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Groundwater Model Portal (GroMoPo) – collecting and sharing groundwater model information in a standardized open-access database

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The increasing number and quality of numerical groundwater models worldwide represent a great source of knowledge for local, regional, and international scientists as well as water managers and decision makers. This development is facilitated by recent advancements in computational tools and access to open software. At the same time, scientific journals stress the importance of sharing model codes and data upon publishing, setting a new publishing standard. Altogether, these developments in the groundwater modelling field create a richer and more dynamic environment, fostering model reproducibility. Such an environment calls for a global, integrated, and standardized database of groundwater models to help members of the groundwater modelling community to search, deposit, and analyse groundwater model information. Unfortunately, despite attempts in the past, such a database is not yet constructed and made available to the public. This is why multiple universities and institutes from different countries came together to create the Groundwater Model Portal (GroMoPo), where groundwater model information can be collected and shared easily. The process of building GroMoPo started by collecting information about individual groundwater models via an online form where various information was compiled by researchers from the institutes involved in the project. Apart from simple information such as names of model developers, year of model development, and country of origin, we also collected information on model implementation (e.g. software used, time and area covered, calibration and validation data availability). The collected data is stored at the Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUAHSI) HydroShare environment. The collected data are freely accessible via a web portal, which allows the user to query and visualize groundwater model information and to contribute new models. This web portal also allows new users to submit groundwater model information and explore previously collected data. Furthermore, we plan to keep GroMoPo updated in the future as an ongoing service, with CUAHSI's help, for the hydrological community. We collected information from more than 500 groundwater models in

our first phase. This number might appear large, but we estimate that it captures only a few percent of published peer-reviewed articles that include a groundwater model. Therefore, we wish to invite the groundwater modelling community to contribute to and use GroMoPo, expanding our group even further to ensure that more data is collected and shared in the future. With such community involvement, we hope to facilitate meta-analysis and comparative studies, enable broader sensitivity and uncertainty analysis, avoid duplication or replication in groundwater modelling efforts, increase the visibility of existing models and associated publications, and create a teaching tool for aspiring groundwater modelers.