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INDICEE

International Doctorate in
Civil and Environmental Engineering

SEMINAR

FOREST-CLIMATE INTERACTIONS BEYOND CARBON: INSIGHTS FROM REGIONAL CLIMATE MODELLING OF LAND- ATMOSPHERE PROCESSES

Luca Caporaso

National Research Council (CNR)

Rome, Italy



WEDNESDAY
18 FEB 2026



TIME
3:00-4:00 pm



LOCATION
Room 138 S.Marta



For info
giovanni.forzieri@unifi.it



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Forests influence climate through a range of biophysical mechanisms that extend well beyond carbon sequestration, involving surface energy balance, evapotranspiration, boundary-layer dynamics, and cloud formation. In this seminar, I use regional climate modelling experiments to isolate and quantify how changes in forest cover affect land-atmosphere interactions across spatial scales. Starting from surface thermodynamic responses, I discuss how forest-induced modifications of heat and moisture fluxes propagate vertically and horizontally, influencing atmospheric stability and cloud-related processes. Particular attention is given to the representation of these mechanisms in regional climate models, associated uncertainties, and the implications for interpreting forest-based climate mitigation strategies.



Luca Caporaso

National Research Council (CNR)
Rome, Italy

Climate Scientist at the Italian National Research Council (CNR) with extensive experience in climate modelling and environmental research across land-atmosphere interactions, climate impacts, and mitigation.

His work focuses on regional climate processes and land-use change, combining numerical simulations with Earth observation-based diagnostics and data-integration approaches to investigate the biophysical role of vegetation in the climate system. His research supports improved process understanding and the interpretation of land-based climate responses and mitigation strategies.