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EDUCATION

Virginia Tech, Blacksburg, Virginia
B.S. in Forest Land Management, 1985
North Carolina State University, Raleigh, North Carolina
M.S. in Forestry (Remote Sensing/GIS) 1999
University of New Hampshire, Durham, New Hampshire
PhD in Natural Resources (Remote Sensing) 2006

RESEARCH INTERESTS

As a research biologist with the US Environmental Protection Agency (EPA) I have specialized in geospatial research with an emphasis on environmental remote sensing. Over the past 15 years at this Agency my research has focused on evaluating land cover and forest biophysical variables (i.e. LAI) in the Albemarle-Pamlico Basin (APB), Great Lakes Watershed, and Puerto Rico. I have worked with multiple remotely sensed data types including multi-spectral and hyperspectral optical data, lidar, and radar. I am currently tasked as a Co-Investigator for the terrestrial remote sensing component embedded within a multi-agency NASA funded research project investigating cyanobacteria counts in freshwater aquatic systems.

EXPERIENCE

Research and Program Management

1998- present

Research Biologist, U.S. Environmental Protection Agency, Office of Research and Development, National Exposure Research Laboratory, Environmental Sciences Division, Landscape Characterization Branch.

I. Project Co-Investigator (2013-present) for the assessment of LAI (modelled and remotely-derived) for input into CMAQ atmospheric modeling:

- Lead author on scaling issues of modelled and remotely sensed LAI (submission date: Spring 2015)
- Co-author on field-derived and modelled LAI (submission date: Spring 2015)

II. Project team lead (2011-2013) for the Puerto Rico Above-Ground Biomass Project:

- Oversaw student contract work on establishing baseline (2000) above-ground biomass product for Puerto Rico and the US Virgin Islands
- Lead author on above-ground biomass product (submission date: Summer 2015)

III. Project team member (2006-2012) for the Great Lakes Basin (GLB) MODIS NDVI Change Detection research:

- GIS and Remote Sensing data acquisition and processing
- Assessment of the MOD12Q1 MODIS 1 km Land Cover Product
- Development of agricultural mask for GLB region
- Land cover mapping from digital image processing of MODIS NDVI time-series
- Development of web based application for GLB

IV. Principal Investigator (2002-present) for Leaf Area Index MODIS validation research in the Albemarle-Pamlico Basin including:

- Design of study, including sampling framework and methods
- Solicitation of research collaborators in public and private sectors
- Coordination of fieldwork (2002, 2003)
- MODIS/LANDSAT ETM+/IKONOS digital image processing
- Established NASA MODIS LAI “Loblolly Pine” Validation

V. Project team lead (1998-99) for the Neuse River Virtual Field Reference Database (VFRDB) field reference data acquisition that included:

- Overall planning, organizing, and supervision for field research program
- Logistical and technical support for field biologists
- Design of database and quality assurance protocols
- Integration of sampling design into GIS
- Development of web based application for VFRDB (<http://www.epa.gov/nerlesd1/lcb/nrb/VFRDB/>)
- Assessed inter-operator variability using VFRDB between two interpreters\

1997-1999

Graduate Research Assistant, North Carolina State University (NCSU), Center for Earth Observation, Department of Forestry. Worked as team member for Coastal Change Analysis Program (CCAP) in the assessment of field data verification. Developed SPOT data layer for web-based application using ArcIMS for NCSU library. Assisted in the testing of ArcView graphical user interface designed for Soil Water Assessment Tool (SWAT).

Teaching

1997-1999

Graduate Teaching Assistant, North Carolina State University, Department of Forestry.

2010-Present

Adjunct Professor, North Carolina State University. Courses Taught: FOR 353 (Air Photo Interpretation) 2011-2013.

SPECIALIZED TRAINING

Digital Image Processing/GIS

Extensive training in processing digital image data for land cover products. Experience in both aerial photography and satellite imagery acquisition. Operational expertise with Earth Resources Data Applications Software (ERDAS), ENvironment for Visualizing Images (ENVI), and Environmental Systems Resource Institute (ESRI) ArcMAP GIS applications.

PUBLICATIONS AND MAJOR REPORTS

Peer Reviewed Journal Articles and Conference Proceedings

Iiames, J.S., Congalton, R.G., Lewis, T.E., and Pilant, A., 2015. Uncertainty Analysis in the Creation of a Fine-Resolution Leaf Area Index (LAI) Reference Map for Validation of Moderate Resolution LAI Products. *Remote Sensing*, 7:1397-1421 (DOI: 10.3390/rs70201397)

Marks, W., Iiames, J.S., Lunetta, R.S., Khorram, S., and Mace, T.H., 2014. Basal Area and Biomass Estimates of Loblolly Pine Stands using L-Band UAVSAR. *Photogrammetric Engineering and Remote Sensing*, 80(1):33-42.

Iiames, J.S., Congalton, R.G., and Lunetta, R.S., 2013. Analyst variation associated with landcover image classification of Landsat ETM+ data for the assessment of coarse spatial resolution regional/global landcover products. *GIScience and Remote Sensing*, 50(6): 604-622. (DOI: 10.1080/15481603.2013.865399)

Iiames, J.S. and Lunetta, R., 2013. Classification and Accuracy Assessment for Coarse Resolution Mapping within the Great Lakes Basin, USA. *Photogrammetric Engineering and Remote Sensing*, 79(11):1015-1026.

Shao, Y., Lunetta, R.S., Ediriwickrema, J. and Iiames, J., 2010. Mapping Cropland and Major Crop Types across the Great Lakes Basin using MODIS-NDVI Data. *Photogrammetric Engineering and Remote Sensing*, 75:73-84. (http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=190126)

Iiames, J.S., 2010. Accuracy sampling design bias on coarse spatial resolution land cover data in the Great Lakes Region (United States and Canada). Accuracy 2010 Symposium, Leicester, U.K., 389-391.

Rashleigh, B., Keith, D.J., Williams, D.J., Mangis, D.R., Schwede, D.B., Worthy, L.D., Iiames, J.S., Pugh, K. and McCutcheon, S.C., 2010. Ecosystem Services Research Program (ESRP) Albemarle-Pamlico Watershed and Estuary Study (APWES) Research Plan. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-10/180 (NTIS PB2011-105281). (http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=231905)

Iiames, J.S., Congalton, R.G., Pilant, A.N., and Lewis, T.E., 2008. Validation of an integrated estimation of Loblolly pine (*Pinus taeda* L.) leaf area index (LAI) utilizing two indirect optical methods in the southeastern United States. *Southern Journal of Applied Forestry*, 32(3):101-110.

Iiames, J.S., Congalton, R.G., Pilant, A.N., and Lewis, T.E., 2008. Leaf area index (LAI) change detection analysis on Loblolly pine (*Pinus taeda*) following complete understory removal. *Photogrammetric Engineering and Remote Sensing*, 74(11):1389-1400. (http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=162391)

Iiames, J.S. (2006). Assessing the accuracy of the MODIS LAI 1-km product in southeastern United States loblolly pine plantations: Accounting for measurement variance from ground to satellite: PhD Dissertation, Department of Natural Resources, University of New Hampshire, 184 pp., Major Advisor: Dr. R.G. Congalton.

Morisette, J., Privette, J.L., Baret, F., Myneni, R.B., Nickeson, J., Garrigues, S., Shabanov, N., Fernandes, R., Leblanc, S., Kalacska, M., Sanchez-Azofeifa, G.A., Chubey, M., Rivard, B., Stenberg, P., Rautiainen, M., Voipio, P., Manninen, T., Pilant, A., Lewis, T., Iiames, J., Colombo, R., Meroni, M., Busetto, L., Cohen, W., Turner, D., Warner, E.D., and Petersen, G.W., 2006. Validation of global moderate-resolution LAI products: A framework proposed within CEOS Land Product Validation Subgroup. *IEEE Geoscience and Remote Sensing*, 44(7):1804-1817.

Iiames, J., Pilant, A.N., and T.E. Lewis, 2004. In Situ Estimates of Forest LAI for MODIS Data Validation. In: Geospatial Data Accuracy Assessment. (R.L. Lunetta, and J.G. Lyon, Editors), U.S. Environmental Protection Agency, Report No. EPA/600/ R-03/064 (Las Vegas, NV), 335 p.

Iiames, J.S., Pilant, A.N., and Lewis, T.E., 2004. In-situ estimates of forest LAI for MODIS data validation. Invited chapter IN: Lunetta, R. and J. Lyon (eds.), Remote Sensing and GIS Accuracy Assessment, CRC Press, Boca Raton, FL, ISBN 156670443X, p. 41-58, 2004-1. (http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=85044)

Iiames, J.S., Pilant, A.N., Lewis, T.E., and Congalton, R.G., 2004. Leaf Area Index (LAI) Change Detection on Loblolly Pine Forest Stands with Complete Understory Removal, ASPRS Annual Conference Proceedings, Denver, Colorado, 11 p.

Iiames, J.S., Pilant, A.N., Lewis, T.E., and Congalton, R.G., 2004. Accounting for error propagation in the development of a leaf area index (LAI) reference map to assess the MODIS MOD15A2 LAI product, TIES 2004 – Accuracy 2004 Joint Meeting Proceedings, Portland, Maine, 14 p.

Pala, O., Khorram, S., Iiames, J., and Knight, J., 2003. Identification and mapping of riparian vegetation in eastern North Carolina using remotely sensed data, ASPRS Annual Conference Proceedings, Anchorage, Alaska, 11 p.

Lunetta, R.S., J. Ediriwickrema, Iiames, J.S., Johnson, D., Lyon, J.G., McKerrow, A., and Pilant, D., 2003. A quantitative assessment of a combined spectral and GIS rule-based land-cover classification in the Neuse River Basin of North Carolina, *Photogrammetric Engineering and Remote Sensing*, 69(3):299-310. (http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=65112)

Pilant, A.N., Lunetta, R.S., Slonecker, T., Streicher, J., Iiames, J.S. and Ediriwickrema, J., 2001. Analysis of land cover using AVIRIS imagery in the North Carolina coastal plain. Proceedings of the 12th JPL Airborne Earth Science Workshop, Pasadena, CA.

Lunetta, R.S., Iiames, J.S., Knight, J., Congalton, R.G., and Mace, T.H., 2001. An Assessment of Reference Data Variability Using a “Virtual Field Reference Database.” *Photogrammetric Engineering and Remote Sensing*, 66(6):707-715. (http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=64359)

Iiames, J.S. (1999) The effect of deciduous understory on two crown closure estimation techniques: the vertical tube and the spherical Densimeter: M.S. Thesis, Department of Forestry, North Carolina State University, 69 pp., Major Advisor: Dr. Siamak Khorram.

ORAL PRESENTATIONS AND BRIEFINGS

11/14, Poster Presentation, “A Comparison of Simulated Leaf Area Index values and Satellite-derived LAI values from an Oak-Hickory Forest Complex in southwestern Virginia, USA”, Pecora 19: "Sustaining Land Imaging: UAS to Satellites", Denver, Co., 11/18/2014.

04/14, Oral Presentation, “Nutrient Hot Spot Assessment through Remote Sensing”, Briefing for EPA-Idaho National Laboratory meeting, 4/1/2014.

12/13, Poster Presentation, “A comparison of two above-ground biomass estimation techniques integrating satellite-based remotely sensed data and ground data for tropical and semiarid forests in Puerto Rico”, American Geophysical Union Fall Conference, 12/2013

08/13, Oral Presentation, “A comparison of two above-ground biomass estimation techniques integrating satellite-based remotely sensed data and ground data for tropical and semiarid forests in Puerto Rico”, Graduate School Seminar at UNC, 08/29/2013.

11/12, Oral Presentation, “Change Analysis using MODIS time-series data”, Seminar at UNC Geography Department, 11/09/2012.

09/12, Oral Presentation, “A Comparison of SRTM and GLAS Derived Tree Heights for Tropical and Semiarid Forests in Puerto Rico and the U.S. Virgin Islands”, ForestSAT 2012, Eugene, Oregon, September 11-14, 2012.

06/12, Oral Presentation, “Puerto Rico Linkage into the National Atlas”, Puerto Rico Sustainable Communities Presentation, RTP, NC, June 20, 2012.

03/12, Oral Presentation, “An Analysis on Landcover Classification and Error Assessment Techniques at two Ecoregional Spatial Extents within the Laurentian Great Lakes Basin.”, 2012 ASPRS Annual Conference, Sacramento, California, March 22, 2012.

11/11, Oral Presentation, “Remote Sensing of Wetlands”, ASPRS Workshop, PECORA Conference, Herndon, Va., November 13, 2011.

11/11, APNEP presentation at the 21st Biennial Conference of the Coastal and Estuarine Research Federation, Daytona Beach, FL (Wetland slides provided by J. Iames; presenter Marilyn ten Brink).

03/11, Nitrogen Landscape Modeling in the Albemarle-Pamlico Watershed Estuary System (APWES), NERL Modelers Meeting, Las Vegas, NV, March 2, 2011

02/11, Nitrogen Landscape Modeling in the Albemarle-Pamlico Watershed Estuary Study (APWES) – Wetland Collaboration Meeting. RTP, NC. February 28, 2011

11/10, APNEP Scientific and Technical Advisory Committee Presentation: “EPA’s Albemarle-Pamlico Watershed Study Draft Implementation”, November 2, 2010, Kinston, NC

08/10, Poster Presentation, “Accuracy Sampling Design Bias on Coarse Spatial Resolution Land Cover Data in the Great Lakes Region (United States and Canada),” Accuracy 2010, Leicester, UK, August 20-23.
(http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=223223)

07/09, Session Chair (Invited), “Accuracy Assessment of Land Use and Land Cover Data”, Keynote for Invited Special Session, MultiTemp 2009, July 29-30, Mystic, Connecticut.
(http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=203783)

05/09, Lunetta, R.S., Y. Shao, J. Ediriwickrema, J.S. Iames, and J.G. Lyon. Mapping Cropland Across the Great Lakes Basin Using MODIS-NDVI Data. Presented at International Symposium on Remote Sensing of Environment, Stressa, Italy, May 04 - 08, 2009. (http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=206643)

04/09, Oral Presentation, “Loblolly pine: A view from above and from below (An assessment of indirect LAI measurement techniques and the impact of hardwood understory on satellite-derived estimates of NDVI)”, invited seminar for Virginia Tech College of Natural Resources, Blacksburg, Va.

10/07, Oral Presentation, “Great Digital image sources”, 2007 Remote Sensing/GIS Workshop, RTP, NC.
(http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=185683)

10/07, Oral Presentation, “Great Lakes Basin land-cover data: Issues and Opportunities”, 2007 Specialty Conference, Ottawa, BC, Canada. (http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=186983)

06/07, Oral Presentation, “MODIS land cover (MOD12Q1) analysis: A comparison to the NLCD 2001 dataset”, Atmospheric Modeling Division Briefing. (http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=173286)

11/06, Oral Presentation, “Assessment of MODIS (MOD15A2) LAI 8-day composite product in the southeastern United States,” ASPRS Fall Conference, San Antonio, TX, November 7-9, 2006.
(http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=160904)

08/06, Poster Presentation, “Assessment of MODIS LAI (v4) in Loblolly pine (P. taeda) forest type, Appomattox, Virginia,” Global Vegetation Workshop, Missoula, MT.
(http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=156646)

08/06, Oral Presentation, “In situ and MODIS MOD15A2 leaf area index measurements of a mid-Atlantic deciduous forest site: Perspectives from four-years of field studies,” IEEE Geoscience and Remote Sensing Symposium IGARSS 2006, Denver, CO, July 31 - August 04, 2006.
(http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=154924)

05/06, Oral Presentation, “A comparison of inter-operator differences in the classification of a Landsat ETM+ scene in south-central Virginia,” ASPRS Annual Conference, Reno, NV.
(http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=153925)

04/06, Oral Presentation, "Assessing the accuracy of the MODIS LAI 1-km product in southeastern United States loblolly pine plantations: Accounting for measurement variance from ground to satellite. North Carolina Forest Nutrition Cooperative, Raleigh, NC, April 13, 2006.

(http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=151689)

03/05, Oral Presentation, "An evaluation of two ground-based crown closure estimation techniques compared to crown closure estimates derived from high resolution imagery," ASPRS Annual Conference, Baltimore, MD.

(http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=118345)

03/05, Special Session Organizer, Linking Land Water Measurements to Sensor Radiance: Connecting the Dots - Parts 1 & 2. ASPRS Annual Conference, Baltimore, MD.

08/04, Oral Presentation, EPA MODIS LAI evaluation activities in the Albemarle-Pamlico Basin, NC/VA. MODIS Vegetation Workshop II, Missoula, MT, August 16,-19, 2004.

(http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=85437)

07/04, Oral Presentation, "Accounting for error propagation in the development of a leaf area index (LAI) reference map to assess the MODIS MOD15A LAI product," Accuracy 2004, Portland, ME.

(http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=75650)

06/04, Poster Presentation, "Leaf area index change detection of understory vegetation in the Albemarle-Pamlico Basin using IKONOS satellite data," EPA Science Forum 2004, Washington, DC.

(http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=81158)

05/04, Oral Presentation, "Leaf area index (LAI) change detection on loblolly pine forest stands with complete understory removal," ASPRS Annual Conference, Denver, CO.

(http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=75651)

05/03, Oral Presentation, Linking in situ time series forest canopy LAI and phenology metrics with MODIS and LANDSAT NDVI and LAI products, American Society for Photogrammetry and Remote Sensing Annual Conference and Exhibition, Anchorage, AK, May 5-9, 2003.

(http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=62549)

05/03, Oral Presentation, Satellite remote sensing and ground-based estimates of forest biomass and canopy structure. EPA Science Forum 2003, Washington, DC, May 5-7, 2003.

(http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=60765)

12/02, Oral Presentation, "Analysis of year 2002 seasonal forest dynamics using time series in situ LAI measurements and MODIS LAI products," Conference on Spectral Remote Sensing of Vegetation, Las Vegas, NV, December 3-5, 2002. (http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=62621)

07/02, Poster Presentation, "Linking MODIS LAI/NDVI Products with Ground-Based Forest Biometrics and Canopy Architecture Measurements Albemarle/Pamlico Basin, NC/VA," MODIS Vegetation Workshop, Missoula, MT.

12/01, Session Chair, "In situ estimates of forest LAI for MODIS data validation," Remote Sensing and Accuracy Assessment Symposium, Las Vegas, NV.

03/01, Oral Presentation, "Application of a Virtual Field Reference Database (VFRDB) to assess land-cover map accuracies," ASPRS Annual Conference, St. Louis, MO.

(http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=60031)

10/00, Oral Presentation, "An assessment of ground truth variability using a Virtual Field Reference Database," EPA LCB/LEB Landscape Sciences Retreat, Las Vegas, NV.

09/00, Oral Presentation, "Landscape characterization and non-point source nitrogen modeling in support of TMDL development in the Neuse River Basin, NC," US EPA Environmental Monitoring Technology Conference, Boston, MA, September 19-20, 2000. (http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=60138)

09/00, Oral Presentation, “An assessment of ground truth variability using a “Virtual Field Reference Database,” International Symposium on Spatial Accuracy Assessment in Natural Resources,” Accuracy 2000, Amsterdam, The Netherlands, July 12-16,2000. (http://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=87048)

PROFESSIONAL TRAINING

- North Carolina State University, Visual Basic Course (Certification), 02/99
- North Carolina State University, Watershed Wetland Hydrology Course, 12/99
- ERDAS EML Programming Language Course (Certificate), 10/00
- ERDAS Stereo Analyst Module Course (Certificate), 10/00
- USEPA Contract Administration (Certification) 01/01
- USEPA Work Assignment Manager Course (Certification) 03/01
- North Carolina State University, Multivariate Statistical Analysis Course, 05/01
- USEPA Work Assignment Manager Course (Re-Certification) 05/04

HONORS AND AWARDS

- Recipient of Blackstone Timber Scholarship, 9/81
- Member of Xi Sigma Pi Forestry Honor Society
- Graduate Teaching Assistant, North Carolina State University, 9/97-5/99
- Recipient of Neuse River Basin Team Award, 5/00
- Recipient of the ESRI Award for Best Scientific Paper in GIS, 3rd Place for the paper entitled “A Quantitative Assessment of a Combined Spectral and GIS Rule-Based Land-Cover Classification in the Neuse River Basin of North Carolina” (PE&RS; 69-3, pp299-310). The award was presented at the 70th Annual ASPRS Conference in Denver Colorado, May 2004.
- 2005, “Scientific and Technical Achievement Award (STAA),” EPA Scientific Advisory Board (SAB) Washington, DC (Level III): Lunetta, R.S., J. Ediriwickrema, Iames, J.S., Johnson, D., Lyon, J.G., McKerrow, A., and Pilant, D., 2003. A quantitative assessment of a combined spectral and GIS rule-based land-cover classification in the Neuse River Basin of North Carolina, *Photogrammetric Engineering and Remote Sensing*, 69 (3), 299-310.
- 2011, “Scientific and Technical Achievement Award (STAA),” EPA Scientific Advisory Board (SAB) Washington, DC (Honorable Mention): John S. Iames, Andrew Pilant, Timothy Lewis, and Russell Congalton, 2008. Validation of an Integrated Estimation of Loblolly Pine (*Pinus taeda* L.) Leaf Area Index (LAI) Using Two Indirect Optical Methods in the Southeastern United States, *Southern Journal of Applied Forestry*, 32(3):101-110.
- 2012, EPA-RTP Environmental & STEM Outreach Program Recognition
- 2012, Nominated to run for ASPRS Vice Presidency (declined)
- 2014, NHEERL Bronze Medal (ORD Award, 10/20/2014) – Guanica Bay, Puerto Rico Community Support Team (For addressing the sustainability of local environmental decisions made in Guanica Bay, Puerto Rico as a Transdisciplinary team)

PROFESSIONAL SOCIETIES

- American Society for Photogrammetry and Remote Sensing
- Society of American Foresters (inactive)
- American Geophysical Union