

Revealed: Europe's water reserves drying up due to climate breakdown

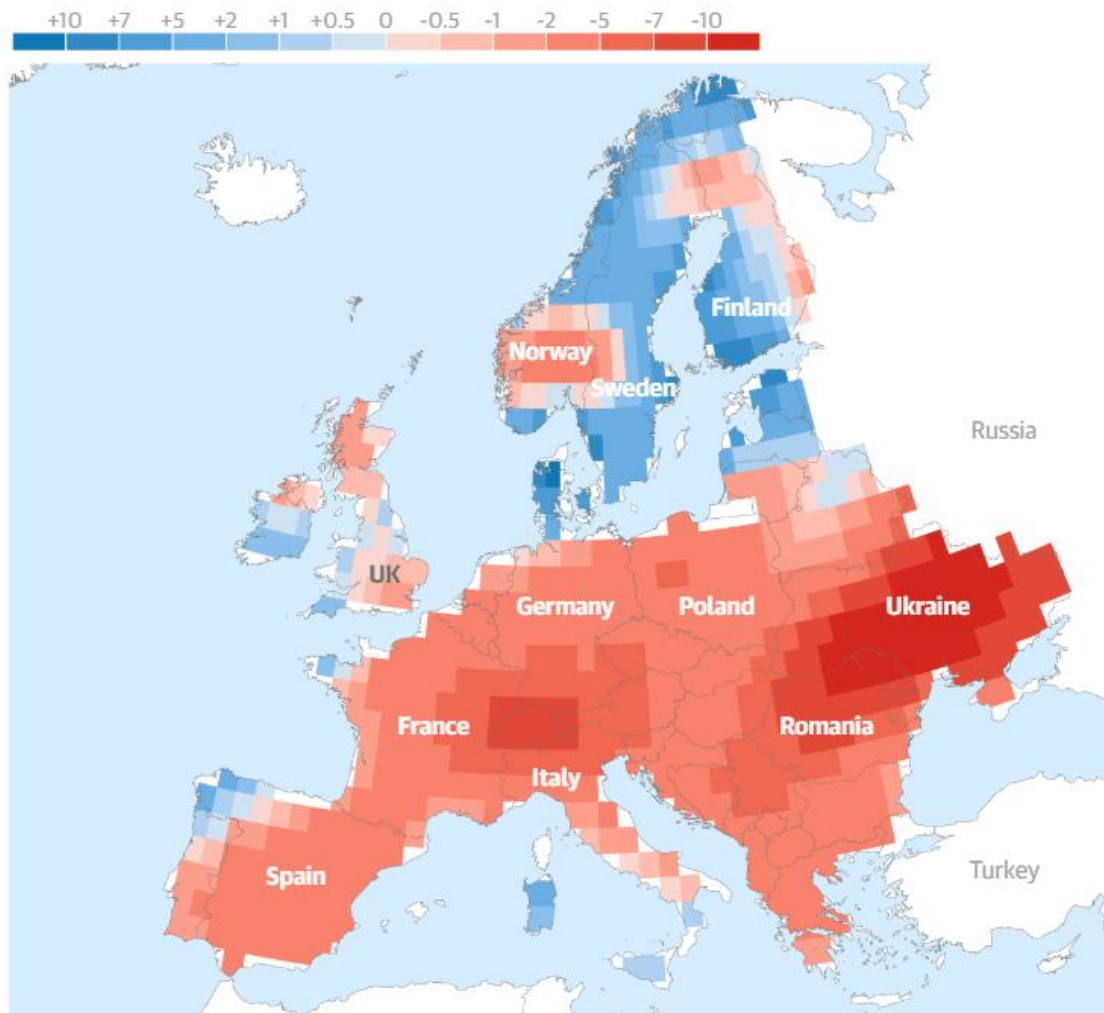
Exclusive: UCL scientists find large swathes of southern Europe are drying up, with 'far-reaching' implications

[Rachel Salvidge](#) Sat 29 Nov 2025 01.00 EST

Vast swathes of Europe's water reserves are drying up, a new analysis using two decades of satellite data reveals, with freshwater storage shrinking across southern and central Europe, from Spain and Italy to Poland and parts of the UK.

Much of Europe has been getting drier

Change in groundwater storage from Apr 2002 to Dec 2024, mm a year



Scientists at University College London (UCL), working with Watershed Investigations and the Guardian, analysed 2002–24 data from satellites, which track changes in Earth's gravitational field.

Because water is heavy, shifts in groundwater, rivers, lakes, soil moisture and glaciers show up in the signal, allowing the satellites to effectively "weigh" how much water is stored.

The findings reveal a stark imbalance: the north and north-west of Europe – particularly Scandinavia, parts of the UK and Portugal – have been getting wetter, while large swathes of the south and south-east, including parts of the UK, Spain, Italy, France, Switzerland, Germany, Romania and Ukraine, have been drying out.

Climate breakdown can be seen in the data, the scientists say. “When we compare the total terrestrial water storage data with climate datasets, the trends broadly correlate,” said Mohammad Shamsudduha, professor of water crisis and risk reduction at UCL.

It should be a “wake-up call” for politicians still sceptical about cutting emissions, said Shamsudduha. “We’re no longer talking about limiting warming to 1.5C, we’re likely heading toward 2C above preindustrial levels, and we’re now witnessing the consequences.”

Doctoral researcher Arifin isolated groundwater storage from the total terrestrial water data and found that trends in these more resilient water bodies mirrored the overall picture, confirming that much of Europe’s hidden freshwater reserves are being depleted.

Trends in the UK are mixed. “Overall, the west is getting wetter while the east is becoming drier and that signal is getting stronger,” said Shamsudduha.

“Although total rainfall may be stable, or even slightly increasing, the pattern is changing. We’re seeing heavier downpours and longer dry spells, especially in summer.”

Groundwater is seen as more climate-resilient than surface water but heavy summer downpours often mean more water is lost to runoff and flash flooding, while the winter groundwater recharge season may be shortening, he said.

“In south-east England, where groundwater supplies about 70% of public water, these shifting rainfall patterns could pose serious challenges.”

The total amount of water taken from surface and groundwater across the EU between 2000 and 2022 decreased, according to European [Environment Agency](#) data, but groundwater abstractions increased by 6%, attributed to public water supply (18%) and farming (17%).

It is a critical resource: across member states, groundwater accounted for 62% of the total public water supply and 33% of agricultural water demands during 2022.

A spokesperson for the European Commission said its water resilience strategy “aims to help member states adapt their water resource management to climate change and to address man-made pressures”.

The strategy aims to build a “water-smart economy” and is paired with a commission recommendation on water efficiency, which calls for improving efficiency by “at least 10% until 2030”. With leakage levels varying from 8% to 57% across the bloc, the commission says cutting pipe losses and modernising infrastructure will be crucial.

Hannah Cloke, professor of hydrology at the University of Reading, said: “It’s distressing to see this long-term trend, because we’ve seen some very large droughts recently and we’re constantly hearing that this winter we might have less than usual rainfall and [we’re already in drought](#).”

“Next spring and summer, if we don’t get the rainfall we need, there will be severe consequences for us here in England. We will face severe water restrictions and that will make everybody’s life very difficult.”

The Environment Agency has already warned England to prepare for drought continuing into 2026 unless there is significant rain over autumn and winter.

The water minister, Emma Hardy, said there is “increasing pressure on our water resources. That is why this government is taking decisive action, including the development of nine new reservoirs to help secure long-term water resilience.”

But simply “promising very large reservoirs that won’t come online for a few decades is not going to solve the problem immediately,” said Cloke.

“We should be focusing on water reuse, using less water in the first place, separating drinking water from those recycled waters that we could use, using nature-based solutions, and thinking about the way that we’re building developments,” she said.

“We’re just not doing these things fast enough to keep pace with these long-term trends.”



[When the rains don't come: how drought and endless dry seasons are changing life in Puntland – in pictures](#)

Europe’s drying trend will have “far-reaching” impacts, hitting food security, farming and water-dependent ecosystems, especially groundwater-fed habitats,” according to Shamsudduha. Spain’s shrinking reserves, he said, could directly affect the UK, which relies heavily on Spain and other European countries for fruit and produce.

The kinds of climate impacts long seen across the global south, from south Asia to Africa and the Middle East, are now “much closer to home”, with climate change “clearly affecting Europe itself”.

“We need to accept that climate change is real, it’s happening and it’s affecting us,” Shamsudduha said, calling for better water management and openness to “new, even unconventional” ideas, including widespread rainwater harvesting in countries such as the UK.

Globally, drying hotspots are emerging across the Middle East, Asia, South America, along the US west coast and across swathes of Canada, with Greenland, Iceland and Svalbard also showing dramatic drying trends.

In Iran, Tehran is closing in on “day zero” when no tap water is available, and water rationing is being planned. The country’s president, Masoud Pezeshkian, has said that [if rationing fails, Tehran may have to be evacuated](#).