Avincis
Every mission matters

Up in flames:

The challenges of fighting wildfires from the air in a hotter Europe

Index

1 FOREWORD

John Boag,
the Group CEO of Avincis

Europe must come together now to stave off a firefighting crisis

As Europe faces its most challenging operating environment for aerial firefighting yet, it has never been more urgent to raise awareness about the array of complex problems confronting the sector.

The gravity of the situation prompted Avincis to bring together some of the most respected figures in the industry to lend weight to a report that aims to sound the alarm as loudly as possible so that concerted action is taken while there is still time.

There is no question that fire seasons are getting longer. The window for transporting aircraft from one hemisphere to another is getting smaller, forcing the available global aerial-firefighting fleet into decline. It is no longer possible to move aircraft around the world with the relative ease of the past. This is due not only to longer fire seasons, but also, major fires are now starting in what has traditionally been regarded as the offseason.

Back-to-back fires in 2025 brought these challenges into sharp focus. In January, wildfires wreaked havoc in Southern California. Two months later, on the other side of the world, fires devastated parts of South Korea, possibly the worst such disaster in the country's history: 48,000 hectares burned, 32 people died, 4,000 structures were destroyed, and economic damage totaled around 7 billion euros. That compares to 9,500 hectares burned in the Palisades resulting in 12 deaths, but economic damages exceeding 23 billion euros, with nearly 7,000 structures destroyed.

The situation in Europe is no less troubling. What we are seeing is unprecedented: there has been a 135% increase in burned area since 2014, while 2025 was the most destructive year on record, with over a million hectares burned across the continent.

These are not isolated events; they are systemic. They are driven by new climate extremes and infrastructure that is incapable of adequately coping with the challenges at hand, partly due to overly strict regulations. If the scenario continues to deteriorate, as scientists predict it will, it is critical to rethink our approach to firefighting – particularly from the air. Year-round readiness is no longer just an option for much of the region. There is no way around it: from now on, much of Europe is going to need full firefighting capability for all 12 months of the year.

As it stands, Europe is not ready for this. Most critically, more investment in new aircraft is essential, especially those with predictive technology. Some countries do have some aircraft available throughout the year, but not entire fleets. Europe has already invested in DHC-515s, but bureaucratic hurdles have slowed their arrival, and more are needed – many will only replace older, obsolete aircraft.

"It is critical to rethink our approach to firefighting – particularly from the air."

In addition, heavy helicopters such as the Bell 214ST and the Airbus Super Puma will also make a huge difference to Europe's aerial firefighting capabilities, given the advantages they present: they can carry significantly more water or suppressant than smaller aircraft; heavy helicopters can hover and fly more slowly at lower altitudes to drop water with greater precision; they are also more versatile and boast faster turnaround times, and are increasingly outfitted with night-vision technology, allowing them to continue firefighting at night; and they carry fire crews that can be strategically placed on the ground where they are most needed.

The lack of heavy aircraft in Europe was compounded when Kamovs across the region were stood down as a result of sanctions put in place following Russia's entry into Ukraine. Historically these aircraft, which can carry bambi buckets with up to five tonnes of water, were a critical part of the European firefighting fleet. The Blackhawk, although not currently certified to operate in Europe or able to carry passengers, would be the natural successor to the Kamov in terms of water drop capability.

But it is not just about aircraft: personnel is another deeply challenging issue. While the scarcity of well-trained pilots is a global problem, making regulations more flexible for bringing pilots in from other regions would go a long way to solving the problem. No less importantly, technicians are also hard to come by, and given the growing fire risk, demand for them is only going to rise. It will also be necessary to fix critical governance and coordination issues, which can in effect be just as damaging as a lack of aircraft or personnel.

While these are all global problems, they are more acute in Europe than in other advanced firefighting regions, such as the United States or Australia, both major sources of technicians and pilots with firefighting experience.

The good news is that Europe has the firefighting experience it needs to become a global leader in the industry. But the region needs to come together and act in unison now, with both the public and private sectors pooling their resources and abilities optimally, before the situation deteriorates any further. If it does not, the inevitable, and unnecessary, consequence will be an even greater toll on the region's forests, properties, and human lives.

2 EXECUTIVE SUMMARY

Wildfires have steadily intensified in Europe over the past decade as fire seasons become longer, hotter, and more erratic. By bringing together some of the most respected figures in the industry to identify the challenges and suggest ways forwards, this report aims to sound the alarm so that action is taken while there is still time.

More than one million hectares burned across the European Union in 2025, more than in any previous year. While 81% of the damage was concentrated in Spain, Portugal, Romania, Italy and Greece, the growing frequency of wildfires in the Nordic countries and Central Europe indicates a worrisome shift in risk patterns.

CHALLENGES

Europe's wildfire-response capacity has evolved from a loosely coordinated, reactive system into a structured and increasingly proactive framework. The creation in 2019 of RescEU, a continent-wide emergency response system that provides resources including firefighting planes, marked the beginning of structural reform.

There is room for better organised and more proactive cooperation and long-term planning. The EU could take a stronger leadership role to boost firefighting capacity, unify different national approaches to firefighting, harmonise regulatory frameworks, avoid procurement delays, reduce a reliance on the public sector, and focus more on prevention than on suppression.

"One pressing challenge: the limited size of Europe's aerial firefighting fleet."

One of Europe's most pressing challenges is the limited size of its aerial firefighting fleet. The European Parliament committed 600 million euros in 2024 to renew and expand it, especially with the DHC-515 Firefighter, an amphibious aircraft developed by De Havilland Canada. But delivery times are slow, and many will merely replace obsolete aircraft. Supply-chain challenges caused by sluggish bureaucracies are generating a need to rethink and streamline procurement rules.

Equally challenging is a global shortage of pilots and technicians. Longer fire seasons mean fewer opportunities for pilot training, which is usually done in the offseason.

THE WAY AHEAD

Governments are key to streamlining supply chains so that firefighters are adequately equipped, but they struggle to understand the importance of firefighting preparedness. They could help by fast-tracking procurement and placing bulk orders that would enable manufacturers of firefighting aircraft to boost production. In the meantime, the industry needs interim solutions, such as modifying existing aircraft.

There is a growing acceptance that more attention should focus on early detection and prevention of fires. Aircraft need to be on standby to respond swiftly to incipient fires before they get out of control. Europe can learn from Australia's pioneering early-intervention methods, which have had a significant impact on reducing fire size.

Aircraft are a supporting tool for ground operations, but links with ground operations need to be strengthened: interoperability is a crucial theme and requires commitment from all sides for state-of-the-art technology to be optimised. Data connectivity between the ground and aircraft is one important factor. Too often, resources are not allocatedTECH efficiently, so a layered approach to firefighting is important, with different aircraft complementing rather than replacing each other.

Local communities directly affected by fires need to be more efficiently involved – before, during, and after wildfires strike. Technology, especially smartphones, has an obvious role in keeping communities informed of fire danger and evacuation routes. Local leaders need guidance in community-based fire management, so they can play a more active role in preventing and dealing with wildfires.

A standardised international approach to firefighting would help make coordination more efficient and improve resource-sharing among countries – not just within Europe, but on an intercontinental scale – to meet surges in demand. The United Nations' launch of a Global Fire Management Hub in 2023 was a step forward; at the national level, new legislation is key.

3

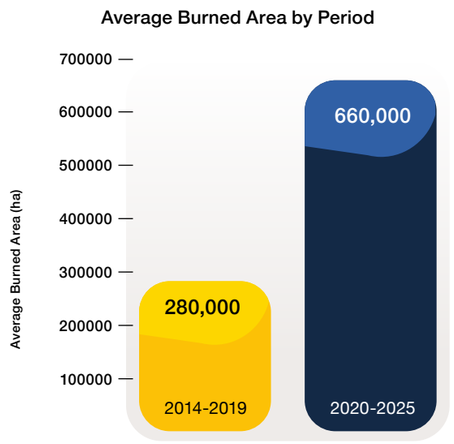
THE CRITICAL SCENARIO IN EUROPE

Southern hotspots intensify as fire risk spreads north

Wildfires are sweeping across Europe at an alarming rate. They have steadily intensified over the past decade, not through a linear year-on-year increase, but through a sustained elevation of baseline conditions and a growing frequency of extreme seasons – a pattern consistently identified by the European Commission[1], its Joint Research Centre[2], and the European Environment Agency[3]. Wildfires caused more devastation in Europe in 2025 than in any previous year. Huge expanses of the continent's forests were lost.

"Wildfires caused more devastation in Europe in 2025 than in any previous year."

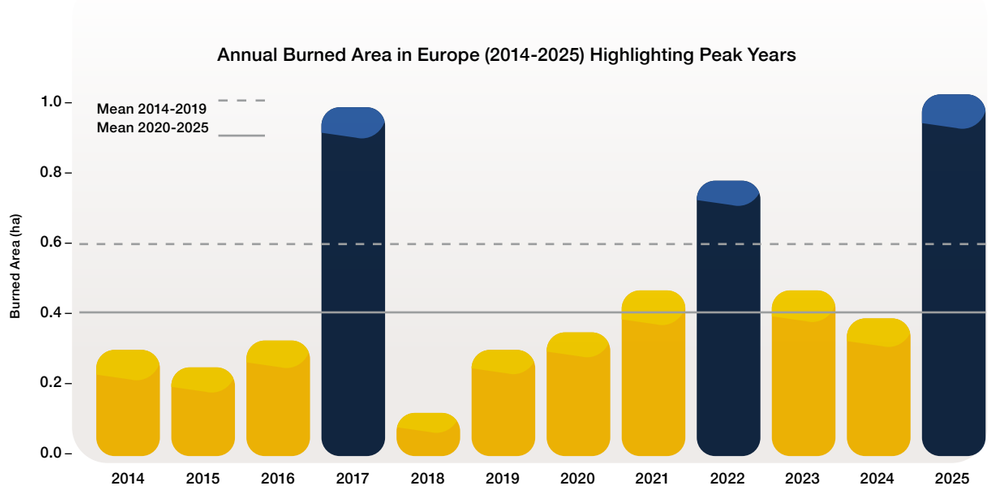
As fire seasons become longer, heatwaves more severe, and the sheer volume of inflammable vegetation accumulates, it is clear that systemic change is under way. The data reveals that what is taking place is not a sequence of isolated events: in the 2014-2019 period, an average of around 280,000 hectares per year was burned; in 2020-2025, that figure climbed to around 660,000 hectares – an increase of more than 135%.



Source: EFFIS data, 2025

1. European Commission. (2023). 2022 was the second-worst year for wildfires, a warning from a changing climate (IP/23/5951). European Commission.
2. Joint Research Centre. (2023). Wildfires in the EU: 2022 was the second-worst year, a warning from a changing climate. European Commission – Joint Research Centre (EU Science Hub).
3. European Environment Agency. (2024). Forest fires in Europe. European Environment Agency.

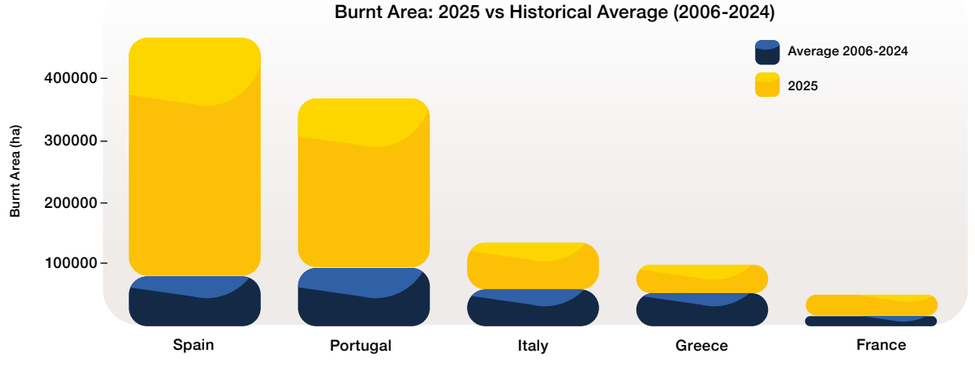
Extreme seasons are becoming the new normal. While 2017 marked an early warning, the years 2022 to 2025 account for 46% of all the area burned since 2014, even though they represent just a third of the period studied.



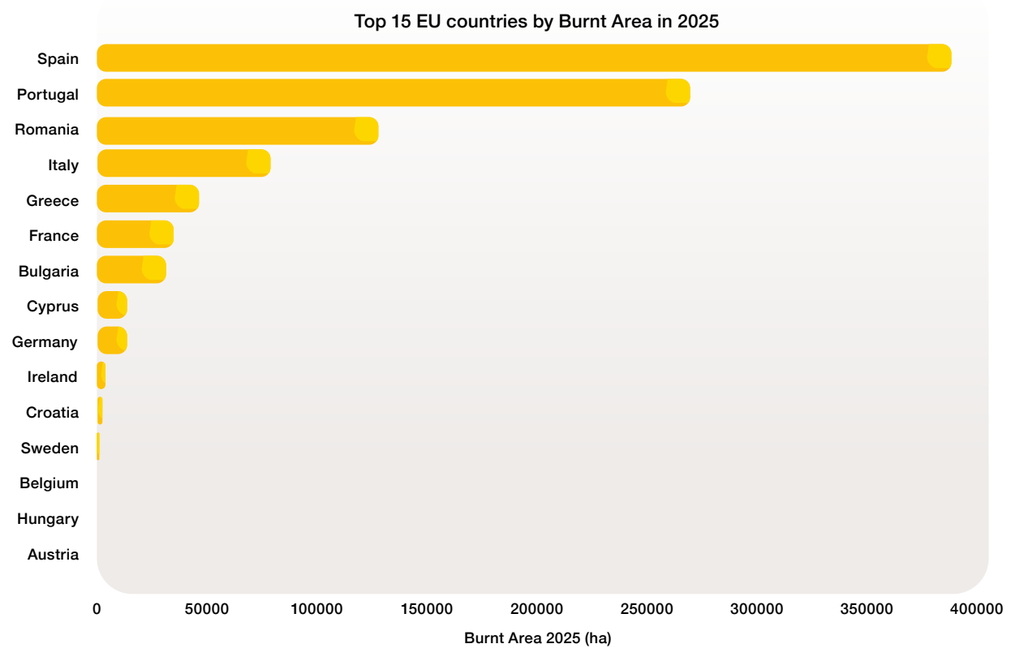
Source: EFFIS data, 2025.

The calamity of 2025 is simply the culmination of a decade-long escalation that threatens to continue. Europe has entered a new wildfire era, defined by longer, hotter, and more destructive fire seasons. As of October 2025, more than 1.03 million hectares have burned across the EU. Together, 2017 and 2025 account for more than a third of all burned land since 2014.

Fires have long raged most fiercely in the Iberian Peninsula. Spain and Portugal accounted for 55% to 65% of Europe's total burned area since 2014. Their situation is getting worse: in 2025, Spain saw around 390,000 hectares burned – five times its 2015-2019 average and twice its 2020-2024 average. Meanwhile, 277,000 hectares in Portugal were beset by wildfires, triple its recent baseline. Spain, Portugal, Romania, Italy, and Greece bore the brunt of the continent's wildfires: 81% of the total area affected in the EU was concentrated in this group.

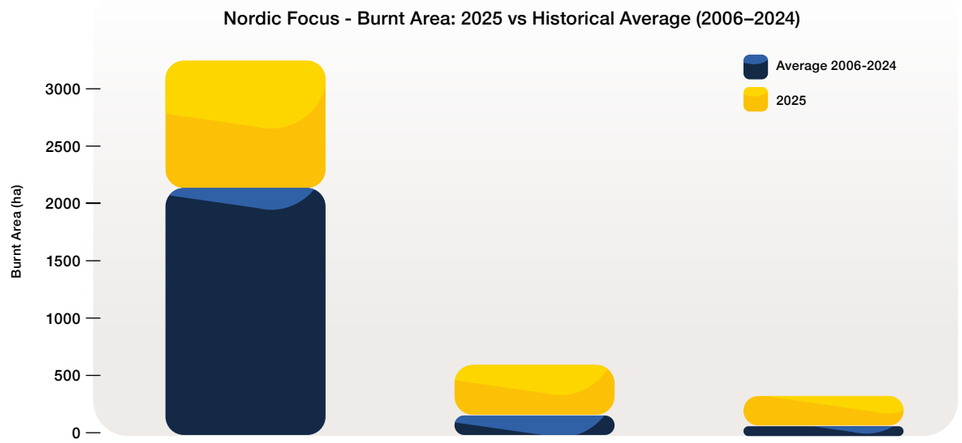


Source: EFFIS data, 2025.



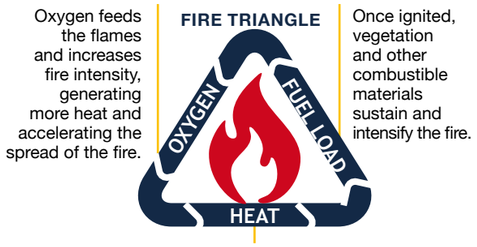
Source: EFFIS data, 2025.

Equally worrying is the spread of fire risk northward. While the Nordics and Central Europe have historically represented less than 1% of Europe's total burned area, their vulnerability is growing. Over the past decade, fire activity has become more frequent, indicating a long-term shift in risk patterns. In 2025, this northward expansion became more visible: Sweden registered 1,100 hectares burned, an increase of more than 120% over its recent average, while Finland and Denmark exceeded their long-term baselines, marking consecutive years of unusually bad fires.



Source: EFFIS data, 2025.

The European Commission's Joint Research Centre[4] estimates that around 96% of wildfires are caused by humans, but climate change is increasing the risk that they escalate into mega-fires. A lethal combination of three factors – the "fire triangle" – creates the ideal conditions for wildfire ignition and spread across the continent: persistent heatwaves, deeper humidity deficits, and increasing combustible biomass.



Regarding the first factor – heat – the period from 2015 to 2024 stands out as the warmest decade on record globally, with average temperatures 1.24 to 1.28 °C above pre-industrial levels. In Europe, warming over the same period has been significantly more pronounced: according to the European Environment Agency, land temperatures rose by approximately 2.19 to 2.26 °C above pre-industrial levels, nearly double the global average.

In June 2025, Western Europe recorded its warmest month on record, with an average temperature of 20.49 °C. Data compiled by the Copernicus Climate Change Service[5] shows that temperatures across Iberia and the Eastern Mediterranean exceeded the 1991–2020 average by more than 2.5 °C. Spain stood out as the most extreme case: according to the State Meteorological Agency, average temperatures in mainland Spain reached 23.7 °C, with peaks of up to 46.0 °C – the highest June value ever recorded nationally. This exceptional start shaped the summer of 2025, which averaged 2.1 °C above the 1991–2020 norm, making it the warmest summer on record.

"In June 2025, Western Europe recorded its warmest month on record."

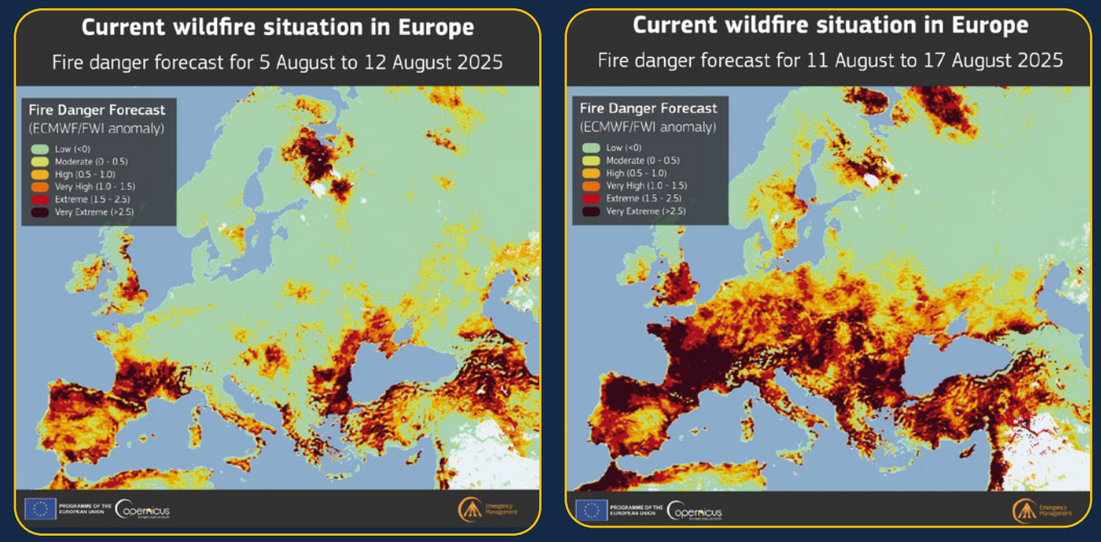
The second component of the fire triangle is humidity. As documented by Copernicus[6], there have been progressively deeper negative anomalies in atmospheric humidity over the last decade, particularly during spring and summer. This persistent trend reduces vegetation moisture and increases flammability – especially in Southern and Central Europe – creating conditions for rapid ignition and spread.

Third, the volume of combustible vegetation, known as fuel load, has steadily grown across Mediterranean and Balkan landscapes. It has been driven by higher temperatures, changing land use, and underinvestment in forest management, a dynamic highlighted by the European Academies' Science Advisory Council7. Meanwhile, current policies remain largely focused on suppression and are clearly inadequate, requiring increased budgetary commitments to prevention and restoration.

In 2025, this trifecta of heat, humidity, and fuel load was especially potent from August 10 to 22. Wildfires rampaged across an estimated 358,000 hectares, a huge share of the season's total. Worse, the atmospheric feedback the fires triggered – by emitting carbon monoxide and aerosols that absorbed radiation, trapped heat, and reduced relative humidity – created warmer, drier, and more unstable conditions. This feedback loop was clearly visible during the darkest week of Europe's hottest fire season.

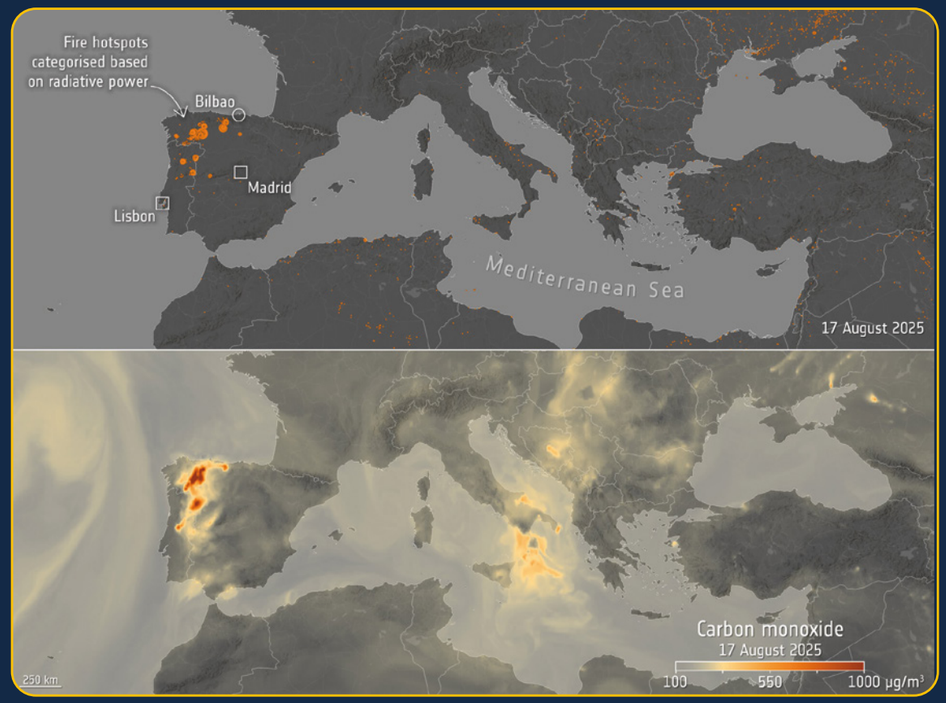
4. Joint Research Centre. (2023). "Wildfires in the EU: 2022 was the second-worst year, a warning from a changing climate. European Commission – Joint Research Centre (EU Science Hub).
5. Copernicus Climate Change Service. (2025). European summer 2025: Hot in the west and south, dry in the southeast. European Centre for Medium-Range Weather Forecasts (ECMWF).
6. Copernicus Climate Change Service. (2017). Quality of ERA-Interim and comparison with other datasets: Relative humidity. Copernicus Climate Change Service.
7. European Academies Science Advisory Council. (2025). Changing Wildfires: Policy Options for a Fire-literate and Fire-Adapted Europe. EASAC.

THE DARKEST WEEK OF 2025



Source: Copernicus Emergency Management Service (CEMS). "Current wildfire situation in Europe: Fire danger forecast for 5–12 August 2025 and 11-17 August 2025 (ECMWF/FWI anomaly)." European Commission, Directorate-General for European Civil Protection and Humanitarian Aid Operations (ECHO), 2025.

FIRE HOTSPOTS AND CO PLUMES ON 17 AUGUST 2025



Source: ESA map showing fire hotspots and carbon-monoxide plumes on 17 August 2025. European Space Agency (ESA).

LESSONS FROM CALIFORNIA

By Fire Chief Anthony C. Marrone, County of Los Angeles Fire Department

Much has changed in the 40 years since I have been fighting fires, but nothing compares to what we have seen over the past decade. Fire seasons keep getting longer, and wildfires are becoming more and more difficult to contain, leading to tragic deaths and unprecedented property damage.

The most recent fire season, in 2025, was perhaps the worst yet: not only were the Palisades and Eaton fires among the deadliest and most destructive we have ever seen in California, but they struck in January, which is firmly outside of our traditional July-November fire season.

"The future holds great promise for applying innovation and technology to aerial firefighting."

These catastrophic events drove home the paramount importance of maintaining year-round preparedness to combat wildfires. In California, our model addresses this problem well: given that aerial firefighting is primarily a governmental service in the US, not only does that mean we are less affected by short-term financial constraints, but the fact that we own our aircraft means that we can always have them standing by.

One crucial tactic that made a significant contribution to fighting those fires, but is not yet being used enough around the rest of the world, is the deployment of night-time aerial operations, especially with helicopters. I encourage more fleets to take advantage of its benefits, not just for reconnaissance flights, but also for firefighting itself, given lower night-time temperatures, higher relative humidity, and lower wind speeds. We would be happy to share what we have learned with other agencies. Before long, technological advances will hopefully enable the use of fixed-wing aircraft to suppress fires at night, but we are not quite there yet.

Certainly, the future holds great promise for applying innovation and technology to aerial firefighting. Drones could become a valuable additional tool in the aerial firefighting kit – not only for gathering intelligence but also fighting the fires themselves, in particular for the initial attack. But there are still various challenges that remain to be solved, such as how they can work safely together with manned helicopters. Optionally piloted vehicles are another avenue to explore.

Artificial Intelligence also has great potential to increase the efficiency of aerial firefighting, as well as to help improve coordination between ground and air resources – one of the greatest challenges facing the sector today. Remote sensors, whether functioning visually or by monitoring particles in the air, also make valuable contributions towards the early detection of fires. In California we now have cameras that use AI to determine what kind of fires have ignited – whether they are wildfires or structural fires, for example.

Unquestionably, air operations play an integral role in supporting ground teams to suppress wildfires. But to take a step back, it is essential to underline that prevention is the ultimate key to success. We will always need more firefighters and fire stations, but this does not attack the root of the problem.

In the end, we must focus more on better management of the entire ecosystem. We have to do a better job at managing forests themselves, especially now that the natural role of fires in maintaining the balance of ecosystems has largely been removed – justifiably, in order to protect human

life, property and critical infrastructure. In addition, if humans are to continue living in the wildland-urban interface, it will be important to have more robust building codes. More home "hardening" against wildfires and better defensible space around homes could help to save many lives.

"We must focus more on better management of the entire ecosystem. We have to do a better job at managing forests themselves."

When it comes to fighting wildfires, defence is the best form of attack. Just responding to fires once they are already burning is an unnecessarily inefficient and costly strategy – and aerial firefighting in particular is becoming increasingly expensive. In the long term, improving our ability to prevent wildfires from starting in the first place is the most effective way to mitigate the destruction they can cause.

4

EUROPE'S RESPONSE

Stronger than before, still behind the curve

LESS REACTIVE, MORE PROACTIVE

Faced with this troubling scenario, Europe has taken measures to address the challenges – even if much remains to be done. Over the past decade, Europe's wildfire-response capacity has evolved from a loosely coordinated, reactive system into a structured and increasingly proactive framework.

The creation in 2019 of RescEU, a continent-wide emergency response system that provides resources such as firefighting planes, marked the beginning of structural reform and has been a positive step in the right direction. It strengthened the EU Civil Protection Mechanism that had been set up in 2001 to improve cooperation among countries in disaster prevention and response.

Between 2019 and 2021, RescEU led an average of 12 firefighting missions, known as activations, per year, with 15 to 18 aircraft on standby and a number of pre-positioned ground teams in place. That marked an increase from the annual average of eight wildfire-related activations between 2014 and 2018, when RescEU deployed six to nine aircraft. Most of its operations in that earlier period focused on countries such as Portugal, Italy, and Greece, with more limited pre-positioning and longer activation times.

A breakthrough came during the 2022-2024 cycle, with an average of 24 activations per year, 660 responders, and up to 30 aircraft deployed alongside 20 pre-positioned teams across 10 EU member states. By 2025, RescEU had reached a new level of operational maturity: 18 activations mobilised 765 personnel, supported by 22 pre-positioned teams and a transitional reserve fleet of 22 planes and four helicopters. Compared to the 2014-2024 average, that represents a 125% increase in activations, 60% more personnel, and a threefold growth in aerial assets. A tenfold expansion of pre-positioned teams confirms the institutionalisation of anticipatory deployment across the EU.

THE SCALE OF THE CHALLENGE

Compared to most other regions in the world, Europe has great potential for collaboration and resource sharing. But while many accept the need for the harmonisation of the regulatory framework for aerial firefighting in theory, in practice operations depend on local authorities and approaches can vary widely. Despite the existence of a unified regional regulator, the EU Aviation Safety Agency (EASA), there are serious concerns in the industry that existing regulations are counter-productive. Many believe there is ample room for better organised and more proactive cooperation and long-term planning. Some argue that the EU could take a stronger leadership role.

Despite significant progress in recent years, both the European Court of Auditors (ECA) and the European Academies Science Advisory Council (EASAC) caution that the region's capacity remains insufficient given future fire-weather projections. Under the RescEU model, capacity is provided and operated via participating states rather than procured directly from private operators, creating bottlenecks and slowing fleet expansion, particularly when wildfires in multiple countries peak simultaneously. The ECA has criticised outdated risk maps and questioned value-for-money in recent investments, while the EASAC has warned of an over emphasis on suppression versus prevention.

Certainly, European firefighters are facing a "highly complex situation", says **Luigi d'Angelo**, director of the Emergency Management Office in the National Department of Civil Protection in Italy. At the root of the problem is the year-round burden that firefighting services are now facing. "The challenge today is that we have to provide more and more mitigation activities," says d'Angelo. "Our forests are very vulnerable to ignition and the spread of fires. We have improved the system a lot, but there is still much left to do."

Since 2019, a wildfire working group at the European Commission has been assessing the problem and the capacities needed. There is consensus that Europe needs to build up its overall firefighting capacity, as well as for all parties to recognise the scale of the challenge. "We can no longer consider this a secondary issue," says **Matteo Monterosso**, a provincial commander with the Corpo Nazionale dei Vigili del Fuoco. According to him, the growing complexity and frequency of wildfires call for increasingly specialized tools and long-term planning. In this context, he highlights the importance of investing in aircraft specifically designed for firefighting operations, rather than relying primarily on platforms originally developed for other purposes, such as military or rescue missions.

"We have to face the fact that we need aircraft that are not derived from other activities" such as military or rescue missions," he says. "We need aircraft that are dedicated to firefighting. We need a change of mindset."

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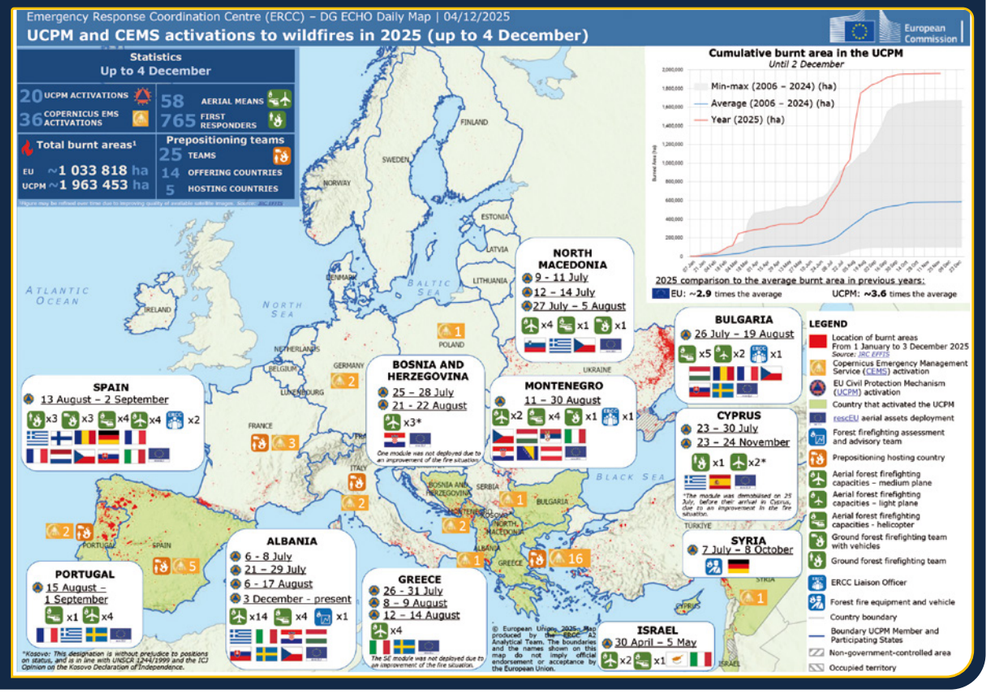

Source: European Civil Protection and Humanitarian Aid Operations (EU ECHO). European Commission, 2025.

As it stands, firefighting capacity in Europe is highly uneven, according to **Johann Goldammer**, director of the Global Fire Monitoring Center. A group of countries with more firefighting experience, including Spain, Portugal, France, Italy, Croatia, and Greece, has been using aerial firefighting assets for many years. “This is where the civil protection mechanism is especially successful,” he says.

The problem, he says, lies in the larger second tier of countries with much less experience. In Germany, for example, the use of aerial assets has been largely restricted to helicopters provided by the police or armed forces, while fixed-wing firefighting missions are rare. Many of these countries do not have centralised systems. Instead, the responsibility for firefighting is often left to regional and local authorities.

“Local forces are all doing a great job,” Goldammer says. But despite significant changes since 2018, when fires were becoming recognised as a major threat, firefighting systems “are still highly fragmented.” This makes the sharing of aerial resources from neighbouring countries unnecessarily inefficient and complicated, he says. “We need to address this, because otherwise we will always be running after the problem and not getting in front of it.”

“Firefighting systems are still highly fragmented. We need to address this, because otherwise we will always be running after the problem and not getting in front of it.”

Johann Goldammer,
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“Europe’s problem is just much harder than ours.”

Timothy Sheehy,
US Senator, founder of Bridger Aerospace, and former pilot

Timothy Sheehy, who became a US Senator in 2025 after founding Bridger Aerospace, an aerial firefighting and wildfire management company, says Europe faces more complex issues than the US, not least because of the existence of many different federal regimes. “There’s no question it’s more challenging because you’ve got to cross language barriers, currency barriers, policy barriers. Yes, EASA exists, but each country still has its own outlook on how aviation should be managed. And of course, when it comes to property rights and budgeting and who’s going to pay, Europe’s problem is just much harder than ours.”

THE NEED FOR MORE AIRCRAFT

One of Europe’s most pressing challenges is the limited size of its aerial firefighting fleet. This prompted the European Parliament to commit 600 million euros in 2024 to renew and expand it. The centrepiece of this effort is the DHC-515 Firefighter: a next-generation amphibious aircraft developed by De Havilland Canada that replaces the CL-215/415 models, whose production halted between 2015 and 2022. A joint procurement deal was signed by the European Commission and six member states – Spain, France, Italy, Portugal, Greece and Croatia – for 22 units.

However, deliveries take time. The Commission foresees initial deliveries by 2027. Greece hopes to receive its first aircraft by February 2028, out of seven scheduled through 2030. Spain, which has ordered seven aircraft, expects delivery in 2028. Portugal’s two units are not due until 2029. Other countries have not published delivery schedules.

Although these acquisitions will eventually strengthen Europe’s long-term firefighting capabilities, many of the new aircraft will merely replace existing obsolete assets. France, for instance, operated 12 Canadair in 2025 , which average 30 years old and require frequent technical downtime during peak seasons. According to the Joint Research Centre, rising fire risks driven by climate change demand “not just replacement but expansion” – a goal currently outpaced by delivery constraints and personnel shortages.

“Europe’s aerial firefighting fleet and personnel require meaningful reinforcements,” says **John Boag**, the Group CEO of Avincis, Europe’s largest provider of emergency aerial services, with a fleet of around 210 aircraft – more than 70 of which are dedicated specifically to firefighting. He highlights the DHC-515 as well as the Bell 214ST. “These aircraft are going to change the state of play, not just by replacing what we have, but by expanding the market,” he added. Boag argues that orders should be much higher to keep pace with firefighting needs: although De Havilland currently has 22 orders for the DHC-515, it is “not unreasonable to think that it should be in the hundreds in the future, because this gap is getting wider and wider.”

“Europe’s aerial firefighting fleet and personnel require meaningful reinforcements.”

John Boag,
the Group CEO of Avincis

"GOCO and COCO models seem to be very nascent in Europe, partly as aviation is just so expensive."

Sam Davis,
CEO of Bridger Aerospace

The lack of aircraft is compounded by inappropriate regulations. "RescEU is a fantastic organisation, but they can't actually go and contract directly with private companies," Boag says. In 2025, Avincis had aircraft available to fight fires in Portugal and Spain, he says, but regulatory restrictions that favour the public sector prevented RescEU from using them because Avincis is a private company. "That's a hurdle that needs to be removed," he says.

Sam Davis, the CEO of Bridger Aerospace, says Europe is far behind the US in terms of contracting. While the US market is largely run by private operators, the opposite is true in Europe: "GOCO [Government-Owned, Contractor-Operated] and COCO [Contractor-Owned, Contractor-Operated] models seem to be very nascent in Europe, partly as aviation is just so expensive," he adds. Different models have different advantages, he says, and a mixed and pragmatic approach is best.

...AND PILOTS

Equally challenging is a global shortage of pilots and technicians in aviation in general. The lack of firefighting pilots is especially challenging, as it is a highly specialised skill that requires a lot of training and experience. And experience in particular can be hard to come by given the sporadic opportunities to learn from trained pilots in real-life situations.

"While we've got to develop new aircraft, we've also got to work out means of getting more people into the industry, and of helping maintain aircraft for longevity," says **John McDermott**, the owner and former chief pilot of McDermott Aviation,

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John McDermott,
owner and former chief pilot of McDermott Aviation

a helicopter group that operates about 40 Bell 214 and helicopters throughout Australia, North America and Europe. "There is a need for not only good, robust aircraft, but robust crews to operate these aircraft."

Again, regulations are a barrier. Boag says it is vital to adjust EASA regulations to get pilots and technicians in to support whole seasons, not just for the very short or long term. A pilot from outside Europe, he says, needs to pass more than a dozen exams to get an EASA license and work in the region, while the US and Australia require just one or two exams.

More firefighting pilots will be needed simply to keep pace with the current level of demand, and demand is only likely to increase. Yet pressure on EU countries to increase defence spending means that even fewer pilots will be available to fight fires as more are funnelled towards the military. Anticipating this, airlines are moving aggressively to hire fixed-wing pilots. A large number of older firefighting pilots are close to retirement, and it is not clear how they will be replaced since fewer pilots will be available through military and civilian channels.

Lengthening fire seasons are compressing opportunities for training, which is usually done in the off season. But the industry needs more training, not less, says **Mark Delany**, CEO of Ansett Aviation Training, a global pilot-training provider with flight simulators for firefighting aircraft at its Milan facility.

"It would be short-term gain for long-term pain if we didn't allow the crews that full opportunity,"

“It’s crucial to ensure that we are training the crews to the best of our ability.”

Mark Delany,
CEO of Ansett Aviation Training

he says. In high-risk environments as with aerial firefighting, “normal is almost abnormal, and abnormal goes to very high risk in a matter of seconds as situations change. So it’s crucial to ensure that we are training the crews to the best of our ability.”

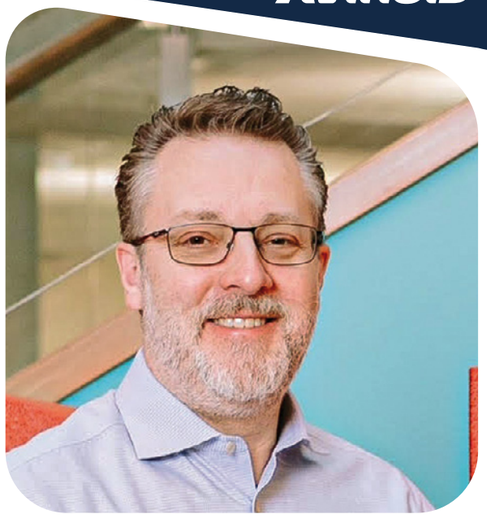
PROCUREMENT CHALLENGES

Supply-chain problems are potentially as problematic as the fires themselves; if they aren’t fixed, there will be fewer aircraft to fight them. “We’ve got to rethink and streamline the procurement rules,” Boag says.

“We are looking to move as fast as possible with the relaunch of the DHC-515,” says **Brian Chafe**, CEO of De Havilland. The company has faced significant supply-chain challenges, in particular bureaucratic hurdles. From the time De Havilland was in a position to launch the DHC-515, he says, procurement delays in Europe meant that it then took another two and a half years before production could start. “We’re trying to start a second production line, but government bureaucracies are very slow. That’s not just for our aircraft, but any firefighting asset.”

Civil aviation authorities elsewhere can be equally problematic, says McDermott. Public officials need to be educated about the difference between protocols in aerial firefighting and other commercial aviation operations, he says. “They often don’t understand the missions that we’re doing.”

Monterosso acknowledges that governments must balance long-term strategic planning with shorter-term political objectives and public expectations. This can make it more challenging to implement structural measures whose full benefits may only become visible over several years. For this reason, he emphasizes the value of a forward-looking and collaborative approach — one that combines immediate operational effectiveness with sustained investment in dedicated capabilities, strengthening the resilience and readiness of the firefighting system over time.



“We’re trying to start a second production line, but government bureaucracies are very slow.”

Brian Chafe,
CEO of De Havilland

5 THE WAY AHEAD

From reaction to readiness

STREAMLINING SUPPLY CHAINS

To meet the industry's challenges, governments must ensure that firefighters are adequately equipped.

"Governments cannot expect us to be able to throw three or four or five helicopters at a big fire after it has started just because their planning failed them," says McDermott, arguing that the industry needs to make a stronger case for upfront public investment in aircraft.

Because firefighting is a strategic challenge, Chafe suggests that governments could fast-track procurement, as the US did for its "war on drugs." "If we can get governments to recognise that this is a global issue and it's only going to get worse, we should be able to find a way," he says.

Yet government procurers face a challenge peculiar to the sector: Suppliers of aircraft are often not interested in the relatively small volumes that firefighters need. That makes it hard for procurers to compete with major manufacturers such as Boeing and Airbus. "When we're looking for a component and they say 24 months, it's hard for us to try to expedite that process," Chafe says. "We're not necessarily as big as a commercial manufacturer who is producing 2,000 airplanes a year, so these companies prefer to sell to them,

"If we can get governments to recognise that this is a global issue and it's only going to get worse, we should be able to find a way."

not someone who's going to build 250 airplanes over the next 15 or 20 years." Placing bigger orders, he says, would require prohibitively large investments.

Chafe says De Havilland was able to relaunch the DHC-515 only because of EU backing and will need bulk orders to launch new production lines.

In the meantime, the industry needs interim solutions, such as modifying existing aircraft. Chafe warns against counting on quick regulatory approval for new firefighting assets.

EARLY PREVENTION

There is a growing acceptance that much more attention should be focused on the early detection and prevention of fires, an approach with obvious benefits for mitigating economic, social, and environmental costs.

Proponents of this approach say the best investment by far in aerial firefighting is spending money, including high upfront insurance costs, to put aircraft on standby so they can respond swiftly to incipient fires before they get out of control. "We need to work aggressively towards preventative and proactive approaches," Boag says.

"We've long had a view on wildfire that it is not an emergency-response mission," Sheehy says. "We don't treat it like a home fire, or a structure fire." In the US, wildfires are addressed "when it's convenient, when we get to it, and if we feel like we want to pay for it," the senator says. "That leads to these mega-fires that get out of control because the initial attack is weaker than it should be."

"We need to aggressively work towards preventative and proactive approaches."

Europe can learn from Australia, which pioneered early intervention through "automatic launches." As soon as ground operators are called out, heavy aircraft are dispatched and drop large amounts of water as quickly as possible while fires are still relatively small. "That had a massive impact on reducing fire size," says McDermott, whose company was selected for the programme.

Davis says that prepositioning – having aircraft in place before fires start – is critical. "It's 90% of the battle," he says. "But it requires a change in philosophy and how systems are managed." Surveillance systems and night-flight missions can be valuable for spotting fires early, he adds: "Maybe we'll never decrease the number of fires, but we can reduce the number of acres burned, with preparedness levels smoothed out, so we don't get national disasters grabbing the headlines."

McDermott warns of a potential disincentive to early detection: "We often see the case where the bigger the fire, the bigger the budget next year. So unfortunately, there's a little bit of a reward-by-neglect approach."

STRENGTHENING INTEROPERABILITY

Aerial firefighting is no silver bullet – aircraft rarely put out fires by themselves – but should instead be viewed as a supporting tool for ground operations. However, links between the air and ground need to be stronger.

"Aerial fire suppression alone, without a coordinated approach with the ground, cannot solve the problem at all," Goldammer says. "We need to talk about interoperability, not only between organisations that are providing aerial assets, but between ground and air – and also at an international level."

In the US, firefighting technology is effectively still stuck in the Vietnam era, akin to calling in airstrikes, says Sheehy. Instead, there should be data connectivity between the ground and aircraft, as now used by the US military. "It's not that hard to roll out," he says. "But unfortunately, especially with communications, there has to be an organisation-wide commitment to do it." Technology adoption should be faster and more uniform, he says, because state-of-the-art

"It's about how we get assets onto fires as efficiently as possible, and then how we communicate and coordinate those assets."

Andy King,
former fighter pilot and current fleet director at De Havilland

technology used by one team is of no use if operating partners have older systems.

Ultimately, firefighters need a range of ground and aerial resources that can do different jobs – not just suppressing fires but gathering intelligence and thermal mapping or protecting ground crews and other assets.

Too often, resources are not allocated efficiently. **Andy King**, a former fighter pilot who is now fleet director at De Havilland, advocates a "layered approach" to firefighting, with different aircraft complementing rather than replacing each other. "It's about how we get assets onto fires as efficiently as possible, and then how we communicate and coordinate those assets," he says. "How do we control the airspace around fires so that we can identify a fire, put it out early, and then if it's out of control, bring in larger assets to contain it?"

LOCAL COMMUNITIES

Local communities directly affected by fires need to be more efficiently involved at all times – before, during, and after wildfires strike.

With a comprehensive and inclusive approach to dealing with wildfires, communities would play a more active role in fire prevention. They could manage ground fuels to reduce the impact of serious fires. They could use construction materials that are less flammable, as well as smoke detectors and cameras.

But communities often need guidance on how best to manage their territory. "If the ground is not prepared for aerial support, it will not work. We need to be honest, interoperability is not just an issue between the big actors," Goldammer says.

Technology has a role to play. It can keep communities informed of fire danger and evacuation routes. “The advent of smartphones and high-speed data connectivity should be able to help us turn almost every citizen into a fire prevention team – and then also make sure that they have far better coordination for evacuation,” Sheehy says. Better updates should be provided to citizens who are threatened by wildfire so they can take preventative actions, he adds. “If private citizens become active in the prevention of these situations instead of just helpless victims, it’s going to make our job responding to them that much easier.”

Goldammer says an integrated approach, with greater community involvement on the ground, would improve aerial fire management, “which goes far beyond aerial firefighting only.” He points to reconnaissance, decision support from the air, unmanned platforms, aerial sensors, and the potential to harness artificial intelligence and other emerging technologies.

STANDARDISATION

With a standardised international approach to firefighting, it would be much easier to coordinate and move resources among countries – not just within Europe, but at an intercontinental scale – to meet surges in demand. In Europe, experts argue that it is not practical for all countries to be prepared for every situation; it is far more efficient to pool resources.

“But most important of all is educating the general public about the challenges faced by firefighters. Nothing gets legislation done more quickly.”

The United Nations’ launch of its Global Fire Management Hub in 2023 marked an important step towards international standardisation. The primary task of the hub, which sits within the Food and Agriculture Organization, is promoting international interoperability and the standardisation of best firefighting practices.

Goldammer, who participates in the effort, points to the success of agreements between Canada and Australasia for sharing resources. In 2025, he says, the majority of those fighting fires, measured in person days, in Canada came from abroad – 29,000 person days for Canadian firefighters and 40,000 person days for international firefighters.

For any country, legislation at the national level is key to establishing the right mix of firefighting assets and the appropriate response times. Davis says the industry needs to join forces through trade associations to lobby governments. But most important of all, he adds, is educating the general public about the challenges faced by firefighters. “Nothing gets legislation done more quickly.”

In California, a standardised approach for crewing, procedures, aircraft layout, and configurations was key to the success of the suppression of the Palisades and Eaton fires, says **Benjamin Berman**, chief of air operations for Los Angeles County. The ability to pool resources – including pilots, flight crew, aircraft maintenance, and other support structures – allowed much greater flexibility. “That standardised model was very important to making it successful. We had 24-7 availability for a protracted period of time,” he says, thanks to flight time standards and crew rest requirements.

TRAINING OPPORTUNITIES

Standardisation also means harmonising training and operating models. Global collaboration on a critical-gap study to standardise operations at team, group, and international levels, Berman says, could play a role in overcoming regulatory and budgetary hurdles.

“Data sharing is extremely important,” he says; what works in one area is likely to work elsewhere. “Having a global initiative to help guide regulations is going to be key in this global firefight.” He points to a training centre set up by California’s Department of Forestry and Fire Protection to harness tools for airspace deconfliction and technologies such as those provided by Bluedrop for air rescue and hoisting. “Having a standardised fire-traffic area that works for everybody is a really important aspect to keeping firefighting safe.”

Delany says that XR simulators designed for military pilots, such as those Ansett uses, could be customised to support integrated fire-space training, potentially improving both operational safety and command-and-control systems. “The efficient management of assets in a fire space is absolutely critical, as well as the deconfliction of those assets. As both fires and the number of assets grow, those are all very important aspects from a training perspective,” he says.

The Ansett CEO says the industry could make better use of training facilities at his company’s Milan centre; crews from different organisations could gather there to fly together in simulators and learn from each other. “We shouldn’t have to re-learn things that other crews have already learned,” he says.

“Data sharing is extremely important. Having a global initiative to help guide regulations is going to be key in this global firefight.”

Benjamin Berman,
chief of air operations for Los Angeles County

As the number of firefighting pilots grows, and organisations look to expand crews, flight simulators could be useful for screening and selecting applicants. “There’s going to be a rapid build-up with all these aircraft coming, with more and more crews. Where are they going to come from?” Delany asks. Training centres could remove some of the burden from operating companies through standardised selection criteria.

A ‘STEP CHANGE’ IN USA FIREFIGHTING

Interview with Timothy Sheehy, US Senator, founder of Bridger Aerospace, and former pilot

US Senator Timothy Sheehy says it was a “total accident” that he became deeply involved in the world of aerial firefighting. The former Navy SEAL officer noticed after returning from tours in Iraq and Afghanistan that the US army’s airborne technology was generations ahead of what wildland firefighters were using.

Astonished, he said to himself: “I would never put my team on the battlefield with that kind of Vietnam War-era technology.” Statistically, he says, aerial firefighting is “the deadliest, most dangerous aviation mission in the world” – a notion that guided his decision in 2014 to found Bridger Aerospace, an aerial firefighting and wildfire-management company based in Montana.

A decade later, Sheehy, who is also a cattle rancher, was elected to the Senate, becoming its youngest Republican member, and found himself in a position to influence a reform of the firefighting sector through legislation. He calls himself “the first wildland fire guy on the [Capitol] Hill in a long time.”

“One dollar spent on prevention is worth about 1,000 dollars of recovery.”

Sheehy sees a pressing need to improve coordination between every layer of firefighting. For too long, he believes, the US has been focused too much on a federal firefighting model, and not enough on state, county and local responses. “The first responders to a fire are almost never federal firefighters,” he says.

The senator points to examples of insufficient preparedness: While Sheehy says that the US spends about 108 billion dollars each year on fighting fires, only a small fraction of that – some 650 million dollars – was budgeted. The California wildfires served as a wake-up call: the US aerial firefighting budget is now set to increase by 10 to 20 times, thanks to a legislative initiative by Sheehy and others. “One dollar spent on prevention is worth about 1,000 dollars of recovery.”

Scarcely a year into his new job, the 40-year-old became the first freshman in the current Senate to see passage and enactment of a bill he authored. The Aerial Firefighting Enhancement Act enables the Department of Defense to sell its excess military aircraft and parts to firefighting contractors. Unanimous support for its passage in America’s polarised political climate – during a government shutdown – “shows how seriously America is now taking the wildfire crisis,” he says.

Sheehy has authored or co-sponsored a number of bipartisan bills, with two already passed. Many aim to enhance cooperation between ground firefighting units. “We’re knocking those barriers down with intelligence-sharing agreements and providing access to the latest technologies that frankly should have been available a long time ago,” he says.

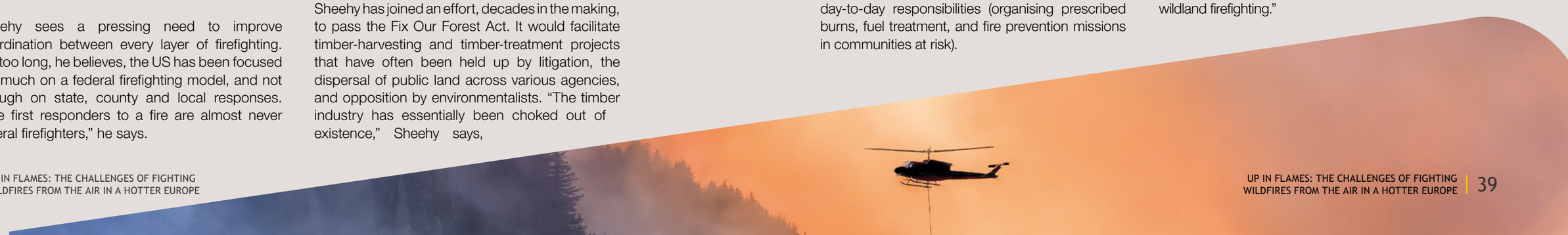
Sheehy has joined an effort, decades in the making, to pass the Fix Our Forest Act. It would facilitate timber-harvesting and timber-treatment projects that have often been held up by litigation, the dispersal of public land across various agencies, and opposition by environmentalists. “The timber industry has essentially been choked out of existence,” Sheehy says, noting that in the 1990s Montana had more than 30 timber mills but now has fewer than three. “We are bringing that industry back, not just as an economic engine, but as a fire mitigation tool – because the best cure for bad fire is good fire. Prescribed burns are a great way to reduce fuel load and prevent a catastrophic fire from happening.”

Another piece of Sheehy-backed legislation would create a National Wildland Fire Service, consolidating all command and control for wildland firefighting in one organisation within the Department of the Interior. “That will bring the emergency response culture and the capabilities that we’ve been lacking for too long,” he says. “As a former business owner, entrepreneur, and small-team leader in the military, I know that more government is generally not the solution. So we are creating less government, combining six separate fire agencies into one organisation under one leadership team, and under one budget line.”

“These efforts are going to usher in a new era of wildfire prevention and firefighting in the US,” he says. “It’s going to bring an end to the confederated system where states and regions all do it differently. We’re going to have one standard and one organisation.” The new agency, he says, will reflect the US Coast Guard in its culture, structure, and chain of command. Like the Coast Guard, it will have an emergency mission (fighting fires) and “prosaic” day-to-day responsibilities (organising prescribed burns, fuel treatment, and fire prevention missions in communities at risk).

“The best cure for bad fire is good fire. Prescribed burns are a great way to reduce fuel load and prevent a catastrophic fire from happening.”

“We’re just getting warmed up. It’s going to be an exciting few years here as we reorient American wildland firefighting,” Sheehy says. “With the fire budget growing by 10 to 20 times and new leadership focused on technology, aggressive initial attack and year-round response capability – not just June, July, and August anymore, but 365 days a year, 24/7 – this is really going to be a step change in how we treat wildland firefighting.”



6 CONCLUSION

We cannot see into the future. But it would be rash to write off the escalating frequency and intensity of wildfires across Europe as a temporary phenomenon. The data suggest that this is a permanent shift, forcing us to reassess our approach to the continent's security. Europe has reached a crossroads: a modernised and unified European aerial firefighting fleet can no longer be considered as a "nice-to-have" supporting asset; it is an existential necessity.

This report makes the case for a reinforced European aerial firefighting strategy that must move beyond a reactive "emergency" paradigm. Rather, Europe must invest in a permanent, year-round fleet and ensure that there are enough human resources to extinguish fires before they spiral out of control, endangering forests, critical infrastructure, and lives. That also means updating a regulatory framework that, at present, is suboptimal.

One thing is abundantly clear: the cost of inaction far outweighs the cost of investment. A fragmented approach that relies on ageing aircraft and ad hoc agreements is doomed to failure. A robust defence against the climate realities of the 2020s will not only require a commitment to significant new investments, together with technical and operational innovations, but also, perhaps even more importantly, efficient cooperation and collaboration. The mega-fires raging across national boundaries and geographical barriers demand a response that is equally borderless.

It is our hope that this report does not just stimulate a lively debate about how the sector should move forwards. Such discussions must translate into action from stakeholders at all levels – from those at the top of the most influential national and international institutions to those actually preventing and fighting fires on the ground. The safety and well-being of the continent depend on it.

7 METHODOLOGY

This report is based on a structured and systematic review of publicly available institutional data, operational documentation and peer-reviewed scientific literature related to wildfire risk, activity, and response capacity. The objective of this approach is to ensure analytical robustness, traceability of sources and consistency in the interpretation of trends and indicators.

The core evidence base draws on various European institutional sources. It includes data and analytical products from Copernicus/European Forest Fire Information System and the Joint Research Centre for wildfire activity, fire behaviour, and fire danger indicators; material from the European Environment Agency to contextualise climatic trends; and documentation from the EU Civil Protection Mechanism and RescEU regarding response capacity, operational activations, and policy design.

In specific cases, the analysis has been complemented and cross-checked using additional traceable sources to enhance completeness and operational clarity. These include national civil protection and forestry agency bulletins, institutional reports, public procurement documents, manufacturers' publicly available delivery statements, and other records that allow the verification of definitions, timelines, or figures where required.

The report contains two clearly differentiated temporal frameworks. Data from the European Forest Fire Information System covering the period 2006 to 2024 are used as the reference for historical averages and for statements referring to values expressed as multiples of the long-term average. In parallel, the period 2014 to 2025 is used to assess recent trends, with a specific comparison between the periods 2015 to 2019 and 2020 to 2024 to capture structural shifts in wildfire dynamics and response patterns. All figures, tables, and analytical statements explicitly indicate the baseline applied, and all data reflect information updated to 31 December 2025.

Geographically, the analysis combines a Europe-wide perspective with a more detailed operational focus on key regions: the Iberian Peninsula, France, Italy, the Nordic countries, and Southern Europe, including Greece, Turkey and Cyprus. Where relevant, global references are incorporated to provide context. Trend analysis is conducted using consistent annual aggregation and clearly defined comparison periods, avoiding incompatible methodologies within the same figure or table.

To ensure comparability across countries and sources, the analysis prioritises a limited set of indicators that are consistently available across institutional datasets. These typically include annual burned area, the number of large fires (only where a common definition is applied), and days of extreme fire danger based on Fire Weather Index indicators. Any reporting differences or methodological limitations that may affect interpretation are explicitly flagged.

Finally, the quantitative and factual analysis is complemented by an expert panel discussion bringing together operational, industry, and academic specialists, including perspectives from Australia, Canada, and the US. Insights from this panel have been used to validate key findings and to refine the operational implications and recommendations presented in the report.

8 ABOUT US

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Photos courtesy of Anthony Pecchi, Stefania Loriga, and others.

Avincis is one of the world's leading emergency aerial services operators, trusted to deliver safe, efficient and innovative support when it matters most. Our purpose is to save lives and protect communities wherever we serve. As the largest provider of emergency aerial services in Europe, with additional operations in Africa and South America, we support governments, and critical industries with mission-ready capabilities, 24/7, 365 days a year.

Our areas of focus include helicopter emergency medical services (HEMS), air ambulance, search and rescue (SAR), aerial firefighting, and dedicated air transport for offshore energy installations. We often operate on behalf of customers – predominantly government organisations – working reliably in the background so that frontline responders and communities can count on rapid, professional support.

We oversee our global operations from our headquarters in Lisbon, Portugal, established in 2023. Avincis operates from more than 190 bases across 10 countries – Chile, Denmark, Finland, Greece, Italy, Mozambique, Norway, Portugal, Spain, and Sweden – and runs a mixed fleet of approximately 210 aircraft (around 170 helicopters and 40 aeroplanes). With around 55,000 missions and more than 71,000 flying hours each year, our scale is matched by our people: a diverse, multicultural workforce of approximately 2,500 professionals, including experienced pilots, technical crews, engineers, technicians and support teams.

Our global network enables us to mobilise aircraft between countries, improve efficiency, and offer cost-effective solutions at scale. We do not just operate aircraft – we also maintain and support them through a strong in-house engineering and MRO capability, backed by multiple maintenance facilities and specialist expertise for complex repairs, rebuilds and modifications. We also invest in innovation and training, with dedicated R&D capabilities and advanced simulator-based training to ensure the next generation of pilots and technical teams are prepared for the most demanding environments, where time is of the essence and safety standards must be uncompromising.

With more than 60 years of experience, Avincis continues to evolve alongside the challenges facing emergency response. Whether we are rescuing people lost or injured at sea; transporting patients from road traffic accidents to hospital; or fighting wildfires raging through towns and forests, because every mission matters.

Avincis
Every mission matters


Avincis
Every mission matters