

More To Fear From Prolonged Global Cooling

I have followed the climate change debate in the last two issues of *PESA News Resources* (No. 109 and 110) between Phillip Playford, Gareth Cooper and Cedric Griffiths, and wish to make the following points:

Cedric Griffiths (*PESA News Resources* Dec/Jan) berates the geological profession for failing to pursue the classic process of observation, deduction and prediction. The three scientists in his sights, Bob Carter, Ian Plimer and Phillip Playford, along with many others, have certainly followed the path of observation and deduction. The deductions are incontrovertible, Earth's climate has absolutely no relation to atmospheric carbon dioxide levels. For example, one of the highest levels of atmospheric carbon dioxide coincided with the coldest period in the planet's history, the Neoproterozoic glaciation, commonly referred to as 'Snowball Earth'. Predictions are rather more difficult, perhaps best left to astrologers. Economists, such as Professor Ross Garnaut, who in their own field of expertise failed to predict the Global Financial Crisis, are now trying their luck predicting temperature and sea levels 50 years hence, happily unburdened by any knowledge of climate science, and finally those scientists who feed inaccurate and/or incomplete data into computers making predictions which have to be continually revised as they fail to materialise.

Ultimately, Earth's climate is governed by the total amount of energy it receives from the

Sun. This in turn is determined by a number of factors, mostly extra terrestrial, such as Earth's orbital variations, the tilt and wobbles of its axis, (Milankovitch Cycles) and cyclical variation in sunspot activity. Therefore if any predictions are to be made they are probably best left to the astronomers, astrophysicists and astrogeologists. However, such predictions could be negated by earthbound factors such as massive volcanic events which are essentially unpredictable.

As a geologist I could make predictions based on records of the past 700,000 years where there have been seven glacial/interglacial cycles of about 100,000 years duration. These are characterised by slow cooling periods of approximately 90,000 years culminating in an ice age, followed by a relatively rapid warming period of 10,000 years. As we have already experienced 10,000 years of Holocene warming, we could, if this cycle is repeated, be about to enter a prolonged cooling period. Some supporting evidence may be seen in reduced sunspot activity towards the end of Solar Cycle 23, diminishing atmospheric temperatures since around the year 2000 and the harsh winters experienced in the northern hemisphere in the last few years, especially in 2010/2011. On the other hand this could be another temporary phenomenon such as the 1970's ice age scare. The Quaternary glaciation will end sometime and the planet will return to what, for it, are more normal conditions - minimal or no polar ice caps, a warmer climate with less temperature differentiation between

the higher and lower latitudes. Who knows when though?

If the first scenario of a return to another ice age comes to pass, the outlook for the human population could be dire. Primitive humans were able to cope with the last Ice Age by virtue of their limited numbers, their simple hunter/gatherer lifestyle and their ability to migrate to warmer climes. While nobody can predict the numbers and the state of the human population in say 90,000 years, how would the present sophisticated population of about six billion deal with a return to an ice age? With a vast area of the northern hemisphere buried under a 1000 m of ice and the great grain growing areas a virtual tundra, where would the inhabitants migrate to and how would they be fed? Devastating wars would be fought over living space and food. There is much more to fear from prolonged global cooling than global warming.

Finally, Griffiths could add at least one further name to his terrible trio of Carter, Plimer and Playford, that of a distinguished Australian scientist, the late Dr Rhodes Fairbridge, formerly Professor Emeritus of Geology at Columbia University. Long before anthropogenic global warming became a political beat up, Professor Fairbridge, in an extensive series of publications, pointed out the role of planetary, lunar and solar dynamics in determining Earth's climate. He was one of the earliest sceptics of human induced climate change.

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