EU Fire Projects United

2nd Joint Newsletter

Addressing Critical Gaps

Firelogue | FIRE-RES | SILVANUS | TREEADS | fireEurisk | SAFERS | FIRE-ADAPT | PyroLife

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What is EUFireProjectsUnited?

Firelogue is an EU Coordination and Support Action (CSA) which connects the three EU Innovation Actions (IAs / TREEADS - SILVANUS - FIRE RES) and supports them by integrating their results across all stakeholders and phases of Wildfire Risk Management (WFRM) and to connect them with existing insights from projects such FirEUrisk

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Firelogue's main goal is to unite as many fire-related projects as possible and to identify fields for collaboration. So, Firelogue's first effort is to create common dissemination actions with the IAs and other fire related projects. #EUFireProjectsUnited consists of Firelogue, SILVANUS, TREEADS, FIRE-RES, FirEUrisk, SAFERS, FIRE-ADAPT and PYROLIFE.

Firelogue   FIRE-RES   SILVANUS   TREEADS   firEUrisk   SAFERS   FIRE-ADAPT   PyRoLiFE

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Firelogue

Firelogue is a Coordination and Support Action (CSA) funded under the Green Deal to support the clustering and cooperation among the projects, the integration of research results and the extensive and structured knowledge exchange to finally ensure that the demonstration of innovative and integrated approaches fulfils the expected impacts.

The cooperation on these topics have been agreed upon by the projects in a joint roadmap defining activities until 2025. The roadmap builds on a Clustering Event between the EU Fire projects that had been organised digitally in April 2022.

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FIRE-RES

With 11 Living Labs, the <u>FIRE-RES</u> project aims to implement an Integrated Fire Management approach and support the transition toward <u>more fire-resilient landscapes</u> and communities. To move toward an Integrated Fire Management approach, FIRE-RES works around 4 pillars: extreme Wildfires behaviour and drivers, landscape and economy, emergency management and communication, and risk awareness.

Addressing Critical Gaps

A standard initial Framework <u>was produced</u> in the early stages of the project to avoid conceptual discrepancies across different work packages, to establish a common vision to tackle the Extreme Wildfire Events (EWE), and to ensure cohesion and alignment in the project's objectives.

FIRE-RES recognises EWE as "wildfires with large-scale complex interactions between fire and atmosphere generating pyroconvective behaviour, coupling processes, that results in fast, intense, uncertain, and fast-paced changing fire behaviour".

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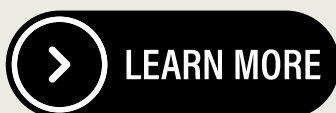
SILVANUS

SILVANUS is a H2O2O Green Deal project, whose goal is to create an integrated technological and information platform for wildfire management. The project has started in October 2O21 and will conclude in March 2O25. The Consortium consists of 49 partners from 18 countries, including non-EU countries Indonesia, Australia and Brazil.

SILVANUS team in Brisbane, Australia at the Queensland Centre for Advanced Technologies

The climate resilient platform, with the objective to prevent and suppress wildfire and to contribute to biodiversity restoration through a variety of user products (unmanned ground vehicles, unmanned aerial vehicles, IoT sensors, fire spread models, citizen engagement app...), will be validated through a series of pilots that are currently in the implementation stage.

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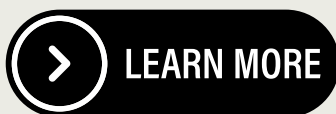
SILVANUS

Addressing Critical Gaps

SILVANUS platform is offering an innovative and holistic solution to wildfire risk management, using an approach that addresses the wildfire prevention, response and restoration stages. The technological solution offers an integrated approach, where the various sources of information — from remote sensing to social media, from weather and climate to 3D forest models — are interpreted and delivered to firefighters, with an additional innovation of establishing forward command centres at the fire site, on the basis of which drones and robots can be sent to suppress fire.


CSIRO Ground Robot and the Catalink IoT sensor User Products

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TREEADS

TREEADS, A Holistic Fire Management Ecosystem for Prevention, Detection and Restoration of Environmental Disasters, is driven by the primary goal of establishing a comprehensive ecosystem for Integrated Fire Management and sustainable forest practices. The project addresses the increasing challenge of wildfires in Europe, intensified by climate change and other factors.
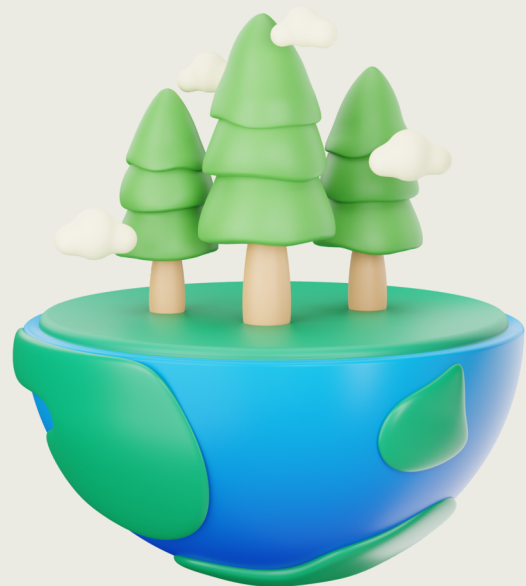
It aims to transform forest and fire management, enhance wildfire resilience, and improve firefighting efficiency through innovative technologies and a multi-stakeholder approach. The project includes developing advanced operational reaction and mitigation algorithms and testing these solutions in various climates and contexts, supported by the EU's Horizon 2020 program.

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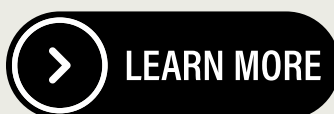
Addressing Critical Gaps:

In response to the pressing challenges posed by climate change, inadequate forest management, and increasingly severe weather conditions leading to more frequent and intense wildfires, our initiative, TREEADS, is dedicated to enhancing early detection systems, firefighting capabilities, coordination among emergency services, and post-fire restoration efforts.

The main objective of TREEADS is to develop cutting-edge solutions and integrate them into a comprehensive Fire Management Ecosystem. This ecosystem will cover all crucial stages of wildfire management: prevention, detection, response, and restoration. Our approach involves leveraging advanced technologies, models, and decision support systems to empower first responders while promoting proactive governance, improved forest management, and community engagement in preparedness activities.

Central to our endeavor is the creation of a computational framework capable of simulating diverse wildfire scenarios and recommending effective response strategies. Additionally, we will explore nature-based fire-resilient solutions, passive protection mechanisms, and innovative technologies such as drones, unmanned aerial vehicles, and satellite imagery for precise forest monitoring and supervision.

End-users of the project include citizens, firefighters, and local/regional authorities, all of whom stand to benefit from TREEADS' solutions. By enhancing citizen safety, bolstering firefighting capabilities, and streamlining decision-making processes for authorities, the TREEADS ecosystem promises tangible improvements in wildfire management.

A key innovation within TREEADS is the development of a sophisticated four-layered detection, targeting, and suppression system utilizing drones, unmanned aerial vehicles, and satellite technology. Supported by robust information and communication infrastructure, this system will play a pivotal role in combating wildfires effectively.

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Wildfires are a growing threat to European ecosystems and communities. As climate change intensifies, the frequency and severity of wildfires are expected to increase, posing significant challenges to public safety, infrastructure, and the environment. To address this pressing issue, the FirEUrisk project is developing a comprehensive strategy for wildfire risk management across Europe.

FirEUrisk is a H2020 European Research & Innovation Action. The research project aims to develop and evaluate a novel 3-stage management strategy that will update the current approaches to fighting wildfires. The project gathers 38 partners (research centres, authorities, companies and first responders) from 18 countries.

Key Objectives of FirEUrisk

- Expand the capabilities of existing wildfire risk assessment systems; by incorporating socio-economic factors and human activities, FirEUrisk aims to develop a more holistic understanding of wildfire risk.
- Develop effective measures to reduce current fire risk conditions; the project is developing a range of strategies to mitigate wildfire risks, including land-use planning, fire prevention measures, and early warning systems.
- Adapt management strategies to expected future climate and socio-economic changes; FirEUrisk is assessing how climate change and changing demographics will impact wildfire risk and developing adaptation strategies accordingly.

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Addressing Critical Gaps

The FirEUrisk project has the potential to significantly reduce wildfire risk across Europe by providing a comprehensive and integrated approach to wildfire management. For achieving this approach, the research had to go beyond on investigating and analysing the fire danger but also assess risk conditions and the potential referred as vulnerability and the impact caused, and include the social and ecological aspects of risk. The project is focusing on managing the fire risk condition in WUI areas and involves local population in fire management aspects (citizen-science) by incorporating socio-economic factors, adapting to climate change, and engaging stakeholders, FirEUrisk aims to create a more resilient and wildfire-safe European landscape. The field data campaigns for modelling and testing purposes took place in 26 demonstration areas along EU for creating as large as possible data library.

The FirEUrisk project is proposing a dual framework approach by integrating Wildfire Risk Management (IWFRM) into Holistic Landscape Fire Management (HLFM), establishing a dual framework to address climate change issues. IWFRM can address excessive wildfire potential, which may threaten community activity and assets that ecosystem management, even when performed holistically, cannot contain. Such integration allows for a balance between the ecological role of fire and the imperative to protect human life and property. Moreover, it fits perfectly within the broader scope of ecosystem and landscape management, thus providing a comprehensive approach to wildfire governance.

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PyroLife - training the next generation of integrated fire management experts

There is a critical need to change management paradigms from fire resistance to landscape resilience: Living with Fire, an approach to be developed through Integrated Fire Management (IFM).

PyroLife trains the new generation of interdisciplinary experts in holistic IFM, through knowledge transfer between Southern and Northwestern Europe and the application of lessons learned in the prevention of floods and other risks. Our training programme, crucially developed with industry, provides 15 Early Stage Researchers (ESRs) the in-depth, interdisciplinary, integrated, and transferable knowledge and skills required to complete their research and maximise future employability.

Individual projects target risk quantification (fire danger, vulnerability, (mega)fire behaviour, environmental and economic impacts), risk reduction (fire-resilient home, garden, and landscape design, prevention, and governance), and risk communication (stimulating stakeholder and community resilience and preparedness). PyroLife is original for its inter- and transdisciplinary, intersectoral, cross-risk, and cross-climate approach to training doctoral students and tackling wildfire challenges, connecting 21 diverse partners.

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Addressing Critical Gaps

PyroLife acknowledges that

1) knowledge transfer from Southern Europe (and worldwide) to temperate Europe can support the new generation of experts; and

2) fire risk planning, communication and management can learn from cross-risk lessons, including temperate European expertise in water management.

In doing so, this project combines how the North solves community problems with the fire knowledge of the European South

Design: Natasha Sena

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Addressing Critical Gaps

PyroLife is built upon four axes of diversity: interdisciplinarity, intersectorality, geography, and gender.

- **Our consortium spans across Northwestern and Southern Europe and beyond, encompassing the key disciplines and actors in fire: from academia and research institutes to small and large businesses, advocacy, governance, and emergency management.**

- **Participants host cross-geographical and intersectoral secondments and collaborate in additional training and dissemination.**

- **PyroLife has strong female participation, not just as a gender equity goal but as a strategy to stimulate creativity and change the way that fire is approached.**

Our integrated research and training programme is training ESRs to be creative, entrepreneurial and innovative, and to deal with current and future fire challenges.

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FIRE-ADAPT

FIRE-ADAPT: The Role of Integrated Fire Management on Climate Change Adaptation for Ecosystem Services in Tropical and Subtropical Regions

FIRE-ADAPT aims to quantify, monitor, and evaluate the impact of Integrated Fire Management (IFM) on carbon dynamics, biodiversity and cultural ecosystem services in different tropical and subtropical regions with altered fire regimes under IFM.

The research is structured in five work packages: Carbon dynamics, Biodiversity conservation, (Inter)cultural services and human well-being, Modelling and forecasting, and IFM as a climate adaptation approach.

With 6 Study Hubs in Spain, Mexico, Brazil, France, Argentina, and Italy: single or multiple regions within a country where FIRE-ADAPT activities, secondments, networking meetings and inter-sectorial and interdisciplinary exchanges occur.

carbon fluxes

well-being

cultural services

biodiversity

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FIRE-ADAPT

24 institutions from 10 countries in Europe and Latin America.

Research advancement based on secondments: stays of FIRE-ADAPT researchers and practitioners at partner organisations for training, knowledge-exchange, networking and contributing to resources that FIRE-ADAPT is committed to produce.

Addressing Critical Gaps

This project focuses on advancing the knowledge and acceptance of Integrated Fire Management, standardizing definitions, approaches and protocols and bridging the gap between fire researchers and fire practitioners from different regions of the world.

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SAFERS 'Structured Approaches for Forest fire Emergencies in Resilient Societies' is in a mission to support societies becoming more resilient across the key phases of the forests fires emergency management cycle. The project is funded by the European Union under the Horizon 2020 programme and has officially started in October 2020 for a period of 3,5 years (2020-2024) with a budget of 3.25 million euros. It is coordinated by LINKS foundation and brings together 14 partners coming from 7 European countries: Italy, Greece, Finland, Germany, United Kingdom, France and Spain.

SAFERS has been creating an integrated platform featuring a forest fire Decision Support System. The platform uses information from different sources: earth observations from Copernicus and GEOSS, fire sensors in forests, topographic data, weather forecasts and even crowdsourced data from social media and other apps that can be used by citizens and first responders to provide situational in-field information. Such Big Data is processed using Artificial Intelligence algorithms to generate useful information: risk maps to better plan preparedness actions, early detection of active fires, fire propagation predictions, burned area and fire front delineation, impact assessment estimations, and habitat recovery maps.

Moreover, the SAFERS Decision Support System suggests best practices according to the emergency phase (prevention and preparedness, detection and response, restoration and adaptation) and to the current situation using a semantic knowledge base. SAFERS was successfully demonstrated in four European countries, namely France (Corsica) and Italy (Piedmont) Spain (El Perelló) and Greece (Thessaloniki).

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SAFERS

Addressing Critical Gaps: Illuminate the project's focus on bridging significant gaps within the targeted domain

SAFERS enhances EU Disaster Response Capacity by addressing disaster prevention, mitigation, and response challenges. Partners designed and implemented the beta version of Intelligent Services and the SAFERS platform, including components like geodata repository, importer, mapper, visualization dashboard (web-based frontend and backend), AA server, and message bus. SAFERS utilizes EO data, algorithms, and in-field sensor and human-generated data to improve forest fire emergency management across the cycle.
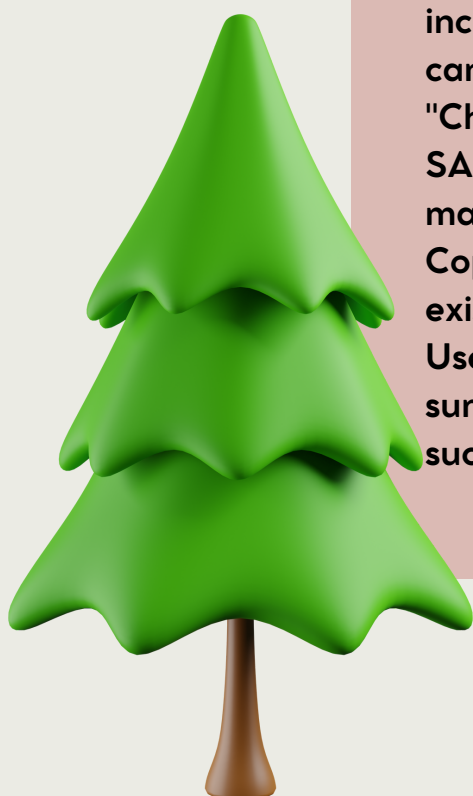
Eight services feature algorithms, including EO-driven services like "On-demand Fire forecast," "Fire and burnt area delineation," and "Post-wildfire habitat recovery." In-field data services include "Smoke and fire detection system" using camera data, and "Social Media Analysis" & "Chatbot" using human-generated data. SAFERS co-designs novel forest fire management services with end-users, leveraging Copernicus & GEOSS remote sensed data via existing European infrastructures like DIAS. User requirements collection includes online surveys, IURW, and local workshops, executed successfully.

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End of Joint Newsletter

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