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Netherlands Hydrological Modeling Instrument - Unifying Dutch hydrological modeling expertise for national policy analysis

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Dutch hydrological institutes Alterra, Deltares, Netherlands Environmental Assessment Agency and RWS Waterdienst have cooperated to build a new national hydrological model. The instrument will be used by all three ministries involved in national water policy matters, for instance drought management, manure policy and climate change issues.

The basis of the modeling instrument is a state-of-the-art on-line coupling of the groundwater system (MODFLOW) and the unsaturated zone (metaSWAP). Optionally a national surface water module (MOZART-DM) can be added, in which surface water distribution, discharge and supply are accounted for. The data for the instrument is derived from several national databases, including the subsoil, groundwater abstractions, topsoil, land use, drainage, water distribution, water management and meteorological data.

The Netherlands Hydrological modeling Instrument will be the center point of a framework of models, to coherently model the hydrological system and the multitude of functions it supports. This framework will assist in national policy making. Our ambition is to also make the instrument suitable on a regional and local water board scale. Therefore, for the future refinement of the model, local knowledge of hydrological system needs to be implemented in cooperation with the water boards.

The development of the new Netherlands Hydrological modeling Instrument is a quality boost for national water management, thanks to a unique cooperation of all major research institutes and policy makers. It constitutes an essential instrument in implementing the right policy in a changing climate.