



Australian Government



Nuclear-based science benefiting all Australians

16 January 2013

Standing Committee On Environment and Communications  
[ec.sen@aph.gov.au](mailto:ec.sen@aph.gov.au)

Dear Sophie,

Thankyou for the opportunity to provide input into recent trends in and preparedness for extreme weather events.

Personally I am very pleased that Senate is initiating this Inquiry. All the economic modelling (Stern, Garnault and others) suggests the sooner we prepare the nation for what lies ahead the more cost effective it will be. Costs to the nation will escalate the longer we delay.

The instrumental record makes it clear that there is an upward trend in temperature and a shift in the number of extreme events which are climate related. The Intergovernmental Panel on Climate Change shows that the science can attribute and qualify most of the climate shift to relevant forcing factors now, and the likelihood that anthropogenic factors are not significant is very low.

We already know that mean temperatures are not useful in Australia because we have one of the most variable weather systems in the world. Much of the press and media focus is on shifts in the mean temperature (about 0.9°C over the last 100 years) and to the public this appears to be small, and for some environmental settings even welcome.

Managing systems around the mean is not a major difficulty with our present institutional infrastructure. The real problem is that in a statistical distribution a shift in means also results in a shift in likelihood of certain kinds of extremes. This is already evident over the last two decades. The difficult and challenging element in mitigating the effects of these is the huge cost in dealing with high magnitude and increasing frequency of certain kinds of events. The historical and archaeological records have many examples of societal failure where their resilience is broken down after facing several intense events. Given Australia's geographical position and our relative wealth, we have responsibilities for other nations who are not so well placed.

The statistical data base is probably good now enough to identify the expected frequency of severe weather events and how sustained they may be.

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AUSTRALIAN NUCLEAR SCIENCE AND TECHNOLOGY ORGANISATION

New Illawarra Road, Lucas Heights (Locked Bag 2001, Kirrawee DC 2232) T +61 2 9717 3111 F +61 2 9717 9210  
[www.ansto.gov.au](http://www.ansto.gov.au)



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Much planning in Australia still fails to take account of future climate trends. This is in part fuelled by people who do not like to contemplate bad news and the 'comfort' generated by climate change deniers. The last twenty years of science on this topic has been vindicated by the ensuing trends in weather. While new science improves both predication and models it is clear that political will is the pressing issue now. Can Australia's political system rise to this challenge and develop a bipartisan approach?

In summary, I believe it is now possible to assess the probability and return periods of extreme weather events from existing data and trends. New science will help but it now comes down to politics and economics.

Sincerely,

John Dodson (Prof)  
Head, Environmental Research

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