Curriculum Vitae

March 25, 2008

Name: **Young-Kwon Lim**
Affiliation: Center for Ocean-Atmospheric Prediction Studies (COAPS),
Florida State University
Status: Assistant Scholar Scientist (research faculty)
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Education:

- Assistant scholar scientist (research faculty), COAPS, Florida State University, September 2007 – present.
- Postdocoral researcher, COAPS, Florida State University, July 2005 – September 2007.
- Postdocoral researcher, Meteorology, Florida State University, July 2004 – July 2005.
- Ph.D., Meteorology, Florida State University, U. S. A., January 2000 – May 2004.
  Title of the dissertation : **Diagnosis of the Asian summer monsoon variability and the climate prediction of monsoon precipitation via physical decomposition**
- M.S., Atmospheric Sciences, Seoul National University, Korea, February 1997.
- B.S., Earth Science Education, Seoul National University, Korea, February 1995.

Research Areas:

- Regional climate change simulation (downscaling) technique from the global model runs
- Analysis on climate change and variability of atmosphere and ocean variables
- Statistical validation and analysis on the dynamical climate model outputs
- Climate prediction of monsoon precipitation, surface temperature and ENSO occurrences
- Impact of land-cover type (land-surface processes) on surface climate change
- Hurricane detection algorithm from the numerical model output

Scientific Work Experience (Employment & Work)

- Assistant scholar scientist, COAPS, Florida State University, Sep/2007-present

1) Regional climate change simulation (dynamical and statistical downscaling) technique from the global model runs
2) Analysis on climate change and variability of atmosphere and ocean variables
3) Statistical validation and analysis on the dynamical climate model outputs

- Postdoctoral research associate, COAPS, Florida State University, Jul/2005-Sep/2007
  1) Three research fields above
  2) Hurricane detection algorithm from the numerical model output

- Postdoctoral research associate, Florida State University, Jul/2004-Jul/2005
  1) Surface climate change response to land-cover types and urbanization

- Teaching assistant, Florida State University, Jan/2004-Apr/2004
  Class: "Advanced Dynamic Meteorology" for graduate students

- Research assistant, Florida State University, Jan/2000-Dec/2003
  1) Monsoon variability (Seasonal variation of the Asian-Australian summer monsoon and the American monsoon, ENSO-summer monsoon (Asian, American) relationship, Impact of the Madden-Julian Oscillation on the Asian summer monsoon)
  2) Climate prediction (Long-range prediction of monsoon precipitation and ENSO)

- Research scientist, Meteorological Research Institute, Korea, Jan/1998-Nov/1999.
  1) Climate diagnostics and prediction (Analysis on the global warming, the Asian-Australian summer monsoon variability, climate prediction of monsoon precipitation)
  2) Urban climate model (Simulation of the atmospheric circulation and pollutant diffusion in the city)

- Teaching assistant, Seoul National University, Korea, Mar/1997-Dec/1997.
  Class: "Atmospheric science and experiment" for undergraduate students

- Research assistant, Seoul National University, Korea, Mar/1995-Dec/1997.
  Monsoon variability (Seasonal variation, Intraseasonal oscillation of the Asian summer monsoon)

Scientific Skills

- Statistical analysis techniques on climate change, variability and predictability (e.g., Eigen techniques, Spectral analysis, Time series and stochastic processes, Wavelet transform, Regressions, Predictability, Forecast quality evaluation, etc.)
- Atmospheric climate models (GCM, Regional climate model, local (urban-scale) climate model, etc.)
- FORTRAN90
- Unix shell scripts and Unix operating system
- Graphic packages (GrADS and IDL)

Teaching Experience

- Lecture on Shallow-Water equation model (Advanced dynamic meteorology, spring2004 and spring2005)
- Lecture on graphic visualization (GrADS) (Advanced dynamic meteorology, spring2004 and spring2005)

Involved Projects Record

- Studies and application of cyclostationary empirical orthogonal functions (PI: Dr. Kwang-Yul Kim), NSF (ATM-9613748), Jan/2000-May/2003.

- Studies in long-term noise statistics, regional climate sensitivity and predictability (PI: Dr. Gerald R. North and Dr. Kwang-Yul Kim), DOE (DE-FG03-98ER62610), Jan/2000-Sep/2003.

- Studies on the Asian-Australian monsoon variability and predictability using physical decomposition (PI: Dr. Kwang-Yul Kim), NSF (ATM-0353494), Mar/2004-Apr/2007.

- Comparison of NCEP/NCAR and ERA-40 surface temperature trend (PI: Dr. Ming Cai), NSF (ATM-0403211), Jul/2004-Jul/2005.

- A NOAA Applied Research Center (ARC) regional assessment of interannual climate impacts and support for NOAA ocean observations (PI: Dr. Eric Chassignet), NOAA, present.

Publications:

Lim, Y.-K., and co-authors, 2008: Fine spatial scale summer precipitation simulation by downscaling approach over the southeastern United States: correlation and categorical predictability. submitted to *J. Geophys. Res.* (under review).

Schoof, J. T., D. W. Shin, S. Cocke, T. E. LaRow, **Y.-K. Lim**, and J. J. O'Brien, 2008: An assessment of spatial and temporal skill of dynamically and statistically downscaled seasonal temperature and precipitation hindcast ensembles for the southeastern USA. accepted in *Int. J. Climatol*.

LaRow, T. E., **Y.-K. Lim**, D. W. Shin, S. Cocke, and E. P. Chassignet, 2008: High resolution ensemble Atlantic basin seasonal hurricane simulations. *J. Climate,* in press.

Lim, Y.-K., M. Cai, E. Kalnay, and L. Zhou, 2008: Impact of vegetation types on surface temperature change. *J. Appl. Meteor. Climatol.*, 411-424.

Lim, Y.-K., D. W. Shin, S. Cocke, T. E. LaRow, J. T. Schoof, J. J. O'Brien, and E. P. Chassignet, 2007: Dynamically and statistically downscaled seasonal simulations of maximum surface air temperature over the southeast United States. *J. Geophys. Res – Atmosphere*, **112**, D24102, doi:10.1029/2007JD008764.

Pielke, R. A., C. A. Davey, D. Niyogi, S. Fall, J. Steinweg-Woods, K. Hubbard, X. Lin, M. Cai, **Y.-K. Lim,** H. Li, J. Nielsen-Gammon, K. Gallo, R. Hale, J. Angel, R. Mahmood, S. Foster, R. T. McNider, and P. Blanken, 2007: Unresolved issues with the assessment of multi-decadal global land-surface temperature trends. *J. Geophys. Res.-Atmosphere*, **112**, D24S08, doi:10.1029/2006JD008229.

Lim, Y.-K., and K.-Y. Kim, 2007: ENSO impact on the space-time evolution of the regional Asian summer monsoons. *J. Climate*, **20**, 2397-2415.

Lim, Y.-K., and K.-Y. Kim, 2006: A new perspective on long-range prediction of monsoon precipitation. *J. Climate*, **19**, 4840-4853.

Lim, Y.-K., M. Cai, E. Kalnay, and L. Zhou, 2005: Observational evidences of sensitivity of climate changes to land types and urbanization. *Geophys. Res. Lett.* **32**, L22712, doi:10.1029/2005GL024267.

Lim, Y.-K., K.-Y. Kim, and H.-S. Lee, 2002: Temporal and spatial evolution of the Asian summer monsoon in the seasonal cycle of synoptic fields. *J. Climate*, **15**, 3630-3644.

Cho, H.-M., **Y.-K. Lim**, J.-W. Kim, J.-K. Kim and J.-Y. Kim, 2000: The features of global atmospheric CO_2 distribution pattern. *J. Korean Meteorol. Soc*., **36**, 167-178.

Lim, Y.-K., S.-N. Oh, W.-T. Yun, and Y.-S. Chun, 2000: A study on the simulation of three-dimensional wind field considering complex terrain and land uses in the region of Seoul. *J. Korean Meteorol. Soc*., **36**, 229-244.

Kang, I.-S., C.-H. Ho, **Y.-K. Lim** and K.-M. Lau, 1999: Principal modes of climatological seasonal and intraseasonal variations of the Asian summer monsoon. *Mon. Wea. Rev*., **127**, 322-340.

<u>Other Publications</u>:

Kalnay, E., M. Cai, M. Nunez, and **Y.-K. Lim**, 2008: Impacts of urbanization and land surface changes on climate trends. International Association for Urban Climate, **27**, 5-9.

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.

Lim, Y.-K., T. E. LaRow, J. J. O'Brien, and D. W. Shin, 2006: Statistical downscaling of FSUGSM temperature over the southeast United States. *Research Activities in Atmospheric and Ocean Modeling*, CAS/JSC Working Group on Numerical Experimentation.

Cai, Ming, **Y.-K. Lim**, and E. Kalnay, 2004: Report on the comparison of the surface temperature trends derived from the GHCN/CRU and the ERA40 and NNR reanalysis datasets. *Reports of the National Science Foundation.*

Lim, Y.-K., 2004: Diagnosis of the Asian summer monsoon variability and the climate prediction of monsoon precipitation via physical decomposition. Doctoral dissertation. Department of Meteorology, Florida State University, 165pp.

Lim, Y.-K., 1997: Characteristic features and spatial structures of the synoptic fields associated with Changma. Master's thesis, Department of Atmospheric Sciences, Seoul National University, 77pp.

Presentations:

Lim, Y.-K., D. W. Shin, S. Cocke, T. E. LaRow, J. J. O'Brien, and E. P. Chassignet, 2008: Regional-scale seasonal simulation of temperature and precipitation by downscaling approach over the southeast United States. Spring Southeast Climate Consortium (SECC) meeing, Gainesville, FL.

Lim, Y.-K., 2008: Eigen techniques for climate statistics analysis: Cyclostationary empirical orthogonal function. The 6th Asian-Pacific Climate Network workshop, Seoul, Korea.

Lim, Y.-K., 2008: Application of CSEOF to monsoon climate analysis and prediction. The 6th Asian-Pacific Climate Network workshop, Seoul, Korea.

Lim, Y.-K., 2008: Regional climate simulation of surface temperature and precipitation by downscaling approach over the southeast United States and its possible application to Korea. Invited presentation at Korean Meteorological Administration / Meteorological Research Institute, Seoul, Korea.

Shin, D. W., S. Cocke, T. E. LaRow, **Y.-K. Lim**, J. J. O'Brien, and E. P. Chassignet, 2007: Probabilistic crop yield simulations over the southeast US using the FSU/COAPS regional climate model. NOAA 32nd annual climate diagnostics and prediction workshop, Tallahassee, FL.

LaRow, T. E., **Y.-K. Lim**, D. W. Shin, S. Cocke, J. J. O'Brien, and E. P. Chassignet, 2007: High resolution ensemble Atlantic basin seasonal hurricane simulations. NOAA 32nd annual climate diagnostics and prediction workshop, Tallahassee, FL.

Lim, Y.-K., D. W. Shin, S. Cocke, T. E. LaRow, and J. J. O'Brien, 2007: Regional climate simulation of surface temperature and precipitation by downscaling approach over the

southeast United States. NOAA 32nd annual climate diagnostics and prediction workshop, Tallahassee, FL.

Cai, M., **Y.-K. Lim**, and E. Kalnay, 2007: Use of reanalysis for detecting climate change sensitivity to land types and urbanization. NSF (National Science Foundation) sponsored workshop, Boulder, CO.

Lim, Y.-K., D. W. Shin, S. Cocke, T. E. LaRow, J. T. Schoof, J. J. O'Brien, and E. P. Chassignet, 2007: Dynamical and statistical downscaling of surface temperature and precipitation over the southeast US. Invited presentation at University of Florida, Gainesville, FL.

Shin, D. W., J. G. Bellow, E. P. Chassignet, S. Cocke, T. E. LaRow, **Y.-K. Lim**, and J. J. O'Brien, 2007: Probabilistic crop yield forecasts using the upgraded FSU/COAPS regional climate model. WCRP Workshop on seasonal prediction, Barcelona, Spain.

Cocke, S., T. E. LaRow, D. W. Shin, **Y.-K. Lim**, and J. J. O'Brien, 2007: Florida State University climate prediction studies. WGNE (Working group on numerical experimentation) workshop, Seattle, WA.

Cai, M., **Y.-K. Lim**, and E. Kalnay, 2007: Land cover and regional response to global warming. The 87th American Meteorological Society conference, San Antonio, TX.

Lim, Y.-K., D. W. Shin, S. Cocke, T. E. LaRow, J. J. O'Brien, and E. P. Chassignet, 2006: Dynamical and statistical downscaling study. Invited presentation at Busan National University, Busan, Korea.

Lim, Y.-K., and K.-Y. Kim, 2006: Analysis and prediction of Asian monsoon precipitation. Invited presentation at Busan National University, Busan, Korea.

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. Fall AGU conference, San Francisco, CA.

Cocke, S., D. W. Shin, T. E. LaRow, and **Y.-K. Lim**, 2006: Preliminary results on high resolution dynamical hurricane seasonal simulations. NOAA 31st annual climate diagnostics and prediction workshop, Boulder, CO.

Pielke, R. A. Sr., C. Davey, D. Niyogi, K. Hubbard, X. Lin, M. Cai, S. Fall, **Y.-K. Lim**, H. Li, J. Neilsen-Gammon, K. Gallo, R. Hale, J. Angel, R. Mahmood, and S. Foster, 2006: Unresolved issues with the assessment of multi-decadal global land-surface temperature trends. The second International conference on global warming and the next ice age, Santa Fe, NM.

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. Spring AGU conference, Baltimore, MD.

M. Cai, **Y.-K. Lim**, and E. Kalnay, 2006: Use of reanalysis for detecting climate change sensitivity to land types and urbanization. AAG conference, Chicago, IL.

Kalnay, E., M. Cai, H. Li, **Y.-K. Lim**, M. Nunez, and C. Ciappesoni, 2006: Impact of land-use on climate change. AAG conference, Chicago, IL.

Lim, Y.-K., M. Cai, E. Kalnay, J. J. O'Brien, and L. Zhou, 2006: Observational evidences of sensitivity of climate changes to land vegetation types and urbanization. The 86th American Meteorological Society conference, Atlanta, GA.

Kim, K.-Y., and **Y.-K. Lim**, 2004: Prediction of Asian summer monsoon precipitation: A new paradigm. Invited presentation at Seoul National University, Seoul, Korea.

Kim, K.-Y., and **Y.-K. Lim**, 2001: Temporal and spatial evolution of the Asian summer monsoon. Invited presentation at the fall meeting of Korean Meteorological Society, Seoul, Korea.

Lim, Y.-K., K.-Y. Kim, and H.-S. Lee, 2001: Temporal and spatial evolution of the Asian summer monsoon in the seasonal cycle of synoptic fields. The 81st American Meteorological Society conference, Albuquerque, NM.

Lim, Y.-K., and I.-S. Kang, 1997: Evolution of spatial structures of the synoptic fields during the Asian summer monsoon period. Annual conference of Korean Meteorological Society, Busan, Korea.

Membership and Award:

- AGU (American Geophysical Union) member, Jan/2006-present.
- Reviewer of AGU journals, 2005-present.
- Reviewer of AMS (American Meteorological Society) journals, 2005-present.
- Editor, Korean Atmospheric Scientists in America, Jan/2005-Dec/2005.
- Dissertation grant awarded from Florida State University, Nov/2002-Jun/2003.
- Webmaster, Applied Meteorology Lab., Meteorological Research Institute, Korea, Jan/1999-Nov/1999.