



Los árboles y el agua



The basis for a better understanding of the evolution of forests (and their management) due to water scarcity.

14.Jul - 15.Jul 2025

Cod. Z12-25

Mod.:

Streaming Face-to-face

Edition

2025

Activity type

Summer course

Date

14.Jul - 15.Jul 2025

Location

Miramar Palace

Languages

Spanish

Academic Validity

20 hours

Organising Committee



Description

Water is the protagonist of both hydrological processes (precipitation, interception, evaporation, etc.) and many other fundamental processes: biological (such as photosynthesis), climatic (such as droughts and fires) or soilwise (such as erosion). Furthermore, most of the effects that climate change is having on forests are directly related to hydrological imbalances. Consequently, in order to get to know the state of natural systems and their functioning, it is necessary to analyse the behaviour and relationship of ecosystems in all their processes in relation to this element: water.

In the specific case of forests, carrying out such an analysis involves analysing the arrival, distribution and departure of water in forests; seeing where it is at any given time and how it is used. This means analysing the water involved in the surrounding atmosphere, in the plants that absorb and transpire it, and in the soil that stores and carries it.

Knowing this relationship provides an important information to glimpse the current status of each potential forest and the future possibilities for its evolution:

- The impacts of climate alterations on forests and forest ecosystems: although climate change is unquestionable, its effects on forests are much more diffuse, indirect and unpredictable, and monitoring allows us to detect early symptoms of stress or decline.
- A precise quantification of the state of provision and regulation of key ecosystem services that underpin more dependent ecosystem services (carbon sequestration, growth, baseflow and groundwater supply, water retention and associated wildfire risk, decay and loss of vigour due to water stress, etc.).
- A solid basis on which to justify and base actions to adapt or mitigate our forests to climate change, or improve their resilience.

An increasing number of projects are being carried out to study the relationship between trees and water. It is a subject which creates concern and expectation, also in the Basque Country. For this reason, this course is going to take a closer look at some of them, especially those that focus on tree species typical of the current forests of the Basque Country.

Objectives

Analyse the relationship between forest trees and water: understand how it works and what the key points are.

Detect the problems that climate change, with an increase in droughts and heat waves, may generate in this relationship.

Present current projects where this relationship has been analysed for important tree species in the current forests of the Basque Country.

Program

14-07-2025

08:50 - 09:00	Registro
09:00 - 09:15	<p>“Registro” Presentation by the Director of the activity</p> <p>Inauguración institucional</p> <p>Pello Goikoetxea Urdapilleta Basoa Fundazioa - Presidente</p> <p>Presentación del curso</p> <p>Leire Salaberria Isasi Unión de Selvicultores del Sur de Europa (USSE) - Directora gerente</p> <p>Presentación del curso</p> <p>Aitor Onaindia Bereziartua Basoa Fundazioa - Director técnico</p>
09:15 - 10:15	<p>“El uso del agua por los árboles”</p> <p>¿Qué sabemos de su regulación a nivel global?</p> <p>Rafael Poyatos López Universitat Autònoma de Barcelona (UAB) y CREAM - Profesor Agregado e investigador</p>
10:15 - 11:15	<p>“Los problemas de los bosques ante la sequía”</p> <p>Procesos de decaimiento forestal asociados a la sequía</p> <p>Asier Herrero Méndez Universidad del País Vasco (UPV/EHU) - Profesor Ayudante Doctor</p>
11:15 - 11:45	Break
11:45 - 12:45	<p>“La ecohidrología aplicada a la gestión forestal”</p> <p>Cuantificación de los Servicios Ecosistémicos con herramienta de base ecohidrológica</p> <p>Javier Pérez Romero Universitat Politècnica de València (UPV) Re-ForeST - Investigador-Estudiente Doctorado</p>
12:45 - 13:30	<p>Round table: “Los árboles, el agua y su gestión”</p> <p>Rafael Poyatos López Universitat Autònoma de Barcelona (UAB) y CREAM - Profesor Agregado e investigador Asier Herrero Méndez Universidad del País Vasco (UPV/EHU) - Profesor Ayudante Doctor Javier Pérez Romero Universitat Politècnica de València (UPV) Re-ForeST - Investigador-Estudiente Doctorado Aitor Onaindia Bereziartua Basoa Fundazioa - Director técnico</p>
13:30 - 13:40	Synthesis

15-07-2025

09:00 - 09:45 “El haya ante la sequía”

Posibles consecuencias para la gestión integrada de los bosques

Frank Krumm | Instituto Federal de Investigación Forestal, Nieve y Avalanchas (WSL) de Suiza - Investigador en dinámica forestal y gestión integrada de los bosques

09:45 - 10:30 “Los robles ante la sequía”

Adaptación a la sequía en el género *Quercus*: variaciones fenotípicas y genéticas de los rasgos hidráulicos

Sylvain Delzon | INRAE y Universidad de Burdeos - Director de investigación

10:30 - 11:00 Break

11:00 - 11:45 “El pino silvestre ante la sequía”

Un pionero vulnerable

Jesús Julio Camarero Martínez | Instituto Pirenaico de Ecología, CSIC - Profesor de Investigación del CSIC

11:45 - 12:30 “Los pinos radiata y carrasco ante la sequía”

Evaluación de respuestas a sequías extremas mediante técnicas espectrales y análisis ecohidrológico

Laura Arnal Roig | Universitat Politècnica de València (UPV) - Escuela Técnica Superior de Ingeniería Agronómica y del Medio Natural ETSIAMN - Investigadora

12:30 - 13:15 Round table: “El mosaico forestal vasco ante la sequía”

Frank Krumm | Instituto Federal de Investigación Forestal, Nieve y Avalanchas (WSL) de Suiza - Investigador en dinámica forestal y gestión integrada de los bosques

Sylvain Delzon | INRAE y Universidad de Burdeos - Director de investigación

Jesús Julio Camarero Martínez | Instituto Pirenaico de Ecología, CSIC - Profesor de Investigación del CSIC

Laura Arnal Roig | Universitat Politècnica de València (UPV) - Escuela Técnica Superior de Ingeniería Agronómica y del Medio Natural ETSIAMN - Investigadora

Leire Salaberria Isasi | Unión de Selvicultores del Sur de Europa (USSE) - Directora gerente

13:15 - 13:30 Synthesis

Directed by



Aitor Onaindia Bereziartua

Basoa Fundazioa

Descended from a Basque family of baserritarras (farmers), he has been involved in the practice of agricultural, livestock and forestry management since he was a child. After several years studying and working as a forestry engineer in universities and organisations abroad (France and Chile), he has spent the last few years immersed in the development of sustainable forest management in the Basque Country. Since joining Basoa Fundazioa, now in his role as technical director, he has been disseminating both science and forest management and promoting and boosting the development of various projects aimed at innovating the Basque forestry sector and promoting and compensating for the multiple ecosystem services that forests offer society.



Leire Salaberria Isasi

Unión de Selvicultores del Sur de Europa (USSE)

Aunque de formación sea abogada mercantilista internacional, pertenece a una familia de tradición forestal, y desde el 2014, es la Directora-Gerente de la Unión de Selvicultores del Sur de Europa (USSE), organización internacional de propietarios forestales privados cuya actividad primordial es la de contribuir a la definición de la política forestal europea e internacional, mediante la toma de posición, representación y diálogo intersectorial, en foros internacionales relevantes aportando la perspectiva y demandas de los bosques del sur de Europa en los foros de decisión, —Unión Europea, FOREST EUROPE, Naciones Unidas, COFO-FAO— así como a través del dialogo y la cooperación con otras organizaciones del sector.

Teachers



Laura Arnal Roig

Forest Engineer from the Polytechnic University of Valencia and currently pursuing postgraduate studies in Geomatics, Remote Sensing and Spatial Models Applied to Forest Management at the University of Córdoba. She is part of the Re-Forest group in the Department of Hydraulic Engineering and Environment at ETSIAMN (UPV), where she conducts applied research on sensorisation, forest modelling and ecosystem services. She is currently participating in the Interreg Sudoe SocialForest and GREEN BOOST projects of the Biodiversity Foundation, focused on promoting the resilience and adaptation of Mediterranean forests to climate change.



Jesús Julio Camarero Martínez

Research Professor at the Institute of Ecology and Evolutionary Biology (CSIC). His research is aimed at understanding the spatial and temporal patterns and the environmental mechanisms (global change) that control the dynamics (growth, regeneration, mortality) of trees and shrubs from a functional perspective. He has focused his work on understanding the effect of climate variability and changes in land use on processes as diverse as ecotone dynamics (altitudinal and latitudinal limits of the forest) and the effects of drought (decay) on the growth and vigour of forest species. To this end, he has used the study of wood anatomy and dendrochronology. His most recent studies focus on understanding how the components of global change (increased climate variability, droughts, changes in land use) determine processes of mass mortality and forest decline. The ultimate aim of his work is to understand how plant communities of woody species respond to intense disturbances within a broad temporal context defined by the great longevity of many of the species studied, as is the case with trees.



Sylvain Delzon

Sylvain Delzon is a Senior Researcher in Plant Evolutionary Ecology at INRAE - University of Bordeaux, France. He works at the crossroads of plant physiology, quantitative genetics and biogeography. His primary research interest is the understanding of plant ecophysiological responses to environment changes, with a particular emphasis on the mechanisms of drought resistance. He set up the high-

throughput phenotyping platform, called CAVIPLACE at INRAE/University of Bordeaux thanks to an EquipEX national grant. This is currently the largest hydraulics platform in the world with a unique prototype developed in association with a local company specialized in industrial mechanics (3 standard cavitrons, one medium cavitron and one megacavitron for long-vesselled species; <http://sylvain-delzon.com/caviplace/>).



Pello Goikoetxea Urdapilleta

Basoa Fundazioa

Tolosarra has a degree in economics, business and banking. He is also a forest owner and President of Basoa Fundazioa. Although he is currently retired, he worked for 48 years in the financial sector, participating in the management of both branches and various departments at a corporate level. He started at the Caja de Ahorros y Monte de Piedad de Donostia and, after a stint at the Caja de Ahorros Kutxa Gipuzkoa, ended up at Banco Kutxabank SA. He has accumulated extensive experience in business management as a member of the Purchasing and Investment Committees, board member in the public housing companies of the Basque Government, in the hotel investment companies in which Kutxa has a stake and in several real estate development companies in which Kutxa has a stake. He has also been a member, CEO and President of the 'Reyes de Aragón' retirement home owned by Kutxa and a member of the Marketing, Purchasing and Investment committees of Torre Iberdrola, a subsidiary of Kutxabank. He also has experience in volunteering as a Trustee of the Sortek Foundation (business incubator) and President of Santo Tomás Lizeoa (Ikastola de Donostia).



Asier Herrero Méndez

Asier Herrero is an ecologist specialising in the response of forest ecosystems to climatic and biotic stresses. He is currently a doctoral assistant professor in the Department of Plant Biology and Ecology at the University of the Basque Country. His main line of research is the analysis of the vulnerability and resilience of forest ecosystems to disturbances and stress factors associated with climate change. The design and evaluation of management strategies and actions for the adaptation of forests to climate change and the study of the ecological mechanisms underlying species abundance patterns and their coexistence represent his secondary lines of research. His research adopts a multidisciplinary approach including the use of observational data, greenhouse experiments, literature reviews, historical archives of forest management, national forest inventories and ecological models. He has published 23 studies in international journals indexed in the Science Citation Index Expanded, resulting in an h-index of 15.



Frank Krumm

During his doctoral thesis and the years following his doctorate, he focused on subalpine fir forests, analyzing the impacts of land use change, natural disturbances, natural dynamics and the state and management of protection forests. Another central theme in his research, developed in the “InTree” project, has been to review the status of non-native species and their influence on forest ecosystems. The status, development and conservation potential of nature (biodiversity) in managed forests has become the main focus of the last 10 years of his professional career. Above all, he has focused on integrated forest management (how to integrate the different forest functions in forestry and, at the same time, promote biodiversity conservation). Finding and offering options and solutions for practical forest management is currently his main motivation. Current projects focus on the complete timber value chain, balancing CO₂ emissions to reach net zero while maintaining other ecosystem services.



Aitor Onaindia Bereziartua

Basoa Fundazioa

Descended from a Basque family of baserritarras (farmers), he has been involved in the practice of agricultural, livestock and forestry management since he was a child. After several years studying and working as a forestry engineer in universities and organisations abroad (France and Chile), he has spent the last few years immersed in the development of sustainable forest management in the Basque Country. Since joining Basoa Fundazioa, now in his role as technical director, he has been disseminating both science and forest management and promoting and boosting the development of various projects aimed at innovating the Basque forestry sector and promoting and compensating for the multiple ecosystem services that forests offer society.



Javier Pérez Romero

Forest Engineer with a postgraduate degree in Geomatics, Remote Sensing and Spatial Models Applied to Forest Management from the University of Córdoba. Currently a PhD student in Bioscience and Agri-Food at the University of Córdoba. He is also a member of the Re-Forest group at the Department of Hydraulic Engineering and Environment at ETSIAMN (UPV), where he participates in various projects

promoting green employment and forest bioeconomy (Murcia), hydrological and forest protection of reservoirs using hydrotechnology (Madrid), comprehensive measures to combat the impact of climate change in forest areas of the SUDOE region, and the development of a system for inventorying, monitoring and evaluating carbon and water additionality through forest management for PEFC Spain certification (PEFC +C +H2O) and adaptive management of Aleppo pine (LIFE ADAP-ALEPPO).



Rafael Poyatos López

He holds a degree in Environmental Sciences from the Autonomous University of Barcelona (2002) and a PhD in Biology from the University of Barcelona (2006), with a doctoral thesis carried out at the Jaume Almera Institute of Earth Sciences of the CSIC in Barcelona. He has been a postdoctoral researcher at Durham University, United Kingdom (2008-2009) and a visiting researcher at Ghent University, Belgium (2017) and at the Max Planck Institute for Biogeochemistry in Jena, Germany (2019-2023). Since 2009, he has been a researcher at the Centre for Ecological Research and Forestry Applications (CREAF) and, since 2023, he has been an Associate Professor at the Autonomous University of Barcelona. He is interested in understanding the regulation of water use by trees and how they respond to drought, based on ecophysiological measurements in various ecosystems (Mediterranean, Boreal, Tropical). He also coordinates the first global database on tree water use (SAPFLUXNET) and participates in various international research networks on forest ecophysiology.



Leire Salaberria Isasi

Unión de Selvicultores del Sur de Europa (USSE)

Aunque de formación sea abogada mercantilista internacional, pertenece a una familia de tradición forestal, y desde el 2014, es la Directora-Gerente de la Unión de Selvicultores del Sur de Europa (USSE), organización internacional de propietarios forestales privados cuya actividad primordial es la de contribuir a la definición de la política forestal europea e internacional, mediante la toma de posición, representación y diálogo intersectorial, en foros internacionales relevantes aportando la perspectiva y demandas de los bosques del sur de Europa en los foros de decisión, —Unión Europea, FOREST EUROPE, Naciones Unidas, COFO-FAO— así como a través del dialogo y la cooperación con otras organizaciones del sector.

Registration fees

FACE-TO-FACE	UNTIL 30-06-2025	UNTIL 14-07-2025
young fee	25,00 EUR	61,00 EUR
General	-	87,00 EUR
Reduced fee regular	-	74,00 EUR
Registration exemptions	-	61,00 EUR
Courses for everyone	-	74,00 EUR
Official College of Forestry Engineers	-	74,00 EUR
College of Forestry Technical Engineers and Graduates in Forestry and Natural Environment Engineering	-	74,00 EUR
LIVE ONLINE	UNTIL 30-06-2025	UNTIL 14-07-2025
young fee	25,00 EUR	61,00 EUR
General	-	87,00 EUR
Reduced fee regular	-	74,00 EUR
Registration exemptions	-	61,00 EUR
Courses for everyone	-	74,00 EUR
Official College of Forestry Engineers	-	74,00 EUR
College of Forestry Technical Engineers and Graduates in Forestry and Natural Environment Engineering	-	74,00 EUR

Place

Miramar Palace

Pº de Miraconcha nº 48. Donostia / San Sebastián

Gipuzkoa