

# Introducing Hydro-JULES to the classroom

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## Why it matters

Since 2018, the Hydro-JULES programme has been working hard to transform our understanding of the water cycle. From calculating the risk of flooding to modelling how droughts will be affected by climate change, those of us at UKCEH working on Hydro-JULES are exploring issues that matter to all of us – scientists and the general public alike. But how to communicate this vital work when the coronavirus pandemic has made traditional public engagement impossible?

To overcome this challenge, we have teamed up with the British Science Association (BSA), a charity dedicated to involving people from all backgrounds in science.

*“Schools have a vital role to play in helping young people to understand the issues [climate change], whilst also involving them in developing their ideas and solutions. We’re delighted to have worked with the UKCEH on this timely range of CREST projects to help inspire the next generation of eco-champions.”*

Maria Rossini, British Science Association



Hydro-JULES, is a research programme funded by the UK’s Natural Environment Research Council (NERC), in order to advance our ability to predict the future availability of water resources and the risk of water related disasters under a changing climate.

The Hydro-JULES programme is building a three-dimensional, open source, community model of the terrestrial water cycle to support and enable collaborative work across the research and academic communities in hydrology and land-surface science. This five-year programme is delivered by the UK Centre for Ecology & Hydrology (UKCEH) in partnership with the British Geological Survey (BGS) and National Centre for Atmospheric Science (NCAS).



Hydro-JULES Exploring Hydrology CREST Award packs

## What we are doing

We have produced a range of education tools to engage teenagers in hydrology and the work of Hydro-JULES. To arouse their curiosity and inspire them to consider a career in science, technology, engineering and maths (STEM), the Hydro-JULES team ditched the technical terms and instead focussed on themes that we felt would be most relevant to UK teenagers.

The first of these resources was released in March 2021 as part of British Science Week, a ten-day nationwide celebration of STEM for people of all ages. The Hydro-JULES team developed an activity on flood planning that was included in a British Science Week activity pack produced by the BSA. This Hydro-JULES activity challenged children to develop a flood plan for their own local area. They were encouraged to think not only about the financial and ecological impact of flooding, but also how their own flood plan might affect friends, family and neighbours. The British Science Week activity packs were downloaded more than 90,000 times, introducing the Hydro-JULES programme to children throughout the country.

For the second of these education tools, we worked with the BSA to create activities for the CREST awards programme, a nationally-recognised scheme for student-led project work in STEM. This BSA flagship programme is available in all UK schools, giving children the opportunity to carry out independent activities with the support of a teacher. The *Exploring Hydrology* CREST Awards were launched to UK schools against the backdrop of COP26 in November 2021, hoping to bring the subject of climate change to life in the classroom and present an excellent opportunity for students to engage with these important and complex issues through scenario-based learning.

Each pack contains nine activities, ranging from practical investigations to design projects to research and communication tasks. The themes covered by these activities are varied, from researching the potential effects of a drought on businesses and industry to understanding the impacts of flooding on water quality and ecosystems in a local freshwater area.

Together, these education tools are ensuring that the importance of Hydro-JULES – and of hydrology in general – continue to be communicated to people across the UK and will hopefully inspire young people to explore solutions to climate change, sustainability and the Earth's water cycle.