Abstract Submitted
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Working research codes into fluid dynamics education: a science gateway approach[1] LACHLAN MASON, Imperial College London, JAMES HETHERINGTON, MARTIN O'REILLY, MAY YONG, RADKA JERSAKOVA, The Alan Turing Institute, STUART GRIEVE, DAVID PEREZ-SUAREZ, ROMAN KLAPAUKH, University College London, RICHARD V. CRASTER, OMAR K. MATAR, Imperial College London — Research codes are effective for illustrating complex concepts in educational fluid dynamics courses, compared to textbook examples, an interactive three-dimensional visualisation can bring a problem to life! Various barriers, however, prevent the adoption of research codes in teaching: codes are typically created for highly-specific 'once-off' calculations and, as such, have no user interface and a steep learning curve. Moreover, a code may require access to high-performance computing resources that are not readily available in the classroom. This project allows academics to rapidly work research codes into their teaching via a minimalist 'science gateway' framework. The gateway is a simple, yet flexible, web interface allowing students to construct and run simulations, as well as view and share their output. Behind the scenes, the common operations of job configuration, submission, monitoring and post-processing are customisable at the level of shell scripting. In this talk, we demonstrate the creation of an example teaching gateway connected to the Code BLUE fluid dynamics software. Student simulations can be run via a third-party cloud computing provider or a local high-performance cluster.

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