Worksheet 8: Rainfall and land use in Australia

Rain in Australia is always a major topic of conversation. Will it rain today? Will it rain all day or just for a short time? How much rainfall will be recorded? How many days will there be without rain? What will the season bring in the way of rain? What does this all mean for the farmer? A farmer's knowledge of climate must consider average annual rainfall statistics and consider the effectiveness of any rain according to rainfall variability and evaporation rates. In some parts of Australia there are only two seasons – "the wet" and "the dry" – and the farmer must cope with long periods of no rainfall.

Create an overlay map showing land use and rainfall in Australia.

Use the maps in figures 1 and 2 to create an overlay map of land uses and average annual rainfall in Australia.

An overlay map is where two or more maps of the same area can be viewed at the same time so that comparisons and interconnections can be identified.

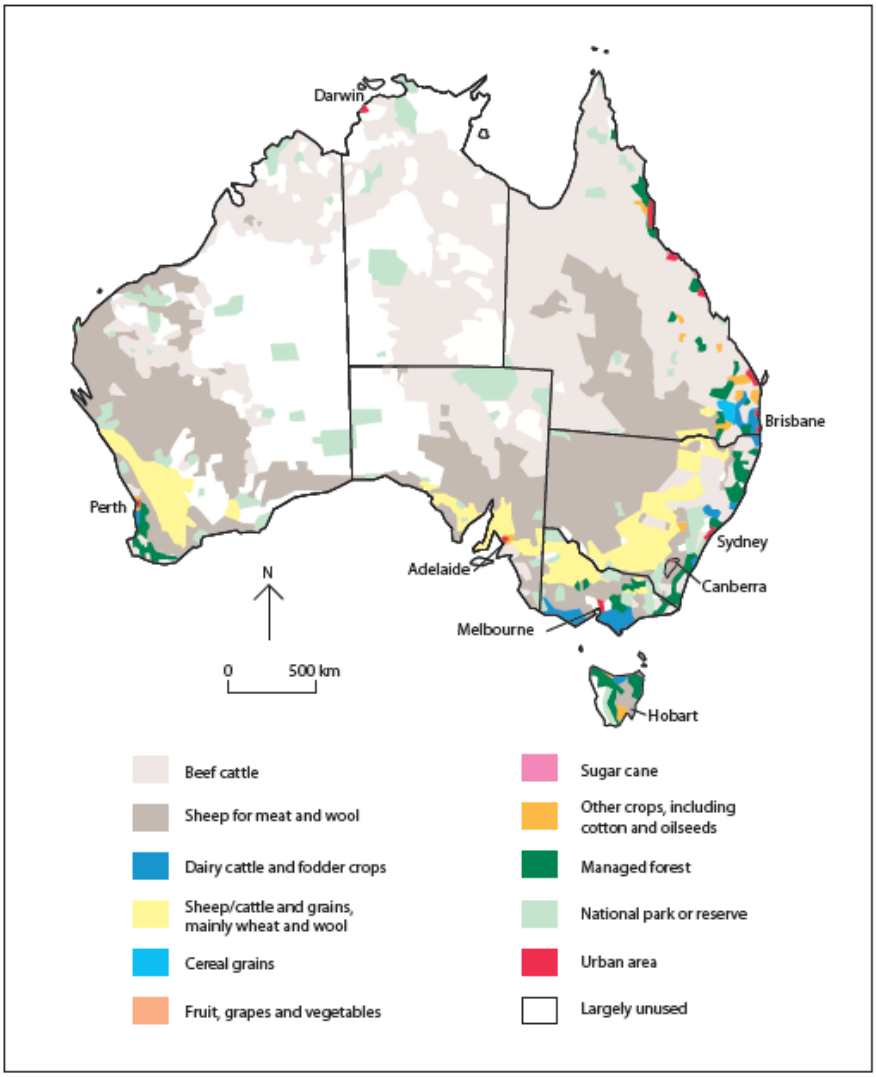

Figure 1: *Australian land use*

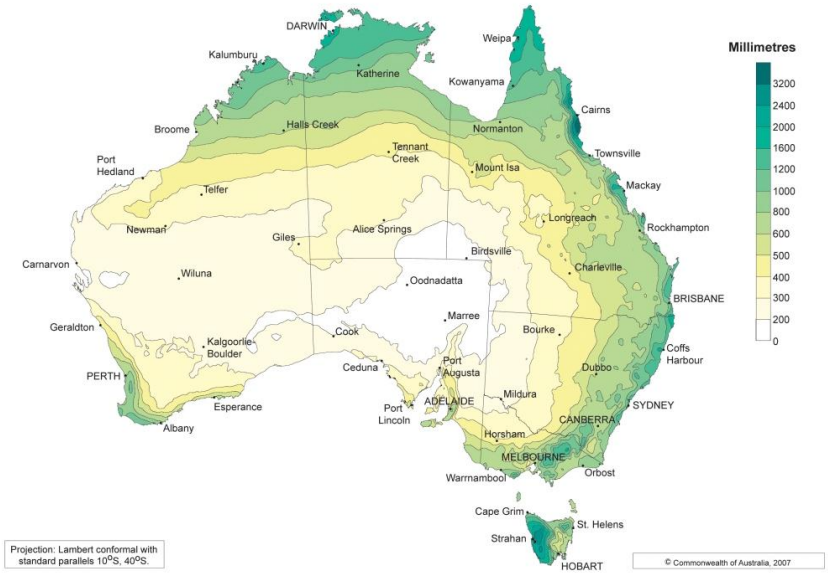

Figure 2: *Average annual rainfall*
Source: Bureau of Meteorology:
http://www.bom.gov.au/jsp/ncc/climate_averages/rainfall/index.jsp

Step 1: Begin by using tracing paper to make a copy of the average annual rainfall map of Australia. Make sure that any colours you use are light so that you can see through the tracing.

Step 2: Print a copy of the land use map of Australia. This will save you from having to do a second tracing.

Step 3: Using sticky tape, tape together the tracing and the map along one edge **only** of the tracing paper. Make sure that the maps are aligned perfectly before you tape.

Step 4: Look through the tracing paper and look at the relationship between average annual rainfall in Australia and the different farming activities.

Step 5: Complete this passage using this word list:

dryland cropping high varied 1200 millimetres decreases grazing on native pasture Below 500 millimetres higher west nature conservation lowest largest intensive over 1200 millimetres grazing on modified pastures minimal

Australia's rainfall distribution is very _____. Farming along the east coast of Australia experiences relatively _____ levels of average annual rainfall. Most of the farming in this region is _____. West of the Great Dividing Range, the average annual rainfall _____ to _____ and the land use changes to _____. In the areas of central Australia, where the annual rainfall is at it _____, the

land use is either _____ or _____. Grazing on native vegetation takes up the _____ proportion of Australia's land mass. Although there is _____ average annual rainfall across northern Australia, the fact that it comes in one season, "the wet" does not encourage _____ agriculture. The south-west corner of Australia is an exception as it has a _____ average annual rainfall with _____ and the farming zones are more varied. Tasmania, with its high average annual rainfall on the _____ coast, utilises this in the forests as an area of _____. Across many parts of Australia, irrigation plays an important role in sustaining agriculture.

1. Rainfall effectiveness

   Use these maps of Australia's average annual rainfall variability and the map of average annual evaporation, and create another overlay map. Use annual rainfall variability as the base map and trace the map of average annual evaporation to tape onto the base.

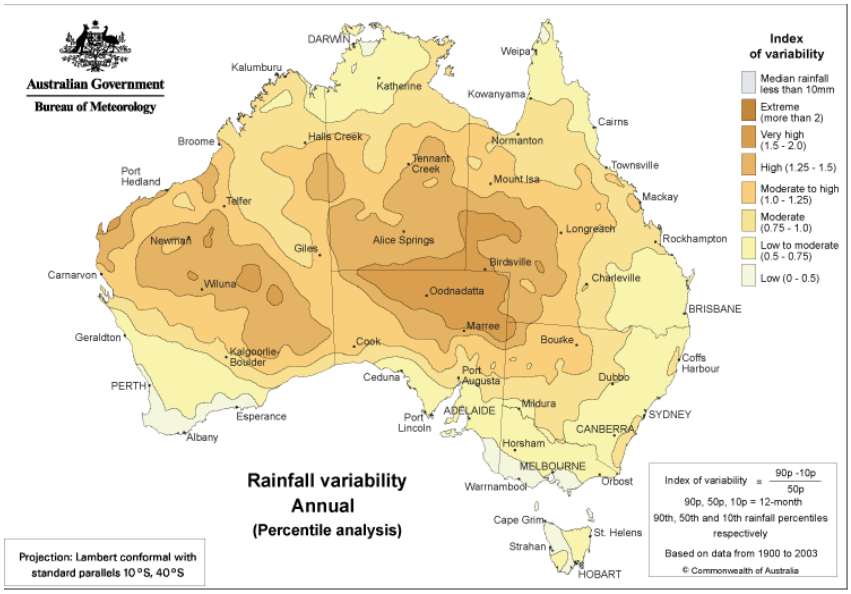

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Figure 2: *Annual rainfall variability*

Source: Bureau of Meteorology:

http://www.bom.gov.au/jsp/ncc/climate_averages/rainfall-variability/index.jsp

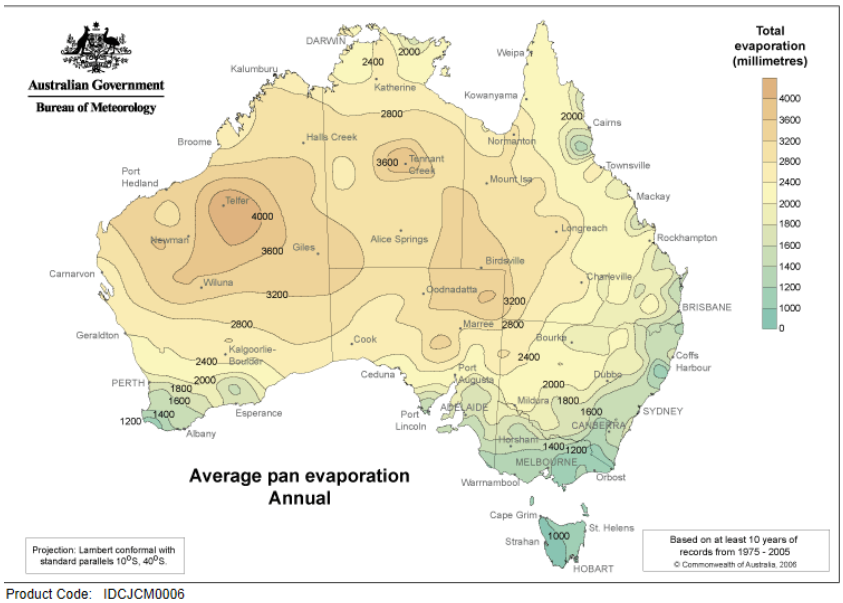

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Figure 2: *Average evaporation*
Source: Bureau of Meteorology:
http://www.bom.gov.au/jsp/ncc/climate_averages/evaporation/index.jsp

a. Which area of Australia has the most variable rainfall?
b. Which area of Australia has the least variable rainfall?
c. Which area of Australia has the highest evaporation rate?
d. Which area of Australia has the lowest evaporation rate?
e. Which area of Australia would have the most effective climate for farming activities?
f. Which area of Australia would have the least effective climate for farming activities?
g. Think of four things that farmers could do to cope with the rainfall variability and the evaporation rates?

2. What does "the wet" mean?

Kununurra, Western Australia: 15° 47'S 128° 45'E

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Temperature													
Mean maximum temperature (°C)	35.9	34.9	35.5	35.2	32.7	30.1	30.5	32.6	36.5	38.5	38.9	37.1	34.9
Mean minimum temperature (°C)	25.1	24.8	24.2	21.9	18.8	15.7	15.2	15.9	20.0	23.5	25.2	25.4	21.3
Rainfall													
Mean rainfall (mm)	198.6	210.6	154.7	30.4	7.0	3.6	1.6	0.1	3.0	23.6	60.8	135.9	849.2

Using this table of statistics for Kununurra, create a climatic graph of mean maximum temperatures and mean rainfall per month. Then answer the following questions:

a. In how many months of the year does Kununurra receive a mean monthly rainfall over 100 mm?
b. Which months of the year receive a mean rainfall of less than 10 mm?
c. Which months of the year could be seen as "bridging" months with mean rainfall between 10 mm and 70 mm?
d. How would you describe the mean maximum temperatures for Kununurra throughout the year?
e. When is the wet season and when is the dry season?
f. Are these climatic conditions different from your place? Use http://www.bom.gov.au/ to get local detailed information.
g. How do climatic statistics like these make farming difficult in the region? Think rainfall variability and evaporation.