

Output from climate models to be used in Clim-ATIC WP2 and 3.

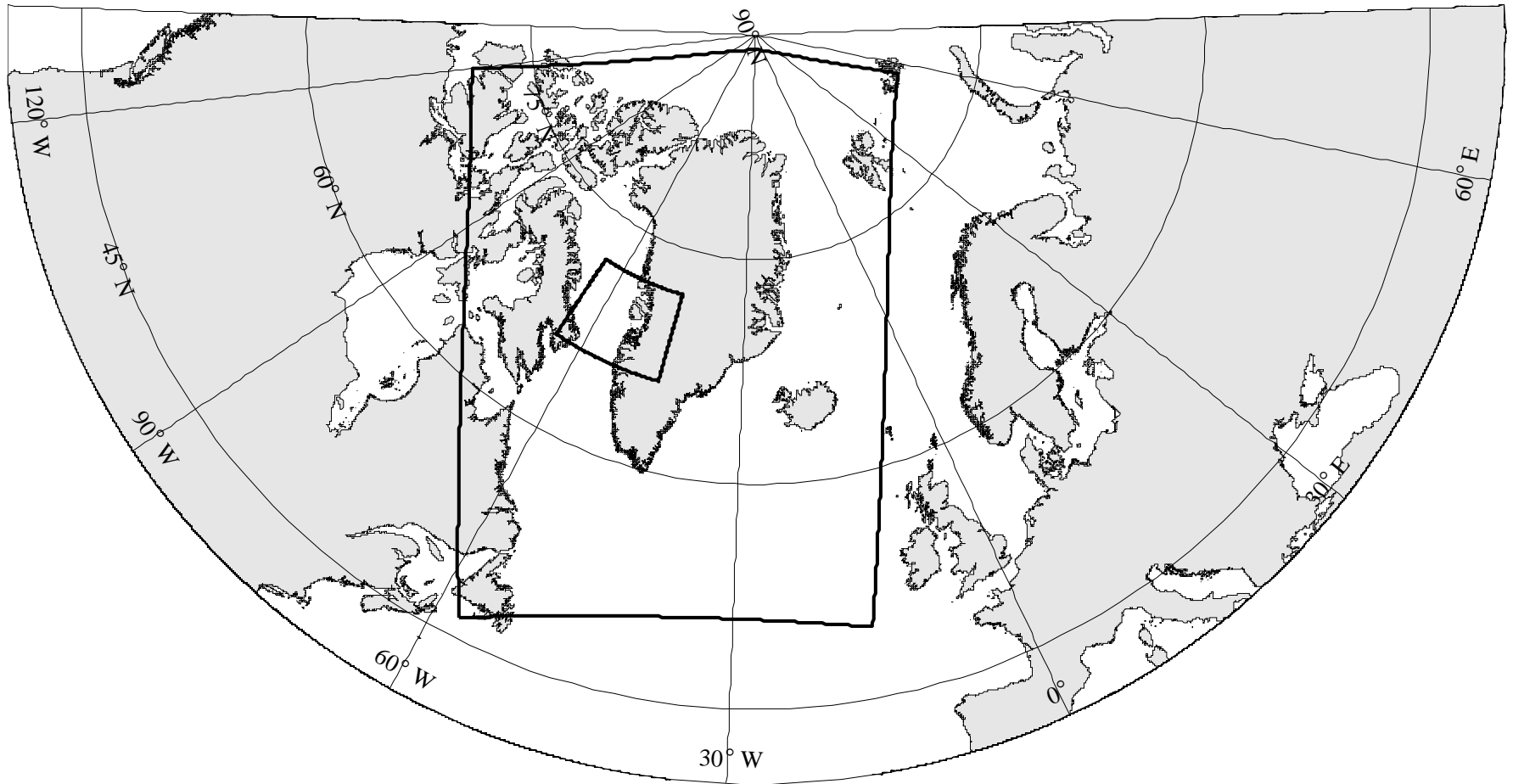
Details of the climate model of the Danish Meteorological Institute (DMI)

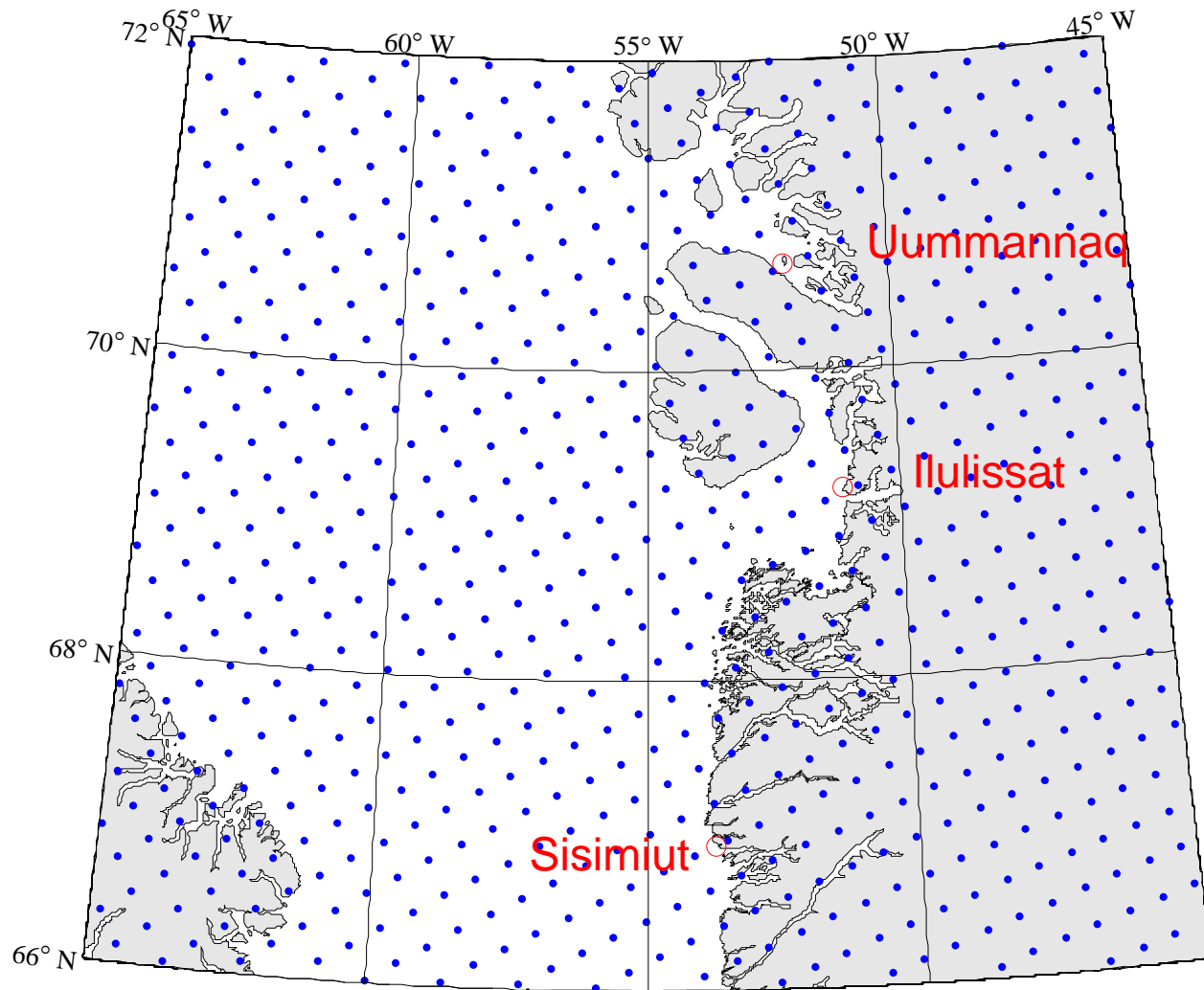
- Boundary data obtained from GCM ECHAM5 (Max Planck Institute)
- RCM is the HIRHAM4 (25 km grid spacing, based on HIRLAM, which was developed by a number of European weather services)
- Greenhouse gases based on the SRES A1B scenario
- Validated using ECMWF reanalysis data for 1961–1990.
- Website: <http://klimagroenland.dmi.dk/projdk.html>

Data for Sisimiut, Ilulissat and Uummannaq have been taken from the nearest grid points. Sea surface temperatures have been taken from the nearest grid points in the ocean.

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The large set of boundaries indicates the extent of the climate model domain.
The small set indicates the location of the map shown in the next slide.





DMI climate data, processing and representation

Variables (all daily values from the period 1950–2080):

- surface wind speed
- surface temperature
- snow fall
- snow melt
- sea surface temperature

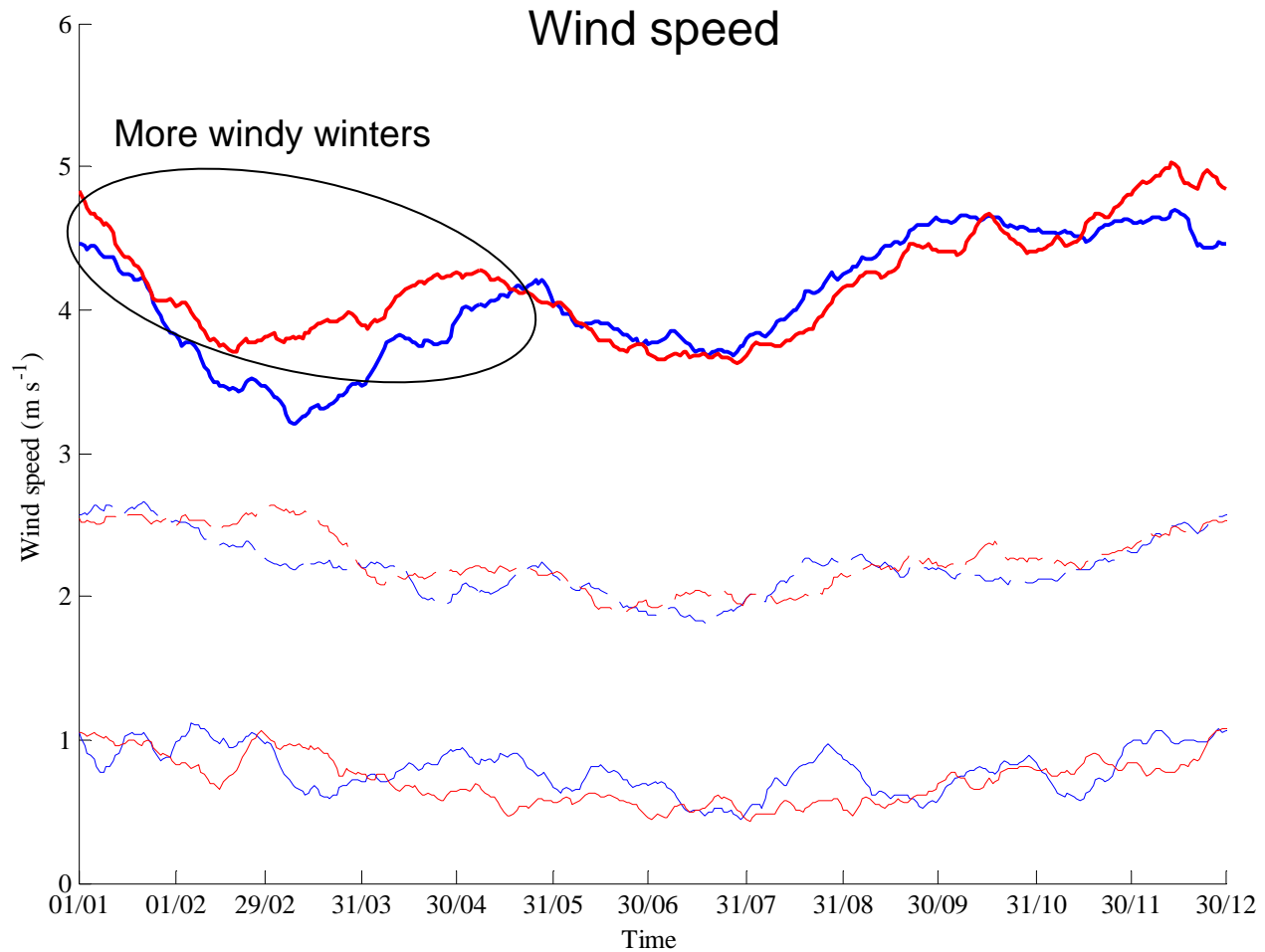
Processing for 1980-2010 (now, blue lines) and 2030-2060 (future, red lines):

- long-term mean (climate, 30 year average of daily values, thick, solid lines)
- medium-term variability, calculated as standard deviation of daily values of 30 days moving average minus long term mean (variability between years, thin, solid lines)
- short-term variability, calculated as standard deviation of daily values minus 30 days moving average (weather, thin, dashed lines)

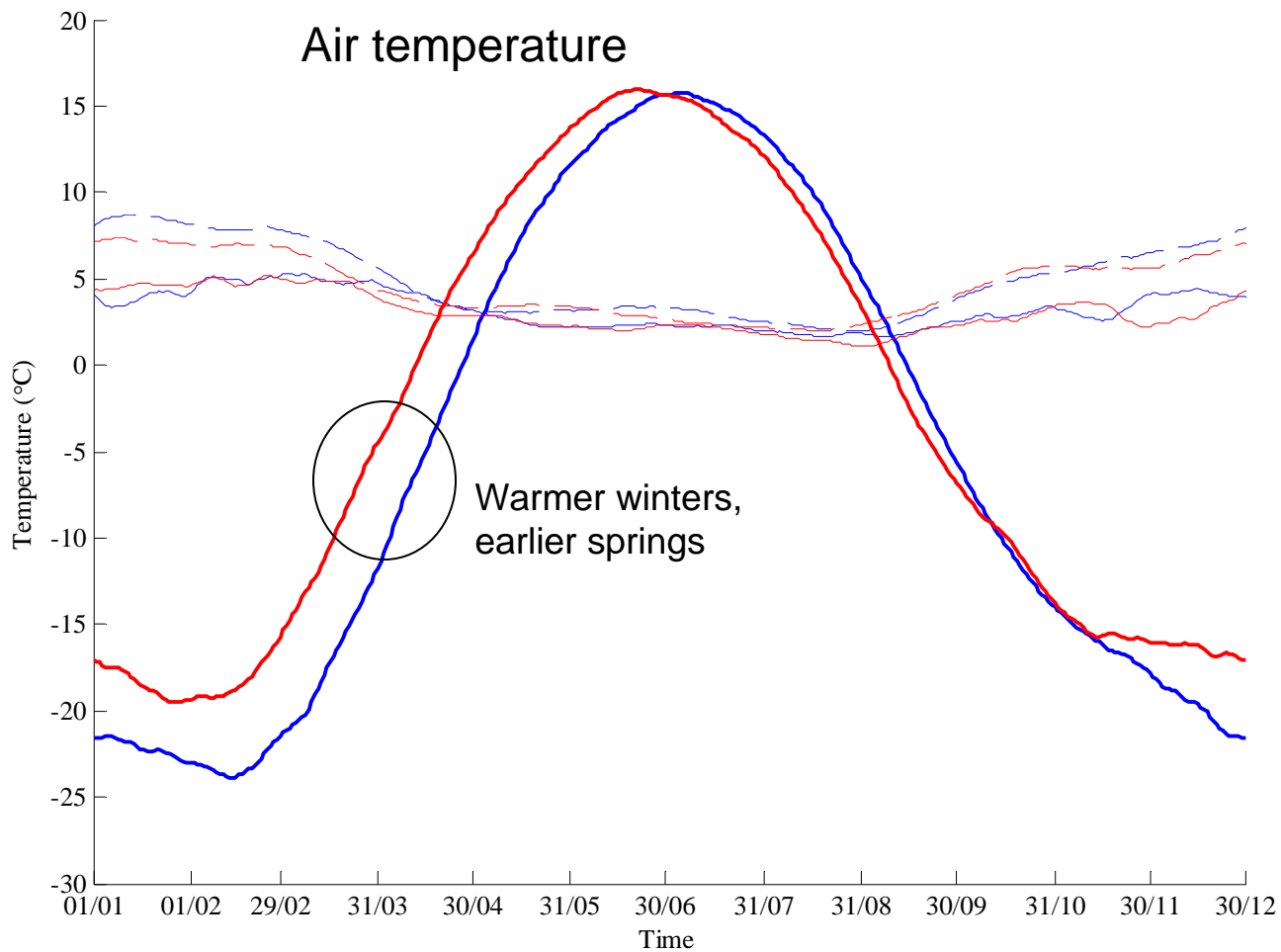
Data is accessible directly from DMI's website.

All reading and handling of the data is done using a MATLAB script.

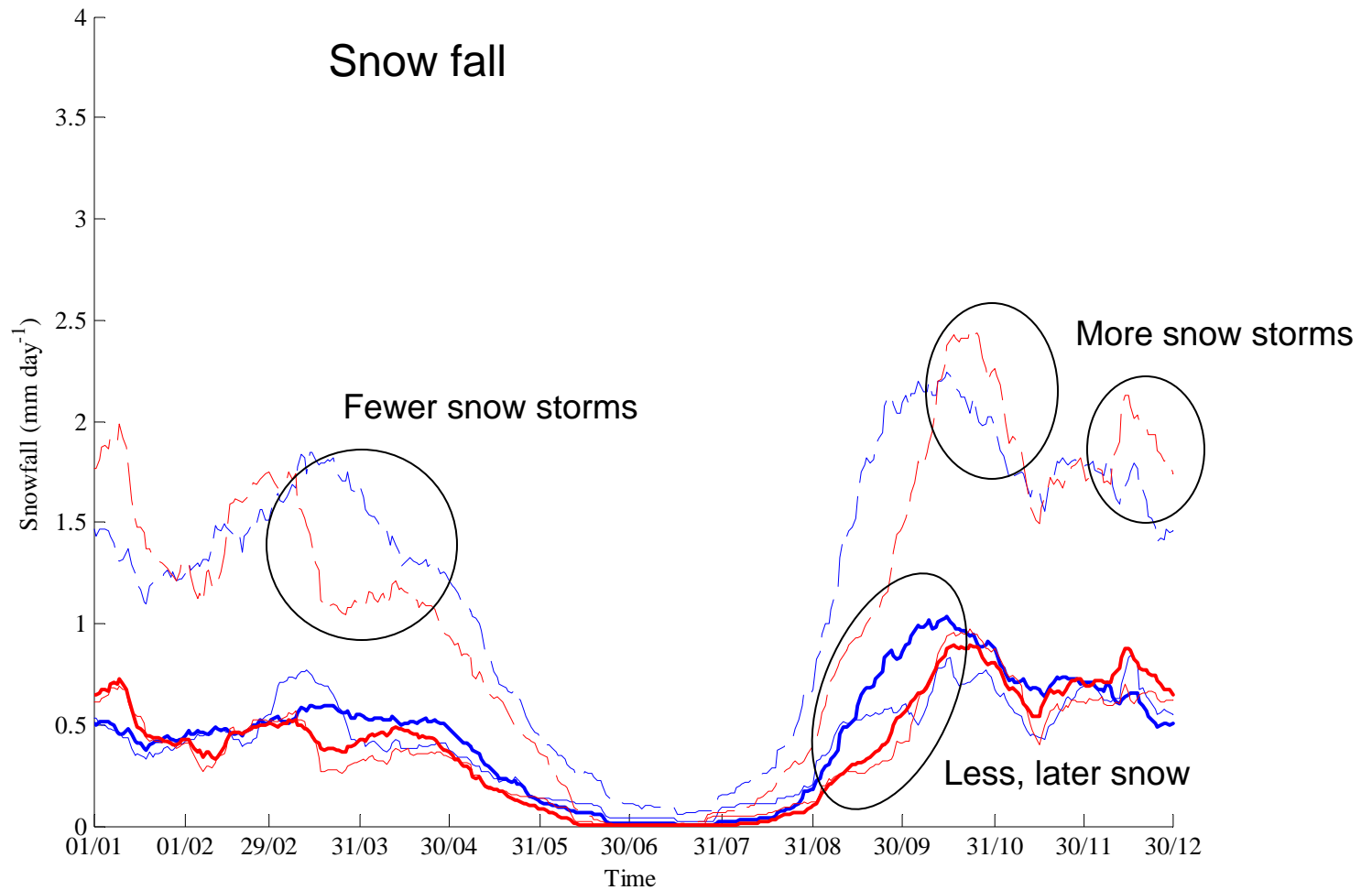
Ilulissat 1980-2010 (blue) and 2030-2060 (red)



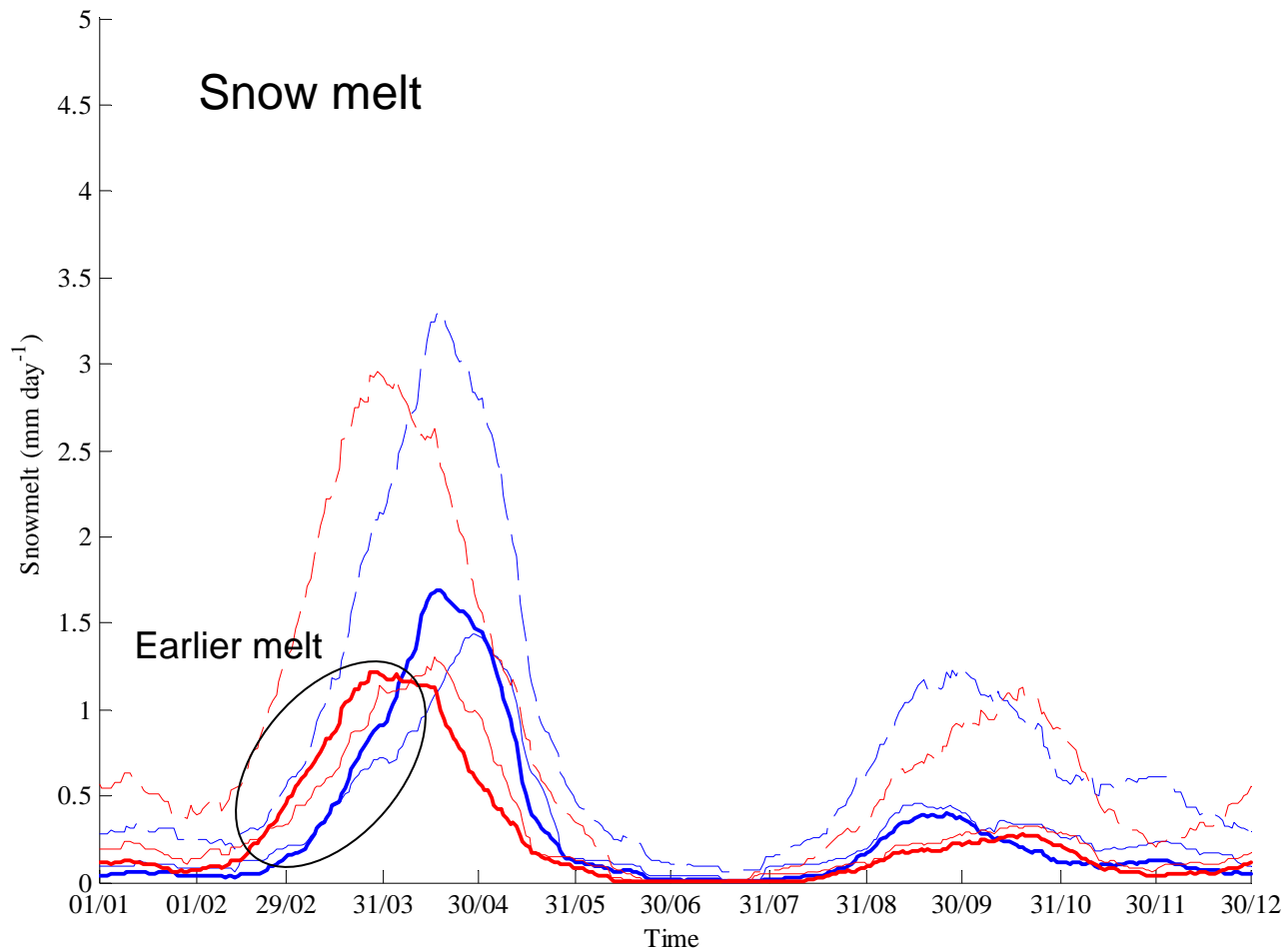
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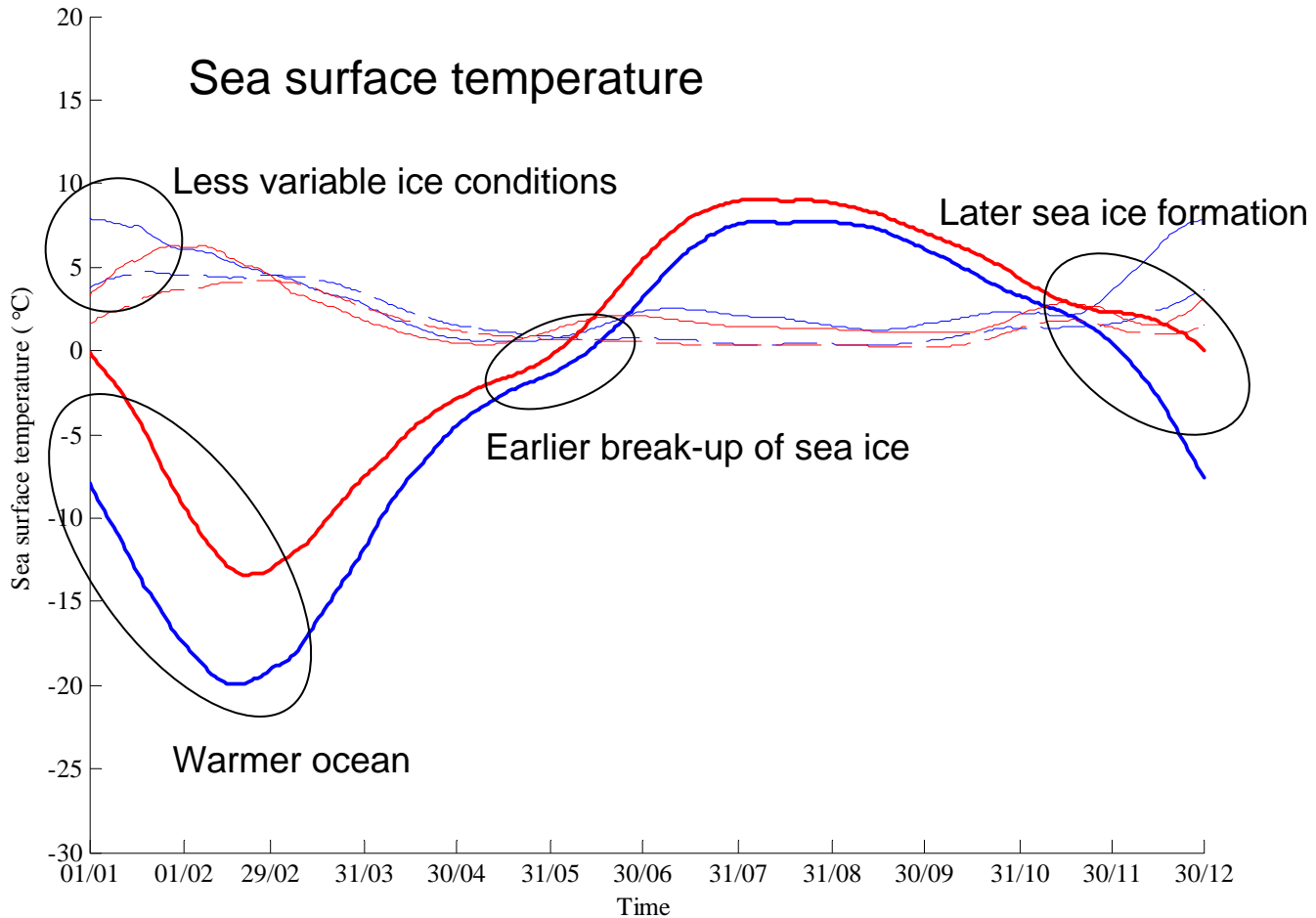
Ilulissat 1980-2010 (blue) and 2030-2060 (red)



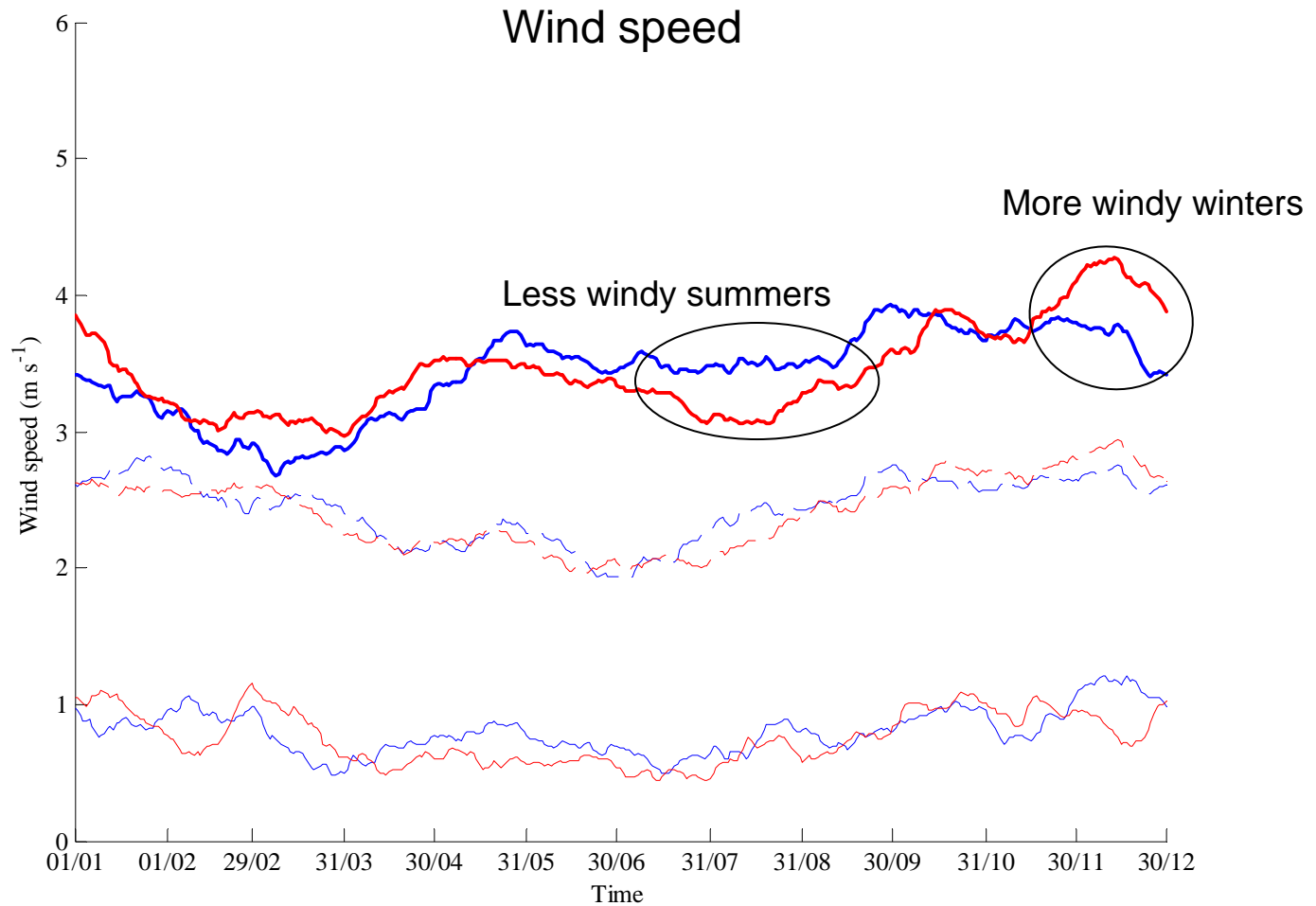
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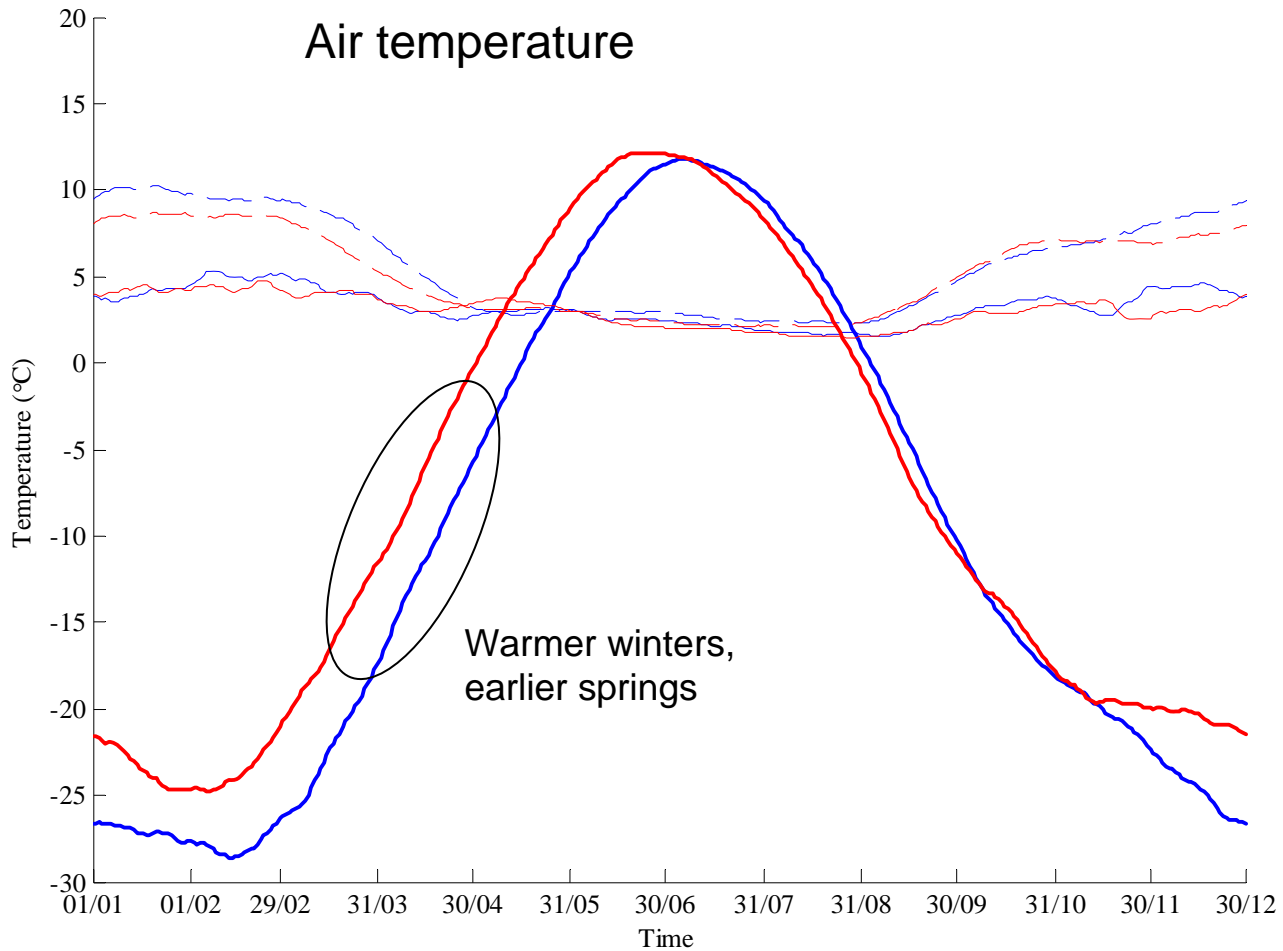
Ilulissat 1980-2010 (blue) and 2030-2060 (red)



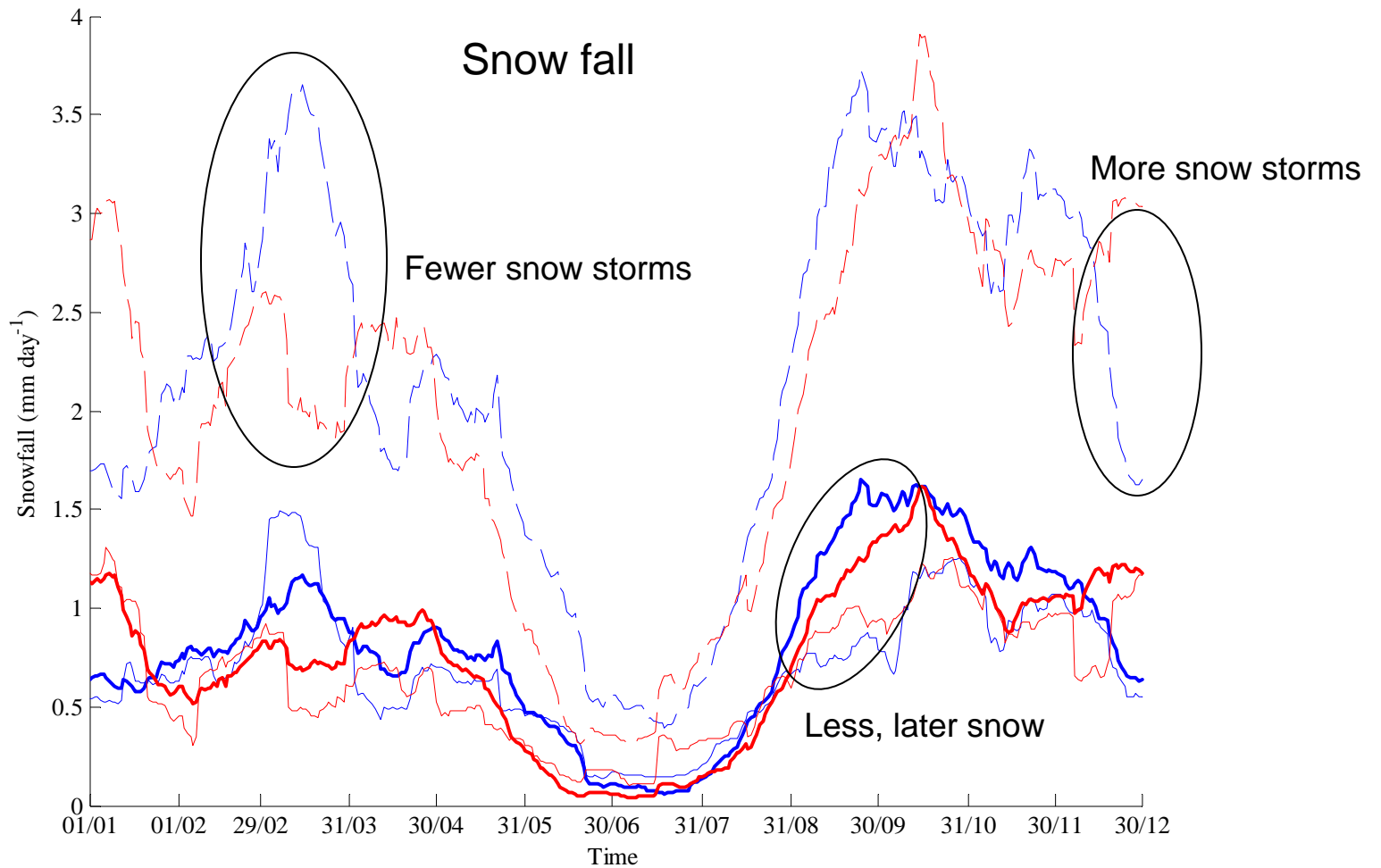
Uummannaq 1980-2010 (blue) and 2030-2060 (red)



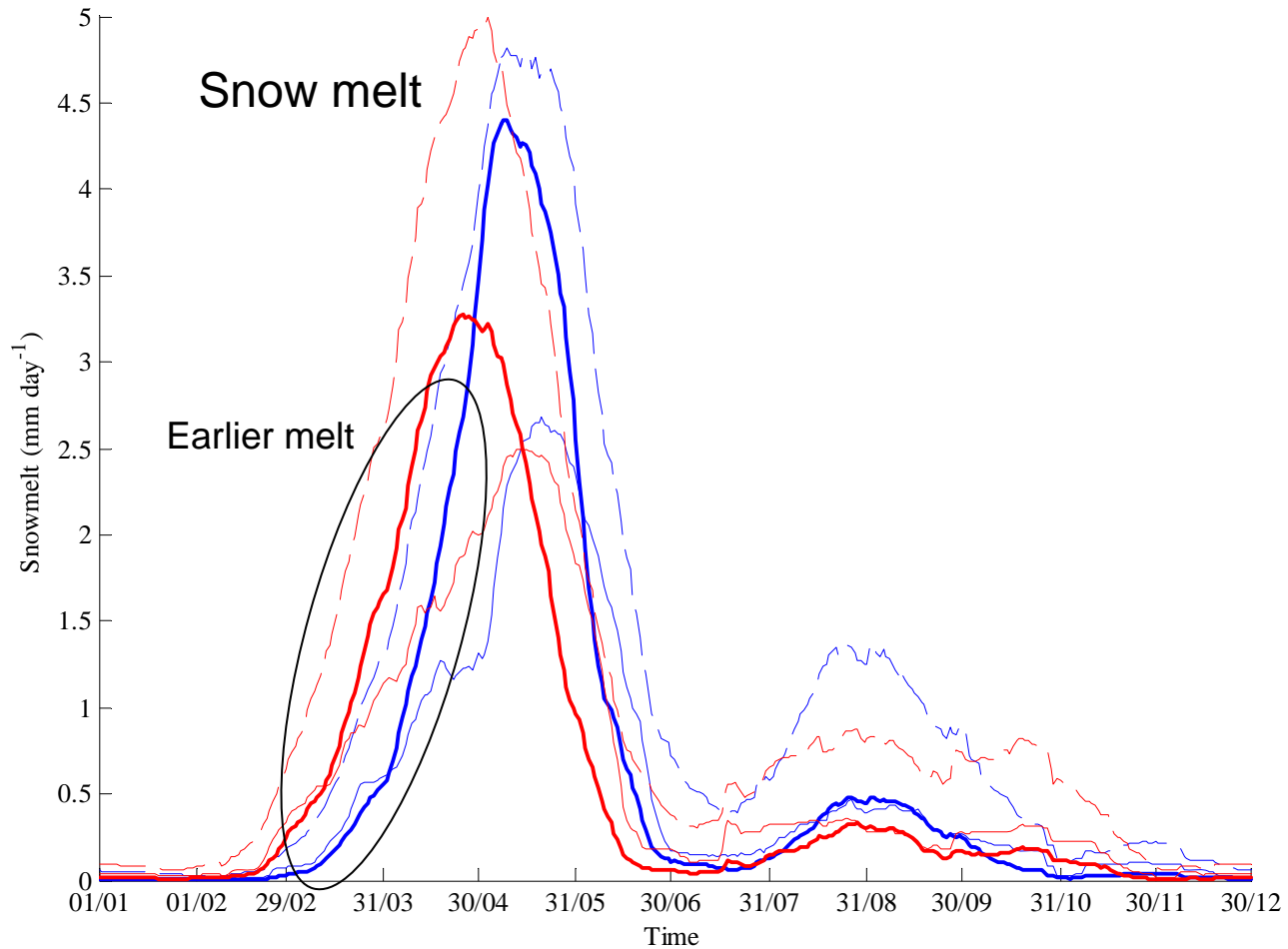
Uummannaq 1980-2010 (blue) and 2030-2060 (red)



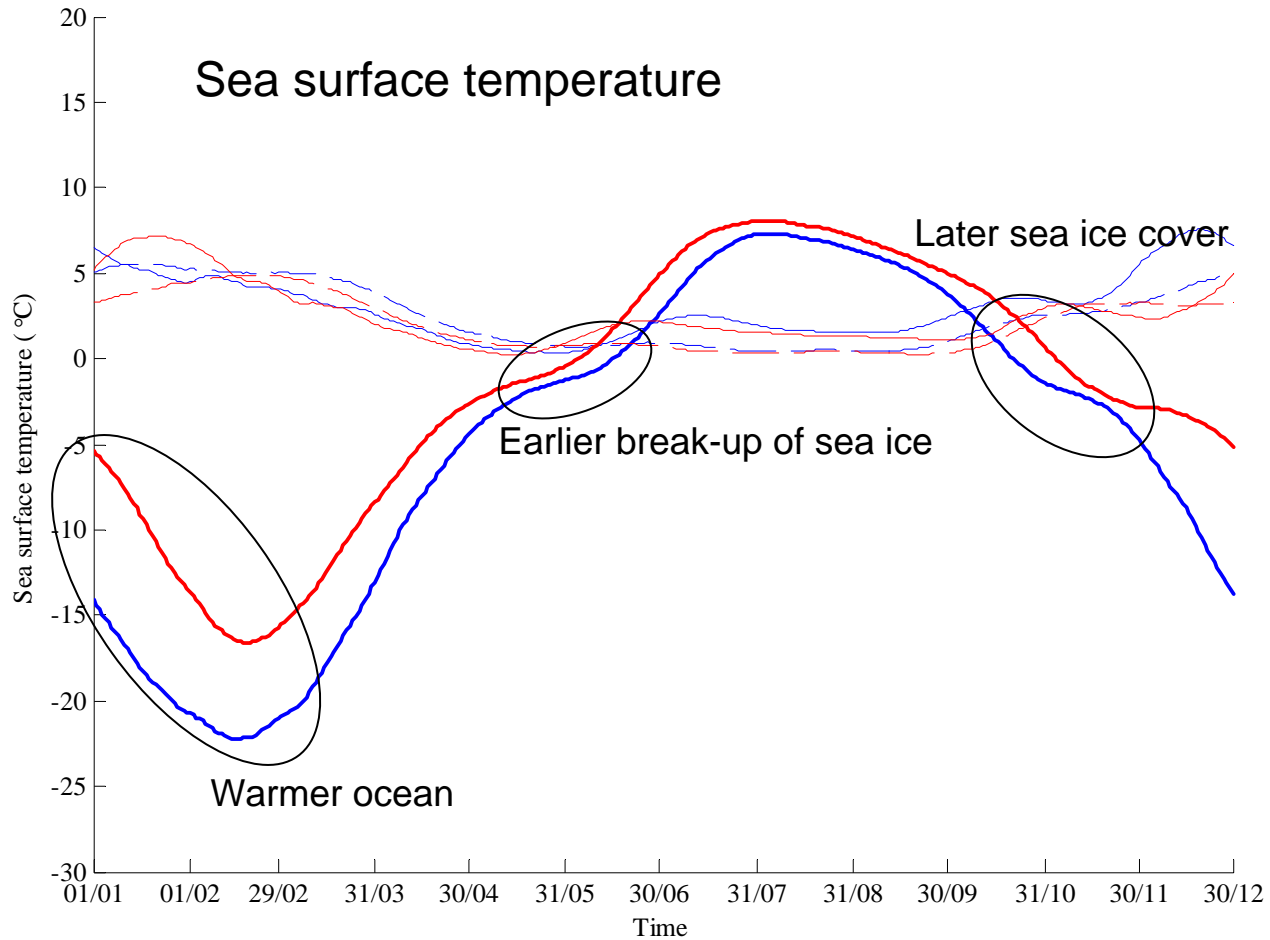
Uummannaq 1980-2010 (blue) and 2030-2060 (red)



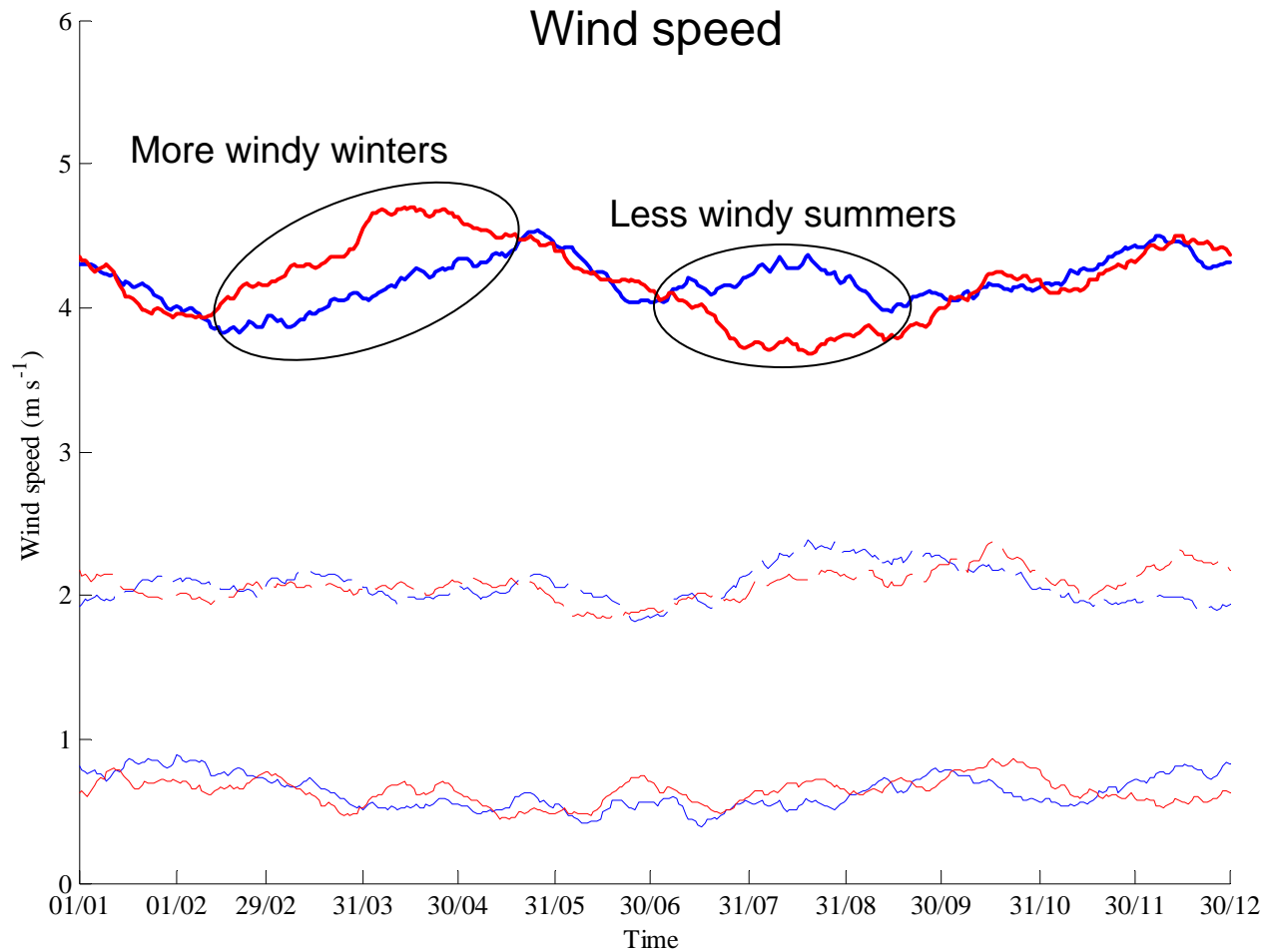
Uummannaq 1980-2010 (blue) and 2030-2060 (red)



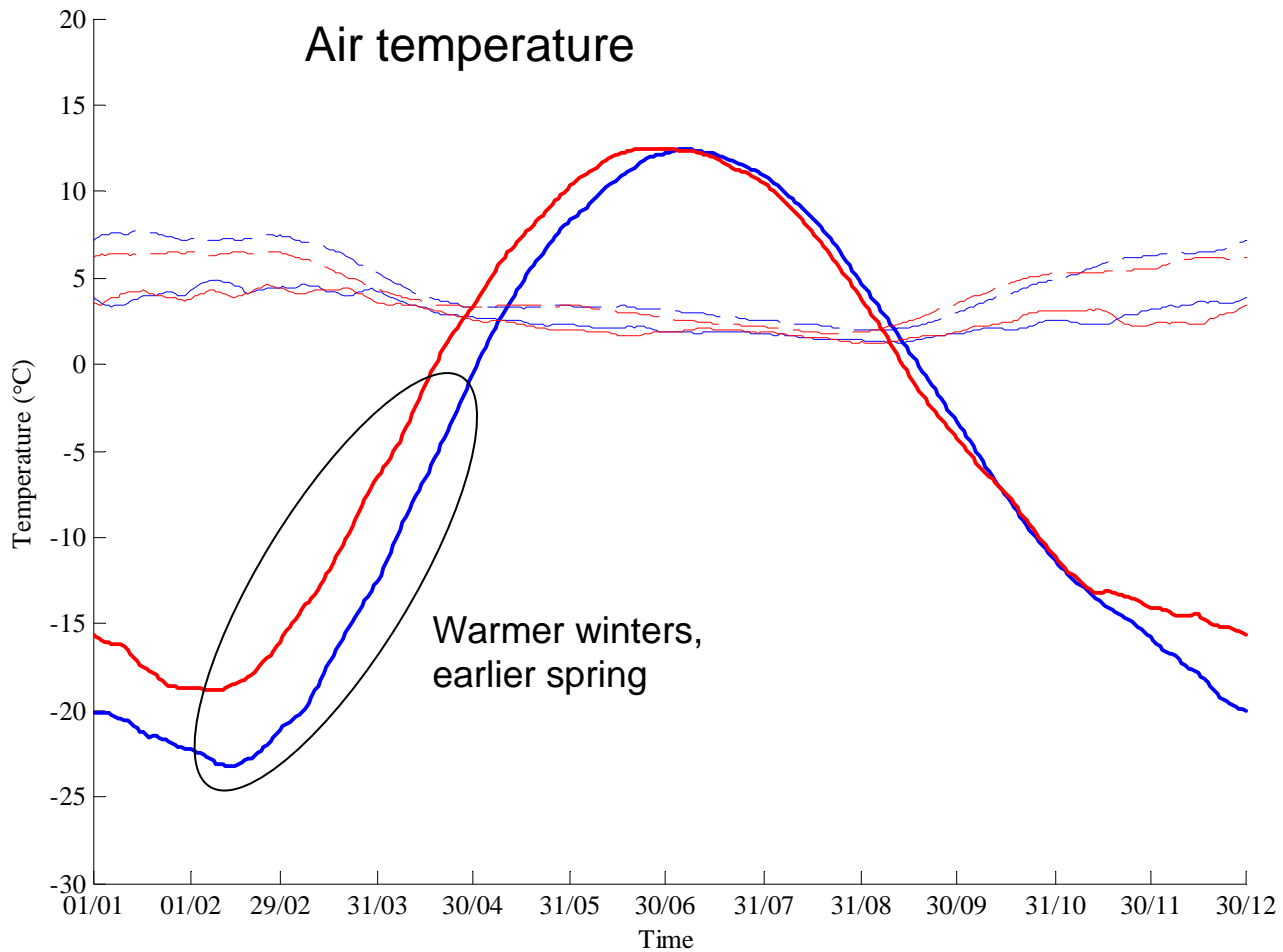
Uummannaq 1980-2010 (blue) and 2030-2060 (red)



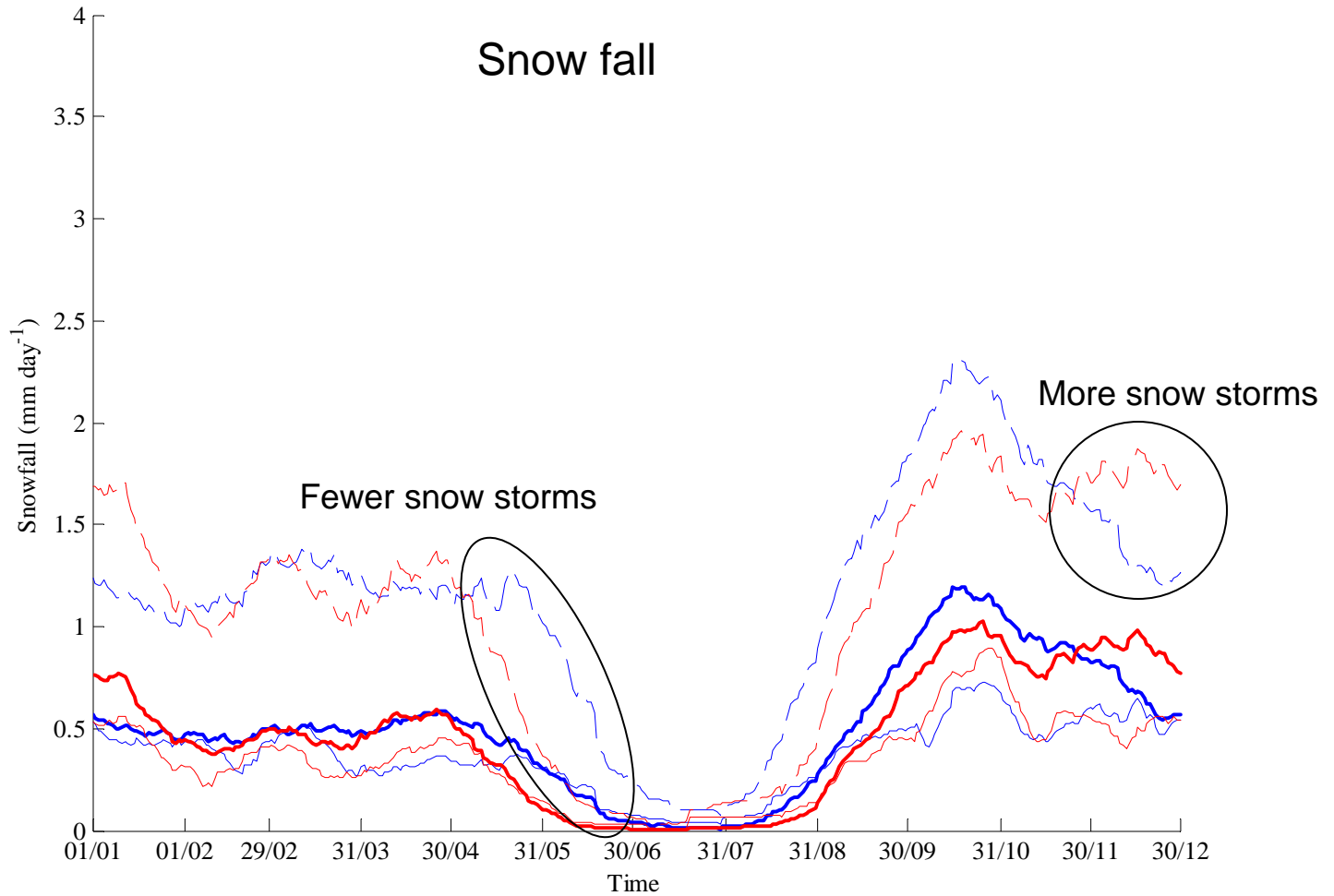
Sisimiut 1980-2010 (blue) and 2030-2060 (red)



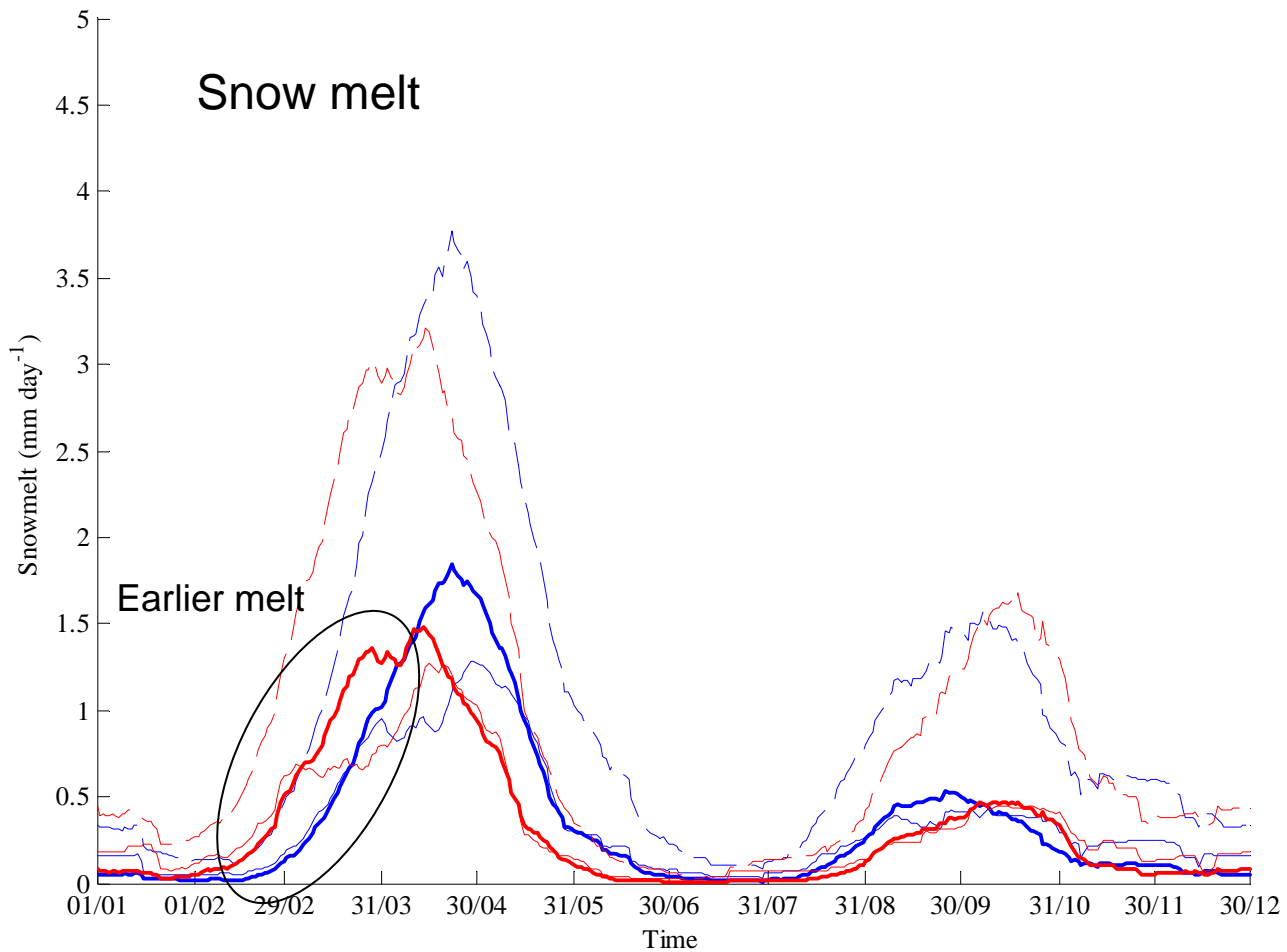
Sisimiut 1980-2010 (blue) and 2030-2060 (red)



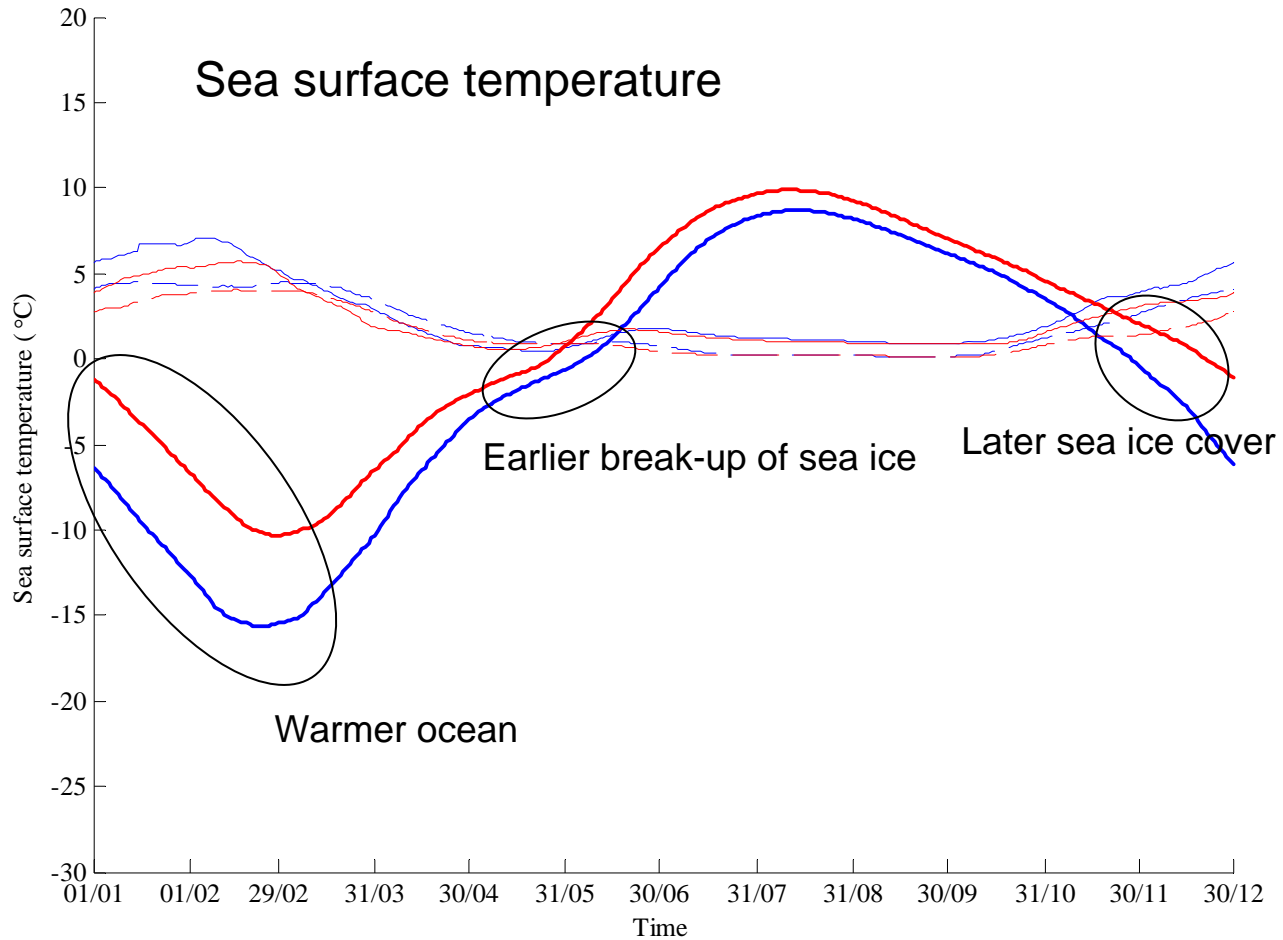
Sisimiut 1980-2010 (blue) and 2030-2060 (red)



Sisimiut 1980-2010 (blue) and 2030-2060 (red)



Sisimiut 1980-2010 (blue) and 2030-2060 (red)



In summary

Ilulissat:

- Winters more windy and warmer
- Less snow, but snow storms more frequent in the fall, less frequent in the spring
- Springs will be earlier, snow melt larger
- Sea ice formation later, break-up earlier, but ice conditions less variable

Uummannaq:

- Winters more windy and warmer
- Less snow, but snow storms more frequent in the fall, less frequent in the spring
- Springs will be earlier, snow melt earlier
- Summers less windy
- Sea ice formation later, break-up earlier

Sisimiut:

- Winters more windy and warmer
- Snow storms more frequent in the fall, less frequent in the spring
- Springs will be earlier, snow melt earlier
- Summers less windy
- Sea ice formation later, break-up earlier