Geophysical Research Abstracts
Vol. 19, EGU2017-1103-1, 2017
EGU General Assembly 2017

The Global Streamflow Indices and Metadata archive (G-SIM): A compilation of global streamflow time series indices and meta-data

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In-situ observations of daily streamflow with global coverage are a crucial asset for understanding large-scale freshwater resources which are an essential component of the Earth system and a prerequisite for societal development. Here we present the Global Streamflow Indices and Metadata archive (G-SIM), a collection indices derived from more than 20,000 daily streamflow time series across the globe. These indices are designed to support global assessments of change in wet and dry extremes, and have been compiled from 12 free-to-access online databases (seven national databases and five international collections). The G-SIM archive also includes significant metadata to help support detailed understanding of streamflow dynamics, with the inclusion of drainage area shapefile and many essential catchment properties such as land cover type, soil and topographic characteristics. The automated procedure in data handling and quality control of the project makes G-SIM a reproducible, extendible archive and can be utilised for many purposes in large-scale hydrology. Some potential applications include the identification of observational trends in hydrological extremes, the assessment of climate change impacts on streamflow regimes, and the validation of global hydrological models.