Statement by Morten Skovgaard Olsen, Chair of AMAP's SWIPA2017 assessment at SBSTA 46, research dialogue 9, May 10, 2017 on:

Snow, Water, Ice and Permafrost in the Arctic – SWIPA – 2017

The Arctic is a regulator of global climate and warms more than twice as fast as the rest of the globe. Climate change is driving widespread changes in the Arctic. Recent information on the effects of climate change on the Arctic cryosphere is assessed in SWIPA 2017, which found that:

Climate change in the Arctic has continued at a rapid pace

- Temperatures are rising more than twice as fast as in the rest of the world
- The area of snow cover is decreasing and in some areas is half of previous coverage
- Loss of land-based ice, particularly from the Greenland Ice Sheet, has accelerated recently adding to global sea-level rise
- Ecosystems are changing, affecting the ranges and biodiversity of Arctic plants and animals both on land and in the sea

The Arctic climate is shifting to a new state

- The Arctic Ocean could be largely free of sea ice by late 2030
- Changes in the Arctic may be affecting weather patterns in mid-latitudes
- Arctic glaciers and the Greenland Ice Sheet are estimated to contribute at least 19 cm to global sea-level rise by 2100

Substantial cuts in global greenhouse gas emissions now can stabilize impacts by the end of the century

- This could stabilize further loss of snow cover and permafrost and reduce end-of-century sea-level rise
- But, the Arctic will not return to previous conditions

We need to adapt to the effects of Arctic changes

- The Arctic will continue to change but regional and global consequences are not well quantified.
- Reducing knowledge gaps and improving quantitative predictions will improve adaptations capabilities.

SWIPA 2017 adds two critical goals to the climate research agenda

- Improve quantitative predictions for the timing of future Arctic change, including further understanding of cryospheric feedbacks that are consequential for amplification of Arctic warming.
- Improve confidence in quantitative predictions of interactions between the Arctic and global system on a monthly to decadal scale.

www.amap.no/swipa2017

AMAP
Arctic Monitoring and Assessment Programme