

Country Profile: South Africa

[Country Profile \(PDF\)](#)

Country Resources

Topographic

Series	Publisher	Scale	Years	Sheets
Lesotho 1:250,000 Scale Topographic Maps	DLSP	1:250,000	1994	2
South Africa 1:50,000 Scale Vector Data	DRDLR	1:50,000	2006 - 2010	1,913
Botswana 1:500,000 Scale Topographic Maps	DSL	1:500,000	1989 - 1992	11
Swaziland 1:50,000 Scale Topographic Maps (DOS 435)	DOS	1:50,000	1970 - 1984	25
Lesotho 1:50,000 Scale Topographic Maps (L50 / DOS 421)	DOS	1:50,000	1994	60
Swaziland 1:50,000 Scale Topographic Maps	GOS	1:50,000	2004	30
South Africa 1:10,000 Scale Topographic Maps	CDSM	1:10,000	1997 - 2013	49,834
South Africa 1:50,000 Scale Topographic Maps	CDSM	1:50,000	1979 - 2010	1,913
South Africa 1:250,000 Scale Topographic Maps	CDSM	1:250,000	1999 - 2010	70

Nautical

Series	Publisher	Scale	Years	Sheets
South Africa Nautical Charts (All Scales)	SANHO	Varies	1972 - 2025	88

Geoscientific

Series	Publisher	Scale	Years	Sheets
South Africa 1:50,000 Geological Maps	CGS	1:50,000	1966 - 2019	154
South Africa 1:50,000 Scale Geophysical Magnetic Airborne Maps	CGS	1:50,000		1,730
South Africa 1:250,000 Scale Geological Maps	GEOSA	1:250,000	1966 - 2010	45
Swaziland 1:50,000 Scale Geological Maps	DOS	1:50,000	1979 - 1980	31
Botswana 1:1,000,000 Scale Geological Maps	GSD	1:1,000,000	1984 - 1990	4
Botswana 1:2,000,000 Scale Geological Maps	GSD	1:2,000,000	1963	1

Thematic

Series	Publisher	Scale	Years	Sheets
The World 1:30,000,000 Scale Topographic Map Series 1145 (NGA)	DMA	1:30,000,000		2
South Africa 1:1,000,000 Political Maps	CDSM	1:1,000,000	1988	1

Global Census Archive: GIS Census Data

Year	Questions / Answers	ADM Level	Polygons at ADM	Data Points
2011	88 / 907	5	84,907	77,010,649

Global Resources

Topographic

Series	Publisher	Scale	Years	Sheets
Soviet Military City Plans	VTU GSh	Varies	1944 - 2003	3,020
Soviet Military 1:100,000 Scale Topographic Maps	VTU GSh	1:100,000	1947 - 1999	24,897
Soviet Military 1:200,000 Scale Topographic Maps	VTU GSh	1:200,000	1949 - 2009	17,799

Soviet Military 1:500,000 Scale Topographic Maps	VTU GSh	1:500,000	1953 – 1998	3,093
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Nautical

Series	Publisher	Scale	Years	Sheets
NGA Nautical Charts POD Certified (All Scales)	NGA	Varies	1943 – 2013	4,517

Aeronautical

Series	Publisher	Scale	Years	Sheets
Joint Operations Graphic (JOG 1501A) 1:250,000 – Aeronautical	DMA	1:250,000	1958 – 2007	4,204
Tactical Pilotage Chart (TPC) 1:500,000 Scale – Aeronautical	DMA	1:500,000	1967 – 2006	598
Operational Navigation Chart (ONC) 1:1,000,000 Scale – Aeronautical	DMA	1:1,000,000	1969 – 2001	243
Jet Navigation Chart (JNC) 1:2,000,000 Scale – Aeronautical	DMA	1:2,000,000	1971 – 1999	117
Global Navigation and Planning Chart (GNC) 1:5,000,000 Scale – Aeronautical	DMA	1:5,000,000	1981 – 1999	27

Geoscientific

Series	Publisher	Scale	Years	Sheets
Soviet Military 1:1,000,000 Scale Topographic Maps	VTU GSh	1:1,000,000	1948 – 1994	1,089

Note: East View Geospatial is continuously sourcing new resources that may not yet be listed in Global Explorer. Please contact us if you have geodata needs beyond what is listed above and we will be happy to discuss available off-the-shelf and custom solutions.

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Historical Country Mapping Information

Jump to: [Topographic](#) | [Nautical](#) | [Geological/Scientific](#) | [Imagery](#) | [Soil](#) | [Thematic](#) | [Atlas](#) | [Cadastral](#) | [Tourist/Reference](#) | [Census/Demography/Statistics](#)

Country Profile (PDF)

Topographic

The Chief Directorate of Surveys and Mapping (CDSM) in the Department of Land Affairs compiles and maintains official mapping of the Republic of South Africa, carries out geodetic surveying, and provides a mapping service to other government departments. It is also responsible for the capture and maintenance of the topographic component of the digital National Land Information System. Until 1997 cadastral surveying and mapping was also carried out within the former **Chief Directorate of Surveys and Land Information**, but the cadastral function has subsequently been separated off and is now the responsibility of the **Chief Directorate of Cadastral Surveys**. **CDSM** has also carried out the mapping of Namibia and cooperates actively with adjacent African countries. Mapping of the quasi-autonomous homelands established under the apartheid regime now once again falls within the remit of **CDSM**, which has also carried out smaller scale mapping of large areas of southern Africa. Many of the smaller scale maps of South Africa also cover Swaziland and Lesotho.

Official mapping in South Africa is now based upon the WGS84 ellipsoid, implemented nationally from 1999.

The basic topographic map for most of South Africa is a 1:50,000 scale series, completed in 1,916 sheets in 1973 and progressively updated and revised since, with the last sheet fully upgraded to metric specifications by 1991. This map is on the Gauss conformal projection, Clarke 1880 ellipsoid, sheets show relief with 20 m contours and cover quarter-degree quadrangles. It is expected that 1:50,000 scale maps will be completely revised every 15-20 years. Digital data have been captured from this map and topologically structured into a database, outstanding features are still being captured for earlier sheets in the program, and the more remote areas were only available in 1999 as rivers, roads and built-up areas, without topological structure. **CDSM** is switching from analogue photogrammetric data capture and manual cartographic production to full digital production using a Laser-Scan system: the first

completely digital 1:50,000 scale edition was printed early in 1998. Digital terrain data have been captured by **CDSM** from 1:150,000 scale aerial photography. Data is used to generate profiles for orthophoto maps used in the revision program for the 1:50,000 scale series. 200 m resolution data are available for about half the country, 400 m resolution data are published for the flatter areas.

1:250,000 scale mapping gives complete coverage of the South Africa in 72 sheets, and is used as a base by other departments in their own thematic series. This map is currently maintained as a topo-cadastral edition, with an administrative overprint added to the metric contoured base, almost all of the maps are second or third editions dating from the late 1980s. A new series of 1:250,000 scale maps has also been developed, with sheets centered on urban areas and using a topographic base. This will also be used as the base for a new aeronautical edition. The first sheet covering Pretoria and the Rand appeared in 1998.

1:500,000 scale mapping from **CDSM** extends as far north as the Zambian and Angolan borders. Two versions are available: a topo-administrative map showing magisterial districts and an aeronautical edition overprinted with ICAO symbols and elevations in feet, which also extends to cover Namibia. These maps are derived from 1:250,000 scale coverage, data was captured in digital form for an interim version of the National Topographic Information Database, and sheets were revised at the same time as 1:250,000 scale components in a digital flow line. Other smaller-scale maps include a 1:1,000,000 scale 16-sheet aeronautical chart conforming to ICAO standards and under annual revision, and a four sheet 1:1,000,000 scale wall map. Administrative and topographic wall maps of Southern Africa at 1:2,500,000 are also published and an administrative series on a topographic base was completed in 1999 for each of the nine provinces with maps published at scales between 1:300,000 and 1:800,000.

Soviet military topographic mapping of South Africa exists at the following scales: 1:1,000,000 (12 sheets, complete coverage, published 1977-1985); 1:500,000 (34 sheets, complete coverage, published 1978-1986); 1:200,000 (221 sheets, complete coverage, published 1980-1985) and city (1:10,000 to 1:25,000) topographic maps of Cape Town, Durban, Johannesburg, Pretoria and Springs published between 1972 and 1981. These products are available in print, digital raster and digital vector GIS formats from **East View Geospatial**.

[Back to top](#)

Nautical

The **Hydrographic Office (HOSA)** of the South African Navy is responsible for the compilation and charting of coasts of South Africa and Namibia, and of parts of the south Indian Ocean and the south Atlantic Ocean. Unlike many hydrographic agencies its charts are organized into four series, with standard scales. 1:1,000,000 scale international coverage, 1:600,000 scale regional coverage, a 1:300,000 scale series conforming to international specifications and a 1:150,000 scale series are issued. Larger scale coastal charts are also increasingly being revised to international specifications. In addition fishing, small craft and yachting charts are also maintained. Since 1997 charts have been converted to WGS84 datum.

[Back to top](#)

Geological/Scientific

The **Geological Survey (GSSA)** in the **Council for Geoscience** publishes geological, geophysical, mineral and geochemical maps of South Africa. Mapping effort is being concentrated upon the publication of a 1:250,000 scale geological series, which uses topographic sheet lines and is overprinted on the topo-cadastral map. This is now nearing completion in a version using litho-stratigraphic classification; sheets in the Northern Cape province will be the last to be published, and 80 percent of the country was covered by 1999. These maps are also increasingly available as gravity editions, and for key areas as fully published metallogenic maps. By 1995 production had migrated to an automated system using ARC/INFO and Scitex systems. The other major current mapping project is geotechnical in emphasis and also uses a digital production flowline, integrating a diversity of environmental datasets in a GIS. This involves the publication of 1:10,000 scale coverage for urban development around industrial growth points, especially in Gauteng province and around Port Elizabeth. Four-sheet 1:1,000,000 scale coverage of South Africa is also published for several themes. Geological, structural and metamorphic editions have all been revised since the 1990s, and have been captured in digital versions.

[Back to top](#)

Imagery

Different divisions of the **Council for Scientific and Industrial Research (CSIR)** have been active in the last decade in the provision of resources mapping derived from satellite image data. The **Satellite Applications Centre (SAC)** of **CSIR** has completed national coverage in a range of 1:250,000 scale *Spacemaps*. These maps are output on the Gauss conformal projection used in topographic mapping and sheets cover the same two-degree areas as national topo-cadastral sheets, with an additional five-minute margin added to each. Data is derived from LANDSAT Thematic Mapper coverage, using spectral bands four, five and three for red, green and blue color channels. A National Land Cover Project is being carried out by **CSIR** in conjunction with **ISCW** and is designed to conform to the FAO AFRICOVER specifications. This project is using *Spacemap* data as the basis for interpreted and field-verified land cover classification mapping. Thirty different land-cover classes are used and the minimum size mapping unit covers 25 ha. Seventy sheets at 1:250,000 scale are planned. *Spacemaps* are annotated, land covers classified and digitized before field checking to verify the classification. These land cover data have been released in phases since 1995 as digital files matching national topographic map sheets.

An orthophoto map at 1:10,000 scale is available for urban and peri-urban areas of South Africa. Sheets are published as monochrome diazo prints, and updated about every five years. Over one-quarter of the country (nearly 16,000 sheets) is now available in this series. A 50 m digital terrain database is currently being captured as a byproduct of 1:10,000 scale orthophoto mapping.

[Back to top](#)

Soil

The **Institute for Soil Climate and Water (ISCW)** funded through the Agricultural Research Council is responsible for encouraging the sustainable utilization of South Africa's soil, climate and water.

[Back to top](#)

Thematic

In 1998 the **Department of Water Affairs and Forestry (DWAF)** started to publish a 1:500,000 series of hydrogeological maps. These covered the whole of South Africa by 2000 in 29 sheets, using the aeronautical and administrative sheet lines. Each sheet includes additional inset maps and is accompanied by an explanatory booklet. **DWAF** is using a GIS for ambitious plans to provide water points no more than 400 m from every household in the country, and maintains large numbers of spatially referenced data relating to groundwater sources and hydrology. **DWAF** data is also used in the Water Research Commission's *South African atlas of agrohydrology and climatology*.

[Back to top](#)

Atlas

Following investment in GIS infrastructure the second half of the 1990s has seen an increase in the number of official thematic atlases produced in South Africa. The **Human Sciences Research Council (HSRC)** has been the most important agency carrying out this work, with atlases derived from its many ARC/INFO-based databases. A socioeconomic atlas, mapping results of the 1991 census was released in 1996, and in 1999 an update based on the 1996 census was published. Other thematic atlases of South Africa have been issued by the **Institute for Geographic Analysis**, in the University of Stellenbosch and **van Schaik Publishers**.

The **Department of Environmental Affairs and Tourism** has developed a series of digital environmental atlases as an environmental decision support system. Designated as the ENPAT program (Environmental Potential Atlases) these data are available at three different

levels: a national 1:1,000,000 scale coverage; provincial level data at 1:250,000 scale and metropolitan atlases at 1:50,000 for Gauteng, Durban, Cape Town, Port Elizabeth and Bloemfontein. Data are available for a wide range of socioeconomic and environmental themes.

[Back to top](#)

Cadaster

The **Chief Directorate of Cadastral Surveys** in the **Department of Land Affairs** now manages cadastral data in the South Africa. A major land reform process started after the end of apartheid, which requires a current and accurate audit of state land holdings. An integrated cadastral information system is being set up, with a cadastral map database captured from hard copy mapping, linked to an alpha-numeric database of parcel data and a document imaging database. Selected topographic digital data complete the system. Elsewhere within the **Department of Land Affairs** a separate unit is establishing the **National Spatial Information Framework (NSIF)**, which from 1997 has been formulating standards for South African spatial data.

[Back to top](#)

Tourist/Reference

The most significant commercial publisher in the country is **Map Studio** which issues a large range of maps, including indexed town and road maps and atlases. Their range includes useful mapping of other countries in Southern Africa and an increasing number of digital map products with coverage of the Republic as a whole, and of the major urban centres. The commercial sector also includes the **Automobile Association of South Africa** which produces road maps. **Intratex Holdings** now includes Africa's oldest directory and town map publisher, **Braby's** and the **Swan Publishing Company**, and continues to issue maps badged under the **Braby's** logo. **Intratex** markets a range of nearly 200 South African town maps or atlases, as well as offering urban mapping of Botswana, Namibia, Lesotho, and Swaziland. In the early 1980s the **Readers Digest Association** published the *Illustrated atlas of Southern Africa*, including official 1:50,000; 1:250,000 and 1:500,000 scale topographic mapping in addition to thematic coverage. A revised edition of this atlas was issued in 1994. **Digital Perspectives** publishes satellite image and aerial photographic maps and posters of various parts of Southern Africa, including combinations of satellite data with DEM data to produce warped 3D perspective views. **Cape Mountain Meanders** publishes an attractive tourist map of Table Mountain, and **Geomap** has produced 1:50,000 scale hiking maps for the **Kwazulu-Natal Conservation Trust** to cover the Drakensberg mountains.

Almost all South African mapping is issued in bilingual English and Afrikaans editions, with an increasing tendency to include Kiswahili information.

[Back to top](#)

Census/Demography/Statistics

The **Central Statistical Service (CSS)** is responsible for census mapping in South Africa. The 1996 census was the first to use digital mapping, 80,000 enumeration districts were captured from aerial photographs and a GIS has been established to help in the dissemination of census results, and to incorporate digital topographic and cadastral data from CDSM. Amongst recent projects is the digitizing of electoral and census boundaries in conjunction with CDSM, as well as active involvement in establishing digital mapping standards in the country.

[Back to top](#)

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