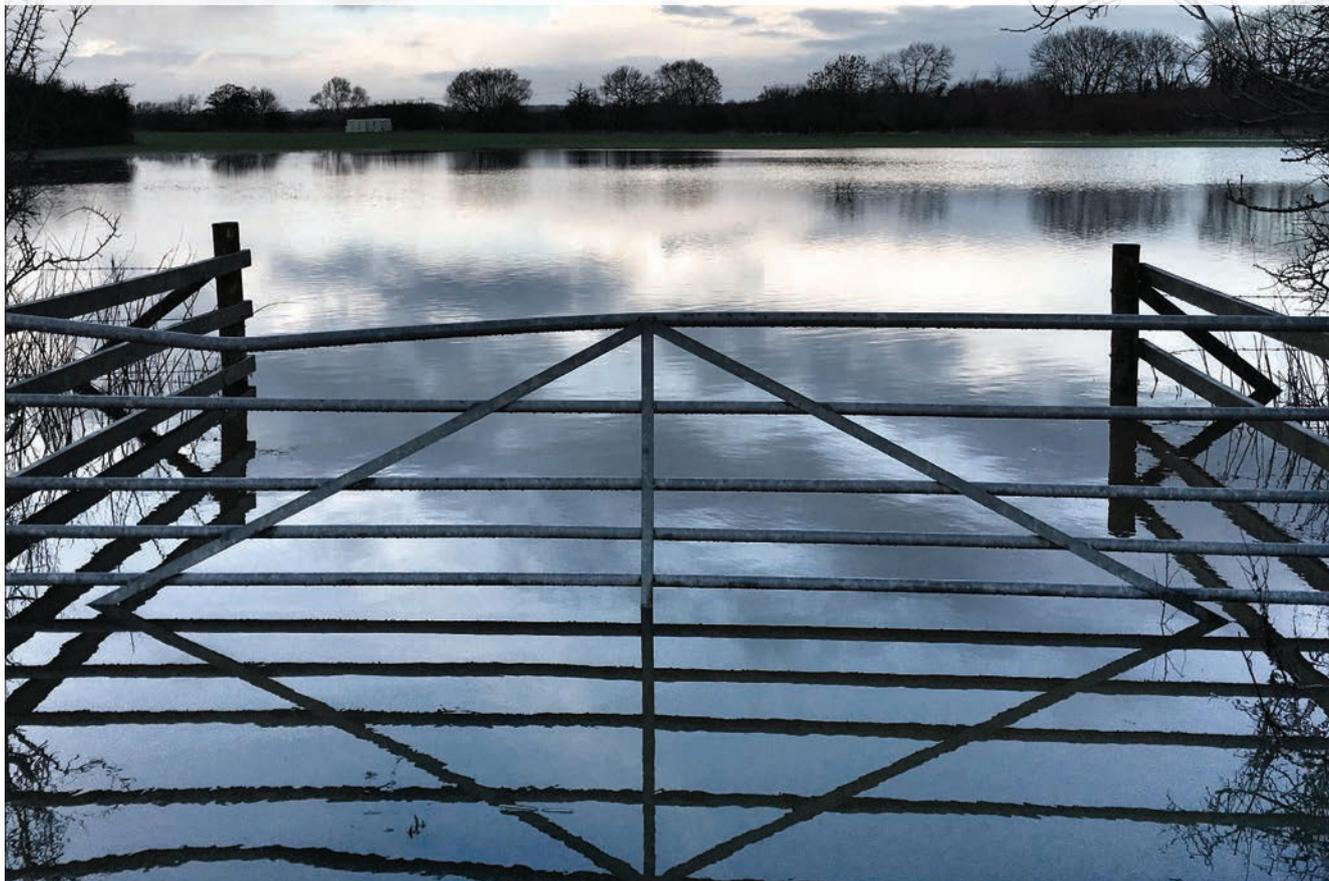


JET STREAMS AND NET ZERO

Bob Ward points to the science behind Dorset's deluge



Farm gate to flooded field in Dorset

Many parts of Dorset have experienced heavy rainfall and flooding this winter, but the worst is yet to come.

Dorset has already this year recorded its second wettest January since records began in 1836, as did neighbouring Devon, with most of the county experiencing more than twice the month's average for the period between 1991 and 2020. The start of February was also extremely rainy, and Dorset had above average rainfall in December, raising the prospect that this has been one of the wettest winters on record for the county.

The wet weather has primarily been caused by a series of Atlantic weather systems, including storms, which have been steered towards the UK by the jet stream, a narrow band of high-speed westerly winds that occur many miles above the Earth's surface. This winter the northern polar jet stream has been particularly strong and located further south than usual.

However, climate change has turned a particularly wet winter into a near-record one. A warmer atmosphere can hold more moisture, leading to more rainfall. The UK has been warming at a rate of approximately a quarter Celsius degree per decade since the 1980s.

Last year was the UK's warmest and sunniest on record. The UK's 10 warmest years since records started in 1884 have all occurred in the past 20 years and there is also some evidence that climate change is making the jet stream in the northern hemisphere stronger and causing it to meander more during the year.

These are all contributing to making the UK's winters become wetter. October 2023 to March 2024 was the wettest winter half-year on record. Six of the ten wettest winter half-years (October to March) have been in the 21st Century so far, in a series since 1767 for England and Wales.

Winter half-year rainfall for the most recent decade

has been 16 per cent higher than the average for the period between 1961 and 1990.

With spring and summer 2025 being very dry, the Environment Agency had warned of drought this year if there was little winter rainfall. Instead the Agency has been busy managing floods along many of our main rivers, particularly in south-west England.

The recent severe weather and flooding across Dorset and the South West has caused many problems:

- The River Cerne burst its banks and flooded Charminster following Storm Chandra at the end of January.
- Meanwhile, Dorset Council responded to the flooding from other watercourses, and from surface water and ground water.
- The Council does not proactively check all the drains on roads and streets for blockages, but relies on households and businesses to alert them to problems. However, blockages can often only be identified when drains start to overflow.
- Dorset, Wiltshire and Hampshire all suffered serious groundwater flooding in February, with saturated soils unable to absorb successive bouts of rain.
- Many households in Dorset experienced groundwater flooding for the first time this winter.
- Dorset Council warned of historically high levels of groundwater in some parts of the county. The Council pointed out that water levels were so high in early February that they peaked off the existing scale for some gauge boards.
- Groundwater in the Dickley Down borehole near the Cerne Valley reached its highest ever level of 172.59 metres on 29 January 2026. Flooding can occur in the surrounding area when readings exceed 167 metres.
- As groundwater flooding means the water table has risen near the surface, it can take several months for the soil to dry out again and levels to drop, with the threat of flooding remaining from any subsequent downpours.
- The persistent winter rain caused many other problems across the county. Dorset Council noted that floodwaters had undermined road surfaces, creating many potholes.
- Rail services in south-west England have suffered major disruption as a result of flooding.
- Agricultural land was submerged across south-west England, leading to concerns about a repeat of winter 2023-24 when many farms suffered major losses as crops rotted.

But as bad as this winter has been, it is likely to seem mild compared to future years.

Winter rainfall is projected to increase for the UK until the world reduces annual emissions of carbon dioxide and other greenhouse gases to net zero. That means rainfall will grow for at least the next 25 years, so Dorset along with the rest of the country will need to adapt and become more resilient to the impacts.

We cannot just rely on national or local governments to manage these risks for us, and every household and business in Dorset must take responsibility for understanding and tackling the growing threat.

Our flood defences along rivers will need to be strengthened, while recognising that rainwater needs somewhere to go. This may mean paying farmers to allow fields adjacent to rivers to act as emergency overflows. Our farmers will have to manage the risks of floods to crops and livestock, as well as soil erosion from increasing run-off.

It is well known that our drains and sewage systems cannot cope with the rising levels of rainwater and there will need to be sustained investment to upgrade them. Our towns and cities will experience even greater risks of flash flooding if sustainable drainage systems are not integrated into roads and pavements.

And Dorset's economy will suffer if our roads and railways are not made more resilient to heavy and persistent rain with improved drainage. Many parts of the road and rail networks connecting Dorset to the rest of the country are also vulnerable to landslides triggered by heavy rain.

All in all we should use the experience of this winter as an indicator of Dorset's vulnerability to rising rainfall, and a guide to where we must increase our resilience.

We cannot just rely on national or local governments to manage these risks for us, and every household and business in Dorset must take responsibility for understanding and tackling the growing threat.

And we should recognise that if the world does not reach net zero, winter rainfall will continue to increase indefinitely.

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