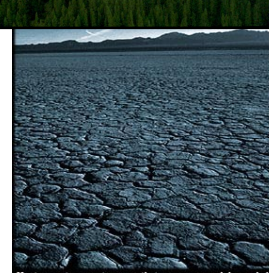


Climate Change and Variability

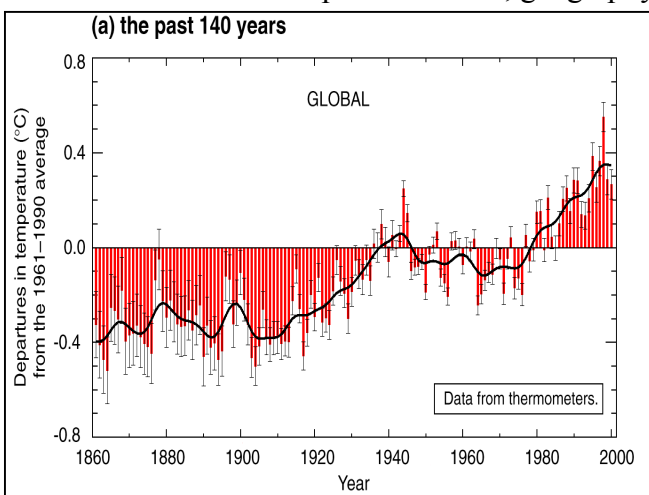
(GES3860/ATM3251)

Australia's climate is always changing, it always has and always will. There are year to year changes some linked to El nino. Climate also varies on longer time-scales, over decades and centuries. These variations are more subtle than yearly changes but can still have significant impacts on human life. This unit provides an introduction to climate over different timescales in order to provide some appreciation of the complexities involved, the methods which are used to reconstruct and analyse climates, the implications of climate change and variability, or their predictions, to human society and environmental management. The unit is vital to the broader fields of atmospheric science, geography, geology, biology,



environmental science, and social science.

The course aims to provide a background in how climate has changed in the past and how it is likely to change in the future. An examination of the mechanisms involved and the roles of the oceans and biosphere will be a key component. In line with the development of an understanding of climate change



and variability has been an increasing awareness of their significance for biotic communities, particularly human societies. Some aspects of impact and response are addressed at the end of the unit.

Important Issues

- Long term climate changes and the terrestrial response
- Determining long term proxy climate records
- Recent records from sediments and ice cores
- Sea level change – processes and evidence
- Ice/glaciers – processes and evidence
- ENSO mechanisms and impacts
- Tree rings and what they tell about global warming
- The Greenhouse effect and global radiative balance
- Scientific evidence for enhanced greenhouse
- Ozone and depletion
- Climate change predictions and the use of modelling
- The carbon cycle
- Role of the biosphere in climate change
- Greenhouse and Policy issues and social responses

