The Oil Drum
DISCUSSIONS ABOUT ENERGY AND OUR FUTURE

Global Warming - a review and a Conference Conclusion

Posted by Heading Out on February 12, 2007 - 1:39pm
Topic: Alternative energy
Tags: global warming, little ice age, medieval period, roman period [list all tags]

Normally after a conference this is where I would give you my opinions in a little summary, and I would still like to do that, but the way things have worked out, I would like to preface that discussion with a little story. I had thought to post what immediately follows as a post on Friday, during the first day of the conference, but there were other pieces, and I was not sure how much on-topic this was. So I sent it around to our contributors for comment. And it developed into a little story on its own. So, since what then happened has some relevance to the conclusions I drew from the meeting, I thought I would combine both tasks. So let me begin with the original post as I wrote it.

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I remember walking along the coast of Sardinia, and visiting the ruins of the Roman port at Nora, that stretch out, under the water and into the Mediterranean, and thinking that there must have been a land subsidence between then and now to carry the land down and underwater. Somehow, until reading my book on the plane traveling here, I could not get my mind around the fact that the sea levels had risen so much since the port was built that it now lies underwater. And the cause of the sea level rising around the world, as it must have, has been that some of the ice that lies around the poles has melted, as the overall climate and temperature of the Earth has changed.

The book I was reading is called “Unstoppable Global Warming – Every 1,500 years,” by Singer and Avery, and it is written in rebuttal of some of the issues that are being brought up over Global Warming. And, since I am not that au fait with the other sides of the argument (when did you last see a detailed article that looks at the issue from other than ex-Vice President Gore’s perspective), and in keeping with the philosophy that leads me to read CERA articles, I thought it would be informative to see what the other side of the argument is all about.(Added comment – I was sent a note from Amazon, because of all the books that I buy on that site about peak oil, that this book might be of interest, and I thought why not?)

It is, in fact, an interesting, and I thought, worthwhile exercise. In a comment some posts ago, someone had written that Singer and Avery’s arguments had been considered, and were either not valid or non-persuasive. Which is odd, because the book is not actually as much their work, as it is a compilation of the reported results from the work of several hundred scientists worldwide, who have published in quite reputable peer-reviewed journals.

The main thesis of the book's authors is that, because of changes in solar activity, the Earth goes through periods of heating and cooling. Since there is considerable evidence for the existence of

Ice Ages, this is not something that is likely refutable. But over and above the very large climate changes there are smaller temperature cycles, which, over the past million years have averaged a frequency of about 1,500 years. Most recently (as in the last 3,000 years) there have been two such cycles. Depending on where you choose to start the cycle, the cold period before the first was from 705 BC to 200 BC, this was followed by a warm phase (referred to as the Roman Warming) between 200 BC and 600 AD; then a cold phase, known as the Dark Ages, from AD 440 to AD 900; then a second warming phase, from 900 to 1300 AD (The Medieval Warming); followed by the most recent cold phase, 1300 to 1850 AD (the little Ice Age); which has since been followed by the current warming trend, and which, from that cycle, is likely to continue to get warmer for another 50 years or so, before the temperature crests and starts to decline and we start back into the next cold phase.

The evidence can be quite persuasive, for example the river Thames froze over in winter until 1814, and has not frozen since, and there is the evidence that I started with about sea levels. And so the fundamental discussion that I can relate to in the book is this cycle, and what is interesting relates to the variety of different pieces of evidence that they use to illustrate that it happened. I did not know, for example, that you could tell climate from the condition of stalactites, and until I read the book I thought that when a coral bleached it was irretrievably dead.

What is troublesome, I gather, to those that espouse the carbon dioxide cause of global warming, is that if the cycle has happened before, and if the world survived (and the authors suggest – along the lines of "Minnesotans for Global Warming" – that in fact the world was, in general, a better place during the warm periods than the cold ones) then perhaps the current concerns are much ado about nothing. And, in addition, if the world got warmer, in those periods, than it is now, and all the species survived, and mankind flourished, why are we currently worried? This perhaps explains why one sees, for example, in papers that Dr Hansen has given, comments that the Medieval period was not as warm as it has been projected to be. It also explains recent comments that have cropped up in comments on some posts here on the irrelevance of the presence of vineyards in the UK during Roman times, and in Greenland.

Certainly, since these cycles would appear to be historically valid, one can learn from what did occur (the weather was nowhere near as catastrophic as some would suggest that it will be as the temperature continues to rise), and where problem areas arose (changes in drought patterns, and the problems in some cases of dealing with excess rainfall).

However, that being said, part of the concern that has arisen over the influence of carbon dioxide on the climate relates to the rate of change, and to the accelerating effect on climate change that the increased concentrations of CO_2 are having. And here the book is not very persuasive nor argumentative. It does point out a controversy over the "hockey stick" plots that both a core part of the IPCC 2001 report (which segment was apparently written by the generator of the hockey stick plot), and the consequent basis for the (pdf) National Academy review of the problem. But it implies that the debate on that issue is settled, which does not, at least as the Wikipedia article suggests, reflect the actual situation. Further it does not consider the most recent changes in climate over the last couple of years.

But the book was well written, easy to read, and I learned a lot from it, so, while I don't necessarily agree with some of the conclusions, it is worth reading to understand some of the aspects of the current debate that are not always, otherwise, made clear.

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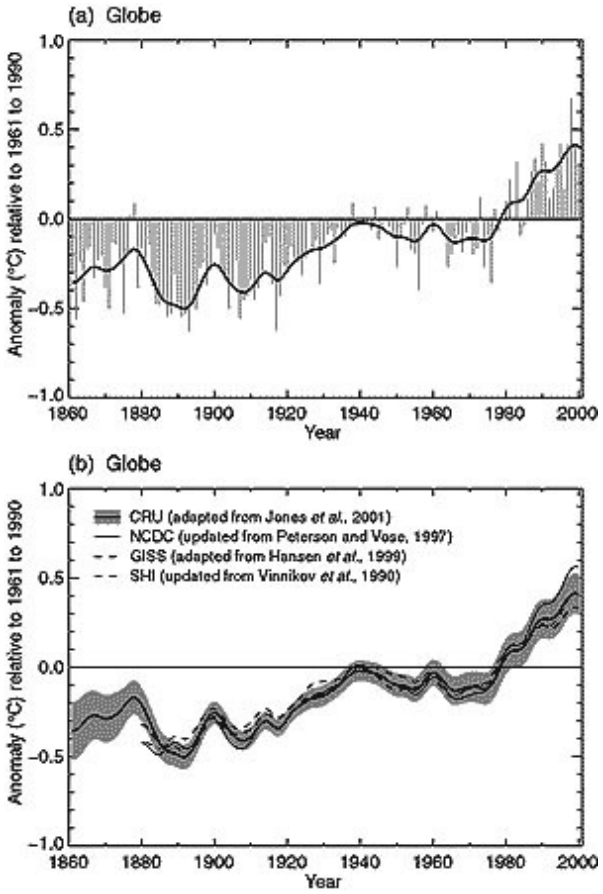
Well that was the post, I thought it (the post that is) fairly innocuous, and, as I note it does explain that there is another side of the story to that which is currently getting maximum

exposure. However a couple of responses that I got were somewhat startling. I got one note back saying that if I posted it there would be a lengthy rebuttal. Well that is fine, and good debate is what educates us all. What I was not expecting was to get was a second, more disturbing e-mail and, while it serves no purpose to repeat it, it did cause me to do a relatively quick review of a few facts. And yes, I still think that it is relevant, so please read on.

So what is all the fuss about – well I thought I'd have a bit more of a look. So here is what I did (the layman's validation at its more open) – I went to the internet and got a look at the International Panel on Climate Control's 2001 report (the third assessment report or TAR). (You just type IPCC on Google and it is on the first site that is listed). And I read through the first bit (clicking on the Scientific basis button) until I got to the figure that is now known as the hockey stick, because of the way that the temperature abruptly turns upwards. Along the way I noted that the graphs showed that the world had been getting warmer since 1860.



Figures 2.1 a and b from the TAR

And then there was this one, since I had read somewhere that as the permafrost heats up there is a risk that it will release more methane – a GHG. You will note that it suggests that the ground temperature has been going up for the past 400 years.

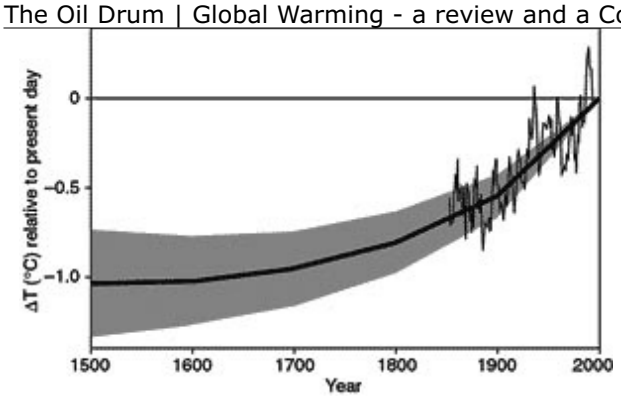


Figure 2.19 TAR report of the IPCC

Hmm, and so then I looked at the hockey stick curve again and it did not have any of that. The results (as I noted above) that have got the most attention, and on which a number of reports have been made are those by Mann, and those are the ones with the heavy black line. They show that the world got steadily colder from 1000 AD, to just after 1900.

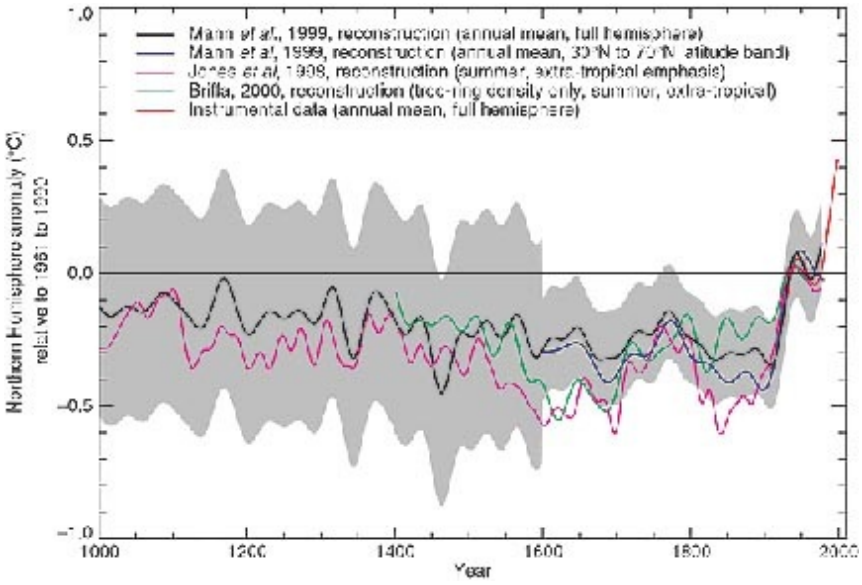


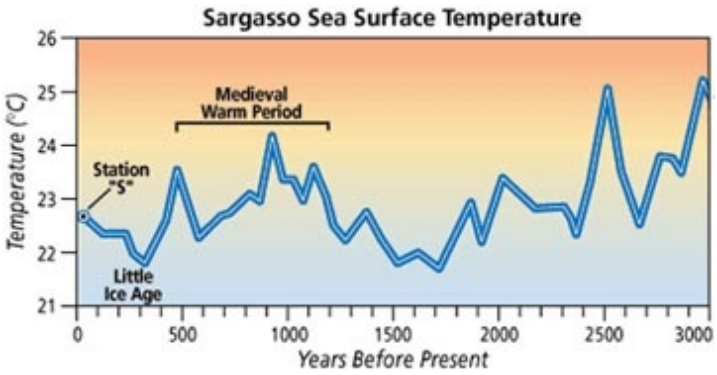
Figure 2.21 TAR report.

Now all the consequent fuss has been about the bit after 1900 and the accelerating upward trend of the last decade. I was (vide the book topic) a little more interested in the bit before 1900, and it does not show any of the warming that has occurred according to the two graphs from the report that I posted above it. Now that is a bit more odd, since, as I had noted above, the Thames used to freeze over (no not from personal memory, from having to read set books while I was in school), and a check on Wikipedia for the River Thames gives:

> In the 17th and 18th centuries, during the period now referred to as the Little Ice Age, the Thames often froze over in the winter. This led to the first Frost Fair in 1607, complete with a tent city set up on the river itself and offering a number of amusements, including ice bowling. After temperatures began to rise again, starting in 1814, the river has never frozen over completely So it looks as though the IPCC report itself is not self-consistent. So let's call this a zero for the Mann group.

So, how about Singer, can I do a quick check to see whether he is similarly challenged?

And so, since it had been stated in that critical e-mail that the authors cherry picked their data I thought I would try another unscientific experiment. So I picked a reference (open at page 25, first reference down (number 12 of the 35 scientific references quoted from articles in journals such as Science, Global and Planetary Change, Nature, Paleooceanography etc in that chapter). It related to a study by Lloyd Keigwin and reported in Science in 1996. Well in a hotel I can't likely get into Science without bucks, so I went back to good old Google and typed in Keigwin Sargasso (the paper related to the oxygen isotopes in organisms in seabed core from the Sargasso). And as it happened Google gave this site which had a bit of discussion on how the data was obtained, and gave



a clear indication of a medieval warming period before the little ice age – just as the book predicted. So lets give the book authors a one.

So in my little check on the two sides, the book authors win by a score of one to zero. And, I have explained how I did this in detail, so that you can check me out that I didn't cheat.

But what does that have to do with the Conference?

Well I think it became very clear, as the conference wore on that the future energy supply (for at least the next few decades) will rely on coal, whether as a primary fuel for electricity, or as a feed stock for liquid fuels. The little that renewables will be able to contribute is not going to be that significant in overall supply terms. And the public will be unwilling to pay the costs to ensure that the coal is burned cleanly and the CO2 sequestered. Quick audience check, would you pay double your current electric bill for no visible benefit, but to pump carbon dioxide underground for no change in the global warming progress? Didn't think you would.

Because that is the other side of the problem, no matter what is done locally, the energy needs of the rest of the world are such that coal will be burned, and gas will be generated, and if that is the cause of Global Warming, then what we are going to do is not going to make a difference because it will be too little, too late. And if the GHG are not causing Global Warming, then as the graphs show, the world is heating up anyway under the next cycle. And we certainly won't be able to change that.

And so, as one of the speakers said, and as an editorial in Newsweek this week notes, all we can do is adapt.

And that was the other thing I brought back from the conference. There is an increasing interest in Energy Productivity, in saving through conservation. There are many ways this can be done, and some of the better companies are already learning this lesson and implementing them, to large cost savings. I suspect this will become one of the larger themes of the next decade. But

while that may be project profitable, the inertia of the system is such that, globally, it won't make much difference. Note that, in California, despite universal agreement almost in the room that we had a problem, no-one in the entire conference, that I heard, talked about mandating speed limits again, as was done in the 70's.

So that's my opinion, I don't really think that most of the audience grasped the immediacy of the problem, nor did some of the speakers. It was as though it was a nice intellectual exercise, without the reality of the physical impact that is going to happen.

Oddly, having also carried out this little exercise on global warming, I am not sure if the audience really fully realized what this might mean. If, as Dr Hansen's data suggests, change can be very rapid (and I apologize if I missed a zero) then we need to start planning for the coming changes. (And a clarification of my understanding - I thought that when the Labrador field collapsed we got a tsunami with a height of 8 m and so I may have misunderstood). Now here I differ with many, because I think that the debate of this issue can cause a lot of delays, when we need to learn what we are going to have to do to adapt. We need to have more studies of what happened the last time since as his example showed, there is physical evidence out there. Happily there is a greater public awareness, but, as one speaker noted, when the costs of a possible ameliorant are mentioned, the discussion stops. So it is important now to start looking at what has happened in the past and seeing what those changes will mean. (Jeepers an engineer is urging funding for historical research, who'd a thunkit) and how we can learn to adapt.

We need to implement more of the energy saving technologies, and develop more of them, and while I would prefer that the Federal Agencies got more involved in this, I accept that much of this will be market driven, as the benefits become more obvious.

Not a very encouraging message, I'm afraid, despite some of the very neat technologies that we heard about.

Now I have been asked to make clear that all this reflects my own personal activities and should be considered to have anything to do with any other contributors to the site. (I thought you all knew that, but never mind, they want the statement, they got it.)

Unfortunately there is also, occasionally, in rebuttal posts, the occasional ad-hominem attack when a disputed opinion is put forward. (That means that if you kill the messenger then hopefully no-one will notice or give credence to the message).

This is a real and serious crisis. The reports I gave from the conference (and there were readers there who can correct my mistakes) tried to reflect, outside my opinions, what was said. The community that reads this site is better served by that approach, and by open discussion. You now have my opinions, I would prefer we discuss the issues.

Well I said my piece, thank you for reading. I think I'll post about what the Saudi's are doing with water pumping next time, it might get us back to something we know a lot more about. (joke).

And there are these really neat LED's that I have to go and buy . . . . . .