

14. Australia and Oceania – geomorphology, climate and hydrology

Geomorphology

= the *flattest and driest* (except of Antarctica) of all the continents

Australia's inland = "*outback*" = plains and low plateaux.

Coastal plains of SE AUS = most populous, divided by *Great Dividing Range*, in the S = *Blue mts.* and *Snowy mts.* (Mt. Kosciusko – 2,228 m)

Other geomorphological units to remember:

- *Cape York*
- *Arnhem Land*
- *Great Sandy Desert*
- *Great Victoria Desert*
- *Nullarbor Plain*
- *Macdonnell Ranges*

Climate

AUS is bisected by the tropic of Capricorn; much of Australia is closer to the equator than any part of the USA.

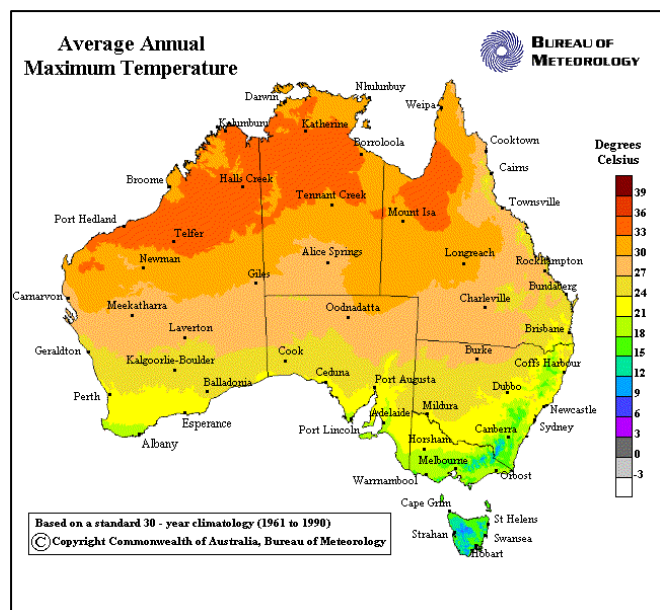
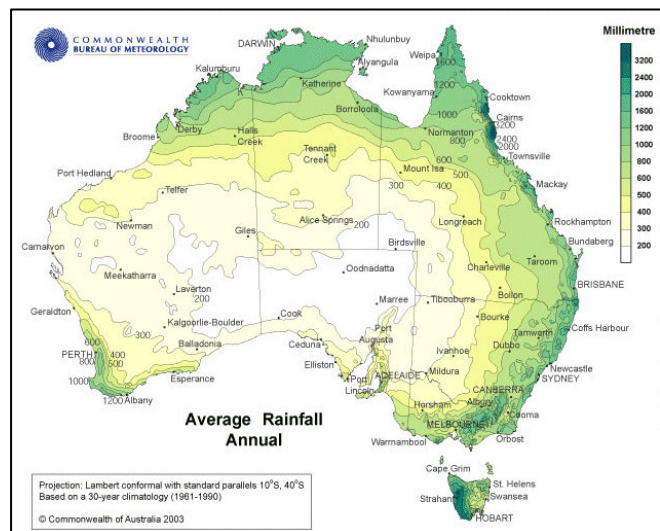
N AUS enjoys a *tropical climate* and S Australia a *temperate* one.

Winter = typical daily maximums are from 20 to 24 degrees Celsius and rain is rare. The beaches and tropical islands of Queensland and the *Great Barrier Reef* most pleasant at this time of year. Further south, the weather is less dependable in Melbourne in August maximums as low as 13°C are possible, but can reach as high as 23°C.

Summer = northern states are hotter and wetter, while the southern states are simply hotter, with temperatures up to 41°C in Sydney, Adelaide, and Melbourne but generally between 25 and 33°C => very pleasant climate too.

Snow is rare in Melbourne and Hobart, falling less than once every ten years, and in the other capitals it is unknown. However, there are extensive, well-developed ski fields in the Great Dividing Range a few hours drive from Melbourne and Sydney. Late August marks the peak of the snow season, and the ski resorts are a popular destination. An alternative skiing destination is New Zealand = excellent snow and facilities at lower cost.

Islands diffused in the Pacific experience tropical and equatorial climate, very stable weather => *importance of tourism*.



Majority of the country is *hot and dry*, although the climate of Australia varies from *tropical (monsoonal)* in the N to *cool temperate* in Tasmania.

Sea = little moderating influence beyond the coast and the highland area is too small and low to have more than local effect.

- **>2/3** of continental AUS (W and centre) receives **<500 mm** of rain a year
- **1/3** is desert with **<250 mm** of rain annually
- Only **10%** of the land (N AUS) along the E and SW coasts and in Tasmania receives more than 1,000 mm of rain a year.

Tropical N coastal region has two main seasons:

1. hot, wet season with summer rains falling mainly in February and March (late summer in southern hemisphere) when the NW monsoons prevail
2. warm dry winter season characterized by the prevalence of south-easterly trade winds

The monsoon reaches inland for varying distances, extending furthest in Arnhem Land and the Cape York peninsula. Many points on the N and NE coast have an average annual rainfall about 2,000 mm, e.g. N Queensland (Cairns).

On the fringe (margin) of the monsoonal region there are drier *savannah grasslands*, where low rainfall is supplemented by artesian water. In western, central, and northern Australia can frequently exceed 38° C.

Warm, temperate regions of the S coast of continental AUS = four seasons, with cool winters and hot summers. Snowfields exist in the *Mount Kosciusko* area.

E coastal lowlands receive rain mainly in summer. In most years, drought affects some part of Australia, and localized floods and tropical cyclones are common. SE AUS has the highest incidence of bushfires in the world, along with California and Mediterranean Europe.

Hydrology

Nullarbor Plain and great areas of the western interior have no surface drainage. But underneath the surface there are underground streams and artesian water reserves => economic development of the country (about 70 per cent of total reserves are located in the *Great Artesian Basin*, which is the largest of its type in the world).

Largest rivers (creeks): *Murray with Darling (tributary), Murumbidgee, Gilbert, Mitchell,...*

The need to provide *adequate water supplies* to support farming and predominantly urban population has led to the damming (dam construction) of several rivers.

Ambitious schemes have been built to provide water for irrigation, for domestic and livestock use, and for the generation of electricity. The most famous is the Snowy Mountains Scheme – a multi-purpose scheme located in the Australian Alps in New South Wales.

Pests and other problems mean that only a small percentage of the potentially arable area is cultivated. The scheme's principal benefit has been the creation of Lake Argyle, Australia's biggest artificial lake and its largest body of fresh water.

Flora

Australia has a distinctive flora, comprising some 22,000 species of plants. More than 90% are indigenous (endemic). Predominantly evergreen, vegetation ranges from the dense *bushland* and *eucalyptus* forests of the coast to the *saltbush* of the inland plains.

Australian plant life is distributed in three main zones:

- a) tropical zone runs along the N margins of the continent and half way down the E coast = deciduous trees (palms and vines + oaks, cedar, beeches. NE Queensland (Cape York Peninsula) = rainforests. Low-lying northern coastline = mangroves
- b) temperate zone covers the SE coastal area, including Tasmania, and runs up the E coast to meet the tropical zone = savannah woodlands. Australian Alps = alpine vegetation. E coast = pines, eucalyptus.
- c) The eremian zone occupies the whole of the arid centre and west of the continent = semi-arid savannas and grasslands, acacia trees.

AUS fauna = distorted by humans (agriculture, settlements) => erosional problems and extinction of >83 endemic plant species => environmental problem.

Fauna

= 300,000 different species of animal life, of which only about 100,000 have been described.
= distinctive, many species are unique to Australia (reflecting its long isolation from other land masses).

Animal species typical for AUS: echidna, platypus, marsupials (kangaroo), koala bear, Tasmanian devil, wild dog Dingo, lot of reptile species (crocodiles, lizards), venomous snakes, lungfish, many insect species (bees, butterflies, etc.), emu, parrots,

Echidna



Platypus



Kangaroo



Koala



Tasmanian devil

