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The Global Groundwater Information System

A Tool For Sharing Groundwater Information

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International Groundwater Resources Assessment Centre

Knowledge Inventory for hydrogeology research

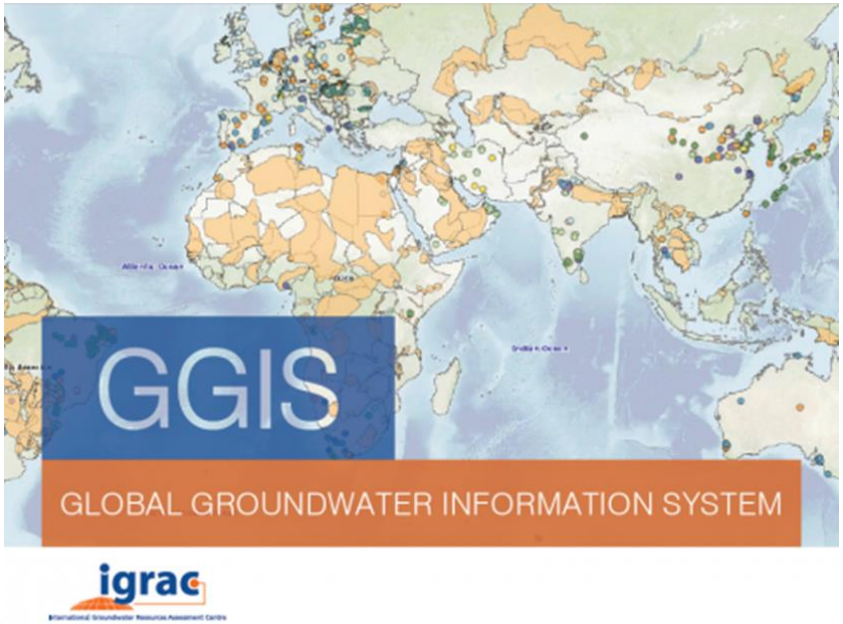
The Role of IGRAC

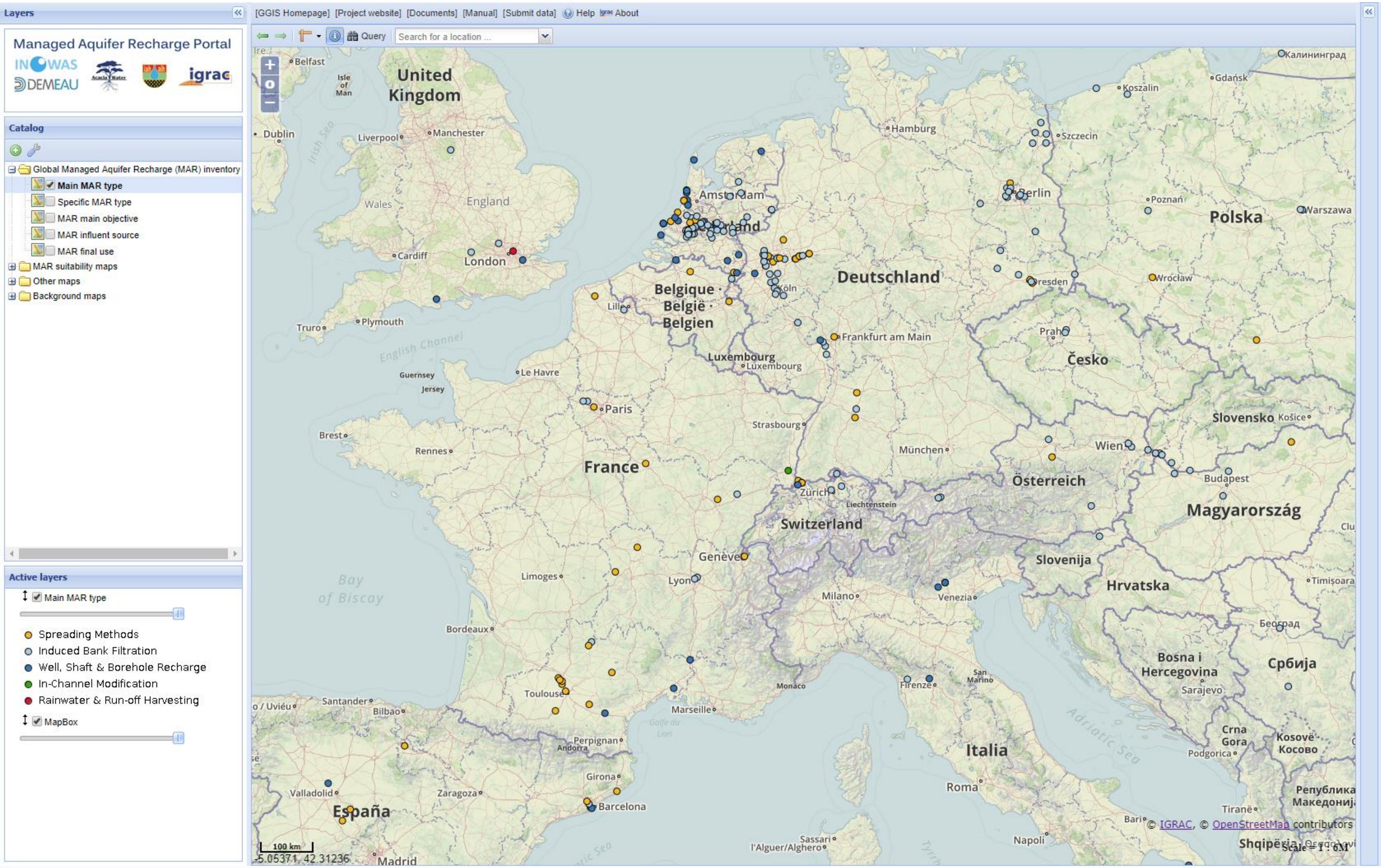
- IGRAC is the International Groundwater Resources Assessment Centre. It is a UNESCO centre working under the auspices of the WMO.
- Provide relevant information and knowledge on groundwater resources of the world, with particular emphasis on developing countries, in order to support their sustainable use
- Activities were initially axed on groundwater resources assessment and monitoring but IGRAC has developed expertise in other groundwater-related topics such as governance, training, managed aquifer recharge, transboundary aquifers and climate change adaptation.

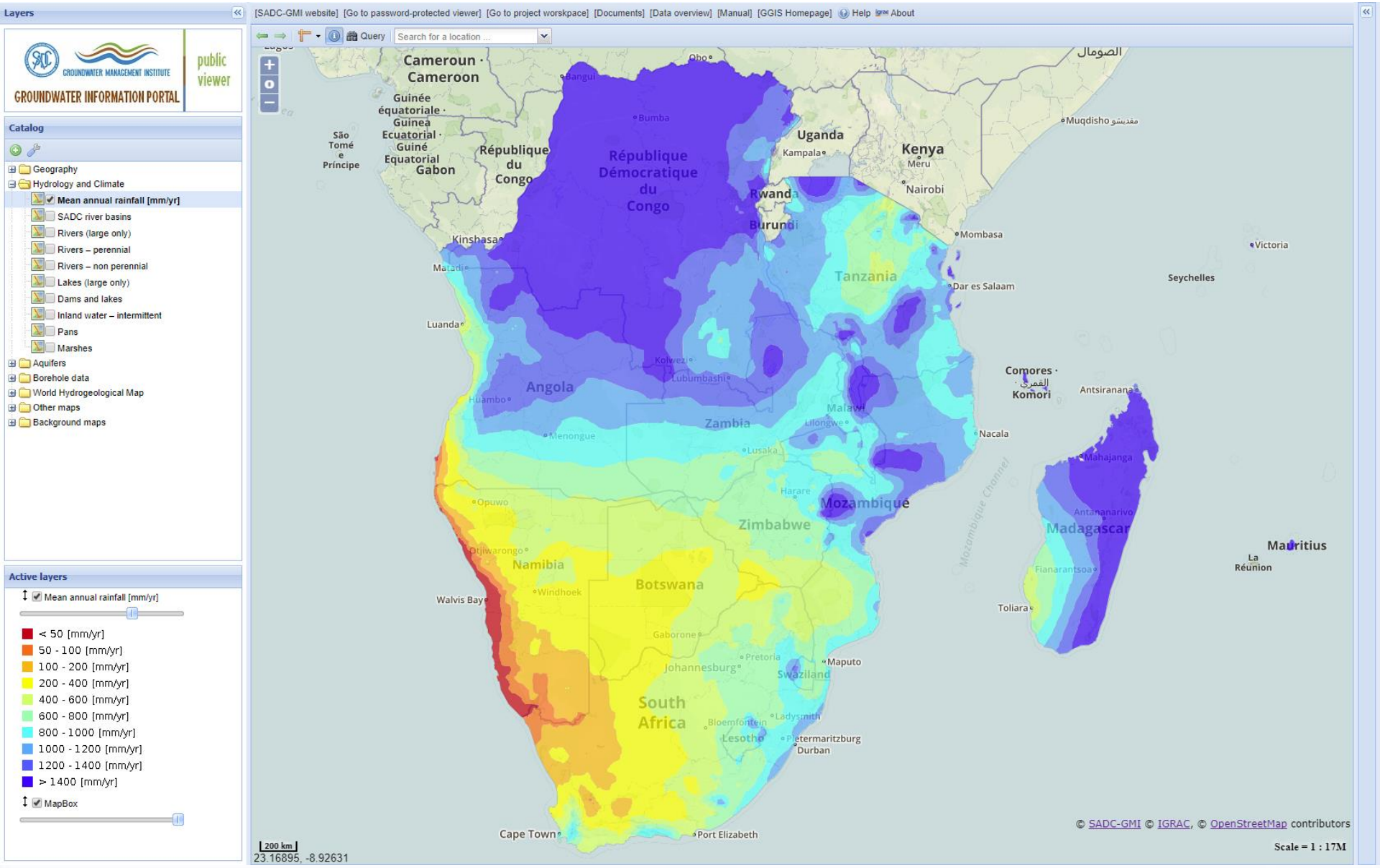
The Global Groundwater Information System (GGIS)

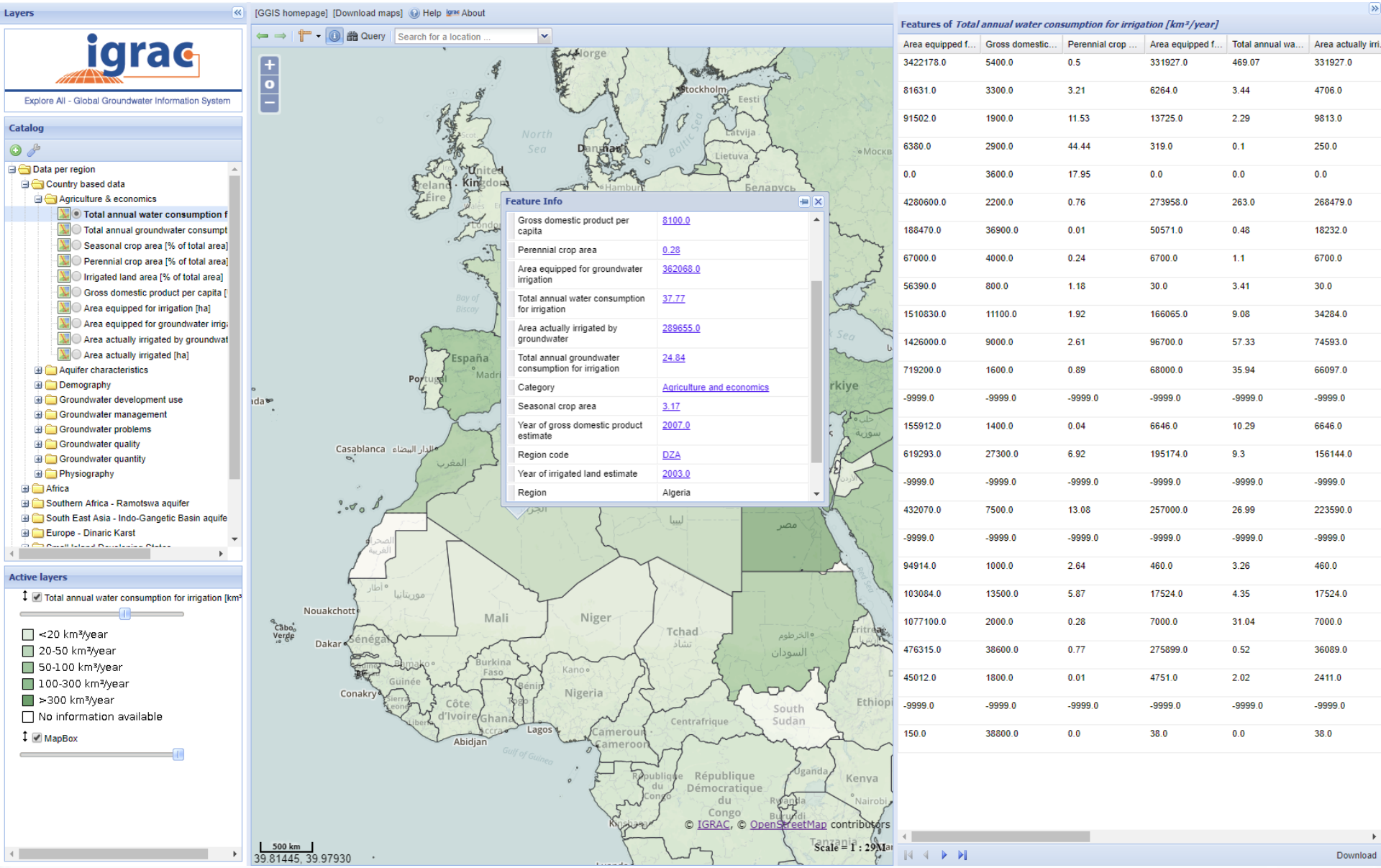
- Global, interactive and transparent online portal for groundwater-related information and knowledge
- Several viewers can be accessed via the portal, dedicated to different projects/regions/themes
- Based on international standards (Open Geospatial Consortium)
- Collect, process, store, visualise and download information

https://www.un-igrac.org/



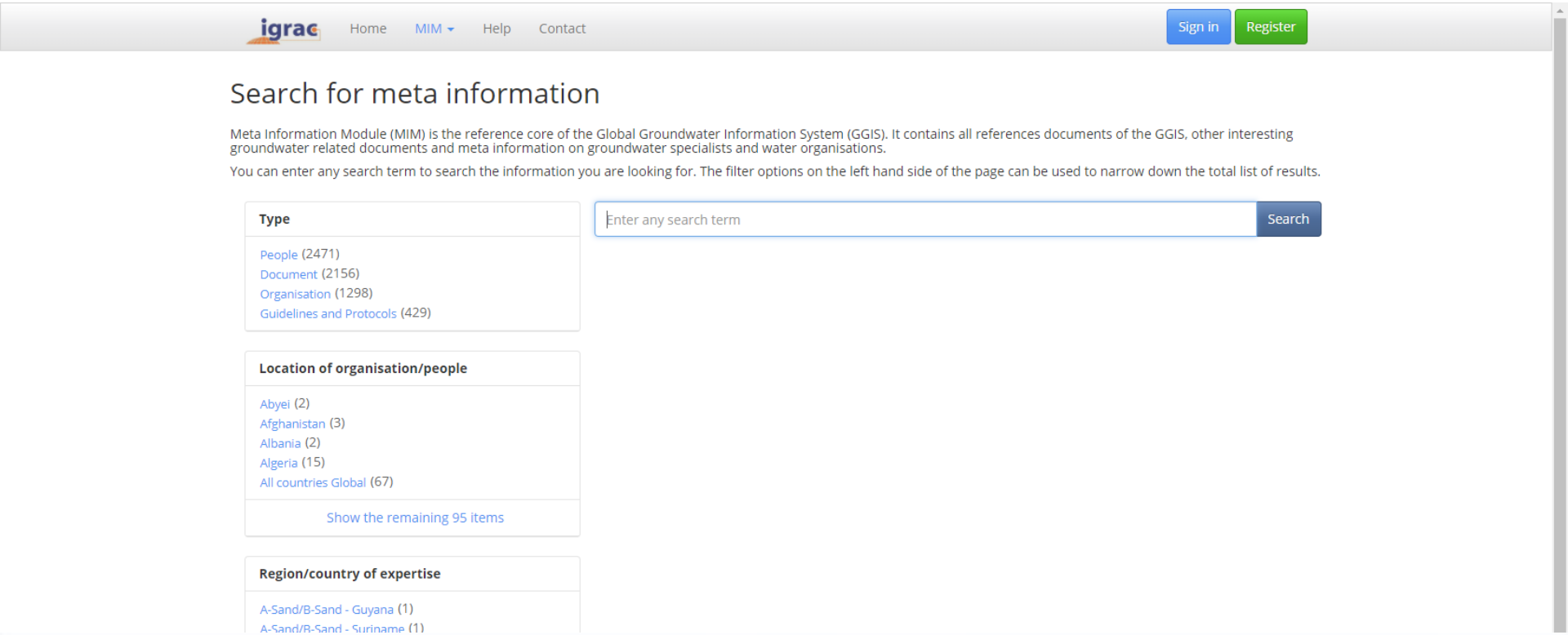

Layers
Managed Aquifer Recharge Portal
INOWAS
DEMEAU
igrac
Catalog
Global Managed Aquifer Recharge (MAR) inventory
Main MAR type
Specific MAR type
MAR main objective
MAR influent source
MAR final use
MAR suitability maps
Other maps
Background maps
Active layers
Main MAR type
Spreading Methods
Induced Bank Filtration
Well, Shaft & Borehole Recharge
In-Channel Modification
Rainwater & Run-off Harvesting
MapBox
[GGIS Homepage] [Project website] [Documents] [Manual] [Submit data] Help About
Query
Search for a location ...
United Kingdom
Deutschland
France
Belgique · België · Belgien
Polska
Česko
Österreich
Switzerland
Magyarország
Slovensko
Slovenija
Hrvatska
Italia
España
Bay of Biscay
English Channel
100 km
-5.05371, 42.31236
© IGRAC, © OpenStreetMap contributors


Layers
[SADC-GMI website] [Go to password-protected viewer] [Go to project worskpace] [Documents] [Data overview] [Manual] [GGIS Homepage] Help About
Query
Search for a location ...
GROUNDWATER MANAGEMENT INSTITUTE
GROUNDWATER INFORMATION PORTAL
public viewer
Catalog
Geography
Hydrology and Climate
Mean annual rainfall [mm/yr]
SADC river basins
Rivers (large only)
Rivers – perennial
Rivers – non perennial
Lakes (large only)
Dams and lakes
Inland water – intermittent
Pans
Marshes
Aquifers
Borehole data
World Hydrogeological Map
Other maps
Background maps
Active layers
Mean annual rainfall [mm/yr]
< 50 [mm/yr]
50 - 100 [mm/yr]
100 - 200 [mm/yr]
200 - 400 [mm/yr]
400 - 600 [mm/yr]
600 - 800 [mm/yr]
800 - 1000 [mm/yr]
1000 - 1200 [mm/yr]
1200 - 1400 [mm/yr]
> 1400 [mm/yr]
MapBox
Cameroun · Cameroon
Guinée équatoriale · Guinea Ecuatorial · Guiné Equatorial
São Tomé e Príncipe
Gabon
République du Congo
République Démocratique du Congo
Uganda
Kenya
Rwanda
Burundi
Tanzania
Angola
Zambia
Malawi
Mozambique
Zimbabwe
Namibia
Botswana
South Africa
Lesotho
Swaziland
Madagascar
Comores · Komori
Seychelles
Mauritius
La Réunion
Kinshasa
Luanda
Lubumbashi
Kolwezi
Lusaka
Harare
Windhoek
Walvis Bay
Gaborone
Pretoria
Johannesburg
Maputo
Durban
Bloemfontein
Port Elizabeth
Cape Town
Nairobi
Mombasa
Kampala
Muqdisho مقديشو
Victoria
Dar es Salaam
Nacala
Antsiranana
Mahajanga
Antananarivo
Fianarantsoa
Toliara
Mozambique Channel
© SADC-GMI © IGRAC, © OpenStreetMap contributors
200 km
23.16895, -8.92631
Scale = 1 : 17M

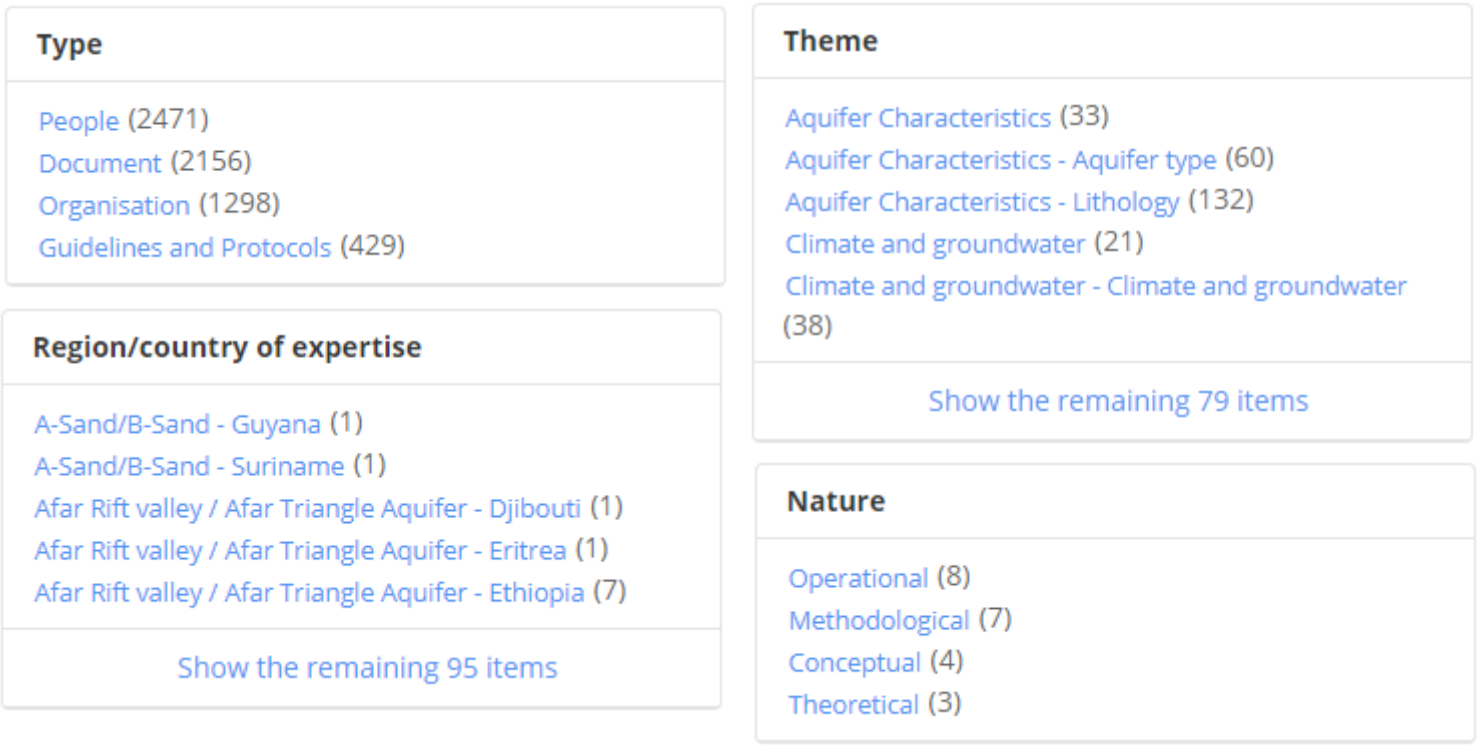

Layers
igrac
Explore All - Global Groundwater Information System
Catalog
Data per region
Country based data
Agriculture & economics
Total annual water consumption f
Total annual groundwater consumpt
Seasonal crop area [% of total area]
Perennial crop area [% of total area]
Irrigated land area [% of total area]
Gross domestic product per capita [
Area equipped for irrigation [ha]
Area equipped for groundwater irrig
Area actually irrigated by groundwat
Area actually irrigated [ha]
Aquifer characteristics
Demography
Groundwater development use
Groundwater management
Groundwater problems
Groundwater quality
Groundwater quantity
Physiography
Africa
Southern Africa - Ramotswa aquifer
South East Asia - Indo-Gangetic Basin aquife
Europe - Dinaric Karst
Active layers
Total annual water consumption for irrigation [km³
<20 km³/year
20-50 km³/year
50-100 km³/year
100-300 km³/year
>300 km³/year
No information available
MapBox
[GGIS homepage] [Download maps] Help About
Query
Search for a location ...
Feature Info
Gross domestic product per capita 8100.0
Perennial crop area 0.28
Area equipped for groundwater irrigation 362068.0
Total annual water consumption for irrigation 37.77
Area actually irrigated by groundwater 289655.0
Total annual groundwater consumption for irrigation 24.84
Category Agriculture and economics
Seasonal crop area 3.17
Year of gross domestic product estimate 2007.0
Region code DZA
Year of irrigated land estimate 2003.0
Region Algeria
Casablanca
Nouakchott
Dakar
Conakry
Abidjan
Bamako
Mali
Niger
Nigeria
Tchad
Lagos
Kano
Khartoum
South Sudan
Ethiopia
Kenya
Nairobi
Uganda
Stockholm
Беларусь
Москва
© IGRAC, © OpenStreetMap contributors
500 km
39.81445, 39.97930
Scale = 1 : 29M
Features of Total annual water consumption for irrigation [km³/year]
Area equipped f... Gross domestic... Perennial crop ... Area equipped f... Total annual wa... Area actually irri...
3422178.0 5400.0 0.5 331927.0 469.07 331927.0
81631.0 3300.0 3.21 6264.0 3.44 4706.0
91502.0 1900.0 11.53 13725.0 2.29 9813.0
6380.0 2900.0 44.44 319.0 0.1 250.0
0.0 3600.0 17.95 0.0 0.0 0.0
4280600.0 2200.0 0.76 273958.0 263.0 268479.0
188470.0 36900.0 0.01 50571.0 0.48 18232.0
67000.0 4000.0 0.24 6700.0 1.1 6700.0
56390.0 800.0 1.18 30.0 3.41 30.0
1510830.0 11100.0 1.92 166065.0 9.08 34284.0
1426000.0 9000.0 2.61 96700.0 57.33 74593.0
719200.0 1600.0 0.89 68000.0 35.94 66097.0
-9999.0 -9999.0 -9999.0 -9999.0 -9999.0 -9999.0
155912.0 1400.0 0.04 6646.0 10.29 6646.0
619293.0 27300.0 6.92 195174.0 9.3 156144.0
-9999.0 -9999.0 -9999.0 -9999.0 -9999.0 -9999.0
432070.0 7500.0 13.08 257000.0 26.99 223590.0
-9999.0 -9999.0 -9999.0 -9999.0 -9999.0 -9999.0
94914.0 1000.0 2.64 460.0 3.26 460.0
103084.0 13500.0 5.87 17524.0 4.35 17524.0
1077100.0 2000.0 0.28 7000.0 31.04 7000.0
476315.0 38600.0 0.77 275899.0 0.52 36089.0
45012.0 1800.0 0.01 4751.0 2.02 2411.0
-9999.0 -9999.0 -9999.0 -9999.0 -9999.0 -9999.0
150.0 38800.0 0.0 38.0 0.0 38.0
Download

The Meta-Information Module (MIM)

- Online tool for sharing groundwater-related information and knowledge in addition to maps, e.g. manuals, reports, references, images.



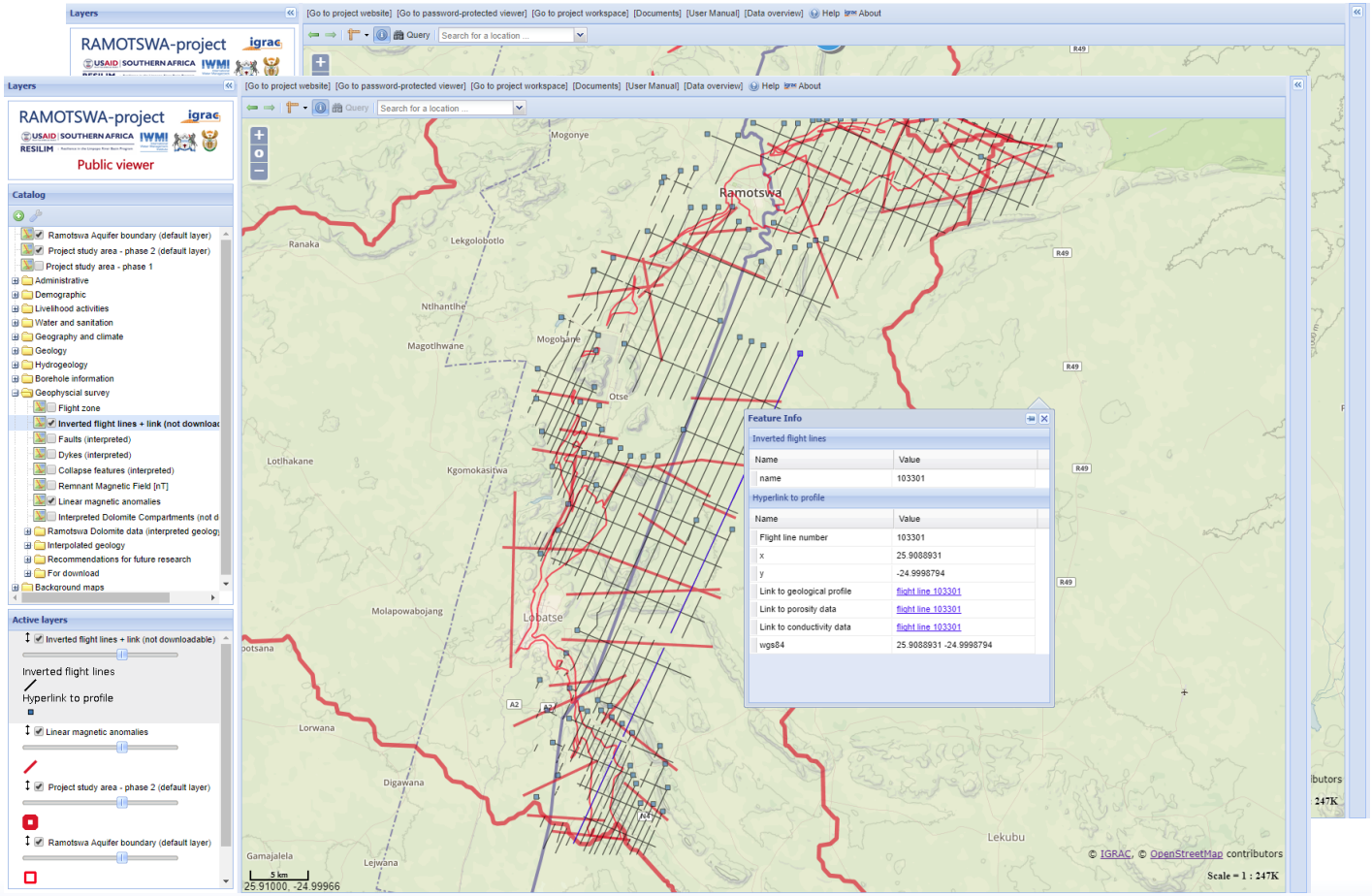
The Meta-Information Module (MIM)



- Meta-Information is uploaded directly by the users

Ways For Improvement

- Further develop the software for adding new options, tools, capabilities



Ways For Improvement

- New viewers add on every year, it may become difficult to find back the information.

Explore all

Contains all regional and national groundwaters data.

ACCESS HERE

Explore all - Transboundary Groundwaters

Contains all transboundary aquifers' data.

ACCESS HERE

Ways For Improvement

- Clean the MIM
- Control the upload of documents in the future

  → Where to find the national experts?

Conclusion

- The GGIS is an interactive, user-friendly and versatile platform supporting data acquisition and sharing.
- It connects a very large audience: researchers, water managers, decision-makers.
- KINDRA has shown very interesting ways of improvement.

  → Synergy?

Thank you for your attention

International Groundwater Resources Assessment Centre

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United Nations
Educational, Scientific and
Cultural Organization

International
Hydrological
Programme

World Meteorological
Organization

Government of
The Netherlands