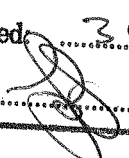


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HOUSE OF REPRESENTATIVES
STANDING COMMITTEE ON CLIMATE CHANGE, WATER,
ENVIRONMENT AND THE ARTS

Inquiry into Climate change and environmental impacts on coastal communities

Submission by Garry Cook, CSIRO

In response to the request from the Chair of the committee 19 August 2008

Background: Tropical cyclones are one of the main extreme events that affect natural ecosystems and human settlements and businesses in northern Australia. In 2006, Severe Tropical Cyclone Monica crossed the Arnhem Land Coast as one of the most intense cyclones to make landfall ever recorded in the Southern Hemisphere. Thankfully, the eye crossed to the west of the community of Maningrida, which although affected by the storm, was spared the extreme destruction evident where the eyewall winds were experienced.

The cyclone caused extensive damage to natural ecosystems both through storm surge and winds. Large areas of mangroves and freshwater wetlands were destroyed and 7000 km² of woodland suffered total to partial loss of tree cover.

While the passage of this cyclone cannot itself be taken as evidence of climate change, its impacts do demonstrate the likely effects of projected increases in the frequency of very intense tropical cyclones under human-induced climate change.

There has been little funding for research into the impacts of Cyclone Monica, and the other recent category 5 cyclones which passed the Northern Territory (Cyclones Ingrid and Thelma). Indeed very little scientific information at all is available to help understand the impacts of cyclones on natural ecosystems outside the wet tropics of Queensland. Such research would enable substantial improvements in hazard assessment and understanding the potential impacts of climate change on natural ecosystems and human settlements in much of northern Australia.

Key knowledge gaps

1. The occurrence of three Category 5 cyclones in Northern Territory waters within the past decade suggests that the current understanding of wind hazard in this region is an underestimate. Thus coastal communities may be exposed to a greater than acceptable risk from tropical cyclones. Further research is required to ascertain the wind hazard of this region.
2. There is almost of complete lack of published scientific papers on the impacts of tropical cyclones on Australian native ecosystems outside the Wet Tropics of Queensland. Yet cyclones frequently impact these drier ecosystems of Queensland, Northern Territory and Western Australia. Research is needed to better understand the baseline impacts of tropical cyclones in order to understand the impacts of climate change. Such information would also inform investment decisions about the expansion of agricultural and other enterprises in the north.
3. Currently most urban dwellings in the coastal regions of the Northern Territory are designed to withstand mid-strength Category 4 cyclones. Research is required to develop practical emergency response measures for the threat of Category 5 cyclones.