CliC SSG Meeting in Innsbruck, Austria – March 2012
- The need of overall strengthening of CliC contributions to all relevant aspects of climate model development and climate prediction at a wide spectrum of time and space scales

Enabling Polar Climate Prediction –
 - Observations, Improved Modelling
 - Endorsed funding for an ASPeCt Workshop next year (2013)

Polar Climate Variability Workshop – Toronto, Canada – April 2012 Recommendations
- Climate modelling approach – improved representation of the LFCMs to allow perturbation experiments with credible simulations. Requires improvement in atmosphere/ice/ocean submodels
- Observation of sea ice properties to feed back into the models
- Observation of Southern variables to feed back into the models
- Continued analysis of current observations to establish the contributions of LFCMs to Antarctic climate.

ASPeCt Review Paper

Rationale for the review:

Initial observations were carried out in an effort to know how the ice varies and to understand the underlying physical processes of sea ice. However, more and more we realize that the knowledge that we have gleaned from them must be incorporated into our climate models if we are to advance/enable prediction of Antarctic sea ice variability and change.

As these observations are being used to try and understand the sea ice status and trends, to facilitate prediction it has become important for us to make *an inventory* of what has been observed, what insights have been gained from these observations and very importantly what remains to be observed.

A useful way to structure this review is to set it within the framework of the science questions of the 1998 ASPeCt Science Implementation Plan. This allows us to highlight the advances made from the observations and to promote (subtly) the ASPeCt agenda.

What are the broad-scale, time-varying distributions of the ice and snow-cover thickness, ice composition and other physical characteristics in the Antarctic sea ice zone? Steve, David, Ted (snow, ice composition)

- **T.V** *here could be included some regional scale characteristics where ice survives through the summer melt as happens in the Weddell.*

What is the role of coastal polynyas in determining total ice production, heat, salt and biogeochemical fluxes, and water mass modification? Rob/Petra

T.V. *What is the role of leads and polynyas in determining total ice production, air-ice and ice-ocean fluxes of heat, water vapor, salt and biogeochemical components, as well as modification of water and air masses?*

What is the seasonal variability of the ice-edge and the processes that control ice-water interactions at the ice-edge? Effect of waves (Luke Bennet, Haley Shen), Sharon/Ted

How have the sea ice observations contributed to the advance of sea ice modelling?
 - Martin/Elizabeth

What remains to be done and how might that be approached?
- The influence of the land ice

I have sketched in some very preliminary text under each of those science questions but I would prefer that the group commented on the proposed approach/structure that I suggest first, before I continue.

Reminders, mostly to myself of the sorts of things that need to be made clear as we write.

What observations have been made? This should be categorized (perhaps tabulated) and some attention has to be paid to the time over which this has been done.
international nature of the research
shipboard measurements – classes of instruments
Buoy, airborne and satellite measurements
processes, physics, etc.
sheer physical effort in challenging field

What insights have been gained from these observations
Advances in science focused on sea ice
Contributions to other areas of research.

What remains to be observed?
Time scales
Categories
Benefits of these observations – especially where they provide a service to models, for a start. What kinds of new instruments/technology are being used and or needed?

So far, I have had responses from two people. I need more and I also need volunteers to help write parts of the review.