

Xianglei Huang

Associate Professor, Chair of the Graduate Program
Department of Climate and Space Science and Engineering (CLaSP)
(Renamed from Department of Atmospheric, Oceanic, and Space Sciences, AOSS)
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Degrees

- **California Institute of Technology** July 1998—June 2004
 - Ph.D. in Planetary Science, minor in Applied Computation
 - M.S. in Planetary Science, June 2000
- **University of Science and Technology of China (USTC)** Sep. 1992—June 1997
 - B.S. in Atmospheric Physics and Environmental Sciences (*graduation with honor*)

Employment

- **University of Michigan, Dept. of Climate and Space Science and Engineering (former Dept. of Atmos., Oceanic, and Space Sciences)** Sep 2006 - Present
 - Associate Professor with tenure* Sep 2012 - Present
 - Assistant Professor* Sep 2006-Aug 2012
- **Princeton University, Program in Atmospheric and Oceanic Sciences**
 - Visiting Research Scholar* (on sabbatical leave from Univ. of Michigan) Sep 2013-Dec 2013
 - Associate Research Scholar* June 2006-August 2006
 - AOS Postdoctoral Research Associate* July 2004-June 2006
- **California Institute of Technology** July 1998-June 2004
 - Graduate Research Assistant in the Division of Geological and Planetary Sciences*
- **The University of Maine at Orono** January 1998—June 1998
 - Graduate Research Assistant*
- **University of Science and Technology of China** September 1996-December 1997
 - Research Assistant*

Teaching Experience

- **University of Michigan**
 - Instructor for
 - AOSS380** (An Introduction to Radiative Transfer)
 - An Upper-division core course for all undergraduates majored in AOSS
 - AOSS532/** (Radiative Transfer)
 - Core course for graduate students in both atmospheric and space sciences

AOSS586/Climate586 (previously AOSS605-002 in Fall 2010) (Climate Diagnostics and Data Analysis)

Elective course for Ph.D. students and core course for newly established Master of Engineering in Applied Climate

Teaching Evaluation Q1: Overall this was an excellent course (Full mark 5.0)

Q2: Overall the instructor was an excellent teacher (Full mark 5.0)

Semester	W07 AOSS532	F07 AOSS380	W08 AOSS532	F08 AOSS380	W09 AOSS532	F09 AOSS380
Q1	4.5	3.4	4.0	3.7	4.83	4.75
Q2	4.5	3.6	4.0	4.2	4.83	5.0
Semester	W10 AOSS532	F10 AOSS605-002	W11 AOSS532	F11 AOSS586	W12 AOSS532	F12 AOSS586
Q1	4.6	4.25	4.07	4.83	4.63	3.0
Q2	4.6	4.75	4.33	4.83	4.80	3.25
Semester	W13 AOSS532	F14 AOSS586	W15 AOSS532	F15 AOSS380	W16 Climate586	F16 Climate380
Q1	4.05	4.50	4.60	3.90	4.63	4.13
Q2	4.11	4.50	4.75	4.10	4.63	4.67
Semester	W17 Climate586	F17 Climate586				
Q1	4.13	4.0				
Q2	4.80	4.50				

- **Princeton University** July 2004-June 2006
Guest lecturer for a graduate-level course on Atmospheric Radiative Transfer
- **California Institute of Technology** July 1998-June 2004
Graduate Teaching Assistant for four graduate-level courses

Supervised Postdoctoral Scholars and Students

- Postdocs:

Past: Wenze Yang (Univ. of Maryland), Baohua Chen (TAMU-Corpus Christi), Lei Song (Institute of Atmospheric Physics, China Academy of Sciences), Xiuhong Chen (Univ. of Michigan)

- Ph.D. students:

Past: Co-chaired: Li Xu, 2012 (with Joyce Penner, research scientist, UC Irvine)

Sole-chaired: Hui-wen Chuang, 2012 (private sector, Taiwan)

Chunpeng Wang, 2014 (data modeler, Quicken Loans, USA)

Fang Pan, 2017 (NPP Postdoctoral Fellow, NASA Langley)

Current: Sole-chaired: Colten Peterson, Zachary Fair, Yi-Hsuan Chen

- M.S. students:

Past: Lu Ren (Central Meteorological Administration, China), Hongze Cheng (Univ. Michigan)

Current: Haoming Shen (EECS, Univ. Michigan)

- Undergraduate Students: Lekeisha Suggs (Aerospace), David Reed (AOSS), Ghassan Alaka, Jr. (AOSS), Andrew Chen (Northwestern University), Han Wang (USTC, China), Trent Key (AOSS)

Professional Services

- **Member** of Atmospheric Radiation Committee of the American Meteorological Society (January 2018-present)
- **Member** of Satellite Meteorology, Oceanography, and Climate Committee of the American Meteorological Society (January 2016-December 2017)
- **Associate Editor** of *Journal of Climate* (Since February 2010)
- **Associate Editor** of *Journal of Atmospheric and Oceanic Technology* published by American Meteorological Society (2007-2016)
- **Member of the science definition team** for CLARREO mission, NASA (selected in November 2010)
- **Member of the NASA AIRS science team** (Through NASA Terra/Aqua recompute program)
- **Member of the NASA MODIS science team** (Through NASA Terra/Aqua recompute program)
- **Associate Member of the CERES science team**
- **Panelist** for various NASA annual ROSES (Research Opportunity in Space and Earth Sciences) program elements
 - November 2008
 - March 2010
 - February 2014
 - August 2014
- **Panelist** for DOE Merit Review Program for the Office of Energy Efficiency & Renewable Energy
 - July 2012
- **Panelist** for DOE Review Panel for the Lawrence Livermore National Laboratory Scientific Focus Area
 - August 2015
- **Peer reviewer** for *Nature Geosciences*, *Journal of Climate*, *Journal of the Atmospheric Sciences*, *Journal of Geophysical Research-Atmospheres*, *Geophysical Research Letters*, *Atmospheric Chemistry and Physics*, *Theoretical and Applied Climatology*, *IEEE Transactions on Geoscience and Remote Sensing*, *Journal of Applied Meteorology*, and *Journal of Atmospheric and Oceanic Technology*
- **Mail-in reviewer** for proposals to British NERC (Natural Environment Research Council), NASA, NSF, and *University of Basilicata (Italy)*
- **Mail-in reviewer** for conference abstracts to IGARSS (IEEE International Geoscience & Remote Sensing Symposium), 2009 and 2010
- **Chair** of Hyperspectral Imaging and Sounding of Environment (HISE) 2015 conference organized by OSA (Optical Society of America), Arrowhead, California.
- **Convener and chair** of special sessions in AGU (American Geophysical Union) meetings
 - “*Innovative Applications of Satellite and Ground Observations in Evaluating General Circulation Models*” Fall 2008 meeting, San Francisco, California (primary convener).
 - “*Variability and Predictability of Weather and Climate Hazards on Intraseasonal to Interannual Time Scales*”, Spring 2009 Joint Assembly, Toronto, Canada (co-convener).
 - “*Innovative Applications of Satellite and Ground Observations in Evaluating Large-Scale Models: Beyond the Resemblance Test*”, Fall 2010 meeting, San Francisco, California (primary convener).
 - “*Variability and Predictability of Weather and Climate Extremes*”, Fall 2010 meeting, San Francisco, California (co-convener).

- “Frontiers of the Radiation Parameterizations in the Climate and Weather Models”, Fall 2015 meeting, San Francisco, California (primary convener).
- **Co-convener and co-chair** of special sessions “Convective influences on the upper troposphere and lower stratosphere: challenges, opportunities, and pathways forward” in the 11th AOGS (Asia and Oceania Geosciences Society) annual meeting in 2014, Sapporo, Japan.

Services to University of Michigan

- 2017 Member, CLASP Chair search committee
- 2016-2017 Chair, CLASP faculty search committee
- 2014/08-present Chair, AOSS/CLASP Graduate Program
- 2014 Chair, the Promotion Review Committee for Dr. Darren McKague
- 2012-2013 Chair, AOSS integrated assessment faculty search committee
- 2012-2013 AOSS Ph.D. Qualify exam committee member
- 2011-present CoE (College of Engineering) International Program Committee member
- 2010-2011 Co-chair of AOSS departmental seminar
- 2009-present CoE (College of Engineering) Scholastic Standing Committee member
- 2009-2011 AOSS Executive committee member
- 2008-2009 AOSS departmental seminar committee member
- 2008 Fall AOSS undergraduate recruiting committee member
- 2008 AOSS Ph.D. Qualify exam committee member
- 2007 Faculty Marshal for the University spring commencement ceremony
- Qualify oral exam committee member for various graduate students
- Ph.D. thesis committee member for
 - Shih-Yu Lee (Geology) 2008
 - Minghuai Wang (AOSS) 2009
 - Cheng Zhou(AOSS) 2009
 - Anthony Visco (Applied Physics) 2012
 - Yuxing Yun (AOSS) 2012
 - Andrew J. Crow (AERO) 2013
 - Justin Perket (AOSS) 2015
 - Xiaojing Du (Earth Environ Sci.) Present

Current and Previous Grants (* for current grants)

PI grants

14. *Spectral flux from multiple years of Aqua and SUOMI-NPP measurements: derivation, validation, and application in climate studies, NASA, **\$551,193**, award paperwork in process.
13. *A weather-process and machine learning combined approach to improve solar forecast for PV power generation, University of Michigan, 09/2017-08/2019, **\$100,000**.
12. *On the use of spectral observations and derived products in CERES EBAF data productions, NASA, 01/2016-12/2018, **\$363,142**.
11. *Major improvements on the longwave radiative interactions between surface and clouds in the Polar Regions in atmospheric global circulation model (GCM), DoE BER, 01/2015-01/2018 (extended to 01/2019), **\$546,712**.
10. *Understanding the longwave spectral variability: an integrated approach utilizing 11 years of AIRS observations and state-of-the-art GCM simulations and reanalyses data sets, NASA ROSES-2014, 11/2014-11/2017 (extended to 11/2018), **\$481,818**.

9. *The synergy between longwave band-by-band radiation budget from AIRS and CERES and other A-Train cloud products in evaluating reanalysis data and GCMs: connecting biases in longwave radiation fields and in cloud fields, NASA ROSES-2013, 05/2014-05/2017 (extended to 05/2018), **\$428,624**.
8. Simulating the spectrally resolved climate monitoring mission using Amazon Cloud Computing, Amazon Climate Research Grant, 11/2014-10/2017, **5 millions of core hours of EC2 instances and \$15,000 Amazon Credit for computing**
7. Developing an off-line simulator based on PCRTM and spectral radiative kernel techniques for reliable and fast computing of both spectral radiance and spectral flux: towards testing climate models in the spectral domain, NASA ROSES-2013, 03/2014-03/2016 (extended to 03/217), **\$247,385**.
6. Understanding the far-IR variability and feedback: the last unexplored territory in radiation budget, NASA JPL, 10/2015-09/2016, **\$60,000**.
5. Understanding of the band-by-band longwave radiation budgets and cloud radiative forcings (CRFs): A synergistic approach with CERES, AIRS, and GCM simulations, **NASA ROSES-2010**, 04/2011-04/2014 (extended to 04/2015), **\$464,575**.
4. Proposal for participation in the science definition team for the CLARREO mission, **NASA ROSES-2010** (Research Opportunities in Space and Earth Sciences -2010), 02/2011-02/2014 (extended to 09/2015), **\$442,323 + \$29,110 (supplement)**.
3. Optimal Blending of EOS observations, Goddard Cumulus Ensemble model, and MERRA reanalysis: towards a better database for testing cloud parameterizations, **NASA Earth Science MAP**, 05/2009-05/2013 (extended to 05/2014), **\$991,330 (\$773,168 awarded to Univ. of Michigan, the rest awarded to Co-I at NASA Goddard Space Flight Center by inter-federal-agency transfer)**.
2. Collaborative Research: Testing climate models by feedback analysis using AIRS and GPS occultation data, **NSF Climate and Large-Scale Dynamics program**, 07/2008-06/2011 (no cost extension to 06/2012), **\$243,796**.
1. Co-PI, The Large-scale dehydration process near the tropical tropopause: confront model with MLS, (JPL-PI: Hui Su) **JPL SURP, NASA**, 04/2007-09/2008, **\$30,000¹**.

Co-I grants with PIs outside University of Michigan

5. *Polar Radiant Energy in the Far InfraRed Experiment (PREFIRE), PI: Tristan L'Ecuyer (Univ. Wisconsin at Madison), **NASA EVI4**, my share: \$750,000 (selected and award paperwork in process)
4. *A Comprehensive Analysis on Cloud Radiative Feedbacks by Cloud Type From A-Train Using Observation-based Cloud Radiative Kernel Method, PI: Qing Yue (NASA/JPL), **NASA ROSES15**, 08/2016-08/2019, my share: **\$120,000**.
3. Hyperspectral infrared earth radiance time series, PI: Lawrence L. Strow (UMBC), **NASA ROSES11**, 03/2013-03/2016, my share: **\$32,934**.
2. Radiative impact of cirrus clouds on tropical troposphere to stratosphere transport, PI: Hui Su(JPL), **NASA ROSES07**, 01/2009-12/2011, my share: **\$75,494** (\$30,000 for FY09, \$20,494 for FY10, \$25,000 for FY11).
1. Defining CLARREO in a Pre-Phase a Study: A Climate Observing System Simulation Experiment and Impact Study on the CLARREO Mission Architecture, PI: James Anderson(Harvard), **NASA Earth Science**, 04/2009-03/2010, my share: **\$70,954**.

Co-I grants with PIs at University of Michigan

2. Coupled Aerosol and Climate Models: An Intercomparison of the GFDL Model and the

¹ As specified in the JPL SURP research announcement, the nominal PI of the project must be the JPL employee even the majority of the grant goes to the partner university. \$30,000 was the amount awarded to University of Michigan. JPL portion was additional \$15,000 for this project.

NCAR Model, PI: Joyce Penner (AOSS), ***NSF Climate and Large-Scale Dynamics program***, 08/2010—07/2013, \$600,000, my share: **\$64,733**.

1. Process-based and object-based investigation of bias in the simulations of physical climate, PI: Richard Rood(AOSS), ***NASA ROSES06***, 01/2008-01/2011, \$1,125,000, my share: **\$29,000**.

Publications (advisees are highlighted with underlines; postdocs with italics)

Peer-reviewed

54. **Huang, X. L.**, X. H. Chen, M. G. Flanner, P. Yang, D. Feldman, C. Kuo, Improved representation of surface spectral emissivity in a global climate model and its impact on simulated climate, *Journal of Climate*, in press.
53. Flanner, M. G., **X. L. Huang**, X. H. Chen, G. Krinner, Climate response to negative greenhouse gas forcing in polar winter, *Geophysical Research Letters*, in press.
52. Kuo, C., D. R. Feldman, X. L. Huang, M. G. Flanner, P. Yang, X. H. Chen, Time-Dependent Cryospheric Longwave Surface Emissivity Feedback in the Community Earth System Model, *JGR-Atmospheres*, 123. doi.org/10.1002/2017JD027595, 2018.
51. DeSouza-Machado S., L. L. Strow, A. Tangborn, **X. L. Huang**, X. H. Chen, X. Liu, W. Wu, Q. G. Yang, Single Footprint Retrievals for AIRS using a Fast Two Slab Cloud-Representation Model and All-Sky Radiative Transfer Algorithm, *Atmospheric Measurement Techniques*, 11, 529-550, doi.org/10.5194/amt-11-529-2018, 2018.
50. Kuo, C.-P., P. Yang, **X. L. Huang**, D. Feldman, M. Flanner, C. Kuo, E. Mlawer, Impact of Multiple Scattering on Infrared Radiative Transfer Involving Clouds, *Journal of Advances in Modeling Earth Systems*, 9, doi.org/10.1002/2017MS001117, 2017.
49. Bellisario, C., H. E. Brindley, J. E. Murray, A. Last, J. Pickering, C. Harlow, S. Fox, C. Fox, M. Smith, D. Anderson, **X. L. Huang**, X. H. Chen, Retrievals of the Far Infrared emissivity of snow over the Greenland Plateau using the Tropospheric Airborne Fourier Transform Spectrometer (TAFTS), *Journal of Geophysical Research-Atmosphere*, 122, doi.org/10.1002/2017JD027328, 2017.
48. Pan, F., **X. L. Huang**, S. S. Leroy, P. Lin, L. L. Strow, Y. Ming, V. Ramaswamy, The stratospheric changes inferred from 10 years of AIRS and AMSU-A radiances, *Journal of Climate*, 30, 6005-6016, doi:10.1175/JCLI-D-17-0037.1, 2017.
47. Liu, X., W. Wu, B. A. Wielicki, Q.G. Yang, S. H. Kizer, **X. L. Huang**, X. H. Chen, S. Kato, Y. L. Shea, M. G. Mlynczak, Spectrally Dependent CLARREO Infrared Spectrometer Calibration Requirement for Climate Change Detection, *Journal of Climate*, 30, 3979-3998, doi:10.1175/JCLI-D-1600704.1, 2017.
46. *Chen, X. H.*, **X. L. Huang**, C. Y. Jiao, M. G. Flanner, T. Raeker, B. Palen, Running climate model on a commercial cloud computing environment: A case study using Community Earth System Model (CESM) on Amazon AWS, *Computers & Geosciences*, 98, 21-25, doi:10.1016/j.cageo.2016.09.14, 2017.
45. *Chen, X.H.* and **X.L. Huang**, Deriving clear-sky longwave spectral flux solely from hyperspectral radiance: a case study with AIRS observations, *Atmospheric Measurement Techniques*, 9, 6013-6023, doi:10.5194/amt-9-6013-2016, 2016.
44. Kahn, B. H, **X. L. Huang**, G. L. Stephens, W. D. Collins, D. R. Feldman, H. Sui, S. Wong, and Q. Yue, ENSO regulations of far- and mid-infrared contributions to clear-sky OLR,

- Geophys. Res. Letts.*, 43, 8751-8759, doi:10.1002/2016GL070263, 2016.
43. **Huang, X.L.**, X.H. Chen, D.K. Zhou, X. Liu, An observationally based global band-by-band surface emissivity dataset for climate and weather simulations, *J. Atmos. Sci.*, 73, 3541-3555, doi:10.1175/JAS-D-15-0355.1, 2016.
 42. **Cheng, H. Z.**, X. H. Chen, **X.L. Huang**, Quantification of the Errors Associated with the Representation of Surface Emissivity in the RRTMG_LW, *J. Quantitative Spec. & Rad. Trans.*, 180, 167-176, doi:10.1016/j.qsr.2016.05.004, 2016.
 41. Bantges, R., H. Brindley, X.H. Chen, **X.L. Huang**, J. Harries, J. Murray, On the detection of robust multi-decadal changes in the Earth's Outgoing Longwave Radiation spectrum, *Journal of Climate*, 29, 4939-4947, doi:10.1175/JCLI-D-15-0713.1, 2016.
 40. Chung E.-S., B. J. Soden, **X.L. Huang**, L. Shi, V John, An assessment of the consistency between satellite measurements of upper tropospheric water vapor, *J. Geophys. Res.*, 121, 2874-2887, 2016.
 39. Yue, Q., B. H. Kahn, E. J. Fetzer, M. Schreier, S. Wong, X. H. Chen, **X. L. Huang**, Observation-based Longwave Cloud Radiative Kernels Derived from the A-Train, *Journal of Climate*, 29, 2023-2040, 2016.
 38. **Pan, F.**, **X.L. Huang**, L. L. Strow, and H. Guo, Linear trends and closures of 10-year observations of AIRS stratospheric channels, *J. Climate*, 28, 8939-8950, doi:10.1175/JCLI-D-15-0418.1, 2015.
 37. **Huang, X. L.**, X. H. Chen, B. J. Soden, X. Liu, The spectral dimension of longwave feedbacks in the CMIP3 and CMIP5 experiments, *Geophysical Research Letters*, 41, doi:10.1002/2014GL061938, 2014.
 36. Feldman, D. R., W. D. Collins, R. Pincus, **X. L. Huang**, X. H. Chen, Far-infrared surface emissivity and climate, *Proceedings of National Academy of Sciences*, doi: 10.1073/pnas.1413640111, 2014.
 35. **Chen, X. H.**, **X. L. Huang**, M. G. Flanner, Sensitivity of modeled far-IR radiation budgets in polar continents to treatments of snow surface and ice cloud radiative properties, *Geophysical Research Letters*, 41, doi:10.1002/2014GL061216, 2014.
 34. **Huang, X. L.**, X.H. Chen, G. L. Potter, L. Oreopoulos, J. N.S. Cole, D.M. Lee, N. G. Loeb, A global climatology of outgoing longwave spectral cloud radiative effect and associated effective cloud properties, *Journal of Climate*, 27, 7475-7492, doi:10.1175/JCLI-D-13-00663.1, 2014.
 33. **Wang, C.P.**, Z. Luo, X.H. Chen, X.P. Zeng, W.-K. Tao, and **X.L. Huang**, A physically based algorithm for non-blackbody correction of cloud top temperature and application to convection study, *Journal of Applied Meteorology and Climatology*, 53, 1844-1857. doi:10.1175/JAMC-D-13-0331.1, 2014.
 32. **Chen, X.H.** and **X.L. Huang**, Usage of differential absorption method in the thermal IR: a case study of quick estimate of clear-sky column water vapor, *Journal of Quantitative Spectroscopy and Radiative Transfer*, 104, 99-106, 2014.
 31. **Wang, C.P.**, and **X.L. Huang**, Parallax Correction in the Analysis of Multiple Satellite Data Sets, *Geoscience and Remote Sensing Letters*, 11, 965-969, doi: 10.1109/LGRS.2013.2283573, 2014.
 30. Wielicki, B.A and Co-authors of the entire CLARREO science team, Achieving Climate Change Absolute Accuracy in Orbit, *Bulletin of American Meteorological Society*, 94,

- 1519-1539. doi:10.1175/BAMS-D-12-00149.1, 2013.
29. *Chen, X.H., X.L. Huang, X. Liu*, The non-negligible effects of cloud vertical overlapping assumptions on the longwave spectral fingerprinting studies, *JGR-Atmospheres*, 118, 7309-7320, doi:10.1002/jgrd.50562, 2013.²
28. Renno, N.O. and Co-authors of the entire CHASER science team, CHASER: Clouds, Hazards, and Aerosols Survey for Earth Researchers, *Bulletin of American Meteorological Society*, 94(5), 685-694, doi:10.1175/BAMS-D-11-00239.1, 2013.
27. **Huang, X.L.**, *H.W. Chuang*, A. Dessler, *X.H. Chen*, K. Minschwaner, Y. Ming, V. Ramaswamy, Radiative-convective equilibrium perspective of the weakening of tropical Walker circulation in response to global warming, *Journal of Climate*, 26(5), 1643-1653, doi:10.1175/JCLI-D-12-00288.1, 2013.
26. **Huang, X.L.**, J. N.S. Cole, *F. He*, G.L. Potter, L. Oreopoulos, D.M. Lee, M. Suarez, N.G. Loeb, Longwave band-by-band cloud radiative effect and its application in GCM evaluation, *Journal of Climate*, 26(2), 450-467, doi:10.1175/JCLI-D-12-00112.1, 2013.
25. *Chen, X.H., X.L. Huang*, N. G. Loeb, H. L. Wei, Comparisons of clear-sky outgoing far-IR flux inferred from satellite observations and computed from three most recent reanalysis products, *Journal of Climate*, 26(2), 478-494, doi:10.1175/JCLI-D-12-00212.1, 2013.
24. Zhou, C., J. E. Penner, Y. Ming, and **X.L. Huang**, Aerosol forcing based on CAM5 and AM3 meteorological fields, *Atmospheric Chemistry and Physics*, 12, 9629-9652, doi:10.5194/acp-12-9629-2012, 2012.
23. **Huang, X.L.**, N. G. Loeb, *H.W. Chuang*, Assessing stability of CERES-FM3 daytime longwave unfiltered radiance with AIRS radiances, *Journal of Atmospheric and Oceanic Technology*, 29(3), 375-381, doi:10.1175/JTECH-D-11-00066.1, 2012.
22. Loeb, N. G., S. Kato, W. Su, T. Wong, F. G. Rose, D. R. Doelling, J. Norris, and **X.L. Huang**, Advances in Understanding Top-of-Atmosphere Radiation Variability from Satellite Observations, *Surveys in Geophysics*, doi:10.1007/s10712-012-9175-1, 2012.
21. **Huang, X.L.** and Y. L. Yung, Reply to Comments on "A common misunderstanding about the Voigt line profile", *Journal of the Atmospheric Sciences*, 69(1), 414-415, doi:10.1175/JAS-D-11-0186.1, 2012.
20. *Wang, C.P.*, Z. J. Luo, **X.L. Huang**, Parallax correction in collocating CLOUDSAT and MODIS observations: method and application to convection study, *Journal of Geophysical Research-Atmospheres*, 116, D17201, doi:10.1029/2011JD016097, 2011.
19. Kahn, B. H., J. Teixeira, E. J. Fetzer, A. Gettelman, S. M. Hristova-Veleva, **X.L. Huang**, A. K. Kochanski, M. Köhler, S. K. Krueger, R. Wood, and M. Zhao, Temperature and water vapor variance scaling in global models: Comparisons to satellite and aircraft data, *Journal of the Atmospheric Sciences*, 68(9), 2156-2168, 2011.
18. Su, H., J. H. Jiang, J. Teixeira, A. Gettelman, **X.L. Huang**, G. Stephens, D. Vane, and V. S. Perun, Comparison of regime-sorted tropical cloud profiles observed by CloudSat with GEOS5 analyses and two general circulation model simulations, *JGR-Atmospheres*, 116, D09104, doi:10.1029/2010JD014971, 2011.
17. *Chuang, H.W.*, **X.L. Huang**, and K. Minschwaner, Interannual variations of tropical upper tropospheric humidity and tropical rainy-region SST: comparisons between models,

² This article has been chosen as AGU Research Spotlight and reported on AGU newsletter, EOS.

- reanalyses, and observations, *JGR-Atmospheres*, 115, D21125, doi:10.1029/2010JD014205, 2010.
16. **Huang, X.L.**, N.G. Loeb, and W.Z. Yang, Spectrally resolved fluxes derived from collocated AIRS and CERES measurements and their application in model evaluation, Part II: cloudy sky and band-by-band cloud radiative forcing over the tropical oceans, *JGR-Atmospheres*, 115, D21101, doi:10.1029/2010JD013932, 2010.
 15. Keihm, S., S. Brown, S. Desai, W. Lu, C. Ruf, **X. Huang**, J. Teixeira, E. Fetzer, and Y. Yung, Ocean Water Vapor and Cloud Liquid Water Trends from 1992-2005 TMR Data, *JGR-Atmospheres*, 114, D18101, doi:10.1029/2009JD012145, 2009.
 - 14³. **Huang, X.L.**, and H. Su, Cloud radiative effect on tropical troposphere to strato sphere transport represented in a large-scale model, *Geophysical Research Letters*, 35, L21806, doi:10.1029/2008GL035673, 2008.
 13. LinHo, **X.L. Huang**, N.-C. Lau, Winter-to-Spring Transition in East Asia: A Planetary-Scale Perspective of the South China Spring Rain Onset, *Journal of Climate*, 21(13), 3081-3096, DOI:10.1175/2007JCLI1611.1, 2008.
 12. **Huang, X.L.**, W.Z. Yang, N.G. Loeb, and V. Ramaswamy, Spectrally resolved fluxes derived from collocated AIRS and CERES measurements and their application in model evaluation, Part I: clear sky over the tropical oceans, *Journal of Geophysical Research-Atmospheres*, 113, D09110, doi:10.1029/2007JD009219, 2008.
 11. **Huang, Y.**⁴, V. Ramaswamy, **X.L. Huang**, Q. Fu, and C. Bardeen, A strict test in climate modeling with spectrally resolved radiances: GCM simulation versus AIRS observations, *Geophysical Research Letters*, 34, L24707, doi:10.1029/2007GL031409.
 10. **Huang, X.L.**, V. Ramaswamy, and M. Daniel Schwarzkopf, Quantification of the source of errors in AM2 simulated tropical clear-sky outgoing longwave radiation, *Journal of Geophysical Research – Atmospheres*, 111, D14107, doi:10.1029/2005JD006576, 2006.
 9. Li, L., A.P. Ingersoll, **X.L. Huang**, Interaction of Moist Convection with Zonal Jets on Jupiter and Saturn, *Icarus*, 180(1), 113-123, doi:10.1016/j.icarus.2005.08.016, 2006.
 8. **Huang, X.L.**, B.J. Soden, and D.L. Jackson, Interannual co-variability of tropical temperature and humidity: a comparison of model, reanalysis data and satellite observation, *Geophysical Research Letters*, 32, L17808, doi:10.1029/2005GL023375, 2005
 7. Soden, B.J., D.L. Jackson, V. Ramaswamy, M.D. Schwarzkopf and **X.L. Huang**, The radiative signature of upper tropospheric moistening, *Science*, 310(5749), 841-844, 10.1126/science.1115602, 2005.
 6. Natraj, V., X. Jiang, R.-L. Shia, **X.L. Huang**, J.S. Margolis, and Y.L. Yung, The Application of Principal Component Analysis in Fast, Highly Accurate and High Spectral Resolution Radiative Transfer Modeling: A Case Study of the O₂ A-band, *Journal of Quantitative Spectroscopy and Radiative Transfer*, 95(4), 539-556, 2005.
 5. **Huang, X.L.**, and Y. L. Yung, Spatial and spectral variability of the outgoing thermal IR spectra from AIRS: A case study of July 2003, *Journal of Geophysical Research – Atmospheres*, 110 (6), D12102, doi:10.1029/2004JD005530, 2005.
 4. **Huang, X.L.**, and Y. L. Yung, A common misunderstanding about the Voigt line profile, *Journal of the Atmospheric Sciences*, 61(13), pp. 1630-1632, July 2004.

³ This article has been selected as Editor's highlight article on *Geophysical Research Letters*

⁴ Huang Yi was then a graduate student at Princeton University to whom I provided significant guidance during my stay at the same university. The guidance directly resulted in this peer-reviewed publication.

3. **Huang, X.L.**, J.J. Liu, and Y.L. Yung, Analysis of thermal emission spectrometer data using spectral EOF and tri-spectral methods, *Icarus*, 165(2), pp.301-314, October 2003.
2. **Huang, X.L.**, Y.L. Yung, J.S. Margolis, Use of High-Resolution Measurements for the Retrieval of Temperature and Gas-Concentration Profiles from Outgoing Infrared Spectra in the Presence of Cirrus Clouds, *Applied Optics*, 42(12), pp. 2155-2165, April 2003.
1. **Huang, X.L.**, J. Farrara, S. S. Leroy, Y. L. Yung, and R. M. Goody, Cloud Variability as Revealed in Outgoing Infrared Spectra: Comparing Model to Observation with Spectral EOF Analysis, *Geophys. Res. Lett.*, 29(8), doi:10.1029/2001GL014176, 2002.

Submitted

1. DeSouza-Machado, S., S. Havemann, J. Vidot, **X. L. Huang**, R. Wilson, E. Manning, G. Liuzzi, G. Masiello, C. Serio, I. Moradi, X. Liu, V. Natraj, Y. Yung, X. H. Chen, A. Geer, L. Strow, E. Fishbein, Evaluation of cloudy Radiative Transfer Models: Performance Metrics, submitted to Journal of Geophysical Research.
2. Pan, F., **X. L. Huang**, The spectral dimension of relative humidity feedbacks in the CMIP5 experiments, submitted to Journal of Climate.
3. Tan, G. L., P. Yang, G. W. Kattawar, **X. L. Huang**, E. J. Mlawer, B. A. Baum, Improvement of the simulation of cloud longwave scattering in broadband radiative transfer simulations in climate models, submitted to Journal of Climate.

Peer-reviewed Book Chapter

R Goody and **X Huang**, 2015, Absorption and Thermal Emission. In: Gerald R. North (editor-in-chief), John Pyle and Fuqing Zhang (editors). *Encyclopedia of Atmospheric Sciences*, 2nd edition, Vol 5, pp. 5–12. ISBN: 9780123822253

H-index: 16 (from Google scholar)/12 (from Web of Science)

Seminars and Invited Talks and Lectures (* for invited)

44. *Department of Chemical Engineering, University of Iowa, April 27, 2017
43. Department of Meteorology, University of Reading, Reading, UK, October 17, 2016.
42. China University of Geosciences, Wuhan, China, August 10, 2016.
41. Institute of Geodesy and Geophysics, Chinese Academy of Sciences, Wuhan, China, August 08, 2016
40. * DoE ACME (Accelerated Climate Model for Energy) PI meeting, Rockville, MD, June 08, 2016.
40. School of Environmental Sciences and Engineering, South Univ. of Science and Technology of China, Shenzhen, China, March 30, 2016.
39. Atmospheric, Chemistry, Dynamics and Radiation Seminar Series, JPL/Caltech, Oct 26, 2015.
38. Yuk Lunch Special Seminar, Division of Geological and Planetary Science, Caltech, Oct 23, 2015
37. Seminar series, Geophysical Fluid Dynamics Lab, NOAA, July 22, 2015
36. * Weekly seminar, Research Center for Environmental Changes, Academia Sinica, Taiwan, Republic of China, June 17, 2015
35. Weekly seminar, PCMDI (Program for Climate Model Diagnostics and Intercomparisons), Lawrence Livermore National Laboratory, May 12, 2015
34. Seminar series, Geophysical Fluid Dynamics Lab, NOAA, July 02, 2014
33. * Weekly seminar, Research Center for Environmental Changes, Academia Sinica, Taiwan,

- Republic of China, May 21, 2014
32. * Departmental seminar, Department of Atmospheric Sciences, National Central University, Taiwan, Republic of China, May 13, 2014
 31. *Departmental seminar, Department of Atmospheric Sciences, National Taiwan University, Taiwan, Republic of China, May 08, 2014
 30. *Departmental seminar, Department of Meteorology, Pennsylvania State University, State College, PA, October 31, 2013
 29. Atmospheric and Oceanic Research Institute, Tokyo University, Japan, August 2013
 28. Laboratory for Middle Atmosphere and Global Environment Observation, Institute of Atmospheric Physics, China Academy of Sciences, August 2012
 27. The Center of Earth System Sciences, Tsinghua University, China, August 2012
 26. Department of Atmospheric and Oceanic Sciences, Peking University, China, August 2012
 25. Departmental seminar, Dept. of Atmos. Sci., Texas A&M University, March 2012
 24. Seminar series, Geophysical Fluid Dynamics Lab, NOAA, July 20, 2011
 23. Department of Oceanic Meteorology, Ocean University of China, June 2011
 22. Department of Atmospheric and Oceanic Sciences, Peking University, June 2011
 21. *Departmental seminar, Dept. of Atmos. Sci., Texas A&M University, September 28, 2010
 20. Shanghai Typhoon Institute, China Meteorological Administration, August 2, 2010
 19. Anhui Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, July 29, 2010
 18. Institute of Atmospheric Physics, Chinese Academy of Sciences, July 27, 2010
 17. NOAA CREST center at City College of New York Seminar Series, Jun 10, 2010
 16. NASA JPL Atmospheric Chemistry, Dynamics, and Radiation Seminar Series, May 28, 2010
 15. * (2-hour lecture) Observed and modeled radiative impact of tropical tropopause cirrus on troposphere-to-stratosphere transport. *The Beijing International Summer School (BISS) on Climate Environment (2009): Climate Dynamics and Physics*, Beijing, China, August 10-19, 2009
 14. * (2-hour lecture) *Matchmaking of climate observations and climate models: where shall they meet? The Beijing International Summer School (BISS) on Climate Environment (2009): Climate Dynamics and Physics*, Beijing, China, August 10-19, 2009
 13. * 52nd Annual Conference on Great Lakes Research, session 22 *Climate Variability and Its Impacts on Environment and Ecosystems in the Great Lakes Region*, Ohio, 05/2009
 12. Applied Physics Program, University of Michigan, 12/2008
 11. Institute of Atmospheric Physics, China Academy of Science, China, 10/2008
 10. School of Earth and Space Sciences, University of Science & Technology of China, China, 10/2008
 9. Anderson's Group, Earth and Planetary Sciences, Harvard University, 07/2007
 8. Department of Atmospheric, Oceanic, and Space Sciences, University of Michigan, 03/2007
 7. *Department of Physics Seminar, University of Maryland at Baltimore County, 05/2006
 6. *Department of Environmental Sciences Seminar, Rutgers, the State University of New Jersey, 02/2006
 5. *Department of Atmospheric, Oceanic, and Space Sciences Seminar, University of Michigan, 02/2006
 4. *Atmospheric Science Seminar, the University of Arizona, 04/2005
 3. *Formal Seminar, Geophysical Fluid Dynamics Laboratory, NOAA, 10/2003
 2. *AIRS (Atmospheric Infrared Sounder) team seminar, JPL, 09/2003
 1. AIRS (Atmospheric Infrared Sounder) team seminar, JPL, 08/2002

Awards and Honors

- NASA Langley's 2015 Henry J.E. Reid Award
- AOSS Departmental Outstanding Merit Faculty Award, the University of Michigan, 2015
- AOS postdoctoral fellowship, Princeton University, 12/2003
- Top of graduating class, 1997 USTC (One per department)

Selected Conference Abstracts and Proceedings

(advisees are highlighted with underlines)

- **X. L. Huang**, X. H. Chen, M. Flanner, P. Yang, D. Feldman, C. Kuo, Reducing the biases in simulated polar climate by incorporating realistic surface spectral emissivity into the global climate model, Abstract C12B-06, 2017 Fall AGU meeting, New Orleans, Dec 11-15, 2017.
- C. Kuo, D. Feldman, **X. L. Huang**, M. Flanner, P. Yang, X. H. Chen, Temporal Arctic longwave surface emissivity feedbacks in the Community Earth System Model, Abstract GC53E-0935, 2017 Fall AGU meeting, New Orleans, Dec 11-15, 2017.
- Y.-H. Chen, C.-P. Kuo, **X. L. Huang**, P. Yang, X. H. Chen, The influence of Cloud Longwave Scattering together with a state-of-the-art Ice Longwave Optical Parameterization in Climate Model Simulations, Abstract A31E-2238, 2017 Fall AGU meeting, New Orleans, Dec 11-15, 2017.
- C. Bellisario, H. E. Brindley, J. E. Murray, A. Last, J. Pickering, C. Harlow, S. Fox, C. Fox, M. Smith, D. Anderson, **X. L. Huang**, X. H. Chen, Retrievals of the Far Infrared emissivity of snow over the Greenland Plateau using the Tropospheric Airborne Fourier Transform Spectrometer (TAFTS), Abstract C21D-1143, 2017 Fall AGU meeting, New Orleans, Dec 11-15, 2017.
- X. H. Chen, **X. L. Huang**, N. G. Loeb, X. Q. Dong, B. K. Xi, E. Dolinar, M. G. Bosilovich, S. Kato, W. L. Smith, P. W. Stackhouse, A clear-sky hyperspectral closure study for MERRA-2 and ERA-interim reanalyses, Abstract A31F-2249, 2017 Fall AGU meeting, New Orleans, Dec 11-15, 2017.
- S.-H. Ham, N. G. Loeb, S. Kato, F. G. Rose, M. G. Bosilovich, D. A. Rutan, **X. L. Huang**, A. Collow, Clear-sky irradiance simulation using GMAO products and its comparison to ground and CERES satellite observation, Abstract A31F-2250, 2017 Fall AGU meeting, New Orleans, Dec 11-15, 2017.
- C.-P. Kuo, P. Yang, **X. L. Huang**, D. Feldman, M. Flanner, C. Kuo, E. J. Mlawer, The potential influence of multiple scattering on longwave flux and heating rate simulations with clouds, Abstract A31D-2201, 2017 Fall AGU meeting, New Orleans, Dec 11-15, 2017.
- Z. Fair, **X. L. Huang**, J.F. Wang, Y. Deng, The Applicability of Maximum Entropy Production Theory for Turbulent Heat Flux Modeling Over the Arctic, Abstract A53G-2354, 2017 Fall AGU meeting, New Orleans, Dec 11-15, 2017.
- **Huang, X.L.**, X. H. Chen, M. Flanner, P. Yang, D. Feldman, C. Kuo, Improved Representation of Surface Spectral Emissivity in the GCM and its Impact on the Simulated Climate, AS18-A007, 2017 AOGS meeting, Singapore, Singapore, August 7-11, 2017.
- F. Pan, **X. L. Huang**, S. S. Leroy, P. Lin, Y. Ming, V. Ramaswamy, D. Feldman, M. Flanner, The stratospheric changes inferred from 10 years of AIRS and AMSU-A radiances, Abstract A43J-05, 2016 Fall AGU meeting, San Francisco, CA, Dec 12-16, 2016.
- A. M. Schneider, M. Flanner, P. Yang, B.q. Yi, **X. L. Huang**, D. Feldman, How Can Polarization States of Reflected Light from Snow Surfaces Inform Us on Surface Normals and Ultimately Snow Grain Size Measurements, Abstract C33B-0790, 2016 Fall AGU meeting, San Francisco, CA, Dec 12-16, 2016.
- C.-P. Kuo, P. Yang, **X. L. Huang**, D. Feldman, M. Flanner, The impacts of light scattering by

- clouds on longwave radiative transfer, Abstract A33F-0309, 2016 Fall AGU meeting, San Francisco, CA, Dec 12-16, 2016.
- X. H. Chen, **X. L. Huang**, M. Flanner, P. Yang, D. Feldman, C. Kuo, Incorporating realistic surface longwave spectral emissivity in the CESM and the impact on simulated current climate and climate changes, Abstract A33D-0241, 2016 Fall AGU meeting, San Francisco, CA, Dec 12-16, 2016.
 - C. Kuo, D. Feldman, **X. L. Huang**, M. Flanner, X. H. Chen, P. Yang, C. P. Kuo, Radiative Forcing from Emissivity Response in Polar Regions, Abstract A33B-0219, 2016 Fall AGU meeting, San Francisco, CA, Dec 12-16, 2016.
 - Q. Yue, B. H. Kahn, E. J. Fetzer, S. Wong, **X. L. Huang**, M. M. Schreier, Short-term Cloud Radiative Feedback from A-Train Using the Observation-based Cloud Radiative Kernel Method, Abstract A33B-0218, 2016 Fall AGU meeting, San Francisco, CA, Dec 12-16, 2016.
 - Y.-H. Chen, X.H. Chen, **X. L. Huang**, M. Flanner, The Effects of Surface Longwave Emissivity on Atmospheric Circulation and Convection at Sahara and Sahel Regions, Abstract A31F-0101, 2016 Fall AGU meeting, San Francisco, CA, Dec 12-16, 2016.
 - (invited) **Huang, X.L.**, On the Use of Hyperspectral Observations in Climate Studies: Unveiling a Hidden Dimension, HW2F.2, 2016 HISE Meeting, Leipzig, Germany, Nov 14-17, 2016.
 - **Huang, X.L.**, X.H. Chen, D. K. Zhou, X. Liu, A Hybrid Global Surface Spectral Emissivity Dataset for Hyperspectral Radiance Simulator and Climate/weather Models, HW3E.5, 2016 HISE Meeting, Leipzig, Germany, Nov 14-17, 2016.
 - **Huang, X.L.**, Spectrum: An Underutilized Dimension in Weather and Climate Model Evaluations, Abstract AS24-019, 2016 AOGS Meeting, Beijing, China, July 31-August 05, 2016.
 - Chen, X.H., **X.L. Huang**, Assessing the Impact of Surface Emissivity Treatments in the CESM on Simulated Climate Change in Response to a Doubling of CO₂, Abstract AS24-A005, 2016 AOGS Meeting, Beijing, China, July 31-August 05, 2016.
 - Chen, Y.-H., X.H. Chen, **X.L. Huang**, M. Flanner, The Effects of Surface Longwave Emissivity on Atmospheric Circulation and Convection at Sahara and Sahel Regions, Abstract AS24-A012, 2016 AOGS Meeting, Beijing, China, July 31-August 05, 2016.
 - Pan, F., **X.L. Huang**, X.H. Chen, The spectral details of observed and simulated short-term feedbacks of El Niño-Southern Oscillation, Abstract A51C-57, 2015 Fall Meeting, AGU, San Francisco, California, December 14-18, 2015.
 - Cheng, H.Z., X. H. Chen, **X.L. Huang**, Quantification of the errors associated with the representation of surface emissivity in atmospheric models, Abstract A53B-0376, 2015 Fall Meeting, AGU, San Francisco, California, December 14-18, 2015.
 - Chen, X. H., **X.L. Huang**, et al., Running climate model in the commercial cloud computing environment: A case study using Community Earth System Model (CESM), Abstract A33A-123, 2015 Fall Meeting, AGU, San Francisco, California, December 14-18, 2015.
 - Kuo, C., D. Feldman, P. Yang, M. Flanner, **X.L. Huang**, Benchmarking longwave multiple scattering in cirrus environments, A53B-381, 2015 Fall Meeting, AGU, San Francisco, California, December 14-18, 2015.
 - Kuo, C.-P., P. Yang, **X.L. Huang**, D. Feldman, M. Flanner, Impact of Multiple Scattering on Infrared Radiative Transfer involving Ice Clouds, A51T-08, 2015 Fall Meeting, AGU, San Francisco, California, December 14-18, 2015.
 - Schneider, A., M. Flanner, P. Yang, B.q. Yi, **X.L. Huang**, D. Feldman, Monte Carlo Photon Modeling to Explore the Dependence of Snow Bidirectional Reflectance on Grain Shape and Size, C31C-0819, 2015 Fall Meeting, AGU, San Francisco, California, December 14-18, 2015.

- **Huang, X.L.**, X.H. Chen, D.K. Zhou, X. Liu, An Observationally Based Global Band-by-Band Surface Emissivity Dataset for Climate and Weather Modeling Effort, Abstract A51T-10, 2015 Fall Meeting, AGU, San Francisco, California, December 14-18, 2015.
- Pan, F., **X.L. Huang**, The spectral details of observed and simulated short-term feedbacks of El Niño-Southern Oscillation, Abstract AS16-A006, the AOGS 12th Annual Meeting, Singapore, August 02-07, 2015.
- Chen, X.H. and **X.L. Huang**, Derivation of clear-sky longwave spectral flux solely from hyperspectral observations: a case study with AIRS observations, 2015 HISE (Hyperspectral Imaging and Sounding of Environments) meeting, Optical Society of America, March 1-4, 2015.
- **Huang, X.L.**, X.H. Chen, B. J. Soden, and X. Liu, Spectral Radiative Kernel and the Spectrally Resolved Longwave Feedbacks in the CMIP3 and CMIP5 Experiments, Abstract A21H-3122, 2014 Fall Meeting, AGU, San Francisco, California, December 15-19, 2014.
- Chen, X.H., **X.L. Huang**, M. G. Flanner, Sensitivity of Modeled Far-IR Radiation Budgets in Polar Continents to Treatments of Snow Surface and Ice Cloud Radiative Properties, Abstract C43B-0388, 2014 Fall Meeting, AGU, San Francisco, California, December 15-19, 2014.
- Pan, F., **X.L. Huang**, X.H. Chen, H. Guo, Stratospheric Temperature Trends in the 11 Years of AIRS Spectral Radiance Observations, Abstract A23K-3409, 2014 Fall Meeting, AGU, San Francisco, California, December 15-19, 2014.
- *Feldman, D., W. D. Collins, **X.L. Huang**, X. H. Chen, V. Walden, Far-Infrared Surface Emissivity Impacts on Climate and the Potential for a Positive Feedback, Abstract A42E-08, 2014 Fall Meeting, AGU, San Francisco, California, December 15-19, 2014.
- Yue, Q., E. Fetzer, M. Schreier, B. Kahn, **X.L. Huang**, Cloud Radiative Effect by Cloud Types Based on Radiative Transfer Model Calculations and Collocated A-Train Data, Abstract A41L-08, 2014 Fall Meeting, AGU, San Francisco, California, December 15-19, 2014.
- (invited) **Huang, X.L.**, Sensitivity of modeled far-IR radiation budgets in polar continents to treatments of snow surface and ice cloud radiative properties, the 3rd CCLiCS Workshop on Climate System Modeling, Research Center on Environmental Changes, Academia Sinica, Taipei, November 11, 2014.
- **Huang, X.L.**, F. Pan, Trend and variability of lower stratosphere in the 11 years of AIRS spectral radiance observations, Abstract AS14-A008, AOGS 2014, Sapporo, Japan, July 28-August 01, 2014.
- ***Huang, X.L.**, Spectral radiative kernel technique and the spectral dimension of radiative feedback, the 14th Conference on Atmospheric Radiation by AMS, Boston, MA, July 7-11, 2014.
- Chen, X.H., **X.L. Huang**, X. Liu, Climate OSSE with full-treatment of sub-grid cloud variability and its application in longwave spectral fingerprinting studies, Abstract A21B-0012, 2013 Fall Meeting, AGU, San Francisco, California, December 9-13, 2013.
- **Huang, X.L.**, X.H. Chen, N. G. Loeb, G. L. Potter, L. Oreopoulos, D.M. Lee, J. N. Cohen, A global climatology of outgoing longwave spectral cloud radiative effective, IR-effective cloud top height, and IR-effective cloud amount, Abstract A43B-0252, 2013 Fall Meeting, AGU, San Francisco, California, December 9-13, 2013.
- Liu, X., D. K. Zhou, A. Larar, H. Li, W. Wu, S. Kizer, **X. L. Huang**, Satellite Remote Sensing Hyperspectral Data Simulator, Abstract A51E-0077, 2013 Fall Meeting, AGU, San Francisco, California, December 9-13, 2013.
- **Huang, X.L.**, Derivation of spectrally resolved flux from hyperspectral sounding measurements: algorithms, validation, and application, The 3rd International Symposium on Atmospheric Light Scattering and Remote Sensing, Nagoya, Japan, July 29-August 2, 2013.

- **Huang, X.L.**, Some thoughts on constraining the ice cloud feedback over the tropical Pacific in future climate change, the 19th CERES-II Science Team Meeting, Hampton, Virginia, May 7-9, 2013.
- **Huang, X.L.**, Linear stochastic modeling of the TOA longwave radiation: a modeling perspective, CLARREO 2013 Spring Science Team Meeting, Hampton, Virginia, April 16-18, 2013.
- **Huang, X.L.**, H.W. Chuang, A. Dessler, X.H. Chen, K. Minschwaner, Y. Ming, V. Ramaswamy, A radiative-convective equilibrium perspective of the weakening of tropical Walker circulation in response to global warming, Abstract A21E-0109, 2012 Fall Meeting, AGU, San Francisco, California, December 3-7, 2012.
- Wang, C.P., Z.Z. Luo, X.H. Chen, X.P. Zeng, W.-K. Tao, **X.L. Huang**, A physically based algorithm for non-blackbody correction of the cloud top temperature for the convective clouds, Abstract A41J-0108, 2012 Fall Meeting, AGU, San Francisco, California, December 3-7, 2012.
- Chen, X.H., **X.L. Huang**, N.G. Loeb, H.L. Wei, Clear-sky outgoing far-IR spectral flux inferred from satellite observations over near globe and their usage in evaluating state-of-the-art reanalyses, Abstract A53I-0248, 2012 Fall Meeting, AGU, San Francisco, California, December 3-7, 2012.
- Wang, C.P., Z.Z. Luo, **X.L. Huang**, X.H. Chen, X.P. Zeng, W.-K. Tao, A physically based algorithm for non-blackbody correction of the cloud top temperature for the convective clouds, SPIE Asia-Pacific Remote Sensing 2012, Kyoto, Japan, October 29-November 1, 2012 .
- **Huang, X.**, J. Cole, F. He, G.L. Potter, L. Oreopoulos, D.M. Lee, M. Suarez, and N. Loeb, Band-by-band cloud radiative effect and its application in GCM evaluation and cloud feedback studies, International Radiation Symposium 2012, IRS2012-125, Berlin, Germany, August 06-10, 2012.
- Chen, X. H., **X. Huang**, N. G. Loeb, H.L. Wei, Comparison of clear-sky outgoing far-IR flux inferred from satellite observations and computed from three newest reanalysis data sets, International Radiation Symposium 2012, IRS2012-47, Berlin, Germany, August 06-10, 2012.
- **Huang, X.**, H.W. Chuang, Y. Ming, and G.L. Potter (2012), A constraint for ice cloud feedback over the tropical Pacific in future climate change, Geophysical Research Abstract, Vol 14, EGU2012-6623, EGU General Assembly, Vienna, Austria, April 22-27, 2012.
- Wang, C., Z. Luo and **X. Huang**, Parallax correction for satellite-based study of convections: methods, statistics, and a case study with MJO development, Abstract A23D-0205, 2011 Fall Meeting, AGU, San Francisco, California, December 5-9, 2011.
- Chuang, H., **X. Huang**, Y. Ming and G. Potter (2011), A robust relation between interannual variations of ice water content and that of large-scale circulation over the tropical Pacific basin, Abstract GC41A-0783, 2011 Fall Meeting, AGU, San Francisco, California, December 5-9, 2011.
- Zhou C., J. Penner, Y. Ming, **X. Huang**, M. Flanner and C. Jiao (2011), Differences in the transport of aerosols to the Arctic: Analysis of NCAR CAM5 & GFDL AM3 models and their prediction of snow and ice forcing and the aerosol direct and indirect effect, Abstract A44D-03, 2011 Fall Meeting, AGU, San Francisco, California, December 5-9, 2011.
- Song, L., **X. Huang** (2011), A solely radiance-based spectral anisotropic distribution model and its application in deriving clear-sky spectral fluxes, Abstract A51A-0212, 2011 Fall Meeting, AGU, San Francisco, California, December 5-9, 2011.
- He, F., **X. Huang**, G. Potter and J. Cole (2011), Conceptual models on spectral radiative

- forcing and spectral cloud radiative effect, Abstract A51A-0272, 2011 Fall Meeting, AGU, San Francisco, California, December 5-9, 2011.
- **Huang X.**, F. He, G. Potter, J. Cole, L. Oreopoulos, M. Suarez and D. Lee (2011), Using band-by-band cloud radiative effect to evaluate GCMs and study cloud feedback, Abstract GC53A-07, 2011 Fall Meeting, AGU, San Francisco, California, December 5-9, 2011.
 - **Wang, C.**, Z. Luo, and **X. L. Huang**, Parallax correction and its application in satellite-based estimation of convective buoyancy, CloudSat/CALIPSO Science Team Meeting, Montreal, Quebec, Canada, June 15-17, 2011
 - **Huang, X.**, L. Song, Some thoughts on the linearity of spectral radiances averaged over large spatial domain and long time scale, 2011 CLARREO Science Team Meeting, May 17-19, Virginia, 2011
 - **Huang, X.**, **H. Chuang**, et al., The seasonality and interannual variations of band-by-band CRF in the tropics: observations versus gcms, the 15th CERES Science Team Meeting, April 26-28, Virginia, 2011
 - **Huang, X.**, **H. Chuang**, et al., Longwave band-by-band cloud radiative forcing over the tropical oceans from 2003 to 2007: observations vs. simulations, Abstract A11C-0052, 2010 Fall Meeting, AGU, San Francisco, California, December 13-17, 2010
 - **Chuang, H.** and **X. Huang**, Simulated atmospheric bridge across tropical ocean basins and its sensitivity to seasonal evolution in current and future climate regimes, Abstract A11C-0051, 2010 Fall Meeting, AGU, San Francisco, California, December 13-17, 2010
 - **Kahn, B.H.**, J. Teixeira, E. Fetzer, A. Gettelman, S.M. Hristova-Veleva, **X. Huang**, A. Kochanski, S.K. Krueger, R. Wood, and M. Zhao, Temperature and water vapor variance scaling from the Atmospheric Infrared Sounder, climate models, and aircraft data (Invited), Abstract A12B-03, 2010 Fall Meeting, AGU, San Francisco, California, December 13-17, 2010
 - **Huang, X.**, W.Z. Yang, et al., Synergy of CERES and AIRS in the study of band-by-band radiation budgets and cloud radiative forcings , 2010 A-Train Symposium, New Orleans, Louisiana, October 25-28, 2010.
 - **Huang, X.**, Integrating Climate Model Simulations into CLARREO Mission Studies, NASA CLARREO Science Team Meeting, Hampton, Virginia, July 6-10, 2010
 - **Huang, X.**, N. Loeb, W.Z. Yang, Band-by-band longwave flux and cloud radiative forcing at the top of atmosphere: observation vs. simulation, the 13th Conference on Atmospheric Radiation, Portland, Oregon, June 28-July 2, 2010
 - **Huang, X.**, N. Loeb, W.Z. Yang, Longwave Spectral Anisotropic Distribution Model, Spectral Flux, and Band-by-Band Cloud Radiative Forcing Synergy of MODTRAN5 and Coincidental AIRS and CERES Measurements, the 32nd Review of Atmospheric Transmission Models Meeting, Lexington, Massachusetts, June 14-15, 2010
 - **Huang, X.** and M. Zhao, Biases in Observationally Estimated Cloud Radiative Forcing: A Perspective from Multi-Year High-Resolution GCM Simulations, the 13th CERES Science Team Meeting, Newport News, Virginia, April 27-29, 2010
 - **Huang, X.**, Y. Deng, Fingerprints of the North American Great Lakes on simulated wintertime climate: beyond the regional impact, the 22th conference on climate variability and change in the 90th annual meeting of American Meteorological Society, Atlanta, GA, 2010
 - **Chuang, H.**, H. Su, **X. Huang**, J. H. Jiang, and W. Read, Interannual variations and climate change projections of upper tropospheric water vapor in different tropical ocean basins, the 22th conference on climate variability and change in the 90th annual meeting of

American Meteorological Society, Atlanta, GA, 2010

- **Huang, X.** and N. G. Loeb, Synergy Between AIRS and CERES on Aqua: Reflections on Additional Information Content of CLARREO IR measurements, *Eos Trans. AGU*, 90(52), Fall Meet. Suppl., Abstract GC52A-08, 2009
- Chen, B., J. Duan, R. Pierrehumbert, and **X. Huang**, Stochastic Modeling of Water Vapor in the Climate System, *Eos Trans. AGU*, 90(52), Fall Meet. Suppl., Abstract A33E-01, 2009
- Su, H., H. Chuang, **X. Huang**, J. H. Jiang, W. G. Read, The Relationships of Upper Tropospheric Water Vapor with Atmospheric Temperature, SST and Clouds in Different Tropical Ocean Basins, *Eos Trans. AGU*, 90(52), Fall Meet. Suppl., Abstract A41B-086, 2009
- **Huang, X.** and N. G. Loeb, The Climatology and Interannual Variation of Band-By-Band Longwave Cloud Radiative Forcing: Model vs. Observations the 12th CERES Science Team Meeting, Fort Collins, Colorado, Nov. 2009.
- Su, H., J. Jiang, J. Teixeira, A. Gettelman, **X. Huang**, G. Stephens, and D. Vane, Evaluate cloud simulations in climate models using CloudSat observations, CloudSat/Calipso Science workshop, Madison, Wisconsin, July 2009
- **Huang, X.**, and Y. Deng, The role of Great Lakes in simulating winter temperature of the Midwest: a large-scale modeling perspective, *EOS Trans. AGU*, 90(22), Jt. Assem. Suppl., Abstract GC23B-02, 2009
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