

Dr. Krishna Vadrevu and Prof. Chris Justice

Presentation Title: *Global Observations of Forest Cover and Land Use Dynamics (GOFC-GOLD) Program – An Overview*

Authors:

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Abstract: Global Observations of Forest Cover and Land-use Dynamics (GOFC–GOLD) is a coordinated international program working to provide ongoing space-based and in situ observations of the land, surface to support the sustainable management of terrestrial resources at different scales. The presentation will provide an overview of the GOFC–GOLD program, its structure, function, and activities. The GOFC–GOLD program acts as an international forum to exchange information, coordinate satellite observations, and provide a framework for and advocacy to establish long-term monitoring systems. It was established as a part of a Committee on Earth Observation Satellites (CEOS) pilot project in 1997, focusing on global observations of forest cover. Since then, the program has expanded to include two Implementation Teams: Land Cover Characteristics and Change and Fire Mapping and Monitoring. In addition, four different working groups—Reducing Emissions from Deforestation and Forest Degradation (REDD), Biomass, Agriculture, Forests and Other Land Use Emissions (AFOLU), and Agriculture are also the focus. GOFC– GOLD activities are guided by an executive committee, primarily with support from NASA and implemented by START, a non-governmental organization (NGO). In addition, GOFC-GOLD has twelve different regional networks involved in research, scientific information exchange, and outreach activities. The presentation will highlight additional details about the program.

Luca Montanarella

Presentation Title: *The EU Soil Observatory and its related activities*

Authors: Luca Montanarella, European Commission

Abstract: Healthy soils are at the heart of the Green Deal for Europe. In addition to providing us with food, fibres and fuel, soils play a key role in regulating the Earth's climate, providing us with clean water, protecting us from floods and preserves our cultural heritage. A unique habitat in its own right, life within soils underpin all terrestrial ecosystems while providing us with potential new medicines.

However, unsustainable land use together with growing population pressure, changes in consumption patterns and increasing extreme weather events are driving soil degradation. Once lost, soils are non-renewable in terms of human lifetimes. The recent proposal for a Soil Health and Food Mission 'Caring for soil is caring for life' has set the ambitious challenge to ensure that by 2030, 75% of the soils of the EU are healthy for food, people, nature and climate.

It is no surprise that soil is then the glue that brings together the different strategies of the Green Deal. Sustainable soil management and the restoration of degraded land is critical if biodiversity protection targets are to be achieved. Efficient nutrient management, including carbon sequestration to offset climate change, are key measures in the Common Agricultural Policy while reducing pesticide residue levels are aspirations under both the Farm2Fork and Zero Pollution Strategies. Finally, reduced soil sealing and organic waste cycles are both targets of the Circular Economy Action Plan.

It is in this context that the JRC is establishing the EU Soil Observatory, a dynamic and inclusive platform that aims to provide Commission Services, and the broader soil user community, with the diverse knowledge needs and data flows needed to safeguard soils. These include high-resolution, harmonized and quality assured soil information (showing status and trends) that is supported by the outcomes of targeted research. Reflecting the challenge of the Mission and goals of the Soil Thematic Strategy, the Observatory will also support greater citizen engagement and soil literacy to raise awareness of the societal value of soil.

Agnieszka Lukaszczyk

Presentation Title: *Space Technology to the Power of Hundreds*

Authors:

Dr. Agnieszka Lukaszczyk

Abstract: *Over the last decade, we've entered the era of the "Space Renaissance," a rebirth of space activities that are accelerating innovation. Agile aerospace—a philosophy of spacecraft development that encourages rapid iteration—was largely just a thought-kernel in the minds of aerospace experts 10 years ago, and now dramatically changing the capabilities from space, including increasing the number of EO satellites by 10x and data rates commensurately, enabling the powering of new smarter and more efficient systems. Founded by NASA scientists, Planet has built and operates over 180 satellites (the largest EO satellite constellation in history), which images the entire Earth landmass every day. There are a wide range of humanitarian applications such as tracking deforestation, illegal fishing, water security; government applications, such as border security, disaster response and urban planning; as well as commercial applications such as improving precision agriculture, consumer mapping, commodities tracking and news.*

Jeff Masek

Presentation Title: Current status of the Landsat program

Authors: Jeff Masek, NASA-GFSC

Abstract: The NASA/USGS Landsat Program has collected imagery of Earth's land and coastal areas since 1972. After nearly 50 years Landsat remains a cornerstone for land cover science. This talk will review the current state of the Landsat Program, including the upcoming launch of

Landsat 9, introduction of new standard products by USGS, and planning for the follow-on to Landsat 9 (Landsat Next).

Sergii Skakun and Natalia Kussul

Presentation Title: *High-Impact Hot Spots of Land Cover Land Use Change: Ukraine and Neighboring Countries*

Authors: Sergii Skakun, Nataliia Kussul

Abstract: Since the breakup of the Soviet Union in 1991, Ukraine has been experiencing major changes in land cover and land use (LCLUC). The major drivers for these changes have been continuous economical and policy changes as well as climate variability. In the past 5-7 years, these changes particularly magnified due to the military conflict in the Eastern Ukraine and annexation of Crimea, preparation of the policy to open the land market, conversion to double cropping due to temperature increase and a sharp increase in the production of industrial crops, and continuous practice of burning agricultural fields. All these have led to the LCLUC “hotspots” throughout the country spanning several sectors (agriculture, urban and forestry) and having considerable socio-economic impacts. Therefore, Ukraine represents a perfect testbed with multiple LCLUC “hotspots” of national and regional importance that have a significant socio-economic impact and are policy relevant. This talk will briefly describe goals and activities of the NASA-funded project "High-Impact Hot Spots of Land Cover Land Use Change: Ukraine and Neighboring Countries" and present some preliminary results related to agricultural monitoring (crop mapping, area estimation, field burning) and urban monitoring (change detection, subsidence monitoring).

Aaron Sparks, Imen Bouhamed, Stefanos Papaioordanidis, Chariton Kalaitzidis, and Ioannis Gitas

Presentation Title: *Understanding the socioeconomic drivers of agricultural land abandonment and associated fire risk in Greece*

Authors:

Aaron Sparks, University of Idaho, Moscow, Idaho, USA

Imen Bouhamed, Mediterranean Agronomic Institute of Chania, Crete, Greece

Abstract: In recent decades, fire-prone areas in the Mediterranean region have experienced significant agricultural land abandonment, which can increase fire risk due to fuel accumulation and increased fuel continuity. In the case of Greece, which is increasingly affected by large fires, there is no quantitative assessment of the increased fire risk due to abandoned lands, and little understanding of the drivers of land abandonment. The overarching objective of the research is to address these knowledge gaps and inform policy, land planning, and fire management efforts by integrating state-of-the-art remote sensing mapping methodology with socioeconomic

empirical analyses for three regions in southern Greece from 1990 to 2019. Specifically, this project will: 1) map abandoned agricultural land across the study area using Landsat time series data, 2) quantify changes in fire risk as a function of time-since-abandonment, using field-derived vegetation cover and structure measurements as input for wildfire modeling, 3) develop spatially explicit multivariate statistical models using socioeconomic, sociocultural, and geophysical variables to identify drivers of agricultural land abandonment, and 4) identify policies and incentives most likely to encourage land management practices that reduce fire risk using a discrete choice experimental survey. This research has high societal relevance given the project results will inform policy makers and land managers on agriculture and land management policy solutions that reduce fire risk.

Jesus San Miguel

Presentation Title: A global approach to wildfire monitoring

Authors: **Jesus San Miguel-Ayanz**, Joint Research Centre of the European Commission

Abstract: Although wildfires are common to many world ecosystems, the intensity and frequency of events in the last years shows a clear shift of fire regimes in many regions in the world, which has been related to the influence of climate change. The need to understand fire regimes at regional and global level requires the development of standardized methods and tools and the development of wildfire early warning and information systems at those scales. Two successful examples of these regional and global systems are the European Forest Fire Information System (EFFIS) and the Global Wildfire Information System (GWIS). The tools and applications in both EFFIS and GWIS have been developed and customized in close cooperation with fire managers in the countries and provide essential information supporting the different phases of fire management from prevention, preparedness to restoration measures after the fires. They both support the development of regional and global policies to minimize the impact of wildfires globally.