

CLIMATE EMERGENCY NETWORK

"There is no doubt in my mind that this is the greatest problem facing mankind at this time, and that it has reached the level of a state of emergency."

Professor David de Kretser
Governor of Victoria
17th July 2008

The **Climate Emergency Network** is a network of community organizations who believe we have no right to bargain away the lives of others. Our goal is a safe climate for all people, all species and all generations. We are calling on Australian and international governments to

- work together to secure a safe climate,
- decarbonise the Australian and global economies at emergency speed,
- urgently and effectively address the climate and sustainability emergency.

We aim to engage the community in recognising and responding to the climate emergency and in ensuring our elected leaders do so.

For more information, to join CEN, or to make a donation, please go to

www.ClimateEmergencyNetwork.org

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What is a Safe Climate?

The Earth's climate system is affected by a complex range of ever-changing factors. Over very long periods of time it achieves a balance in which it continually shifts but only within certain natural lower and upper limits.

Throughout human history the concentration of carbon dioxide in the atmosphere has not exceeded 300 parts per million. Before the industrial period began the level was 280 ppm. It is now around 387 ppm and still rising.

To restore a safe balance, climate scientists say we need to get back down to **less than 350 ppm**. To be really safe it may even be necessary to go all the way back to the pre-industrial level of 280 ppm. Currently the policies of Australian and most western governments are aiming to stabilise the level much higher, at 450 ppm. Clearly these are policies that will lead to more frequent and severe extreme weather events, including heat-waves and bush-fires.

BUSHFIRES AND THE CLIMATE EMERGENCY



Although it cannot be said that climate change causes any single incident of extreme weather, such as a particular cyclone, flood or bushfire, there is strong evidence that climate change is increasing the likelihood of conditions that favour uncontrollable fires. It is predicted that without urgent effective action to mitigate climate change more severe fires will occur more often in the future.



Fire Danger is increasing

With record temperatures and unprecedented low rainfall and relative humidity, scientists conclude it is “very likely” that climate change increased the likelihood of extreme fire danger on 7th February, 2009

Fire danger and difficulty of suppression are assessed using the MacArthur Forest Fire Danger Index (FFDI), which was developed in the 1960s. The conditions of Black Friday 1939 provided a benchmark index of 100. The index combines measurements and forecasts of

- temperature,
- wind-speed,
- humidity,
- drought-factor,
- fuel-load and
- land-form and slope

to produce a number which is then interpreted to predict expected fire conditions. An index above 50 was regarded as extreme with fire suppression virtually impossible. Such a forecast prompted the CFA to consider declaring a day of Total Fire Ban.

It is generally acknowledged that man-made climate change is leading to long-term increases in maximum temperature, reduced rainfall and low relative humidity in southern Australia. So, for at least 3 of the factors contributing to the FFDI, climate change will increase the values observed and hence the level of fire danger.

Climate change also has the potential to increase fuel load, which is another factor in the FFDI. Both rising carbon dioxide concentration and warming conditions may encourage plant growth so there is faster build of biomass (grasses and trees). There are longer periods without rain and more intense drying. These factors contribute to the conditions that can lead to wildfire.

With shorter winters and longer summers, there will also be a trend towards shorter windows of opportunity for fuel reduction burns to be safely and effectively conducted, exacerbating the problem of fuel build-up.

In the Central Highlands and Alpine areas of Victoria winter snow-pack acts as a seasonal reservoir, releasing water over a period of time during the spring melt. This allows melt-water to soak into and moisten the ground. While the snow pack persists it also reflects the majority of sunlight falling onto it. Once the snow has melted the majority of sunlight is absorbed by the darker ground and vegetation, having a warming effect. Thus a result of shorter winters with less snow is that drying will be doubly hastened due to the combined effects of more rapid run-off of precipitation and earlier commencement of warming of the ground surface.

It should also be remembered that the heat-waves in the weeks preceding 7th February are estimated to have contributed to around 374 deaths in Victoria.

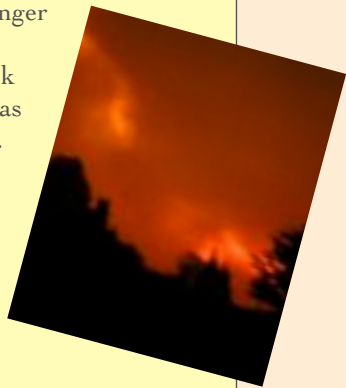


Off the Scale!

The original Forest Fire Danger Index used the extreme conditions recorded on Black Friday, 13th January, 1939 as the benchmark score of 100. The Grass Fire Danger Index on that day was 87.

On Ash Wednesday, 16th February, 1983 the FFDI reached 120; GFDI 196.

On 7th February, 2009 the FFDI has been rated at nearly 200 and the GFDI has been estimated at close to 400 in some areas.



The Forest Fire Danger Meter Mk 5 is like a circular slide rule. When the various inputs are set the Fire Danger Index is read off the scale.

