

THE TRUTH ABOUT WEATHER EXTREMES

What the Past Tells Us

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Review Draft

Executive summary

This report refutes the popular but mistaken belief that today's weather extremes are more common and more intense because of climate change, by examining the history of extreme weather events over the past century or so. Drawing on newspaper archives, the report presents multiple examples of past extremes that matched or exceeded anything experienced in the present-day world. That so many people are unaware of this shows that collective memories of extreme weather are short-lived.

Heatwaves of the last few decades pale in comparison to those of the 1930s – a period whose importance is frequently downplayed by the media and environmental activists. The evidence shows that the record heat of the 1930s was not confined to the US Dust Bowl, but extended throughout much of North America, as well as other countries such as France, India and Australia.

Major floods today are no more common nor deadly or disruptive than any of the thousands of floods in the past, despite heavier precipitation in a warming world (which *has* increased flash flooding). Many of the world's countries regularly experience major floods, especially China, India and Pakistan.

Severe droughts have been a continuing feature of the earth's climate for millennia, despite the brouhaha in the mainstream media over the extended drought in Europe during the summer of 2022. Not only was the European drought *not* unprecedented, but there have been numerous longer and drier droughts throughout history, including during the past century.

Hurricanes overall actually show a decreasing trend around the globe, and the frequency of landfalling hurricanes has not changed for at least 50 years. The deadliest US hurricane in recorded history, which killed an estimated 8,000 to 12,000 people, struck Galveston, Texas over 100 years ago in 1900.

Likewise, there is no evidence that climate change is causing tornadoes to become more frequent and stronger. The annual number of strong (EF3 or greater) US tornadoes has in fact declined dramatically over the last 72 years, and there are ample examples of past tornadoes just as or more violent and deadly than today's.

Wildfires are not increasing either. On the contrary, the area burned annually is diminishing in most countries. Although wildfires can be exacerbated by other weather extremes such as heatwaves and droughts, those extremes are not on the rise as stated above.

The perception that extreme weather events are increasing in frequency and severity is primarily a consequence of modern technology – the Internet and smart phones – which have revolutionised communication and made us much more aware of such disasters than we were 50 or 100 years ago. The misperception has only been amplified by the mainstream media, eager to promote the latest climate scare. And as psychologists know, constant repetition of a false belief can, over time, create the illusion of truth. But history tells a different story.

1. Introduction

The popular but mistaken belief that today's weather extremes are more common and more intense because of climate change is becoming deeply embedded in the public consciousness, thanks to a steady drumbeat of articles in the mainstream media and pronouncements by world leaders.

Even the Intergovernmental Panel on Climate Change (IPCC), whose reports had until recently served as the authority on climate science and as a voice of restraint on weather extremes, has shifted its stance. The agency now at least partially subscribes to the same belief – claiming, for the first time, that climate change is currently affecting many weather extremes all over the globe.¹

But the belief is wrong and more a perception than reality. An abundance of scientific evidence demonstrates that the frequency and severity of heatwaves, floods, droughts, hurricanes, tornadoes and wildfires are not increasing, and may even be declining in some cases. That so many people think otherwise reflects an ignorance of, or an unwillingness to look at, our past climate. Collective memories of extreme weather are short-lived.

This report examines the history of extreme weather events over the past century or so, drawing on newspaper archives to exhibit multiple examples of extremes that matched or exceeded anything we are experiencing in the present-day world.

2. Heatwaves

Recent 'heat domes' all over the globe in 2023, especially in the US, southern Europe and Asia, have only served to amplify the dogma that heatwaves are now more frequent and longer than in the past, due to climate change. But a careful look at the evidence reveals that this axiom is wrong, and that current heatwaves are no more linked to global warming than any of the other weather extremes.

It is true that a warming world is likely to make heatwaves more common. By definition, heatwaves are periods of abnormally hot weather, lasting from days to weeks. However, heatwaves have been a regular feature of Earth's climate for at least as long as recorded history, and heatwaves of the last few decades pale in comparison to those of the 1930s – a period whose importance is frequently downplayed by the media and environmental activists.

Those who dismiss the 1930s justify their position by claiming that the searing heat was confined to just a handful of the Great Plains states in the US and was caused by Dust Bowl drought. But this simply is not so. The evidence shows that the record heat of the 1930s – when the globe was also warming – extended throughout much of North America, as well as other countries such as France, India and Australia.

In the summer of 1930 two record-setting, back-to-back scorchers, each lasting 8 days, afflicted Washington, DC in late July and early August.² During that time, 11 days in the capital city saw maximum temperatures above 38°C (100°F). Nearby Harrisonburg, Virginia roasted in July and August also, experiencing its *longest heatwave on record, lasting 23 days*, with 10 days of 38°C (100°F) or more.³

In April the same year, an historic 6-day heatwave enveloped the whole eastern and part of the central US,⁴ as depicted in Figure 1. The accompanying newspaper excerpt⁵ chronicles a deadly heatwave in New York that July.

April 8-13, 1930 Historic Heat Wave

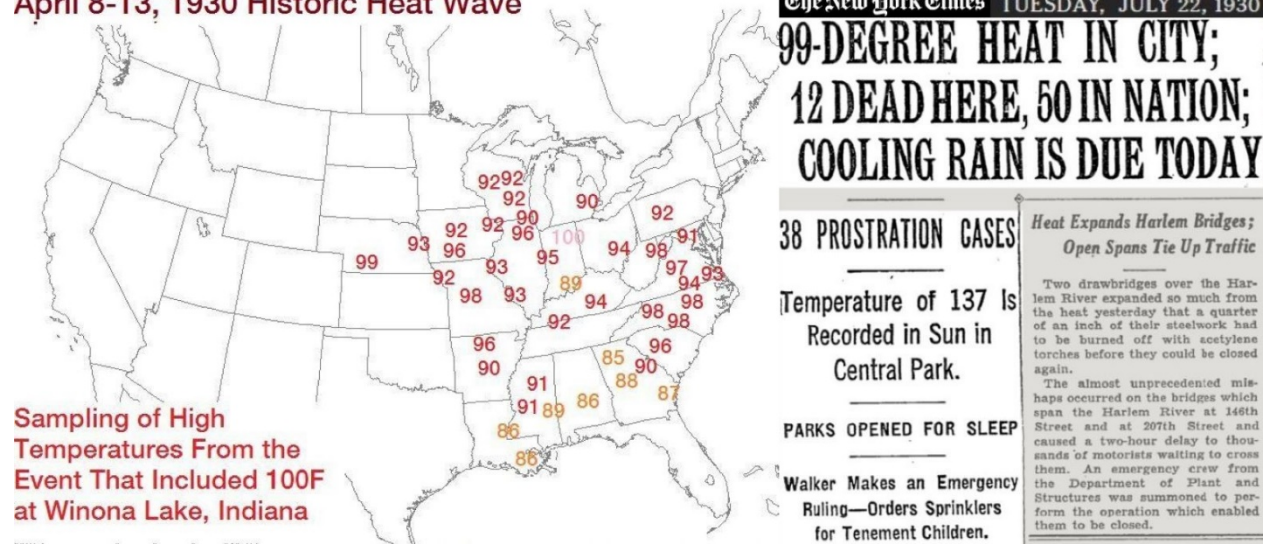


Figure 1: US heatwaves in 1930.

Left: sample maximum temperatures for selected cities in April heatwave; right: exceptionally warm July heatwave in New York city.

The hottest years of the 1930s heatwaves in the US were 1934 and 1936. Typical newspaper articles from those two extraordinarily hot years are set out in Figure 2. The article on the left, from the Western Argus,⁶ reports how the Dust Bowl state of Oklahoma in 1934 endured an incredible *36 successive days on which the mercury exceeded 38°C (100°F) in central Oklahoma*. On August 7, the temperature there climbed to a sizzling 47°C (117°F). And in the Midwest, Chicago and Detroit, both cities for which readings of 32°C (90°F) are normally considered uncomfortably hot, registered over 40°C (104°F) the same day.

TWO-THIRDS OF COUNTRY STRICKEN BY HEAT

HIGH TEMPERATURES EVERYWHERE

New York, July 28.
Two-thirds of the United States, from Wyoming to Mexico, from the Rockies eastward to the Alleghenies, have suffered average temperatures exceeding 100 degrees.

Washington officials announced today that 1,600,000 victims of the drought had become entirely dependent on emergency relief, and that the Government had spent 20,000,000 dollars (£4,000,000) in the last month.

Never before have such conditions existed. Growing crops have been parched in the fields; farmers gave up hope for planted crops, and fought to get water and feed for their livestock. Hundreds of cattle perished on the ranges. Thousands of fruit trees have perished or are dying.

Some temperature readings are almost unbelievable. In Central Oklahoma to-day it was 117 deg., being the thirty-sixth day uninter-ruptedly above 100 deg. At St. Louis it was 110 deg., the hottest day for 50 years. Chicago and Detroit regis-tered above 104 deg.

The Chicago stockyard strikers have agreed to a truce, and are attending cattle already in the yards until sold. No new arrivals will be allowed.

Depressed national railway earn-ings are a direct result of the withering shipments of cattle and grain.

VERY WARM, FORECAST MERCURY REACHES 103 NO RESPITE IN SIGHT

Will Be About 98 To-mor-
row, Weatherman
Expects



WIND TO BEACHES

Heat Prostrations Report-
ed in City—Breeze Like
Furnace Blast

At 1:28 the official thermometer
registered 103.2 degrees.

Earlier in the day the mercury had
registered 102.1.

No lower than 76 to-night and up
to 93 to-morrow was the forecaster's
far from cheering outlook at noon
to-day while the mercury was
climbing steadily near the 95 mark,
four degrees higher than it was at
noon yesterday. "Mostly fair and
very warm" was the forecast for
Friday.

The heat wave is Ontario-wide,
and ten deaths have already been
caused by it in rural parts.

A southern city wakened to-day
to find no let-up in the heat. Tem-
perature recordings at the meteor-
ological office promised to go close
to yesterday's all-time record of

GOING UP!

The maximum temperature re-
corded in the city by the meteor-
ological office to-day was 103.2 be-
tween noon and 1 p.m. It then
dropped .3 degrees to 102.9 at 1 p.m.

	To-day	Yester-
7 a.m.	81	69
8 a.m.	82	73
9 a.m.	88	78
10 a.m.	91	81
11 a.m.	93.2	88
12 noon	94.9	91
1 p.m.	102.9	96
2:28 p.m.	103.2	101.5

104.5, a full degree above the pre-
vious high of 1911.

Weary to a point of exhaustion,
men, women, children and animals
sought refuge from scorching rooms
and flocked in tens of thousands to
the waterfront. They found little
comfort there. The lake was like a
mill pond. What slight breeze there
was struck the face like a blast from
a furnace. But they clung to the
waterfront. Thousands of citizens
slept on the grass in front of Ex-
hibition park. Some brought rugs.
Some brought mattresses. This
morning the waterfront looked like
one vast dressing-room.

Fleeing from attic rooms, To-
ronto's downtown residents made
up emergency beds in their back
yards or on verandas. Old men and
women and babies suffered most.
At midnight and long after the city

(Continued on Page 2, Col. 7)

BLISTERING HEAT WAVE BREAKS ONTARIO RECORD

Egg Fried on Pavement—
Crops Scorched and High-
ways Bulged

MERCURY READINGS IN ONTARIO CITIES

Peak temperatures reported from

Figure 2: Devastating North American heatwaves in the 1930s.
Left: Oklahoma and the Midwest in 1934; right: Toronto, Ontario in 1936.

It was worse in other cities. In the summer of 1934, *Fort Smith, Arkansas recorded an unbelievable 53 consecutive days with maximum temperatures of 38°C (100°F) or higher*. Topeka, Kansas, had 47 days, Oklahoma City had 45 days and Columbia, Missouri had 34 days when the mercury reached or passed that level – all examples of data recorded for posterity in a peer-reviewed paper.⁷ Approximately 800 deaths were attributed to the widespread heatwave.

In a 13-day heatwave in July, 1936, the Canadian province of Ontario – well removed from the Great Plains where the Dust Bowl was concentrated – saw the thermometer soar above 44°C (111°F) during *the longest, deadliest Canadian heatwave on record*.⁸ The article on the right in Figure 2, from *The Toronto Daily Star*,⁹ describes conditions during that heatwave in normally temperate Toronto, Ontario’s capital. As reported:

... a great mass of the children of the poverty-stricken districts of Toronto are today experiencing some of the horrors of Dante’s Inferno.

and, in a headline,

Egg[s] Fried on Pavement – Crops Scorched and Highways Bulged

Two scenes from 1936 US heatwaves^{10, 11} are portrayed in Figure 3.



Figure 3: 1936 US heatwaves.

Left: children cooling off in New York City in July; right: ice being delivered to a crowd in Kansas City, Missouri in August.

Not only did farmers suffer and infrastructure wilt in the 1936 heatwaves, but thousands died from heatstroke and other hot-weather ailments. By some estimates, over 5,000 excess deaths from the heat occurred that year in the US and another 1,000 or more in Canada; a few details appear in the two newspaper articles on the right in Figure 4, from *The Owosso Argus-Press*¹² and *The Bend Bulletin*,¹³ respectively.



Figure 4: Deadly US heatwaves in 1936. Left: Iowa; center: Midwest; right: heatwave deaths.

The article on the left in Figure 4, from The Telegraph-Herald,¹⁴ documents the effect of the July 1936 heatwave on the Midwest state of Iowa, which endured 12 successive days of sweltering heat that resulted in 247 deaths. The article remarks that the 1936 heatwave topped the previous one in 1934, when the mercury reached or exceeded 38°C (100°F) for 8 consecutive days.

Heatwaves lasting a week or longer in the 1930s were not confined to North America; the Southern Hemisphere baked too. Adelaide on Australia's south coast experienced a heatwave at least 11 days long in 1930, and Perth on the west coast saw a 10-day spell in 1933, as described in the articles in Figure 5 from The Register News-Pictorial¹⁵ and The Longreach Leader,¹⁶ respectively.

112 Degrees In Adelaide, Hottest Day For 18 Years

WORST DAY OF LONGEST HEAT WAVE SINCE 1880

118 Degrees In East-West Express

NO CHANGE SAYS OFFICIAL FORECAST

Yesterday the temperature in Adelaide was 112.4 degrees, the highest since 1912 and less than two degrees below the highest on record.

It was the eleventh day of the heat wave, which is now the longest for 50 years. Adelaide was too hot yesterday even for trippers to go about. Everyone who sought relief at the sea had gone before the full heat of the day and the deserted streets reflected a blast that was almost unbearable.

Every metal fitting in heat or shade was hot to the touch and stone houses built to withstand heat gave shelter but no relief.

Yet there were worse places. When the East-West express passed through Immarna, out among the red sandhills, the temperature was 118.

Last night the acting Divisional Meteorologist (Mr. Newman) said that there was no sign of a cool change.

SEVEREST IN HISTORY

WEST AUSTRALIAN HEAT WAVE PERTH, Friday

For the tenth day in succession, Perth, yesterday was held in the grip of the severest heat wave in the State's history. The highest temperature yesterday was 108 degrees. Thousands of people sleep on the beaches every night. Others less fortunate, take beds into the gardens, as the houses over-heated. A young boy, aged 5 1/2, collapsed, and a show had to be abandoned.

Figure 5: Debilitating Australian heatwaves in the 1930s.

Left: Adelaide, South Australia in 1930; right: Perth, Western Australia in 1933.

HEAT WAVE

Extremes in India

RECORD OF 124 DEGREES

CALCUTTA, Thursday.

An unprecedented heat wave in southern India has taken a heavy toll. Thatch roofs ignited under the heat.

At Khammameet in Hyderabad, a record temperature of 124 degrees was registered.

A temperature of 116 was common over a wide area. Animals and birds are dying in thousands.

In Assam, on the contrary there has been heavy rain, and at Cheerapunji, the wettest place in the world, 23 inches of rain fell in one day.

HEAT-WAVE IN FRANCE.

LONDON, July 1.

A heat wave in France, particularly in the south, caused hundreds of cases of sunstroke. The shade temperature at Toulon was 104 degrees and at Montpellier 108 degrees. A number of bathers were drowned.

HEAT-WAVE IN ITALY

ROME, July 5.

A prolonged heat-wave has caused 100 deaths through sunstroke. A typhoid outbreak has also been responsible for 42 deaths.

Figure 6: Heatwaves around the world in 1935.

Top: India; center: France; bottom: Italy.

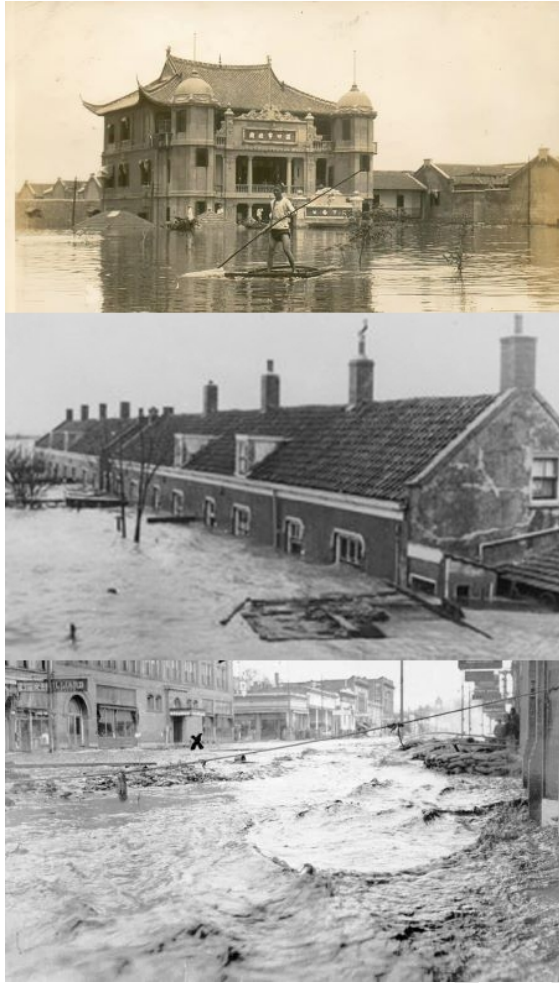
Not to be outdone, 1935 saw heatwaves elsewhere in the world. The three excerpts from Australian newspapers shown in Figure 6 recorded heatwaves that year in India, France and Italy, although there is no information about their duration; the papers were The Canberra Times,¹⁷ The Sydney Morning Herald¹⁸ and The Daily News,¹⁹ respectively. But 1935 wasn't the only 1930s heatwave in France. In August 1930, Australian and New Zealand (and presumably French) newspapers recounted²⁰ a French heatwave that month, in which the temperature soared to a staggering 50°C (122°F) in the Loire valley – besting a purported record of 46°C (115°F) set in southern France in 2019.

Many more examples exist of the exceptionally hot 1930s all over the globe. Even with modern global warming, there's nothing unusual about current heatwaves, either in frequency or duration.

3. Floods

Devastating 2022 floods in Pakistan that affected 33 million people; widespread flooding in Europe and western Canada in 2021; and a once-in-a-millennium flood the same year in Zhengzhou, China that drowned passengers in a subway tunnel: all these were trumpeted by the mainstream media as unmistakable signs that climate change has intensified the occurrence of weather extremes such as major floods.

But just as for heatwaves, there is no evidence that major floods are becoming worse or more frequent. Major floods today are no more common nor deadly or disruptive than any of the thousands of floods in the past, despite heavier precipitation in a warming world (which *has* increased flash flooding). Floods do tend to kill more people than, say, hurricanes or tornadoes, either by drowning or from subsequent famine. Yet many of the world's countries regularly experience flooding, especially China, India, Pakistan and Japan.



China has a long history of major floods going back to the 19th century and before. One of the worst was the flooding of the Yangtze and other rivers in 1931²¹ that inundated approximately 180,000 square kilometers (69,500 square miles) in central China following rainfall in July of over 610 mm (24 inches). That was a far greater area flooded than the 85,000 square kilometers (33,000 square miles) underwater in Pakistan's terrible floods in 2022, and affected far more people – as many as 53 million.

The extent of the watery invasion can be seen in the top two photos^{22, 23} of the montage in Figure 7; the bottom photo²⁴ displays the havoc wrought in the city of Wuhan. A catastrophic dike failure near Wuhan left almost 800,000 people homeless and covered the city with several meters of water for months.

Chinese historians estimate the countrywide death toll at 422,000 from drowning alone; an additional 2 million people reportedly died from starvation or disease resulting from the floods, and much of the population was reduced to 'eating tree bark, weeds, and earth.' Some sold their children to survive, while others resorted to cannibalism.

Figure 7: Disastrous Yangtze River flood in China, 1931.

The disaster was widely reported. The Evening Independent wrote in August 1931:²⁵

Chinese reports ... indicate that the flood is the greatest catastrophe the country has ever faced.

The same month, the Pittsburgh Post-Gazette,²⁶ an extract from which is shown in Figure 8, recorded how a United News correspondent witnessed:

... thousands of starving and exhausted persons sitting motionless on roofs or in shallow water, calmly awaiting death.

2,000,000 Are Feared Dead As Flood Sweeps China

(Continued From Page One.)

from the greatest catastrophe which has struck China.

The American Asiatic fleet, acting on orders from Washington, prepared to bring aid to the distressed area, but was limited because gunboats were not fitted to convey large numbers of refugees nor to transport any great quantity of supplies.

Relief Work Rushed.

Relief societies worked feverishly to aid the destitute but the tremendous need for relief surpassed their capacities. Lack of organization and transportation for food available in other parts of the country made certain that no scheme for immediate relief was likely to be effective.

In Hankow the situation in native sections was appalling. Hundreds of thousands, destitute with their little homes covered by the swirling waters, were starving. As they succumbed to hunger or disease their bodies were thrown into the Yangtze.

Some measure of relief was afforded today with announcement that the flood level appeared stationary. A survey partly reported the Han river, one of the contributing factors to the Yangtze flood, was falling.

But relentless nature must be allowed to complete her destruction of life and property with the flood waters and only after her toll of millions of lives and dollars has been taken can human endeavor step in and take what remains.

the disaster was due to the anger of the Yangtze dragon god, who took offense because the river Dragon temple was demolished recently.

Frantic mothers, many, clasp dead children to their thin breasts, had fought for scraps of food floating on the yellow water a few days ago. Today saw them sitting motionless, hardly willing to answer questions, convinced that the dragon god of their ancestors intends to wipe out Hankow and that it is useless to resist.

Spurn Aid and Rescue.

Some of them refused to accept the aid of relief parties and abruptly rejected attempts to remove them to refugee camps in the hills. They were stoic, calmly courageous in the face of disaster which they believed inescapable. In some places foul water that stretched as far as the eye could see was only a few feet deep. Thousands of families sat in it up to their waists along the Pingham railroad.

We passed along some streets where the water was 10 and 20 feet deep. Here I saw upper floors and roofs crowded with refugees, some of them foreigners whose former regard for class-lines vanished when the flood threw all together in the shadow of disaster. Other refugees floated on rafts. Some had escaped the rising water in coffins which had been washed up from burial grounds.

The conditions which I witnessed in the three sister cities, once one of the most prosperous commercial districts of China, exist in many

HANKOW, China, Aug. 23. — (United News. — Pestilence broke out in refugee camps of the flood devastated Yangtze river valley today, intensifying the suffering of hundreds of thousands in the worst disaster of China's history.


Native survivors appeared to have been so completely demoralized that they were not even willing to save themselves from the flood, which has almost wiped out the thickly populated Wu-Han area. Many thousands have died of disease and drowning and a winter famine now seems inescapable.

When the United News correspondent toured the Wu-Han district in a sampan today, visiting Hankow, Wuchang and Hanyang, thousands of starving and exhausted persons were sitting motionless on roofs or in shallow water, calmly awaiting death.

I saw few signs of activity except on the part of the military rescue forces and they were unable to arouse the survivors to co-operate in relief work or even to save themselves in many cases. A majority of the 30,000,000 persons affected by the flood have been firmly convinced that

other cities and villages up and down the river.


Only a few police or soldiers were patrolling in sampans, but officials pointed out that there is little need for such duty until the water recedes. Authorities said there must be at least 10,000 dead in Hankow alone and no burials.



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Figure 8. Newspaper report of calamitous 1931 Yangtze River flood in China.

Note: columns are not in order.

The Yangtze River flooded again in 1935, killing 145,000 and leaving 3.6 million homeless, and also in 1954 when 30,000 lost their lives, as well as more recently.²⁷ Several other Chinese rivers also flood regularly, especially in Sichuan province.

The Pakistan floods of 2022 are the nation's sixth since 1950 to kill over 1,000 people. Major floods afflicted the country in 1950, 1955, 1956, 1957, 1959, throughout the 1970s and in more recent years. Typical flood scenes²⁸ are shown in Figure 9, together with a report in the New York Times of a major flood in 1973.²⁹



Flood Situation in Pakistan Is Called 'Extremely Serious'

Special to The New York Times

KARACHI, Pakistan, Aug. 22—Rising floodwaters have now engulfed the second most populous province of Pakistan.

With the collapse of the last protective embankment on the Indus River in the province of Sindh, the situation there has become "extremely serious," according to Pakistan's Finance Minister, Dr. Mubashir Hasan, who is in charge of flood-control measures.

After overflowing an embankment near Sukkur, about 250 miles northeast of Karachi, the river inundated several towns and hundreds of villages. Preliminary reports said that at least 2 million people in the region had been made homeless.

Reports from the previously stricken and most populous province, Punjab, put the death toll there at 2,000, with many more reported missing.

Preliminary official estimates put the damage to ruined crops alone at the equivalent of \$250-million, but Dr. Hassan said that these estimates would be revised upward. Among the most badly affected crops are cotton and sugar cane. Official sources said that at least one million tons of grain had been washed away in Punjab Province, with the result that food prices have rocketed.

Railway, road and communication systems have been disrupted by the flooding of hundreds of miles of track and roads and the collapse of telephone lines.

Also in jeopardy is the famous archeological site of Mohenjo-Daro—Bil of the Dead—in the Larkana district of Sindh Province. Only recently an international symposium was held in Pakistan to consider ways to protect the 5,000-year-old site, which contains



The New York Times/Aug. 23, 1973
Rising waters overflowed bank near Sukkur (cross).

the remains of one of the twin cities of the Indus Valley Civilization.

Six United States helicopters flew here today to help in relief operations, following the arrival of an American transport aircraft. Britain and Iran are also rushing in aid.

Pope Advocates Return To Old Chants in Mass

Special to The New York Times

ROME, Aug. 22—Pope Paul VI today advocated a return to traditional Latin and Gregorian chants in the Roman Catholic liturgy.

"Many have asked that in all nations the Latin and Gregorian chants of the Gloria, the Credo, the Sanctus and the Agnus Dei be preserved," he said during a general audience at his summer residence near here. "God grant that it be so. We must study how."

The Pontiff's remarks suggested a reversal of church policy since the Ecumenical Council Vatican II (1962-65). At that time the use of modern languages was approved in an effort to simplify and modernize the mass.

Figure 9. Devastation from historical floods in Pakistan, 1950s and 1970s. Left: flood scenes; right: newspaper report, August 23, 1973.

Monsoonal rains in 1950 led to flooding that killed an estimated 2,900 people across the country and caused the Ravi River in northeastern Pakistan to burst its banks; 10,000 villages were decimated and 900,000 people made homeless.

In 1973, one of Pakistan's worst-ever floods followed intense rainfall of 325 mm (13 inches) in Punjab (which means five rivers) province, affecting more than 4.8 million people. The Indus River – of which the Ravi River is a tributary – became a swollen, raging torrent 32 km (20 miles) wide, sweeping 300,000 houses and 70,000 cattle away. 474 people perished.

In an area heavily dependent on agriculture, 4.3 million bales of the cotton crop and hundreds of millions of dollars worth of stored wheat were lost. Villagers had to venture into floodwaters to

cut fodder from the drowned and ruined crops in order to feed their livestock. Another New York Times article on the 1973 flood reported the plight of flood refugees:³⁰

In Sind, many farmers, peasants and shopkeepers fled to a hilltop railway station where they climbed onto trains for Karachi.

Monsoon rainfall of 580 mm (23 inches) just three years later in July and September of 1976, again mostly in Punjab province, caused a flood that killed 425 and affected another 1.7 million people. It is worth noting here that the 1976 deluge far exceeded the 375 mm (15 inches) of rain preceding the massive 2022 flood in Pakistan, although both inundated approximately the same area. The 1976 flood affected a total of 18,400 villages.

A shorter yet deadly flood struck the coastal metropolis of Karachi the following year in 1977, after 210 mm (8 inches) of rain fell on the city in 12 hours. Despite its brief duration, the flood drowned 848 people and left 20,000 homeless. That same year, the onslaught of floods in the country prompted the establishment of a Federal Flood Commission.

Figure 10 shows the annual number of flood fatalities in Pakistan from 1950 to 2012, which includes flood drownings from cyclones as well as monsoonal rains.

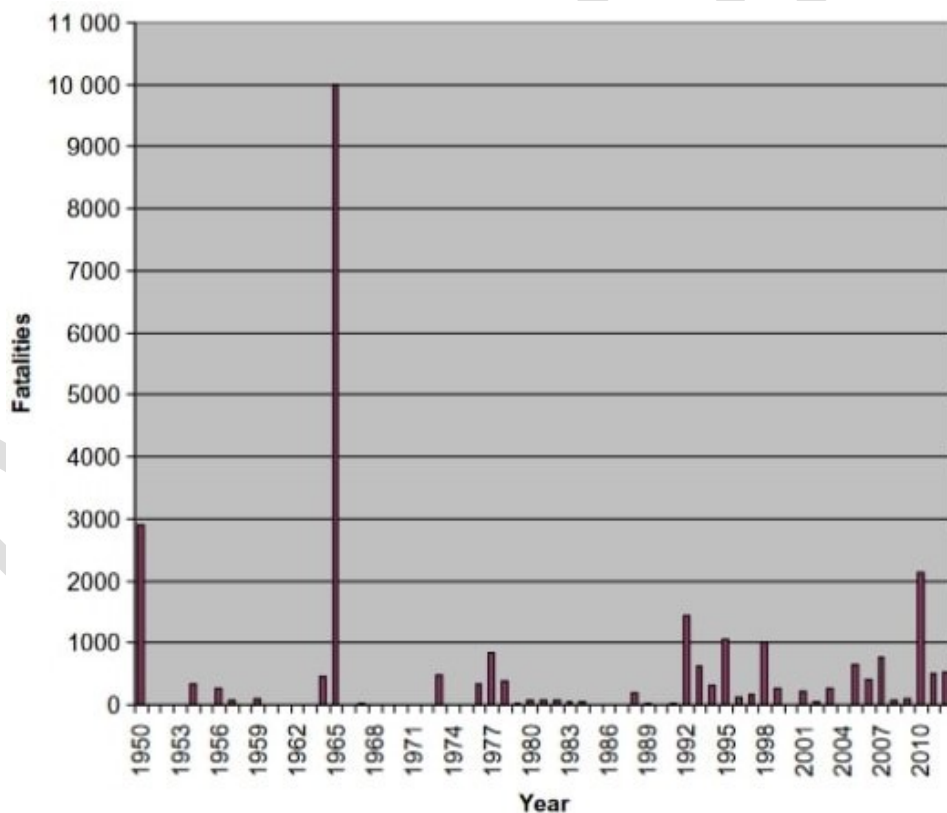


Figure 10. Annual number of deaths from major floods in Pakistan, 1950 to 2012.

Source: M.J. Paulikas and M.K. Rahman.³¹

4. Droughts

Severe droughts have been a continuing feature of the earth's climate for millennia, despite the brouhaha in the mainstream media over the extended drought in Europe during the summer of 2022. Not only was the European drought *not* unprecedented, but there have been numerous longer and drier droughts throughout history, including during the past century.

Because droughts typically last for years or even decades, their effects are far more catastrophic for human and animal life than those of floods which usually recede in weeks or months. The consequences of drought include crop failure, starvation and mass migration. As with floods, droughts historically have been most common in Asian countries such as China and India.

One of most devastating natural disasters in Chinese history was the drought and subsequent famine in northern China from 1928 to 1933.³² The drought left 3.7 million hectares (9.2 million acres) of arable land barren, leading to a lengthy famine exacerbated by civil war. An estimated 3 million people died of starvation, while Manchuria in the northeast took in 4 million refugees.

Typical scenes from the drought are shown in Figure 11,^{33, 34} along with a newspaper excerpt from The New York Times.³⁵



Figure 11. Severe drought in China, 1928-33.

Top photo: three starving boys abandoned by their families in 1928 and fed by the military authorities; bottom photo: famine victims in the city of Lanzhou; right: newspaper report.

The full duration of the drought was extensively covered by The New York Times. In 1929, a lengthy article³⁶ reported that relief funds from an international commission could supply just one meal daily to:

only 175,000 sufferers out of the 20 million now starving or undernourished.

and ... missionaries report that cannibalism has commenced.

A 1933 article, excerpted in Figure 11, chronicled the continuing misery four years later:

Children were being killed to end their suffering and the women of families were being sold to obtain money to buy food for the other members, according to an official report.

Drought has frequently afflicted India too. One of the worst episodes was the twin droughts of 1965 and 1966-67, the latter in the eastern state of Bihar. Although only 2,350 Indians died in the 1966-67 drought, it was only unprecedented foreign food aid that prevented mass starvation. Nonetheless, famine and disease ravaged the state, and it was reported that as many as 40 million people were affected.

Particularly hard hit were Bihar farmers, who struggled to keep their normally sturdy plow-pulling bullocks alive on a daily ration of 2.7 kilograms (6 pounds) of straw. As reported in the April 1967 New York Times article³⁷ in Figure 12, a US cow at that time usually consumed over 11 kilograms (25 pounds) of straw a day. A total of 11 million farmers and 5 million laborers were effectively put out of work by the drought. Crops became an issue for starving farmers too, the same article stating that:

An official in Patna said confidently the other day that 'the Indian farmer would rather die than eat his seed,' but in village after village farmers report that they ate their seed many weeks ago.

India's Famine Wiping Out Jobs on Farms

GROWERS IN BIHAR USE SEEDS AS FOOD

Plov Animals Grow Weak,
Endangering Fall Harvest
Even if Rains Come

By J. ANTHONY LUKAS
Special to The New York Times

SADUALI, India — A saffron flag still drifts in the wind over the home of Raj Karan Bhanu, a Hindu holy man, in his village of Bihar State. But the big brick house and its adjoining 45 acres are empty.

"The holy man went to the city three months ago," the people of Saduali explain. "He said he couldn't rescue the crop, and he had duties to perform."

For eight families here, the holy man's precipitate departure has proved disastrous. They are former "untouchables" landless and accustomed to working his land. Now they have no way to earn a living. Some have recently migrated to a neighboring district in search of work.

Some landed farmers in Bihar have shown more concern for their interests in this year of drought and famine, if only out of self-interest.

"If all our people migrate or die off," a Rajput farmer explained, "we'll have nobody to till the fields if the rains do come this summer."

In Sondaha Villa, Aktar Ali Khan, a Moslem farmer with 150 acres, has kept 10 families working on essentially make-work projects for four months.

But with few spring crops in Bihar this year, most of the states 5 million landless laborers and many of the 11 million farmers have had no work in recent months.

The state government has stepped up work-relief projects, chiefly construction of dams and reservoirs to hold water if the rains come.

Relief Plan Falls Short

But the work-relief program has been lagging. At one time the government planned to have a million and a half people on work relief by the end of May, but by March there were only 675,000 at work.

Moreover, if the monsoon comes in June, even the relief projects now under way will have to cease for several months because, as one official has said, "You can't move mud."

This will create an acute problem. In normal years, once the monsoon starts, most landless laborers return to work for farmers with land, helping to plant the fall crop. But this



To stave off mass cattle starvation, Government and private agencies are setting up feeding stations, such as this one, where animals are given six pounds of straw a day.

have in some cases foundered too for lack of government support. After one team drilled 70 wells in the Chatra area, the government promised to install pumps on the completed wells; only 8 or 10 pumps have been installed so far.

In food relief, however, private operations have been more effective. In fact, P. K. J. Meason, the Indian Government's special representative in Bihar, has remarked, "If we are able to avert mass famine it will be due largely to the efforts of the private relief groups."

At least 11 private agencies—including the Cooperative for American Relief Everywhere (Care), the Indian Red Cross and Catholic Relief Services—are working in Bihar.

The strategy of the voluntary agencies is to care for the most "vulnerable" segments of the population—particularly children under the age of 14, pregnant women, nursing mothers, the elderly, the infirm and remote villages unreached by Government programs and "fair price" shops.

5 Ounces a Day

CARE is shouldering the biggest load—a daily feeding program for three million children, and nursing mothers and pregnant women. William Bault, the agency's administrator, says the total will soon reach six million a day.

The CARE midday meal—four ounces of grain and an ounce of milk—was designed as only a "supplemental ration," Mr. Bault said. "When we began the program, we assumed that the children would be getting something else to eat at



Villagers in the Gaya district of Bihar dig for water. They force a pipe into the ground, then put another pipe through the first one and drive both deeper until they reach water. The entire operation may take one month.

Figure 12. Famine following drought in India, 1966-67.

The US, like most countries, is not immune to drought either, especially in southern and southeastern states. Some of the worst droughts occurred in the Great Plains states and southern Canada during the Dust Bowl years of the 1930s.

But worse yet was a 7-year uninterrupted drought from 1950 to 1957,³⁸ concentrated in Texas and Oklahoma but eventually including all the Four Corners states of Arizona, Utah, Colorado and New Mexico, as well as eastward states such as Missouri and Arkansas. For Texas, it was the most severe drought in recorded history. By the time the drought ended, 244 of Texas' 254 counties had been declared federal disaster areas.

Desperate ranchers resorted to burning cactus, removing the spines, and using it for cattle feed. Because of the lack of adequate rainfall, over 1,000 towns and cities in Texas had to ration the water supply. The city of Dallas opened centers where citizens could buy cartons of water from artesian wells for 50 cents a gallon, which was more than the cost of gasoline at the time.

Shown in the photo montage in Figure 13 are various scenes from the Texas drought.^{39, 40, 41} The newspaper articles on the right are from The West Australian in 1953 ('Four States In America Are Hit By Drought')⁴² and The Montreal Gazette in 1957.⁴³



photo courtesy of bacougars66.com



Four States In America Are Hit By Drought

WASHINGTON, Thurs.—The States of Texas, Oklahoma, Arkansas and Louisiana are experiencing the longest and most widespread drought in their history.

Crops have been scorched and cattle are starving.

Heat records are being broken daily in areas that have had little rain for weeks.

The Federal Government is considering farmers' pleas for help and will begin an investigation today to determine whether emergency measures are necessary.

Many farmers are reported to be without stock feed and say that the price of fodder shipped in is too high in relation to cattle prices.

They contend that unless help of some sort is provided, they will have to dump cattle on markets.

The Agriculture Committee of the House of Representatives will meet today to discuss the possibility of emergency legislation.

Dallas, Tex., Aug. 11 —(AP)—The weather-battered southwestern states, whose parched scars are being slowly covered by the first real crops and grass in years, are again anxiously scanning the treacherous skies.

There has been no happy medium to the area's weather.

In the last seven months the region has been swept from one of the worst droughts in its history through a succession of destructive blizzards, dust storms, tornadoes, cloudbursts and floods to what some fear may be the hint of another drought.

"Whatever it is," said one grizzled rancher, "we got too much of it."

Many crops in the southwestern states are again feeling the water pinch. Some farmers are finding their cotton progressing slowly as the roots seek moisture in the dry soil. Corn crops are often stunted from lack of water. This is beginning to look remarkably like the southwest of last year — a land of famine and debt.

When President Eisenhower flew to the region in January he found vast areas devastated by drought from Arizona and Utah eastward into Missouri.

Twenty-nine million acres — nearly twice the area of the old dust bowl of the mid-1930s — in Texas, Oklahoma, New Mexico, Colorado, Kansas and Nebraska had suffered wind erosion damage.

Many ranchers had been forced to sell off all cattle except a few foundation head. Farmers told of going three and four years without making a single crop.

Abandoned farm houses and fences, buried by soil from denuded fields, told the story of a land that had gone too long with too little water.

Figure 13. Texas drought, 1950-57.

Top photo: stranded boat on dry lakebed; center photo: car being towed after becoming stuck in parched riverbed; bottom photo: once lakeside cabins on shrinking Lake Waco; right: newspaper excerpts.

Reconstructions of ancient droughts using tree rings or pollen as a proxy reveal that historical droughts were even longer and more severe than those described here, many lasting for decades — so-called megadroughts. This can be seen in Figure 14, which shows the pattern of dry and wet periods in drought-prone California over the past 1,200 years. Although the third-driest period in the 1100s and the fifth driest period in the 1200s both occurred during the Mediaeval Warm Period, the driest (1500s) and fourth-driest (800s) periods of drought occurred during relatively cool epochs.

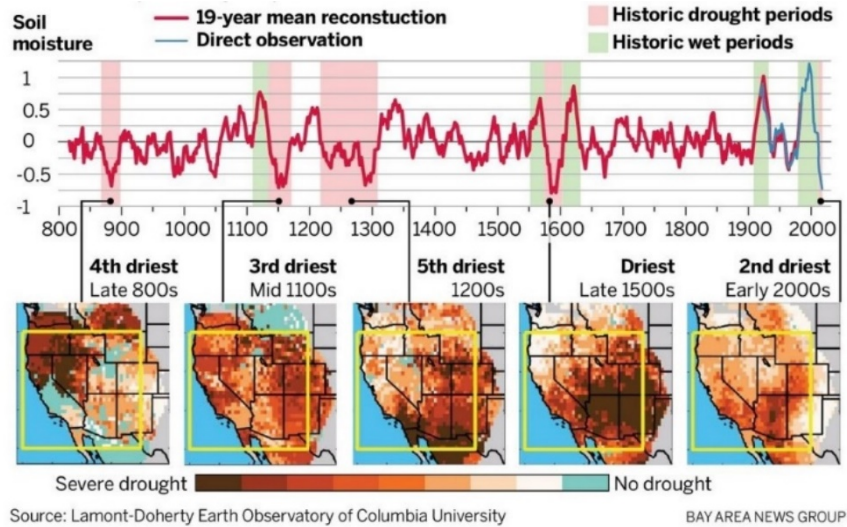


Figure 14. Historical droughts in California, 800 to 2010.

Source: Lamont-Doherty Earth Observatory, Columbia University.⁴⁴

5. Hurricanes

Popular opinion would have one believe that hurricanes are on the rise. But hurricanes overall actually show a decreasing trend around the globe, and the frequency of landfalling hurricanes has not changed for at least 50 years. So these powerful tropical cyclones, which all too dramatically demonstrate the fury nature is capable of unleashing, cannot be linked to global warming.

The deadliest US hurricane⁴⁵ in recorded history struck Galveston, Texas in 1900, killing an estimated 8,000 to 12,000 people. Lacking a protective seawall built later, the thriving port was completely flattened by winds of 225 km per hour (140 mph) and a storm surge exceeding 4.6 meters (15 feet). With almost no automobiles, the hapless populace could flee only on foot or by horse and buggy. The extent of the devastation can be seen in the photo⁴⁶ in Figure 15, which also shows early headlines about the disaster in The Nevada Daily Mail.⁴⁷ Reported the newspaper at the time:

Residents [were] crushed to death in crumbling buildings or drowned in the angry waters.



Figure 15. Galveston Hurricane, 1900.
 Left: Early newspaper report; right: men using ropes to remove debris in order to look for bodies.

Hurricanes have been a fact of life for Americans in and around the Gulf of Mexico since Galveston and before. The death toll has fallen over time with improvements in planning and engineering to safeguard structures, and the development of early warning systems to allow evacuation of threatened communities.

Nevertheless, the frequency of North Atlantic hurricanes has been essentially unchanged since 1851, as shown in Figure 16. The apparent heightened hurricane activity over the last 20 years, particularly in 2005 and 2020, simply reflects improvements in observational capabilities since 1970 and is unlikely to be a true climate trend, say a team of hurricane experts.⁴⁸ The incidence of *major* North Atlantic hurricanes in recent decades is no higher than that in the 1950s and 1960s, when the earth was actually cooling, unlike today.

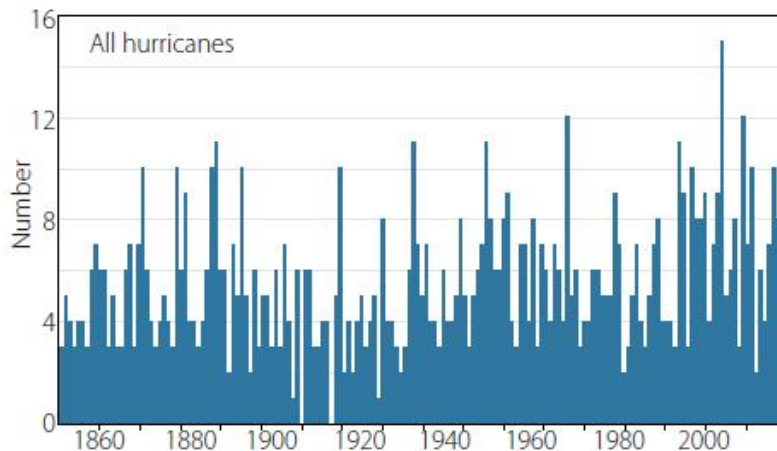


Figure 16. Annual number of North Atlantic hurricanes, 1851–2020.
 Source: NOAA Hurricane Research Division⁴⁹ and Paul Homewood.⁵⁰

One of the strongest US hurricanes in the active 1950s and 1960s was Diane in 1955, which walloped the North Carolina coast before moving north through Virginia and Pennsylvania, and then ending its life as a tropical storm off the coast of New England. Although its winds had dropped from 190 km per hour (120 mph) to less than 55 km per hour (35 mph) by that stage, it spawned rainfall of 500 mm (20 inches) over a two-day period there, causing massive flooding and dam failures (Figure 17).⁵¹ An estimated 200 people died. In North Carolina, Diane was but one of three hurricanes that struck the coast in just two successive months that year.



Figure 17. Hurricane Diane, 1955.

During those two decades, the deadliest hurricane was 1963's Flora that cost nearly as many lives as the Galveston Hurricane. Hurricane Flora did not strike the US but made successive landfalls in Tobago, Haiti and Cuba, reaching peak wind speeds of 320 km per hour (200 mph). In Haiti a record 1,450 mm (57 inches) of rain fell – comparable to what Hurricane Harvey dumped on Houston in 2017 – resulting in landslides which buried whole towns and destroyed crops. Even heavier rain, up to 2,550 mm (100 inches), devastated Cuba and 50,000 people were evacuated from the island, according to a newspaper article in *The Sydney Morning Herald*.⁵² Figure 18 shows Flora's path⁵³ (bottom) together with the full article.

Hurricane Death Toll Soars To 4,000 In Haiti

PORT au PRINCE, October 8 (A.A.P.).—Haiti's President Duvalier today proclaimed a "national disaster" as the hurricane Flora death toll in the Negro republic soared to 4,000.

The President's proclamation coincided with an announcement by the Health Minister, Mr G. Philippeaux, that the hurricane had left between 50,000 and 100,000 Haitians homeless.

Early today, the U.S. Weather Bureau warned that Flora, which today pounded Cuba for the fifth consecutive day, would threaten the Bahamas and Florida if it resumed its northerly course.

Mr Philippeaux said today that Haiti's southern peninsula had borne the brunt of the screaming winds.

Two-fifths of the republic's land area had been devastated by the hurricane.

Many Haitians lived in flimsy huts and much of the damage had been caused by huge floods pouring down the mountains as well as by the violent winds.

Mr Philippeaux said some people in devastated rural areas were starving.

Reports from Haiti which shares the island of Hispaniola with the Dominican Republic, have been fragmentary because there is no telephone outside Port au Prince, the capital, and country roads were made impassable by the storm.

Evacuations In Cuba

The republic's population is about four million with the highest density in Central America.

Meanwhile, Havana Radio mentioned in Miami, said

at least 11 people had been killed by the hurricane in Cuba and 50,000 people had been evacuated.

The radio said the Cuban Prime Minister, Dr Castro, would not be able to go to Algeria soon, as he had planned, because of the hurricane problem.

Beef and vegetable rations for Havana citizens are to be cut by half.

Helicopters and boats are ferrying emergency supplies to scores of Cuban communities isolated by floods.

Rivers Break Banks

All of Oriente Province's 15 rivers were reported to have broken their banks.

Calls for vaccines to avoid epidemics came into Havana from Mayori and Preston on the North Oriente coast.

Both areas reported they were flooded, isolated and without drinking water.

Cuban broadcasts heard in Miami said more than 10,000 people were removed from Camaguey City, capital of Camaguey Province.

At least 17 deaths occurred in Tobago which felt the first blows of Hurricane Flora a week ago.

It was reported today that the United States had dispatched an aircraft-carrier to Haiti to aid in surveying the damage caused by Flora.

The American Red Cross sent disaster specialists with its units to determine the type of outside aid needed most urgently.

The U.S. State Department said the carrier Lake

Champlain left the Guantanamo naval base in Cuba early today for Haiti.

In Washington, the American Red Cross today offered to send supplies and disaster workers to Cuba to take part in relief operations.

Earlier, a spokesman for the State Department said that, while the Red Cross might help in hurricane relief in Cuba, there were no plans for assistance by the U.S. Government.

Meanwhile, floods following the highest recorded rainfall of the century in Jamaica have caused damage which may total millions of pounds.

"Now Is Time To Strike"

MIAMI, Oct. 8 (A.A.P.). — Hurricane Flora could mean the downfall of Cuba's Castro regime, Cuban exiles predicted today.

It could lead to this by devastation of the island's economy through the ruination of crops, the exiles said.

Several exile leaders urged action in the wake of the hurricane's blow.

Mr Germinal Rivaza, of the Junta Revolucionaria, said:

"Now is the time to



Figure 18. Hurricane Flora, 1963.

A few years before in 1960, less deadly Hurricane Donna had moved through Florida with peak wind speeds of 285 km per hour (175 mph) after pummeling the Bahamas and Puerto Rico. A storm surge of up to 4 meters (13 feet) combined with heavy rainfall caused extensive flooding all across the peninsula⁵⁴ (Figure 19). On leaving Florida, Donna struck North Carolina, still as a Category 3 hurricane (top wind speed 180 km per hour or 110 mph), and finally Long Island and New England. The US National Oceanic and Atmospheric Administration (NOAA) calls Donna ‘one of the all-time great hurricanes’.⁵⁵



Figure 19. Hurricane Donna, 1960.

Florida has been a favorite target of hurricanes for more than a century. Figure 20 depicts the frequency by decade of all Florida landfalling hurricanes and major hurricanes (Category 3, 4 or 5) since the 1850s. While major Florida hurricanes show no trend over 170 years, the trend in Florida hurricanes overall is downward – even in a warming world.

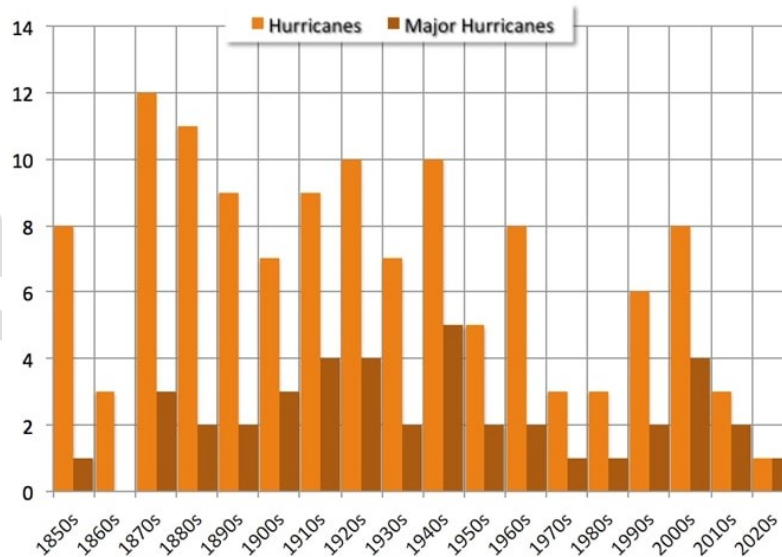


Figure 20. Number of Florida landfalling hurricanes by decade, 1850–2020.

Source: Joseph D’Aleo.⁵⁶

Hurricane Camille in 1969 first made landfall in Cuba, leaving 20,000 people homeless. It then picked up speed, smashing into Mississippi as a Category 5 hurricane with wind speeds of approximately 300 km per hour (185 mph); the exact speed is unknown because the hurricane's impact destroyed all measuring instruments. Camille generated waves in the Gulf of Mexico over 21 meters (70 feet) high, beaching two ships⁵⁷ (Figure 21), and caused the Mississippi River to flow backwards. A total of 257 people lost their lives, The Montreal Gazette⁵⁸ reporting that workers found:

a ton of bodies ... in trees, under roofs, in bushes, everywhere.

Review Draft

'Ton of bodies' found after Camille

PASS CHRISTIAN, Miss. — (Reuters) — Searchers near this hurricane devastated Gulf Coast town said they found a "ton of bodies" since daylight as Gov. John Iltis toured the area with John E. Davis, national director of Civil Defence.

The dead in the wake of Hurricane Camille have reached at least 245. But a spokesman for the Seabee Battalion leading cleanup operations here said workers found "many more bodies in trees, under roofs, in bushes, everywhere."

The governor took personal charge of the situation and set up a temporary state capital at Gulfport, Miss., to help begin co-ordination of federal, state and local efforts.

Torrential rains and floods in parts of Virginia since Tuesday night have resulted in an appeal for the James River Valley to be declared a federal disaster area.

The office of Gov. Mills E. Godwin Jr. said that about 2,000 homes and businesses and the corn crop in the Virginia Valley have been

affected by the storm.

Camille has now moved out over the Atlantic and is of primary concern to North Atlantic shipping.

Both Camille and Hurricane Debbie are expected to come within about 150 miles of the island of Bermuda, the national hurricane centre in Miami reported.

Bermuda should escape with just passing squalls although gale force winds will be very close to the island.

Debbie has defied 10 attempts of seeding, or dropping silver iodide into the eye of the storm. This process was to have dissipated the storm's energy by causing its moisture to coagulate around the crystals and drop into the ocean.

In Bermuda, all military aircraft are being evacuated to the east coast of the island until the danger passes. However, hurricane-experienced islanders in Hamilton claim the winds from Debbie and Camille, estimated to hit Bermuda at about 50-60 miles an hour, are no more dangerous than winter storms.



Figure 21. Hurricane Camille, 1969.

These are just a handful of hurricanes from our past, all as massive and deadly as Category 5 Hurricane Ian, which in 2022 deluged Florida with a storm surge as high as Galveston's and rainfall up to 685 mm (27 inches); 156 were killed. Hurricanes are not on the rise today.

6. Tornadoes

After a flurry of tornadoes swarmed the central US in March 2023, the media quickly fell into the trap of linking the surge to climate change, as often occurs with other forms of extreme weather. But there is no evidence that climate change is causing tornadoes to become more frequent and stronger, any more than hurricanes are increasing in strength and number.

Indeed, there are ample examples of past tornadoes just as or more violent and deadly than today's, but conveniently ignored by believers in the narrative that weather extremes are becoming more common.

Like hurricanes, tornadoes are categorized according to wind speed, using the Fujita Scale going from EF0 to EF5 (F0 to F5 before 2007); EF5 tornadoes attain wind speeds up to 480 km per hour (300 mph). More terrifying than hurricanes because they often arrive without warning, tornadoes also have the awesome ability to hurl cars, structural debris, animals and even people through the air.

In the US, tornadoes cause about 80 deaths and more than 1,500 injuries per year. The deadliest episode of all time in a single day was the 'tri-state' outbreak in 1925,⁵⁹ which killed over 700 people and resulted in the most damage from any tornado outbreak in US history. The photo montage in Figure 22 shows one of the tornadoes observed in Missouri, Illinois and Indiana that day⁶⁰ and some of the havoc it caused.^{61, 62}

Unlike the narrow path of most tornadoes, the swath of destruction wrought by the main F5 tornado was up to 2.4 km (1.5 miles) wide. Amazingly, the ferocious storm persisted for a distance of 353 km (219 miles) in its 3 ½-hour lifetime. Together with smaller F2, F3 and F4 tornadoes, the F5 tri-state tornado destroyed or almost destroyed numerous towns. 33 schoolchildren died in De Soto, Illinois when their school collapsed; De Soto's deputy sheriff was sucked into the funnel cloud, never to be seen again.

Newspapers of the day chronicled the devastation. United Press⁶³ described how:

a populous, prosperous stretch of farms, villages and towns ... suddenly turned into an inferno of destruction, fire, torture and death.

The Ellensburg Daily Record⁶⁴ reported that bodies were carried as far as a mile by the force of the main tornado.



Figure 22. Deadly 'tri-state' tornado outbreak, 1925.

Top: one of 12 or more tornadoes observed in Missouri, Illinois and Indiana approaching a farm; center: some of the 154 city blocks obliterated in Murphysboro, Illinois; bottom: the wreckage of Murphysboro's Longfellow School, where 17 children were killed.

Over three successive days in May 1953, at least 10 different US states were struck by an outbreak of more than 33 tornadoes,⁶⁵ the deadliest being an F5 tornado that carved a path directly through the downtown area of Waco, Texas⁶⁶ (Figure 23). Believing falsely that their city was immune to tornadoes, officials had not insisted on construction of sturdy buildings, many of which collapsed almost immediately and buried their occupants.

The same day, a powerful F4 tornado hit the Texas city of San Angelo, causing catastrophic damage. As mentioned in The Mercury newspaper article in Figure 23, an American Associated Press correspondent reported 'a scene of grotesque horror' in Waco and described how San Angelo's business area was 'strewn with kindling wood.'⁶⁷



Figure 23. Texas: Waco – San Angelo tornadoes, 1953. Left: newspaper report; right: buried automobiles in downtown Waco.

June that year saw a sequence of powerful tornadoes wreak havoc across the Midwest and New England, the latter being well outside so-called Tornado Alley. An F5 tornado in Michigan⁶⁸ and an F4 tornado in Massachusetts⁶⁹ (Figure 24) each caused at least 90 deaths and extensive damage. The accompanying newspaper article in Figure 24, from The Courier-Mail⁷⁰ in Brisbane, Australia mentions how cars were 'whisked about like toys.'

216 Die, 1700 injured in battle-like tornado

COURIER-MAIL SPECIAL

NEW YORK, June 10 — Death roll last night in the tornado which swept three U.S. States totalled 216, with 1700 injured and thousands homeless.

The death toll was: Michigan 121; Massachusetts 76; Ohio 18.

Houses were smashed to matchwood and cars were whisked about like toys. A state of emergency was declared and 2000 National Guardsmen helped in rescue work.

Police said housing development areas looked as if they had been under sustained artillery attack.

In Worcester (Mass., population 200,000) a

2,232,100 machine-tool factory was levelled.

In a broadcast last night, Mr. Ray Madden, Democrat Representative, Indiana, asked whether there was any connection between the 249 tornadoes which have struck the U.S. this year and recent atomic explosions.

Weather experts denied any connection. They said a tornado, which can reach a force of 500 miles an hour, was caused by the impact of cold and warm air masses.



Figure 24. Michigan - Massachusetts tornadoes, 1953.

Left: newspaper report; top right photo: overturned automobiles in Flint, Michigan; bottom right photo: storm damage in Worcester, Massachusetts.

Nature's wrath was on display again in the most ferocious tornado outbreak ever recorded, spawning a total of 30 F4 or F5 tornadoes – the so-called Super Outbreak⁷¹ – in April 1974. A total of 148 tornadoes of all strengths struck 13 states in Tornado Alley and the Canadian province of Ontario over two days. Figure 25 depicts the tornado paths,⁷² as well as a massive F5 tornado,⁷³ the worst of the 148, that bore down on Xenia, Ohio and the resulting destruction.^{74, 75}

The Xenia tornado was so powerful that it tossed freight trains on their side, and even dropped a school bus onto a stage where students had been practicing just moments before. Wrote The Cincinnati Post⁷⁶ of the devastation:

Half of Xenia is gone.

In Alabama, two F5 tornadoes, out of 75 that struck the state, hit the town of Tanner within 30 minutes; numerous homes, both brick and mobile, were splintered or swept away. In Louisville, Kentucky, battered by an F4 tornado, a Navy veteran who lost his home lamented in the Louisville Times⁷⁷ that:

only Pearl Harbor was worse.

In all, the Super Outbreak caused 335 fatalities and over 6,000 injuries.



Figure 25. Super Outbreak of tornadoes, 1974.
 Left: distribution and approximate path lengths of tornadoes; top right photo: F5 tornado approaching Xenia, Ohio (population 29,000); center right and bottom right photos: consequent wreckage in Xenia.

Figure 26 shows that the annual number of strong tornadoes (EF3 or greater) in the US has declined dramatically over the last 72 years. In fact, the average number of strong tornadoes annually from 1986 to 2017 – a period when the globe warmed by about 0.7°C (1.3°F) – was 40% less than from 1954 to 1985, when warming was much less. That turns the extreme weather caused by climate change narrative on its head.

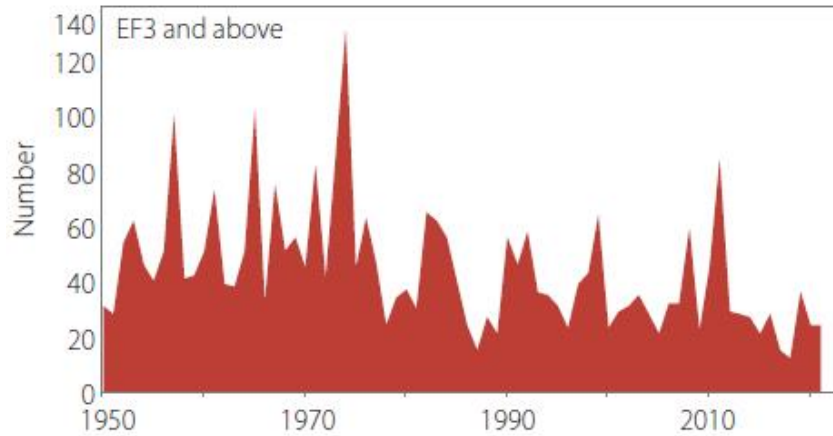


Figure 26. Annual count of EF3 and above tornadoes in the US, 1950–2021.

Source: Source: NOAA/NCEI.^{78, 79}

7. Wildfires

The mistaken belief that wildfires are intensifying because of climate change has been magnified by the smoke that wafted over the US from extensive Canadian wildfires in 2023, if you believe the apocalyptic proclamations of US and Canadian politicians.

But, just as with all the other examples of extreme weather, there is no scientific evidence that wildfires today are any more frequent or severe than anything experienced in the past. Although wildfires can be exacerbated by other weather extremes such as heatwaves and droughts, we've already seen that those extremes are not on the rise either.

Together with tornadoes, wildfires are probably the most fearsome of the weather extremes commonly blamed on global warming. Both can arrive with little or no warning, making it difficult or impossible to flee, are often deadly, and typically destroy hundreds of homes and other structures.

The worst wildfires occur in naturally dry climates such as those in Australia, California or Spain. One of the most devastating fire seasons in Australia⁸⁰ was the summer of 1938-39, which saw bushfires (as they are called down under) burning all summer, with ash from the fires falling as far away as New Zealand. The Black Friday bushfires of January 13, 1939 engulfed approximately 75% of the southeast state of Victoria, killing over 60 people as described in the article from The Telegraph-Herald⁸¹ in Figure 27, and destroying 1,300 buildings; as reported:

In the town of Woodpoint alone, 21 men and two women were burned to death and 500 made destitute.

SCORES BURNED IN BUSH FIRES

Flames Roar Over Wide
Area in Australia

Melbourne, Australia—(AP)—Disastrous bush fires roared Saturday through the heat-parched state of Victoria, leaving an estimated 60 deaths, hundreds homeless and property damage running into millions of dollars.

Fires blazed in more than half of Victoria's 88,000 square miles of territory. The state, of which this is the capital, was in the grip of the worst heat wave and drought in its history. Friday already has been named "Victoria's Black Friday."

In the town of Woodpoint alone, 21 men and two women were burned to death and 500 made destitute. A man, his wife and their three children were killed at Noojee.

Four died of the heat at Sydney, where the temperature reached 113.6. Scores collapsed.

Billows of smoke and dust choked people in the streets of Melbourne. Thousands gasped on the beaches as the thermometer registered 114 degrees Fahrenheit, a record.

Relief organizations conducted a street campaign in Adelaide for volunteers to join the thousands already fighting the fires, which started last Monday.

Thousands of head of cattle died and poultry raisers suffered great losses.

'ADELAIDE HILLS WEEK OF BLAZING TERROR

Crafers, Meadows, Echunga,
And Upper Sturt Fare Worst

OUTBREAKS AT 30 CENTRES IN
ONE DAY

At Least Thirty Homes Destroyed

Just when hills residents were congratulating themselves on last week's fires being brought under control, a fresh disaster, on an even more extensive scale than that of the previous week, overtook them.

Fanned into renewed life by a blistering 30 miles an hour wind on Friday, bushfires again swept through a number of districts throughout the State, causing widespread destruction of homes and property.

Reports indicate that at least 30 homes were burnt to the ground—most of them in the Echunga district—as well as a cheese factory and a bark mill.

The Crafers and Upper Sturt districts suffered severely, the fires extending over a large area and threatening several townships. Seven houses were destroyed in this blaze, and property damage is expected to run into a large sum.

The fires were more extensive and destructive than those reported in "The Chronicle" last week, and it is estimated that the damage will exceed many thousands of pounds.

As far as is known, there has been no loss of life, but several men were seriously injured in a motor accident on their way to fight fires, and many cases of severe burns were treated by ambulance officers.

Thirteen fire fighters had a terrifying experience on Friday afternoon, when they were trapped by the fire a few miles on the Adelaide side of Meadows. They had just sufficient time to soak their clothes and the ground with water and to cover themselves with wet sacks, when the fire was upon them. For three hours they were forced to lie face down on the ground while flames swept over them.

Figure 27. Bushfire devastation in Australia, 1939.
Left: state of Victoria; right: state of South Australia.

Just a few days later, equally ferocious bushfires swept through the neighboring state of South Australia. The inferno reached the outskirts of the state capital, Adelaide, as documented in the excerpt from *The Adelaide Chronicle*⁸² in Figure 27.

Nationally, Australia's most extensive bushfire season was the catastrophic series of fires in 1974-75 that consumed 117 million hectares (290 million acres), which is 15% of the land area of the whole continent.⁸³ Fortunately, because nearly two thirds of the burned area was in remote parts of the Northern Territory and Western Australia, relatively little human loss was incurred – only six people died – though livestock and native animals such as lizards and red kangaroos suffered. An estimated 57,000 farm animals were killed.

The 1974-75 fires were fueled by abnormally heavy growth of lush grasses, following unprecedented rainfall in 1974. The fires began in the Barkly Tablelands region of Queensland, a scene from which is shown in Figure 28. One of the other bushfires in New South Wales had a perimeter of more than 1,000 km (620 miles).



Figure 28. Barkly Tablelands bushfire, 1974.

Source: Science Under Attack.⁸⁴

In the US, while the number of acres burned annually has gone up over the last 20 years or so, the present area consumed by wildfires is still only a small fraction of what it was back in the 1930s (see Figure 33) – just like the frequency and duration of heatwaves, discussed in Section 2. The western states, especially California, have a long history of disastrous wildfires dating back many centuries.

Typical of California conflagrations in the 1930s are the late-season fires around Los Angeles in November 1938, described in the article from The New York Times⁸⁵ featured in Figure 29. In one burned area 4,100 hectares (10,000 acres) in extent, hundreds of mountain and beach cabins were wiped out. Another wildfire burned on a 320-km (200-mile) front in the mountains. As chronicled in the piece, the captain of the local mountain fire patrol lamented that:

This is a major disaster, the worst forest fire in the history of Los Angeles County. Damage to watersheds is incalculable.

THE NEW YORK TIMES, FRIDAY, NOVEMBER 25, 1938.

2,000 MEN BATTLE WIDE COAST FIRES

Flames Checked in Most of the
Santa Monica Area—Spread
Near San Bernardino

WILL ROGERS RANCH SAVED

Loss Exceeds \$3,000,000 in 5
Counties Around Los Angeles
—Watersheds Damage Great

Special to THE NEW YORK TIMES.
LOS ANGELES, Nov. 24.—Al-
though fresh outbreaks were re-
ported on a 100-mile-long mountain
front, Southern California's biggest
and most costly forest fires in years
were virtually under control to-
night, after taxing the resources of
authorities of five counties and
drawing on the services of 2,000 or
more CCC and WPA workers.

Many thousands of acres had been
burned over in the fires, extending
from the eastern fringes of Santa
Barbara County through Ventura
and Los Angeles Counties into San
Bernardino Counties, as well as in
San Diego County to the south.

In the Los Angeles County fires,
the Topanga-Las Flores Canyon
area north and west of Santa
Monica and Beverly Hills, two
blazes were still out of control.

One was the rustic canyon be-
tween the Will Rogers ranch and a
point seven miles up the heavily
wooded defile.

Here the fire was burning fiercely
along dry wooded ridges, but was
being hemmed in steadily by 400
firemen directed by Fire Chief
Ralph Scott of Los Angeles and oth-
er officials.

Outbreak in Fernwood Area

The other was in the Fernwood
area, above Topanga, where a sud-
den outbreak of fire got out of con-
trol when a vital hose was burned
through. Officials hoped to head off
the fire from the south side of the
mountains.

Elsewhere in the northwestern
portion of the county "spot" fires
were the only hazard after the
disastrous outbreak which burned
over an estimated 10,000 acres and
wiped out hundreds of mountain
and beach cabins.

The San Antonio Canyon blaze



ZONES OF FOREST FIRES NEAR LOS ANGELES

Shaded portions of map show areas of worst blazes in Santa
Monica hills, to northwest, and San Bernardino, to east.

on the eastern edge of Los Angeles
County was burning itself out after
burning nearly 200 acres. Two hun-
dred CCC men were mopping up
this outbreak.

Three brush fires were raging in
San Diego County.

In Ventura County the most seri-
ous of nearly a dozen separate out-
breaks was being brought under
control in the Sulphur Mountain
area.

The fire burned furiously in the
Fagan Canyon area north of Santa
Paula, threatening livestock and
houses. Firemen estimated the
flames seared more than 1,000 acres
during the night and this morning.

In northern Santa Barbara County
a rangeland fire blackened more
than 300 acres and burned the Do-
land residence. Another fire de-
stroyed the Maricopa Highway
bridge over the Cuyana River at
Lockwood Road.

Captain E. L. Watson of the
mountain fire patrol, who has been
in the department twenty-seven
years, seven of them in the fire-
swept area, said:

"This is a major disaster, the
worst forest fire in the history of
Los Angeles County. Damage to
watersheds is incalculable."

Pacific Palisades was declared
safe from the outbreak, largely due
to the adequate water pressure
available in the city mains.

Traffic along the Roosevelt High-
way was restored on a limited basis
during the afternoon, after crews
had cleared away small landslides
and rocks loosened by heat and
fire-eaten roots. Hundreds of
anxious motorists rumbled into the
beach area to attempt salvage of
possessions unclaimed by the
flames.

Threat in San Bernardino Area

LOS ANGELES, Nov. 24 (AP).—
Fourteen fire trucks were rushed
to Panorama Point in the San

Bernardino Mountains tonight, as
a fire jumped the highway and,
entering high timber, threatened
Crestline resort, one and one-half
miles away.

A north wind was rising, however,
blowing against the flames, and the
nearly 1,000 men fighting the blaze
hoped with this aid to keep it in
check.

This fire licked at San Bernar-
dino's city limits last night, de-
stroyed the Arrowhead Springs re-
sort and wiped out several cabins
and small buildings at Vale's ranch
in Waterman Canyon. It has swept
over an area of eight miles from
east to west and was roaring on
toward the mountain summit at
Panorama Point, four miles from
San Bernardino.

About 200 families have been eva-
cuated from the north district of the
city of San Bernardino.

Starting in yesterday's high wind,

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Figure 29. Multiple wildfires near Los Angeles, southern California, 1938.

Northern California was incinerated too. The newspaper excerpts in Figure 30 from the Middlesboro Daily News⁸⁶ and The New York Times⁸⁷ report on wildfires that broke out on a 640-km (400-mile) front in the north of the state in 1936, and near San Francisco in 1945, respectively. The 1945 report documents no less than 6,500 separate blazes in California that year.



Figure 30. Wildfires in northern California.

Left: near Auburn, Mt. Shasta and Yosemite, 1936; right: in Mendocino County, known for its redwood forests, 1945.

Pacific coast states further north were not spared either. Recorded in the two newspaper excerpts shown in Figure 31 are calamitous wildfires in Oregon in 1936 and Canada's British Columbia in 1938; the articles are both from The New York Times.^{88, 89} The 1936 Oregon fires, which covered an area of 160,000 hectares (400,000 acres), obliterated the village of Bandon in southwestern Oregon, while the 1938 fire near Vancouver torched an estimated 40,000 hectares (100,000 acres). Said a policeman in the aftermath of the Bandon inferno, in which as many as 15 villagers died:

If the wind changes, God help Coquille and Myrtle Point. They'll go like Bandon did.

OREGON FIRE PERIL THREATENS 20,000

Fate Hangs on the Wind as Toll
of Dead at Bandon Reaches
Nine and Possibly 15.

BLAZES BY THE HUNDRED

Coquille and Myrtle Point
Citizens Work Feverishly on
Measures to Save Towns.

MARSHFIELD, Ore., Sept. 28 (AP).—Twenty thousand residents of Southwestern Oregon placed on the winds tonight the fate of their homes as they heard grimly that nine lives and possibly fifteen had been lost when forest fires laid waste the village of Bandon.

With so many fires burning in a 400,000-acre area, forest officials, both Federal and State, declared it was "impossible" to say how many acres had been damaged.

A State policeman at Coquille, glancing up at skies so black that day looked like night, voiced the fear of many: "If the wind changes, God help this place and Myrtle Point. They'll go like Bandon did."

The wind, however, had died down tonight, bringing encouragement to the 5,000 fire fighters and hope that other cities would be spared the destruction that visited Bandon.

Bandon, in an hour Saturday night, was transformed from a pretty little coastal port south of here into an inferno in which virtually the entire population of 1,500 saw possessions of a lifetime go up in flames.

GREAT FIRE PERILS VANCOUVER TOWNS

Island's Dry Woods 'Explode'
as Flames Sweep Near
Mining Communities

ASHES FLY HUNDRED MILES

Destroyer Sailors Join Fight
—Forests Blaze in 350 Other
Areas in Northwest

SEATTLE, July 23 (AP).—Pillars of fire danced madly through virgin Vancouver Island timber today as the worst forest fire in the island's history burned uncontrolled and dangerously close to several communities.

The blaze, 100 miles north of Victoria, was the worst in the fire-dotted Pacific Northwest even before it doubled its area in eight hours yesterday. Officials estimated it had covered more than 100,000 acres.

At Headquarters most of 40,080,000 feet of yarded logs went up in smoke despite the efforts of loggers turned firemen. Buildings in the village escaped damage because streams of water were played on them constantly.

The main fire "crowned" inland before brisk winds. Canadian forest officials said that the punk-dry forests virtually exploded. The leaping flames advanced upon Bevan and Cumberland, coal mining towns. Fifty sailors from the Canadian destroyer Fraser were sent to Bevan to help protect the town.

Ashes from the gigantic blaze fell in the streets of Vancouver, 100 miles away.

Another fire, which yesterday destroyed Forbes Landing, leaped forward anew and enveloped 35,000,000 board feet of felled timber.

Figure 31. Wildfires in other Pacific Coast states.
Left: Oregon, 1936; right: British Columbia, 1938.

As further evidence that modern-day wildfires are no worse than those of the past, Figures 32 and 33 show the annual area burned by wildfires in Australia since 1905, and in the US since 1926. Clearly, the area burned annually is in fact declining, despite hysterical claims to the contrary by the mainstream media. The US National Interagency Fire Center (NIFC), which has tracked wildfires for decades, reports that the total number of fires in 2022 was 68,988, and the area burned was 3.07 million hectares (7.58 million acres); 15 years earlier in 2007, there were 85,705 fires that burned 3.78 million hectares (9.33 million acres).⁹⁰

The same declining trend is true of other countries around the world.

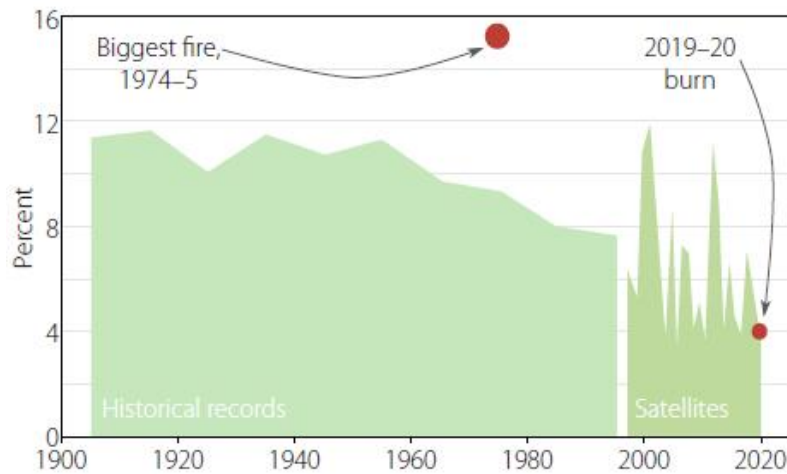


Figure 32. Australian area burned by wildfires, 1905–2020. Percentage of total land area of 769 million hectares; estimates by decade 1905–1995, satellite measurements 1997–2020. Source: Bjørn Lomborg.⁹¹

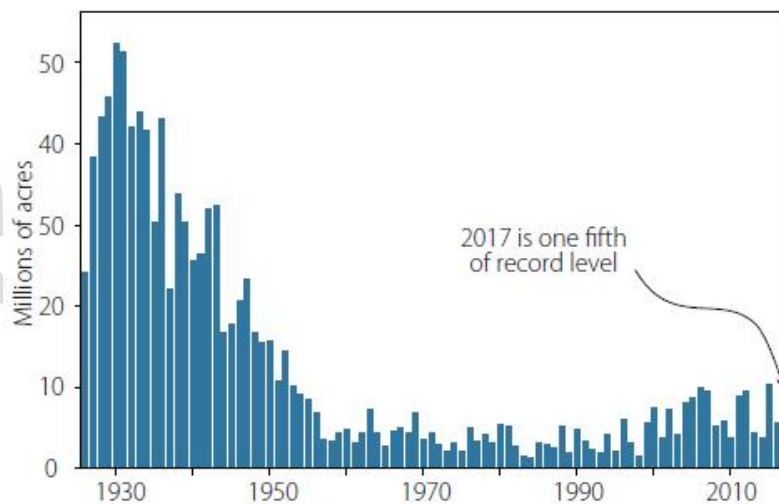


Figure 33. Annual US forest area burned by wildfires, 1926–2017. Source: National Interagency Fire Center.⁹²

8. Conclusions

The historical examples presented in this report should put to rest once and for all the notion that global warming is exacerbating weather extremes.

The perception that extreme weather events are increasing in frequency and severity is primarily a consequence of modern technology – the Internet and smart phones – which have revolutionised communication and made us much more aware of such disasters than we were 50 or 100 years ago. Before 21st-century electronics arrived, many weather extremes went unrecorded, especially in then more sparsely populated areas of the globe.

Hurricanes are a good example. Prior to about 1950, most data on hurricane frequency in the US were based on eyewitness accounts, thus excluding most hurricanes that never made landfall. And even the recording of non-landfalling hurricanes relied on observations made by ships at sea, which almost certainly resulted in an undercount. So it is hardly surprising that the public sees today's more complete coverage enabled by satellite technology as an uptick in hurricane occurrence.

The same is true of tornadoes, wildfires and possibly floods, although heatwaves and droughts were probably fully reported in the past because of their duration. A century ago, the US population was only a third of what it is now, which means there was a much greater chance of tornadoes and wildfires in remote areas not being recorded.

Population gain has also enhanced the perception of worsening extremes in other ways. The increasingly popular habit of building homes near water, either along rivers or on the sea coast, has greatly increased the property damage caused by major floods and hurricanes. Population expansion beyond urban areas has elevated the death toll and property damage from tornadoes and wildfires, although wildfires have also been intensified by poor forest management.

As stated already, much of the fault for the widespread belief that weather extremes are becoming worse can be attributed to the mainstream media, eager to promote the latest climate scare. Constant repetition of a false belief can, over time, create the illusion of truth – a phenomenon well known to psychologists and one exploited by propagandists such as the infamous Nazi, Joseph Goebbels. While climate reporters may not be evil like Goebbels, their lack of attention to the actual data, especially for past weather events, is contributing to the belief that extreme weather is on the rise.

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