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Biographical Summary of — Date: Nov. 2017

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EDUCATION

1986 Ph.D., Oceanography, Texas A&M University, College Station, TX
1983 M.S., Oceanography, Texas A&M University, College Station, TX
1979 B.S., Oceanography, Seoul National University, Seoul, Korea

EXPERIENCE

Department Head, School of Earth & Environmental Sciences, Seoul Nat'l Univ., 11/17 – present
Professor, School of Earth & Environmental Sciences, Seoul Nat'l Univ., 01/09 – present
Faculty Recruiting Committee, Seoul National University, 03/16 – present
Faculty Senate, Seoul National University, 12/14 – 10/15
Associate Dean of Student Affairs, College of Natural Sciences, Seoul Nat'l Univ., 11/10 – 10/12
Senior Atmospheric Scientist, WindLogics, 10/07 – 01/09
President & CEO, Environmental Forecasts & Value-Oriented Research Services Inc., 4/06 – 9/07
Associate Professor, Department of Meteorology, Florida State University, 8/99 – 4/06
Research Scientist and Lecturer, Climate System Res. Program, TAMU. 6/97 – 8/99
Associate Research Scientist, Climate System Res. Program, TAMU. 10/93 - 5/97
Adjunct Assistant Professor, Department of Meteorology, TAMU. 5/92 - 9/93
Associate Scientist, Applied Research Corporation Technologies, College Station, TX. 9/90 - 9/93
Senior Research Scientist, Korea Ocean Research & Development Inst., Seoul, Korea. 1/90 - 8/90
Assistant Scientist, Applied Research Corporation Technologies, College Station, TX. 8/87 - 12/89
Postdoctoral Research Associate, Department of Oceanography, TAMU. 12/86 - 6/87
Postdoctoral Fellow, Department of Oceanography, Texas A&M University. 9/86 - 12/86
Grad. Assistant Res., Department of Oceanography, Texas A&M University. 1/84 - 8/86
Grad. Student Tech., Department of Oceanography, Texas A&M University. 10/81 - 4/83

PROFESSIONAL MEMBERSHIPS

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American Meteorological Society
American Geophysical Union

PUBLICATIONS (Refereed Journals)

[121] Lee, S., K.-Y. Kim, and S. Kim, 2017: Stringent Comparison and Evaluation of CMIP5 model sea surface temperatures. *J. Atmos. Ocean. Tech.*, to be submitted.

[120] Kim, J., and K.-Y. Kim, 2017: Major mechanisms of tropopause variability in Arctic winter. *Clim. Dyn.*, to be submitted.

[119] Kim, K.-Y., 2017: The mechanism of southern hemispheric warming. *Scientific Report*, to be submitted.

[118] Kim, K.-Y., 2017: Relative roles of horizontal and vertical processes in the physical mechanism of Arctic amplification. *The Cryosphere*, to be submitted.

[117] Kim, K.-Y., 2017: Understanding the physical connection between the low-frequency mode and the Pacific decadal oscillations. *Clim. Dyn.*, to be submitted.

[116] Kim, W.-M, S.-R. Yeo, and K.-Y. Kim, 2017: Why did not strong and long-lasting La Niña follow 2015-2016 super El Niño? *npj Clim. Atmos. Sci.*, submitted.

[115] Kim, K.-Y., C. Y. Lim, and J. E. Kim, 2017: A new approach to the space-time analysis of big data: Application to subway traffic data in Seoul. *Transport. Res. Part B*, submitted.

[114] Kim, K.-Y., J. Kim, K.-O. Boo, S. Shim, and Y. Kim, 2017: Intercomparison of precipitation datasets for summer precipitation characteristics over East Asia. *Clim. Dyn.*, submitted.

[113] Na, H., K.-Y. Kim, S. Minobe, and Y. N. Sasaki, 2017: Interannual to decadal variability of the upper-ocean heat content in the northwestern Pacific and its relationship to the Kuroshio-Oyashio Extension variability. *J. Clim.*, submitted.

[112] Lee, J., and K.-Y. Kim, 2017: Analysis of source regions and meteorological factors for the variability of spring PM10 concentrations in Seoul, Korea. *Atmos. Environ.*, submitted

[111] Hamlington, B. D., R. R. Leben, S.-H. Cheon, and K.-Y. Kim, 2017: Bivariate reconstruction of sea level variability from 1900-2014. *Nature Scientific Data*, in revision.

[110] Kim, K.-Y., J. Kim, S.-R. Yeo, H. Na, B. D. Hamlington, and R. R. Leben, 2017: Understanding the mechanism of Arctic amplification and sea ice loss. *Cryosphere*, accepted for discussion.

[109] Lee, M.-Y., J.-H. Hong, and K.-Y. Kim, 2017: Estimating damage costs of natural disaster in Korea, *Natural Hazard Rev.*, doi:10.1061/(ASCE)NH.1527-6996.0000259.

[108] Kim, K.-Y., and Y. Kim, 2017: A comparison of sea level projections based on the observed and reconstructed sea level data around the Korean peninsula. *Climate Change*, doi:10.1007/s10584-017-1901-8.

[107] Bruce, C. F., T. Kumpula, N. Meschtyb, R. Laptander, M. Macias-Fauria, P. Zetterberg, M. Verdonen, A. Skarin, K.-Y. Kim, L. Boisvert, J. Stroeve, and A. Bartsch, 2016: Sea ice, rain-on-snow and tundra nomadism in Arctic Russia. *Biol. Lett.*, **12**, 20160466.

[106] Yeo, S-R., S.-W. Yeh, K.-Y. Kim, and W.M. Kim, 2016: Decadal variation offset of global warming in recent tropical Pacific climate. *Clim. Dyn.*, doi:10.1007/s00382-016-3376-0.

[105] Kim, K.-Y., H. Na, B. D. Hamlington, and J. Kim, 2016: Seasonal mechanism of sea ice melting in the Arctic seas. *Cryosphere*, **10**, 1-12, doi:10.5194/tc-10-1-2016.

[104] Kim, J.-Y., and K.-Y. Kim, 2016: Reconstructing long-term wind data at offshore met-mast using cyclostationary empirical orthogonal functions. *J. Wind Eng. Ind. Aero.*, **156**, 146-158, doi:10.1016/j.jweia.2016.07.017.

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[102] Hamlington, B. D., S. H. Cheon, P. R. Thompson, M. A. Merrifield, R. S. Nerem, R. R. Leben, and K.-Y. Kim, 2016: An ongoing shift in Pacific ocean sea level, *J. Geophys. Res.*-Oceans, **121**, doi:10.1002/2016JC011815 (*selected as research spotlight*).

[101] Yeo, S.-R., W-M Kim, and K.-Y. Kim, 2016: Eurasian snow cover variability in relation to warming trend and Arctic Oscillation. *Clim. Dyn.*, doi:10.1007/s00382-016-3089-4.

[100] Kim, K.-Y., and S.-W. Son, 2016: Physical characteristics of Eurasian winter temperature variability. *Environ. Res. Lett.*, **11**, 044009, doi:10.1088/1748-9326/11/4/044009.

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[1] Kim K.-Y., R. O. Reid, and R. E. Whitaker, 1988: On an open radiational boundary condition for weakly dispersive tsunami waves. *J. Comp. Phys.*, **76**, 327-348.

PUBLICATION (Books, Book Chapters and Proceedings)

[10] North, G. R., and K.-Y. Kim, Energy Balance Climate Models, John Wiley and Sons, 427 pp. (ISBN: 9783527411320, to be published in August 2017)

[9] Kim, K.-Y., 2017: Cyclostationary EOF Analysis: Theory and Applications (Companion Exercise Book), SNU press, 604 pp. (Selected as an excellent book in 2017 by the National Academy of Sciences, Republic of Korea)

[8] Kim, K.-Y., 2017: Cyclostationary EOF Analysis: Theory and Applications, SNU press, 446 pp. (as an excellent book in 2017 by the National Academy of Science, Republic of Korea)

[7] Kim, K.-Y., 2014: Fundamentals of Fluid Dynamics with an Introduction to Vector Calculus and Curvilinear Coordinate System, SNU press, 380 pp. (Selected as an excellent book in 2015 by the National Academy of Sciences, Republic of Korea)

[6] Kim, K.-Y., and G. R. North, 1998: Statistical Methods in Climatology, Draft Version, 350 pp.

[5] North, G. R., K.-Y. Kim, and W.-H. Lee, 1997: Small ice caps in climate models, *The Mathematics of Models for Climatology and Environment*. J. I. Díaz, Ed., NATO ASI Series, Springer, Germany, 289-297 pp.

[4] North, G. R., and K.-Y. Kim, 1995: Detection of forced climate signals, *Natural Climate Variability on Decade-to-Century Time Scales*. D. G. Martinson, K. Bryan, M. Ghil, M. M. Hall,

T. R. Karl, E. S. Sarachik, S. Sorooshian, and L. D. Talley, Eds., National Academy Press, Washington, D.C., 175-180 pp.

[3] Kim, K.-Y., T. P. Barnett, and G. R. North, 1994: Noise response characteristics of a coupled LSG-EBM model. Fifth Symposium on Global Change Studies, Nashville, Tennessee, 68-73.

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PATENTS

[3] A Statistical Method for Determining Regional Baseline Concentrations of Atmospheric Trace Gases and GHGs (under application)

[2] Apparatus and Method of Identifying New Aerosol Particle Formation and Growth (August 16, 2016)

[1] Method of Identifying New Particle Formation and Growth Based on the CSEOF Technique (June 7, 2012)

Invited Presentations and Sessions Chaired at Conferences and Workshops

Jun. 15, 14: **CSEOF analysis**, Lecture session in International Conference on Coastal Engineering 2014, Seoul, Korea

Aug. 3-7, 09: Invited Lectures at Cheju National University, Cheju, Korea

Jun. 28, 04: **Prediction of Asian Summer Monsoon Precipitation: A new paradigm.** Seoul National University, Seoul, Korea

Jun. 8-28, 03: Invited Lectures at Seoul National University, Seoul, Korea

Oct. 25-26, 01: **Temporal and Spatial Evolution of the Asian Summer Monsoon.** Fall Meeting of the Korean Meteorological Society, Seoul Korea

Oct. 22-24, 01: Invited Lectures at Seoul National University, Seoul, Korea

Jun. 2-3, 99: Co-chaired the sessions **Dynamics, Aerosols, and Climate** at the American Geophysical Union Spring Meeting, Boston

Jan. 10, 98: **Climate Modeling**. Climate Upheavals symposium - Spectroscopy Society of Pittsburgh

Dec. 8-12, 97: **Application of Cyclostationary EOFs in Climate Studies**. American Geophysical Union Fall Meeting, San Francisco

Jun. 13, 96: **Cyclostationary Empirical Orthogonal Functions.** Korea Advance Institute for Science and Technology, Korea

Jun. 12, 96: **Statistical Methods for Natural Variability.** Pusan National University, Pusan, Korea

Jun. 3-7, 96: **Natural Variability and Linear Estimation Technique.** Yonsei University, Seoul, Korea

Mar. 09, 95: **Comparisons of the Second-Moment Statistics of Climate Models** Applied Mathematics Institute, University of Alberta, Canada

June 24, 92: **Comparisons of the Second-Moment Statistics of Climate Models.** 5th International Meeting on Statistical Climatology, Canada

FUNDING RECORD

Studies in Long-Term Noise Statistics, Regional Climate Sensitivity and Predictability (PI with Gerald R. North), DOE (DE-FG05-913461736),
7/1/94 - 6/30/97, $500K

Studies and Application of Cyclostationary Empirical Orthogonal Functions (single PI), NSF (ATM-9423335), 4/1/95 - 10/31/96, $100K

Studies and Application of Cyclostationary Empirical Orthogonal Functions
(single PI), NSF (ATM-9613748), 6/1/97 - 5/31/2003, $316K

Studies in Long-Term Noise Statistics, Regional Climate Sensitivity and Predictability (PI with Gerald R. North), DOE (DE-FG03-98ER62610), 5/1/98 - 9/30/2003, $450K

Seasonal Model and Detection Studies of Climate Change over the Last Six Centuries (Co-PI with Thomas J. Crowley and Gabriele C. Hegerl), DOC/NOAA Climate Change Data and Detection, 9/1/99 – 8/31/2003, $326K

Observations, Physics and Modeling of the Phase-locking of ENSO to the Calendar Year (Co-PI with Allan Clarke), NSF (ATM-0326799), 9/1/2003 – 8/31/2006, $353K

Studies on the Asian-Australian Monsoon Variability and Predictability Using Physical Decomposition (PI), NSF (ATM-0353494), 3/15/2004 – 3/14/2007, $305K

Longterm forecast models of extreme climate events (PI), Research Agency for Climate Science, 3/1/2009-2/28/2012, $150K

Investigation of Long-Term Climate Variability of Ocean Origin and Predictability (Co-PI with Kyung-Il Chang), Ministry of Land, Transport, and Maritime Affairs (Ocean Climate Variability Program), 3/1/2009-2/28/2014, $5,000K

Developing long-term forecast models of typhoons (PI), Research Agency for Climate Science, 3/1/2011-2/28/2012, $200K

Development of Adaptation Strategy based on Analysis of Climate Change (PI), SNU-Yonsei Research Cooperation Program through Seoul National University, 6/1/2014 – 9/22/2016, $400K

Studies on the Mechanism/Detection/Prediction of Regional Variability of Summer Precipitation and Winter Temperature over East Asia, National Research Foundation of Korea, 3/1/2017 – 2/28/2020, $300K

PROFESSIONAL INTERESTS

Numerical and Statistical Modeling
Data Analysis
Climate Modeling
Wave Dynamics
Ocean and Atmospheric Circulation
Monsoons
Ocean-Atmospheric Interactions

TEACHING INTEREST

Geophysical Fluid Dynamics
Dynamics & Large-Scale Dynamics
Numerical and Statistical Modeling and Analysis
Climate Physics and Modeling
Advanced Data Analysis
Computational Fluid Dynamics
Numerical Analysis
Statistical Climatology

TEACHING EXPERIENCE

Climate Modeling
Statistical Climatology
Atmospheric Physics
Interactive Data Analysis
Fluid Mechanics and Dynamics
Computational Modeling
Dynamics & Large-Scale Dynamics

HONORS AND AWARDS

Award of Education, Seoul National University (2017)
Phi Kappa Phi Honor Society
Research Spotlight (Kim et al., GRL, 2010; Hamlington et al., JGR-Oceans, 2016)
Career Citations: over 2,000 citations (H index of 25)
Excellent Book Award in 2015 by the National Academy of Sciences, Republic of Korea
(Fundamentals of Fluid Dynamics with an Introduction to Vector Calculus and Curvilinear Coordinate System)
Invited Talks: over 150 invited talks/lectures
Teaching Awards: 2011 and 2012 (College of Natural Sciences, SNU)
NSF funding: 4; DOE funding: 2; NOAA funding: 1 (total awards: $2,350,000 in the US)

PUBLIC AND UNIVERSITY SERVICE

University
Faculty Senate, Seoul National University (2014-present)
Graduate/Undergraduate Faculty, Seoul National University (2009-present)
Associate Dean of Student Affairs, Seoul National University (2010-2012)
Faculty Advisor of the Tallahassee Korean Student Association (1999-2005)
Graduate/Undergraduate Faculty, Florida State University (1999-2006)
Committee Member - Meteorology PhD and MS Students, Florida State University (1999-2006)
Graduate/Undergraduate Faculty, Texas A&M University (1990-1999)

Science Community
Former chairman of Korean Atmospheric Scientists in America (2000-2001)
Reviewer for J. Climate, J. Atmospheric Sciences, J. Geophysical Research, Geophysical Research Letters, Progress in Oceanography, Climate Dynamics, J. Oceanic and Atmospheric Technology, J. Applied Meteorology, NSF, NOAA

Public
Church Director of Seoul National University International Church (2010-2011)
Itasca Country Community Chorus Member – Tenor I (2007-2009)
Lay Pastor, Southern Baptist Convention (2006-present)
Tallahassee Community Chorus Member – Tenor I (2000-2007)
Church Deacon & Choir Director of Tallahassee Korean Baptist Church (2001-2007)
Chairman of Deacons, Tallahassee Korean Baptist Church (2006-2007)