

### The importance of organizing data access, its processing and use

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Institut Montpelliérain de l'Eau et de l'Environnement

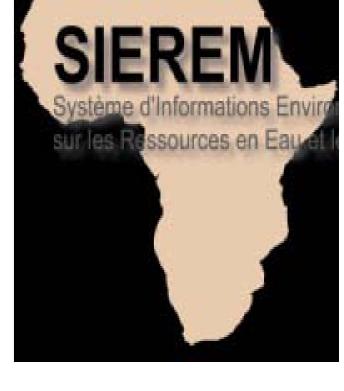
## The importance of organizing data access, its processing and use

Jean François Boyer, Nathalie Rouché, HydroSciences Montpellier France IAHS Scientific Assembly 2017 http://www.hydrosciences.fr/sierem

Innovative ICT tools for water management and science

Poster program W18 Thursday, 13 July 2017 Room B





## BACKGROUND AND OBJECTIVES

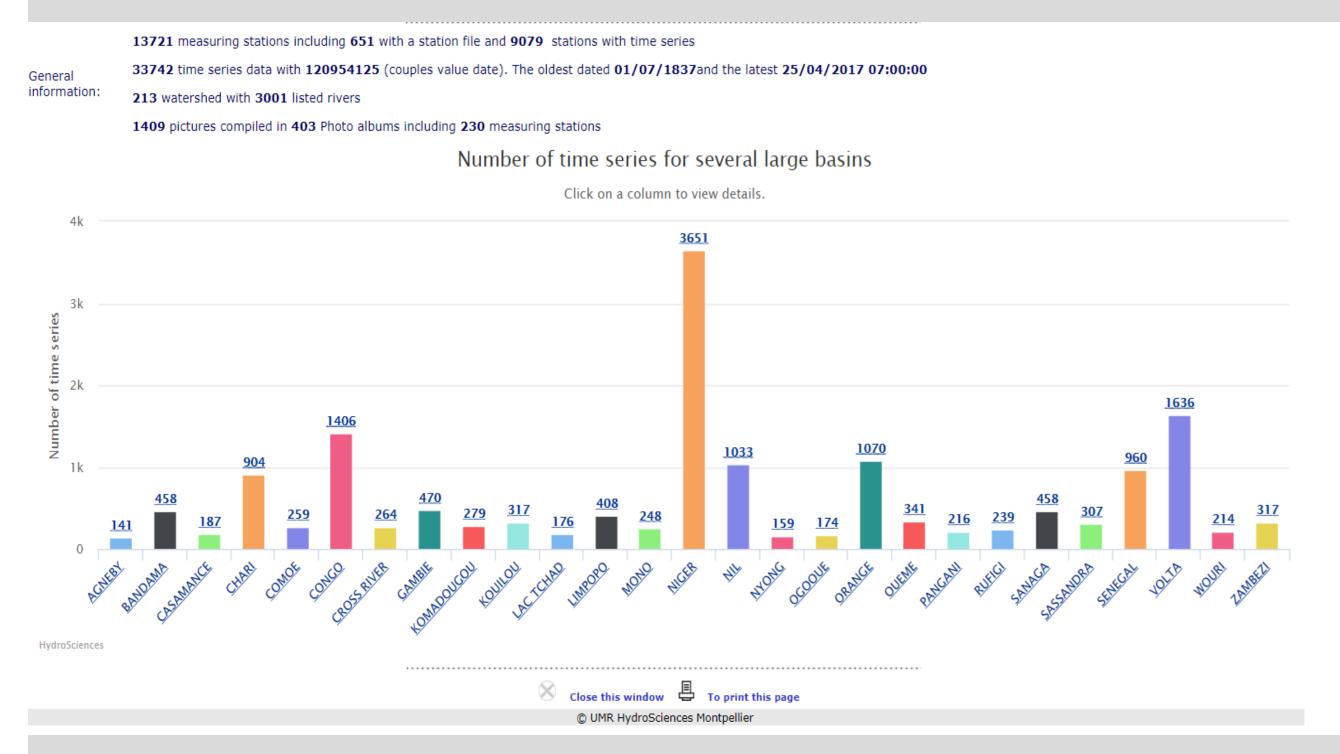
10–14 July 2017

Data and information are often scattered, heterogeneous or incomplete; they are rarely comparable and suited to needs. Numerous public, semi-public and private organizations produce and manage data, but often they do not have the resources to exchange, assemble, standardize, summarize and capitalize on the data that they possess.

Port Elizabeth, South Africa

Over and above these difficulties, there is also the more general problem of a natural and widespread reluctance to share information, particularly when it is considered strategic because it can be used for paid services or to provide access to power. While most countries and basins (national or transboundary) clearly need to make an effort to alleviate current data deficiencies, it is also vital that they develop links between data producers and users no matter what the theme or level of intervention (local, basin, national and international) and reinforce capacities for accessing, processing and using existing data.

It is in this context and aware of these stakes that HydroSciences Montpellier Laboratory (HSM) has developed an information system, known as SIEREM, which contains several types of environmental variables for the whole of Africa.



With 13,000 measurement stations and 33,000 chronological series (i.e. more than 117 million recordings) for 1837-2015, this is the largest environmental information system in Africa.

The SIEREM site provides free access to all information except raw measurement data, which is the property of the national services of African countries.

# RESULTS Map with geographical coordinates stations SIEREM Système d'Informations Environnementales sur les Ressources en Eaux et leur Modélisation Inventory list of rainfall stations **Environnemental** data base Annual rainfall map of Africa Map of the density stations of the SIEREM data base

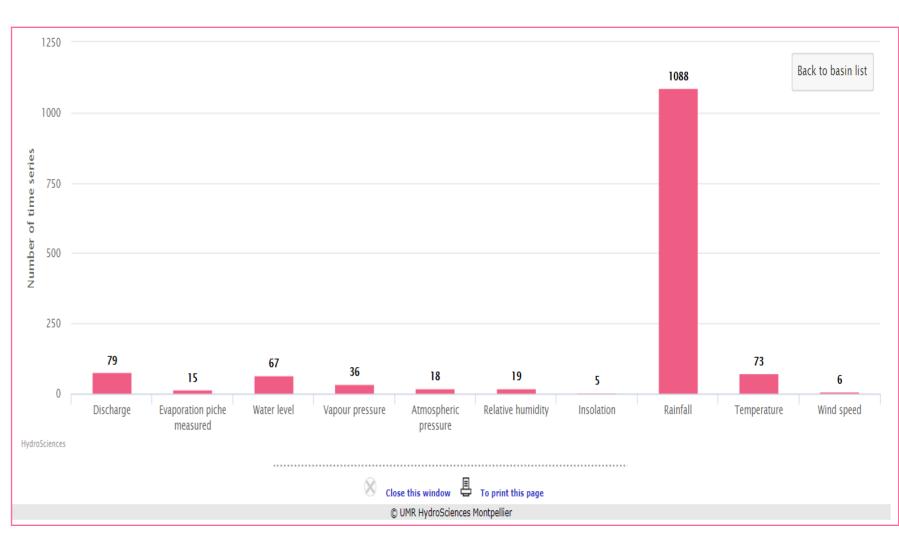
## DATA SET SIEREM

## 1. General inventory of Environnemental Information System SIEREM

Different Type of data can be managed: Hydrological discharges, water level, Climatological: rainfall, temperature, humidity, evaporation piche measured

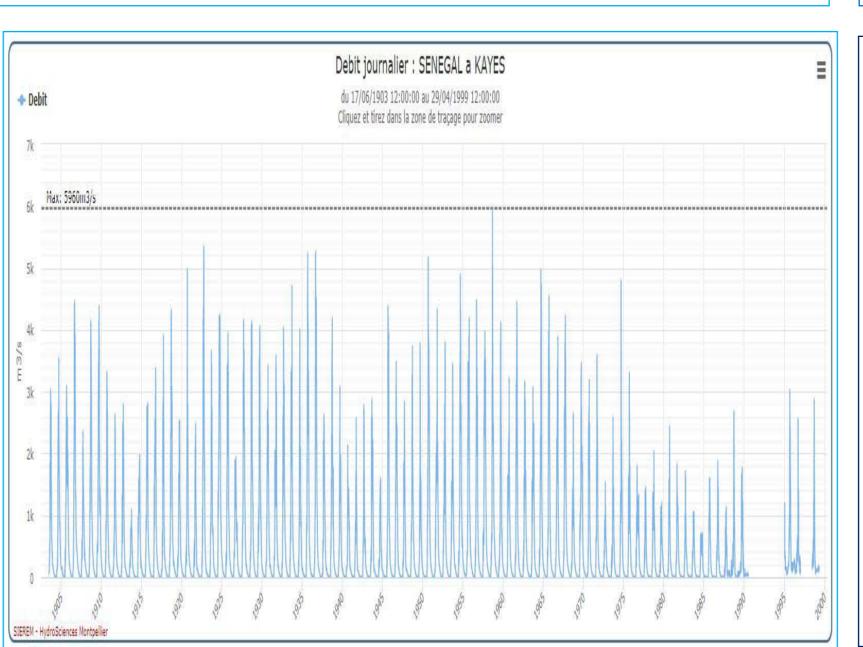
The Congo river is the world's second largest river, both for its mean flow and for its catchment area 3,7 millions of km2. Discharge 40,000 m3/s at Kinshasa Source :

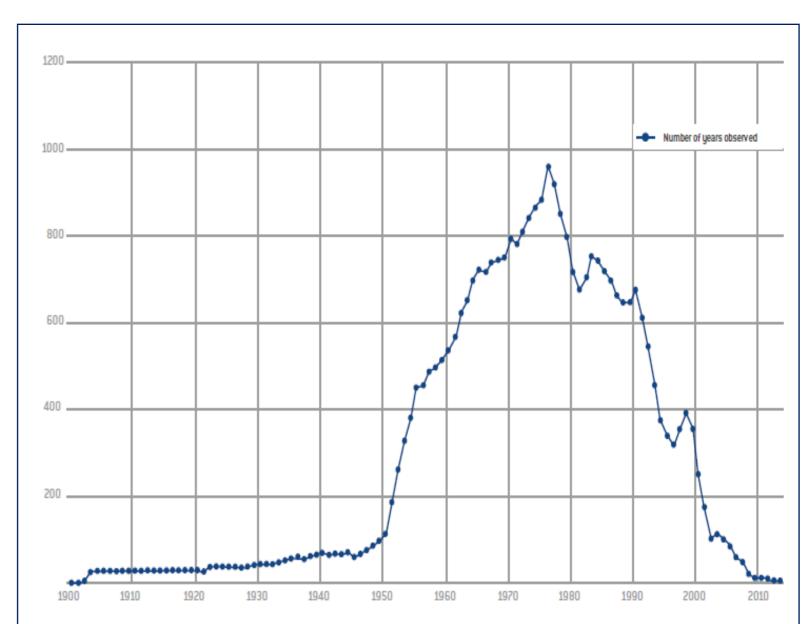
L'hydrologie tropicale: géoscience et outil pour le développement IAHS Publ. no. 238,1996



## 2. Hydrometric data recorded in Sierem database

Graphic of a long series of daily discharges: Senegal at Kayes from 1905 to 2000 gaps after 1990s Number of daily and monthly hydrometric series. Less observations after 1990s, loss of know-how, lack of human and financial resources

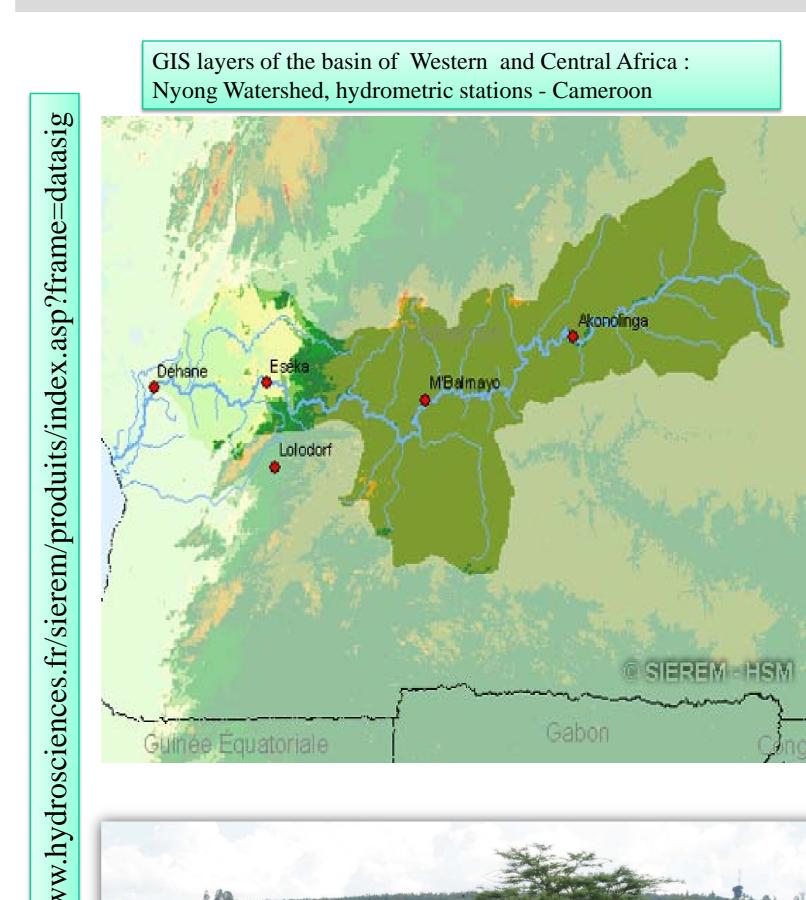


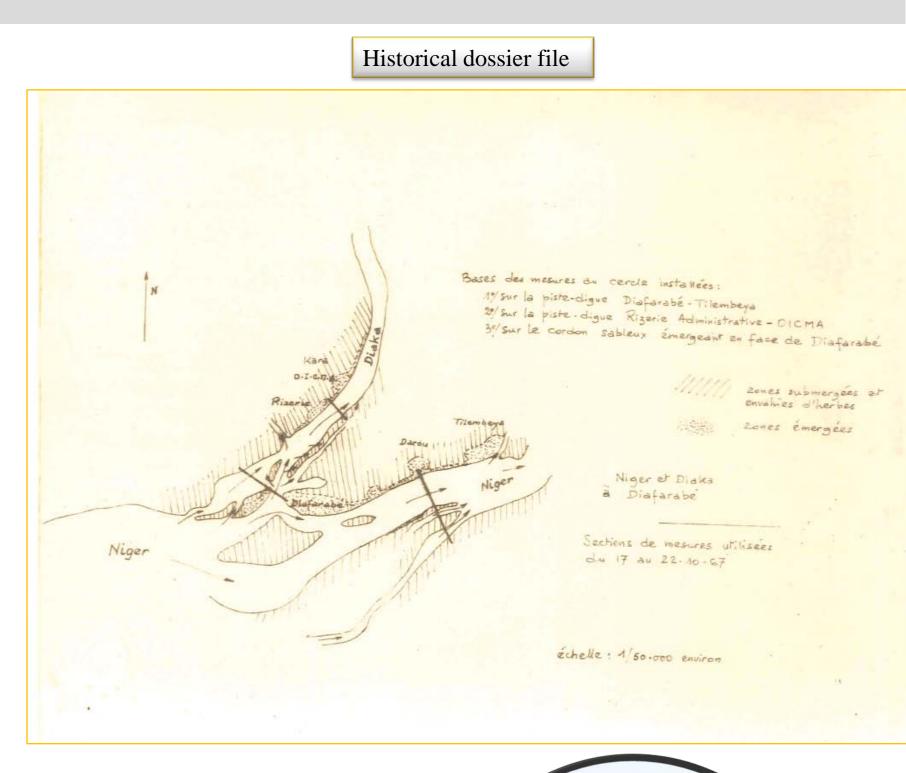


## 3. Catchment basins – Photos – Book Map Library

Hydro-climatic data is combined with spatial data: 201 contours of catchment basins and **2,962** rivers.

SIEREM has also been enriched with data recovered from historical hydrological archives. More than **1,342 photos** have been brought together in 391 geo-referenced albums.







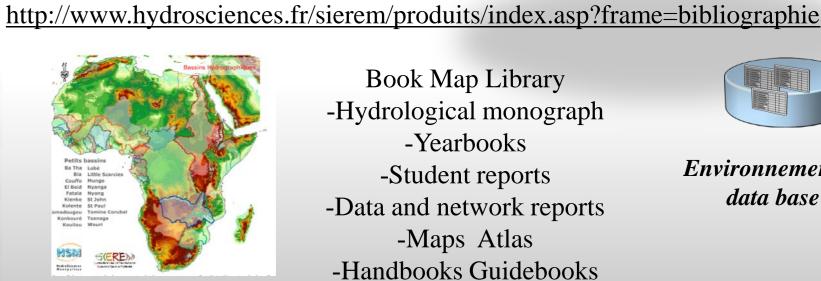
lat 13.21, long. -5.90 Mali G. Mahé 02/2001 Nyabarongo at Kanzenze lat -2.06, long 30.11 Rwanda JP. Bricquet 11/2015

Bani at Douna





Nyawarungu at Nemba Lat -1.93 long 30.3 Rwanda JP. Bricquet 11/2015





RÉFÉRENCES

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-BOYER JF, DIEULIN C, ROUCHÉ N, et al. / SIEREM an environmental information system for water resources. 5th World FRIEND Conference, La Havana - Cuba, Nov. 2006 in Climate Variability and Change - Hydrological Impacts. IAHS Publ. 308, p.19-25, 2006.