**Jih-Wang Aaron Wang**

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Education

Ph.D. Atmospheric and Oceanic Sciences, University of Colorado at Boulder, 2012

**Research Focus:** Tropical Cyclone Impacts, Air-Sea Interactions, Ocean Modeling

**Dissertation:** Impact of Tropical Cyclones on Ocean Heat Budget and Upper Ocean Dynamics in the Bay of Bengal during 1999

M.S. Atmospheric Science, Colorado State University, 2005

**Research Focus:** Carbon Cycle, Land Surface Modeling, Regional Atmospheric Modeling

**Thesis:** Observations and Simulations of Synoptic, Regional, and Local Variations in Atmospheric CO2

B.S. Atmospheric Sciences, National Taiwan University, 2000

**Operating Systems / Programming Languages / Other Softwares**

Microsoft Windows (25+ years), Linux/Unix (20+ years), C/TC Shell Scripts (10+ years), C/C++ (20+ years), Fortran (20+ years), IDL (15+ years), Java (1 year), Microsoft Office (20+ years)

**Modeling Experiences**

Simple Biosphere–Regional Atmospheric Modeling System (SiB-RAMS), Hybrid Coordinate Ocean Model (HYCOM), NCEP Global Forecast System (GFS), Community Earth System Model (CESM), Finite Volume GFS (FV3-GFS), and Weather Research and Forecasting Model (WRF)

Peer-Reviewed Publications

**Wang, J.-W. A.**, and P. D. Sardeshmukh, 2020: Inconsistent Global Kinetic Energy Spectra in Reanalyses and Models. Submitted.

**Wang, J.-W. A.**, P. D. Sardeshmukh, G. P. Compo, J. S. Whitaker, L. Slivinski, P. Pegion, and C. McColl, 2019: Sensitivities of the NCEP Global Forecast System. *Mon. Weather Rev.*, 147(4), 1237-1256. DOI:10.1175/MWR-D-18-0239.1.

Slivinski, L., G. P. Compo, J. S. Whitaker, P. D. Sardeshmukh, **J.-W. A. Wang**, K. Howard, and C. McColl, 2019: What Is the Impact of Additional Tropical Observations on a Modern Data Assimilation System? *Mon. Weather Rev.,* 147(7), 2433-2449. DOI:10.1175/MWR-D-18-0120.1.

Sardeshmukh, P. D. and **J.-W. A. Wang**, 2019: Dynamic versus Thermodynamic control of changes in mean and extreme precipitation. To be submitted.

Sardeshmukh, P. D., L. Magnusson, J. Bacmeister, **J.-W. A. Wang**, 2019: Sufficient Resolution for Climate Models. To be submitted.

Sardeshmukh, P. D. **J.-W. A. Wang**, and J. Bacmeister, 2019: Energy spectra and multi-scale interactions in the global atmosphere. To be submitted.

Li, Y., W. Han, T. Shinoda, C. Wang, M. Ravichandran, **J.-W. Wang**, 2014: Revisiting the Wintertime Intraseasonal SST Variability in the Tropical South Indian Ocean: Impact of the Ocean Interannual Variation. *J. Phys. Oceanogr.*, 44, 1886-1907, doi:10.1175/JPO-D-13-0238.1.

**Wang, J.-W.** and Han, W., 2014: The Bay of Bengal Upper-Ocean Response to Tropical Cyclone Forcing during 1999. *J. Geophys. Res. – Oceans*, 119, 1-23, doi:10.1002/2013JC008965.

Li, Y., W. Han, T. Shinoda, C. Wang, R.-C. Lien, J. N. Moum, and **J.-W. Wang**, 2013: Effects of Solar Radiation Diurnal Cycle on the Tropical Indian Ocean Mixed Layer Variability during Wintertime Madden-Julian Oscillation Events. *J. Geophys. Res.*, 118, 4945-4964, DOI:10.1002/jgrc.20395.

**Wang, J.-W.**, W. Han, and R. L. Sriver, 2012: Impact of Tropical Cyclones on Ocean Heat Budget in the Bay of Bengal during 1999. Part I: Model Configuration and Evaluation. *J. Geophys. Res. – Oceans,* 117, Article No. C09020, doi:10.1029/2012JC008372.

**Wang, J.-W.**, W. Han, and R. L. Sriver, 2012: Impact of Tropical Cyclones on Ocean Heat Budget in the Bay of Bengal during 1999. Part II: Processes and Interpretations. *J. Geophys. Res. – Oceans,* 117, Article No. C09021, doi:10.1029/2012JC008373.

## Han, W., G. A. Meehl, B. Rajagopalan, J. T. Fasullo, A. Hu, J. Lin, W. G. Large, J.-W. Wang, X.-W. Quan, and L. L. Trenary, 2010: [Patterns of Indian Ocean sea-level change in a warming climate.](http://www.nature.com/ngeo/journal/v3/n8/full/ngeo901.html) Nature Geoscience **3**, 546-550 (11 July 2010) doi:10.1038/ngeo901 Letter.

Corbin, K. C., A. S. Denning, L. Lu, **J.-W. Wang**, and I. T. Baker, 2008: Possible Representation Errors in Inversions of Satellite CO2 Retrievals. *Journal of Geophysical Research,* Vol. 113, D02301, 11 PP., doi:10.1029/2007JD008716.

Alkhaled, A. A., A. M. Michalak, S. R. Kawa, S. C. Olsen, and **J.-W. Wang**, 2008: A global evaluation of the regional spatial variability of column integrated CO2 distributions. *Journal of Geophysical Research,* Vol. 113, D20303, 17 PP., doi:10.1029/2007JD009693.

**Wang, J.-W.**, K. Wang, R. A. Pielke Sr., J. C. Lin, and T. Matsui, 2008: Towards a robust test on North America warming trend and precipitable water content increase. *Geophysical Research Letters,* Vol. 35, L18804, doi:10.1029/2008GL034564.

**Wang, J.-W.**, A. S. Denning, L. Lu, I. T. Baker, K. D. Corbin, and K. J. Davis, 2007: Observations and simulations of synoptic, regional, and local variations in atmospheric CO2. *Journal of Geophysical Research,* 112, D04108, doi:10.1029/2006JD007410.

Pielke Sr., R. A., D. Stokowski, **J.-W. Wang**, T. Vukicevic, G. Leoncini, T. Matsui, C. Castro, D. Niyogi, C.M. Kishtawal, A. Biazar, K. Doty, R.T. McNider, U. Nair, and W.K. Tao, 2007: Satellite-based model parameterization of diabatic heating. *EOS,* Vol. 88, No. 8, 20 February, 96-97.

Pielke Sr., R. A., G. Leoncini, T. Matsui, D. Stokowski, **J.-W. Wang**, T. Vukicevic, C.L. Castro, D. Niyogi, C.M. Kishtawal, A. Biazar, K. Doty, R.T. McNider, U. Nair, and W.-K. Tao, 2006: Development of generalized parameterization of diabatic heating for use in weather and climate models. Atmospheric Science Paper No. 776, Colorado State University, Fort Collins, CO 80523, 15 pp.

Select Conference Proceedings

Wang, J.-W. A., P. D. Sardeshmukh, 2019-12-9: **Can the realism of high-resolution models be gauged by comparing simulated with observed KE spectra?**. *AGU Fall Meeting 2019*, San Francisco, California, USA

Wang, J.-W. A., P. D. Sardeshmukh, 2020-1-14: **Challenges in improving the representation of mesoscale kinetic energy in NWP models**. *AMS Annual Meeting 2020*, Boston, Massachusetts, USA

Wang, J.-W. A., P. D. Sardeshmukh: [**Why can't models get the mesoscale atmospheric spectrum right?**](https://meetingorganizer.copernicus.org/EGU2020/EGU2020-3681.html). 2020 EGU General Assembly*,* May 6, 2020, Vienna, Austria

Sardeshmukh, P. D., **J.-W. A. Wang**: **Dynamic versus Thermodynamic Control of Changes in Mean and Extreme Precipitation**. 2019 AGU Fall Meeting, Dec 12, San Francisco, CA.

Sardeshmukh, P. D., J.-W. A. Wang: **Sufficient Model Resolution for S2S Predictions**. 2020 AMS Annual Meeting 2020, Jan 13, 2020, Boston, MA.

**Wang, J.-W. A.**, P. D. Sardeshmukh, G. P. Compo, J. S. Whitaker, L. Slivinski, P. Pegion, and C. McColl: Sensitivities of the NCEP Global Forecast System. 2019 AMS Annual Meeting, Jan 6-10, 2019, Phoenix, AZ.

**Wang, J.-W. A.** and P. D. Sardeshmukh: Inconsistent Mesoscale Spectra in Models and Reanalyses. 2019 AMS Annual Meeting, Jan 6-10, 2019, Phoenix, AZ.

**Wang, J.-W. A.** and P. D. Sardeshmukh: Inconsistent Mesoscale Spectra in Models and Reanalyses. 2018 AGU Fall Meeting, Dec 9-14, 2018, Washington, D.C.

**Wang, J.-W. A.**, P. D. Sardeshmukh, G. P. Compo, J. S. Whitaker, L. Slivinski, and C. McColl, 2018: [Sensitivity of Global Weather Forecasts during the 2015–16 El Niño Event to Additional Observations, Data Assimilation Methods, and Model Stochastic Parameterizations](https://ams.confex.com/ams/98Annual/webprogram/Paper332668.html). 2018 AMS Annual Meeting, Jan 7-11, 2018, Austin, TX.

Sardeshmukh, P. D. and **J.-W. A. Wang**: Changes of Precipitation and Drought Associated with Global Warming. 2017 AMS Annual Meeting, Jan 22-25, 2017, Seattle, WA.

Sardeshmukh, P. D., L. Magnusson, J. Bacmeister, **J.-W. A. Wang**: Sufficient Resolution for Climate Models. 2016 AGU Fall Meeting, Dec 12-16, 2016, San Francisco, CA.

**Wang, J.-W.** and P. D. Sardeshmukh: Scale-dependent Kinetic Energy Responses to Seasonal and Interannual Diabatic Heating Variability. 2016 AGU Fall Meeting, Dec 12-16, 2016, San Francisco, CA.

Sardeshmukh, P. D. and **J.-W. A. Wang**: The Grand Challenge of Correctly Representing Changes in Regional Precipitation Extremes and Droughts in Climate Models. 2016 AGU Fall Meeting, Dec 12-16, 2016, San Francisco, CA.

**Wang, J.-W.** and W. Han: The Bay of Bengal Upper-Ocean Dynamical Response to Tropical Cyclone Forcing Fields during 1999. 2013 AGU Fall Meeting, Dec 9-13, 2013, San Francisco, CA.

**Wang, J.-W.** and W. Han: Impacts of 1999 Orissa Cyclone on the Heat Budget of the Bay of Bengal. 2011 WCRP Open Science Meeting, Oct 24-28, 2011, Denver, CO.

## Wang, J.-W. and W. Han, 2010: The Effect of Tropical Cyclones on the Mixed-Layer Ocean Heat Content. 2010 AGU Fall Meeting, San Francisco, CA.

**Wang, J.-W.** and W. Han, 2010: Comparisons of Satellite Altimeter, Reconstructed Sea Level and Tide Gauge Observations in the Indian Ocean. 2010 AGU Ocean Sciences Meeting, 2010, Portland, OR.

Han, W., G. A. Meehl, A. Hu, L. L. Trenary, and **J.-W. Wang**, 2010: Indian Ocean sea level change associated with changes of climate in the past few decades. 2010 AGU Ocean Sciences Meeting, 2010, Portland, OR.

Matsui, T., A. Beltrán-Przekurat, R. A. Pielke Sr., D. Niyogi, M. B. Coughenour, and **J.-W. Wang**, 2006: Continental-scale calibration of surface albedo in CSU Unified Land Surface Model using remote sensing data and Parameter Estimation Model. LCLUC Meeting, October 2006, University of Maryland, Maryland.

Lu, L., A. S. Denning, I. T. Baker, **J.-W. Wang**, and K. D. Corbin, 2005: Simulating the two way interactions between vegetation biophysical processes and mesoscale circulations during 2001 Santarem field campaign. The Seventh International Carbon Dioxide Conference (ICDC7). September 25-30, 2005, Boulder, CO.

**Wang, J.-W.**, A. S. Denning, L. Lu, I. T. Baker, and K. D. Corbin, 2005: The Signal from Synoptic CO2 Variability and Local Ecosystem - A Case Study. The Seventh International Carbon Dioxide Conference (ICDC7), September 25-30, 2005, Boulder, CO.

**Wang, J.-W.**, 2005: Regional CO2 Spatial Distribution and Transport. Presented at Chequamegon Ecosystem-Atmosphere Study (ChEAS) Meeting, June 1-2, 2005, Woodruff, WI.

Research and Teaching Appointments

**Research Scientist II**, Cooperative Institute for Research in Environmental Sciences (May 2018 – present)

**Research Scientist I**, Cooperative Institute for Research in Environmental Sciences (Dec 2013 – April 2018)

**Postdoctoral Research Associate**, Cooperative Institute for Research in Environmental Sciences (Dec 2012 – Dec 2013)

**Graduate Research Assistant**, University of Colorado at Boulder (Oct 2008 – Nov 2012)

**Graduate Teaching Assistant**, University of Colorado at Boulder (Jan 2008 – Dec 2008)

**Professional Research Assistant**, University of Colorado at Boulder (Aug 2006 – Dec 2007)

**Research Associate**, Colorado State University (Nov 2005 – Jul 2006)

**Graduate Research Assistant**, Colorado State University (Aug 2002 – May 2005)

**Student Research Assistant**, National Taiwan University (Jul 1998 - Jun 2000)

Professional Association

American Geophysical Union

American Meteorological Society

European Geophysical Union