

WITH TIM BALL, HISTORICAL CLIMATOLOGIST



Tim Ball has an extensive science background in climatology, especially experience in water resources and areas of sustainable development, pollution prevention, environmental regulations and the impact of government policy on business and economics. He is a regular contributing writer for *Country Guide* magazine and a researcher/author of numerous papers on climate, long range weather patterns, impacts of climate change on sustainable agriculture, ecosystems, historical climatology, air quality, untapped energy resources, silting and flooding problems. After a long academic career at the University of Winnipeg, he moved to Victoria in 1996. He has a B.A. from the University of Winnipeg, an M.A. from the University of Manitoba and a PH.D. (Doctor of Science) from the University of London, England. He was interviewed before his speech to the Frontier Centre for Public Policy in Winnipeg on Friday, November 5, 2004.

Frontier Centre: We are all familiar with the modern theory that the world's climate is getting warmer. Is it?

Tim Ball: Yes, it warmed from 1680 up to 1940, but since 1940 it's been cooling down. The evidence for warming is because of distorted records. The satellite data, for example, shows cooling.

FC: Could you summarize the evidence that suggests the world is cooling slightly, not warming up?

TB: Yes, since 1940 and from 1940 until 1980, even the surface record shows cooling. The argument is that there has been warming since then but, in fact, almost all of that is due to what is called the "urban heat island" effect – that is, that the weather stations are around the edge of cities and the cities expanded out and distorted the record. When you look at rural stations – if you look at the Antarctic, for example – the South Pole shows cooling since 1957 and the satellite data which has been up since 1978 shows a slight cooling trend as well.

FC: If the world were warming up, would that be good or bad for Canada?

TB: It would be good, because even Environment Canada acknowledges that you would have better agricultural conditions, a longer frost-free season. Some people express concern about it being drier, particularly on the Prairies but the evidence says that droughts are not related to temperature. They are related to sun-spot cycles – solar cycles. So, over all it would be better for Canada and it would also reduce, by the way, the amount of fossil fuels you burn because you wouldn't have to heat homes to the extent that we do.

FC: It has been said that a simple one degree drop in the world's average climate would jeopardize much of Canada's agricultural output. Is that so, and why?

TB: I am not sure that one degree is a simple drop but with a drop of one degree, which we saw in 1992 and again this last year, you could see the effects on agriculture. We are very close in many parts of the Prairies and across Canada to not getting crops. In 1992 there was the same problem and the studies show that if you drop Manitoba's average annual temperature by half a degree you eliminate half the crops, sunflowers, and some of the other cash crops that

they are now growing. So, yes, it would have a devastating effect. The main reason, of course, is that Canada is right at the northern limits of agriculture.

FC: If, as you fear, we are in a cycle of cooling, how catastrophic might the economic consequences be for us?

TB: I don't like to look at things in terms of catastrophes, that is the thing the global warming people are playing. What we need to do is prepare for that and, unfortunately, we are preparing for warming. It becomes a problem if you haven't prepared for it. You get sideswiped, and the fact that the federal government has forced all of the government departments into preparing for warming is foolish to me. If you are prepared for warming and it cools, you are in trouble. If you prepare for cooling and it warms, you really haven't lost anything. Ironically, I like to tease some of the extremist environmentalists and say, well, if it cools and we haven't prepared for it, and it is rapid, the only hope we have got is genetic modification, to create plants that are very quickly adapted to that new condition.

FC: A corollary of the popular theory of global warming is that its cause is human activity. But aren't changes in the climate a product of cosmic forces beyond our influence, i.e., the sun?

TB: Yes, when David Anderson or the federal government says we are going to stop climate change, it is the most ludicrous statement in the history of the world. The climate changes all the time and dramatically. All you have to do is sit here in Manitoba and imagine that just 20,000 years ago, which in the Earth's history is nothing, you would have been sitting under about 1,000 meters of ice. In fact, 20,000 years ago there was an ice sheet covering Canada that is larger than the current Antarctic ice sheet. All that ice melted in less than 5,000 years and we are not even sure where all the heat energy and the causes of that melting that occurred came from. So to suggest that the fractional amounts of CO₂ that humans are putting up has any influence on global climate is really quite ludicrous.

FC: How advanced is our ability to understand weather patterns at all, least of all to predict changes in them? Do we have the tools to model climates?

TB: We don't have the tools. If you look at Environment Canada's website right now they do 0–3 months, 3–6 months forecasts. Click up any of their own analyses of their previous forecasts using computer models for a smaller area and you will see that in 90% of the country they are less than 50% accurate. In other words, it is less than chance, yet these are the same people who quite blindly with a computer model tell you that it is going to be warmer a hundred years from now. The fact is that the computer models don't work. The fact is that we don't understand even a fraction of the mechanisms of climate and so for anybody to tell you that they can forecast climate is wrong. In fact, one of the hopes for the forecasters and all of these people, is that chaos theory is right and climate really isn't predictable at all.

FC: In layman's language, can you describe the role played by water vapour in determining atmospheric conditions?

TB: Water vapour is the most important greenhouse gas. This is part of the difficulty with the public and the media in understanding that 95% of greenhouse gases are water vapour. The public understand it, in that if you get a fall evening or spring evening and the sky is clear the heat will escape and the temperature will drop and you get frost. If there is a cloud cover, the heat is trapped by water vapour as a greenhouse gas and the temperature stays quite warm. If you go to In Salah in southern Algeria, they recorded at one point a daytime or noon high of 52 degrees Celsius – by midnight that night it was -3.6 degree Celsius. That's a 56-degree drop in temperature in about 12 hours. That was caused because there is no, or very little, water vapour in the atmosphere and it is a demonstration of water vapour as the most important greenhouse gas.

FC: What is your opinion of the scientific underpinnings of the Kyoto Accord?

TB: There are none. One of the most distressing things that is argued for Kyoto, is they are saying, "What's going to stop pollution?" It has nothing to do with pollution and even if the full Kyoto Accord was implemented you would not be able to measure scientifically the effect that that would have. In other words, it is completely immeasurable scientifically. So, it is a policy based on ideology and economics and politics and has nothing to do with science. Proof of that, by the way, is that Russian President Putin, who agreed to sign the Kyoto Accord, said exactly that. He said, I am signing this not because the science is there but because Europe has put pressure on us to sign it.

FC: Well, you have said that Kyoto is really an extension of the ongoing trade war between Europe and the United States. Can you explain that?

TB: Farmers know, but most urban people don't know, that there is a huge trade war going on globally between the U.S. and Europe. You see it in the farm subsidies and all of the other things. In the trade wars Europe saw an opportunity – they think that the trade imbalance is in favour of North America because it has low energy costs – so they thought if they could put a carbon tax onto North America then they could level that trade playing field with regard to

production of products and also in terms of market sales. Europeans, of course, have also agreed to the Kyoto Accord but because they are very involved in nuclear and other things, it will have only a very minimal effect on their economy, whereas, for North America it would be quite devastating.

FC: What do you think of the idea of carbon taxes? Should we deliberately make energy more expensive in a cold country like Canada?

TB: Well, it just undermines our economy. McKittrick and Essex wrote their book *The Gathering Storm*. Here's an economist and a climatologist getting together and analyzing the scientific detail and the impact. I think they estimate the cost at something like \$3 trillion dollars over the next ten years. The difficulty with it is that I as a scientist could create all kinds of scares. There is no difficulty, you know asteroids are going to hit. The problem is, as politicians and as people, we have got to set priorities. If you are being scared to death with things that are not real because people have their own political agenda, then you are not making the right decisions and you are not going in the right direction.

FC: Your view on windmills?

TB: They are not hot air but there is certainly a lot of blowing in the wind. They only function between a certain range of wind speed. Below a certain wind speed they don't operate, above a certain wind speed they have to shut down. They make an enormous amount of noise; in fact, there are studies in Europe now showing that some of the low harmonics actually cause problems in the body for people living near them. There is also the irony that the Greens in Germany are trying to shut the windmills down because they are killing birds by the millions. There is one windmill in California that is in a mountain pass that has killed condors and eagles and all sorts of other species that have been designated as "at risk." The problem is, of course, that the wind mills are put where the wind blows and that's where the birds fly particularly during migration. The other thing is that wind doesn't blow all the time and if you have a wind generation system you have to almost 100% backup for when the wind doesn't blow and so it simply doesn't work.

FC: How could so many scientists be on the man-made global warming bandwagon? Are their views derived more from political science than hard science?

TB: Well, their views are from political science, their views are also a function of where you go to get the funding and who provides the funding. But also, the majority of the scientists who are on the Kyoto and global warming bandwagon know nothing about the science. David Suzuki is a perfect example. He has said publicly that he would be happy to debate genetic modification with anybody, because that is his area of expertise. Well, I could say the same thing to him, that he doesn't know anything about global warming or climate change and so I will debate it with him and so you have this problem. The other problem is that so many of the scientists who are quoted as being on side with global warming are actually doing studies on the

impact of global warming and climate changes and their studies then are listed as evidence for support of it. They are not, they are just starting with the assumption that global warming is going to occur, and what effect that would have. That is not support or proof at all.

FC: Are public funds for research that confounds the conventional wisdom impossible to obtain? Do scientists have to form their conclusions in advance to suit the zeitgeist?

TB: This is a part of the problem, You have the scientific problem about global warming and, as Richard Lindzen said, the consensus was reached before the research had even begun. But the other side of it is that if you are getting money to prove a certain point, then you are going to try desperately to prove that point. The whole point about scientific research is you have a hypothesis but you must be prepared to accept what is called the null hypothesis. That is that your hypothesis isn't true, that something else is true. That's true science. But what is happening now is that you set out to prove the science and there is a temptation to jiggle the data to make that happen and it is really a very unhealthy scientific environment in which to operate.

FC: Why is the famous "hockey stick" graph wrong?

TB: The "hockey stick" graph was drawn by Michael Mann, Ray Bradley and Malcolm Hughes in a paper published in 1998. It is referred to as the "hockey stick" because the handle of the graph reflects temperature being essentially unchanged for a 1,000 years and the blade is a sudden upturn in the 20th century. It is wrong because Michael Mann fixed the data. I can't describe it any other way. Two Canadian tried to reproduce the results using the same data and the same methods but got completely different records. So that whole study, which has been the basis of the United Nations report and is the basis of the government of Canada's argument, shows there is clear evidence of the human signal in climate change. It is based on completely wrong science.

FC: What's going to happen with Canada and Kyoto? We have signed on.

TB: Unfortunately, we spent an awful lot of money already but most of it has been spent on propaganda. It hasn't been spent on the scientific investigation of the problem. I hope what will happen, and some of the signals we are hearing out of Ottawa, is that Minister Dion is saying that we are going to get more climate experts involved. I was personally involved in this. David Anderson was going around saying that he had consulted the climate experts. Well eight of us, tops in the world and in Canada, went to Ottawa to have a press conference and said, "Look, not one of us was

consulted." Of course, we know why we weren't consulted, because we weren't going along with his political agenda and so we were excluded. This is very unhealthy and I think that Dion and Martin recognize that and at least will listen to the other side. Now how they act on that, of course, is another question. But I think that, once they realize the science is wrong and the threat to the economy in terms of cost, they will come to their senses and they will do what Russia is going to do and what Japan has already said they are doing. They will ratify but they won't implement.

FC: The politically correct version of climate change theory is taught in our schools particularly the greenhouse gas version which blames human activity and excess materialism for warming. How do we depoliticize these topics in our schools?

TB: The simple answer is that you have got to have the climate change and global warming issue taught in the science part of the curriculum as well as the social sciences. The fact that it is totally restricted to the social science curriculum puts a terrible bias on it. So I think we need to get it over into the science side and help the students understand the science of it. Then the political discussion can be based on something that is real and factual, rather than emotion and threats and fear. I always tell people you need a very good BS detector. The minute that people start saying it is going to threaten our children and our grandchildren, don't listen to them anymore, they are now playing the emotional card. Yes, we need to care about our children and our grandchildren but you don't care about them by scaring people into wrong policy.

FC: You are a distinguished climatologist who moved from Winnipeg to Victoria. Is there something you know that we don't here in Winnipeg?

TB: Well, no. Actually, I always joke about the hard sell of being a climatologist that chose to live in Winnipeg. Winnipeg was very good to me but I was born in England and I missed the ocean. One of the things that people don't realize is that where we are born is sort of imprinted on us. For example, one of the reasons that animals can "home" is because of the magnetic field which they can detect and even we as humans have magnetite in our brains and I think we are a function of the sorts of environments in which we are born and we have a tendency to want to go back to those. I certainly missed the ocean being born in England but, as I said, Winnipeg was very good to me and I really enjoyed living here.



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