Geophysical Research Abstracts
Vol. 20, EGU2018-15984, 2018
EGU General Assembly 2018

Water quality at the global scale: GEMStat database and information system

Claudia Färber (1), Dmytro Lisniak (1), Philipp Saile (1), Sven-Henrik Kleber (2), Marco Ehl (2), Stephan Dietrich (1), Marianela Fader (1), and Siegfried Demuth (1)

(1) International Centre for Water Resources and Global Change (UNESCO), Federal Institute of Hydrology, Koblenz, Germany (faerber@bafg.de), (2) Federal Institute of Hydrology, Koblenz, Germany

Knowledge about water quality, referring to the chemical, physical and biological characteristics of water, is essential for assessing the potential impacts of anthropogenic activities on human health, food security and ecosystems. Monitoring data is integral to decipher global and regional patterns of water quality, both in the past and present, and to provide a basis for future trends under the influence of climate change and economic development. With rising environmental awareness, an increasing number of monitoring projects has been developed since the 1970s.The adoption of the 2030 Agenda for Sustainable Development highlights and acknowledges the need to improve ambient water quality (SDG Indicator 6.3.2).

In the framework of the Global Environment Monitoring System for Water (GEMS/Water), the Global Water Quality database and information system GEMStat (www.gemstat.org) provides a global overview of the condition of water bodies and trends at global, regional and local levels. Countries and organisations voluntarily provide water quality data from their own monitoring networks, which can be used for status evaluations, policy-making, and research purposes or within the scope of education and training initiatives.

Since 2014, GEMStat has been operated and maintained by the International Centre for Water Resources and Global Change and hosted by the Federal Institute of Hydrology in Koblenz, Germany. At present, GEMStat contains more than 3.5 million entries for rivers, lakes, reservoirs, wetlands and groundwater systems from 75 countries and approximately 3000 stations. Overall, data is available for the time period from 1965 to 2017 and for about 250 parameters. Data products recently developed include among others an interactive data explorer to visualise station and catchment statistics, country level statistical reports and an interactive metadata catalogue to access information on monitoring programmes and stations.

Here, we will (i) present the status and development of GEMStat and associated data products, (ii) introduce our data quality assurance strategies and concepts for the harmonisation of data formats, and (iii) explain the process users can undergo to request water quality data.