

## KEI YOSHIMURA

Atmosphere and Ocean Research Institute, the University of Tokyo  
5-1-5 Kashiwanoha, Kashiwa, Chiba 277-8568  
email: keiyoshi08@gmail.com <http://www.ccsr.u-tokyo.ac.jp/~kei>  
phone: +81(4) 7136-4383 fax: +81(4) 7136-4375

*As of February 11, 2011*

### EDUCATION

- February 2006 University of Tokyo, Tokyo, Japan  
Ph.D. Civil Engineering  
Thesis: *A Study on Systems of the Global Hydrologic Cycles with Stable Water Isotopic Information.*  
Committee: Professors Taikan Oki (chair), Naohiro Yoshida, Toshio Koike, Takeshi Ishihara, Kung Yang, Toshiharu Kishi, and Masaki Sato
- September 2002 M.S. Civil Engineering  
March 2000 B.S. Civil Engineering  
University of Durham Business School, Durham, UK
- September 2001 to March 2002 Attended all M.A. Management classes as an exchange student

### PROFESSIONAL EXPERIENCE

- March 2010 to present Atmosphere and Ocean Research Institute, University of Tokyo, Tokyo, Japan  
*Associate Professor*: research on climate sciences and stable water isotope circulation (Also at Institute of Industrial Science, University of Tokyo)  
Scripps Institution of Oceanography, UCSD, La Jolla, CA, USA
- August 2008 to March 2010 *Project Scientist*: research on stable water isotope circulation, global and regional atmospheric modeling, data assimilation, carbon cycle modeling, dynamical downscaling, past and future changes in meso-scale climate and extremes.  
(*Visiting Scholar* during June 2006 to May 2008)
- October 2002 to July 2008 Institution of Industrial Science, University of Tokyo, Tokyo, Japan  
*Assistant Professor*: research on stable water isotope circulation, modeling and impact assessment of terrestrial and hydrological processes, flood risk analysis and early warning.  
(*Research Associate* during May 2004 to March 2007)  
(*Technical Research Fellow* during October 2002 to April 2004)
- October 2006 to present Japan Agency for Marine-Earth Science and Technology, Yokohama, Japan  
*Invited Researcher*: research on relationship between water isotopes and Asian Monsoon, typhoon mechanism, tropical convective precipitation.

### TEACHING EXPERIENCE

- May 2004 to present Civil Engineering Department, University of Tokyo, Tokyo, Japan  
*Advanced Hydrology, Earth Hydrologic Cycle and Society, and Environmental Restoration, Rehabilitation and Mitigation.* Advising PhD and Master course students.
- August 2008 to March 2010 Scripps Institution of Oceanography, UCSD  
Co-advising a PhD student (Kyunghee Seol at Yonsei Univ.), Research mentor for several graduate students in SIO and Univ. Tokyo.

## KEI YOSHIMURA

### SERVICE

- 2008 to present *Associate Editor* for Hydrological Research Letters.  
2005 *Session Convener* on Isotope Hydrology, 2005 Asia Oceania Geosciences Society annual meeting, Singapore.
- 2003-2006 *Open House Coordinator* for Hydrology and Water Resources Lab. in IIS/UT.
- Reviewer for *Journal of Geophysical Research, Geophysical Research Letters, Journal of Climate, Climate of the Past, Atmospheric Chemistry and Physics, Journal of Meteorological Society of Japan, Hydrological Processes, Global and Climate Change, Water Resources Research, Advances in Atmospheric Sciences, Advances in Geosciences, Terrestrial, Atmospheric and Oceanic Sciences.*

### INTERNATIONAL COLLABORATIVE RESEARCH ACTIVITIES

- 2008 to present *Co-chair*: The second phase of the Stable Water Isotope Intercomparison Group (SWING2)
- 2007 to present *Project Planning Committee Member*: Coordinated Energy and Water Cycle Observations Project (CEOP)
- 2004 to 2007 *Core Member*: Stable Water Isotope Intercomparison Group (SWING)
- 2004 to 2006 *Core Member*: Isotopes in Project for Intercomparison of Land-surface Parameterization Schemes (iPILPS)

### HONORS AND AWARDS

- August 2008 *Thesis Award for Young Scientists* from Japan Society of Hydrology and Water Resources Engineering.
- April 2007 Invited for ICSU 75<sup>th</sup> anniversary conference "Global Scientific Challenges: Perspectives from Young Scientists" as one of 142 young scientists, from 71 countries.
- June 2006 *Postdoctoral Fellowships for Research Abroad* from Japan Society for the Promotion of Science.
- March 2004 *Thesis Award for Young Scientists* from Japan Society of Civil Engineering.
- September 2002 *Furuichi Award* (upper 10% of master course graduates) from Civil Engineering Department, University of Tokyo Graduate School.
- August 2001 *Excellent Poster Presentation Award* from Japan Society of Hydrology and Water Resources.

### GRANTS

- 2010-2012 *Principal Investigator*: "20<sup>th</sup> century Reanalysis with stable water isotope information," Japan Society for the Promotion of Science, \$30,000, April 2010 to March 2012.
- 2010-2013 *Co-PI*: "Is the current drought affecting the Western US unique from earlier droughts of the 20th Century and therefore attributable to anthropogenic climate change?" NOAA/CPO, \$544,022, 2010-2013.
- 2006 *Principal Investigator*: "Study on processes of Earth hydrological cycle with stable water isotopes," Japan Society for the Promotion of Science, \$88,000, June 2006 to May 2008.
- 2005 *Principal Investigator*: "Development of a stable water isotope circulation model with land surface process," Japan Society for the Promotion of Science, \$30,000, April 2005 to May 2006.

## KEI YOSHIMURA

### PUBLICATIONS

#### *Published work:*

1. Fudeyasu, H., K. Ichiyanagi, K. Yoshimura, S. Mori, N. Sakurai, J.-I. Hamada, M.D. Yamanaka, J. Matsumoto, and F. Syamsudin, 2011: Effects of large-scale moisture transport and mesoscale processes on precipitation isotope ratios observed at Sumatera, Indonesia, *J. Meteor. Soc. Japan*, in print.
2. Yoshimura, K., M. Kanamitsu, and M. Dettinger, 2010: Regional downscaling for stable water isotopes: A case study of an Atmospheric River event, *J. Geophys. Res.*, **115**, doi:10.1029/2010JD014032.
3. Kanamitsu, M., K. Yoshimura, Y-B Yhang and S-Y Hong, 2010: Errors of interannual variability and trend in dynamical downscaling of Reanalysis, *J. Geophys. Res.*, **115**, doi:10.1029/2009JD013511.
4. Schneider, M., K. Yoshimura, F. Hase, and T. Blumenstock, 2009: The ground-based FTIR network's potential for investigating the atmospheric water cycle, *Atmos. Chem. Phys. Discuss.*, **9**, 26199-26235.
5. Frankenberg, C., K. Yoshimura, I. Aben, A. Butz, N. Deutscher, D. Griffith, F. Hase, J. Notholt, M. Schneider, H. Schrijver, T. Warneke, T. Röckmann, 2009: Dynamic processes governing lower-tropospheric HDO/H<sub>2</sub>O ratios as observed from space and ground, *Science*, **325**, 1374-1377.
6. Miller, N.L., P. Duffy, D. Cayan, H. Hidalgo, J. Jin, H. Kanamaru, M. Kanamitsu, T. O'Brien, N. Schlegel, L. Sloan, M. Snyder, K. Yoshimura, An evaluation of simulated California climate using multiple dynamical and statistical downscaling techniques, *CEC Report*, CEC-500-2009-017-F.
7. Abe, O., S. Agata, M. Morimoto, M. Abe, K. Yoshimura, T. Hiyama, and N. Yoshida, 2009: A 6.5-year continuous record of sea surface salinity and seawater isotopic composition at Harbor of Ishigaki Island, southwest Japan, *Isotopes in Environmental and Health Studies*, **45**, 247-258.
8. Yoshimura, K. and M. Kanamitsu, 2009: Specification of external forcing for regional model integrations, *Mon. Wea. Rev.*, **137**, 1409-1421.
9. Yoshimura, K. and M. Kanamitsu, 2008: Dynamical global downscaling of global reanalysis, *Mon. Wea. Rev.*, **136**, 8, 2983-2998.
10. Yoshimura, K., M. Kanamitsu, D. Noone, and T. Oki, 2008a: Historical isotope simulation using reanalysis atmospheric data, *J. Geophys. Res.*, **113**, doi:1029.10/2008JD010074.
11. Uemura, R., Y. Matsui, K. Yoshimura, H. Motoyama, N. Yoshida, 2008: Evidence of deuterium excess in water vapour as an indicator of ocean surface conditions, *J. Geophys. Res.*, **113**, doi:1029.10/2008JD010209.
12. Fudeyasu, H., K. Ichiyanagi, A. Sugimoto, K. Yoshimura, A. Ueta, M.D. Yamanaka, K. Ozawa, 2008: Isotope ratios of precipitation and water vapor observed in Typhoon Shanshan, *J. Geophys. Res.*, **113**, D12113, doi:10.1029/2007JD009313.
13. Yoshimura, K., T. Sakimura, T. Oki, S. Kanae, and S. Seto, 2008b: Toward flood risk prediction: a statistical approach using a 29-year river discharge simulation over Japan, *Hydrol. Res. Let.*, **2**, 22-26.
14. Islam, M.S., T. Oki, S. Kanae, N. Hanasaki, Y. Agata, K. Yoshimura, 2007: A grid-based assessment of global water scarcity including virtual water trading, *Water Resour. Manag.*, **21**(1), 19-33.
15. Yoshimura, K., S. Miyazaki, S. Kanae, and T. Oki, 2006: Iso-MATSIRO, a land surface model that incorporates stable water isotopes, *Glob. Planet. Change*, **51**, 90-107.
16. Henderson-Sellers, A., M. Fischer, I. Aleinov, K. McGuffie, W.J. Riley, G. Schmidt, K. Sturm, and K. Yoshimura, 2006: Stable water isotope simulation by current land surface schemes: Results of iPILPS phase 1, *Glob. Planet. Change*, **51**, 34-54.
17. Ichiyanagi, K., K. Yoshimura, and M.D. Yamanaka, 2005: Validation of changing water origins over Indochina during the withdrawal of the Asian monsoon using stable isotopes, *Sci. Onl. Let. Atmos.*, **1**, 113-116.
18. Shinoda, T., H. Uyeda, and K. Yoshimura, 2005: Structure of moist layer and sources of water over the southern region far from the Meiyu/Baiyu front, *J. Meteor. Soc. Japan*, **83**, 137-152.
19. Yoshimura, K., T. Oki, and K. Ichiyanagi, 2004: Evaluation of two-dimensional atmospheric water

## KEI YOSHIMURA

- circulation fields in reanalyses by using precipitation isotopes databases. *J. Geophys. Res.*, **109**(D20), D20109, doi:10.1029/2004JD004764.
20. Yoshimura, K., T. Oki, N. Ohte, and S. Kanae, 2004: Colored moisture analysis estimates of variations in 1998 Asian monsoon water sources, *J. Meteor. Soc. Japan*, **82**, 1315-1329.
  21. Yoshimura, K., T. Oki, N. Ohte, and M. Koike, 2003: Development and verification of a vertical integrated two dimensional water isotope circulation model, *J. Hydrosoci. Hydraul. Eng.*, **21**, 25-35.
  22. Yoshimura, K., T. Oki, N. Ohte, and S. Kanae, 2003: A quantitative analysis of short-term <sup>18</sup>O variability with a Rayleigh-type isotope circulation model. *J. Geophys. Res.*, **108**(D20), 4647, doi:10.1029/2003JD003477.

### Work in progress:

1. Welp, L., R.F. Keeling, H.A.J. Meijer, A.F. Bollenbacher, S.C. Piper, K. Yoshimura, R.J. Francey, C.E. Allison, and M. Wahlen, El Nino effects on the isotopic composition of oxygen in atmospheric CO<sub>2</sub>, submitted to *Nature*.
2. C.-L. Jiang, S.T. Gille, J. Sprintall, K. Yoshimura and M. Kanamitsu, Spatial variation in turbulent heat fluxes in Drake Passage, submitted to *J. Clim.*
3. Bekelhammer, M., L. Stott, K. Yoshimura, K. Johnson, and A. Sinha, Synoptic and mesoscale controls on the isotopic composition of precipitation in the southwestern US, submitted to *Clim. Dyn.*
4. Song, J.-I., S.-Y. Hong, H.-W. Kim, S.-J. Ham, K. Yoshimura and M. Kanamitsu, Efficient data assimilation using an incremental vertical interpolation method for regional models, submitted to *Wea. Forecast*, in revision.
5. Yoshimura, K., C. Frankenberg, and T. Röckmann, Validating an isotopic AGCM with new satellite measurements for vapor isotopes, in preparation.
6. Yoshimura, K., H. Kanamaru, W. Ohfuchi, and M. Kanamitsu, JP10: 59-year 10 km dynamical downscaling of Reanalysis over Japan, in preparation.

### RECENT CONFERENCE PRESENTATIONS

- 2010 AGU Fall Meeting, "Isotope simulation for 140 years with Reanalysis atmospheric and its comparison with climate proxy data", San Francisco, 2010.
- 3rd ACRE Workshop, "A 140-year long historical water isotope simulation with the 20th century reanalysis and its comparison with climate proxy data", Baltimore, USA, Nov. 3-5, 2010.
- 10th International Regional Spectral Model Workshop, "Introduction on isotope-incorporated G-RSM", Sapporo, Japan, August 9-13, 2010.
- Workshop on the water isotopologues in the atmosphere, "Regional downscaling for stable water isotopes: A case study of an Atmospheric River event", Paris, France, 27-30 April 2010.
- Workshop on dynamical downscaling over Japan, "Specification of lateral boundary values: "Incremental interpolation of vertically coarse global forcing data for regional model integrations", Tsukuba, Japan, 25-27 January, 2010.
- 9<sup>th</sup> RSM workshop, "Progress in numerics: Spectral nudging & incremental interpolation", Maui, Aug. 3-6, 2009.
- RCM2009, "Incremental interpolation of coarse global forcings for regional model integrations", Lund, Sweden, May 4-8, 2009.

### NEWS ARTICLES, ETC.

- "Not so much the heat, but the humidity" in *Explorations*, SIO e-magazine, Nov/Dec 2009. [http://explorations.ucsd.edu/Research\\_Highlights/2009/Nov\\_Dec/Water\\_Vapor/](http://explorations.ucsd.edu/Research_Highlights/2009/Nov_Dec/Water_Vapor/)
- Report on ICSU Young Scientist Conference, *WCRP News*, 8/28/2007. [http://www.icsu.org/1\\_icsuinscience/ARCHIVE/10\\_icsu75/PDF/Kei\\_Yoshimura\\_WCRP.pdf](http://www.icsu.org/1_icsuinscience/ARCHIVE/10_icsu75/PDF/Kei_Yoshimura_WCRP.pdf)