**A wide-ranging debate at the KTH Climate Seminar, September 11-12th 2006**

Almost 120 people from 11 countries attended the Climate Seminar at KTH. Many subjects and views related to climate science were presented and debated. This may well be the first academic meeting in which a wide spectrum of critical opinion on the climate change issue was represented. Presentations and discussions included climate events from historical records, the historically well-documented mediaeval warm period, the little ice age and the contrasting "Hockey stick" reconstruction of past temperatures from tree-ring data. Carbon dioxide and its close relationship to life processes, Arctic climate change and climate modelling were also discussed. By the final panel discussion stage of the conference, there appeared to be wide agreement that:

1. It is likely that there has been a climate trend towards global warming underway since 1850, however there is no strong evidence to prove significant human influence on climate on a global basis. The global cooling trend from 1940 to 1970 is inconsistent with models based on anthropogenic carbon dioxide emissions. Actual claims put forward are that an observed global temperature increase of about 0.3$^{o}$C since 1970 exceeds what could be expected from natural variation. However, recent temperature data do not indicate any continued global warming since 1998.

2. There are many uncertainties in climate modelling, and furthermore the modelling basis is incomplete. Even normal meteorological, cloud-related considerations are, in general, poorly understood in the context of "climate change/global warming".

3. Natural variations in climate are considerable and well-documented by geological, oceanographic and historical sources. They are furthermore heavily correlated with sunspot frequencies and other cosmic effects which also operate on cloudiness. The latter effects (proven in very recent experiments by Svensmark and associates) are not currently accounted for in climate models.

4. There is no reliable evidence to support that the 20th century was the warmest in the last 1000 years. Previous claims based on the "Mann hockey-stick curve" are by now totally discredited.

5. Policies such as carbon taxes and carbon trading are expensive and inefficient and likely to be abused by various actors.

6. The most important strategy is undoubtedly to ensure that the challenges of future climate change, natural or man-made, can be met. In a few decades, global cooling is predicted based on aspects related to solar cycles.

During the final panel discussion, Professor von Storch drew parallels between Professor Mann's "Hockey stick" and Hwang Woo-Suk's faked stem cell research in Korea. In his presentation, Professor Fred Singer examined a US report summary that claimed that climate models and the atmospheric temperature data trend were in agreement. Using current data in the same report there is actually a clear disagreement. During the discussion section Singer also described that a stalactite formation in a cave in Oman (and many other similar and independent places) showed an almost perfect correlation between cosmic ray intensity (carbon 14) and temperature (oxygen 18) over a period of many thousands of years.

There is no doubt that the science behind "the climate issue" is far from settled. As so many cosmic effects are omitted from climate models, there is no credibility for arguments such as "there is no other explanation" [than anthropogenic generation of carbon dioxide]. This must be remembered when making future political decisions related to these matters.