

AUGH TIME

PALAEOGEOGRAPHY

Around 45 million years ago (Ma), the deep rift between Australia and Antarctica widened to form the present Southern Ocean. Shallow seas also covered parts of southern Australia. Volcanoes erupted along eastern Australia and Tasmania. Australia's climate was warm and humid. Temperate rainforest was widespread. More recently the Australia plate has moved north and collided with Indonesia and New Guinea.

45Ma

By 130 Ma, Gondwana began to break up, dividing the landmass into two sections, a western half, made up of Africa and South America and an eastern half including Antarctica and Australia. By 70 Ma wide oceans had formed between Antarctica, Africa and India. Australia split from New Zealand and the Lord Howe Rise, forming the Tasman Sea. Rifting between the southern margin of Australia and Antarctica continued and the latter drifted towards the South Pole.

70 Ma

Around 160 Ma Pangaea began to split apart forming a southern hemisphere continent (Gondwana) comprising Antarctica, Australia, South America, Africa and India and a northern hemisphere continent (Laurasia). By 150 Ma, a rift valley began to form between Australia and Antarctica. The sea flooded across the present day coastline in north-west Australia. Attached to eastern Australia were a series of small continental fragments some of which now form the Lord Howe Rise and part of New Zealand. Australia's climate warmed as the continent drifted away from the South Pole.

160 Ma

Approximately 280 Ma all the landmasses of the world united in a single giant super-continent called Pangaea. Australia drifted close to the South Pole with dramatic effects on the climate. Most of the continent was covered by an ice cap, like modern day Antarctica. The Tethys Ocean to the north straddled the equatorial belt. Volcanic activity extended along the eastern seaboard from Sydney to Cairns.

280 Ma

Around 360 Ma the super-continent split in two, with the southern hemisphere continent comprising Antarctica, Australia, South America, Africa and India. In most places around Australia the sea had receded, but parts of eastern Australia and northern WA remained submerged and coral reefs flourished locally. Volcanic activity was widespread along the eastern margin of Australia from central NSW to central Qld.

360 Ma

Around 470 Ma, what is now Australia formed part of a single ancient super-continent. The sea-level was very high and most of eastern Australia was covered by sea, an arm of which extended across the NT to northern WA. Chains of active volcanoes occupied parts of central NSW. Australia was located close to the equator and the climate was relatively warm. Early marine life had existed for many hundreds of millions of years before this.

470 Ma

The Earth is a dynamic Planet. Throughout geological time large-scale forces acting on the Earth's outer

MAJOR MINERAL DEPOSITS

Relative Sea Level

Magnesite: Kunwarara (Qld)
Brown Coal: Latrobe Valley (Vic)
Bauxite: Huntly, Mt Saddleback (WA), Gove (NT)
Oil and Gas: Gippsland District, Bass Strait (Vic)
Pisolitic Iron Ore: Yanadicoogina (WA)

Oil: Barrow Island, NW Shelf (WA)
Manganese: Groote Eylandt (NT)
Opal: Andamooka, Cober Pedy (SA)

Oil and Gas: Eromanga Basin (Qld), NW Shelf (WA)
Black Coal: Walloon (Qld)

Black Coal: Ipswich, Callide Basins (Qld)
Gas: NW Shelf, Rankin Trend, Carnarvon Basin (WA)
Oil and Gas: Perth Basin (WA), Timor Sea

Black Coal: Sydney and Gunnedah Basins (NSW), Bowen Basin (Qld), Collie Basin (WA), Arckaringa Basin (SA)
Oil and Gas: Cooper Basin (Qld)
Gold: Gympie, Mt Leyshon (Qld)
Tungsten: Mt Carbine (Qld)

Oil: Canning Basin (WA)
Tin: Herberton Tinfield (Qld)
Gold: Pajingo, Kidston, Ravenswood (Qld)
Lead/Zinc: Cadjebut (WA)

Oil: Canning Basin (WA)
Gas: Adavale Basin (Qld)
Copper/Lead/Zinc/Gold/Silver: Cobar District (NSW)
Tin: Renison Bell, Mt Mischoft (Tas)
Gold: Charters Towers (Qld)
Copper/Gold: Mt Morgan (Qld)
Tungsten: King Island (Tas)

Gold: Ballarat/Bendigo (Vic)
Copper/Lead/Zinc/Silver/Gold: Captains Flat, Woodlawn, Lewis Ponds (NSW)
Tin: Ardlethan (NSW)

Gold/Silver: Gidginbung (NSW)
Copper/Gold: North Parkes, Cadia (NSW)
Oil and Gas: Amadeus Basin (NT)

Copper/Gold/Silver: Mt Lyell (Tas)



Warming

Temperate

Australia's Climate Trend

Cold

Cool

Warm