

Curriculum Vitae

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First Name: **Dong Wook** Last Name: **Shin**
Affiliation: Center for Ocean-Atmospheric Prediction Studies (COAPS)
Florida State University
Status: Assistant Scholar Scientist

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Education:

- Ph.D., Meteorology, Florida State University, Fall 2001
Dissertation: Short- to medium-range superensemble precipitation forecasts using satellite products.
- M.S., Meteorology, Florida State University, Fall 1998
Thesis: Tropical precipitation forecast and its related energetics.
- M.S. (not completed), Atmospheric Sciences, Pusan National University, Korea, March 1995-December 1997
- B.S., Atmospheric Sciences, Pusan National University, Korea, February 1995

Employment:

- Assistant Scholar Scientist (Faculty), Florida State University, 3/2007-present
- Research Associate (Faculty), Florida State University, 8/2004-3/2007
- Postdoctoral Associate, Florida State University, 1/2002-7/2004
- Research Assistant, Florida State University, 3/1997-12/2001
- Teaching Assistant, Florida State University, 9/1998-12/1998
- Research and Teaching Assistant, Pusan National University, 3/1995-8/1996
- Military services, 4/1992-10/1993

Research Experience:

- Seasonal dynamical hurricane forecasts

- Dynamical downscaling for crop model application
- Coupling of the land model (CLM2) to the FSU global and regional spectral model
- FSU regional climate work with parallelization programming
- Development and maintenance of the FSU real-time superensemble NWP
- Treatment and utilization of satellite data
- Improvement of the FSU global spectral model
 - Physical initialization
 - Cumulus parameterization
 - Precipitation processes
- Ensemble prediction methodology
 - EOF-based perturbation method
 - Breeding vector method and singular vector method
 - Kalman filter
 - Probabilistic forecasts

Professional Activities:

- Journal, Book, and Proposal Reviewer, 1997-present
- Member of Korean Meteorological Society, 1998-present
- Member of American Geophysical Union, 2004-present
- Member of Korean Atmospheric Scientists in America, 1997-present

Major Tools for Research:

- NWP and climate models experienced with: NCAR/MM5, NCAR/CCM3, FSU Data Assimilation Model, FSU Global Spectral Model, FSU Nested Regional Spectral Model, etc
- Computers: CRAY series machine, IBM SP series machine, IBM RS6000 model 270s, DEC & SGI Workstations (Origin 2, 200, and 2000), PCs, etc
- OS: UNIX (C-shell, Bourne shell, Korn shell, Perl, Awk, etc.), UNICOS, etc
- Programming: FORTRAN (f77, f90), Visual BASIC, Pascal, C, Shell script, HTML, JAVA script, etc
- Display: GrADS, NCAR graphics, GEMPAK, IDL, XVGR, XV, etc
- Statistical tools: SAS, Minitab, etc

Refereed Publications:

Shin, D. W., S. Cocke, and T. E. LaRow, 2007: Diurnal cycle of precipitation in a climate model. *J. Geophys. Res.*, doi:10.1029/2006JD008333, in press.

Cocke, S., T. E. LaRow, and D. W. Shin, 2007: Seasonal rainfall predictions over the southeast U.S. using the FSU nested regional spectral model. *J. Geophys. Res.*, **112**, D04106 doi:10.1029/2006JD007535.

- Shin, D. W., J. G. Bellow, T. E. LaRow, S. Cocke, and J. J. O'Brien, 2006: The role of an advanced land model in seasonal dynamical downscaling for crop model application. *J. Appl. Meteor. & Climatology*, **45**, 686-701.
- Boisserie, M., D. W. Shin, T. E. LaRow, and S. Cocke, 2006: Evaluation of soil moisture in the Florida State University climate model-National Center for Atmospheric Research community land model (FSU-CLM) using two reanalyses (R2 and ERA40) and in situ observations. *J. Geophys. Res.*, **111**, D08103, doi:10.1029/2005JD006446.
- Shin, D. W., S. Cocke, T. E. LaRow, and J. J. O'Brien, 2005: Seasonal surface air temperature and precipitation in the FSU climate model coupled to the CLM2. *J. Climate*, **18**, 3217-3228.
- LaRow, T. E., S. Cocke, and D. W. Shin, 2005: Multiconvective parameterizations as a multimodel proxy for seasonal climate studies. *J. Climate*, **18**, 2963-2978.
- Shin, D. W., T. E. LaRow, and S. Cocke, 2003: Convective scheme and resolution impacts on seasonal precipitation forecasts. *Geophys. Res. Lett.*, **30(20)**, 2078, doi:10.1029/2003GL018297.
- Shin, D. W., S. Cocke, and T. E. LaRow, 2003: Ensemble configurations for typhoon precipitation forecasts. *J. Meteor. Soc. Japan.*, **81**, 679-696.
- Shin, D. W., and J. J. O'Brien, 2003: A note on Korean Monsoon energetics. *Korean J. Atmos. Sci.*, **6**, 55-61.
- Shin, D. W. and T. N. Krishnamurti, 2003: Short- to medium-range superensemble precipitation forecasts using satellite products: 2. Probabilistic forecasting. *J. Geophys. Res.*, **108(D8)**, 8384, doi:10.1029/2001JD001511.
- Shin, D. W. and T. N. Krishnamurti, 2003: Short- to medium-range superensemble precipitation forecasts using satellite products: 1. Deterministic forecasting. *J. Geophys. Res.*, **108(D8)**, 8383, doi:10.1029/2001JD001510.
- Shin, D. W. and J. B. Ahn, 2002: Adaptive use of TRMM observations for tropical precipitation forecasts. *J. Meteor. Soc. Japan.*, **80**, 85-97.
- Krishnamurti, T. N., S. Surendran, D. W. Shin, R. J. Correa-Torres, TSV V. Kumar, C. E. Williford, C. Kummerow, R. F. Adler, J. Simpson, R. Kakar, W. S. Olson and F. J. Turk, 2001: Real time multianalysis/multimodel superensemble forecasts of precipitation using TRMM and SSM/I products. *Mon. Wea. Rev.*, **129**, 2861-2883.
- Krishnamurti, T. N., C. M. Kishtawal, D. W. Shin and C. Eric Williford, 2000: Improving tropical precipitation forecasts from a multianalysis superensemble. *J. Climate*, **13**, 4217-4227.

Shin, D. W. and J. B. Ahn, 2000: Assimilation of rainfall and precipitable water to study the sensitivity of precipitation processes. *Korean J. Atmos. Sci.*, **3**, 1-14.

Shin, D. W. and T. N. Krishnamurti, 1999: Improving precipitation forecast over the global tropical belt. *Meteorol. Atmos. Phys.*, **70**, 1-14.

Ahn, J. B. and D. W. Shin, 1998: Response of total ozone to ENSO in the tropical region. *Korean J. Atmos. Sci.*, **1**, 70-77.

Other Publications:

Shin, D. W., S. Cocke, T. E. LaRow, and Y.-K. Lim, 2007: Climate model capability in resolving diurnal cycle of rainfall. *Research Activities in Atmospheric and Ocean Modeling*, CAS/JSC Working Group on Numerical Experimentation. 4-25. (<http://www.cmc.ec.gc.ca/rpn/wgne/>)

LaRow, T. E., Y.-K. Lim, D. W. Shin, S. D. Cocke, and E. Chassignet, 2007: High resolution ensemble west Atlantic basin seasonal hurricane simulations. *Research Activities in Atmospheric and Ocean Modeling*, CAS/JSC Working Group on Numerical Experimentation. 6-03. (<http://www.cmc.ec.gc.ca/rpn/wgne/>)

Lim, Y.-K., D. W. Shin, T. E. LaRow, and S. Cocke, 2007: Categorical predictability of regionalized surface temperature and precipitation over the southeast United States. *Research Activities in Atmospheric and Ocean Modeling*, CAS/JSC Working Group on Numerical Experimentation. 7-11. (<http://www.cmc.ec.gc.ca/rpn/wgne/>)

Shin, D. W., J. G. Bellow, S. Cocke, T. E. LaRow, and J. J. O'Brien, 2006: Seasonal dynamical downscaling for crop yield estimation. *Research Activities in Atmospheric and Ocean Modeling*, CAS/JSC Working Group on Numerical Experimentation. 7-25. (<http://www.cmc.ec.gc.ca/rpn/wgne/>)

Goto, Y., D. W. Shin, and J. J. O'Brien, 2006: Sensitivity of leaf area index in Florida to temperature simulation by FSURSM. *Research Activities in Atmospheric and Ocean Modeling*, CAS/JSC Working Group on Numerical Experimentation. 5-21. (<http://www.cmc.ec.gc.ca/rpn/wgne/>)

Bai, X., S. Cocke, T. E. LaRow, J. J. O'Brien, and D. W. Shin, 2006: Paradox of SST and lower tropospheric temperature trends over the tropical Pacific ocean. *Research Activities in Atmospheric and Ocean Modeling*, CAS/JSC Working Group on Numerical Experimentation. 2-03. (<http://www.cmc.ec.gc.ca/rpn/wgne/>)

Lim, Y.-K., T. E. LaRow, J. J. O'Brien, and D. W. Shin, 2006: Statistical downscaling of the FSUGSM temperature over the southeast United States. *Research Activities in Atmospheric and Ocean Modeling*, CAS/JSC Working Group on Numerical Experimentation. 5-33. (<http://www.cmc.ec.gc.ca/rpn/wgne/>)

- Bellow, J. G., D. W. Shin, J. Schoof, J. W. Jones, and J. J. O'Brien, 2006: Contribution of temperature, precipitation, and solar radiation from dynamically downscaled global climate model to predicting peanut yields in the SE USA. *Research Activities in Atmospheric and Ocean Modeling*, CAS/JSC Working Group on Numerical Experimentation. 5-07. (<http://www.cmc.ec.gc.ca/rpn/wgne/>)
- Boisserie, M., D. W. Shin, T. E. LaRow, and S. Cocke, 2005: Evaluation of soil moisture in the FSUCLM using two reanalyses (R2 and ERA40) and in-situ observations. COAPS Technical Report No. 05-06, 56 pp.
- Shin, D. W., T. E. LaRow, S. Cocke, and J. J. O'Brien, 2005: The role of the CLM2 in the seasonal surface air temperature and precipitation of the FSU climate model. *Research Activities in Atmospheric and Ocean Modeling*, CAS/JSC Working Group on Numerical Experimentation. (<http://www.cmc.ec.gc.ca/rpn/wgne/>)
- Boisserie, M., T. E. LaRow, S. D. Cocke, and D. W. Shin, 2005: Comparison of soil moisture in the FSU climate model coupled to a land model CLM2 to soil moisture from NCEP/DOE reanalysis 2. *Research Activities in Atmospheric and Ocean Modeling*, CAS/JSC Working Group on Numerical Experimentation. (<http://www.cmc.ec.gc.ca/rpn/wgne/>)
- Shin, D. W., S. Cocke, T. E. LaRow, and J. J. O'Brien, 2004: Seasonal climate signatures in the FSU climate model coupled to the CLM2. *Research Activities in Atmospheric and Ocean Modeling*, CAS/JSC Working Group on Numerical Experimentation. (<http://www.cmc.ec.gc.ca/rpn/wgne/>)
- AjayaMohan, R. S., S. Jagtap, T. E. LaRow, S. Cocke, J. J. O'Brien, J. Jones, and D. W. Shin, 2004: Using climate models to generate crop yield forecasts in southeast USA. *Research Activities in Atmospheric and Ocean Modeling*, CAS/JSC Working Group on Numerical Experimentation. (<http://www.cmc.ec.gc.ca/rpn/wgne/>)
- LaRow, T. E., S. Cocke, and D. W. Shin, 2003: Multi-convection as a multi-model proxy for seasonal climate studies. *CLIVAR Exchanges*, **28**, December.
- Shin, D. W., S. Cocke, T. E. LaRow, and J. J. O'Brien, 2003: Ensemble configurations for typhoon-related rainfall forecasts. *Research Activities in Atmospheric and Ocean Modeling*, CAS/JSC Working Group on Numerical Experimentation, 6.13-14. (<http://www.cmc.ec.gc.ca/rpn/wgne/>)
- Shin, D. W., Cocke S., and LaRow T. E., 2002: Superensemble precipitation forecasts using TRMM and DMSP satellite microwave imager products. *Research Activities in Atmospheric and Ocean Modeling*, CAS/JSC Working Group on Numerical Experimentation, 6.23-24. (<http://www.cmc.ec.gc.ca/rpn/wgne/>)
- Shin, D. W., 2001: Short- to medium-range superensemble precipitation forecasts using satellite products. Ph.D. dissertation, Dept. of Meteorology, The Florida State University, 198 pp.

Shin, D. W., 2001: Superensemble precipitation forecasts over the global tropics using TRMM and DMSP satellite microwave imager products. FSU Report No. 01-13, 198 pp.

Shin, D. W., 1998: Tropical precipitation forecast and its related energetics. Master's thesis, Dept. of Meteorology, The Florida State University, 84 pp.

Proceedings & Presentations:

Shin, D. W., 2007: Climate modeling and forecasting. SECC program review, (May 14-16), Griffin, GA.

Cocke, S., T. E. LaRow, D. W. Shin, J. Schoof, Y.-K. Lim, J. J. O'Brien, and T. N. Krishnamurti, 2007: FSU climate prediction studies. 3rd WGNE workshop on systematic errors in climate and NWP modes, (Feb. 12-16), San Francisco, CA.

Lim, Y.-K., D. W. Shin, S. Cocke, and T. E. LaRow, 2006: Comparison of predictive skill between the statistically and the dynamically downscaled temperature and precipitation over the southeast United States. 2006 AGU Fall Meeting, (Dec. 11-15), A41E-0091, San Francisco, CA.

Shin, D. W., J. Bellow, S. Cocke, T. E. LaRow, and J. J. O'Brien, 2006: Probabilistic crop yield forecasts using the upgraded FSU regional spectral model. 31st Annual Climate Diagnostics and Prediction Workshop, (October 23-27), P1.3, Boulder, CO.

Cocke, S., D. W. Shin, and T. E. LaRow, 2006: Preliminary results of high resolution dynamical hurricane seasonal simulations. 31st Annual Climate Diagnostics and Prediction Workshop, (October 23-27), P3.11, Boulder, CO.

Shin, D. W., S. Cocke, and T. E. LaRow, 2006: Diurnal cycle of precipitation in the FSU climate model. 2006 AGU Joint Assembly, (May 23-26), A44E-04, Baltimore, MD.

Schoof, J. T., D. W. Shin, T. LaRow, and S. Cocke, 2006: Assessment of spatial and temporal skill associated with dynamically and statistically downscaled seasonal temperature forecasts in the southeastern USA. 2006 AGU Joint Assembly, (May 23-26), A44E-07, Baltimore, MD.

Shin, D. W., J. G. Bellow, S. Cocke, T. E. LaRow, and J. J. O'Brien, 2006: The role of an advanced land model in seasonal dynamical downscaling for crop model application. 2006 AGU Joint Assembly, (May 23-26), A24A-04, Baltimore, MD.

Goto, Y., D. W. Shin, and J. J. O'Brien, 2006: Sensitivity of leaf area index to temperature simulation in the FSUNRSM. 2006 AGU Joint Assembly, (May 23-26), A33A-08, Baltimore, MD.

- Lim, Y.-K., D. W. Shin, S. Cocke, T. E. LaRow, and J. J. O'Brien, 2006: Statistical downscaling of the FSUGSM temperature and precipitation over the southeast United States. 2006 AGU Joint Assembly, (May 23-26), A33A-09, Baltimore, MD.
- Bellow, J. G., D. W. Shin, J. Schoof, J. Jones, and J. J. O'Brien, 2006: Contribution of temperature, precipitation, and solar radiation from dynamically downscaled global climate model output to predicting peanut yields and phenology in the SE USA. 2006 Annual Meeting of Southern Branch ASA, (Feb. 4-8), Orlando, FL.
- Shin, D. W., J. G. Bellow, S. Cocke, T. E. LaRow, and J. J. O'Brien, 2006: The role of the CLM2 in seasonal dynamical downscaling for crop model application. 18th conference on Climate Variability and Change, 86th AMS meeting, (Jan. 29-Feb. 2), JP1.6, Atlanta, GA.
- Shin, D. W., T. E. LaRow, S. Cocke, J. G. Bellow, and J. J. O'Brien, 2005: An upgraded FSU global/regional climate model system and its use in crop model forecasting. 2005 AGU Joint Assembly, (May 23-27), A33B-05, New Orleans, LA.
- LaRow, T. E., J. Sardonía, and D. W. Shin, 2005: Real time seasonal forecast at FSU and its application to crop models. 2005 AGU Joint Assembly, (May 23-27), A33B-06, New Orleans, LA.
- Boisserie, M. A., D. W. Shin, T. E. LaRow, and S. Cocke, 2005: Evaluation of soil moisture in the FSUCLM using two reanalyses (R2 and ERA40) and in-situ observations. 2005 AGU Joint Assembly, (May 23-27), A41C-05, New Orleans, LA.
- Cocke, S., T. E. LaRow, and D. W. Shin, 2005: Seasonal predictions over the southeast U.S. using the FSU regional spectral model. 2005 AGU Joint Assembly, (May 23-27), A43B-02, New Orleans, LA.
- Shin, D. W., T. E. LaRow, S. Cocke, and J. J. O'Brien, 2005: The role of land models in the FSU regional climate model and its implication to crop model forecasting. The 16th Conference on Climate Variability and Change, 85th AMS meeting, (Jan. 9-13). P3.19, San Diego, CA.
- Cocke, S., T. E. LaRow, and D. W. Shin, 2004: The FSU regional spectral model and its application to seasonal precipitation prediction over the southeast U.S. 2004 AGU Fall Meeting, (Dec. 13-17). A41B-04, San Francisco, CA.
- Shin, D. W., S. Cocke, T. E. LaRow, and J. J. O'Brien, 2004: The role of land models in the FSU regional climate model and its implication to crop model forecasting: preliminary results. 2004 AGU Fall Meeting, (Dec. 13-17). A53A-0864, San Francisco, CA.
- LaRow T., S. Cocke, and D. W. Shin, 2004: Multi-convection ensemble as a multi-model proxy for seasonal climate studies. Workshop on Ensemble Methods from weather forecasting to climate change, (Oct. 18-21). Analysis and Ensemble Generation-5, Met Office, Exeter, UK.

- Shin, D. W., S. Cocke, T. E. LaRow, and J. J. O'Brien, 2004: Seasonal surface air temperature and precipitation in the FSU climate model coupled to the CLM2. The 29th Annual Climate Diagnostics and Prediction Workshop, (Oct. 18-22). P4.14, Madison, Wisconsin.
- Shin, D. W., S. Cocke, T. E. LaRow, R. S. AjayaMohan, and J. J. O'Brien, 2004: Seasonal climates in the FSU global/regional climate model coupled to the CLM2 and its application to crop model. The international Conference on High-Impact Weather and Climate, (March 22-24). 201-204, Seoul, Korea.
- Shin, D. W., S. Cocke, T. E. LaRow, and J. J. O'Brien, 2004: Seasonal climate signatures in the FSU climate model coupled to the CLM2. 15th Symposium on Global Change and Climate Variations, 84nd AMS meeting, (Jan. 12-15), P1.11, Seattle, WA.
- Cocke, S., T. E. LaRow, and D. W. Shin, 2004: Seasonal predictions from the FSU regional climate model. Symposium on Forecasting the Weather and Climate of the Atmosphere and Ocean, 84nd AMS meeting, (Jan. 12-15), J13.19, Seattle, WA.
- Shin, D. W., S. Cocke, T. E. LaRow, and J. J. O'Brien, 2003: Seasonal climate signatures in the FSU climate model coupled to the CLM2. International Conference on Earth System Modelling, (Sep. 15-19). 189, Hamburg, Germany.
- LaRow, T. E., S. Cocke, and D. W. Shin, 2003: Multi-convective parameterizations as a multi-model proxy for seasonal climate studies. International Conference on Earth System Modelling, (Sep. 15-19). 120, Hamburg, Germany.
- Cocke, S., T. E. LaRow, D. W. Shin, T. N. Krishnamurti, and J. J. O'Brien, 2003: Seasonal climate predictions from the FSU regional climate model. International Conference on Earth System Modelling, (Sep. 15-19). 47, Hamburg, Germany.
- Shin, D. W., S. Cocke, T. E. LaRow, and J. J. O'Brien, 2003: Ensemble configurations for typhoon precipitation forecasts. Korean Meteorological Society Spring Meeting, (Apr. 24-25). Busan, Korea.
- Cocke, S., Z. Christides, T. E. LaRow, and D. W. Shin, 2002: Performance of a coupled ocean-atmosphere model on the IBM SP4. Tenth ECMWF Workshop on the Use of High Performance Computing in Meteorology, (Nov. 4-8). Session 15.3, ECMWF, Reading, England.
- Shin, D. W., T. E. LaRow, and S. Cocke, 2002: Convective schemes and resolution impacts on seasonal precipitation forecasts. The 27th Annual Climate Diagnostics and Prediction Workshop, (Oct. 21-25). P-Session 2.5, Fairfax, Virginia.
- Cocke, S., D. W. Shin, and T. E. LaRow, 2002: Evaluation of nesting and boundary strategies for regional climate simulations, The 27th Annual Climate Diagnostics and Prediction Workshop, (Oct. 21-25). Session 8.3, Fairfax, Virginia.

- LaRow, T. E., S. Cocke, and D. W. Shin, 2002: Multi-convective parameterization as a multi-model proxy for seasonal climate studies. The 27th Annual Climate Diagnostics and Prediction Workshop, (Oct. 21-25). Session 8.2, Fairfax, Virginia.
- Shin, D. W. and T. N. Krishnamurti, 2002: Short-to-medium-range superensemble precipitation forecasts using satellite products. TRMM International Science Conference (July 22- 26). 7P.22, Honolulu, Hawaii.
- Krishnamurti, T. N., TSV V. Kumar, D. W. Shin, C. E. Williford, 2002: Multi-model superensemble forecasts for weather and seasonal climate. Symposium on Observations, Data Assimilation, and Probabilistic Prediction, 82nd AMS meeting, (Jan. 14-17), J1.2, Orlando, FL
- Krishnamurti, T. N., S. Surendran, D. W. Shin, R. J. Correa-Torres, TSV V. Kumar, C. E. Williford, C. Kummerow, R. F. Adler, J. Simpson, R. Kakar, W. S. Olson, and F. J. Turk, 2001: Real time multianalysis/multimodel superensemble forecasts of precipitation using TRMM and SSM/I products. Seventh International Conference on Precipitation (June 30- July 3). 4-8.
- Krishnamurti, T. N., S. Surendran, D. W. Shin, TSV V. Kumar, C. E. Williford, and R. J. Correa-Torres, 2000: Improvements in precipitation forecast. TRMM U.S. Science Team Meeting (Oct. 30-Nov. 2).
- Krishnamurti, T. N., D. W. Shin, B. P. Mackey, and Z. Zhang, 1999: Adaptive use of TRMM observations for improving tropical forecasts. The 23rd Conference on Hurricanes and Tropical Meteorology, Vol. II. 937-938. 79th AMS Annual Meeting.
- Krishnamurti, T. N., E. Williford, D. W. Shin, C. M. Kishtawal, B. Jha, and Z. Zhang, 1998: TRMM data sets and short range prediction. TRMM modelling group workshop.
- Shin, D. W., 1998: Impact of physical initialization on Korean monsoon. International Conference on Monsoon and Hydrologic Cycle. 65-66.
- Shin, D. W. and J. B. Ahn, 1997: Response of total ozone to ENSO in the tropical region. Korean meteorological society annual meeting. 134-135.