The importance of organizing data access, its processing and use

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http://www.hydrosciences.fr/sierem

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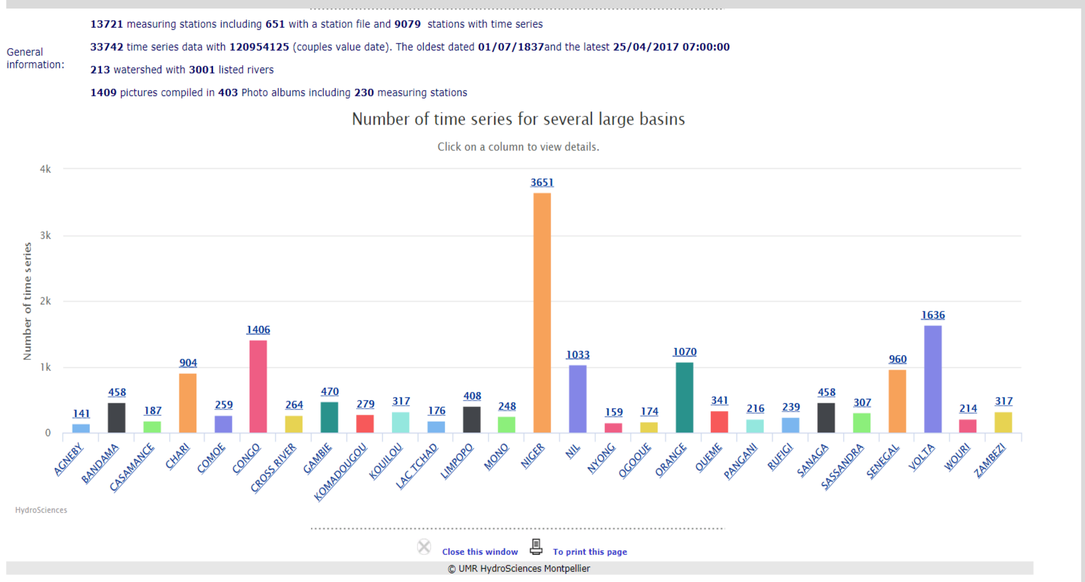
Innovative ICT tools for water management and science

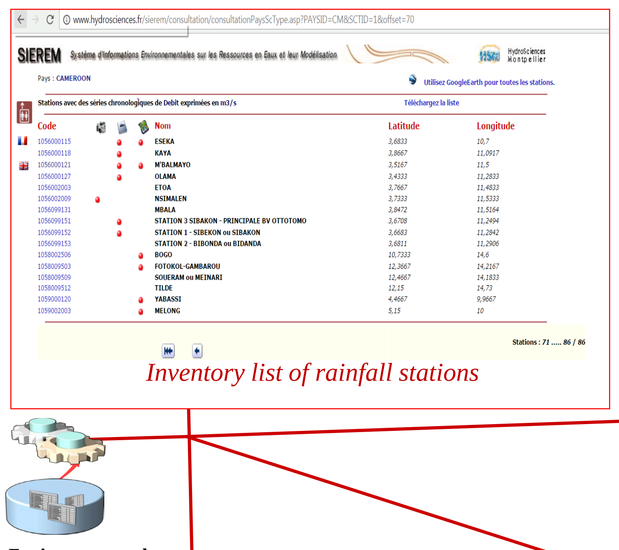
BACKGROUND AND OBJECTIVES

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.
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.



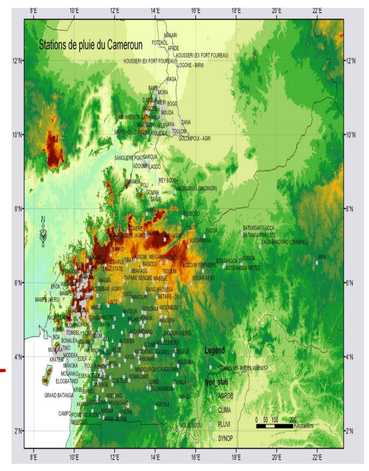
With 13,000 measurement stations and **33,000 chronological series** (i.e. more than 117 million recordings) for **1837-2015**, this is the largest environmental information system in Africa.
The SIEREM site provides free access to all information except raw measurement data, which is the property of the national services of African countries.

RESULTS

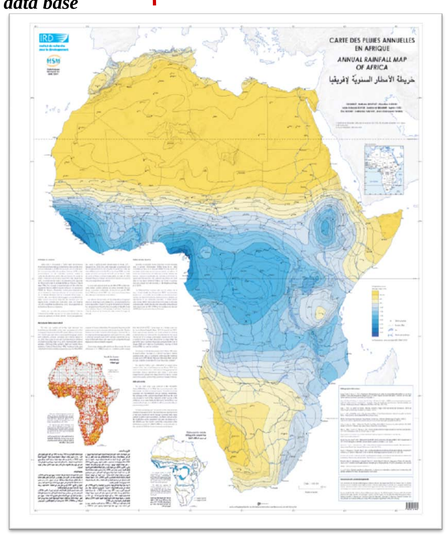


Inventory list of rainfall stations

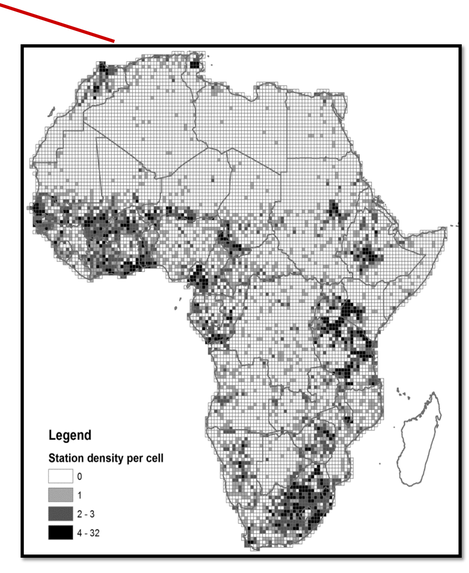
Map with geographical coordinates stations



Environnemental data base



Annual rainfall map of Africa



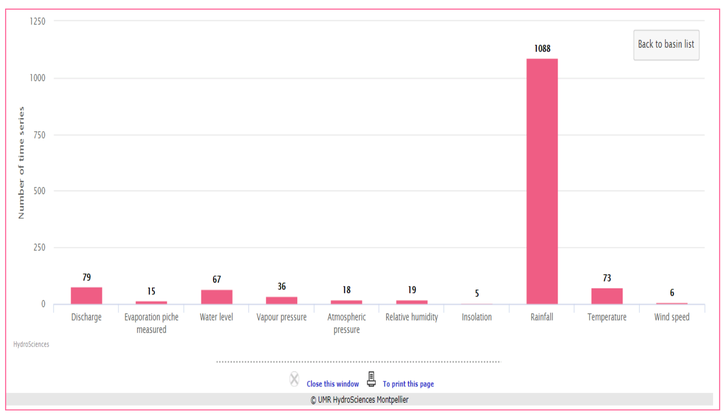
Map of the density stations of the SIEREM data base

DATA SET SIEREM

1. General inventory of Environnemental Information System SIEREM

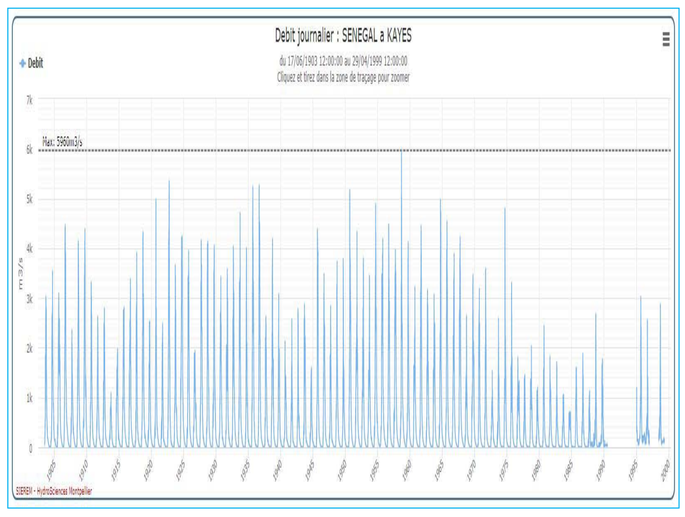
Different Type of data can be managed :
Hydrological discharges, water level,
Climatological : rainfall, temperature, humidity, evaporation piche measured

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

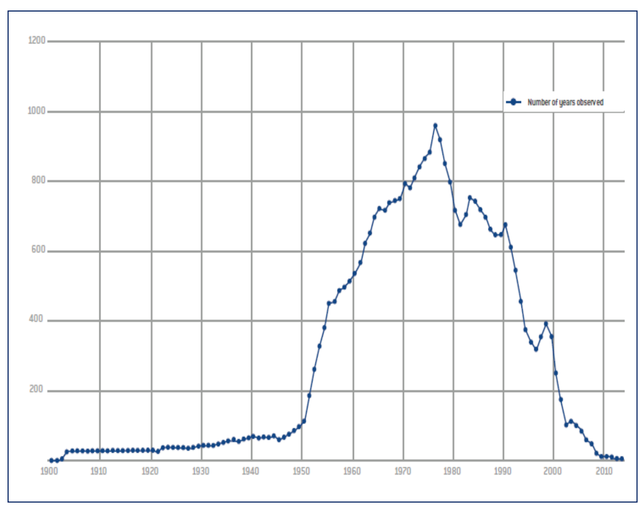


2. Hydrometric data recorded in Sierem database

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



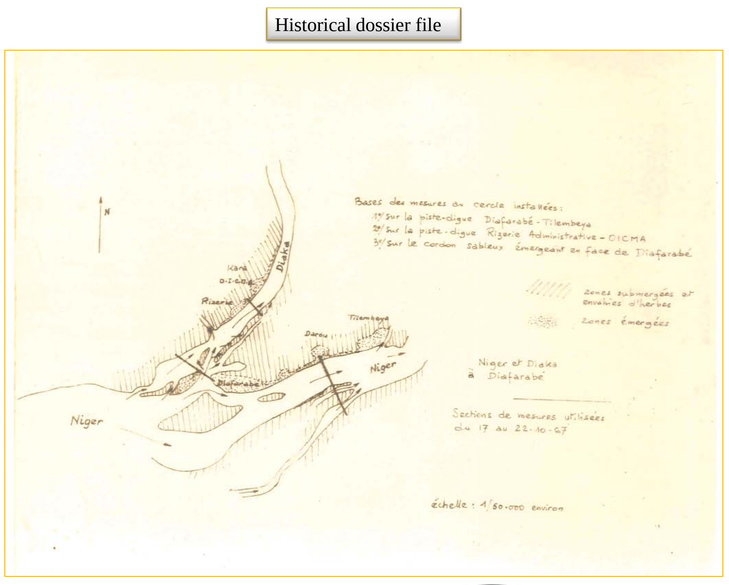
3. Catchment basins – Photos – Book Map Library

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.

http://www.hydrosciences.fr/sierem/produits/index.asp?frame=datasig

GIS layers of the basin of Western and Central Africa :
Nyong Watershed, hydrometric stations - Cameroon

Historical dossier file

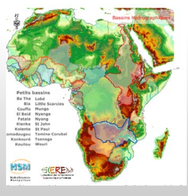


Nyabarongo at Kanzenze
lat -2.06, long 30.11
Rwanda JP. Bricquet 11/2015

Bani at Douna
lat 13.21, long. -5.90
Mali G. Mahé 02/2001

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

http://www.hydrosciences.fr/sierem/produits/index.asp?frame=bibliographie



Book Map Library
-Hydrological monograph
-Yearbooks
-Student reports
-Data and network reports
-Maps Atlas
-Handbooks Guidebooks

Environnemental data base

RÉFÉRENCES

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