

## SUBMISSION re: Extreme Climatic Shifts & Weather Variability

1. As an Agricultural Scientist and Ecologist by training, it is clear that the leaders/teachers in sub-disciplines of Agronomy AND Soil Science need to commence a major re-think of the curriculum being taught to all school and university students, such that A MAJOR SHIFT away from the 'superficial science' of researching the top-45 cms of the Soil Profile is now warranted/overdue; complete Depth of Soil Profiles, including Regolith needs to be a part of all-university courses in Soil Science and Agronomy - to include root-depth elongation/improvement for all crops currently 'at risk' from major-shifts' or accelerating alterations(heatwave/cooling) in climate-change; in order that crops, inc. tree-crops, esp. those in the Riverina become/are bred to be more-resilient tG-Warming, esp. extended Heatwaves, and stronger, more frequent hot-winds (known and proven at Braidwood over the past 15 years(meteorologists report) to have predominantly NWest prevailing (inc. hot-winds for summer)these-days, as compared to predom. Sth.west prevailing winds before 1980;
2. Governments need to-act to set' better standards for housing, esp. and including at the ACT, and Canberra's newest suburbs, e.g. McGregor -that I have studied) as most/many new suburbs are predominantly 'built-up' with/by 'cheap' project-home builders who construct new-homes that have no-eaves' - which is 'bad' for energy-saving in hotter-weather, have limited if any 'plantings' around them, and cert. include Negligible/no fire-resilient/fire-resistant plants, and most homes are still putting-down water-hungry lawns!! Plus the FACT that Governments need to start recommending the building of rock-cellars within future-houses, and ADOPT A National STANDARD for Rock-cellars, the 'future coolest' modality for professional-escape/-ing by humans threatened with 'extreme weather, bushfire/s or heavy snowfall events(if the weather does a 'flip' after 2030 - as predicted by Hansen et.al (NASA USA)circa 1980.
3. Consider a Government/Federal subsidy to homebuilders intent on constructing stone or masonry 'bunkers' in or under their future homes or additional rooms (at lwr.levels, with a view to publicising the true-value/s' of inner-home 'cooling sinks' for higher energy efficiency of homes in the summer-heat, inc. more future decades of major 'solar flare' events - such as occurred between 2001 and 2008.

Joe A Friend

Independent\* Research Scientist & Agro-ecologist; AUTHOR and Research Specialist-Adviser to Governments; ...\*Independent of the Oil Industry