

Hydrogeology Maps Of Africa

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Many maps have been produced over the years that show aspects of the hydrogeology and groundwater resources of Africa. These maps are at various scales and cover areas from a single small river catchment or local aquifer up to the entire continent. This page provides a summary of these maps, including a list of known maps at different scales; and details of selected maps.

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List of Groundwater and Hydrogeological Maps in Africa

This table provides a summary of known maps that describe aspects of the hydrogeology or groundwater resources in Africa. It is not comprehensive but includes most of the continental, regional and national scale maps, and many at sub-national scale.

The table includes information on: the map scale; publication date; publishing organisation; editors; format and links to more information.

Many of the listed maps can be viewed online and sometimes downloaded as scanned images; some can be viewed in interactive online map portals; and some are also available to download as digital files that can be used in GIS.

Access the [list of groundwater maps in Africa](#).

Africa-wide Hydrogeological and Groundwater Maps - Continental Scale

There are a number of different maps showing aspects of the hydrogeology and groundwater resources of the whole continent of Africa. These are at scales of between 1: 5 million and 1: 12.5 million.

These maps show different aspects of hydrogeology: for example, geology (e.g. lithology); aquifer flow and storage type; aquifer productivity; or recharge amounts. Different maps may be useful for different applications.

Some of these maps are only available as hard copy/on paper; others are available to view digitally online and/or to download as image files that can be printed; and a few are available in digital format that can be used in GIS.

[British Geological Survey](#): Quantitative Groundwater Maps of Africa

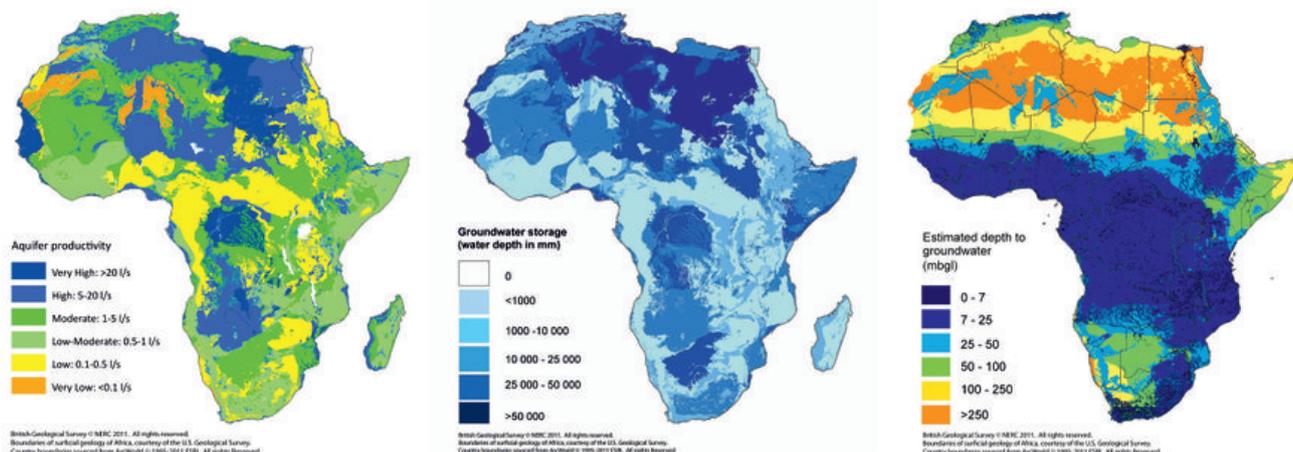
A series of quantitative groundwater maps for Africa was developed by the British Geological Survey as part of the [Quantitative Groundwater Maps for Africa](#) project (MacDonald et al., 2010, 2012).

This project produced three new digital **groundwater maps for Africa**, at a nominal scale of 1:20 million. They are:

Groundwater (aquifer) productivity
Groundwater storage
Depth to groundwater

These three maps can be freely downloaded in digital form as a 5 km resolution grid (xyz tab-delimited text file), which can be used in GIS. They are also available as high resolution PDF files.

[Download the Africa-wide quantitative groundwater maps here](#)



More information on these groundwater maps can be found in these references:

MacDonald, A M, Bonsor, H C, Ó Dochartaigh, B É, and Taylor, R G. 2012. [Quantitative maps of groundwater resources in Africa](#). Environmental Research Letters, 7 (2), 024009. 10.1088/1748-9326/7/2/024009

MacDonald, A M, Ó Dochartaigh, B É, Bonsor, H C, Davies, J, and Key, R. 2010. [Developing quantitative aquifer maps for Africa](#). British Geological Survey Internal Report, IR/10/103.

WHYMAP

WHYMAP global hydrogeological maps

The World-wide Hydrogeological Mapping and Assessment Programme (WHYMAP) was launched in 2000 to provide summary information about global groundwater resources. Several global and continental scale maps related to groundwater resources, groundwater basins, large aquifer systems, and transboundary aquifers have been produced. These maps are available to freely download (as pdf or image files) from the [WHYMAP website](#). They can also be viewed online in the [IGRAC Groundwater Resources in Africa](#) portal.

WHYMAP Africa hydrogeological map

WHYMAP have also produced a [hydrogeological map of Africa](#) at a scale of 1:12,500,000, which provides a planning tool for groundwater resources. This map is available to freely download (as pdf or image files) as a poster that also shows hydrogeological sections of regional aquifers.

BRGM: hydrogeological map of Africa

In 2008, BRGM published a [hydrogeological map of Africa](#) at a scale of 1:10 Million, the first of its kind at this scale. It was developed by combining two categories of data: groundwater reservoir (or aquifer) type; and the proportion of precipitation available to recharge to aquifers. BRGM used extensive data to develop the map, which distinguishes eleven major hydrographic units. The map is produced as a hard copy available through [BRGM](#).



Hydrogeological map of Africa to 1/10 M showing estimated groundwater recharge, from less than 5 mm/year (in yellow) to more than 500 mm/year (in blue). © BRGM.

The BRGM [hydrogeological map of Africa](#)

IGRAC: Transboundary Aquifers of Africa

In 2016 [IGRAC](#) produced a map of [Transboundary Aquifers of Africa](#), based on its 2015 [Transboundary Aquifers of the World](#) map. This map is available to view online in the [IGRAC](#)

[Groundwater Resources in Africa](#) portal.

[International Hydrogeological Map of Africa](#)

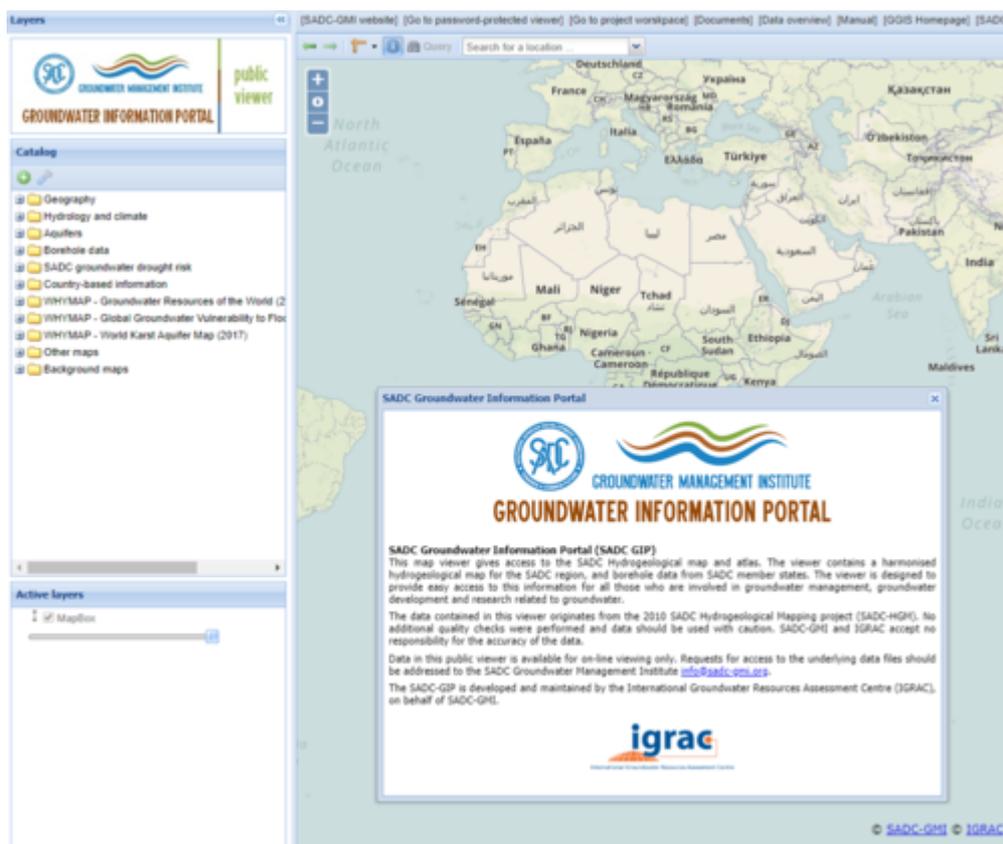
This map, at 1:5 million scale, is not available in any digital form. It is described in the report by Gilbrich and Struckmeier (2014).

Gilbrich, W H, and Struckmeier, W F. 2014. [50 Years of Hydro\(geo\)logical Mapping Activities](#). German Federal Institute for Geosciences and Natural Resources (BGR) and UNESCO International Hydrological Programme (UNESCO-IHP).

Regional Scale Hydrogeological and Groundwater Maps of Africa

SADC Hydrogeological Map

A hydrogeological map of the SADC region, with an accompanying atlas, were developed in 2010 under the SADC Regional Groundwater Management Programme to provide an overview of the groundwater resources in the SADC region. The map is available to view in the [IGRAC SADC Groundwater Information Portal](#). This portal also gives access to borehole data and other associated groundwater data for the region.



Country Scale Hydrogeological Maps of Africa

Many countries in Africa, but not all, have national scale hydrogeological maps, but these are often relatively old and have not been updated with new information collected in recent years. For most countries, national hydrogeological maps are available only as hard copy/in paper form.

Many countries have national groundwater / hydrogeological mapping programmes, which are developing new or revised hydrogeological maps at higher resolution for selected areas within the country, with an ultimate aim to produce a complete national coverage - for example, [Chad](#), [Uganda](#) and [Ethiopia](#). This may also include the development of new national-scale hydrogeological maps. At present, few countries have digitally available hydrogeological maps

As part of this Atlas, we have developed new country-scale hydrogeology maps for each country in Africa that will be available to freely download as digital, GIS-enabled files.

[**Africa Groundwater Atlas Country Hydrogeology Maps**](#)

This Atlas presents new hydrogeology maps for each of 48 countries in Africa, at 1:5 million scale. More information about how these maps were developed is on the [**Africa Groundwater Atlas country hydrogeology maps**](#) page.

Most of these country maps (currently 38 maps) are available to [**download as digital, GIS-enabled shapefiles**](#).

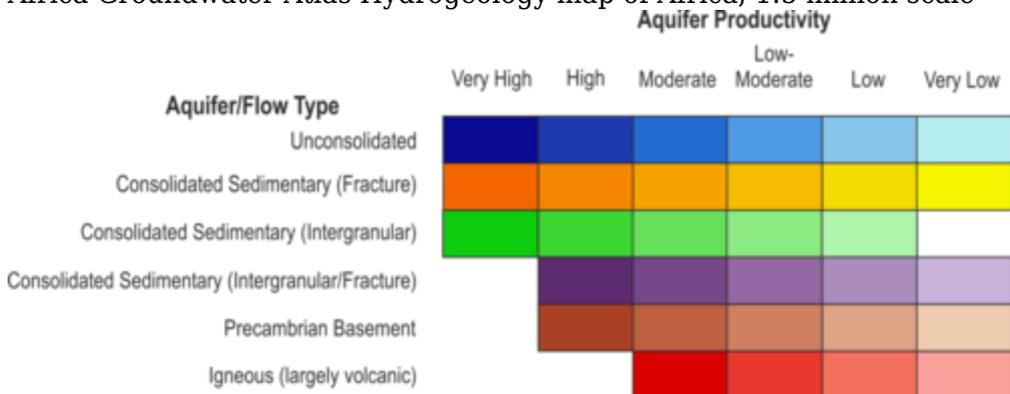
These country maps were developed from the Africa-wide [**quantitative groundwater maps**](#) developed by BGS in 2010. The new maps combine key hydrogeological information to show:

- **aquifer type** (based on the geological environment and groundwater flow/storage type); and
- **aquifer productivity** (relative aquifer productivity, or groundwater potential).

The country maps also summarise national geology at the same scale, with geological categories that reflect significant hydrogeological units (MacDonald et al. 2010).



Africa Groundwater Atlas Hydrogeology map of Africa, 1:5 million scale

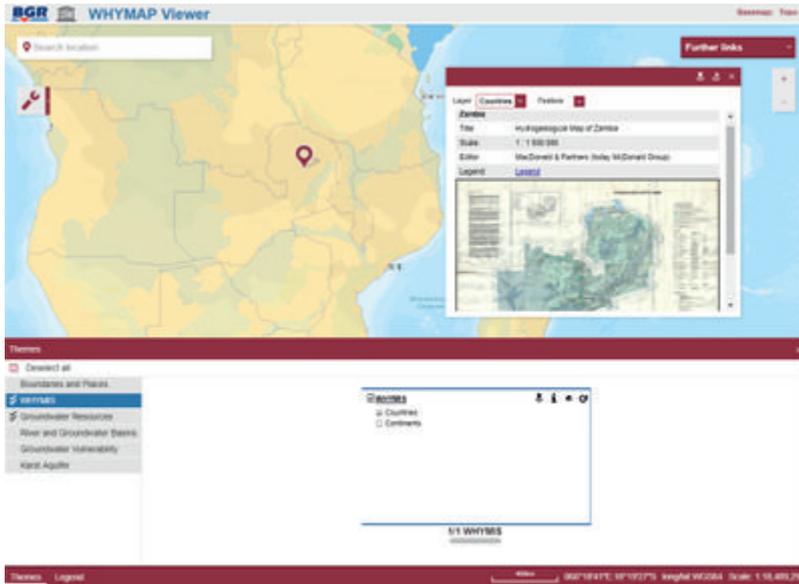


Legend for Africa Groundwater Atlas hydrogeology map of Africa

WHYMIS - Hydrogeological maps at country scale

The [WHYMAP](#) (World-wide Hydrogeological Mapping and Assessment Programme) aims to provide groundwater information across the world using maps and map applications. Part of the programme is [WHYMIS](#) (the World-wide Hydrogeological Map Information System), which provides digital scans of many **national hydrogeological maps** across Africa, freely available to download as pdf files.

These national maps are also indexed in the [Africa Groundwater Literature Archive](#).



The BGR [WHYMAP](#) viewer showing an example of a scanned national hydrogeological map available through WHYMIS

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