

Youngwook Kim

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EDUCATION

- December 2007 **THE UNIVERSITY OF ARIZONA**, Tucson, AZ
PhD in Soil, Water, and Environmental Science
- Specialty in Remote Sensing and Spatial Analysis
 - Dissertation: Multisensor translation and continuity of vegetation indices using Hyperspectral data (Advisor: Dr. Alfredo R. Huete)
- February 1997 **SEOUL NATIONAL UNIVERSITY**, Seoul, Korea
M.S. in Urban Planning (Environmental Management)
- Thesis: The Analysis of the spatial distribution of odors with consideration of terrain and meteorological effect
- February 1995 **YONSEI UNIVERSITY**, Seoul, Korea
B.S. in Atmospheric Science

EMPLOYMENT

- Dec 2013-Current **THE UNIVERSITY OF MONTANA**, Missoula, MT
Sr. Research Scientist, Numerical Terradynamic Simulation Group (NTSG), College of Forestry & Conservation
- Sep 2008-Nov 2013 **THE UNIVERSITY OF MONTANA**, Missoula, MT
Research Scientist, Numerical Terradynamic Simulation Group (NTSG)/Flathead Lake Biological Station (FLBS), College of Forestry & Conservation
- Mar –Aug 2008 **EARTH KNOWLEDGE, INC.**, Tucson, AZ
Geospatial Analyst/Application Developer
- 2003-2007 **THE UNIVERSITY OF ARIZONA**, Tucson, AZ
Graduate Research Associate, Terrestrial Biophysical Remote Sensing (TBRS), Department of Soil, Water and Environmental Science

RESEARCH PROJECT EXPERIENCE

1. NASA Earth System Data Records Uncertainty Analysis (2013-2016)
2. Making Earth System data records for Use in Research Environments (2008-2018)
3. National Polar-Orbiting Environmental Satellite System Preparatory Project (2004-2007)
4. An Investigation of the Environmental Effect around Kimpo Landfill (1996)

PUBLICATIONS

Peer-reviewed Journal Articles (IF=Impact factor in 2015)

21. G. A., I. Velicogna, J. S. Kimball, J. Du, **Y. Kim**, A. Colliander, and E. Njoku. (2017) "Satellite-observed changes in vegetation sensitivities to surface soil moisture and total water storage variations since the 2011 Texas drought" (*Accepted, ERL*) (IF=4.134)
20. C. Derksen, X. Xu, R. S. Dunbar, A. Colliander, **Y. Kim**, J. Kimball, A. Black, E. Euskirchen, A. Langlois, M. Loranty, P. Marsh, K. Rautiainen, A. Roy, A. Roy, and J. Stephens (2017) "Retrieving landscape freeze/thaw state from Soil Moisture Passive (SMAP) radar and radiometer measurements" *Remote Sensing of Environment*, 194, 48-62 (IF=5.881)
19. **Youngwook Kim**, J. S. Kimball, J. Du, and J. Glassy. (2017) "An Extended Global Earth System Data Record on Daily Landscape Freeze-Thaw Status Determined from Satellite Microwave Remote Sensing" *Earth System Science Data*, 9, 133-147 (IF=8.286)
18. J. Du, J. S. Kimball, C. Duguay, **Y. Kim**, and J. Watts. (2017) "Satellite Microwave Assessment of Northern Hemisphere Lake Ice Phenology from 2002 to 2015" *The Cryosphere*, 11, 47-63 (IF=4.906)
17. H. Park, **Y. Kim**, and J. S. Kimball (2016) "Widespread permafrost vulnerability and soil active layer increases over the high northern latitudes inferred from satellite remote sensing and process model assessments" *Remote Sensing of Environment*, 175, 349-358 (IF=5.881)
16. H. Park, Y. Yoshikawa, K. Oshima, **Y. Kim**, T. Ngo-Duc, J. S. Kimball, and D. Yang (2016) "Quantification of warming climate-induced changes in the terrestrial Arctic river ice thickness and phenology" *Journal of Climate*, 29, 1733-1754 (IF=4.850)
15. R. John, J. Chen, **Y. Kim**, Z. Ou-Yang, H. Park, J. Xiao, C. Shao, A. Amarjargal, Y. Zhang, O. Batkhishig, and J. Qi (2016) "Differentiating anthropogenic modification and precipitation-driven change on vegetation productivity on the Mongolian plateau" *Landscape Ecology*, 31 (3), 547-566 (IF=3.657)
14. P. Dass, M. A. Rawlins, J. S. Kimball, and **Y. Kim** (2016) "Environmental controls on the increasing GPP of terrestrial vegetation across northern Eurasia" *Biogeosciences*, 13, 45-62 (IF=3.700)
13. G. A., I. Velicogna, J. S. Kimball, and **Y. Kim** (2015) "Impact of changes in GRACE derived terrestrial water storage on vegetation growth in Eurasia" *Environmental Research Letters*, 10, 124024 (IF=4.134)
12. W. Zhang, Y. Yi, J. S. Kimball, **Y. Kim**, and K. Song (2015) "Climatic controls on spring onset of the Tibetan Plateau grasslands from 1982 to 2008" *Remote Sensing*, 7, 16607-16622 (IF=3.036)
11. **Youngwook Kim**, J. S. Kimball, D. A. Robinson, C. Derksen (2015) "New satellite climate data records indicate strong coupling between recent frozen season changes and snow cover extent over high northern latitudes" *Environmental Research Letters*, 10, 084004 (IF=4.134)
10. W. Kim, ..., **Y. Kim**, and FluxPro Committee (2015) "FluxPro as a realtime monitoring and surveillance system for eddy covariance flux measurement" *Journal of Agricultural Meteorology*, 71:32-50. doi.org/10.2480/agrmet.D-14-00034 (IF=0.467)
9. C. Shim, J. Hong, J. Hong, **Y. Kim**, M. Kang, Y. Kim, & J. Chun (2014) "Evaluation of MODIS GPP over a complex forest ecosystem in East Asia: a case study of Gwangneung flux tower in Korea" *Advances in Space Research*, 54, 2296-2308 (IF=1.409)
8. **Youngwook Kim**, J. S. Kimball, K. Didan and G. M. Henebry (2014) "Response of vegetation growth and productivity to spring climate indicators in the conterminous United

- States derived from satellite remote sensing data fusion” *Agricultural and Forest Meteorology*, 194, 132-143. 10.1016/j.agrformet.2014.04.001 (IF=4.461)
7. **Youngwook Kim**, J. S. Kimball, K. Zhang, K. Didan, I. Velicogna, and K. C. McDonald (2014) “Attribution of divergent northern vegetation growth responses to lengthening non-frozen seasons using satellite optical-NIR and microwave remote sensing” *International Journal of Remote Sensing*, 35 (10), 3700-3721, 10.1080/01431161.2014.915595 (IF=1.640)
 6. **Youngwook Kim** (2013) “Drought and elevation effects on MODIS vegetation indices in northern Arizona ecosystems” *International Journal of Remote Sensing*, 34 (14), 4889-4899 (IF=1.640)
 5. **Youngwook Kim**, J. S. Kimball, K. Zhang and K. C. McDonald (2012) “Satellite detection of increasing northern hemisphere non-frozen seasons from 1979 to 2008: Implications for Regional Vegetation Growth” *Remote Sensing of Environment*, 121, 472-487 (IF=5.881)
 4. K. Zhang, J. S. Kimball, **Y. Kim** and K. C. McDonald (2011) “Changing freeze-thaw seasons and associated influences on evapotranspiration” *Hydrological Processes*, 25, 4142-4151, (doi:10.1002/hyp.8350) (IF=2.768)
 3. **Youngwook Kim** (2011) “Monitoring recent vegetation greenness trend impacted from past drought events in Northern Arizona with AVIRIS and MODIS” *Journal of Remote Sensing & GIS*, 2 (1), Nov, 23-33.
 2. **Youngwook Kim**, J. S. Kimball, K. C. McDonald, and J. Glassy (2011) “Developing a Global Data Record of Daily Landscape Freeze/Thaw Status using Satellite Microwave Remote Sensing” *IEEE Transactions on Geoscience and Remote Sensing*, 49 (3), 949-960 (*Chosen as Cover Story*) (IF=3.360)
 1. **1. Youngwook Kim**, A. R. Huete, T. Miura, and Z. Jiang (2010) “Spectral compatibility of vegetation indices across sensors: band decomposition analysis with Hyperion data” *Journal of Applied Remote Sensing*, vol. 4, 043520 (IF=0.937)

Chapters in Scholarly Books

1. **Kim, Y.**, J. S. Kimball, and J. Du. (2017) “Satellite detection of landscape freeze/thaw status related to frost hazard applications”, In *Remote sensing of hydro-meteorological hazards*. CRC Press (*Accepted*)
2. Huete, A. R., **Kim, Y.**, Ratana, P., Didan, K., Shimabukuro Y. E., and Miura, T. (2008) “Chap. 11 Assessments of phenologic variability in Amazon tropical rainforests using hyperspectral Hyperion and MODIS satellite data”, In: (Kalacska M., Sanchez-Azofeifa, A., eds.), *Hyperspectral Remote Sensing of Tropical and Sub-Tropical Forests*. CRC Press, 320pp.

Published Proceedings

1. X. Xu, C. Derksen, R. S. Dunbar, A. Colliander, J. Kimball, **Y. Kim**, and S. Yueh (2016) “Landscape Freeze/thaw products from soil moisture active/passive (SMAP) radar and radiometer data” *Geoscience and Remote Sensing Symposium (IGARSS)*, 2016 IEEE International. 10-15 July 2016, Beijing, China
2. Xu, X., S. Dunbar, A. Colliander, C. Derksen, **Y. Kim** and K. S. Kimball (2015) “Preparation for the soil moisture active passive (SMAP) Freeze-thaw product using Aquarius data”, *Geoscience and Remote Sensing Symposium (IGARSS)*, 2015 IEEE International.
3. **Youngwook Kim**, Alfredo Huete, Zhangyan Jiang, and Tomoaki Miura (2007) “Multisensor reflectance and vegetation index comparisons of Amazon tropical forest phenology with hyperspectral Hyperion data” *SPIE 6679-05, Proceedings on Remote Sensing and Modeling of Ecosystems for Sustainability IV* (doi:10.1117/12.734974).

4. Zhangyan Jiang, Alfredo R. Huete, **Youngwook Kim**, Kamel Didan (2007) “2-band Enhanced Vegetation Index without a blue band and its application to AVHRR data” SPIE 6679-04, *Proceedings on Remote Sensing and Modeling of Ecosystems for Sustainability IV*.
5. Huete, A. R., Miura, T., **Kim, Youngwook**, Didan, K., and Privette, J. (2006) “Assessments of multisensor vegetation index dependencies with hyperspectral data and tower flux data” SPIE 6298-45, *Proceedings on Remote Sensing and Modeling of Ecosystems for Sustainability III*. (Invited paper).

Technical Articles

1. S. Dunbar, X. Xu, A. Colliander, J. Kimball, **Y. Kim**, and C. Derksen. (2016). “Algorithm Theoretical Basis Document (ATBD): SMAP level 3 radiometer freeze/thaw data product (L3_FT_P)”. SMAP Project, Jet Propulsion Laboratory, Pasadena, CA
2. Derksen, C., X. Xu, S. Dunbar, A. Colliander, J. Kimball, and **Y. Kim**. (2015). Calibration and Validation for the L3_FT_A Beta-Release Data Product. SMAP Project, D-93983. Jet Propulsion Laboratory, Pasadena, CA.
3. S. Dunbar, X. Xu, A. Colliander, K. McDonald, E. Podest, E. Njoku, J Kimball, **Y. Kim**, and C. Derksen (2014) “Soil Moisture Active Passive (SMAP) Project: Algorithm Theoretical Basis Document (ATBD), SMAP Level 3 Radar Freeze/Thaw Data Product version 3 (L3_FT_A)”
4. **Y. Kim**, J. S. Kimball, and J. G. Glassy (2014) “A Global Data Record of Daily Landscape Freeze/Thaw status Version 3.0”
5. J. S. Kimball, K. C. McDonald, **Y. Kim**, and J. G. Glassy (2009) “NASA MEaSUREs: Making Earth System Data Records for Use in Research Environments (NNH06ZDA001N)-An Earth System Data Record for Land Surface Freeze/Thaw State, Algorithm Theoretical Basis Document (ATBD) version 1”.

PUBLISHED REMOTE SENSING DATASETS

1. S. Dunbar, X. Xu, A. Colliander, C. Derksen, K. McDonald, E. Podest, E. Njoku, J. Kimball, and **Y. Kim**. (2016). SMAP L3 Radar Northern Hemisphere Daily 3 km EASE-Grid Freeze/Thaw state. Version 3. [indicate subset used]. Boulder, Colorado USA: NASA DAAC at the National Snow and Ice Data Center. <http://dx.doi.org/10.5067/CPSA0M496MGB>
2. Dunbar, R. S., X. Xu, A. Colliander, C. Derksen, J. S. Kimball, and **Y. Kim** (2016). SMAP Enhanced L3 Radiometer Northern Hemisphere Daily 9 km EASE-Grid Freeze/Thaw State, Version 1. [Indicate subset used]. Boulder, Colorado USA. NASA National Snow and Ice Data Center Distributed Active Archive Center. doi: <http://dx.doi.org/10.5067/Z08PIR8RGVR2>
3. Xu, X., R. S. Dunbar, C. Derksen, A. Colliander, **Y. Kim**, and J. S. Kimball. (2016). SMAP L3 Radiometer Northern Hemisphere Daily 36 km EASE-Grid Freeze/Thaw State, Version 1. [Indicate subset used]. Boulder, Colorado USA. NASA National Snow and Ice Data Center Distributed Active Archive Center. doi: <http://dx.doi.org/10.5067/RDEJQEETCNWV>
4. S. Dunbar, X. Xu, A. Colliander, C. Derksen, K. McDonald, E. Podest, E. Njoku, J. Kimball, and **Y. Kim**. (2015). SMAP L3 Radar Northern Hemisphere Daily 3 km EASE-Grid Freeze/Thaw state. Version 2. [indicate subset used]. Boulder, Colorado USA: NASA DAAC at the National Snow and Ice Data Center. <http://dx.doi.org/10.5067/GO4QPNEM0BKF>

5. **Youngwook Kim**, J. S. Kimball, J. Glassy and K. C. McDonald. (2014). MEaSUREs Global Record of Daily Landscape Freeze/Thaw Status. Version 3. [indicate subset used]. Boulder, Colorado USA: NASA DAAC at the National Snow and Ice Data Center. <http://dx.doi.org/10.5067/MEASURES/CRYOSPHERE/nsidc-0477.002>
6. **Youngwook Kim**, J. S. Kimball, J. Glassy and K. C. McDonald. (2013). Updated 2012. MEaSUREs Global Record of Daily Landscape Freeze/Thaw Status, version 2, [indicate subset used]. Boulder, Colorado USA: NASA DAAC at National Snow and Ice Data Center. <http://dx.doi.org/10.5067/MEASURES/CRYOSPHERE/nsidc-0477.002> ; <http://freezethaw.nts.g.umd.edu>
7. **Youngwook Kim**, J. S. Kimball, and K. C. McDonald. (2010). MEaSUREs Global Record of Daily Landscape Freeze/Thaw Status, version 01, [1988-2007]. Boulder, Colorado USA: National Snow and Ice Data Center. Digital media; <http://freezethaw.nts.g.umd.edu>, <http://nsidc.org/data/nsidc-0477.html>

SELECTED CONFERENCE PRESENTATIONS

1. **Y. Kim**, J. S. Kimball, J. Du, J. Glassy, and C. Schaaf (2016) “Quantifying the effects of spring freeze-thaw transitions and snowpack dynamics on surface albedo change using satellite optical and microwave remote sensing” AGU Fall 2016 Meeting, 12-16 December 2016, San Francisco, California
2. **Youngwook Kim**, J. S. Kimball, D. A. Robinson, and C. Derksen (2015) “Integrated satellite assessment of regional trends in snowmelt and frozen ground conditions over the pan-Arctic” AGU Fall 2015 Meeting, 14-18 December 2014, San Francisco, California (*submitted*)
3. **Youngwook Kim**, J. S. Kimball, J. Du, and J. Glassy (2014) “Improvements and extension to a global Earth System Data Record of daily landscape freeze-thaw status determined from satellite microwave remote sensing” AGU Fall 2014 Meeting, 15-19 December 2014, San Francisco, California
4. **Youngwook Kim**, J. S. Kimball and K. Didan (2013) “Satellite prediction of spring frost impacts on vegetation growth and productivity within the conterminous US” AGU Fall 2013 Meeting, 9-13 December 2013, San Francisco, California
5. **Youngwook Kim**, J. S. Kimball and K. Didan (2013) “Satellite detection of changing frozen seasons and associated impacts on northern hemisphere vegetation growth” 7th International Workshop on the Analysis of Multi-temporal Remote Sensing Images, 25-27 June 2013, Banff, Alberta, Canada
6. **Youngwook Kim**, J. S. Kimball, K. Zhang, K. Didan and K. C. McDonald (2013) “Frozen season impacts on northern high latitude vegetation growth under cold temperature and moisture constraints” 2013 NASA Terrestrial Ecology Science Team Meeting, 30 April-2 May 2013, La Jolla, CA
7. **Youngwook Kim**, J. S. Kimball, K. Zhang, and K. Didan (2013) “Winter frozen season effects on vegetation canopy growth in northern high latitudes” Workshop on long term vegetation index and phenology products from multiple satellite records, 23-24 January 2013, Tucson, Arizona (*Invited*)
8. **Youngwook Kim**, J. S. Kimball, K. Zhang and K. Didan (2012) “The effect of winter season changes on Northern Hemisphere vegetation canopy growth determined from satellite microwave and optical remote sensing” AGU Fall 2012 Meeting, 3-7 December 2012, San Francisco, California
9. **Youngwook Kim**, J. S. Kimball, K. Zhang and K. C. McDonald (2011) “Satellite detection of Northern Hemisphere Non-Frozen season changes and associated

- impacts to vegetation growing seasons” AGU Fall 2011 Meeting, 5-9 December 2011, San Francisco, California
10. **Youngwook Kim**, J. S. Kimball, K. Zhang and K. C. McDonald (2011) “30-year Northern Hemisphere Freeze/Thaw seasonal trends and associated impacts to vegetation growing seasons and Carbon Exchange” 2011 NASA Carbon Cycle & Ecosystems Joint Science Workshop, 3-7 October 2011, Alexandria, VA
 11. **Youngwook Kim**, J. S. Kimball, K. C. McDonald, and J. Glassy (2010) “Satellite derived 30-year trends in terrestrial frozen and non-frozen seasons and associated impacts to vegetation and atmospheric CO₂” AGU Fall 2010 Meeting, 13-17 December 2010, San Francisco, California
 12. **Youngwook Kim**, J. S. Kimball, K. C. McDonald, and J. Glassy (2010) “Global Landscape Freeze-Thaw classification using Satellite Microwave Remote Sensing” 2010 NASA Terrestrial Ecology Science Team Meeting, 15-17 March 2010, La Jolla, CA
 13. **Youngwook Kim**, J. S. Kimball, K. C. McDonald, and J. Glassy (2009) “Global Mapping of Landscape Freeze-Thaw Status using Spaceborne Microwave Remote Sensing” AGU Fall 2009 Meeting, 14-18 December 2009, San Francisco, California
 14. **Y. Kim**, J. S. Kimball, K. C. McDonald, and K. Zhang (2009) “Terrestrial Freeze-Thaw Monitoring in the Northern Hemisphere using Satellite Active and Passive Microwave Remote Sensing” 4th Global Vegetation Workshop 2009, NTSG, University of Montana, Missoula, MT. 16-19 June, 2009
 15. **Kim, Youngwook**, Huete, A. R., and Miura, T. (2006) “Evaluation of cross sensor vegetation index dependencies with hyperspectral data” Global Vegetation Workshop 2006, NTSG, University of Montana, Missoula, MT. 7-10 August, 2006
 16. **Kim, Youngwook**, Huete, A. R. (2005) “Remotely Sensed Ecosystem Impacts of Drought at C. Hart Merriam Transect”, 8th Biennial Conference of Research on the Colorado Plateau, Northern Arizona University, Flagstaff, November 7-10 2005
 17. **Youngwook Kim**, Alfredo R. Huete, and Kamel Didan (2004), “Monitoring Ecosystem Carbon and Water Variations During a Severe Drought in the Southwest With AVIRIS and MODIS Sensor Data”, 2004 AGU Fall Meeting, 13-17 December 2004, San Francisco, California
 18. **Youngwook Kim**, Hojin Kim, and Alfredo Huete (2004), “Drought and Bark Beetle Tree Mortality Detection with AVIRIS Data in Southwestern USA Forests”, AVIRIS Airborne Geoscience Workshop Proceedings, Pasadena, California, USA, March 31 - April 2
 19. **Youngwook Kim**, Kamel Didan, Hojin Kim, and Alfredo Huete (2004), “Drought and Bark Beetle Tree Mortality Assessment with AVIRIS and MODIS Data in Southwestern USA Forests”, AVIRIS Airborne Geoscience Workshop Proceedings, Pasadena, California, USA, March 31 - April 2

PROFESSIONAL AFFILIATION

- American Geographical Union (AGU), 2004-Present

COMMITTEE APPOINTMENTS

- NASA Arctic Boreal Vulnerability Experiment ABoVE Science Cloud (ASC) user group
- NASA Arctic Boreal Vulnerability Experiment (ABoVE) Science Team
- NASA Soil Moisture Active Passive (SMAP) Algorithm Development Team

PROPOSAL REVIEWER

- NASA proposal reviewer (NASA Terrestrial Ecology Program)

JOURNAL REFEREE

- Global Change Biology
- Global Ecology and Biogeography
- Remote Sensing of Environment
- Journal of Biogeography
- IEEE Transactions on Geoscience and Remote Sensing
- International Journal of Remote Sensing
- Canadian Journal of Remote Sensing
- IEEE Geoscience and Remote Sensing Letters
- Journal of Applied Meteorology and Climatology
- Journal of Applied Remote Sensing (2012, 2013 Certificate of Appreciation)
- IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing
- Remote Sensing, MDPI
- GIScience and Remote Sensing
- Landscape and Urban Planning
- Atmosphere
- International Journal of Environmental Research and Public Health
- Journal of Integrative Agriculture
- Environmental Research Letters
- Data in Brief
- European Journal of Remote Sensing
- Science of the Total Environment
- Atmospheric Environment

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