



# *Global Runoff Data Centre (GRDC)*

*4th WMO RA VI Hydrology Forum  
02 – 04 April 2019  
Bratislava, Slovakia*

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Federal Institute of Hydrology (BfG) Koblenz, Germany*

# GRDC operational environment

*Operates under the auspices of  
World Meteorological Organisation (WMO)*



*on advice of an  
International Steering Committee*

*with financial support of the  
Federal Republic of Germany*



*within the  
Federal Institute of Hydrology*



# GRDC Main functions

**Acquisition, harmonisation and storage** of global historical river discharge data and associated metadata



**Including data rescue**



**Dissemination of historical discharge data and derived data products of more than 9500 stations in 161 countries to science and research (“One-stop shop”)**

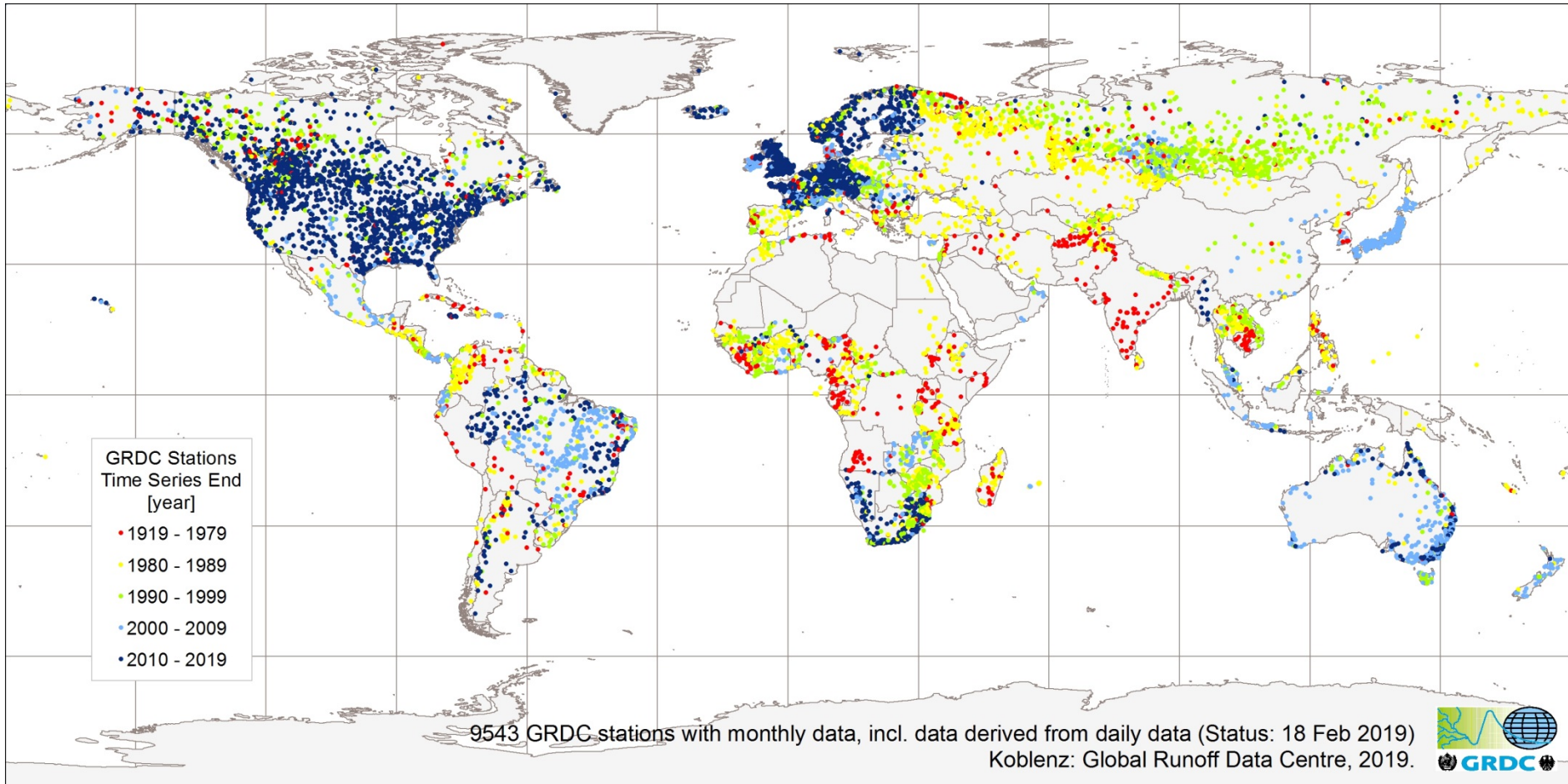
**Note:**

*GRDC does not have its own monitoring infrastructure and thus is not substituting the functions of National Hydrological Services*

*Ownership of data remains with original Data Provider (National Hydrological Services)*

# Status of the Global Runoff Database

Global Coverage of GRDC Stations indicated by **time series end**  
**> 420 000 Station Years**



# *GRDC Data Policy (excerpt)*

*GRDC data are available to users free and unrestricted under specific conditions*

*Data requests must be in writing: e.g. E-mail*

*Data users must sign a user declaration stating that:*

- Data may not be used for commercial purposes*
- Data may not be transferred to third parties*
- Data users agree that GRDC may inform data providers about the use of their data*
- Source of the data must be acknowledged in all publications*

# Mandate

*GRDC is mandated amongst others by:*

## **WMO Resolution 21 (Cg-XII, 1995)**

*...support to Global Runoff Data Centre*

## **WMO Resolution 25 (Cg-XIII, 1999)**

*...free and unrestricted exchange of hydrological data and products*

## **WMO Congress XVI (2011)**

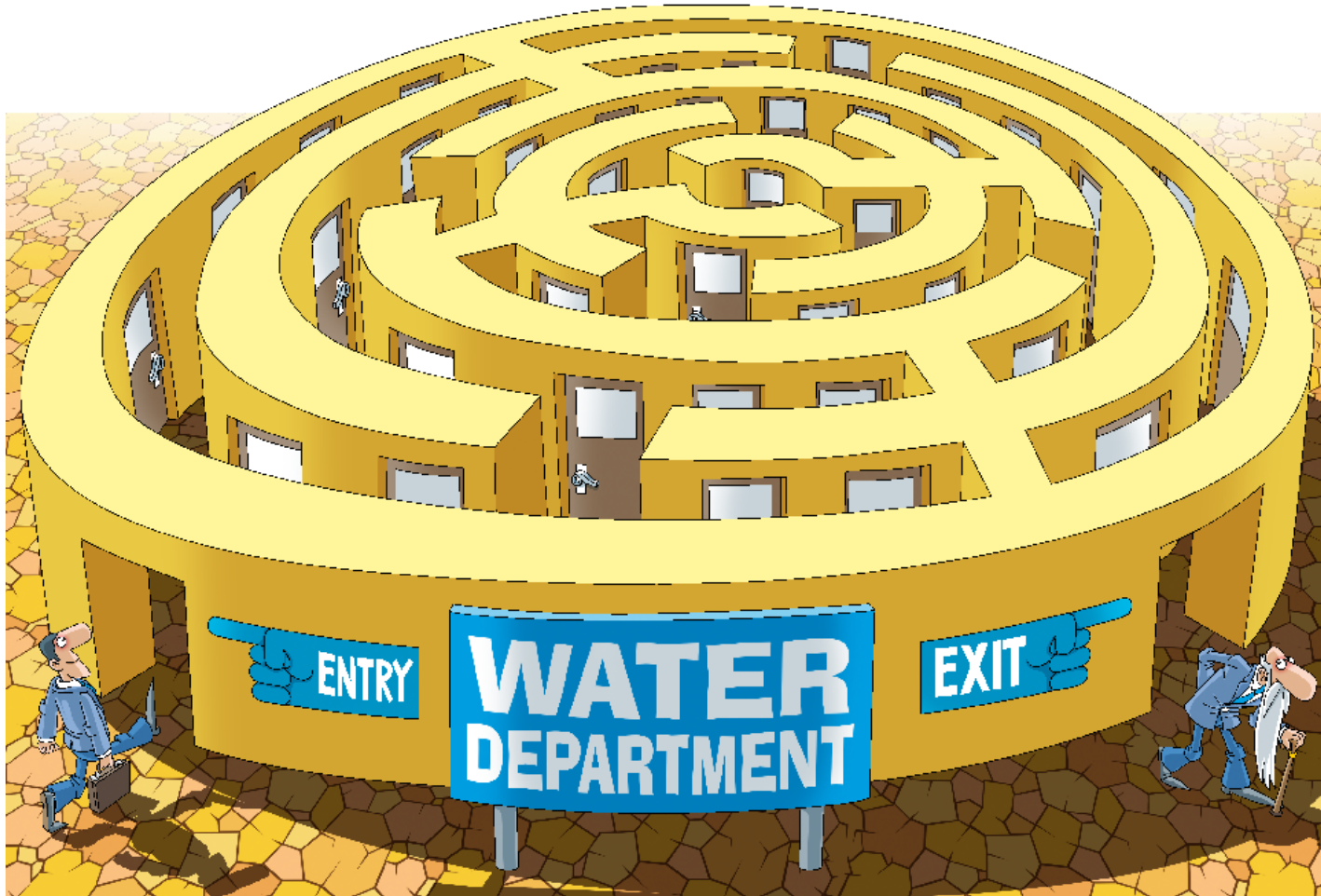
- decides to keep Resolution 21 in force*
- urges Member States to comply with Resolution 25*

# 1st WMO RA VI Hydrology Forum

*Task for GRDC to Improve and Formalise Data Sharing Procedures  
between NHSs and Data Centres*



# GRDC Data Acquisition



World Bank 2019



# Contact & Consolidation

- *Identification of NHS contact person(s)*
  - *RA VI Hydrology Fora*
  - *WMO Secretariat*
  - *WMO Hydrology Conference 2018*
  - *GRDC Contact database*
- *Consolidation of station list for GRDC supported projects*
  - *GRDC main database*
  - *European Water Archive of UNESCO EURO-FRIEND-Water*
  - *Global Terrestrial Network for River Discharge (GTN-R)*
  - *WMO CHy Climate Sensitive Stations (Reference Stations)*
  - *ArcticHYCOS and Arctic Runoff Database (ARDB)*
  - *GEOSS Data Core (currently only GTN-R stations)*
  - *BALTEX*
  - *etc.*

# Data Provisioning

*Data are provided by various means to GRDC*

- Direct access to database*
- FTP download from suppliers server*
- FTP upload to GRDC server*
- Download from website*
- Email attachments*
  
- No Web Services yet*

# *Experiences gained*

- *Extensive correspondence is always required*
- *Apparently access to quality assured “historical” data more difficult than “real-time” data*
- *GRDC data requests triggers NHSs internal activities eg.*
  - *Identification of reference stations*
  - *Reconsidering “Freshwater Flux” stations*
  - *Addressing station metadata issues*
- *Automated updating currently done by limited number of providers*
- *Reminders are useful to trigger updating process*

***But why do we do this?***

# GRDC Data Users

*GRDC supports the climate-related programmes and projects of the United Nations and their special organisations such as the:*

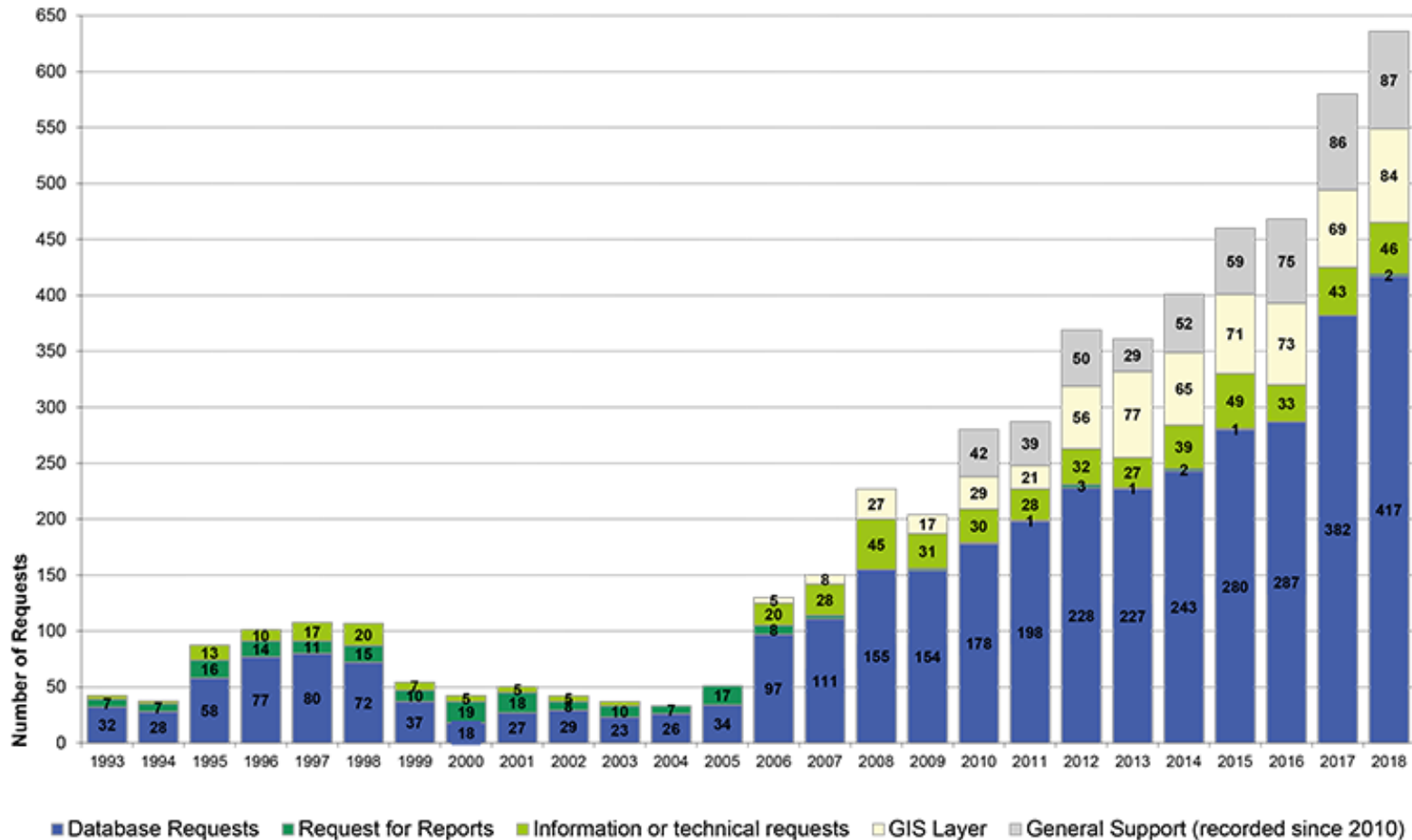
- *UNESCO International Hydrological Programme (IHP) (FRIEND-Water, WHYMAP)*
- *Global Terrestrial Network for Hydrology (GTN-H)*
- *GCOS (Global Climate Observing System)*
- *GEO (Group on Earth Observations)*
- *GEWEX (Global Energy and Water Exchanges Project)*
- *Cross-sectoral issues on Intra-Regional Water Security and Disaster Management*

*and the international scientific community on:*

- *Global change*
- *Climate and hydrological modelling*
- *Climate services*
- *Research and assessment*

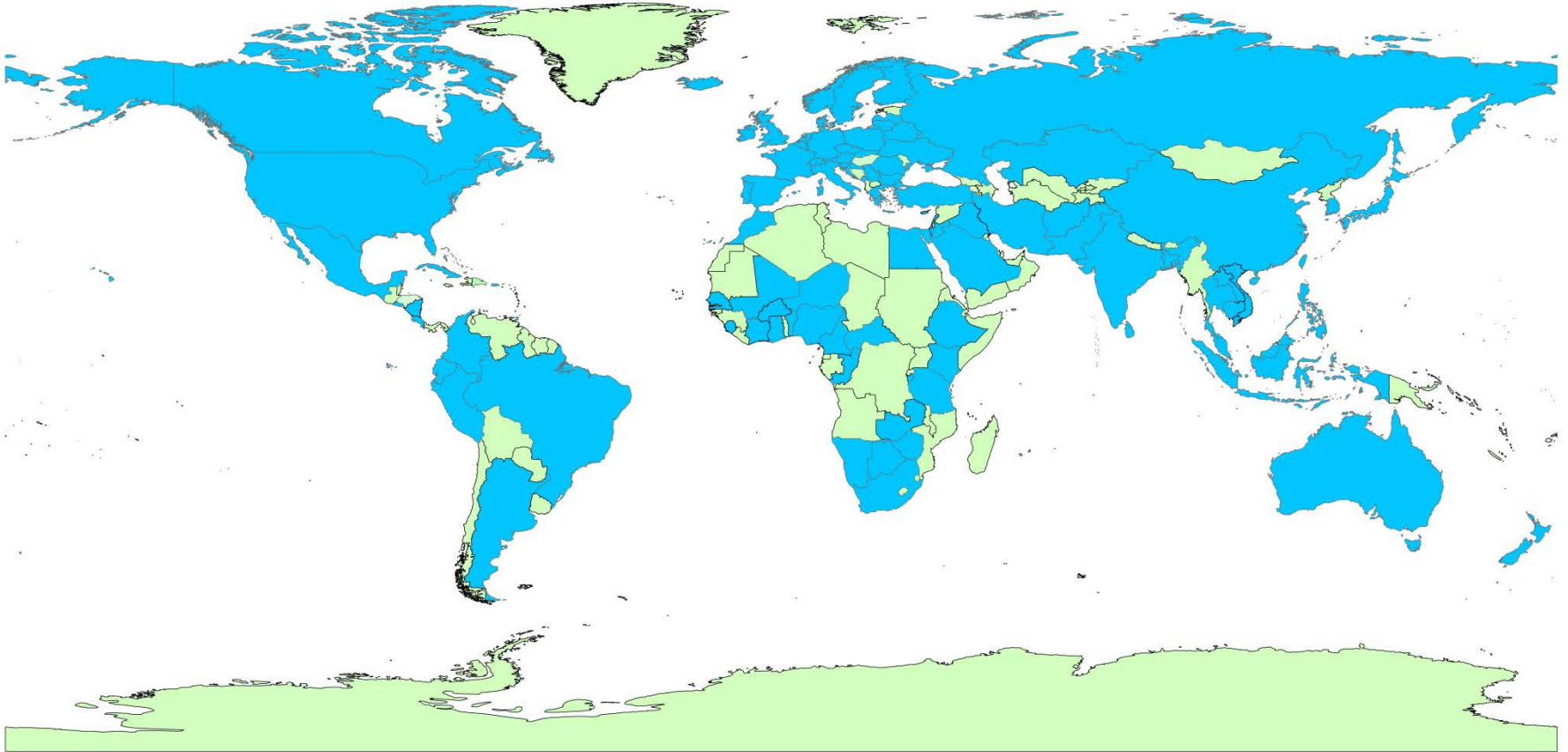
# GRDC Data Requests

Information and data requests directed to GRDC, 1993 - 2018



# *GRDC Data Requests*

*Data delivered to 96 countries (blue)*



***2018 more than 500,000 time series provided to data users***

# Data Users published on the Web



The GRDC

Standard Services

Data Products

Special Datasets

Collaboration

News and Updates

You are here: [GRDC](#) > [The GRDC](#) > [Rationale, Background](#) > [Our Clients](#) > [Institutions that received a set of GRDC data in March 2019](#)



Rationale, Background

Mission, Main Objectives

Mandate

Position in the UN System

Our Clients

Steering Committee

Data Policy

Global Runoff Database

Services

Global Runoff Database

River Discharge Data

Geospatial Data Products

## Institutions that received a set of GRDC data in March 2019

### Institutions that received a set of GRDC data in March 2019

| Institution                           | Country | Basin       | Region |
|---------------------------------------|---------|-------------|--------|
| Auburn University, US                 |         |             | AFRICA |
| University of Tartu, EE               |         |             | EUROPA |
| University of Cincinnati, US          |         |             | WORLD  |
| University of Duisburg-Essen, DE      | GERMANY |             |        |
| International Energy Agency, FR       |         | RHINE       |        |
| Universidad de Sevilla, ES            | ANGOLA  |             |        |
| University of Colorado, US            |         |             | WORLD  |
| Wuhan University, CN                  |         |             | WORLD  |
| Université de Tunis, TN               |         | BLACK VOLTA |        |
| Wuhan University, CN                  |         |             | WORLD  |
| University of Bristol, GB             |         |             | WORLD  |
| Saint-Petersburg State University, RU |         |             | EUROPA |

Thank you ...

... for using the GRDC dataset, for referencing the GRDC as the source of the data and for providing us with a version of your publication.

Publications

> 2018

> 2017

> 2016

> 2015

> 2014

> 2013

> 2012

> 2011

> 2010



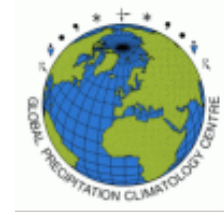
# Partner Data Centres

## Precipitation: GPCC

[gpcc.dwd.de](http://gpcc.dwd.de)

**Global Precipitation Climatology Centre**

Offenbach, Germany



## Water Quality: GEMS/Water GEMStat

<http://www.gemstat.org>

**Global Environment Monitoring System of UN Environment**

Koblenz, Germany



## Groundwater: IGRAC

<http://www.igrac.net>

**International Groundwater Resources Assessment Centre**

Delft, The Netherlands



## Lakes and Reservoirs: HYDROLARE

[www.hydrolare.ru](http://www.hydrolare.ru)

**International Centre on the Hydrology of Lakes and Reservoirs**

St. Petersburg, Russia



# ...30 years GRDC

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*Thank you for your attention!*