

## Delving into earth's archive

### Keynote speech: **Of Ice, Bears and Markets in the Silicon Age**

Tuesday afternoon, 3 June 2008

*Moderator:* **G rard Nicaud**, Senior Reporter, Le Figaro, France  
**Alain Hubert**, Chairman, The International Polar Foundation

The two poles of our planet are "archives of [its] climate's evolution throughout the millennia." Thus **G rard Nicaud**, senior reporter at Le Figaro, introduced this afternoon's topic on climate change. Essentially, deep inside the ice cores of the Arctic and Antarctic regions lies information on the earth's past climate.

But where is the climate heading? Can the recent changes be considered as merely a cyclical phenomenon, bound to happen regardless of human impact, or on the contrary do we have a direct responsibility and therefore, a potential antidote for the rise in temperatures and the numerous natural disasters which have resulted from it?

**Alain Hubert** is in a unique position to provide insight into the vital importance of finding ways to confront climate change. Mr Hubert is chairman of the International Polar Foundation, set up in 2002 with the aim of "informing and educating on the contribution made by research findings in the Polar regions to the understanding of the Earth as a complex system, and the role of climate change in this system." The foundation also aims to promote ways of living in the 21<sup>st</sup> century, or the "Silicon Age" as Mr Hubert calls it. One of his main achievements to date is the creation of the Princess Elisabeth research station in the Antarctic, which collects ice core data and aims to be the first "Zero Emissions" station in the region.

Mr Hubert claims that ice core and other research "has allowed us [...] to link human activities to the rapid changes in climate and environment." From there, he adds, "using mathematical models that are continuously improved by the use of observational data, we can now forecast accurately how the climate might evolve in the future, depending on the choices we make today."

These assertions were just some of the conclusions put forth by the Intergovernmental Panel on Climate Change at the UN Earth Summit of 1992. In addition to this, the IPCC concluded that if carbon dioxide emissions continue to be produced at the same rate "we are likely to trigger off irreversible ecosystem shifts which would lead [...] to a crash in food production, increasing water shortages and loss of habitable areas to sea-level rise. There is some discussion about whether the average atmospheric carbon dioxide concentrations capable of triggering off irreversible change are above or below 450 ppm. A recent NASA report questions whether the average atmospheric carbon dioxide concentrations above this level are capable of triggering off irreversible change. Today we are at 385 ppm and at this rate of emissions we will have reached 550 ppm before the turn of the century.

Today, Mr Hubert says, we are in the "bargaining phase," kick-started with the Kyoto protocol. Put simply, we are asking ourselves "what level of pain we are prepared to accept [...]. While we squabble over a 5% drop in emissions, the information we are getting is that a minimum of 60% in emission cuts might be needed to avoid irreversible change."

Already, some clever methods have been put in place to “capture carbon, trade it, pay others not to produce it...” But the main sticking point, from an economic point of view, is that carbon cannot be quantified as a commodity, Mr Hubert suggested. Indeed, how to put a price on a ton of carbon, when it is in fact a “by-product of production, not a finality in itself?”

With this in mind, Mr Hubert claims that market mechanisms are ill-equipped to deal with this imperfect system and will lead to distortions. Past attempts at allocating carbon credit by the European Trading System failed because of faulty estimates, he said, and a new package has been agreed upon by the Kyoto countries where auction will become an option; this will come into effect in 2012. This brings with it a whole new set of questions such as the fear of monopoly by cash-rich players and speculation.

To make matters worse, a growing world population and the emergence of developing countries increases demand in energy, and most of this is carbon-based. The gap between energy needs and production is a big problem. Renewable energies cannot solve this problem at this stage. Biofuels worsen the situation by bringing up a dilemma between feeding people and fueling cars.

To sum up the root of this problem, Mr Hubert claims that we must “barter prosperity today against survival tomorrow” but that “precious few” are ready for this today it seems.

To address climate change we need innovation and cooperation at each level. The Princess Elisabeth station is a good example, optimising the use of resources and minimising the production of waste and carbon dioxide.

Cooperation is important, “between countries, within countries, between government and the private sector, between different industrial sectors, between industry and academia, and between industry and the general public.”

Finally, Mr Hubert concluded with a set of general guidelines for the local level:

- Build a vision of the end result
- Respect local conditions
- Promote cooperation
- Use intelligent solutions combining and optimising readily available choices
- Innovate to deliver missing elements
- Always be prepared to revise your plan in the light of improved information

RJC/HEC-AK/XF