OPENING SPEECH

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CLIMATE CHANGES

The global climate is warming, at the Earth's surface temperatures have raised by about 0.7 C during the past 100 years. At the same time we have observed a more than 35% increase in carbon dioxide concentrations, this increase is directly linked to anthropogenic fossil fuel use. Carbon dioxide is a greenhouse gas, much of the warming during at least the past 50 years can to be explained by the increase in anthropogenic greenhouse gas concentrations.

If the current rate of greenhouse gas emission increases continues into the future we will most likely see a further global temperature increase. Globally averaged temperatures may rise by as much as six degrees in a hundred years according to model projections (IPCC, 2007). The Arctic area is particularly sensitive to increased greenhouse gas concentrations. So far the Arctic has been warming at about twice the global average warming rate, in the future this is likely to continue. Arctic sea ice extent in summer has decreased during the past 50 years in agreement with the Arctic warming rates. This year (2007) the sea ice decrease is particularly pronounced, it is unclear whether this is due to natural variability only or if the downward trend will continue at an increased rate in the years to come.

In the Baltic area we are also experiencing the consequences of global climate change. Despite the large natural climate fluctuations from one year to another we see a clear positive temperature trend over the Nordic area. This trend is slightly larger than the global trend, in agreement with the fact that the Nordic region is bordering the Arctic area. Wintertime sea ice in the Baltic is likely to decrease as global temperatures continue to rise, in addition higher precipitation rates in the northern parts of Scandinavia may give rise to an increased fresh water flux into the Baltic Sea. The increased precipitation is coupled to the increasing temperatures; however model predictions of precipitation are much more uncertain than the temperature predictions. A freshening and warming of the Baltic Sea water will have multiple impacts including biodiversity changes and changes in the abundance of fish species. We will also see a continued rise in sea level; in one hundred years this is likely to be about half a meter. If the global warming is sustained over hundreds of years or even millennia, a continued melting of large glaciers such as the Greenland ice sheet may give rise to sea level increases of several meters. This will have serious impacts all over the world, including the Baltic region.