

The Modelling Toolkit: Implications of recruitment strategies for the development of hydrological modelling

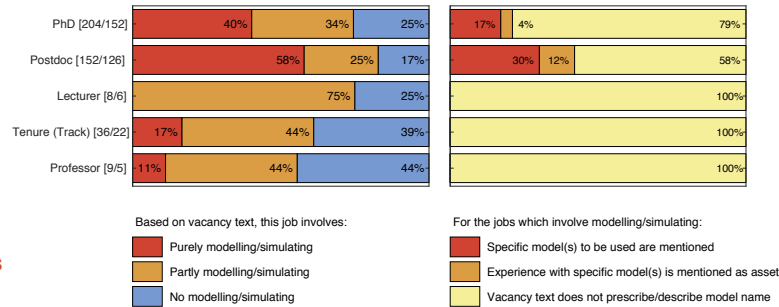
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Hydrological models play a key role in contemporary hydrological scientific research, but the social practices surrounding the use of these models receive little attention.

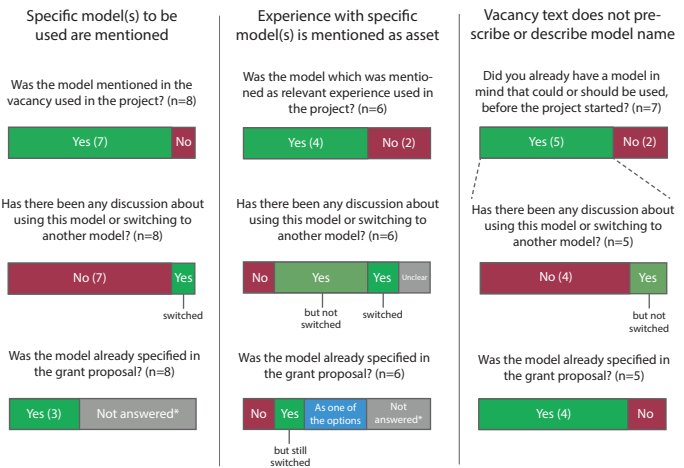
This study focuses on the recruitment process for scientific positions in which models are used. Over 400 scientific hydrological vacancies, shared through the About Hydrology mailing-list, were analyzed to evaluate whether the job description already prescribed which model must be used, and whether experience with a specific model was an asset. A small questionnaire was held to put these results into perspective and investigate the implications of recruitment strategy for hydrological modelling.

Of the analysed job positions, 76% involved at least some modelling. Of the PhD positions that involved any modelling, the model is already prescribed in the vacancy text in 17% of the cases, for postdoc positions this was 30%.



Word cloud of models that were encountered in the vacancies. The size is proportional to the frequency.

A small questionnaire revealed that also beyond the vacancies where the model is already prescribed, in many Early-Career Scientist (ECS) projects the model to be used is pre-determined and, actually, also often used without further discussion. The quotes come from questionnaire responses.



"..for PhD students, as they rarely have really experience in an advanced code, I think it's easier if we tell them a little bit what code they should use. But for postdocs, as long as it does the job, it's fine."

Hiring researcher

"Did your experience with [model] influence for which jobs you applied after?"

"Yes. I got some job offers for positions which I did not even apply for."

Early Career Scientist 1

"Yes. [...] while I sometimes think I was lucky to find a tool that matched the research lines I wanted to develop, the other way around is likely: I was actually influenced by the possibilities with [model] to feel like further exploring [topic]."

Early Career Scientist 2

An Early Career Scientist (ECS) develops a 'Modelling Toolkit', a toolkit that contains all the models where the ECS has experience with. **This toolkit influences the research identity the ECS develops, and influences future opportunities of the ECS** - it might be strategic to gain experience with popular, broadly used models, or to become part of an efficient modelling team. This system works as a wheel to make popular models more popular and confirms and maintains the status quo in current hydrological modelling.