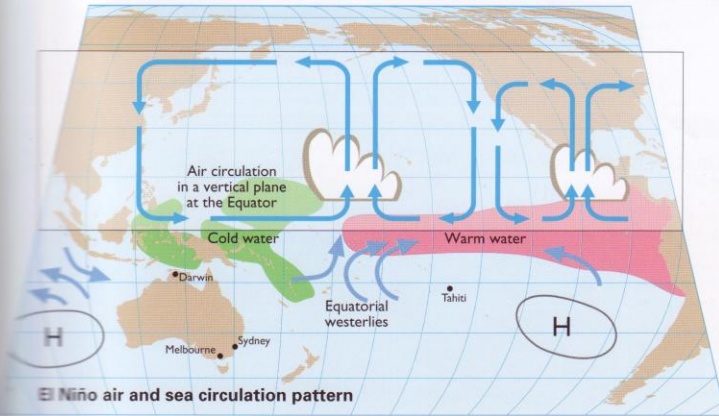
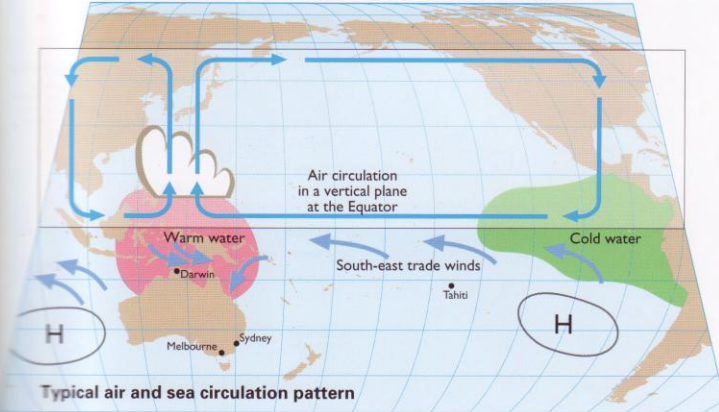
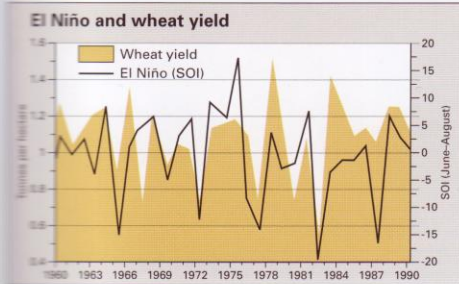


EL NIÑO

In a normal year, south-easterly trade winds drive surface waters westwards off the coast of South America, drawing cold, nutrient-rich water up from below. In an El Niño year, warm water from the west Pacific suppresses upwelling in the east, depriving the region of nutrients. The water is warmed by as much as 7°C, disturbing the tropical atmosphere circulation. During an intense El Niño, the south-east trade winds change direction and become equatorial westerlies, resulting in climatic extremes in many regions of the world, such as drought in parts of Australia and India, and heavy rainfall in south-eastern USA.



El Niño events occur about every 4 to 7 years and typically last for around 12 to 18 months. El Niño usually results in reduced rainfall across northern and eastern Australia. This can lead to widespread and severe drought, as well as increased temperatures and bushfire risk. However, each El Niño event is unique in terms of its strength as well as its impact. It is measured by the Southern Oscillation Index (SOI) and the changes in ocean temperatures.

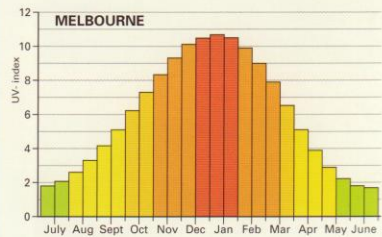
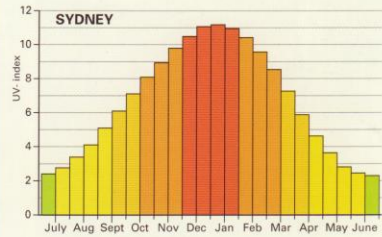
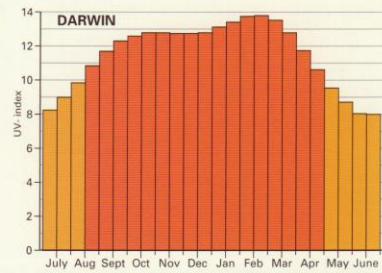


The Southern Oscillation Index (SOI) is calculated from the seasonal fluctuations in the air-pressure difference between Tahiti (French Polynesia) and Darwin. A normal year has an SOI of close to 0. A negative SOI indicates the presence of El Niño, while a positive SOI suggests La Niña, the opposite of El Niño, which brings widespread rain and floods to northern and eastern Australia.

ULTRAVIOLET RADIATION (UVR)

The Sun emits ultraviolet radiation (UVR) that can be very harmful to humans. The UV-index model is an indication of the maximum daily level of UVR expected at ground level on a cloudless day. The graphs below show the average UV-index value that can be expected at midday for each month, and the level of exposure risk for humans, shown as two two-week blocks.

| Colour code | UV-index level | Exposure category |
|-------------|----------------|-------------------|
| Green | 2 or less | Low |
| Yellow | 3-5 | Moderate |
| Orange | 6-7 | High |
| Red | 8-10 | Very high |
| Dark red | 11 or higher | Extreme |



FACTORS AFFECTING THE AMOUNT OF UVR REACHING THE GROUND

- Season
- Level of ozone in the atmosphere
- Cloudiness of the sky
- Geographic location
- Elevation of the Sun
- Time of day