

# NASA LCLUC Science Team Meeting 2023

**About the meeting:** This LCLUC Science Team meeting is focused on presentation of results from the LCLUC Hotspot Projects. The intention of the LCLUC Hotspot initiative was to bring attention to areas around the world that are experiencing land use change of national to regional importance, with significant impact and policy implications.

## **Day 1: May 8<sup>th</sup>, 2023, Monday**

9:00 – 9:05 Chris Justice: Welcome

9:05 – 9:50 Garik Gutman: Program Updates

9:50 – 10:00: Objectives of LCLUC Hotspots Initiative: Chris Justice

*10:00 – 10:20: Break*

[MuSLI session: Hotspots results \(LCLUC-2020\): 13 mid-term projects \(15 minutes presentation, 5 minutes Q&A\)](#)

Forest 🌳

10:20-10:40 Michael Keller (US Forest Service): Quantifying Agricultural Expansion and Tropical Forest Degradation in the Brazilian Arc of Deforestation: A Multi-Sensor, Multi-Scale Approach

10:40-11:00 Alexandra Tyukavina (University of Maryland, College Park): Multi-Resolution Quantification and Driver Assessment of Hot Spots of Global Forest Disturbance

11:00-11:20 Sean Healey (Forest Service): Sensor Fusion Using Daily Planet Imagery Allows Rapid Deforestation Monitoring in Madagascar

Agriculture 🌾

11:20-11:40 Sergii Skakun (University of Maryland, College Park): High-Impact Hot Spots of Land Cover Land Use Change: Ukraine and Neighboring Countries

11:40-12:00 Nicholas Magliocca (University of Alabama, Tuscaloosa): Making the Hidden Visible: Accelerated Land-Use Change and Degradation Caused by Narco-Trafficking in and Around Central America's Protected Areas

12:00-12:20 Christopher Neigh (NASA Goddard Space Flight Center): The Impact of Investment on Irrigated Rice, Dryland Agriculture and Afforestation in Senegal Using SAR and Optical Time-Series Imagery in Data Fusion Approaches

*12:20-12:30 Group photo*

*12:30-2:00 Lunch*

## Fire

2:00-2:20 David Roy (Michigan State University): Where are the Missing Burned Areas? Global Hotspots of Burned Area - A Multiresolution Analysis

2:20-2:40 Volker Radeloff (University of Wisconsin, Madison): Global Hotspots of the Wildland-Urban Interface

2:40-3:00 Yufang Jin (University of California, Davis): Multi-Source Wildland Urban Interface Characterization Enhanced with Machine Learning: Dynamics and Hazard Assessment

## Savanna

3:00-3:20 David Skole (Michigan State University): Hotspot Detection for Monitoring New Trends in Carbon Sequestration in Systems of Trees Outside of Forests (TOF)

3:20-3:40 Break

## Urban

3:40-4:00 Jody Vogeler (Colorado State University): The Last Urban Frontier: Assessing Drivers of Urbanization and Tradeoffs Among Social and Ecosystem Services Associated with LCLUC in Africa

## Extractive industry

4:00-4:20 David Lutz (Dartmouth College): Rapid Change from Alluvial Mining and Development in Madre de Dios, Peru: A Multi-Sensor Fusion Approach to Quantify Terrestrial and Aquatic Impacts and Test Policy Effectiveness

## Wetlands

4:20-4:40 Marc Simard (Jet Propulsion Laboratory): Global Hotspots of Change in Mangrove Forests

4:40-5:00 Summary and discussion: MuSLI Hotspots – Krishna Vadrevu (NASA MSFC), Moderator

## Day 2: May 9<sup>th</sup>, 2023, Tuesday

[Early Career Scientists session: Hotspots results \(LCLUC-2021\) – 8 initial-term projects\(15 minutes presentation, 5 minutes Q&A\)](#)

## Savanna

9:00-9:20 Qiongyu Huang (Smithsonian Institution): Untangling the Interactions Between Rural Outmigration, Grassland Degradation, and Sustainable Land Use in Mongolia

## Forest

9:20-9:40 Nina Brooks (University of Connecticut, Storrs): A Remote Sensing Analysis of Heat Stress, LCLUC, and Women's Health in Sub-Saharan Africa

9:40-10:00 McKenzie Johnson (University of Illinois, Urbana-Champaign): Land Cover Change, Conflict, and Peacebuilding in Colombia

*10:00- 10:20 Break*

### Urban

10:20-10:40 Eleanor Stokes (Universities Space Research Association): Columbia A Multi-Faceted, Pan-Mediterranean Assessment of Urban Land Change for the Evaluation of Interconnected Climate Risks

10:40-11:00 Alexey Shiklomanov (Goddard Space Flight Center): Assessing the Impact of Urban Land Conversion on Local and Regional Surface Climate and Its Socioeconomic Consequences in Western North Africa

### Extractive Industry/Mining

11:00-11:20 Latha Baskaran (Jet Propulsion Laboratory): Analyzing the Land-Use Change Impacts of Oil and Gas Exploration Related Infrastructure Changes on Arctic Communities

### Agriculture

11:20-11:40 Sean Woznicki (Grand Valley State University): Water Scarcity in the Serbian Danube: Agricultural Land Use Change and Irrigation

### Fire

11:40-12:00 Nimrod Carmon (Jet Propulsion Laboratory): Early Estimation of Fire-Risk in the Eastern Mediterranean and Socioeconomic Informed Communications of Actionable Strategies

12:00-12:30 Discussion: Hotspots research in Early Career Scientist projects – Krishna Vadrevu (NASA MSFC), Moderator

*12:30-2:00 Lunch*

2:00-3:20 Poster Lightning talks: Early Career Scientists 9 LCLUC-2019 final-term projects (5 min presentation, 2 Minutes Q&A)

*3:20-3:50 Break*

3:50-4:45 Future Directions for LCLUC program: Open Discussion – Chris Justice (UMD), Moderator

4:45-5:00 Wrap up and next steps: Garik Gutman (NASA HQ)

5:00-7:00 CCE posters including LCLUC (LCLUC-2019 projects)

### CC&E 9 LCLUC-2019 Posters :

Nicholas Cuba (Clark University): Evaluating the Drivers of International Migration from the Northern Triangle of Central America and Its Implications for Land Systems in the Region

Robert Heilmayr (University of California, Santa Barbara): Mapping Property Values to Understand Land-Use Change in South America

Meha Jain (University of Michigan, Ann Arbor): Policy, Market, and Climate Change Impacts on Maize Production in Mexico

Zhenong Jin (University of Minnesota): Evaluating Land Use Change and Livelihood Responses to Large Investments for High-Value Agriculture: Managing Risks in the Era of the Green Morocco Plan

Carlos Munoz Brenes (Conservation International Foundation): Impacts of Global Markets and National Policies on Forest Carbon Trajectories and Social Outcomes in the Guiana Shield Ecoregion

Christoph Nolte (Boston University): Comparing the Effectiveness of Conservation Strategies in the Colombian Andes Biodiversity Hotspot

Xiaopeng Song (Texas Tech University, Lubbock): Soybean Expansion in South America: Quantifying Historical Land-Use Change, Modeling Socioeconomic Drivers and Projecting Future Trajectories

Aaron Sparks (University of Idaho, Moscow): Understanding the Socioeconomic Drivers of Agricultural Land Abandonment and Associated Fire Risk in Greece

Xin Xi (Michigan Technological University): Mapping and Modeling Desertification and Its Impact on Aeolian Dust and Human Health in Central Asia