



EGU22 Media Tip Sheet: Multimedia technology in geoscience

What happens when classroom, laboratory, and field experiments integrate multimedia and advanced technologies with geoscience research? The results are new and insightful ways to improve disaster preparedness and response, analyse and predict weather phenomena, and combat the rapid spread of scientific misinformation.

[Immersive storytelling and the power of using 360 to amplify the experiences, agency and action of children and young people facing flood risk](#)

New research reports innovative ways to engage young people with flood education. Scientists co-created a suite of learning resources with teachers, young people, and England's Environment Agency, including links to the National Curriculum and the Sustainable Development Goals, exploring how videos can be used to communicate and contribute to better understanding, and subsequent action, in response to flood risk among a new generation of young people.

Mon, 23 May, 09:00–09:06 CEST

Session [EOS1.1](#)

[Choose your own weather adventure: deep weather generation for “what-if” climate scenarios](#)

In this presentation, variational auto-encoders (VAE) are shown to offer an encouraging pathway for efficient and controllable climate scenario synthesis – especially for extreme events. This will serve as a guide to improve the design of deep learning architectures and algorithms for application in Earth science, including uncertainty quantification of Earth system data and characterization of the so-called “grey swan” event.

Mon, 23 May, 14:30–14:35 CEST

Session [ITS2.7/AS5.2](#)

[SWIFT-AI: Significant Speed-up in Modelling the Stratospheric Ozone Layer](#)

Scientists show that the application of state-of-the-art machine learning methods to the field of atmospheric physics holds great potential. They present an implicit neural representation of the extrapolar stratospheric ozone chemistry (SWIFT-AI) and reveal that the computation time of SWIFT-AI is twice as fast as the previous polynomial approach SWIFT and 700 times faster than the full stratospheric chemistry scheme of ATLAS, resulting in minutes instead of weeks of computation time per model year – a speed-up of several orders of magnitude.

Mon, 23 May, 17:36–17:42 CEST

Session [ITS2.6/AS5.1](#)

Cranky Uncle - a multi-lingual critical thinking game to build resilience against climate misinformation

Games are engaging tools to incentivize people to perform misinformation-spotting tasks. The Cranky Uncle game adopts an active inoculation approach, where a “cranky uncle” character mentors players to spot techniques of science denial. Available for free on iPhone and Android, the game enables knowledge building to resist misleading persuasion attempts in the future.

Wed, 25 May, 15:20–15:26 CEST

Session [EOS1.3](#)

Exploring engineering solutions to environmental hazards through Minecraft

Since April 2020, the Building to Break Barriers project, funded by an Ingenious grant from the Royal Academy of Engineering, has been developing methods to engage children with applications of engineering through the computer game Minecraft. This includes environmental-based topics such as mitigating against earthquakes and volcanic eruptions, managing rivers and flooding, storing nuclear waste, drying crops in humid environments and designing food production solutions.

Wed, 25 May, 15:32–15:38 CEST

Session [EOS1.3](#)

Deep learning, remote sensing and visual analytics to support automatic flood detection

In contrast to optical remote sensing technology, Synthetic Aperture Radar (SAR) can penetrate clouds and help authorities with disaster management during flood events. In this presentation, researchers adopted deep learning algorithms to classify, and segment flooded areas in SAR imagery in Nebraska, North Alabama, Bangladesh, Red River North, and Florence.

Fri, 27 May, 11:18–11:24 CEST

Session [NH6.1](#)