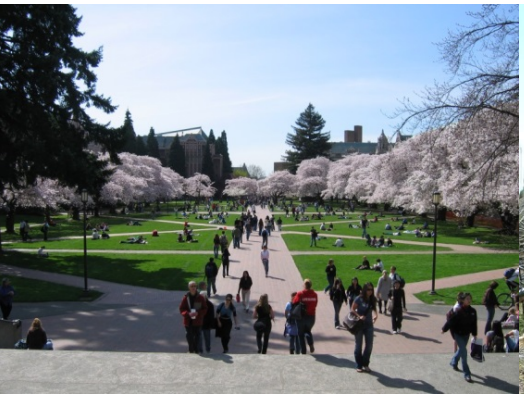
レーザを用いた3次元データの活用
– 地形から森林まで –

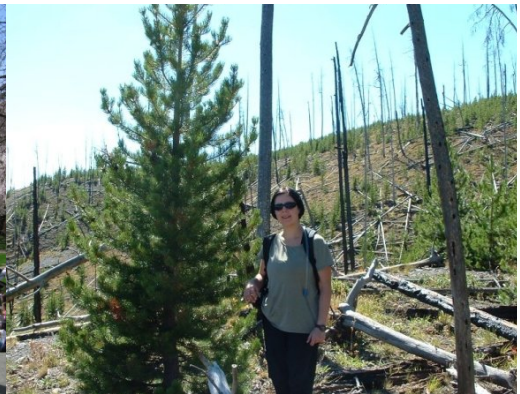
9月18日（木） 13:30 ～17:00
総合研究棟4階中会議室（412号室）

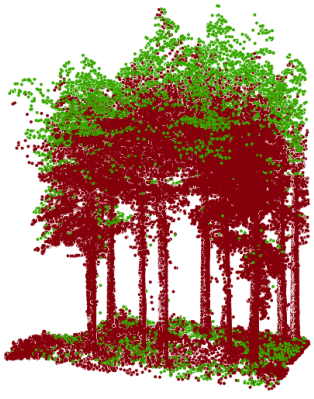
ワシントン大学　環境学部
森林科学科
モニカ　モスカル准教授
「3次元レーザーデータを用いた生態系サービスの測定」

千葉大学　園芸学研究科
緑地環境学コース　緑地科学領域
加藤　顕　助教
「レーザーを用いた3次元データの活用」

東京大学　空間情報科学研究センター　早川裕弐
「地上レーザ測量で地形変化を捉える：静岡県大谷崩の例」







Applications of three-dimensional data using laser measurements: forestry and geomorphology

Sep 18, 2014 (Thu) 13:30 ～17:00
rm. 412, Research Complex Bldg.
Kashiwa Cmpus, The University of Tokyo

Dr. L. Monika Moskal

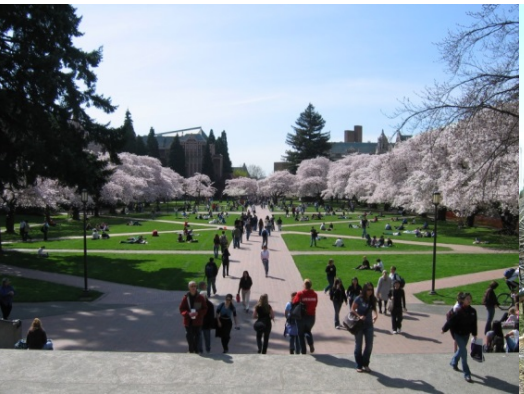
Associate Professor
College of the Environment, School of Environmental and Forest Sciences, University of Washington
"LIDAR for the measurement of forest ecosystem services"

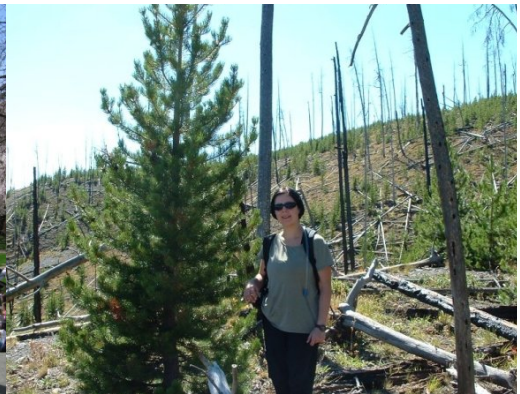
Dr. Akira Kato

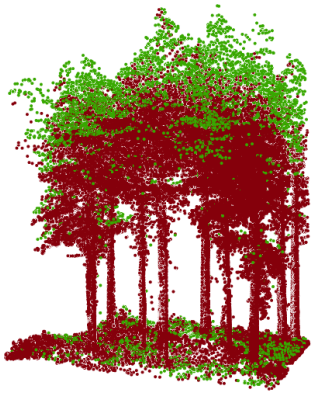
Assistant Professor
Field of Landscape Resource Science, Landscape Science, Graduate School of Horticulture, Chiba University
"Applications of three-dimensional data by LIDAR"

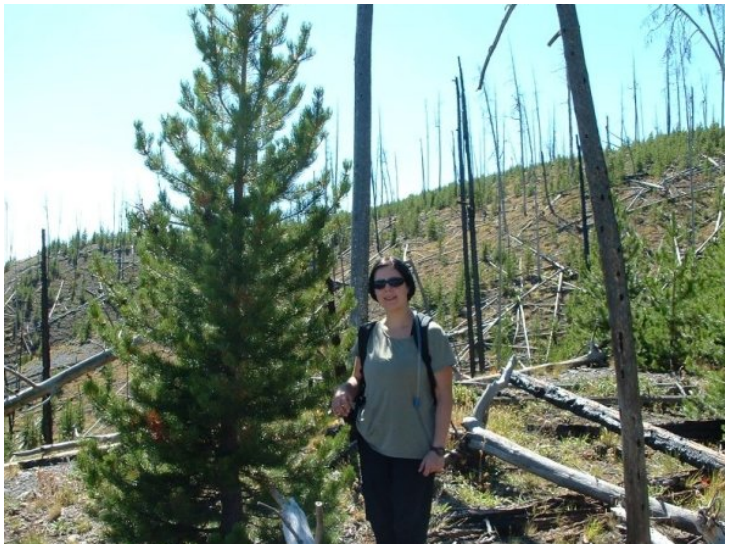
Dr. Yuichi S. Hayakawa

Assoc. Prof. Center for Spatial Information Science, The University of Tokyo
"Capturing landform changes by TLS: a case study at Ohyakuzure landslide"









L. Monika Moskal
University of Washington

Dr. Moskal is an Associate Professor of Remote Sensing in the College of the Environment, School of Environmental and Forest Sciences at the University of Washington (UW), Seattle, Washington, USA, where she Directs the Precision Forestry Cooperative, an advance technology initiative specializing in using high technology sensing and analytical tools to support site-specific economic, environmental, and sustainable decision making for the forestry sector. She also runs the UW Remote Sensing and Geospatial Analysis Laboratory (RSGAL), focused on understanding multiscale and multidimensional dynamics of landscape change through the application of hyper-resolution remote sensing. RSGAL develops methods necessary to analyze hyper-resolution remotely sensed data by exploiting spatial, temporal and spectral capabilities of the data for the following themes: ecosystem services and function, bioenergy/biomass, forest health and inventories, change analysis, biodiversity and habitat mapping. Moskal received her PhD from the University of Kansas, Department of Geography in 2005, where she was advised by Dr. Mark Jakubauskas and worked at the Kansas Applied Remote Sensing Program.

LIDAR for the measurement and monitoring of forest ecosystem services

Ecosystem services can be categorized into: provision, regulating, supporting, preserving and cultural services. All of these amenities can be attributed to forested environments and are becoming a targetable issue for sustainable management of these resources. Because field studies represent only a snapshot in the spatiotemporal continuum of a landscape, remote sensing can assist with spatially explicit modeling at a site, watershed and landscape levels. Although, a wide array of remote sensing approaches for ecosystem assessment has been developed over decades, these are applicable to imaging satellite datasets, and come with limitations related to the resolution and lack of spatial (and three dimensional in the case of forests) detail. It is with the onset of lidar and our ability to capture the detailed and even leaf level structure of the forested landscape that remote sensing of ecosystem services has become feasible. This talk will focus on providing examples of provision services mapping, such as biomass and cellulosic biofuels estimation. Regulatory services will be explored through examples of detailed modeling of forests in the Pacific Northwest applied to a variety of purposes, including the close study of the riparian forest/water interface and function for the suitability and sustainability of salmon habitat. Preserving services related to biodiversity, habitat and accounting for uncertainty will also be addressed through examples of monitoring forested wetlands on Mt. Rainier, Washington. The study extends beyond the suitability of habitat toward the ecosystem services of the forest for quality drinking water. Finally, discussion on how supporting and cultural services, such as pest/disease control and recreational opportunities, can also be addressed with lidar remote sensing will be provided.