South-Africa (Republic of South Africa)

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Location and area

South Africa is a republic in the southernmost part of the Africa continent. It is bordered on the north-west by Namibia, on the north by Botswana and Zimbabwe, on the north-east by Mozambique and Swaziland, on the east and south by the Indian Ocean, and on the west by the Atlantic Ocean. The independent country of Lesotho forms an enclave in the eastern part of the country. South Africa has an area of 1,219,090 km^2. (Microsoft Encarta Encyclopedia 2002).

Topography

South Africa comprises

1. An interior upland plateau of ancient rock that occupies about two thirds of the country. The plateau can be divided into three main regions:
   a. The *Highveld*, the largest part of the plateau, lies mostly 1,500 m above sea level and is characterized by level or gently undulating grasslands. The northeastern limit of the Highveld is marked by a wide rocky ridge, called the Witwatersrand (with the city of Johannesburg).
   b. North-east of the Witwatersrand is the *Bushveld*, or Transvaal Basin, averaging less than 1,000 m above sea level, but in parts reaches more than 1,800 m; elevations decrease westward, towards the Botswana border and the River Limpopo. Much of the Bushveld is broken into basins by rock ridges.
   c. The *Middle Veld* occupies the western section of the plateau. It has an average elevation of about 900 m and also slopes downward. The Middle Veld is generally dry, ranching country, extending in the north into the arid Kalahari Basin; on the western coast it merges into the southern Namib Desert.

   The plateau reaches its greatest heights in the east.
2. The Great Escarpment encompasses the plateau in a semicircle running from the north-east to the south-west. It forms South Africa's longest continuous topographic. The eastern part of the Great Escarpment are the Drakensbergs, which contain South Africa's highest point, Champagne Castle (3,375 m). Other escarpments south and west of the Drakensbergs are the Roggeveld, Sneeu, and Nuwveld systems.
   In the southwest, and separate from the Great Escarpment, is one of the few areas of folded mountains in continental Africa. It includes ranges such as the Tsitsikama, Swartberg, Langeberg, and Drakenstein, as well as Table Mountain (1,086 m) at Cape Town. Altitudes in these ranges average between 900 and 2,300 m. Between the fold mountains and the Great Escarpment lie the dry tablelands of the Little and the Great Karoo, which are separated by the Swartberg Mountains.
3. The narrow coastal plain is fertile and generally narrow, reaching only about 130 km at its widest; at times it is only 30 km wide.

The chief rivers of South Africa are the Orange, the Vaal, and the Limpopo. The Orange River is the longest river in the country at about 2,090 km. It originates in Lesotho and flows in a northwesterly then westerly direction through the Highveld and the Middle Veld to empty into the Atlantic Ocean. The westernmost section of the Orange River forms the boundary between South Africa and Namibia. The River Vaal is the largest branch of the Orange River.

It originates in the northeast of South Africa, near Swaziland, and flows some 1,210 km in a south-westerly direction, before joining the Orange River in the Highveld west of Kimberley. The River Limpopo originates in the northeast and flows northwest to the Botswana border, and then east along South Africa's borders with Botswana and Zimbabwe before entering Mozambique and continuing to the Indian Ocean. In general, South Africa's rivers are highly seasonal in flow, and many are dry for much of the year. (Microsoft Encarta Encyclopedia 2002).

Climate

South Africa has a temperate sub-tropical climate with considerable regional variations caused by differences in elevation, in wind systems, and in ocean currents.

The climate of South Africa is generally dry. More than 67 % of South Africa is semi-arid or arid, receiving less than 800 mm of rain annually. Rainfall generally decreases westward, and on the northwestern coast precipitation averages less than 30 mm a year.

Except for the Cape area, most of the country is under the influence of the easterly trade winds that blow across the Indian Ocean. During the spring and summer months of October to April, heating on the land can cause low-pressure areas that draw in these moisture-laden winds, bringing rain to the east and central areas. The eastern Lowveld receives about 900 mm of rain a year. The Highveld receives between 350 and 750 mm of rain a year on average; the amount diminishes rapidly westward. In the drier regions of the plateau, the amount of rainfall and the beginning of the rainy season vary greatly from year to year.
The eastern and southeastern coasts are influenced by the warm, south-flowing Mozambique Current, which keeps temperatures higher, encouraging air circulation and facilitating the arrival of rain-bearing clouds from the east. This part (only 6 per cent of South Africa), concentrated along the coast of KwaZulu-Natal Province, receives more than 1,000 mm of rain a year.
In contrast, the western coastal area is under the influence of the cold, north-flowing Benguela Current, which not only cools temperatures significantly, but also contributes to the dryness and stability of the air masses over the western part of the country. Rainfall here is as low as 50 mm annually.
The extreme southwestern area round the Cape is under the influence of western winds originating over the Atlantic Ocean. This region receives about 550 mm of rain a year, most of which occurs between June and September.

The average daily temperature in January in Durban, which is on a low-lying part of the northeastern coast, is about 24° C. The corresponding temperature in Johannesburg, in the north-central Highveld, is about 19° C. Although closer to the equator than Durban, Johannesburg has a cooler summer largely because of its elevation (1,670 m above sea level). The average daily January temperature in Cape Town, on the southern coast and influenced by cool winds from the South Atlantic, is about 21° C. The range of winter temperatures follows the same pattern. The average daily July temperature is about 17° C in Durban, about 9° C in Johannesburg, and about 12° C in Cape Town. Snow is rare in South Africa, although winter frosts occur in the higher areas of the plateau. (Microsoft Encarta Encyclopedia 2002).

Land use

The grasslands of the central South African plateau have dark-to-black soils (chernozems). In the western, more arid areas, the chernozem soils give way to poorer, chestnut-coloured soils.

In the south the soils are thin and often red. The soils in the northeast are reddish and yellowish. Soil erosion is a big problem in much of the country. Soil conservation measures, like water conservation, have long been a government priority.

The natural vegetation of South Africa varies from region to region according to the amount of rainfall. Along the eastern coast, where rainfall is heaviest, there is tropical vegetation with many palms. In some of the valleys of the Great Escarpment and along the southern Cape coast are forests, composed chiefly of yellowwood, stinkwood, ironwood, and cedar. The south-western Cape has a distinct vegetation of drought-resistant grasses, shrubs, and trees, and is home to many of South Africa's 20,000 species of flowering plants. In the Eastern Uplands the land supports a luxuriant growth of grass and some trees.

Most of the plateau is covered with grassland, which on the Highveld resembles a steppe and is often completely treeless. The Bushveld supports savannah vegetation with scattered trees and bushes in a park-like grassland. On the Middle Veld, where rainfall is slight, the grassland is very poor. The vegetation consists almost entirely of coarse desert grasses. The Great Karoo and the Little Karoo are covered with dry scrub.

Limited rainfall and infertile soils restrict the areas in South Africa suitable for crop raising. As a result, about 87 % of farmland is devoted to raising livestock, particularly sheep, goats, cattle, pigs, and poultry. Large areas in the commercial arable sector are irrigated (Microsoft Encarta Encyclopedia 2002).

Wetlands

According to WWF the extent of mangroves in Southern Africa is 1,000 km² (www.worldwildlife.org/wildworld/profiles/terrestrial/at/at1405_full.html). Without further reference, Lappalainen & Żurek (1996c) estimate the total wetland area (incl. coastal mangroves and other wetlands) on 9,500 km².

Peatlands

Coetzee (1967) describes deep peat deposit (up to 10.5 m deep) of Lateglacial and Holocene age surrounding a main spring at Aliwal North (30°19' S, 26°21' E). Verhoef (1972) found peat of Holocene age (^{14}C dates: 5220 ± 55 BP and 440 ± 40 BP) interbedded with fluviatile material in the interior of South Africa.
Kruger (1979) describes sloping "bogs" in the Hottentots-Holland mountains and "bogs" from the Table Mountain and the Dwarsberg Plateau at Jonkershoek.
Markov et al. (1988) mention some forest-peatlands up to 450 m above sea level. In higher regions (up to 900 m above sea level) herbs dominate peatland areas. Peat layer are 1,5 – 3m thick. Peatlands are parts of some National Parks and other reserves.

Some 60 % of South Africa´s estimated peat resource is located in Maputaland (Smuts 1992, Grundling 1994, Grundling et al. 1998, Grundling & Blackmoore 2000, cf. Tinley 1967). Wetlands range in size from a few ha to 8,800 ha. Some 266 "peatlands" are known. (ik tel heel grof zo'n 30.000 ha) Papyrus/reed/sedge peatlands comprise 55 %, swamp forests 30 % and grass/sedge mires about 15 % of the peatlands of Maputaland. The thickness of peat ranges between 0.5 and 10 m. The peat resource is inferred to be 158 million m³ moist peat. Dat klopt niet met de hoeveelheid veen Present estimates of peat volumes are as much as 30 – 50 % lower than prevously reported (Grundling et al. 1998). The total "peatland" area in Maputaland is estimated to be 200 km^2 (Grundling & Blackmoore 2000).

Important peatland areas in Kwazulu/Natal - Maputaland include the Majiji-peatland (800 km^2 with estimated peat resources of 130 000 m^3 wet peat, Grundling et al. 1996) and the Greater St. Lucia Wetland Park (peatland area 96.8 km^2 with over 171 Mm^3 of peat, Grundling & Blackmoore 2000).

In their review of peat resource data, Marneweck et al. (2001) found in total 467 peatlands in South Africa with a total area of 298 km^2 (29 784 ha) and a total peat volume of 290 million m^3.
According to the interpreted World Soil Map (Van Engelen & Huting 2002) no histosols exist in South-Africa and 10 km^2 of gley soils.

Mire and peatland losses

Extensive wetlands have been converted into commercial cropland in South Africa, mostly prior to 1980. Uncontrolled agricultural expansion into wetlands is, however, still taking place by subsistence farmers (Kotze & Silima 2003).
More than 70 % of Maputaland´s peatlands are located in proclaimed conservation areas. Most peatlands outside and even some inside conservation areas are utilised by local inhabitants as a water, horticultural and biomass resource (Grundling et al. 1998). The Mkuze wetland, a mosaic of riparian floodplains and permanently flooded marshes (Schoultz & Ellery 2000), has been cleared for cultivation and livestock grazing and a drainage canal has been constructed (Neal & Ellery 2000).

Still to be checked:

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