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Using videos, apps and hands-on experience in undergraduate hydrology teaching

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Hydrological sciences teaching always needs to make a link between the classroom and the outside world. This can be done with fieldwork and excursions, but the increasing availability of open educational resources gives more-and-more other options to make theory more understandable and applicable. In the undergraduate teaching of hydrology at the University of Birmingham we make use of a number of tools to enhance the hydrology 'experience' of students. Firstly, we add hydrological science videos available in the public domain to our explanations of theory. These are both visualisations of concepts and recorded demonstrations in the field or the lab. One example is the concept of catchments and travel times which has been excellently visualised by MetEd. Secondly, we use a number of mobile phone apps, which provide virtual reality information and real-time monitoring information. We use the MySoil App (by Natural Environment Research Council (NERC), British Geological Survey (BGS) and Centre for Ecology & Hydrology (CEH)) and iGeology / iGeology3D (by BGS) to let students explore soil properties and hydrogeology of an area of interest. And we use the River Levels App (by OGL based on Environment Agency real time data) for exploring real time river levels and investigating spatial variability. Finally, we developed small hands-on projects for students to apply the theory outside the classroom. We for instance let them do simple infiltration experiments and ask them to them design a measurement plan. Evaluations have shown that students enjoy these activities and that it helps their learning. In this presentation we hope to share our experience so that the options for using open (educational) resources for hydrology teaching become more used in linking the classroom to the outside world.