Coming in from the Cold: This Winter in Review with Dr. Aarnout van Delden

By Veronica Benjamin (University College Utrecht, March 1 2010)

Some of you may start noticing a strange, bright light entering your rooms in the morning. That would be sunshine, remember? Don't get too used to it, this is still The Netherlands; but judging from this and the emerging snowbells around Wilhelmina Park, it seems a long-awaited spring is near. Though spring is rarely a time to re-live the winter, to those who experienced it in Europe or the US, it seemed like a remarkable one. With record snowfall and prolonged freezes, to the delight of Dutch ice-skating enthusiasts, many are under the impression that this was quite an extreme winter. Now that climate, warm or cool, is a hot topic in the public sphere, some are also compelled to analyze this phenomenon in light of predictions made by climate scientists, specifically those of anthropogenic climate change proponents.

In order to assess this perception, as well as some of the underlying causes of this winter, the Boomerang sat down recently with a local meteorologist and climate scientist, Dr. Aarnout van Delden. With a background in Physics and Meteorology, Dr. van Delden is the instructor of the upper level climate dynamics class here at UCU and a researcher at the Institute for Marine and Atmospheric Research at UU.

But first a crash course in elementary climate dynamics. In terms of global climate systems, the El Niño Southern Oscillation (ENSO) in the western hemisphere and the Arctic Oscillation (AO) above Europe, were the key factors in shaping the 2009-2010 winter, and arguably most other winters, for the affected parts of the globe. The ENSO has both oceanic and atmospheric components and describes a quasi-periodic shift between warmer and cooler oceanic phases, with associated increases and decreases in precipitation.

The AO has its effect much closer to home; hence Dr. van Delden had more to say about it. He described how the AO was in a negative phase, which manifests in high pressure systems close to the surface. Due to this, cooler air is forces down from the Arctic into Northern Europe and "storms move more southward, into the Mediterranean." This also influenced the flooding in Madeira and hurricane-like weather in Western Europe over the last weekend in February. What about all the snow? This was also due to the AO, which brought "northerly winds" down from the Arctic. These passed through the moist airs of the Norwegian Sea *en route* to the continent and, "this produced more snow, rather than rain."

During the interview, actually before he had explained any of the mechanisms at work, Dr. van Delden strove to make one thing known: this was not an "extreme" winter. "That's the basic message, there's nothing different about this winter," he continued, "Its largely unexceptional. The only thing is that some largely populated areas were affected." In fact, last winter produced more extreme cold in the Netherlands and elsewhere in Europe, due to the strong influence of easterly winds coming from Russia. This winter was just relatively prolonged in affected areas, which may have influenced our perception of it.

And what about climate change skeptics who claim this winter is proof against global warming or that this 'extreme' winter was only caused by a solar minimum? Dr. van Delden explained that when the sun is at this minimum level of activity, "Solar radiation is about 0.1% less than when in maximum. So it's really a small effect." The only strange thing about this current cycle, is that it has been a longer than usual one, lasting maybe 15 years instead of 11. Despite his criticism of such skeptics and their cherry-picking method of evidence gathering, Dr. van Delden remains, "very critical about what is published about climate science… there's a lot of rubbish," later commenting, "Skeptical attitudes are understandable."

After clearing the fog about the causes, and ultimate banality, of this winter, Dr. van Delden went on to talk further about his view of the state of climate science. “The important part is the interpretation. I’m not very impressed by the quality of the interpretation,” adding, “Editors [of journals] and reviewers should be more critical.” Due to this lack of time spent on interpretation, Dr. van Delden also asserted that there is a growing gap between climate modeling and understanding. Many institutions just invest in teams of scientists who work on models of ever-increasing complexity, but analysis of data produced is much more rarely done. “These models are getting too complex, just as complex as reality,” and what’s the point of a model if it doesn’t provide that crucial step between the way things are and the way we can understand them? Beyond being very difficult to interpret, these models, “only lead to computer-generated images and not to much insight.” Thus Dr. van Delden urges that not *all* universities need to be working on models of such complexity and joins a growing number of scientists who, “propose to go back to simpler models, the kinds used back in the 60’s.” Make no mistake, these are models that are ‘simple’ to people with PhDs in physics.

When naïvely asked whether he “believes”, or agrees with, claims about anthropogenic global climate change, Dr. van Delden gave a very reserved answer, “It is on the basis of sound physical principles to ‘believe’ that CO_2 causes increases in the ground temperature of earth, but what is not known are certain feedback mechanisms.” He mentioned the hydrological cycle, in particular the role of evaporation and clouds. Referring back to his criticism of climate models, he noted that due to the impossibility of “testing” how to correctly predict the weather for the next 100 years, there will always be uncertainties in predictions.

Nevertheless, he was not hesitant in his support for preventative measures and advocated the development of alternative energy sources as a more effective strategy. Regarding CO_2 sequestration he said, “Generally I’ll support it, but I find it quite impossible,” in terms of its ability to reduce the amount of atmospheric CO_2 to safer levels. Much more controversial measures include ones that will affect the so-called ‘quality of life’ of those living in developed nations, in the form of higher costs adjusted for environmental impact. Expressing uncertainty about what ‘quality of life’ really means, he did concede it will be increasingly unjustified to, “use this [extra] money to buy a new car, or a new fridge, or another luxury item; because the environment is also a luxury product.”

One thing became clear throughout the interview: that it has become much more difficult to talk *just* about the weather. As mass media outlets and questionably edited academic journals sow seeds of worry, affirmation, and denial over the actuality of anthropogenic climate change, it is undeniable that these reports have had their effect on public consciousness. Whereas before people were hesitant to draw the connections between human activities and the physical environment; now new inferences are made at the change of every season. Sometimes things really are simpler, or at least more meaningless, than they seem, this winter’s weather being a case in point.