

EGU2020-6587

<https://doi.org/10.5194/egusphere-egu2020-6587>

EGU General Assembly 2020

© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.



How to validate calibrated/assimilated global hydrological outputs with high resolution groundwater data and regional models: an investigation of WaterGAP performance over France

Kuei-Hua Hsu¹, Laurent Longuevergne², and Annette Eicker¹

¹Geodesy and Geoinformatics, HafenCity University, Hamburg, Germany (kuei-hua.hsu@hcu-hamburg.de)

²Geosciences, University of Rennes, Rennes, France

The dynamic global water cycle is of ecological and societal importance as it affects the availability of freshwater resources and influences extreme events such as floods and droughts. This work is set in the frame of the GlobalCDA Research Unit. Its goal consists of developing a calibration/data assimilation approach (C/DA) to improve the tracking and predicting of freshwater availability by combining data from the global hydrological model WaterGAP with geodetic (GRACE, altimetry) and remote sensing data using an ensemble Kalman filter. The aim of this study is focused on the validation of C/DA results using independent datasets. We propose a double strategy: (1) we use regional models. We apply the high-resolution regional model *AquiFR*, a platform coupling the SURFEX land surface model with a set of hydrogeological models, providing storage changes in each individual compartments at daily time steps with a resolution of 8 km. (2) We built a large dataset of ~3000 monitoring boreholes in France. In order to compare the irregularly sampled borehole data with C/DA results, several interpolation methods are tested.