

## Case Study



# Helping improve the resilience of the water industry against drought

## Overview

Weather extremes are becoming more and more frequent as our climate changes, with 2022 being no exception. It was the warmest year on record, and the driest Jan and August period since 1976. These weather extremes mean that utilities and infrastructure needs to adapt to account for the increasing likelihood of serious weather events that could affect supply and demand. To tackle this, the Met Office is working with members of the water industry to build resilience against climate change and the changes in weather that it brings.

## How we help

Whilst it was the 10th driest summer on record for the UK as a whole in 2022, some regions were particularly dry, with Suffolk and Norfolk seeing their 2nd and 3rd driest summers for that region respectively. This causes problems for regional water companies who supply these areas, such as Anglian Water who provide much of the water for East Anglia. This area relies on water coming from aquifers and reservoirs which are slow to refill, and as such an extended dry period can significantly impact the drawdown of stored water.

Following the shortage of rainfall seen during 2022 the Met Office is helping Anglian Water contextualise the current hydrological situation. However, it is also useful to understand the current situation in the context of plausible extremes in today's climate and plausible extremes in a future climate.

## Our impact

To help build an understanding of impacts of drought and extreme heat, we're using our expertise alongside a combination of both our own and Anglian Water data to build models to help develop the understanding of drought risk in the region, which supports their Water Resource Management Plan and Drought Plan. An example of this is building a statistical model to generate 1,000 alternative realisations of a 105-year historical period (1914-2018), with outputs at daily frequency on a 5-km grid over the region. The output validates rainfall and drought behaviour well, and is used by Anglian Water to test different and more extreme drought effects by giving alternative historical outcomes, which will support decisions around how they deal with extreme drought, where they invest and what infrastructure to build, with the end goal of maintaining uninterrupted supply now and in the future.

*"We need to make decisions based on robust and defensible science, and this requires us to ensure the robustness of our current assets and future systems to a wide range of potential droughts and climate scenarios. Undertaking this challenging work with the Met Office means that data-driven investments are made where appropriate, ensuring that we better protect our customers and the environment we serve in the face of an ever-changing climate."*

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