



## Forward

In the early 1990s I was researching stormwater runoff treatment funded under the EPA Clean Water Act when I became involved with academic research on climate change. What I found was that the scientists, in their research reports, were saying that climate change was actually worse than what the media was reporting.

This made no sense of course. The alarmist media was actually not being alarmist enough. Their reporting on climate change was less extreme than what the scientists' findings stated. I thought maybe I was misunderstanding the scientific literature. So I read more. And, I read more, and more. There was this disconnect between science and the media. In general, and consistently, the media was underreporting the severity of climate change. Sure, sometimes they would exaggerate, but in general, it was as if they did not understand, or did not even read the literature. The media's journalists and reporters would make their brief statements, they would print their short articles, but their words would not relate the full meaning of the scientific research. Why was this? The media has a pretty reliable reputation for being alarmist. Why were things different with their reporting of climate? Why were they underreporting now?

Was it that climate science is really complicated to understand? Or was it that the contrarians were skewing the understanding of the science? Or was it big oil's

campaign of misinformation? Or maybe it was the concept of fairness; that the opposing viewpoint gets equal airtime regardless of the validity of the opposing viewpoints? The important point of this story is that the alarmist media was under reporting the scientific research findings. I don't have an easy answer to why, but I do have a lot to say about it later on.

I continued reading the academic articles with a passion and the gulf between climate science and the media widened. All the time, common knowledge of climate change lagged even further behind than the media. Then the Clinton Administration failed to ratify Kyoto. This seemed to strengthen the resolve of the media to under report climate change even more, and the American public and American business followed Clinton's lead. The World followed Kyoto.

George Bush was elected under the promise of creating a carbon cap and trade system, of limiting the carbon emissions of the United States. Within three weeks of his taking office he reneged on his promise. He aggressively adopted the coal and oil industry position on climate change and announced that the US would not participate in world efforts to address climate change for a decade.

This was tremendously bad news. Climate scientists had already shown that small delays in reducing carbon emissions would result in even larger changes in climate before we could regain control of our atmosphere and their predictions. They had also begun to discover new feedback processes where the climate was showing signs of the beginnings of uncontrollable and unstoppable runaway changes all on its own, triggered by the warming that we had already seen.

The science of climate change was ominous. The United States was officially in denial. Climate needed all of the help it could get. The country, its media, business and a lot of its citizens just didn't get it. Most of the World, meanwhile, was preparing.

I fairly quickly acquired a publisher for my book. It was to be a full color book with an image on every page. My publisher had never done a color book and tried to get me to

drop the color. I dropped them instead. Then I ran out of money and had to go back to work engineering. My land development consulting business had been footing the bill for my writing.

When I finished a job or two and looked up, a dozen new climate change books had been published, and to my chagrin, Al Gore had published a book very similar to what I had tried to get published. The book market seemed flush with new material and it just did not seem that more work on the book at that time would have been a worthwhile endeavor for me or climate change.

All the while I had kept up with academia and really extreme events related to climate change had seemed to double in number overnight. The disconnect between academia, the media, the American public and our leaders was growing. George Bush had started his second term. The coal fired energy industry was shifting into high gear, offshore drilling, banned in so many areas since 1981, was about to begin.

It was a greater understanding of two fundamental concepts of climate change however, that really shook me to the core. The abrupt, massive and even violent jumps that were the normal way that our planet reacted to climate change and the ominous understanding that there was no known stable climate state warmer than the one we were rapidly warming beyond are the most important things to understand about the “big picture”. The few scientists with enough foresight, or maybe it was courage, to speak of such possibilities were laughed off of the stage because of the perceived absurdity, but the reality was still there – there was no known stable climate state warmer than the planet today.

I began to understand something else about the industry of science. It was something that pulled together the rest of the story about why it so difficult for humanity to understand climate change. There is a saying in academia of “publish or perish”. What this means is that scientists, academics at least (college professors and academic researchers) must constantly publish papers on relevant “discoveries” in science. Because a very significant majority of the scientific discoveries about climate change

were coming from our academic institutions, most of the knowledge of climate is subject to this “publish or perish” adage. What this does is make the results of the research conservative. The scientists must not be wrong, or they will lose their ability to publish, the scientific journals will simply not accept their papers any longer and they will perish. So the scientists’ writings, their scientific findings, their documentations of climate change are conservative. They must not make mistakes, so they take fewer risks with their assumptions.

Now I was really worked up over this colossal conundrum. I decided that a first hand perspective was what I needed. None, or few of the authors that I had read, who were not scientists doing the actual research, had been to the arctic, or few of them at least were writing about anything from there first hand. The journalists were swarming about the arctic, but not the authors. There were no first hand accounts of climate change from someone who knew about climate change and who could communicate the information in non-scientific language to the public.

So I picked up my camera and Arctic gear and went to Greenland and camped next to the ice sheet. I talked to the scientists in the field and the locals in harms way. I went to Alaska to see the melting permafrost and to talk to more scientists and locals. I went to a deserted island to see the effects of all of this accelerated melting on sea level. I went to the Rockies to study the forests there where the impacts of those “increased insect infestations” the scientists had been talking about were erasing entire environments.

One of the places I went in Greenland had been melting an astounding thirty feet per year since about 2004. Before then it had been stable for a hundred years or more. The scientists called it “The Big Melt”. In Alaska, permafrost melt was literally everywhere. The forests were drunken; the trees all leaned every which way from having their foundations melted out from under them, and the trees were drowning. The Rocky Mountains forests were dying. Generally, the scientists said that the forests in the Rockies were sick, and had already gone beyond the expected fertilization effects of an enriched CO<sub>2</sub> atmosphere. Specifically, thirteen and a half billion trees were dead in just one pandemic. This was the greatest mountain pine beetle infestation ever known

and (at the time) it included twenty seven million acres. There were also other insect and disease infestations accelerating rapidly.

At the beach I found - no beach. Sea level rise, from the rapidly melting ice caps, has just about taken our beaches. A few more years and we will cross the threshold where dynamic regeneration is impossible and the beaches will completely disappear.

I found that the scientists in the field are “wide-eyed and talking fast”. They are deeply concerned, and even frightened by their findings that are happening so much faster than the models predicted.

So this is my story: The media is underreporting because they don't see the big picture, because the scientists' only speak of their specific, highly focused research. Journalists' are trying to be fair when they publish contrary viewpoints, but that only works with issues. Climate is not an issue, it is science. So the public is confused and knows not how to act, or does not understand the immensity of the actions that need taken, and the abbreviated timescales that are occurring because of delay and the climate thresholds. All the while big oil, coal, the auto industry and the momentum of business as usual are compounding the confusion and extending the delay. And maybe most importantly, academic research is fundamentally conservative making the whole mess grossly understated.

My objective with this book is to show the big picture. Understanding is the key to knowledge. Climate knowledge concerns the big picture. The little pieces are relatively inconsequential; it is the big picture that we don't know if there is a stable climate state warmer than the one we are leaving. The implications, along with the rapidly accelerating pace of climate change are ominous for all creation.

Bruce Melton, P.E.

