-2017, Graduate Research Assistant, Florida State University

Research Interests

- Exploring ice, liquid and mixed phase cloud microphysical and optical properties observed from active (e.g. CPR and CALIOP) and passive (e.g. MODIS) sensors on satellites;
- Studying cloud, aerosol and precipitation climatology via ground-based (e.g. AERONET) and space-based (e.g. TRMM, CloudSat and CALIPSO) observations; and aerosol-cloud interactions from field campaign (e.g. NASA supported Camp2Ex);
- Assessing cloud radiative effects via radiative transfer modeling and remote sensing.

Publications

Di Girolamo, L., Y. Zhan, G., Zhao, J.A. Villegas Bravo, **Y. Hong**, A.I. Lyapustin, F. Xu, M.J. Garay, V.M. Jovanovic, D.J. Diner, 2019: MAIA Level 2 Cloud Mask Algorithm Theoretical Basis, JPL-103722, Pasadena, CA, 37 pp.

Li, J.-L. F., M. Richardson, W.-L. Lee, **Y. Hong**, J. Jiang, E. Fetzer, G. Stephens, Y.-H. Wang, J.-Y. Yu, and Y. Liu, 2019: Potential faster Arctic sea ice retreat triggered by snowflakes' greenhouse effect, *The Cryosphere*, <https://doi.org/10.5194/tc-2018-195>.

Li, J.-L., R. Mark, **Y. Hong**, W.-L. Lee, Y.-H. W, J.-Y. Yu, E. Fetzer, G. Stephens, and Y. Liu, 2017: Improved simulation of Antarctic sea ice due to the radiative effects of falling snow. *Environ. Res. Lett.*, 12(8), doi:10.1088/1748-9326/aa7a17.

Hong, Y., G. Liu, and J. Li, 2016: Assessing the radiative effects of global ice clouds based on CloudSat and CALIPSO measurements. *J. Climate*, 29, 7651–7674, doi: 10.1175/JCLI-D-15-0799.1.

Hong, Y. and G. Liu, 2015: The characteristics of ice cloud properties derived from CloudSat and CALIPSO measurements. *J. Climate*, 28(9), 3880-3901, doi: 10.1175/JCLI-D-14-00666.1.

Liu, Q. and **Y. Hong**, 2012: Comparison of aerosol single scattering albedo derived from ozone monitoring instrument with Aerosol Robotic Network Observations. *Atmos. Ocea. Sci. Lett.*, 5, 264-269.

Publications in Review

Hong, Y. and L. Di Girolamo.: Cloud phase characteristics over Southeast Asia from A-Train satellite observations, *Atmos. Chem. Phys. Discuss.*, <https://doi.org/10.5194/acp-2019-835>, in review, 2020.

Publication in preparation

Hong, Y. and L. Di Girolamo: Understanding of cloudy-sky aerosols from space and ground-based observations, 2020.

Mitra, A., L. DiGirolamo, **Y. Hong**, Y. Zhan and K. J. Mueller, Comparison of nearly co-incident cloud top heights (CTH) from MISR, Terra MODIS and ISS-CATS to verify long-term CTH records, 2020.

Thesis

Ph.D. thesis, Hong, Y, 2017: Ice cloud properties and their radiative effects: global observations and modeling, the Florida State University, 146pp, available at <https://diginole.lib.fsu.edu/islandora/object/fsu%3A552079>.

M.S. thesis, Hong, Y, 2014: Global ice cloud properties and their radiative effects: Satellite observations and radiative transfer modeling, the Florida State University, 82pp, available at <http://diginole.lib.fsu.edu/islandora/object/fsu%3A185264>.

Conferences and Seminars

- Poster, AGU meeting, Washington DC
Hong, Y., L. Di Girolamo and J. Reid, Cloud phase characteristics over Southeast Asia from multiple satellites, 12/2018
- Poster, SESE research review, UIUC, IL
Hong, Y., G. Liu and L. Di Girolamo, Whether ice clouds warm or cool Earth-atmosphere system, 03/2017.
- Seminar talk, Ph.D. defense, FSU, FL
Hong, Y., Ice cloud properties and radiative effects: global observations and modeling, 04/2017.
- Poster, CALIPSO CloudSat Science Team Meeting, Newport News, VA
Hong, Y., G. Liu and F.-L. Li, Assessing the radiative effects of global ice clouds based on CloudSat and CALIPSO measurements, 03/2016.
- Poster, AGU meeting, San Francisco, CA
Hong, Y. and G. Liu, Ice cloud properties across the spectrum of optical depths: results from the CloudSat and CALIPSO measurements and radiative transfer modelling, 12/2014.
- Seminar talk, Master defense, FSU, FL
Hong, Y., Global ice cloud properties and their radiative effects: satellite observations and radiative transfer modeling, 03/2014.
- Poster, AGU meeting, San Francisco, CA
Hong, Y. and G. Liu, Ice cloud properties and their radiative effects, 12/2013.

Research Experiences

- NASA CAMP²Ex field campaign, 2017-current
 - Understanding low-level cloud and aerosol properties with/without cirrus overlap using field campaign data and satellite observations (e.g. AHI);
 - Investigating aerosol-cloud interactions from field measurements (e.g. HSRL);
 - Developed cloud, aerosol and precipitation climatology over the Philippine regions;
 - Characterized the climatology of different cloud phases with an emphasis on cloud vertical overlap using A-Train observations;
 - Studied spectral radiative features and spatial heterogeneity of different cloud phases using A-Train observations;
 - Led the roles of providing forecast for the field campaign, built our web page to serve our forecast (<https://publish.illinois.edu/camp2ex-forecast/>), and provided AHI satellite bash scripts for field usage;
 - Investigated 3D radiative effects of cloud and aerosols.
- MAIA project, 2018
 - Performed radiative transfer calculations to examine spectral (0.3-2.1 μ m) features of aerosols, ice and liquid clouds to distinguish aerosols from thin ice and liquid clouds to help spectral band selection for cloud detection, and helped ATBD preparation.
- Ice cloud radiative effect, 2015-current
 - Assessed the role of ice clouds, ranging from optical thin to thick, in Earth radiation budget;

Studied the impact from liquid clouds on ice cloud radiative effect.

-Studied ice cloud macro- and microphysical properties globally.

- Aerosol properties based on OMI and AERONET observations, 2012

-Compared single scattering albedo of aerosols retrieved from OMI and AERONET observations.

Reviewers for Refereed Journals

Climate Dynamics (5), Remote Sensing (5), Atmospheric Chemistry and Physics (2), Journal of Geophysical Research: Atmospheres (2), Geophysical Research Letters (1), Earth and Space Science (1), Scientific Report (1), Advance Meteorology (1), Atmosphere (1)

Skills

- Expertise in radiative transfer modelling of spectral, solar and thermal radiation;
- Expertise in radiation properties of clouds, aerosols and atmospheric gases;
- Professional in Fortran, IDL and bash scripts;
- Learning python

Services

- Supervised graduate students, 2017-2019.
- Organized weekly meetings for Prof. Larry Di Girolamo's research group, 2018-2019
- Set up meetings for UIUC Camp2Ex Science team, 2018- 2019

Teaching

Helped teaching radiative transfer and remote sensing class, 2018

Helped supervisor teaching remote sensing classes, 2016

Membership

American Meteorology Society, 2016

American Geophysics Union, 2013-current

Thalassic Society, 2012- 2017

Awards

Outstanding student scholarship (Grade 3) awarded at USTC, 09/2011

Outstanding undergraduate research project award of USTC, 10/2011

Yangya scholarship at USTC, 11/2010

Other Activities

Volunteer judge for the Outstanding Student Presentation Award (OSPA) at AGU fall meeting, Washington DC, 12/2018

Volunteer judge for the capital regional science and engineering fair in Tallahassee, 02/2017.