

BOOSTING A CLEARER KNOWLEDGE ON FOREST CARBON CYCLE ALONG A WIDE
SPECTRUM OF CLIMATE ZONES AND A GRADIENT OF FOREST MANAGEMENT
INTENSITIES

Department of AGRARIA - University of Reggio Calabria

Tuesday, December 10th, 2024 – Conference Room “F.S. Nesci”

INTERNATIONAL WORKSHOP: FACING THE FOREST CARBON BALANCE UNDER THE UNCERTAIN OF THE CLIMATE CHANGE

Zoom link: <https://unipd.zoom.us/j/83671300256>

09:30 - 10:00 Opening Remarks and Welcome

Prof. Giuseppe Zimbalatti (UNIRC, Italy)
Rector of the *Mediterranean* University of Reggio Calabria

Prof. Marco Poiana (UNIRC, Italy)
Head of the AGRARIA Department

Col. Giovanni Misceo (CUFAA, Italy)
Regional Commander of Forest Carabinieri

10:00 - 10:15 Introduction to the international workshop

Prof. Stefano Grigolato (UNIPD, Italy)

10:15 – 11:15 Session 1: Carbon Stock and Forest Management

Forest management equals carbon stock management
Enno Uhl (TUM, Germany)

Even-aged versus uneven-aged forest management in a changing world
Kamil Bielak (SGGW, Poland)

Climate change effect on mountainous forest

Camilla Wellstein (UNIBZ, Italy)

Effect of drought in mixed-species in Mediterranean continental forests

Marta Pardos (INIA, Spain)

Silvicultural management strategies for climate change mitigation with the focus on plantation forests

Ben du Toit (SU, South Africa) (online)

Discussion (10 minutes)

11:15 - 11:30 Coffee Break

11:30 - 12:15 Session 2: Emissions and Efficiency in Forest Operations

Eco-efficiency in forest harvesting focus on fuel consumption and CO2 emission

Stefano Grigolato (UNIPD, Italy)

Applications of smart tool for forest monitoring. The case of iFOS

Martin Ziesak (BFH, Switzerland)

Digital Twins for forest management

Michael Schluse (RWTH, Germany)

Discussion (10 minutes)

12:15 – 13:00 Session 3: Advanced Technologies and Cross-Cutting Applications

LiDAR applications in mediterranean forests

Felipe Bravo (UVA, Spain)

High resolution data for pre-planning harvesting and post-harvesting monitoring

Bruce Talbot (SU, South Africa) (online)

Robust Pareto optimization to assess close-to-nature forest stand types

Thomas Knoke (TUM, Germany) (online @11.30)

Discussion (10 minutes)

13:00-14:30 **Light Lunch and Networking**

14:30 - 16:30 **Invited speakers**

Challenges for Improved Sustainability and Carbon Efficiency in Forest Utilization

Janine Schweier (WSL, Switzerland)

Challenges in Forest Management for Sustainability and Forest Carbon Sink Optimization

Moe Kyaw Thu (SLU, Sweden)

16:30-16:45 **Final Remarks**

Closing Address by Hans Pretzsch (TUM, Germany) (online)

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ESRs individual project within the ETN Skill-For. Action

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09:00 – 10:45 Session 1: Carbon Stock and Forest Management

Growth resistance and resilience of tree species to drought stress in even-versus uneven-aged forest

Bohdan Kolisnyk (SGGW, Polonia)

Drought resistance and growth stability of trees and stand in dependence of species identity, stand density, and structure

Shamin Ahmed (TUM, Germania)

Species-specific functional response to drought stress and the relevance for intra- and interspecific interaction

Przemyslaw Jankowski (INIA, Spagna)

Effect of Nitrogen deposition on C sink potential of temperate forests

Daniel Minklaev (UNIBZ, Italy) (online @December 10th)

Relationship between stand density, nutrition, productivity and water use efficiency in pure pine stand

Otto Pienaar (SU, South Africa)

Discussion (10 minutes)

10:45 - 11:00 Coffee Break

11:00 - 12:30 Session 2: Emissions and Efficiency in Forest Operations

CO2 emission control in forest operations

Mihail Bacescu (UNIPD, Italy)

Soil wheel interaction in forest operations

Filippo Guerra (FBZ, Germany)

Optimisation analysis for harvesting strategies (at the stand level)

Francesco Sforza (BFH, Switzerland)

Forest machine simulation for resource efficient production

Abhay Bharadwaj (RWTH, Germany)

Discussion (10 minutes)

12:30 – 13:30 Session 3: Advanced Technologies and Cross-Cutting Applications

Integrating LIDAR information into operational mixed forests growth and yield models

Frederico Simões (UVA, Spagna)

Intelligent combination of airborne data and terrestrial LiDAR for obtaining micro surface, tree and assortment data for an improved timber harvesting planning

Gunta Grube (SU, South Africa)

Opportunities and limitations of robust optimization in forest management on enterprise level

Logan Bingham (TUM, Germany)

Discussion (10 minutes)

13:30-14:30 Light Lunch and Networking

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Forest Resilience: recent approaches and concepts in forest ecosystems restoration

15:00 - 15:30

Institutional greetings

Paolo Porto

International Relations Delegate, Department of AGRARIA, UNIRC

Antonino Sgrò

President of the Regional Federation of Agronomists and Foresters of Calabria

15:30-18:00

Workshop (Chair, Prof. Andrea R. Proto)

Legislative aspects of forestry activities in the Calabria region

Demetrio Crupi

Delegate Forest Department of Calabrian Region

Video-Presentation Tech4You PNRR

Burnt Logs as a Nature-Based Solution for Soil Protection after Wildfires in the Mediterranean Area

Daniela D'Agostino, Leonardo Maurizio Manti & Giandomenico Foti

Vegetation Dynamics in Mediterranean Pine Plantations Affected by Fire and Subject to Naturalistic Management Using Residual Wood

Valentina Lucia Astrid Laface

Non-Destructive Evaluation of Felled Burned Logs Used as Anti-Erosion Barriers

Salvatore Francesco Papandrea

Forest Fires: Silvicultural Prevention and Mathematical Models for Predicting Fire Propagation in Southern Italy

Michele Mercuri

Wood Quality Assessment of Pure and Mixed Forests in the Serre Regional Natural Park

Maria Francesca Cataldo

Evaluation of the Performance of Ground-Based Harvesting Systems in Southern Italy

Antonio Zumbo & Angelo Mammoliti

NANOPriming as BIO-TECHnology for Agriculture: Green Synthesized Nanoparticles from Agri-Food Wastes and Their Role in Mitigating Abiotic Stress in Plants

Roberta Caridi