



THE STATE OF
WILDFIRES PROJECT

The State of Wildfires **2024-2025**

AN INTERNATIONAL PARTNERSHIP



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FOREWORD FROM THE AUTHORS



Dr Matthew Jones

State of Wildfires
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Our State of Wildfires report once again focuses on the global extreme wildfire events of the global fire season, explains why they happened, and fingerprints the role of climate change as one of the key drivers of changing wildfire risk globally.”



Dr Douglas Kelley

State of Wildfires
Project co-lead and
Land Surface Modeller
at UKCEH



This report brings together an international community of researchers from around 60 world-leading institutions around the world, and presents unequivocal evidence that urgent climate action is required to avoid the worst impacts of extreme wildfires on living and future generations.”



Dr Francesca Di Giuseppe

State of Wildfires
Project co-lead and
Principal Scientist at
ECMWF



Climate change is bringing more frequent extreme fires, and ecosystems and society are feeling the consequences. The State of Wildfire Project goes beyond documenting this shift. It uncovers mechanisms, highlights future risks, and develops tools that will protect us. We must move from observing what is happening to anticipating what comes next and how it will impact our society.”

We thank the Met Office Knowledge Integration team for their helpful comments and review of this report.

Executive summary

Human-driven climate change is fundamentally altering wildfire risks worldwide.

New analyses of the March 2024–February 2025 fire season add to the growing evidence base that **warming is making extreme wildfires more likely and more severe**. Some of the most prominent extreme wildfire events of the 2024-25 global fire season, in Los Angeles and parts of South America, were **2-3 times more likely due to climate change**, and the area burned by wildfires during those events was **25-35 times larger**.

The consequences of extreme wildfires are being felt worldwide. Extreme events of the 2024-25 fire season brought fatalities across Asia, Africa, Europe, and the Americas, mass evacuations and record-breaking economic damage in Los Angeles, hazardous air pollution in Brazil, Bolivia, India, and California, and vast greenhouse gas emissions from carbon-rich forests in South America and Canada. The path to avoiding these consequences is clear: reduce global emissions rapidly, strengthen fire governance, and invest in adaptation to build resilience now.

The State of Wildfires 2024-25 report, published in Earth System Science Data, is our second annual global assessment of extreme wildfire events. It documents when and where extreme wildfire events occurred, their impacts, why they happened, and the role of climate change. The project unites world-leading experts from more than 60 institutes across 20 countries.

Key findings from around the world

Fires emitted over **8 billion tonnes of CO₂** in 2024–25, about **10% above average** since 2003. Emissions were over triple the global average in South American dry forests and wetlands, and double the average in Canadian boreal forests. The excess emissions alone exceeded the national fossil fuel CO₂ emissions of more than 200 individual countries in 2024. This increase in global fire carbon emissions occurred despite below-average global area burned, due to unusual fire activity in key carbon-rich forest biomes in South America and Canada.



More than **100 million people** were exposed to fire worldwide. At least 200 direct fatalities were recorded across seven countries, and over 150,000 people were evacuated from Los Angeles alone.

Wildfire-related air pollution spiked to between **13× and 60× above World Health Organisation (WHO) standards** in Brazil, Bolivia, India, and California, creating acute and prolonged hazards to public health. **400+ excess deaths** have since been attributed to smoke exposure in LA.

Globally, **US\$215 billion in physical assets** were exposed to wildfires. The LA fires alone caused **US\$140 billion in total damages** and around **US\$40 billion in insured losses** — among the costliest wildfire events in history.

18% of forest carbon projects on the voluntary carbon market were exposed to fire, the highest share since monitoring of these forests began in 2001. Fire was particularly prevalent in North and South American carbon projects, highlighting the need to integrate fire risk into the design and independent assessment of climate finance and mitigation strategies.

Key findings for the most extreme events of the fire season

Drought and heatwaves set the stage for four of the most prominent extreme wildfire events of the 2024-25 fire season, which formed the focal regions of our report. These included Southern California (January 2025), Northeast Amazonia (January-March 2024), the Brazilian Pantanal and Bolivian Chiquitano (August-September 2024), and the Congo Basin (July 2024). A number of **exacerbating factors were present in Southern California**, including unusually high fuel build-up during the previous two wet years and unseasonal heat and drought conditions in winter, which coincided with the timing of Santa Ana winds.

The **four most extreme wildfire events of the 2024-25 fire season were more likely due to climate change**, according to formal attribution analysis. In Southern California, fires on the extreme scale observed were twice as likely due to climate change, while the area burned during the event was amplified by a factor of 25. In Amazonia, the Brazilian Pantanal, and the Bolivian Pantanal, the fires were 2-3x as likely due to climate change, while the area burned increased between 4x to 24x.

In future, **extreme fires will become more common due to warming that has already been committed** through greenhouse gas emissions, but **climate change mitigation can limit the increase in risk to minimal levels**. In Amazonia and the Pantanal-Chiquitano, an extreme fire season on the scale of 2024-25 is projected to become **30-60% more frequent by 2100** under medium-high emissions, but strong mitigation holds the future increase to around **10-15%**. In Southern California, projections are less certain, but fire seasons on the scale of 2024-25 are expected to remain a recurring risk under high emissions.

Extreme **wildfire seasons that were unlikely within the lifetime of previous generations are projected to be more likely than not** within the lifetime of today's children. For example, in northeast Amazonia, someone born in the 1940s had only a **33-36%** chance of experiencing a 2024-scale fire season, whereas a child born today faces a **52-59% chance of seeing at least one such season** under a medium-high emission scenario and a **17-32% chance of seeing at least two**.



PHOTO: MALACHI BROOKS/UNSPLASH



Why this matters for policy

- Global emissions must fall rapidly, else wildfire risk will escalate for generations to come.** Wildfires are a growing global threat to life, health, and economies, driving dangerous air pollution and biodiversity loss, disrupting food and water systems, and releasing vast amounts of carbon that undermine climate goals. As world leaders meet at COP30 in Belém, the State of Wildfires report provides clear evidence that climate change is fuelling extreme wildfires and raising risks to people and nature. Ambitious national and international climate commitments are required to minimise these risks in future. See section “Call to Action at COP30”.
- Mitigation and adaptation must go hand in hand.** Rapid emission cuts are essential to curb future extreme wildfire events, but adaptation is unavoidable: better land and fuel management, ecosystem restoration, early warning systems, and stronger emphasis on preventative measures and community engagement are urgently needed.
- Land use and governance are central.** Wildfire risk is strongly shaped by how land is managed and governed. Agricultural expansion, deforestation, and inadequate or under-resourced fire regulation have raised fire occurrence in some regions. Sustainable land management and stronger governance can significantly lower the future risks and consequences of wildfires during periods of heatwave and drought.
- Carbon accounting misses important shifts in fire regimes.** In national greenhouse gas inventories, wildfire emissions are often treated as carbon neutral, on the assumption that post-fire regrowth offsets carbon losses. But the increasing frequency and severity of fires indicates a departure from natural fire-recovery regimes, leading to net carbon losses over time. Inventory methodologies and UNFCCC reporting guidelines could better reflect these dynamics to ensure wildfire impacts are fully captured in national reporting.
- Forest carbon projects are a cost effective and scalable mechanism for offsetting emissions** from hard-to-abate sectors, but some carbon offsets are at increasing risk from wildfire. Wildfire risk should be considered in project design, independently assessed and monitored through carbon ratings, and impacts mitigated through insurance and buffer pool mechanisms.
- Wildfires are overlooked in the Loss & Damage agenda.** Some of the heaviest impacts of the 2024–25 fire season fell on vulnerable regions and communities that contributed least to global climate change. International support for developing countries through the UN Loss and Damage Fund and the Santiago Network will be crucial to climate justice.

SUMMARY FOR POLICYMAKERS

Global extremes of the 2024-25 fire season

Published in Earth System Science Data, the latest report from the [State of Wildfires Project](#) examines extreme wildfire events worldwide, the drivers and predictability of those events, and the role of climate change. The report is co-led by the University of East Anglia (UEA), UK Centre for Ecology & Hydrology (UKCEH), the UK Met Office and the European Centre for Medium-Range Weather Forecasts (ECMWF), and leverages an international collaboration amongst around 60 institutions spanning all vegetated continents of the globe.

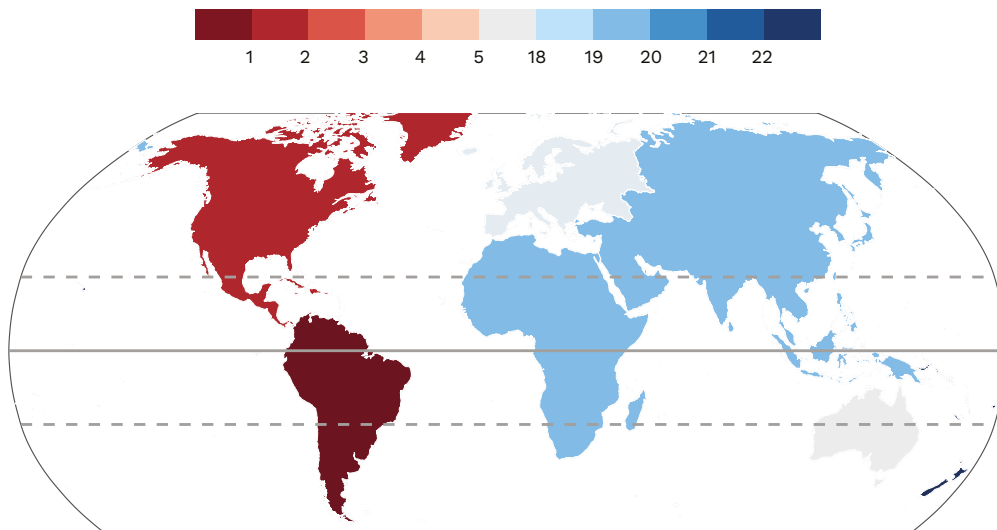
From March 2024 to February 2025, fires affected at least 3.7 million square kilometres worldwide and released over 8 billion tonnes of carbon dioxide, nine percent above average since 2003. The excess (above-average) fire emissions alone surpassed the annual national fossil fuel CO₂ emissions of more than 200 individual countries. This was due

to a concentration of above-average fire activity in high-biomass ecosystems, especially forests, where fuel loads are large and carbon release per unit area is greater. Extreme wildfire events occurred around the world during 2024-25, but the fire season was punctuated by anomalous fire extent and carbon emissions in the Americas.

FIGURE 1

Rank of carbon emissions by continent

Rank of carbon emissions during the March 2024–February 2025 fire season amongst all fire seasons since 2003, at the continent level. A rank of 1 means the region experienced its highest emissions on record, while a rank of 22 means the region had the lowest emissions on record.

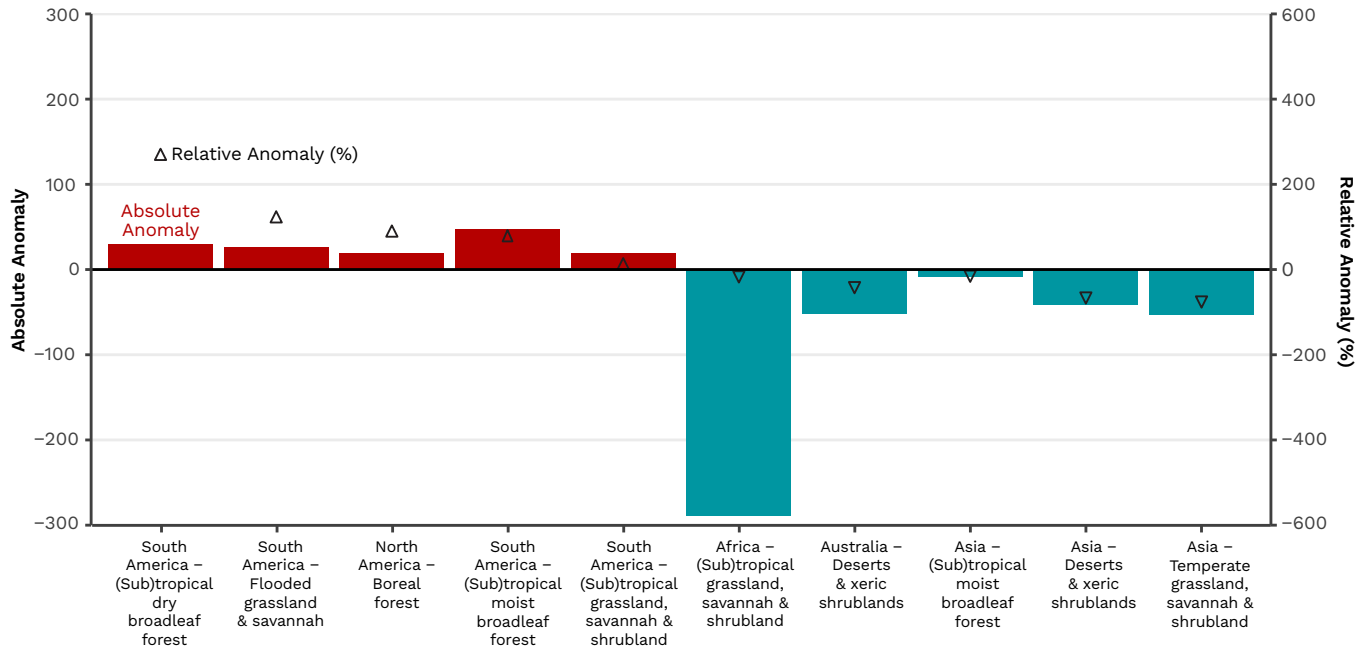


Source: State of Wildfires 2024–2025

FIGURE 2

Burned area anomalies for key biomes

Burned area anomaly during the March 2024–February 2025 fire season versus all fire seasons since 2002, thousands of km².

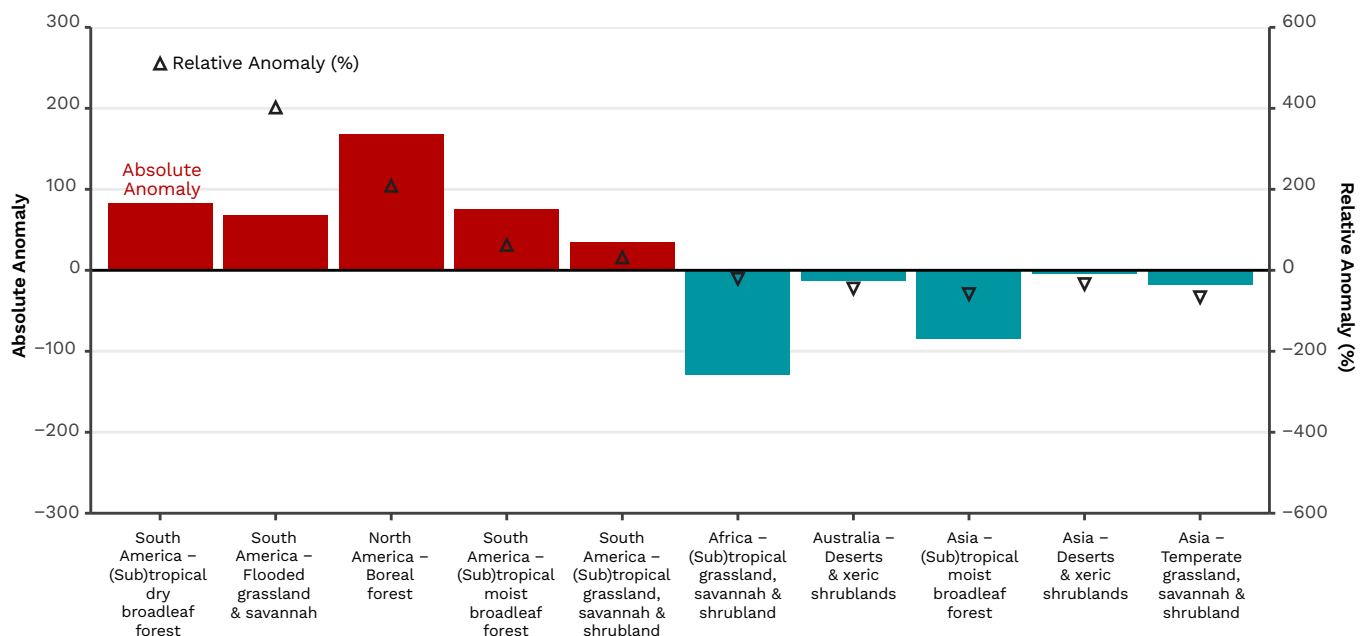


Source: State of Wildfires 2024–2025

FIGURE 3

Carbon emissions anomaly for key biomes

Carbon emissions anomaly during the March 2024–February 2025 fire season versus all fire seasons since 2002, million tonnes of C.*



Note: Note: Multiply absolute values by 3.664 to obtain values in million tonnes of CO₂

Source: State of Wildfires 2024–2025

In tropical South America, fire activity in Northeast Amazonia reached the highest level on record for forested areas, with burned area in forests more than four times (332%) the annual mean since consistent records began in 2002. Eight consecutive months of the 2024 fire season recorded above-average burning, peaking in March 2024, with pronounced anomalies in the savanna-forest transition zones of northern Venezuela and southern Guyana, the savannas of Roraima, and the coastal ecosystems of the Guianas. The number

of detected fires was 52% higher than the annual mean since 2002, contributing to the highest rates of forest loss from wildfire in Amazonia since 2016, with around 60% of all forest loss in the region in 2024 linked to fires. Impacts were substantial for rural and Indigenous communities, with degraded air quality at a time when 70,000 people were experiencing disrupted access to clean water due to drought. Across vast areas of tropical South America, the extreme fire activity of 2024-25 aligned with record-breaking year for fire-prone weather since 2002.

FIGURE 4

Anomaly in extreme fire weather days by sub-national administrative regions

Anomaly in the number of extreme fire weather days in the March 2024–February 2025 fire season versus all fire seasons since 2002

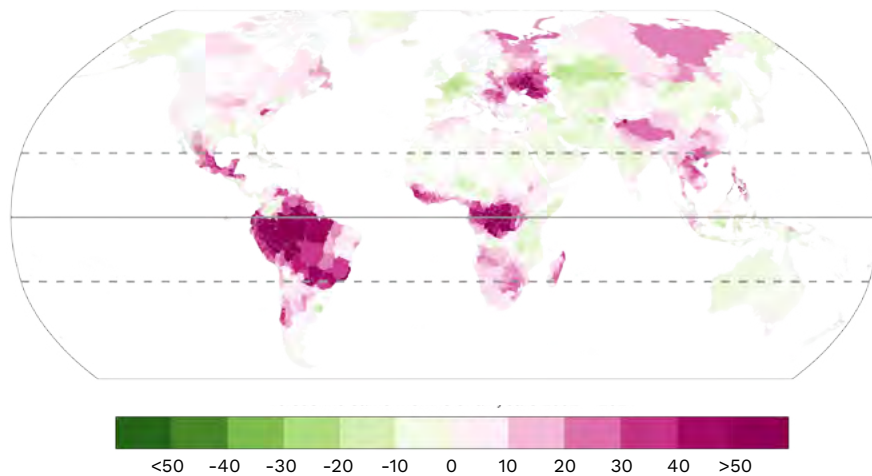
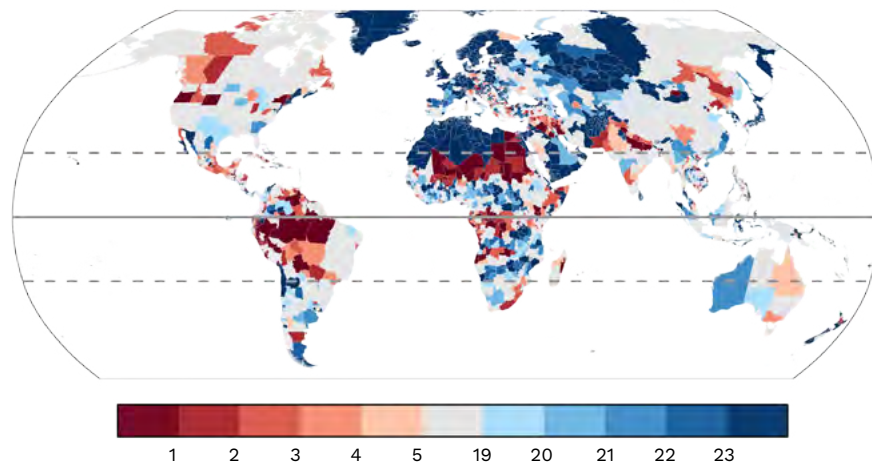


FIGURE 5

Rank of burned area by sub-national administrative regions

Rank of burned area during the March 2024–February 2025 fire season amongst all fire seasons since 2002. A rank of 1 means the region experienced its highest burned area on record, while a rank of 23 means the region had the lowest burned area on record.



In the Pantanal–Chiquitano region bordering Brazil and Bolivia, burned area was almost triple (+196%) the annual mean since 2002, and likewise forest burned area exceeded the average by 466%. Carbon emissions from fires were more than six times (+502%) the annual mean since consistent records began in 2003, with large, fast-spreading fires — including those more than three times the typical size for the region — dominating the totals. Fine particulate matter (PM_{2.5}) concentrations as high as 60 times the World Health Organisation (WHO) standards were observed in the region. Economic losses in the Pantanal alone were estimated at R\$1.2 billion (~US\$222 million), primarily in the agribusiness sector. Firefighting operations lasted 78 days and were complicated by limited access to remote areas.

In Southern California, the January 2025 Palisades and Eaton Fires caused at least 31 fatalities and destroyed over 11,750 homes across Los Angeles County. At least 153,000 people evacuated, and hazardous air quality persisted, with PM_{2.5} levels peaking at over ten times the US national standards. Over 400 excess deaths in Los Angeles County have since been attributed to exposure to poor air quality during January 2025, including due to lung or heart conditions exacerbated by smoke or stress. Water supplies for tens of thousands of residents were deemed unsafe with eight water districts in LA county issuing “do-not-use” or “do-not-drink” warnings. The combined economic losses were estimated at US\$140 billion, among the highest for a wildfire event in US history, with insured losses estimated to be in the range of around \$40 billion (US\$20-US\$75 billion).

In the Congo Basin, burned area in 2024 was the highest on record at 28% above the annual mean since 2002, with anomalies peaking in July and August particularly in southern Democratic Republic of the Congo, northern Angola, and the Republic of the Congo. Rates of primary forest loss in the Republic of the Congo and the Democratic Republic of the Congo more than doubled compared with 2023, reaching the highest rates since 2015, with wildfires identified as the leading cause of the uptick. Despite the scale of these impacts, media reporting from the region remained sparse, underscoring how major fire events in Africa tend to receive less attention than elsewhere in the world.



PHOTO: VINICIUS HENRIQUE/UNSPLASH

Elsewhere, Canada’s boreal forests recorded burned area and carbon emissions second only to the unprecedented 2023–24 season. Across Northwest Territories, British Columbia, Alberta and Saskatchewan, combined fire carbon emissions were 700 million tonnes of CO₂, with provincial anomalies ranging from +184% to +441%. In Alberta, summer wildfires destroyed 358 structures, caused US\$1.23 billion in damages — second only to the Fort McMurray fires of 2016 — and led to two firefighter fatalities, while the town of Jasper was evacuated. In Mexico, more than 8,000 wildfires burned over 16,500 km² in the country’s worst fire season in national records, with particularly severe activity in March–May driven by drought and high temperatures.

In the United States, New York City experienced an unusual late-season outbreak in October–November 2024, with multiple wildfires in every borough — an unprecedented event in this densely populated urban environment.

In Nepal, the second-worst fire season since 2002 killed more than 100 people, destroyed over 230 homes and livestock shelters, and burned 11,448 hectares of forest in Lumbini Province alone. In northern India, Uttar Pradesh recorded its most severe wildfire season on record, contributing to severe haze episodes in New Delhi in November, where $PM_{2.5}$ concentrations exceeded 13 times WHO standards.

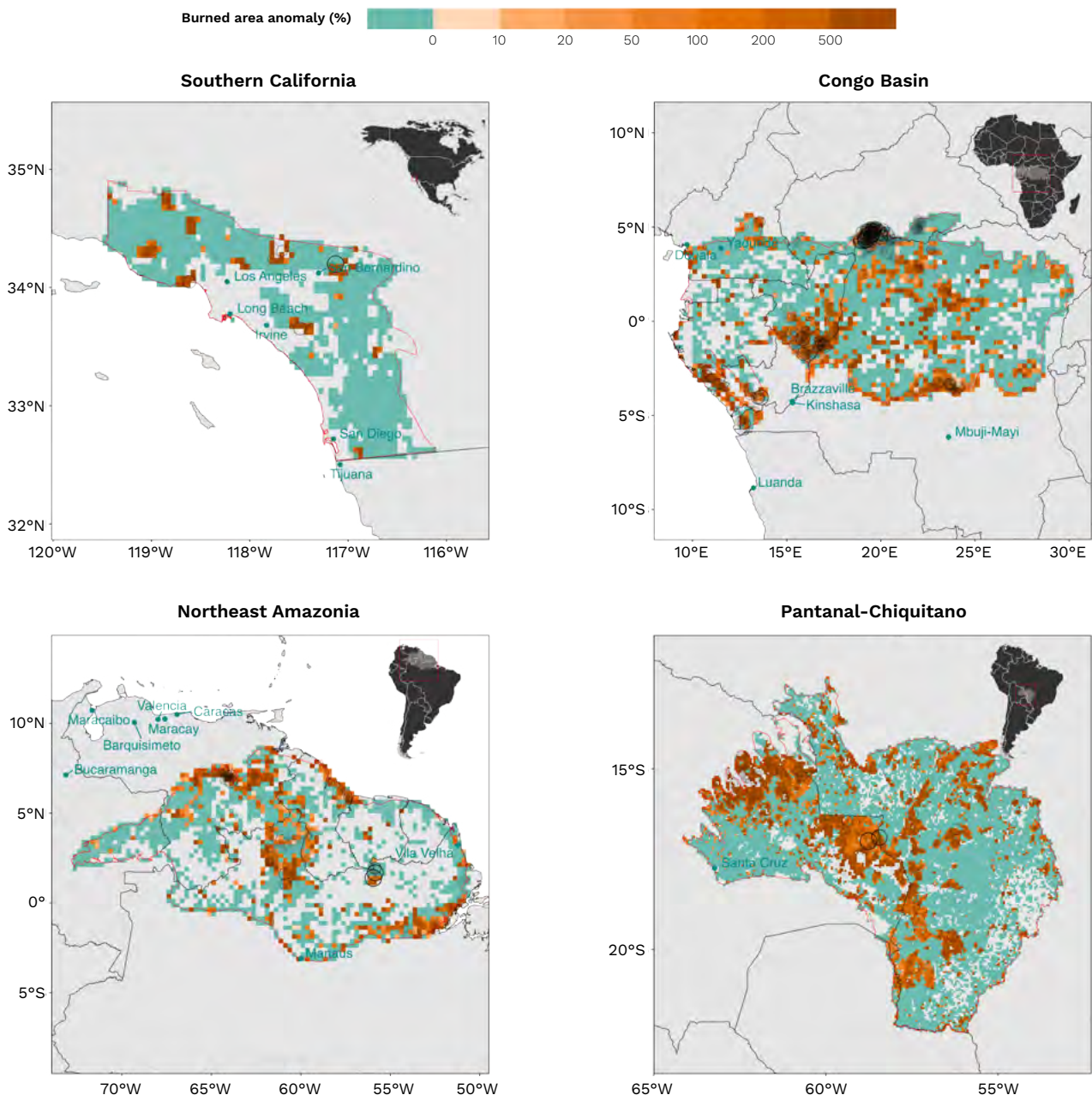
In Côte d'Ivoire, fires in Séguéla destroyed homes, burned 50,000 hectares and killed 23 people, with further fatal incidents in Bouna, Bongouanou and Taabo.

South Africa recorded 34 deaths, including six firefighters, and extensive livestock and property losses, particularly in KwaZulu-Natal Province.

FIGURE 6

Burned area anomalies for major extreme events of the March 2024–February 2025 fire season

Burned area anomalies in the March 2024–February 2025 fire season versus all fire seasons since 2002



Source: State of Wildfires 2024–2025

In Portugal, the most destructive fire season since 2017 burned over 137,000 hectares, caused 16 fatalities and €180 million in damages, with fires in Madeira's laurel forest — a UNESCO World Heritage site — highlighting the vulnerability of non-fire-adapted ecosystems. In the Balkans, Serbia, North Macedonia and Bulgaria recorded their worst fire seasons in two decades, with large fires prompting EU Civil Protection Mechanism activations (when countries across Europe request assistance from the bloc to combat wildfires).

In Ukraine, almost 1 million hectares burned, mostly in conflict-affected eastern region.

In Türkiye's Mardin Province, a rapidly spreading fire in June 2024 burned farmland and spread into villages, killing 15 people and injuring at least 70.

In East Asia, Japan's largest wildfire in over 50 years destroyed 221 buildings in Iwate Prefecture in February 2025, while South Korea's deadliest fires on record — occurring just outside the 2024-25 fire season — killed 31 people and damaged 4,000 homes.

Unpacking the wildfire season:



>8

billion tonnes of carbon dioxide, nine percent above average since 2003.



x3

more emissions than usual from fires in South American dry forests and wetlands.



>200

direct fatalities in Nepal, South Africa, US, Cote D'Ivoire, Portugal, Türkiye, and Canada.



>150k

people evacuated from fires in LA alone.



~100M

people exposed to fire globally.



x13-60

over the WHO air quality standards in parts of Brazil, Bolivia, India and California.



>400

excess deaths attributed to exposure to smoke from LA wildfires, on top of 31 direct fatalities.



US\$215bn

of assets exposed to fire globally.



\$40bn

in insured losses during the LA wildfires, January 2025.



18%

of forest carbon projects exposed to fire globally.



Virtually every year we are seeing record-breaking fire seasons in large regions of the world. This year, the Americas felt the harsh reality of what it means to live on a more fire-prone planet – enormous damage to vital carbon-storing ecosystems, to national economies, to public health, and to family life.



Dr Matthew Jones,

State of Wildfires Project co-lead and Senior Research Fellow at the Tyndall Centre for Climate Change Research at UEA

SUMMARY FOR POLICYMAKERS

National and sub-national extremes from around the world

Statistics on the 2024-25 fire season are available for a variety of regions, including continents, countries, and states and provinces and are viewable as interactive maps and charts from the [State of Wildfires Project](#) website. Tables for the countries and territories with the greatest anomalies in burned area and fire C emissions are found below.

TABLE 1

Where were the largest regional anomalies in burned area during the 2024-25 fire season?

Anomalies are expressed relative to all previous fire seasons since 2002. The table includes the top ten countries ranked by the magnitude of their absolute burned area anomalies and the top 30 level 1 administrative regions (e.g. states or provinces) grouped into countries where applicable.

Region name	Burned area during the 2024-25 fire season (thousand km ²)	Absolute burned area anomaly (thousand km ²)	Relative burned area anomaly (%)	Ranking of the 2024-25 fire season
Bolivia	107	67	169	1
Santa Cruz (Department of Bolivia)	65	49	311	1
Beni (Department of Bolivia)	36	15	74	4
Brazil	243	59	32	3
Mato Grosso (State of Brazil)	68	22	49	4
Pará (State of Brazil)	36	20	119	1
Mato Grosso do Sul (State of Brazil)	23	11	90	2
Amazonas (State of Brazil)	9	6	254	1
São Paulo (State of Brazil)	10	4	67	4
Canada	46	21	86	2
Northwest Territories (Territory of Canada)	16	12	281	3
British Columbia (Province of Canada)	8	5	154	4
Alberta (Province of Canada)	7	4	123	2

Region name	Burned area during the 2024-25 fire season (thousand km ²)	Absolute burned area anomaly (thousand km ²)	Relative burned area anomaly (%)	Ranking of the 2024-25 fire season
Venezuela	43	15	52	2
Apure (State of Venezuela)	16	5	41	2
Bolívar (State of Venezuela)	6	3	133	1
Niger	13	10	257	1
Tahoua (Department of Niger)	5	4	967	1
Burkina Faso	33	9	39	5
Sahel (Region of Burkina Faso)	6	6	1226	1
Angola	374	9	2	8
Moxico (Province of Angola)	61	8	15	3
Huíla (Province of Angola)	20	6	49	1
Cunene (Province of Angola)	18	5	35	5
Bié (Province of Angola)	20	4	25	1
Congo (Republic of the)	41	8	25	1
Sudan	82	8	11	8
North Darfur (State of Sudan)	15	9	168	1
Mali	77	7	10	6
Gao (Region of Mali)	13	12	1383	1
Other				
Queensland (State of Australia)	100	19	24	5
Heilongjiang (Province of China)	23	14	164	2
Zabaykal'ye (Territory of Russia)	23	11	88	3
North-Western (Province of Zambia)	45	10	29	1
Sakha (Republic of Russia)	27	9	55	6
Amur (Region of Russia)	20	8	70	4
Zamfara (State of Nigeria)	9	5	95	4
Oregon (State of United States)	7	5	285	1
Jilin (Province of China)	7	4	186	4
Sankuru (Province of Dem. Rep. Congo)	11	4	58	1

TABLE 2

Where were the largest regional anomalies in C emissions during the 2024-25 fire season?

Anomalies are expressed relative to all previous fire seasons since 2003. The table includes the top ten countries ranked by the magnitude of their absolute C emission anomalies and the top 30 level 1 administrative regions (e.g. states or provinces) grouped into countries where applicable.*

Region Name	C emitted during the 2024-25 fire season	Absolute C emissions anomaly (million tonnes of C)	Relative C emissions Anomaly (million tonnes of C)	Ranking of the 2024-25 fire season
Canada	282	189	204	2
Northwest Territories (Territory of Canada)	104	85	441	2
Alberta (Province of Canada)	56	42	297	2
British Columbia (Province of Canada)	55	36	196	2
Saskatchewan (Province of Canada)	43	28	184	3
Manitoba (Province of Canada)	11	5	74	4
Bolivia	187	148	383	1
Santa Cruz (Department of Bolivia)	157	136	637	1
Beni (Department of Bolivia)	23	11	86	3
La Paz (Department of Bolivia)	4	2	79	4
Brazil	314	111	55	4
Mato Grosso (State of Brazil)	86	29	50	6
Amazonas (State of Brazil)	35	25	237	1
Mato Grosso do Sul (State of Brazil)	30	23	323	1
Pará (State of Brazil)	59	22	61	4
Tocantins (State of Brazil)	22	5	33	5
São Paulo (State of Brazil)	8	5	190	1
Rondônia (State of Brazil)	22	3	16	7
Roraima (State of Brazil)	5	2	81	5
Venezuela	26	8	47	3
Bolívar (State of Venezuela)	5	2	97	1
Mexico	29	6	26	5
South Africa	18	3	24	2

Note: Multiply absolute values by 3.664 to obtain values in million tonnes of CO₂

Region Name	C emitted during the 2024-25 fire season	Absolute C emissions anomaly (million tonnes of C)	Relative C emissions Anomaly (million tonnes of C)	Ranking of the 2024-25 fire season
Angola	146	3	2	9
Moxico (Province of Angola)	28	5	21	3
Bié (Province of Angola)	9	2	35	1
Huíla (Province of Angola)	7	2	37	1
Peru	7	2	51	2
Russian Federation	179	2	1	9
Sakha (Republic of Russia)	75	32	74	3
Zabaykal'ye (Territory of Russia)	31	14	78	4
Amur (Region of Russia)	25	8	46	5
Arkhangel'sk (Region of Russia)	2	2	1776	1
Congo (Republic of the)	10	2	24	2
Other				
Queensland (State of Australia)	31	4	14	7
Oregon (State of United States)	7	4	130	3
Idaho (State of United States)	5	3	139	3
North-Western (Province of Zambia)	22	2	12	1
Alto Paraguay (Department of Paraguay)	6	2	55	2
Mai-Ndombe (Province of Dem. Rep. Congo)	7	2	36	1

Note: Multiply absolute values by 3.664 to obtain values in million tonnes of CO₂

FIGURE 7

Ranking carbon emissions for the 2024–25 fire season

Rank of carbon emissions during March 2024–February 2025 amongst the same months for all years from 2003 to 2025. A rank of 1 means the region experienced its highest emissions on record, while a rank of 22 means the region had the lowest emissions on record.

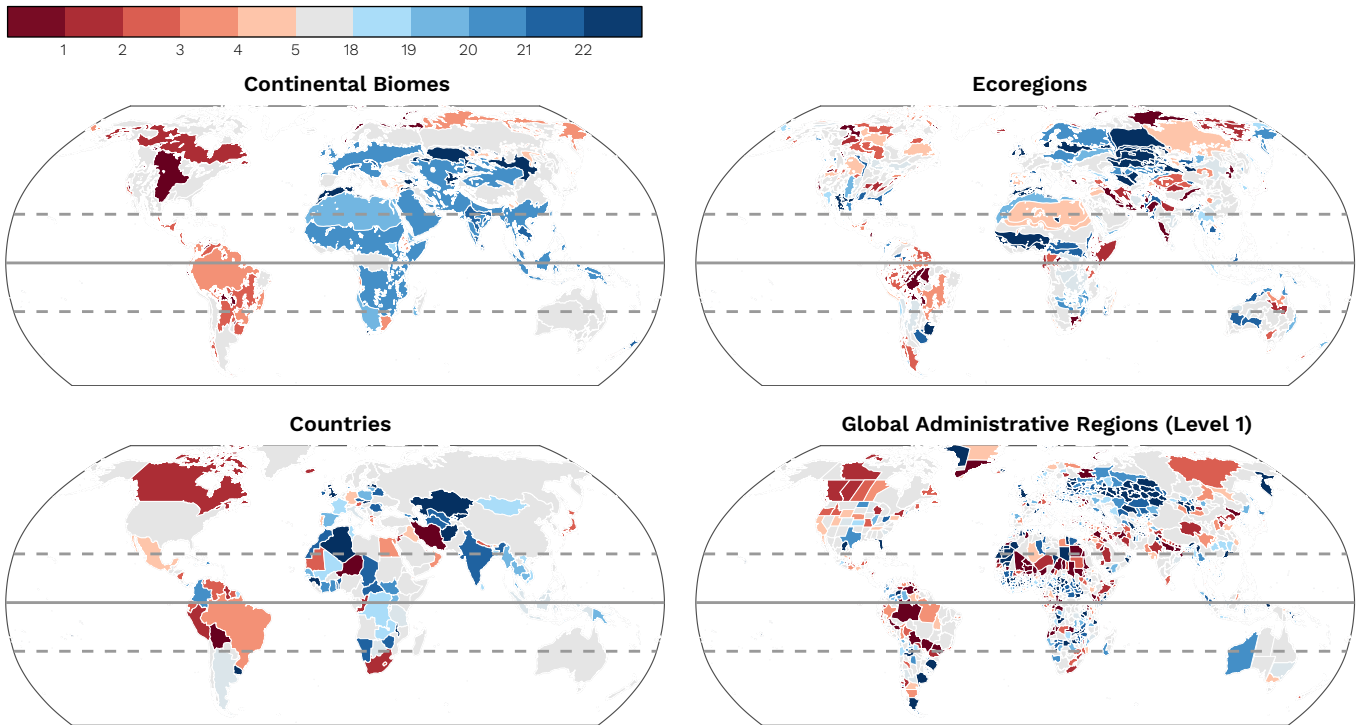
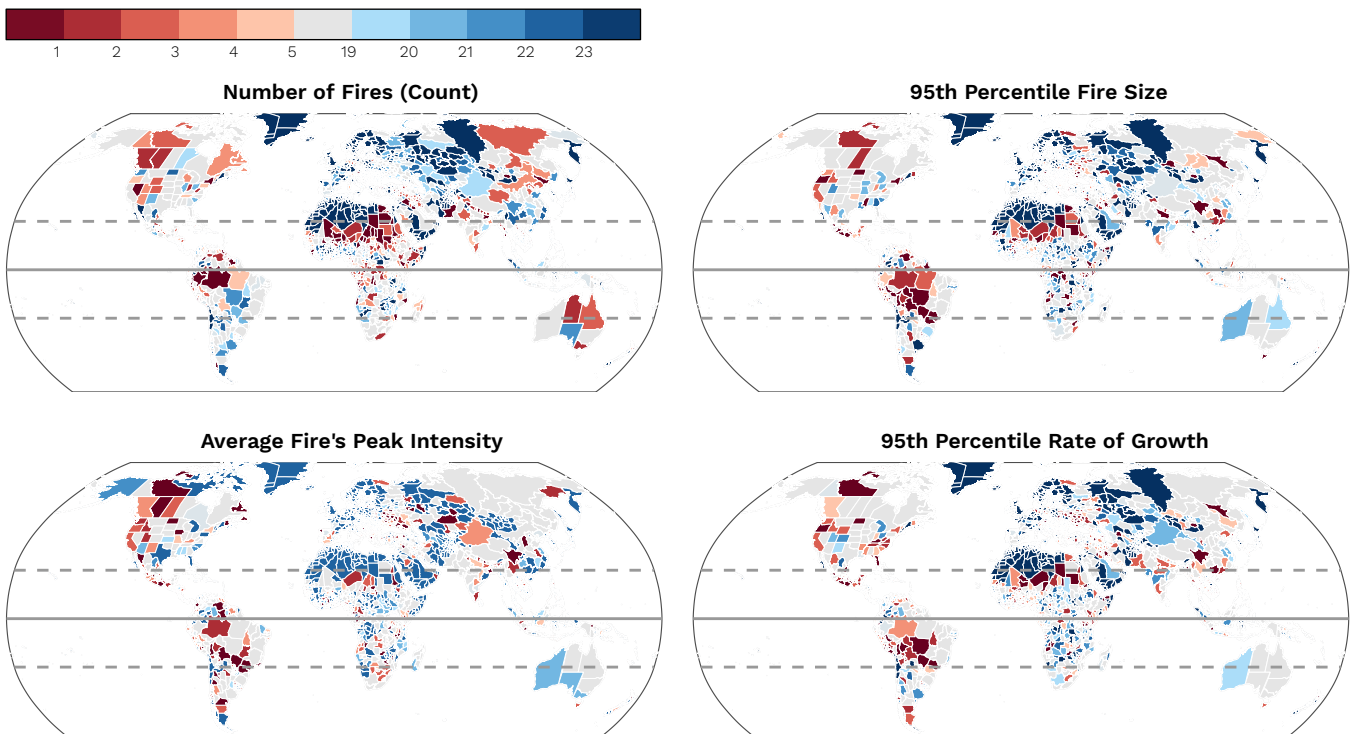


FIGURE 8

Ranking the 2024–25 fire season on other measures

Value rank for March 2024–February 2025 period for various fire characteristics amongst all years from 2003 to 2025. A rank of 1 means the region experienced its highest value on record for a given metric, while a rank of 23 means the region had the lowest emissions on record.



Regional highlights

In the 2024–25 fire season, 3.7 million km² burned globally—9% below the long-term average and the 16th lowest since 2002. However, carbon emissions reached 2.2 Pg C, 9% above average and the 6th highest recorded, mainly due to severe fires in South America and Canada. This highlights a growing trend of disproportionate fire impacts in carbon-rich forests, even in years with less total area burned.

SOUTH AMERICA

South America experienced an unprecedented fire season setting a new record for carbon emissions.

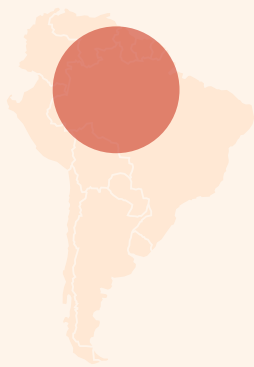


120,000 KM²
of burned area, **35%**
above average.



~1 BILLION TONNES
of CO₂ **above average**
or **84%** above average.

Focal events



Northeast Amazonia

Areas affected: moist tropical forests north of the Amazon River and Rio Negro, including large portions of Venezuela, Guyana, Suriname, and northern Brazil.

Burned area: +332% above average, the highest since records began.

Impact: Fires severely impacted Indigenous communities, displacing thousands and degrading air and water access.



Pantanal-Chiquitano

Areas affected: Fires affected both the Pantanal wetlands, the world's largest tropical wetland, and the Chiquitano dry forests of Bolivia.

Impact: Fires destroyed critical habitat and threatened biodiversity hotspots. PM_{2.5} pollution reached hazardous levels of 900 µg/m³, carrying strong potential for detrimental health and economic impacts.



Recurring extreme fires are threatening South America's vital ecosystems, bringing immense social, economic and ecological costs. Forest degradation and fires in South America must be a central topic to COP-30 discussions in Belém. It is vital that the fire crisis on the continent is addressed, both for the people living in the region and for the global ambition to stabilise our planet's climate."



Dr Liana Anderson

National Institute for Space Research (INPE), Brazil

Highlights (South America)

Coastal and Andean Ecuador, Peru, and Colombia

Subnational analysis reveals record or high-ranking anomalies in 8 provinces of Ecuador, 7 regions of Peru, and multiple Colombian ecoregions. These include areas in southwestern Amazonia and the eastern Andean slopes, where record fire sizes and intensities occurred despite average fire counts.

Bolívar and Delta Amacuro, Venezuela

Two states in northeast Venezuela experienced record emissions and burned area, with Bolívar seeing a +133% burned area anomaly and Delta Amacuro impacted by early-season fire peaks. These fires affected swamp forests and grassland regions.

Guyana and Suriname

Six ecoregions in Guyana and two districts in Suriname experienced record fire counts and BA, contributing to the focal Northeast Amazonia event but deserving standalone mention given the extent and duration of the anomalies.

Amazonas State, Brazil

Fire counts were up +154% versus the long-term average, and BA and fire size reached record levels. The 95th percentile fire size anomaly was +60%. This was one of the few regions in South America where high fire counts and severe individual fire behaviour co-occurred.

Mato Grosso and Mato Grosso do Sul States, Brazil

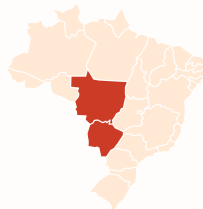
In Mato Grosso, 95th percentile fire size was 266% above average. Mato Grosso do Sul experienced record emissions (+323%) and fire growth rates, pointing to fast, intense fires likely driven by land-use change and drought.

Pará State, Brazil

This state recorded its highest-ever BA (36,000 km²) and major emissions anomalies (+61%). Fire activity expanded deep into forested areas, likely linked to land clearing. It was among the most significant subnational contributors to Brazil's fire totals in 2024-25.

São Paulo State, Brazil

Unusually high-intensity fires occurred despite a relatively small area burned. 95th percentile fire size and intensity both set new records. Carbon emissions were nearly double the historical average 87 (+190%), driven by a combination of unseasonal drought and land-use pressures.



NORTH AMERICA

The 2024-25 fire season was the second most severe on record for North America



31,000 KM²
of burned area, **35% above average.**



~700 MILLION TONNES
of CO₂ **above average**
or **112% above average.**

Focal event

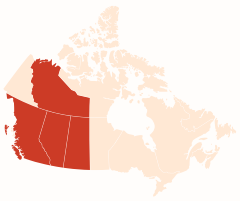


Southern California, USA

The most disastrous wildfire event in modern US history occurred in Los Angeles County in January 2025 during a severe Santa Ana wind event.

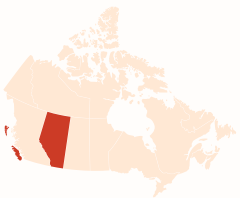
Impact: The Palisades and Eaton Fires destroyed over 11,750 homes, killed at least 31 people, displaced over 150,000, and caused economic losses exceeding US\$140 billion (including insured losses of US\$20-75 billion). PM_{2.5} levels peaked at 483 µg/m³, triggering a regional housing and insurance crisis.

Highlights



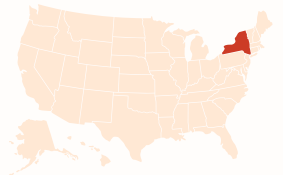
Western Canada

Northwest Territories, British Columbia, Alberta and Saskatchewan experienced their second-highest emissions year on record with a combined emissions anomaly of +191 Tg C and provincial anomalies in the range of +184-441%



Alberta, Canada

Extreme wildfires in summer 2024 destroyed 358 structures and led to \$1.23 billion in damages, second only to the Fort McMurray fire of 2016. The town of Jasper was evacuated. Two firefighter fatalities occurred.



New York, USA

In an unusual late-season outbreak, every borough experienced multiple wildfires during a two-week span in October-November 2024, an unprecedented fire signal in a densely populated urban environment.

Mexico

Mexico experienced its worst wildfire season on record with over 8,000 wildfires and more than 16,500 km² burned. Particularly severe activity occurred in March-May, reportedly driven by drought and elevated temperatures.



The January 2025 LA Fires became the most expensive wildfires ever recorded in just a few short days, and New Yorkers found out that their city can also burn when it is dry and hot enough. This should be a wake-up call for the US that climate change is making wildfires increasingly impossible to control and we need to broadly implement a multi-faceted set of mitigation strategies to avert future fire disasters.”



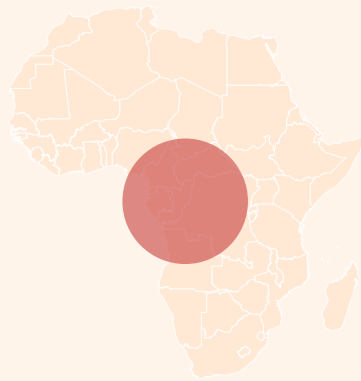
Prof Crystal Kolden

Director of the UC Merced Fire Resilience Center,
University of California Merced

AFRICA

For the second consecutive year, fire extent in Africa was well below average. However, record-setting burned area and carbon emissions were recorded in some regions of the Republic of Congo and the Democratic Republic of Congo.

Focal event

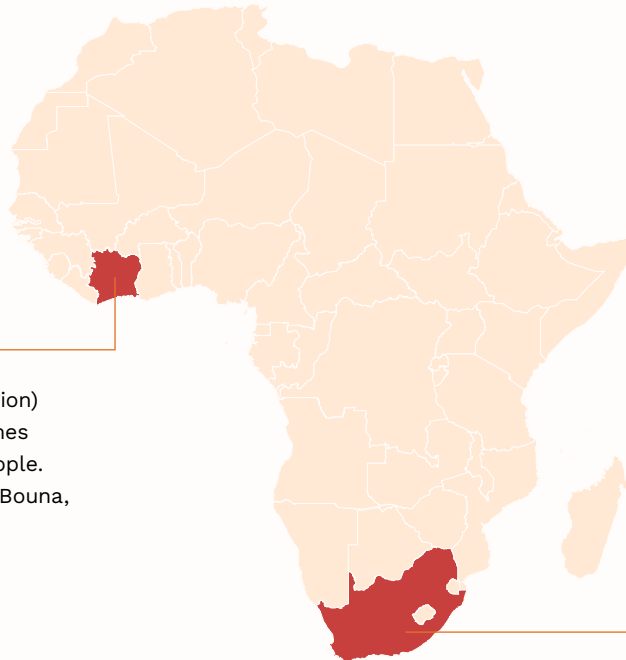


The Congo Basin

The Congo Basin had its highest recorded fire activity at 28% above the annual mean, contributing to a +150% increase in primary forest loss in 2024 versus 2023. Fires were the main driver of deforestation but received minimal media or institutional attention, highlighting a broader lack of media coverage of fires affecting equatorial Africa.

Impact: Fires contributed to the region's highest primary forest loss since 2015 and caused hazardous air pollution, with DRC reporting PM2.5 levels 11 times the WHO standards. Fires in western ecoregions such as the Atlantic Equatorial and Central Congolian lowland forests were particularly intense.

Highlights



Côte d'Ivoire

Fires in Séguéla (Worodougou region) burned 50,000 ha, destroyed homes and plantations, and killed 23 people. Other fatal incidents occurred in Bouna, Bongouanou, and Taabo.

South Africa

Fires killed 34 people, including 6 firefighters, and destroyed thousands of livestock and homes. KwaZulu-Natal Province was particularly affected. High fuel loads from previous wet years reportedly contributed to the intensity.



While Africa accounts for over 50% of the world's burned area on average annually, largely due to savanna fires, the fire season saw notable spikes in the tropical forests of the Congo basin as well as high-impact events leading to fatalities in southern and central Africa."



Prof Kebonye Dintwe
University of Botswana

ASIA

Overall, Asia experienced a below-average fire season. However, significant regional extremes were observed.



▼ **26%**

below average in
burned area.



▼ **28%**

below average in
carbon emissions.

Highlights



Although Asia as a whole had a fairly quiet fire season, several individual wildfires events brought devastating consequences: hundreds of lives lost, homes reduced to ash, and polluted air that has ravaged public health.”



Cong Gao
University of Hong Kong

Iran

Worst fire season since 2002. Fires burned key national parks and forest areas. Carbon emissions, fire counts, and BA all reached record highs, reportedly driven by a combination of climate stress and human pressures.

Nepal

Nepal endured its second-worst fire season since 2002, with over 1,000 wildfires. Wildfires killed more than 100 people, with significant destruction of forests and homes. In the Lumbini Province, wildfires devastated 11,448 ha of forests and destroyed more than 230 houses and livestock shelters.

Northern India

Uttar Pradesh experienced its most severe wildfire season on record, reportedly driven by crop burning, heatwaves, and dry fuel accumulation. Regional fires contributed to severe haze episodes in New Delhi in November 2024, with PM_{2.5} concentrations exceeding 200 µg/m³ across large parts of Northern India (13 times the WHO daily standard).



Republic of Sakha and Zabaikalsky krai, Russia

Fires in these regions accounted for 65% of total forest area burned across Russia and forced 58 redeployments of firefighting resources involving 1,861 firefighters.

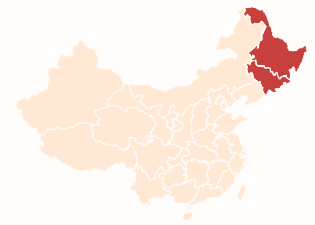
South Korea and Japan

Japan's largest wildfire in over 50 years took place in Iwate Prefecture in February 2025, destroying 221 buildings. South Korea's deadliest wildfires occurred in March 2025 (just outside of the 2024-25 fire season), killing 31 and damaging 4,000 homes.



Sichuan and Guizhou, China

A fire in Sichuan lasted 14 days, displaced 3,000 people, and impacted multiple villages. Strong winds and dry spring conditions reportedly drove unusually large wildfires.



Heilongjiang and Jilin, China

Record BA occurred in both provinces. Though not widely reported, these events underscore rising fire activity in northeast Asia, which has been linked to agricultural burning and shifting policy enforcement.

EUROPE

Europe recorded its fourth lowest BA since 2002. However, there were stark regional contrasts.



30,000 KM²

burned area (49% below average)



▼ 22%

below average in carbon emissions.

Highlights

Portugal

Most destructive fire season since 2017. Over 137,000 ha burned, with 16 fatalities and €180 million in damages. Fires in September affected wildland-urban interface areas in the northwest. A 5,000 ha fire in Madeira entered the laurel forest, a rare cloud forest and UNESCO World Heritage site. This incident highlighted the vulnerability of non-fire-adapted ecosystems under increasing fire pressure.

Austria and Germany

While Central Europe had a quiet fire year overall, Austria recorded its highest number of fires and largest BA since 2012, and Germany had a slightly above-average season, consistent with a slow but steady upward trend.

Ukraine

Nearly 1 million ha burned during 2024-25, mostly in conflict-affected eastern areas. Fires were likely exacerbated by warfare, with higher-than-usual forest losses reported.

Romanian Danube Delta

An unusually dry winter led to 45,000 ha of wetlands burning in February 2025. Though a recurring phenomenon, this was one of the most extensive burn events yet, and emblematic of changing fire regimes in sensitive wetland ecosystems.

Serbia, North Macedonia, and Bulgaria

Worst wildfire seasons in two decades. Large-scale fires led to EUCPM activations and widespread evacuations, including four fires >10,000 ha in North Macedonia alone.

Türkiye (Mardin Province)

A rapidly spreading fire in June 2024 burned farmland and villages, killing 15 people and injuring at least 70. It was one of the deadliest fire events in the Eastern Mediterranean this season.



Fire activity across Europe was mostly low-to-moderate, but burned area was abnormally high in Ukraine and in the southeast of the continent, and Portugal and Türkiye notably suffered destructive wildfires”



Prof Paulo Fernandes

Universidade de Trás-os-Montes e Alto Douro

OCEANIA

Oceania experienced a moderate fire season overall, but numerous high-impact events were recorded.

Highlights

Western Australia

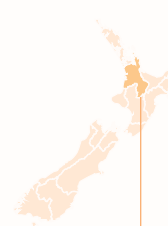
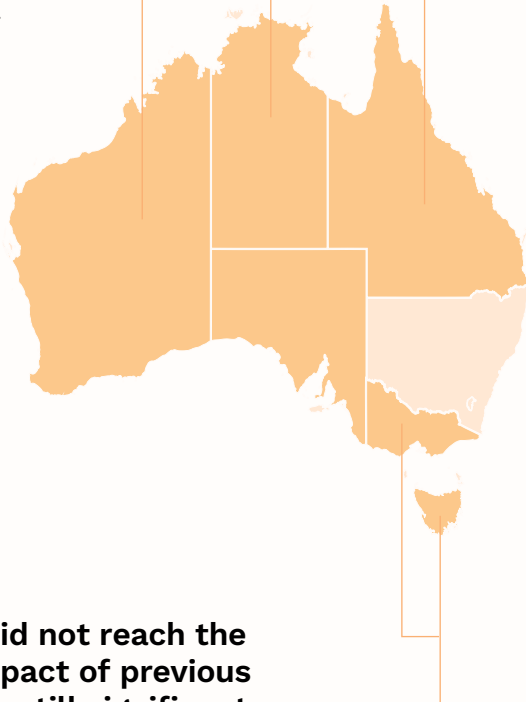
Over 1,000 large fires burned ~470,000 ha amid record heat and severe dryness between Perth and Carnarvon. The Skeleton Rocks fire (44,000 ha) impacted long fire-interval ecosystems and a lithium mine, while the largest fire near Cervantes burned 80,000 ha and disrupted regional honey production. Manjimup fires affected over 42,000 ha of native forest and required interstate response.

Northern Territory

Over 5.7 million ha burned by October 2024, including a 450,000 ha fire near Devil's Marbles that forced closures of major infrastructure. In January, 80,000 ha burned in the West MacDonnell Ranges, including national parks and Aboriginal land trusts.

Queensland

Firefighters responded to 40 incidents at Mount Isa, with one fire burning over 100,000 ha for nearly two months. Smoke exposure caused hospital admissions and endangered species such as the Carpentarian Grasswren were threatened.



Victoria and Tasmania

Severe dry lightning outbreaks triggered major fires in culturally sensitive landscapes. Victoria's Grampians National Park saw two-thirds of its area burned, and the Little Desert fire burned 90,000 ha in under 8 hours. Tasmania's northwest fires burned 100,000 ha, affecting the Tarkine and Cradle Mountain.

New Zealand

Peat fires at Whangamarino Wetland and Tiwai Peninsula each burned ~1,000 ha, likely generating significant CO₂ emissions after similar events in 2022 emitted 0.6 million tonnes CO₂.



While fire activity did not reach the overall extent or impact of previous seasons, there were still significant events across Oceania's highly diverse fire-prone landscapes."



Dr. Hamish Clarke
FLARE Wildfire Research,
University of Melbourne

SUMMARY FOR POLICYMAKERS

Extreme impacts and societal consequences

This year's report incorporates new global assessments of wildfire impacts on society, including the exposure of people, physical assets such as buildings and infrastructure, and forestry carbon projects to fire, as well as the degradation of air quality by wildfire smoke.

Population exposure in the 2024–25 fire season is estimated at around 100 million people worldwide. In each of India and the Democratic Republic of the Congo, we estimate that 15 million people were exposed, with Uttar Pradesh in India experiencing the highest subnational exposure at 4.6 million people — 146% above its long-term average since 2002. Heilongjiang in China and Punjab in India followed, with 3.7 million and 3.6 million people exposed, respectively. Severe fire seasons in Canada, Brazil, and Bolivia resulted in comparatively modest population exposure due to the remoteness of affected areas. Official records from the Internal Displacement Monitoring Centre (IDMC) reported 20 thousand people displaced by fire globally, which equates to less than 1% of those exposed to fire according to our estimates. This underlines the gap between physical proximity to fire and formal displacement of people by fire, though it is likely that IDMC records are incomplete and broader, undocumented

disruption to livelihoods, health, and well-being are not routinely traced.

Physical asset exposure was substantial. Using consistent global methods, we estimate that wildfires in 2024–25 threatened US\$215 billion of built assets globally. India recorded the largest exposure at US\$44 billion, followed by the United States (US\$26 billion), China (US\$17 billion), and South Africa (US\$14 billion). Mexico, Türkiye, and Russia each saw about US\$8 billion in asset exposure. Relative anomalies were largest in Pakistan, Sudan, Chad, Albania, Greece, Iraq, Syria, and Eritrea. The international disaster database EM-DAT recorded US\$57 billion in direct losses from fire, including US\$53 billion in losses from major fires in Los Angeles and southern California. In the case of the United States, direct financial losses exceeded our exposure estimate by a factor of three, highlighting that global estimates of spatial exposure distribution can underestimate losses in areas with high-value built environments.



Wildfires are reshaping lives, economies, and ecosystems on a global scale. Disastrous events such as the LA fires show they are as much a social and economic crisis as an environmental one.”

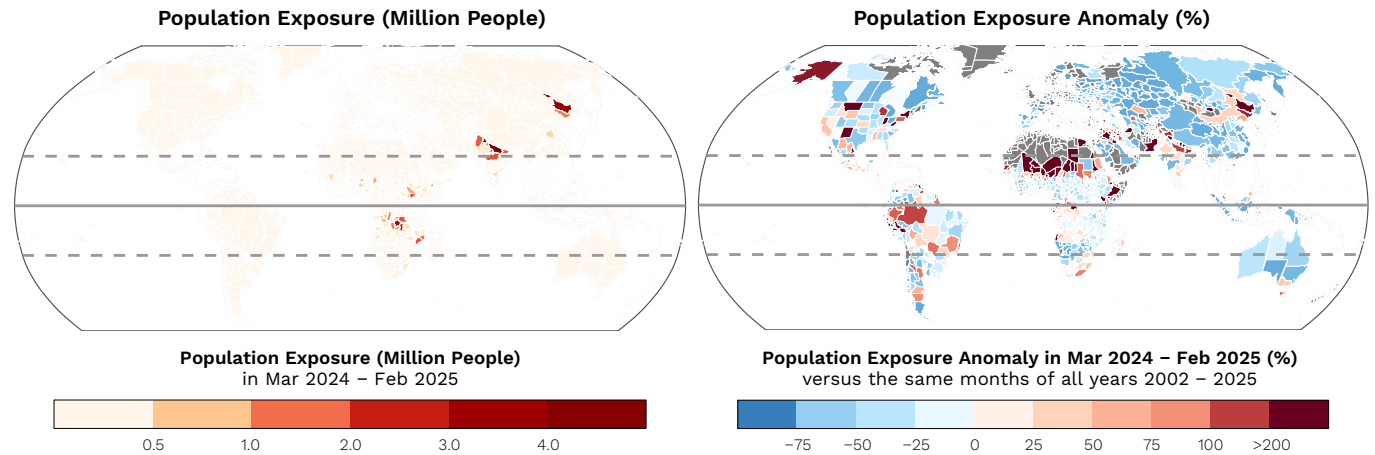


Dr Carmen Steinmann
Postdoctoral Researcher in the Weather and
Climate Risks Group at ETH Zürich

FIGURE 9

Measuring population exposure

For the March 2024–February 2025 period, by global administrative area (level 1)

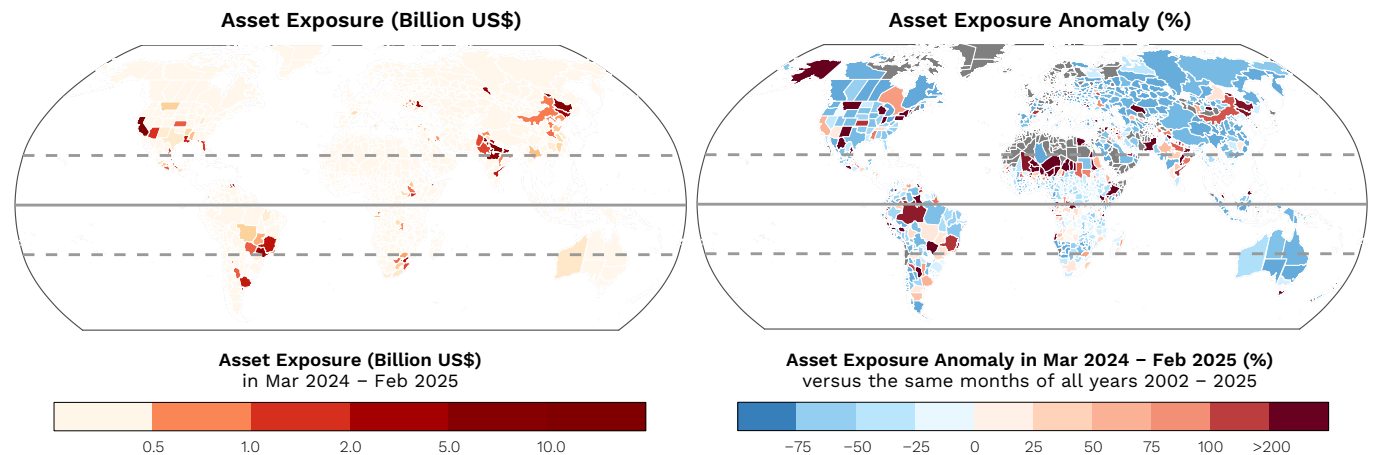


Source: State of Wildfires 2024–2025

FIGURE 10

Measuring asset exposure

For the March 2024–February 2025 period, by global administrative area (level 1)



Source: State of Wildfires 2024–2025

Across the Voluntary Carbon Market, 18% (169 of 927) of forestry projects recorded fire activity in 2024, the highest share since monitoring of these forests began in 2001. Average burned area across all projects was 1.6% of project land, with 72% of projects experiencing above-average drought and 13% exceeding extreme drought thresholds. Impacts were particularly high in Latin and

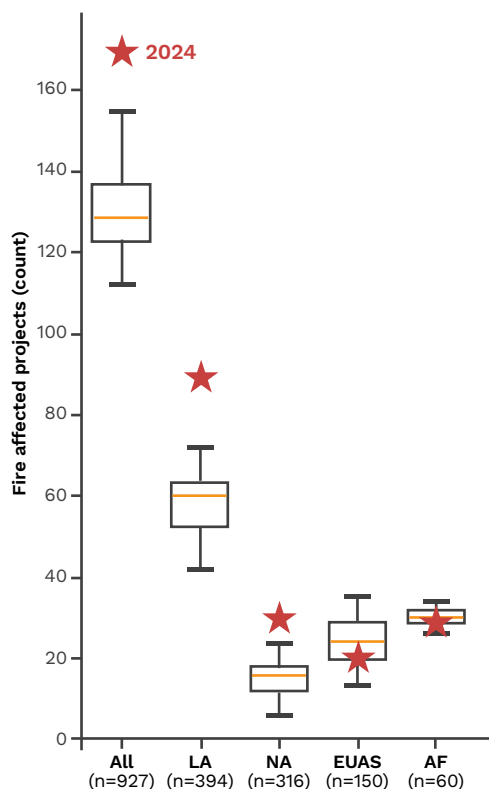
North America. Despite the record season, 46% of all projects have avoided fire entirely since 2001, and 67% were at moderate to low risk from forest fires. The findings underline that high-integrity forest carbon projects remain a vital mitigation tool, but accurate accounting and independent assessment of the risk from wildfires is increasingly important in a warming climate.

Air quality impacts are exemplified by the Pantanal-Chiquitano focal region, where population-weighted fine particulate matter (PM_{2.5}) exceeded the WHO daily guideline of 15 µg/m³ on 43 days between July and October 2024, peaking at 61 µg/m³ in September. Fires were responsible for around 58% of measured pollution, and were the sole cause of exceedances on 50 days in the period. Direct measurements also recorded extreme pollution episodes in other regions, with PM_{2.5} levels reaching over 60 times the WHO guideline in the Brazilian Pantanal, 30 times in both Southern California and Bolivia, and 13 times in northern India. These levels represent acute hazards to public health, with risks amplified by the frequency and duration of exposure.

FIGURE 11

Forest carbon projects affected by fire

Number of forest carbon projects impacted by fire in 2024 (star) versus all previous years since 2001, globally and for Latin America (LA), North America (NA), Eurasia (EUAS), and Africa (AF). “n =” notation indicates the total number of projects per continent.



Source: State of Wildfires 2024-2025



Rising climate risks resulted in record project exposure in 2024, but the majority of forest carbon projects are at moderate to low risk from fire. Project-level risk evaluations can support effective mitigation strategies and accurate accounting of these risks over the project lifetime”



Dr Niels Andela
Director of Remote Sensing at carbon ratings agency BeZero Carbon



The scale and intensity of smoke impacts this year meant that millions of people were breathing air far above safe limits, often for weeks at a time. Fire driven extreme pollution episodes are rapidly becoming one of the most serious emerging threats to global public health.”



Dr Douglas Hamilton
Assistant Professor at North Carolina State University

SUMMARY FOR POLICYMAKERS

Weather played a dominant role in major events of the fire season

The report's in-depth analyses focussed on four key regions of global relevance — Northeast Amazonia, the Pantanal–Chiquitano, Southern California, and the Congo Basin — identified as focal events due to the scale of their burned area, carbon emissions, and societal and environmental impacts during the 2024-25 fire season.

For each region, the report examines the meteorological and human drivers, evaluates how far in advance such events could have been anticipated, and fingerprints the influence of climate

change on their likelihood. In all four regions, exceptionally fire-prone weather was the primary driver of extreme outcomes, with vegetation fuel conditions set by prior seasons playing a crucial role.



Our analyses detected the critical role of both extreme weather and fuel in the Los Angeles fires, with an unusually wet autumn in 2024 contributing to strong vegetation growth and laying the perfect foundations for wildfires to occur when unusually hot and dry conditions arrived in January.”



Dr Francesca Di Giuseppe
Principal scientist at ECMWF and co-lead
of the State of Wildfires Project

Northeast Amazonia

In Northeast Amazonia, rainfall deficits of up to 40% (1 standard deviation below 2003–2024 climate) during the 2023–2024 wet season and record-high temperatures in early 2024 dried forest and savanna fuels to well below seasonal norms, contributing to the highest forest burned area on record for the region. The prolonged dryness followed multiple years of above-average temperatures, compounding water stress in soils and vegetation. See *Figure 13*.

Pantanal–Chiquitano region

In the Pantanal–Chiquitano, extreme burning in August–September 2024 occurred after a multi-year drought that began in 2019 and reduced wetland water storage to some of the lowest levels on record. Rainfall during the first half of 2024 was less than 60% of the mean annual rainfall in many areas, and maximum daily temperatures repeatedly exceeded 40°C. These conditions enabled unusually rapid fire spread across forest and savanna habitats, with individual fires exceeding three times the typical size for the region. See *Figure 14*.

Southern California

In Southern California, the January 2025 wildfires followed an unusually warm and dry start to winter, with vegetation rapidly drying after 30 months following two wetter years (2–3 standard deviations above the average) had stimulated unusual biomass growth. The fires were driven by strong Santa Ana winds, locally exceeding 130 km/h, which channelled flames through urban canyons and across densely populated neighbourhoods, leading to structure loss. See *Figure 15*.

Congo Basin

In the Congo Basin, July–August 2024 brought the driest conditions in at least two decades to southern Democratic Republic of the Congo, northern Angola, and the Republic of the Congo. Temperatures during this period were 1.5–3°C above the 2003–2023 average, and rainfall deficits of 20–40% extended across much of the basin. These conditions, combined with the availability of extensive grassy fuels following earlier wet years, created ideal conditions for fire. See *Figure 16*.



A step-change in our ability to predict wildfires is underway, driven by advances in tracking how living and dead vegetation fuels evolve on the landscape. We can now anticipate major fire events with far greater accuracy than ever before — in some cases, even a month in advance.”



Dr Joe McNorton
European Centre for Medium-Range Weather Forecasts (ECMWF)



Advances in AI are also helping to extend the forecasting horizon towards the seasonal timescale to broadly identify potential anomalous seasons over vast areas. Incorporating human behaviour related to ignitions, land management, and active fire suppression in these systems remains a crucial challenge due to the scarce data record.”



Dr Marco Turco
University of Murcia

Climate variability influenced several focal events. The lingering impact of the strong 2023–24 El Niño — the fourth most intense on record — raised temperatures and reduced rainfall across much of tropical South America, amplifying drought severity in both Northeast Amazonia and the Pantanal–Chiquitano. In the Congo Basin, exceptionally hot and dry conditions were consistent with patterns linked to both El Niño and longer-term warming, although the shortness of the regional climate record makes it difficult to isolate individual drivers.

Predictability of these events varied. In the Pantanal–Chiquitano, the long-running drought and low wetland levels were identifiable months in advance,

offering early signals of elevated fire potential. In Northeast Amazonia, an early-season peak in activity was well captured by forecast systems, with rapid escalation during January–March 2024 driven by compounding drought and high temperatures. The Southern California fires were unusual for the time of year but were triggered by a rare combination of rapid drying and strong wind conditions. Still they were identifiable a few days ahead, especially in systems equipped to capture the high fuel build-up from the preceding (30) months. In the Congo Basin, sparse ground-based monitoring and limited seasonal fire forecasting capacity constrained early warning efforts despite the scale of the anomalies.

FIGURE 12

Summary of how weather, fuel conditions, and ignition sources contributed to the unusual fire activity observed in four focal regions

The analysis quantifies how climate change influences the likelihood and extent of these events and how it affects the probability of similar fires occurring in the future under different emission pathways.

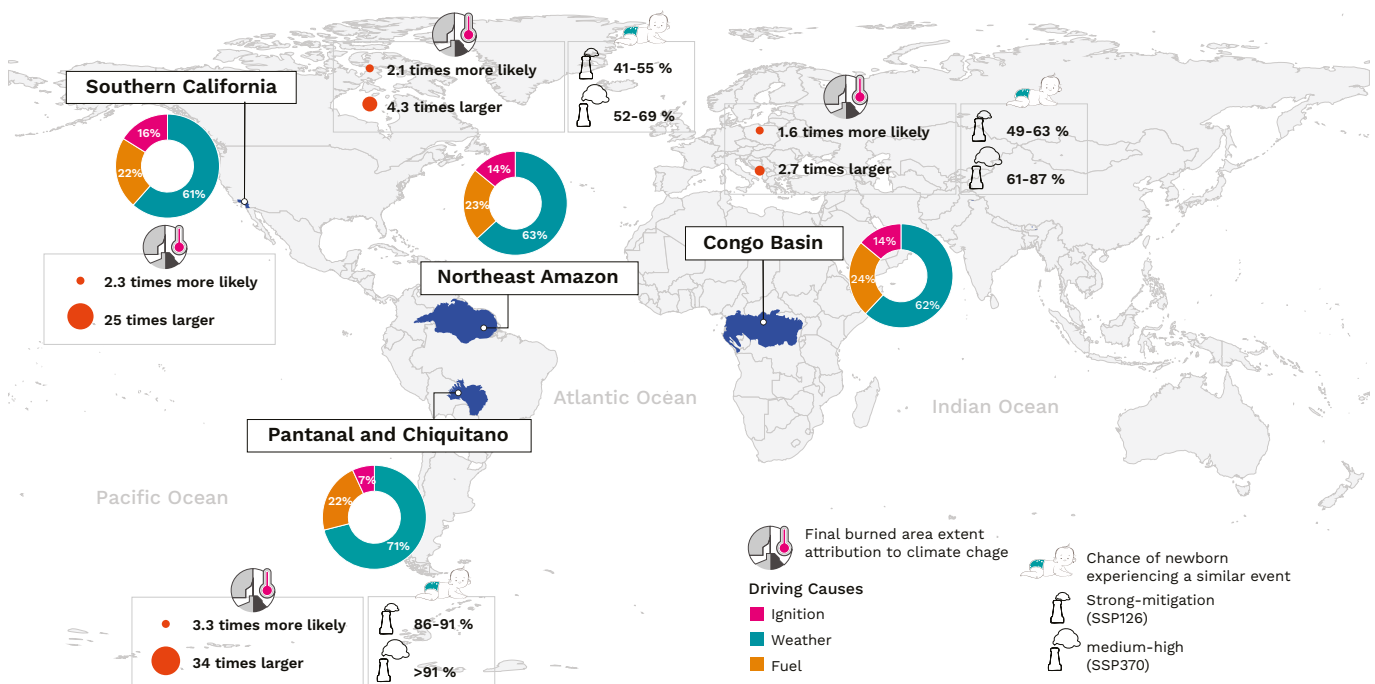


FIGURE 13

How weather, fuel, and ignitions shaped the extreme fire season in northeast Amazonia

The top panel shows the daily contribution of weather, fuel and ignition anomalies to fire activity in the region, with the values expressed in % terms in the middle panel. Anomalies in specific meteorological or climate variables contributing to unusual weather-driven fire activity are shown in the bottom panel.

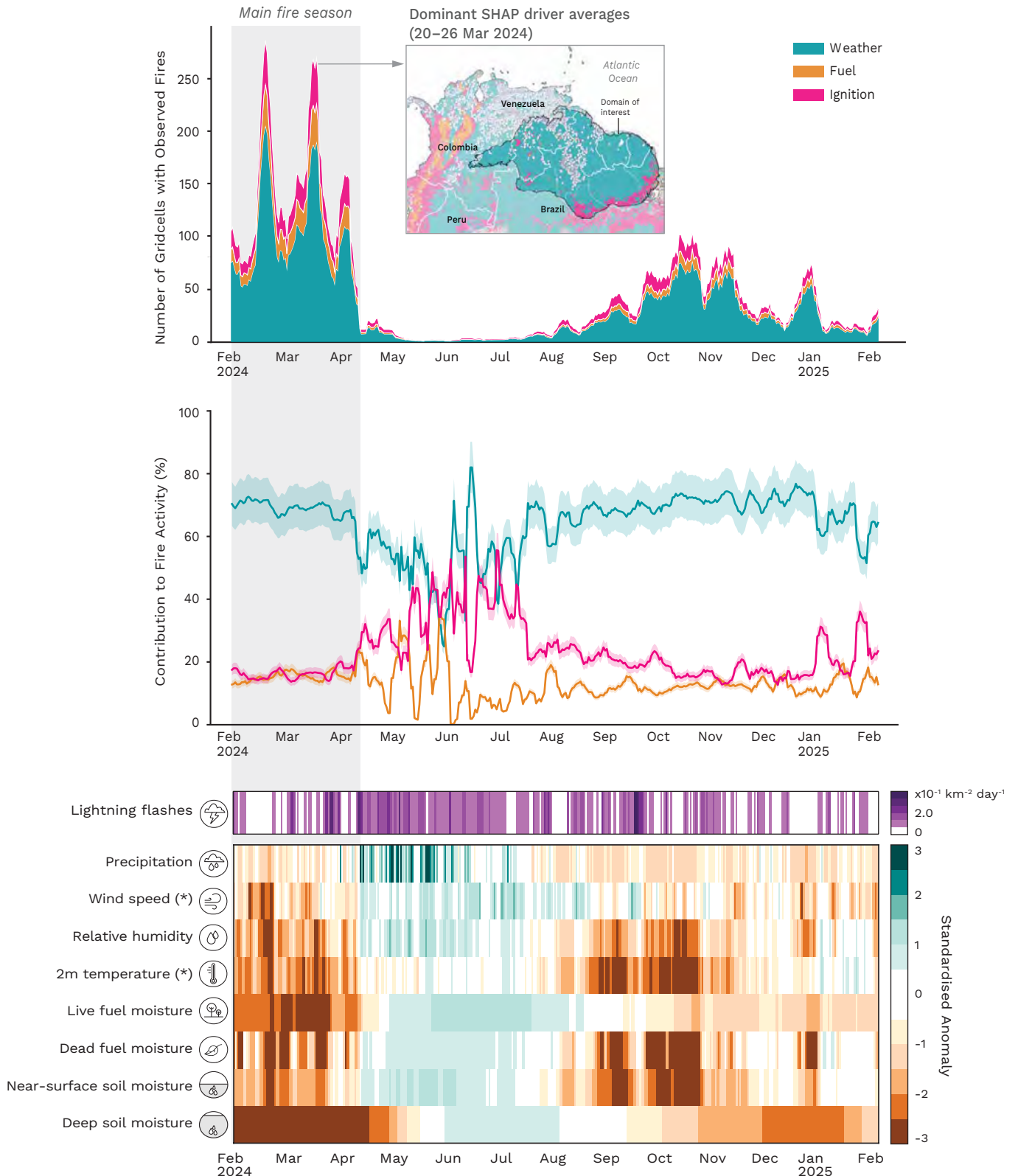


FIGURE 14

How weather, fuel, and ignitions shaped the extreme fire season in the Pantanal wetland and Chiquitano dry forests

The top panel shows the daily contribution of weather, fuel and ignition anomalies to fire activity in the region, with the values expressed in % terms in the middle panel. Anomalies in specific meteorological or climate variables contributing to unusual weather-driven fire activity are shown in the bottom panel.

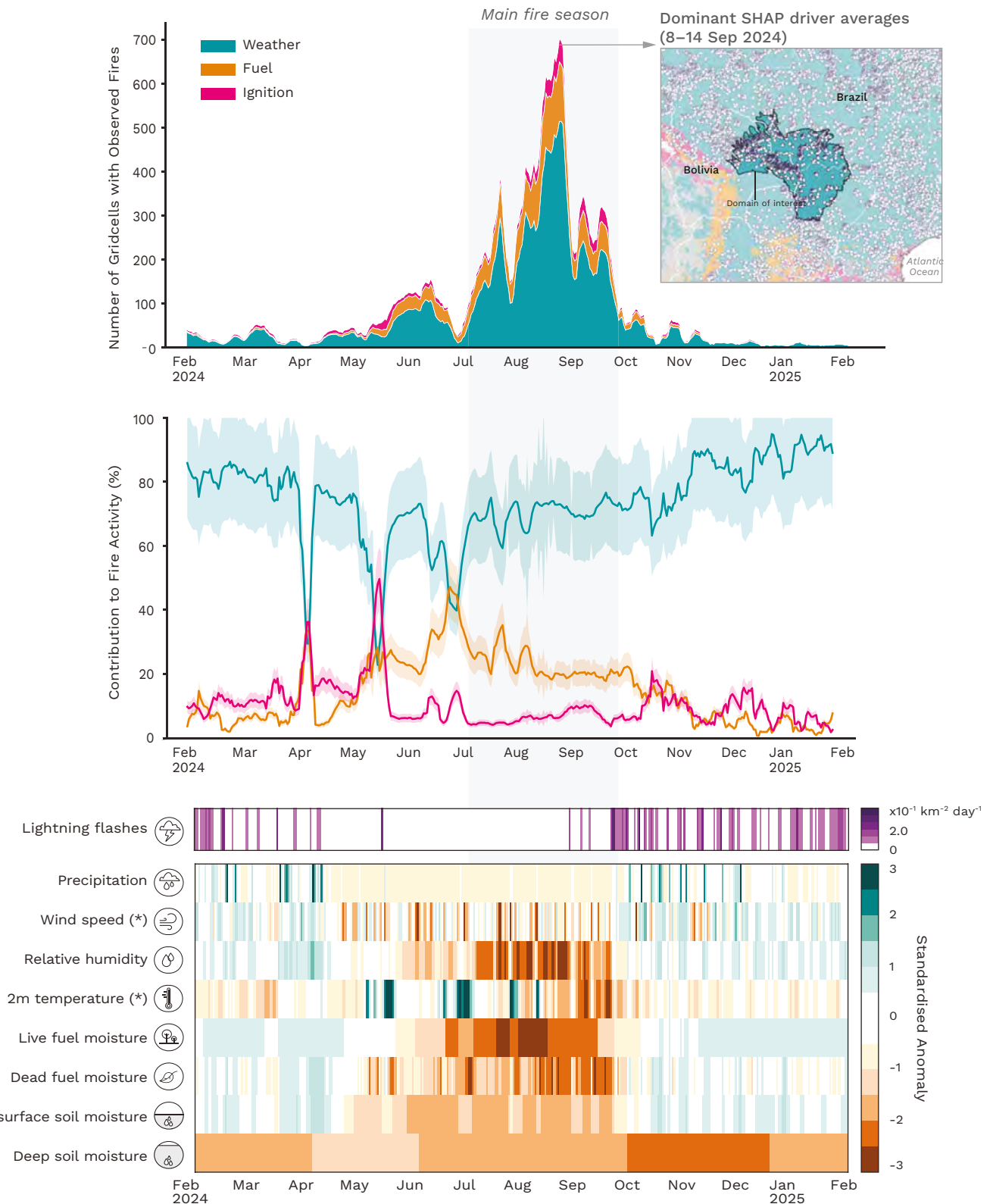
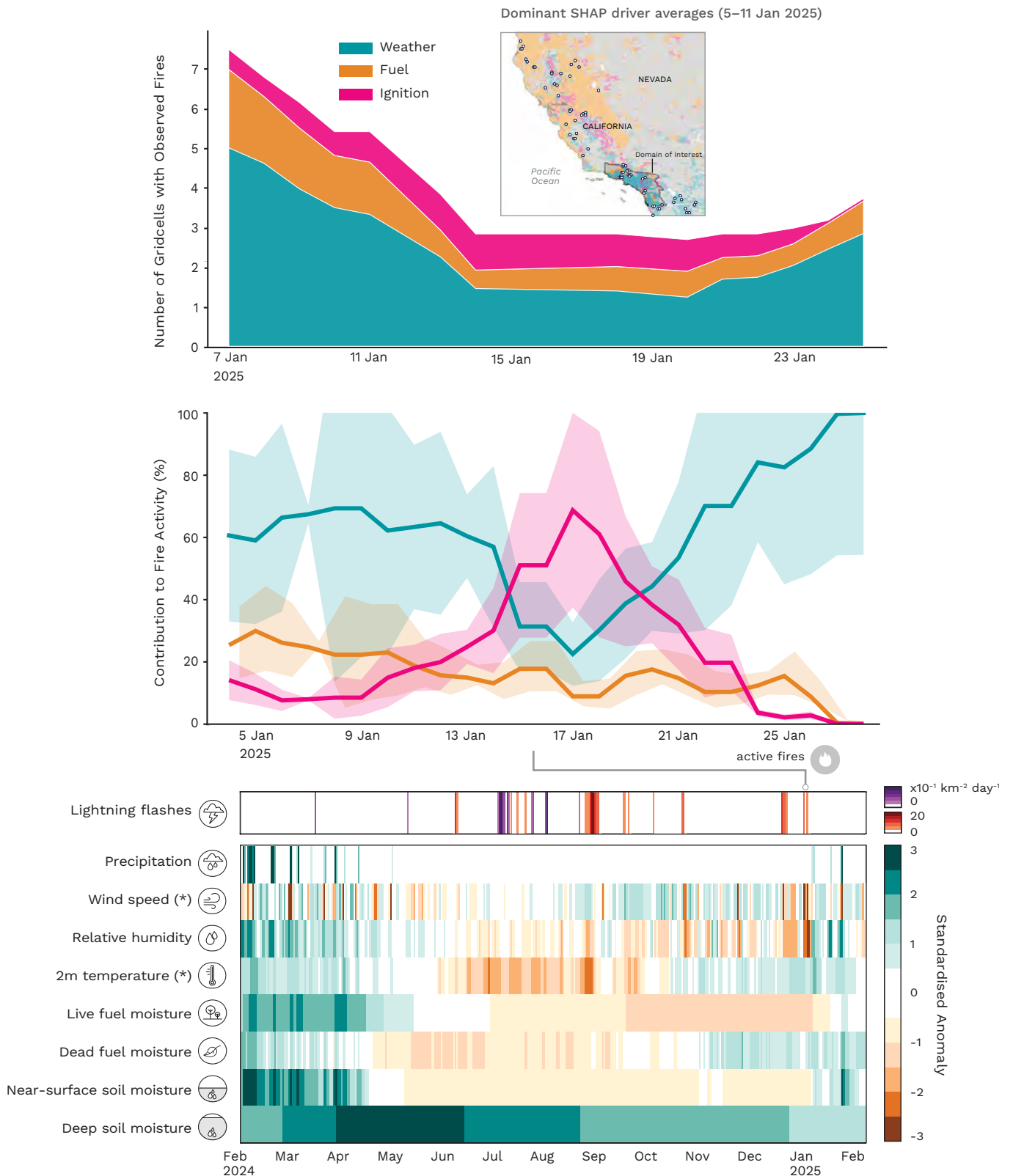


FIGURE 15

How weather, fuel, and ignitions shaped the extreme fire season in Southern California

The top panel shows the daily contribution of weather, fuel and ignition anomalies to fire activity in the region, with the values expressed in % terms in the middle panel. Anomalies in specific meteorological or climate variables contributing to unusual weather-driven fire activity are shown in the bottom panel.

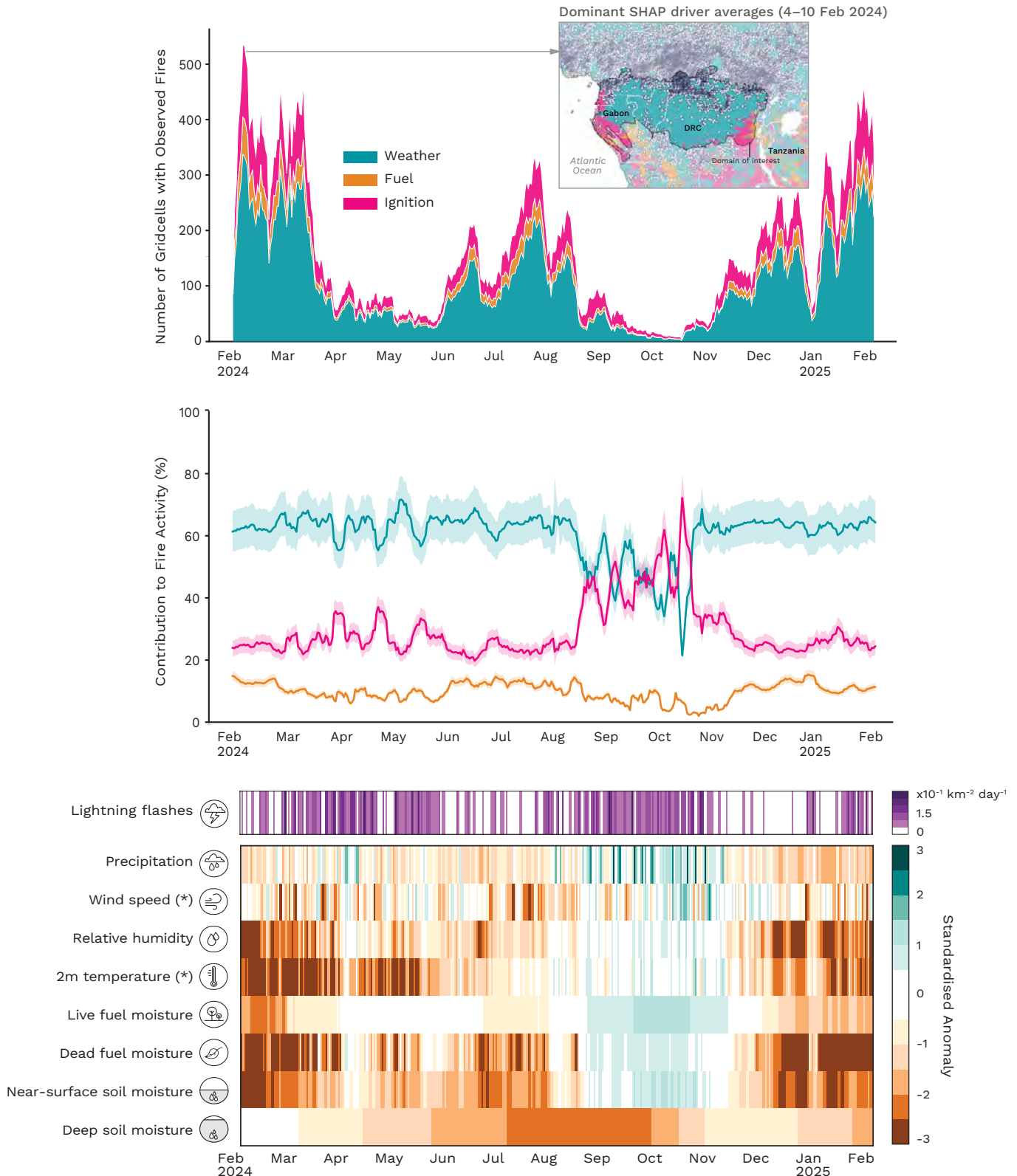


Source: State of Wildfires 2024–2025

FIGURE 16

How weather, fuel, and ignitions shaped the extreme fire season in the Congo Basin

The top panel shows the daily contribution of weather, fuel and ignition anomalies to fire activity in the region, with the values expressed in % terms in the middle panel. Anomalies in specific meteorological or climate variables contributing to unusual weather-driven fire activity are shown in the bottom panel.



Source: State of Wildfires 2024–2025

SUMMARY FOR POLICYMAKERS

Climate change made the 2024-25 fire season more extreme

The report's formal attribution analyses show that human-driven climate change increased the likelihood of extreme fire events across all four focal regions in 2024-25. The exceptionally high fire weather and levels of burning seen in these events were significantly more probable in today's climate than they would have been without anthropogenic influence.

In Northeast Amazonia, extreme fire weather during January–March 2024 was assessed as 30–70 times more likely due to anthropogenic climate forcing. The risk of burned area totals matching or exceeding those observed in the period was also 2.1 times greater due to climate change. In addition, the analyses suggest that the area burned was four times greater due to climate change. The attribution assessment found *very high confidence* that climate change increased the likelihood of the record fire season: virtually certain (>99%) for fire weather, very likely (96%) for amplification of the area affected, and likely (89%) for increased probability of the extreme burned area observed. While climate change clearly enhances the probability of events like 2024, there was no robust evidence that it increased average annual burned area between 2003–2019; instead, up to a 17% rise in annual mean burned area in that period was attributed to socioeconomic changes since the early 20th century, particularly land-use change and human ignitions.

In the Pantanal–Chiquitano, extreme fire weather in August–September 2024 was four to five times more likely because of climate change, with the risk of matching the burned area total 3.3 times higher and the area burned enhanced by a factor of approximately 34. The attribution of extreme fire weather to climate change was *virtually certain* (>99%), while amplification of both

extreme burned area and total extent was *likely* (87%). Climate change also contributed to a 10% increase in annual mean burned area during 2003–2019. Socioeconomic factors were linked to at least a doubling of burned area during years with 2024-like conditions, although other analyses indicate that land use may have reduced annual mean fire activity. This apparent contrast may reflect differences in the aspects of the fire regime being measured and underscores the need for further investigation.

In Southern California, human-caused climate change made January 2025's burned area 25 times larger than it would have been without it, and made fires on the scale seen in January 2025 around twice as likely.

Anthropogenic climate change meant the extreme events of 2024-25 were:

2.1× more likely in
Northeast Amazonia

3.3× more likely in the
Pantanal–Chiquitano

2.3× more likely in
Southern California

1.6× more likely in the
Congo Basin

TABLE 3

How did anthropogenic climate change impact fire weather conditions and regional burned area during 2024-25?

IPCC-based indicators of confidence level are also provided and cell colours are coded accordingly. A full table comparing our estimates with other published work covering Southern California is available in the *State of Wildfires 2024-25 report* (Kelley et al., 2025).

Due to anthropogenic climate change...	Northeast Amazonia (Jan.-Mar. 2024)	Pantanal-Chiquitano (Aug.-Sep. 2024)	Southern California (Jan. 2025)	Congo Basin (July 2024)
How much more likely were the fire-prone weather conditions of 2024-25? <i>5th-95th confidence range</i>	32-73 Virtually certain	4.2-5.5 Virtually certain	0.5-3.6* About as likely as not	3-8 Virtually certain
How much more likely was the fire extent observed during 2024-25? <i>Central estimate</i>	2.1 Very likely	3.3 Likely	2.3 Likely	1.6 Very likely
How much greater was the burned area during the 2024-25 event? <i>Central estimate [5th-95th confidence range]</i>	4.3 [1-25] Very likely	34 [0.8-100+] Likely	25 [0.9-100+] Likely	2.7 [1.0-3.4] Very likely

* Taken from WWA study on LA fires: <https://doi.org/10.25560/118628>

Attributions of amplified burned area extent were made with at least 89% confidence, indicating that it is likely that climate change increased the probability of the event. While we did not perform an independent attribution of fire weather, a separate [World Weather Attribution study](#) found that extreme fire weather conditions during the event were around 40% more likely due to climate change, with additional influences from prolonged drought and delayed seasonal rainfall. Climate change was also linked to a 7% increase in annual mean burned area in 2003–2019. Socioeconomic drivers did not show a clear influence on average annual burned area, although this may reflect the coarse resolution of attribution models relative to the fine-scale effects expected at the wildland–urban interface.

In the Congo Basin, extreme fire weather in July–August 2024 was three to eight times more likely due to anthropogenic climate change, with the probability of the regional burned area total observed in that period increased by around 60%, and the area burned three times greater due to climate change. Attribution found it virtually certain that climate change contributed to the fire weather conditions, very likely (92%) that it increased the widespread extent of burned area, and likely (78%) that it influenced the most extreme sub-regional events. Climate



Our reports are building unequivocal evidence of how climate change is increasing the likelihood of extreme wildfires events. Without climate change, the odds of the extreme wildfires we saw across the Americas in 2024 and 2025 would have been extremely low.”



Dr Doug Kelley
State of Wildfires Project co-lead and
Land Surface Modeller at UKCEH

change was also linked to a more than 45% increase in annual mean burned area during 2003–2019, with no robust evidence that socioeconomic change significantly altered recent fire activity in the region.

Across all four focal regions, the findings indicate that extreme burned area events such as those in 2024–25 are more likely in a warming climate and, in some cases, are further amplified by underlying long-term changes in fire regimes linked to human activity.

SUMMARY FOR POLICYMAKERS

Likelihood of extreme wildfires will rise in future, but it is not too late to mitigate

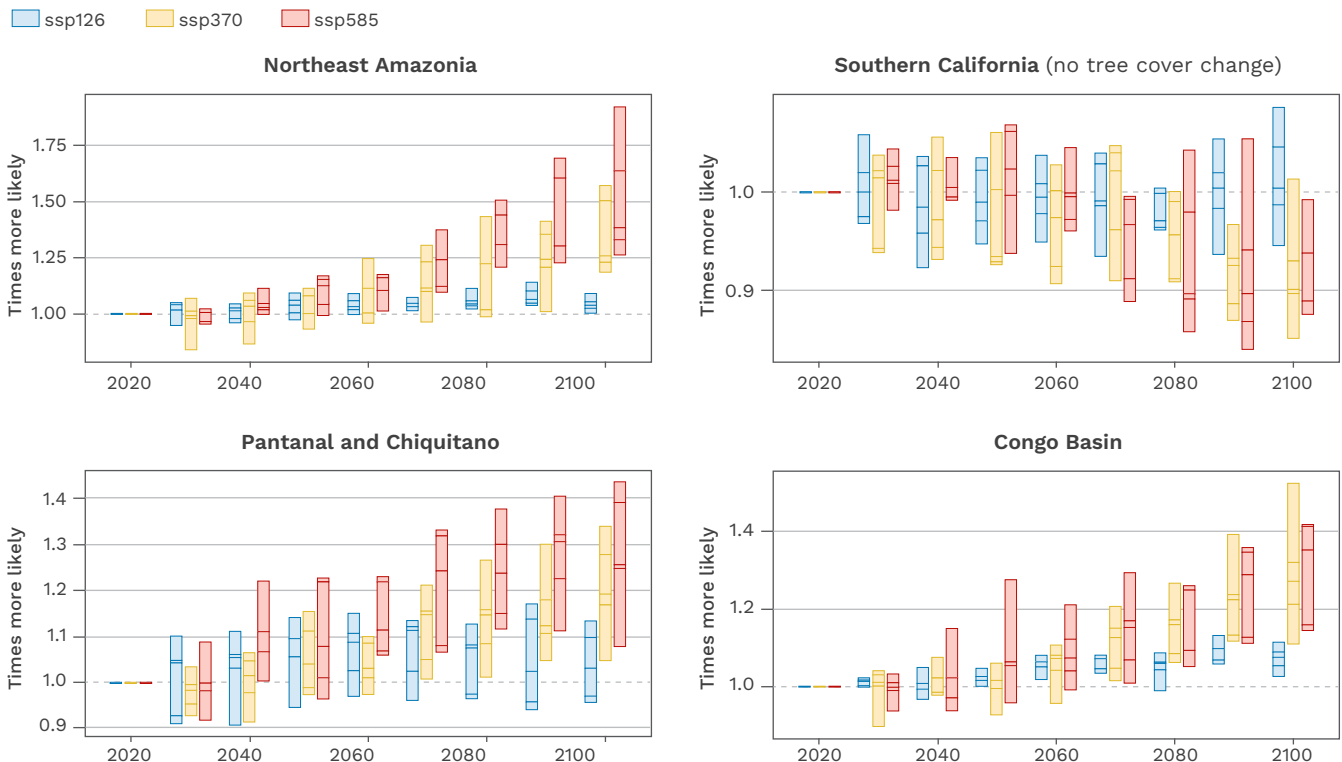
In Northeast Amazonia, under a “medium-high” emissions pathway (SSP370), the frequency of regional burned area totals matching 2024 is projected to rise by up to 57% by 2100, with the largest increases — a two-to three-fold rise — in the same sub-regions that burned most extensively in 2024. Under a no mitigation pathway (SSP585), the regional frequency nearly doubles, and the most heavily burned sub-regions could see up to a four-fold increase. In contrast, strong mitigation (SSP126) limits the regional

increase to just 9%, with no significant change in the most heavily burned areas. A person born in this region during the 1940s had a ~33–36% likelihood of experiencing at least one extreme fire episode on the scale of January–March 2024, whereas a person born in Northeast Amazonia today has a 41–55% chance of experiencing at least one 2024-scale fire season in their lifetime under SSP126, rising to 52–69% under SSP370 and 55–76% under SSP585; the odds of two or more such events are twice as high under SSP585 compared to SSP126.

FIGURE 17

Future fire scenarios for each region, by projected emissions pathway

Change in the likelihood of fires on the scale of 2024-25 fire season in future decades relative to the modern era, depending on the future emissions scenario. The coloured bars show the range of estimates for the factor increase (times more likely) in likelihood of events on the scale of 2024-25 under three scenarios of greenhouse gas emissions. SSP126 is a low-emissions scenario, SSP370 is a medium-high emissions scenario, and SSP585 is a high emissions scenario.



Source: State of Wildfires 2024-2025

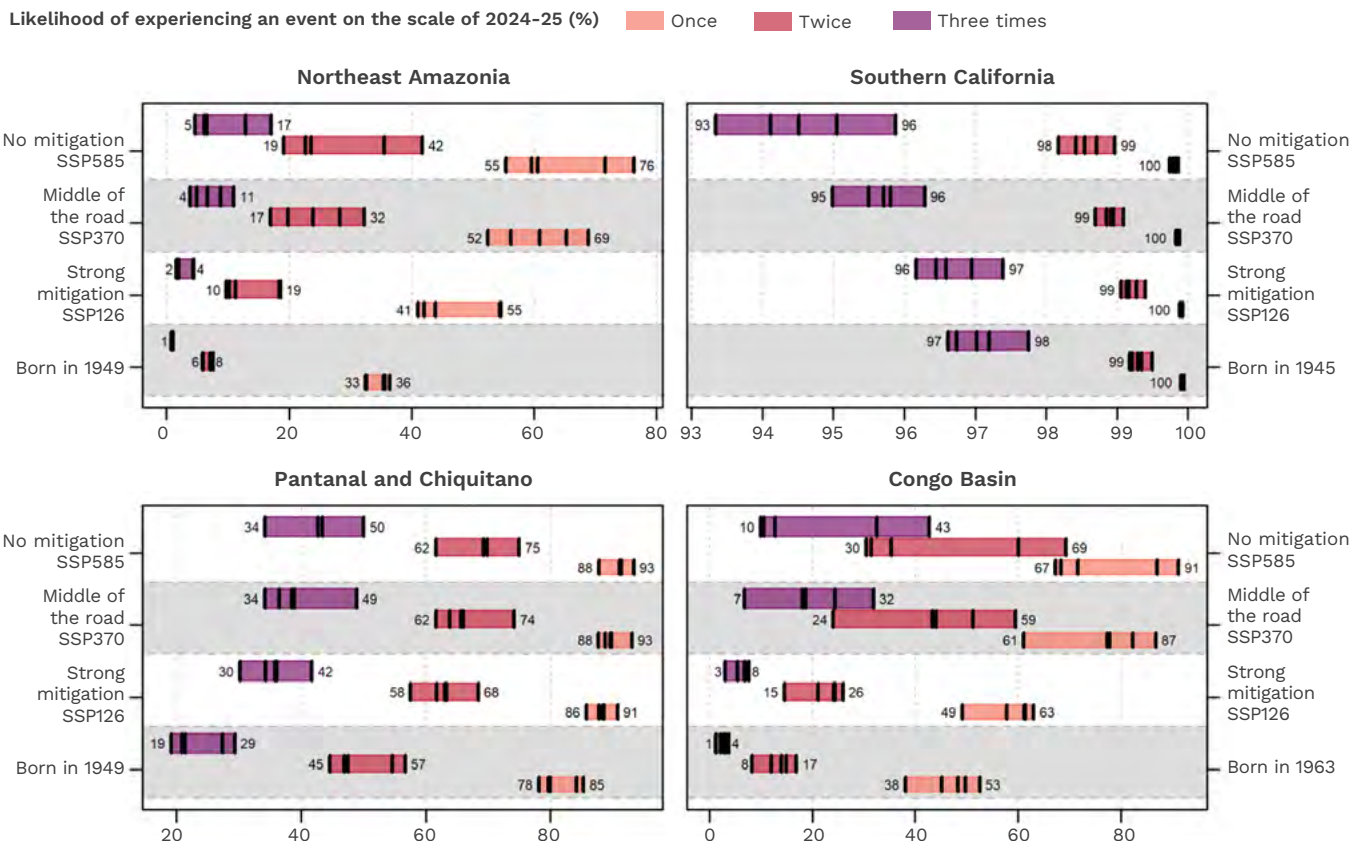
In the Pantanal–Chiquitano, SSP370 projections show up to a 34% rise in the frequency of 2024-scale events by 2100, with increases of 21–45% in the most heavily burned areas. Under SSP585, the regional rise could reach 44%, with up to 75% increases in the most affected sub-regions. SSP126 limits the regional increase to 13%, with minimal change also in the most heavily burned areas. In some sub-regions, including parts of the Chiquitano, increases could begin by the 2030s. Historically, people born in the 1940s already had a ~78–85% likelihood of experiencing a fire season like 2024; for someone born today, this rises to 86–91% even under SSP126, underscoring that while mitigation reduces future risk, adaptation, ecosystem management, and stronger fire governance will be essential to address already-elevated baseline risks.

In Southern California, projections are more uncertain. Some simulations under SSP370 and SSP585 suggest a decline in extreme fire frequency due to increased vegetation cover from CO₂ fertilisation offsetting drying trends, but this outcome is highly sensitive to vegetation–climate interactions and may be an overestimation of tree cover changes. When such vegetation effects are excluded, projections show no consistent direction of change. Regardless of modelled trends, the region remains highly exposed to destructive fire seasons. Even under scenarios suggesting a decline, most residents alive today are still likely to experience multiple 2024–25-scale fire seasons in their lifetime. This highlights the urgent need for locally tailored research, improved modelling of vegetation–fire feedbacks under climate change, and stronger adaptation measures.

FIGURE 18

Changing lifetime risk of experiencing events on the scale of 2024–25 across generations

Odds of a person experiencing an event like 2024–25 in their lifetime, for those born a lifetime ago (based on national life expectancy) versus those born today. The coloured bars show the range of estimates for the number of times a person born today will experience an event on the scale of 2024–25 during their lifetime (top three rows of each panel). The bottom panel shows the likelihood that someone born one generation ago experiencing an event of the 2024–25 fire season during their lifetime.



Source: State of Wildfires 2024–2025

In the Congo Basin, SSP370 projects a 52% regional rise in extreme fire frequency by 2100, with up to a five-fold increase in the most heavily burned sub-regions. SSP370 and SSP585 projections are similar, implying that only stronger mitigation than SSP370 can meaningfully reduce future risk. Under SSP126, the regional increase is limited to **11%, with a smaller rise (up to 42%)** in the most heavily burned areas. In Gabon, Equatorial Guinea, and central DRC, increases of two- to four-fold in extreme fire frequency are projected by

2100, in some cases beginning as early as the 2030s. A person born in this region during the 1940s had a ~38-53% likelihood of experiencing at least one extreme fire episode on the scale of July 2024. For someone born in the Congo Basin today, the chance of experiencing at least one 2024-scale fire season is 49-63% under SSP126, rising to 61-87% under SSP370 and 67-91% under SSP585; under SSP585, the chance of three such events in a lifetime could be as high as 43%, compared to just 3-8% under SSP126.



Across all focal regions, our climate models show that climate change could transform today's exceptional wildfire seasons into events occurring multiple times within a generation. However, they also show that strong climate mitigation can substantially limit the escalation of risk, particularly in tropical forest regions."



Dr Maria Barbosa
Fire Modeller at UKCEH



Where future increases in extreme fire risk are unavoidable, early adaptation — through ecosystem management, improved fire governance, and investment in community resilience and recovery support — will be critical to reducing the human and ecological toll of tomorrow's extreme wildfires."



Dr Zhongwei Liu
University of Leicester



We are working directly with communities and firefighters from the Amazon and Pantanal regions who faced devastating impacts of the fires last year. Their knowledge, experience and stories will inspire our future research."



Fiona Spuler
Doctoral Candidate at the Alan Turing Institute

SUMMARY FOR POLICYMAKERS

An eye towards the 2025-2026 fire season

Seasonal forecasts for the boreal summer of 2025 pointed to a heightened risk of extreme wildfire activity in several regions.

Fire Weather Index (FWI) outlooks show an elevated probability of anomalously fire-prone conditions across large parts of Canada, Europe (including the UK), and northeast Asia. These forecasts followed the second-warmest May on record globally — 1.4 °C above pre-industrial levels — combined with exceptional dryness and the lowest north-western European rainfall since 1871.

Events occurring since March 2025 will be the focus of next year's State of Wildfires report, but several extreme wildfire events occurring during the northern hemisphere spring and summer have already caused major and widely-reported disruption and the scientific literature has already begun to disentangle the causes.

In March 2025, fires in southeast South Korea burned more than twice the previous record area and were the deadliest on record, killing 32 people, injuring 45 people, and displacing about 37,000 residents. The [World Weather Attribution](#) group found that hot, dry and windy weather in South Korea were twice as likely due to climate change.

In June–July 2025, Türkiye experienced 624 wildfires, including 177 in July alone, which burned about 60,000 hectares. The worst-affected provinces were Izmir, Bursa, Çanakkale, Manisa, Bilecik, Hatay, and Eskişehir. More than 50,000 people were evacuated nationwide, with major cities like Izmir and Bursa facing direct threats. At least 17 people, including 10 firefighters, were killed as extreme winds fuelled the blazes. The [World Weather Attribution](#) group found that FWI values recorded in Türkiye, Cyprus and Greece were 10 times more likely due to climate change.

In summer 2025, wildfires in [Spain and Portugal](#) burned about 640,000 hectares, mostly within two weeks, including the largest individual wildfires on record in both countries. The areas burned in Portugal and Spain were 4-5 times the summertime average since European Forest Fire Information System (EFFIS) records began in 2006. Together, the Iberian fires accounted for two-thirds of Europe's one million hectares burned, the highest total since EFFIS records began in 2006. At least eight people died, while mass evacuations displaced nearly 37,000 residents across both countries. The FWI values recorded in Spain and Portugal were 40 times more likely due to climate change.



Attribution studies found that the hot, dry and windy weather that drove several extreme wildfires in 2025 in Spain, Portugal, Türkiye and South Korea have strongly increased as a result of climate change. The fire-prone weather conditions were also projected to intensify as the climate continues to warm in all these regions, reinforcing the urgent need to reduce emissions as quickly as possible to limit future warming.”



Theo Keeping

World Weather Attribution, Centre for Environmental Policy, Imperial College London

Call to action at COP30

As world leaders meet in Belém, Brazil, for the 30th Conference of the Parties (COP30) to the UN Framework Convention on Climate Change (UNFCCC), the *State of Wildfire Report* stresses the urgency of taking ambitious action on climate change.

Climate change is making extreme wildfire events larger, more intense, and far more likely to occur around the world. When extreme wildfires occur, they cause an array of impacts on lives, livelihoods, and the built and natural environments, many of which are irreversible.

In the 2024–25 fire season, the scale of these risks became clear in Brazil and across the Americas. Our results show that extreme wildfire seasons in Amazonia and the Pantanal, two key biomes of Brazil, were 2–3 times more likely due to climate change (see section “Climate change made the 2024–25 fire season more extreme”). The areas burned in the extreme wildfire seasons in Amazonia and the Pantanal were also roughly 4-fold and 34-fold larger, respectively, than they would have been without the influence of climate change.

Emissions from extreme forest fire seasons, including in Brazil, are increasing the atmospheric burden of greenhouse gases. In the 2024–25 fire season, the excess (above-average) fire emissions globally exceeded the national fossil fuel CO₂ emissions of more than 200 individual countries, primarily due to anomalously high emissions from high carbon density forests in South America and Canada. Extreme fire emissions can reduce the capacity of forests and other ecosystems to store carbon, effectively narrowing the window for additional allowable emissions if global warming targets are to be met. Policymakers need to consider how escalating fire emissions are shaping the carbon budget when planning climate mitigation strategies, alongside ongoing efforts to reduce fossil fuel emissions.



We urge world leaders at COP30 to make bold commitments to cut greenhouse gas emissions rapidly this decade. This is the single most powerful contribution that most developed nations can make to avoiding the worst impacts of extreme wildfires on living and future generations.”



Dr Matthew Jones

State of Wildfires Project co-lead and Senior Research Fellow at the Tyndall Centre for Climate Change Research at UEA



Some future wildfires are unavoidable due to the warming already committed through historical greenhouse gas emissions which must be factored into climate policy and finance. Rising fire risk threatens forests, carbon storage, and the livelihoods of Indigenous and local communities, who are disproportionately affected by losses and damages. Effective climate finance, forest preservation strategies, and adaptation planning must explicitly account for these systemic impacts to ensure that ecosystems and vulnerable communities are protected.

However, large-scale reductions in greenhouse gas emissions, compliant with the goals of the Paris Agreement, will mean that future increases in frequency and severity of fire occur at a much-reduced rate. In some regions, future increases in the likelihood of fires on the scale of the 2024-25 fire season can be limited to <15% versus modern-day levels under a low-emissions pathway (see page 38).

Hot Topics for COP30: Wildfires and Climate Policy

Carbon accounting

- In national greenhouse gas inventories, wildfire emissions on managed land are typically treated as carbon neutral over time, on the assumption that post-fire regrowth fully offsets carbon losses.
- However, the increasing frequency and severity of fires indicates a shift away from natural fire-recovery regimes, leading to net carbon losses to the atmosphere.
- Inventory methodologies and UNFCCC reporting guidelines could better capture these dynamics, ensuring that the net impact of wildfires on atmospheric CO₂ is more accurately reflected in national reporting.

Carbon projects and climate finance

- Forest carbon projects are a cost-effective and scalable mechanism for offsetting emissions. Wildfire is a risk to the permanence of some projects – a risk that can (and must) be controlled for.
- Wildfire risk should be considered in project design, independently assessed and monitored through carbon ratings and governance frameworks, and impacts mitigated through insurance and buffer pool mechanisms.



Although fire risks have already risen in many regions, decisive action can still prevent a dramatic escalation, helping to protect people, property, infrastructure, economies and biodiversity.”



Dr Maria Barbosa
Fire Modeller at UKCEH



PHOTO: ERIC GERHARDY/UNSPLASH

- Project-level risk evaluations can support effective mitigation strategies and accurate accounting of fire risk over the project lifetime.

Loss and damage

- Wildfires should be recognised explicitly in the global Loss & Damage agenda, in the same way as other climate-related hazards, to ensure recovery costs are addressed in international policy.
- Countries that have made small contributions to climate change are shouldering the costs of increased wildfire damage and impact. The UN Loss and Damage Fund should support wildfire prevention and recovery in vulnerable countries.
- The Santiago Network should provide technical assistance for fire governance, early warning systems, and community resilience in developing regions.



THE STATE OF
WILDFIRES PROJECT

State of Wildfires Representation at COP30:

*Building Resilience through Integrated
Fire Management: Policies, Early
Warning & Safeguards*

Official UNFCCC Side Event

Wednesday, 19 November 2025
13:15-14:45

*Wildfires: bridging science and local knowledge to
provide evidence for loss and damage*

UK Pavilion Side Event

Monday, 17 November 2025
14:15-15:45

Adaptation Priorities for Wildfire Resilience

A range of stakeholders are involved in delivering adaptation measures that reduce the risk of wildfires, including national and local governments, meteorological and disaster management agencies, land managers, urban planners, communities and civil society, health and emergency services, humanitarian organisations, and climate finance institutions. The priorities below highlight practical steps these stakeholders, working together, can take to build resilience and limit the impacts of extreme wildfires.



Governance and land management

- Strengthen the enforcement of environmental law to address illegal burning, deforestation, and poorly regulated land use.
- Protect and restore ecosystems in ways consistent with their natural fire regimes, to reduce the build-up of hazardous fuels.
- Implement proactive fuel management through controlled burns, forest thinning, and vegetation clearance in high-risk areas.
- Promote and invest in land management systems that maintain natural fire frequencies and intensities, and in fire-free agricultural systems, through community engagement and support.



Early warning, detection, and monitoring

- Invest in early warning systems to anticipate fire danger and improve preparedness on increasing time horizons.
- Expand real-time fire detection capabilities including by harnessing ultra high-resolution satellite monitoring.
- Monitor vegetation loads and fuel build-up systematically to identify priority danger zones and guide preventative action.



Planning and infrastructure

- Identify areas of greatest current and future fire risk, and limit the expansion of the built environment into those areas.
- Maintain safe buffers between structures and vegetation, providing defensible space around communities and critical infrastructure.
- Strengthen building standards through home hardening (e.g. fire-resistant materials and designs).



Community engagement

- Expand public education programmes to reduce accidental ignitions and promote safe behaviours.
- Support household and community preparedness measures, including evacuation planning.
- Encourage environmental stewardship and community participation in land and fire management.



Public health systems

- Strengthen monitoring and communication of wildfire smoke exposure, including real-time air quality alerts.
- Expand access to healthcare services during fire seasons, with surge capacity for respiratory and cardiovascular cases.
- Provide protective measures for vulnerable groups (e.g. masks, clean air shelters, targeted health advice).



Post-fire recovery support

- Design systems for rapid restoration of essential services, including clean water, healthcare, and shelter.
- Provide targeted support to displaced and affected communities that recognises the long-term nature of recovery.
- Integrate recovery plans into national fire governance frameworks to rebuild more safely and sustainably.

DISCLAIMER

This Summary for Policymakers synthesises the best available scientific knowledge on extreme wildfires and their global implications. It is intended to inform decision-makers and stakeholders but does not prescribe specific policies or actions. The findings, interpretations, and conclusions expressed herein are those of the authors and do not necessarily reflect the views or positions of their affiliated institutions, funding bodies, or partner organisations. Every effort has been made to ensure the accuracy and reliability of the information presented, although the authors and their institutions cannot be held responsible for any consequences arising from its use or interpretation. The *State of Wildfires Project* makes use of data and materials provided by third-party sources, including satellite and observational products, for which responsibility for accuracy and interpretation rests with the original providers. The *State of Wildfires Project* remains neutral with respect to jurisdictional claims made in the text, published maps, institutional affiliations, or any other geographical representation in this report; boundaries and place names shown do not imply endorsement or acceptance by the authors or partner institutions. This publication may be reproduced in whole or in part for non-commercial purposes, provided that full credit is given to the *State of Wildfires Project* as the source.