

Climate Change and Rising Sea Levels

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Fact Sheet

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Climate Change

Rising seas

The global mean sea level, according to many studies, may have risen by one to two centimetres (1-2 cm) in since 1900, at the rate of one to two millimetres (1-2 mm) annually.

Climate change is expected to cause a further sea level rise of 30 cm to 50 cm by 2050. Climate models show that doubling atmospheric concentrations of CO₂ will raise the atmospheric average temperature by 1.5° to 4.5° by 2050. This level of warming would cause sea levels to rise up to one metre by 2100 due to thermal expansion of ocean water and discharges of freshwater from melting ice caps and mountain glaciers. This rate is 3 to 6 times faster than that over the last 100 years.

Predicting sea levels

Forecasting sea level rise is still an extremely inexact science. While most scientists believe that man-made GHG emissions are changing climate, they are less sure how this change will come about.

While global warming is considered as the most likely symptom of climate change, other effects may help moderate the net sea-level rise. For example, although thermal expansion and melted water from ice caps would cause sea level to rise, climate models predict that there will be more snow in Antarctica, which would help moderate the net sea level rise.

In the Pacific, a network of sea-level monitoring stations have been installed to measure relative sea level changes, mainly due to GHGs contributions.

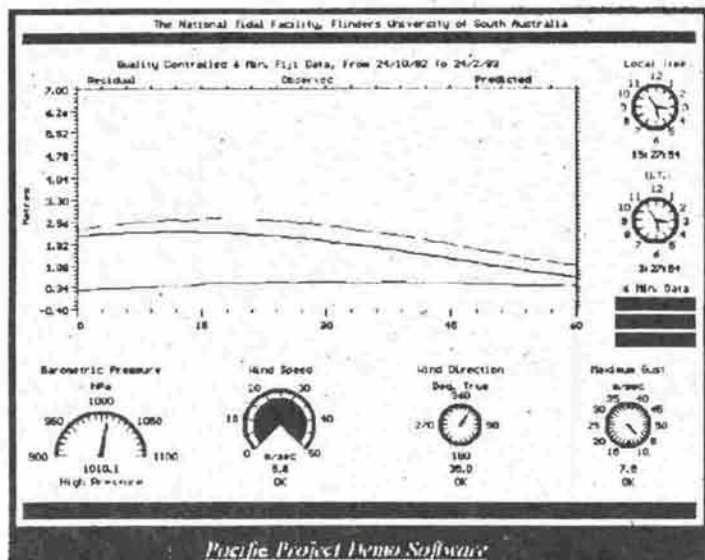
Coastal areas and small islands

Higher sea levels would inundate low lying coastal areas and small islands. Seventy five (75) million square kilometres of the Earth's surface and millions of people are below 200 meters above mean sea level. These are the most vulnerable and unprotected lands, and the most overpopulated. These coastal regions are also the most productive lands for poor countries which do not have the financial and technical ability to respond to sea level rise.

Most low lying islands in the Pacific would experience irreversible problems if sea levels rise appreciably. Areas at risk include tourist beaches, urban areas, cultural and historical sites, fishing centres, agricultural land and coastal infrastructure including power and water supplies and sewerage systems.

Rising seas would threaten freshwater aquifers and ground water in coastal regions would become more saline, especially in low-lying atoll islands. The flows of estuaries, coastal rivers and low lying irrigation systems would be affected and tidal wetlands and mangroves would face erosion and higher salinity. Wetlands not only help to control floods but they are critical to biodiversity and to the life cycles of many terrestrial and marine species.

The effects of floods, storms and tropical cyclones may worsen with a changing climate and rising sea levels, especially in the atoll countries.



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