European Union's Research & Innovation

Horizon 2020 Green Deal Call Preventing & Fighting Wildfires

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DG Research & Innovation

EU **Green Deal** call / **Wildfires topic**

- Background

- Holistic approach

  A. Preparedness & Prevention
  B. Detection & Response
  C. Restoration & Adaptation

- Synergies with
  - International Cooperation
  - other EU initiatives
  - EU Space

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Green Deal's immediate priorities:
"**reduce incidence and extent of forest fires**",
"boost ability to **predict and manage environmental disasters**".

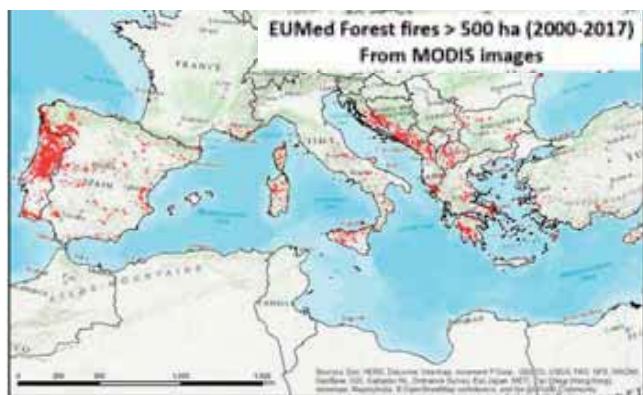More **EU citizens suffer directly & indirectly** from wildfire impacts every year :
▪ hundreds casualties ▪ €2+ billion economic damages ▪ Forests & Natura 2000 areas ravaged
not only Southern Europe but also rising in Central, Eastern and Northern Europe

Extreme wildfires more frequent = + **pollution, + ecosystems** damage**, - biodiversity, …**
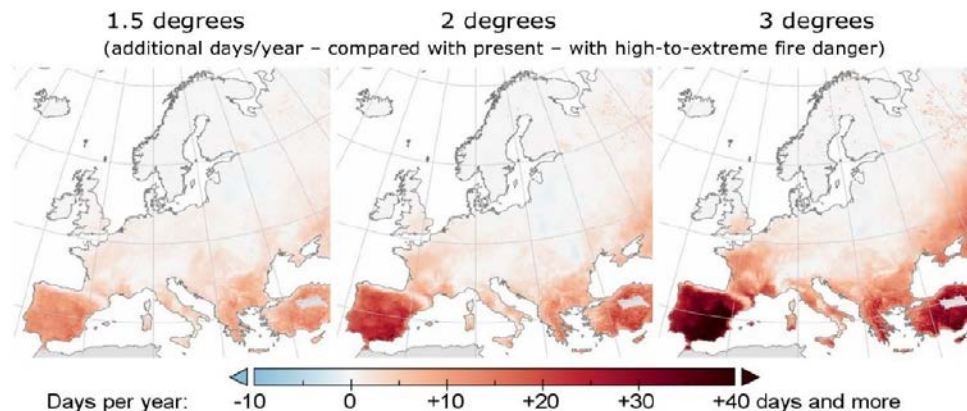
Cause & Effect

Wildfires worldwide are already among the **first contributors to climate change**
(significant GHGs direct emissions, degraded carbon sinks, …)

Climate change + unsustainable forestry + land use + demographic changes
increase wildfires' severity, extent of burned areas and length of the fire season

Source: FUME project 'Lessons learned & outlook' + EFFIS
(EU's Copernicus Emergency Management Service).

Source: EU's JRC PESETA IV study

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Main Objective

Accelerate, integrate, adapt and **demonstrate (in pilot sites)** research & innovation **holistic solutions** ready to **up-scale & deploy at local / regional / national / EU & international level**, making best **use** of existing data, technologies and services, closely **engaging** all concerned actors and communities for each phase.

General Approach

Research, demonstration and deployment of innovative means and methods tailored to extreme wildfire behaviour

Integration of environmental, climate, health & safety/security, cultural and socio-economic aspects

Proactive **governance**, awareness and preparedness where **citizens**, local **authorıties** & the forestry/insurance **sectors** play a central role
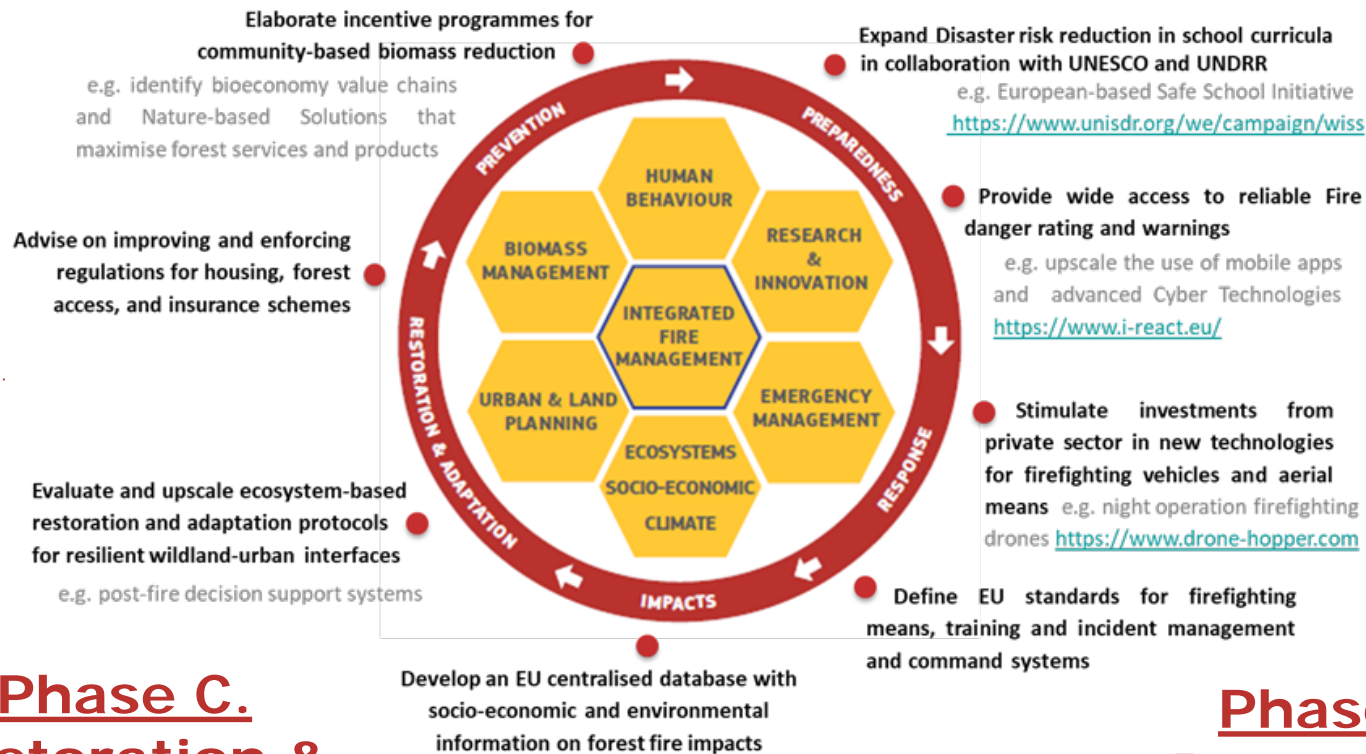
Tailored and effective solutions co-designed **with end-users in pilot sites** across various European contexts

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High-impact activities to accelerate & demonstrate holistic solutions adapted to the new context of wildfires in **all** fire management phases

Phase A.
Prevention & Preparedness

Elaborate incentive programmes for community-based biomass reduction

e.g. identify bioeconomy value chains and Nature-based Solutions that maximise forest services and products

Advise on improving and enforcing regulations for housing, forest access, and insurance schemes

Evaluate and upscale ecosystem-based restoration and adaptation protocols for resilient wildland-urban interfaces

e.g. post-fire decision support systems

Expand Disaster risk reduction in school curricula in collaboration with UNESCO and UNDRR

e.g. European-based Safe School Initiative
https://www.unisdr.org/we/campaign/wiss

Provide wide access to reliable Fire danger rating and warnings

e.g. upscale the use of mobile apps and advanced Cyber Technologies
https://www.i-react.eu/

Stimulate investments from private sector in new technologies for firefighting vehicles and aerial means e.g. night operation firefighting drones https://www.drone-hopper.com

Define EU standards for firefighting means, training and incident management and command systems

Develop an EU centralised database with socio-economic and environmental information on forest fire impacts

PREVENTION — PREPAREDNESS — RESPONSE — IMPACTS — RESTORATION & ADAPTATION

HUMAN BEHAVIOUR — RESEARCH & INNOVATION — BIOMASS MANAGEMENT — INTEGRATED FIRE MANAGEMENT — URBAN & LAND PLANNING — EMERGENCY MANAGEMENT — ECOSYSTEMS — SOCIO-ECONOMIC — CLIMATE

Phase C.
Restoration & Adaptation

Phase B.
Detection & Response

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Measurable targets to be achieved by 2030:

- ✓ **0 fatalities** from wildfires.
- ✓ 50% reduction in **accidental ignitions.**
- ✓ 55% reduction in **emissions.**
- ✓ **Control** of any extreme and potentially harmful wildfire **in less than 24 hours.**

- ✓ 50% reduction in **building losses.**
- ✓ 90% losses from **wildfires insured.**
- ✓ 50% Natura 2000 protected areas **fire-resilient**
- ✓ 25% increased of surface area with **prescribed fire treatments.**

To maximise impact:

The most promising results demonstrated in the actions expected to be **up-scaled / deployed** into:

- National climate change adaptation/disaster risk units,
- **Union's Civil Protection Mechanism**,
- **Emergency Response Coordination Centre**, Disaster Risk Management Knowledge Centre,
- European Forest Fire Information System (EFFIS),
- Copernicus Services (EU Space observation with global reach)**,**
- **EU/regional/interregional initiatives**, UN's Sendai Framework**, international standards,**
- **…**

N.B. Multilateral international cooperation can leverage global impact

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Structure of the call topic (LC-GD-1-1-2020)

Proposals should address only one of the subtopics below:

Subtopic 1: **Innovation Actions** that will speed up the pan-European adaptation process to extreme wildfires by **advancing and applying research and innovation**, **including demonstration pilot sites**, while making best use of existing data, technologies and services.

> *Indicative EU contribution: between EUR 15 to 20 million per action*
> *Total EU available: **EUR 72 million***

> *Proposals should cover <u>all of the fire management phases (A, B & C)</u>, while focusing on a subset of activities within each phase.*

Subtopic 2: A **Coordination and Support Action** that will **ensure** the demonstration of innovative and **integrated approaches** fulfils the expected impacts, by **coordinating and supporting** the Innovation Action projects funded under this topic.

> *Indicative EU contribution: between EUR 2 to 3 million per action*
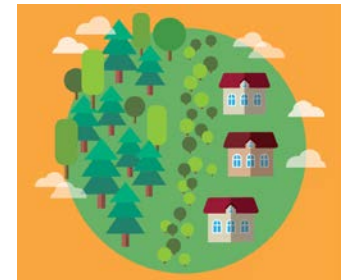> *Total EU available: EUR 3 million*

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In each phase, proposal may focus on a subset of activities as:

- Supporting the **integration of socioeconomic and environmental information** on wildfire **causes** and **impacts** into existing EU databases with a focus on extreme wildfire events, the causes of wildfire ignitions and the **demographic** dynamics …

- Improving fire and landscape management of both **public and private lands** using both **traditional and innovative approaches for sustainable fuel management …**

- Enhancing **access** to official **fire danger index rating and warnings** in cooperation with EU initiatives …

- Building a common **culture on risk prevention and preparedness** across Europe, including **behavioural** change of citizens, to encourage **self-protection**, safety and environmental protection …

- Integrating fire safety knowledge and engineering to support the design, construction, and management of **fire-resilient buildings and infrastructures …**

- Improving **early-warning tools** by integrating forest stand bio-geographical data in forecasting models …

- Improving understanding the link exposure to smoke & **air pollutants – health** …

- Broad Earth System studies for weather and climate drivers
  as well as biophysical **feedback** from **global forest fires** incl. historically …

- Stimulate private investments for **retrofitting / developing new technologies** …

- Fast-track R&I in **space & aerial means** for **detection, targeting and extinction** e.g. (pseudo-)satellites, drones, water-bomber helicopters / planes able for night ops; modular units for cargo/multi-mission aircraft; scooping, tanking & discharging…

- **Firefighters**'+ **manned** & **unmanned** ground/air **vehicles**' simultaneously **in all conditions** (i.e. **location, route management, patrolling and automation**…)

- Near real-time high-fidelity **fire and smoke propagation forecasting** …

- Interoperable **incident-management,** communication, coordination & command systems, incl. information from multiple platforms and sources (as social media) …

- **Interaction with citizens at risk**: **warnings**, evacuation, confinement messages …

- Integration of wireless sensors, EWS, fire retardant, **search & rescue, evacuation** …

- Emergency responders': personal protection, ICT support, robotics, fire agents …

- **Training**, incl. virtual reality **simulators** for air fleet and ground …
- Better and faster estimates of the impact of fire events …

- Advancing and demonstrating systemic and **structural measures for fuel treatments** and tree/forest management aiming at resilient wildland-urban interfaces …

- **Demonstrating sustainable post-fire ecosystem restoration solutions** of damaged ecosystems aiming at restoring biodiversity …

- Evaluating and upscaling the **deployment of ecosystem-based restoration solutions** across various biogeographical contexts, building on experience from nature-based solutions related projects …

- Testing and developing **public-private cooperation mechanisms** to leverage investments from the private sector, including insurance companies …

- Contributing to the definition of a **common EU legal framework** for the governance systems and operational activities regarding forest and communities protection …

- Supporting mechanisms and **promotion of governance systems for restoration and adaptation** through the involvement, coordination, and cooperation of different actors and sectors …

Activities may include among others:

- supporting **clustering** and cooperation among the projects funded under this topic and with **other** relevant actions under **Horizon 2020**, the **Cohesion** and **Civil Protection** funds

- **facilitating the integration of the three fire management phases** covered by each of the Innovation Action projects funded under this topic;

- engagement with **citizens, local communities, forest** owners and the forestry-based industry, nature **conservation** organisations, **insurance** and **social infrastructure sectors**

- extensive and structured **knowledge sharing** (e.g. Disaster Risk Knowledge Management Centre DRKMC) and **evaluation-based analysis of past wildfire events**

- developing **recommendations** for wildfire prevention & preparedness activities for different actors,

- developing **better readiness of response units for cross-border**, regional, **international assistance**, in line with the Union Civil Protection Mechanism framework;

- **facilitating international collaboration and global outreach** in the areas covered by this topic.
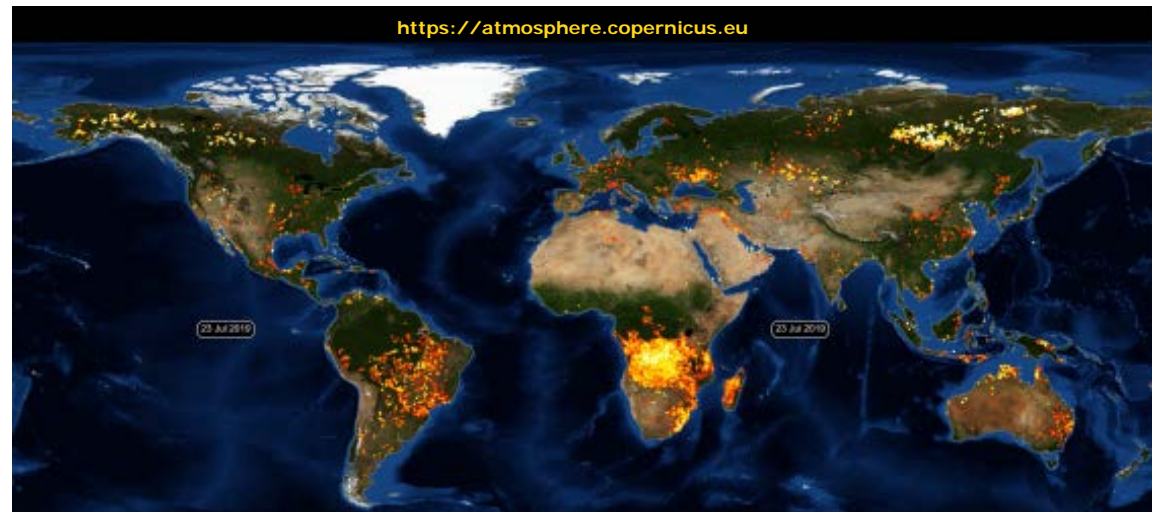
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International Cooperation encouraged for all Subtopics actions

In order to:

- leverage **knowledge**, **resources** and **best practices**,

- increase **impact** worldwide,

- decrease risks.

Multilateral international cooperation is encouraged, in particular with:

- **Russia,**
- United States,
- Canada,
- Australia,
- Japan,
- Brazil,
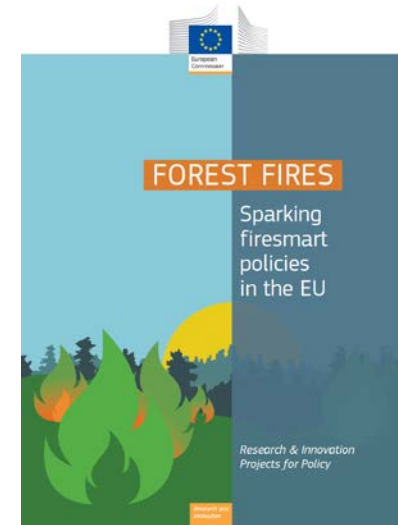- South America,
- Indonesia,
- South Africa.

https://atmosphere.copernicus.eu

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All Subtopics actions should:

• Go **beyond the state of the art** and previous R&I activities at EU level:

e.g. FP7 / Horizon2020 / COST / JRC, LIFE and Civil Protection projects examples in

Projects For Policy (P4P) Forest fires - Sparking fire-smart policies in the EU

• **cooperate with ongoing** relevant Horizon 2020 projects

FOREST FIRES

Sparking firesmart policies in the EU

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Projects for Policy

• involve relevant **international, national and EU agencies**

e.g. European Environment Agency (EEA), **European Union Aviation Safety Agency (EASA), …**

• involve **end-users** from Member States and Associated Countries

e.g. forest owners, forest-based industry actors, environmental and nature management organisations, firefighters, **local and regional authorities**, etc

• Make best **use of existing EU initiatives and services** (as **Copernicus**, **Galileo**, **EGNOS**),

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- EU space flagship programmes **Galileo and Copernicus „up and running"**

- Data and services: **world class**, **open and free of charge**

- An asset in the implementation of the Green Deal Call

Europe's Global Navigation Satellite System (**EGNSS = Galileo, EGNOS**),

providing improved **positioning** and **timing** information.

Support in wildfires preventing and fighting:

- **Locating** & navigating: assets, people in distress, personnel and response teams also during **search and rescue** operations.

- **Geo-referencing** incident data and maps – in an accurate and consistent way.

- **Navigating** drones, planes, helicopters, robots … for mapping, monitoring or extinction.

More info available on the wildfires support dedicated presentation from EGNSS Supervisory Agency GSA: https://www.gsa.europa.eu/sites/default/files/expo/6.egnss_contribution_to_preventing_and_fighting_wildfires-vojtech_fort.pdf

& on Galileo User Helpdesk: https://www.gsc-europa.eu/

In order to maximise impact, most promising results demonstrated expected to be up-scaled/ deployed into:

- **Galileo Emergency Warning Service**;

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Synergies with EU Copernicus

Europe's Earth Observation Programme, unique constellation of satellites, six specific services.

Highly accurate, timely and accessible data services.

World class, **open and free of charge.**

Support in wildfires preventing and fighting:

- **Near real-time** data on the region
- **Temperature** information
- **Fire-danger** forecast
- **Emissions** related information
- **Vegetation / fuel** related information , …

More info available at :

copernicus.eu + gwis.jrc.ec.europa.eu

Project results could up-scale/deploy in:

- **Emergency** Management (EMS) e.g. Rapid Mapping

- **Land** Service e.g. land cover and land use;

- **Atmosphere** Monitoring Service e.g. fires intensity detection & pollutants propagation forecast;

- **Security** Service e.g. for support to EU external action;

- **Group on Earth Observation (GEO)**.

THANK YOU !

Green Deal call Wildfires topic web-site:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-gd-1-1-2020

Call Deadline: 26 January 2021 17:00 (Brussels time)

Single-stage evaluation

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