

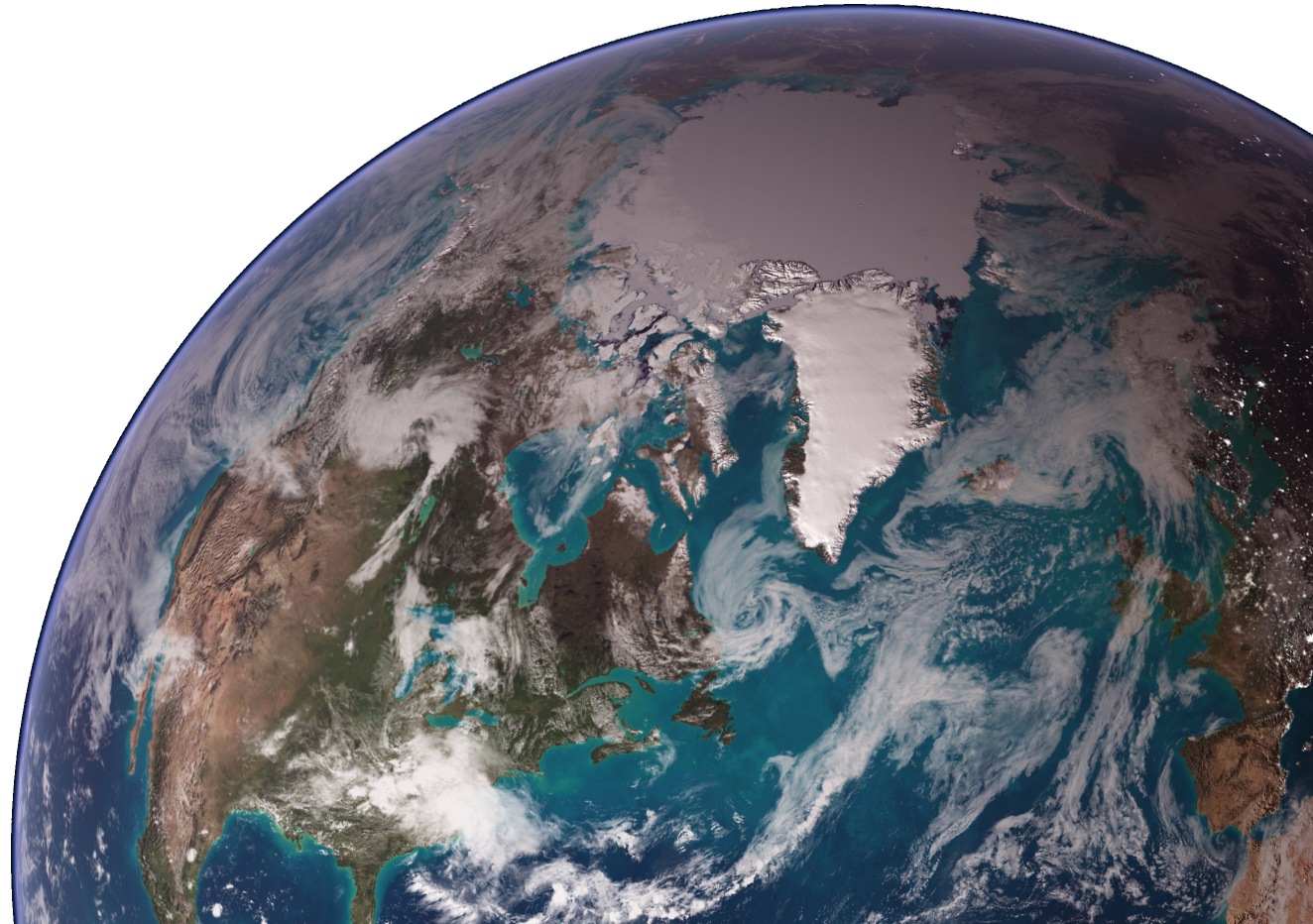


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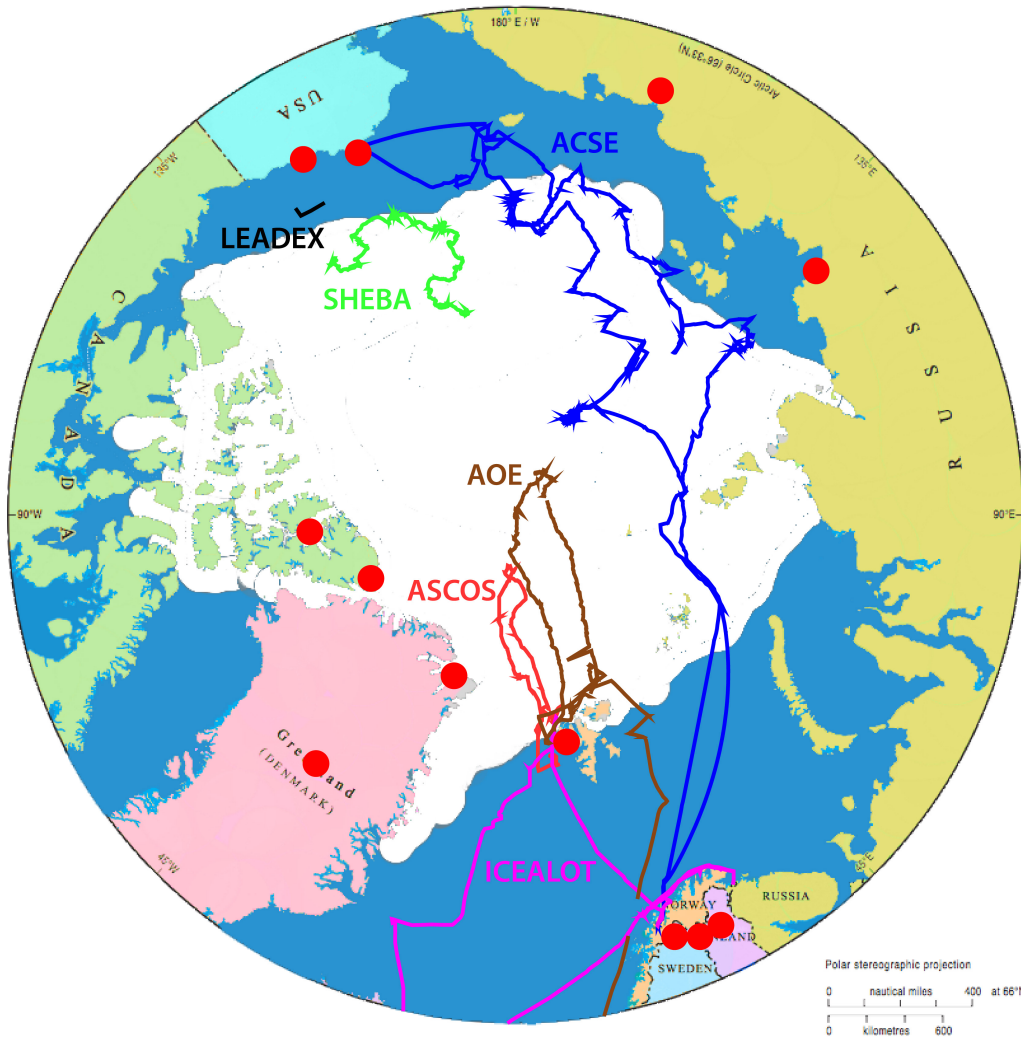
# Arctic Observing: Addressing Current Limitations to Advance Scientific Understanding

Gijs de Boer

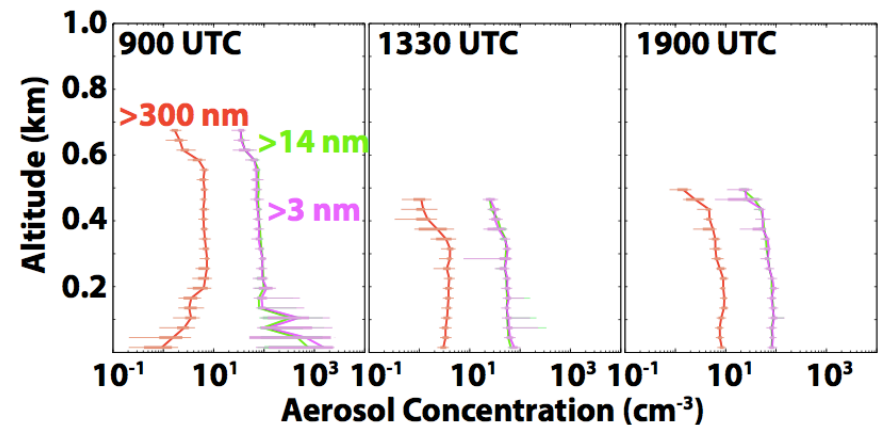
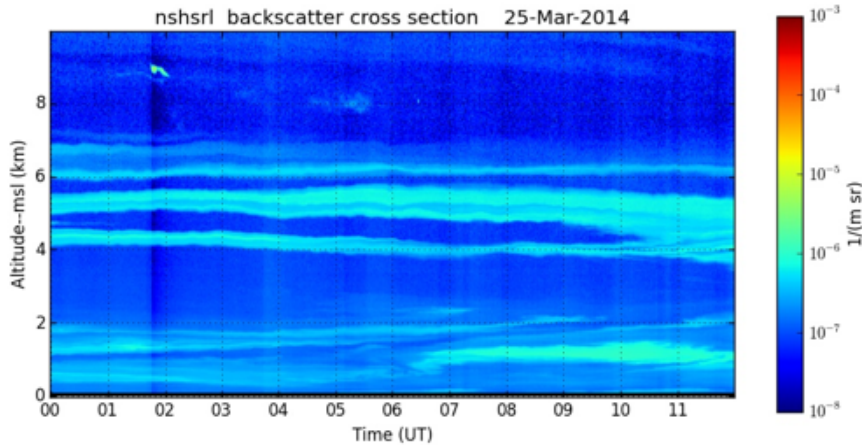
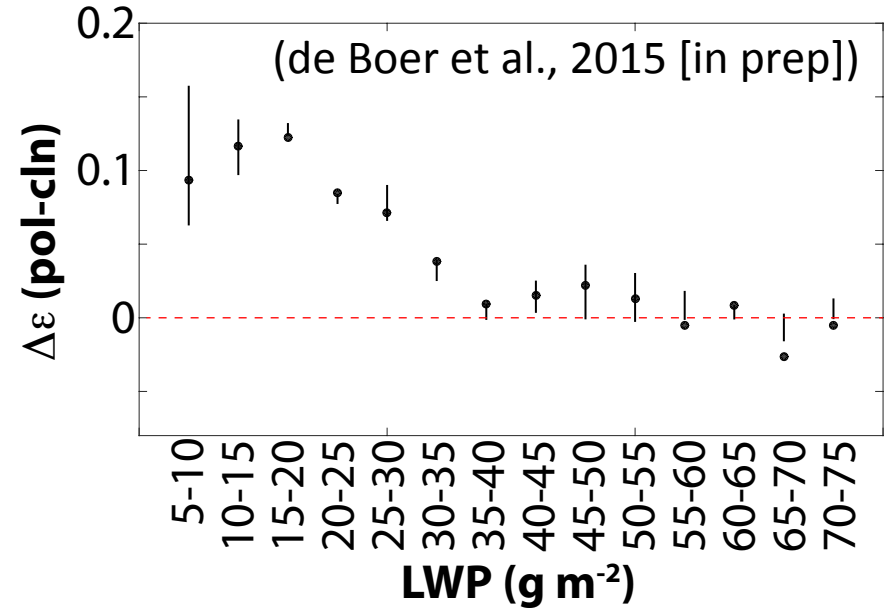
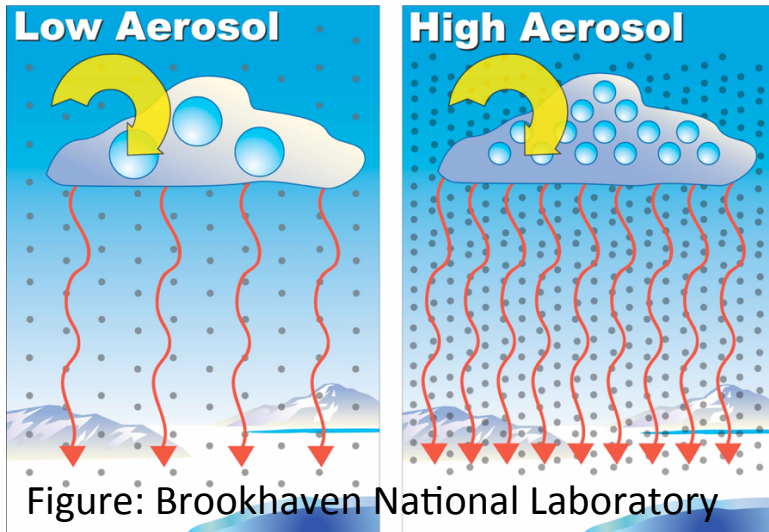
Science Review  
12-14 May 2015  
Boulder, Colorado



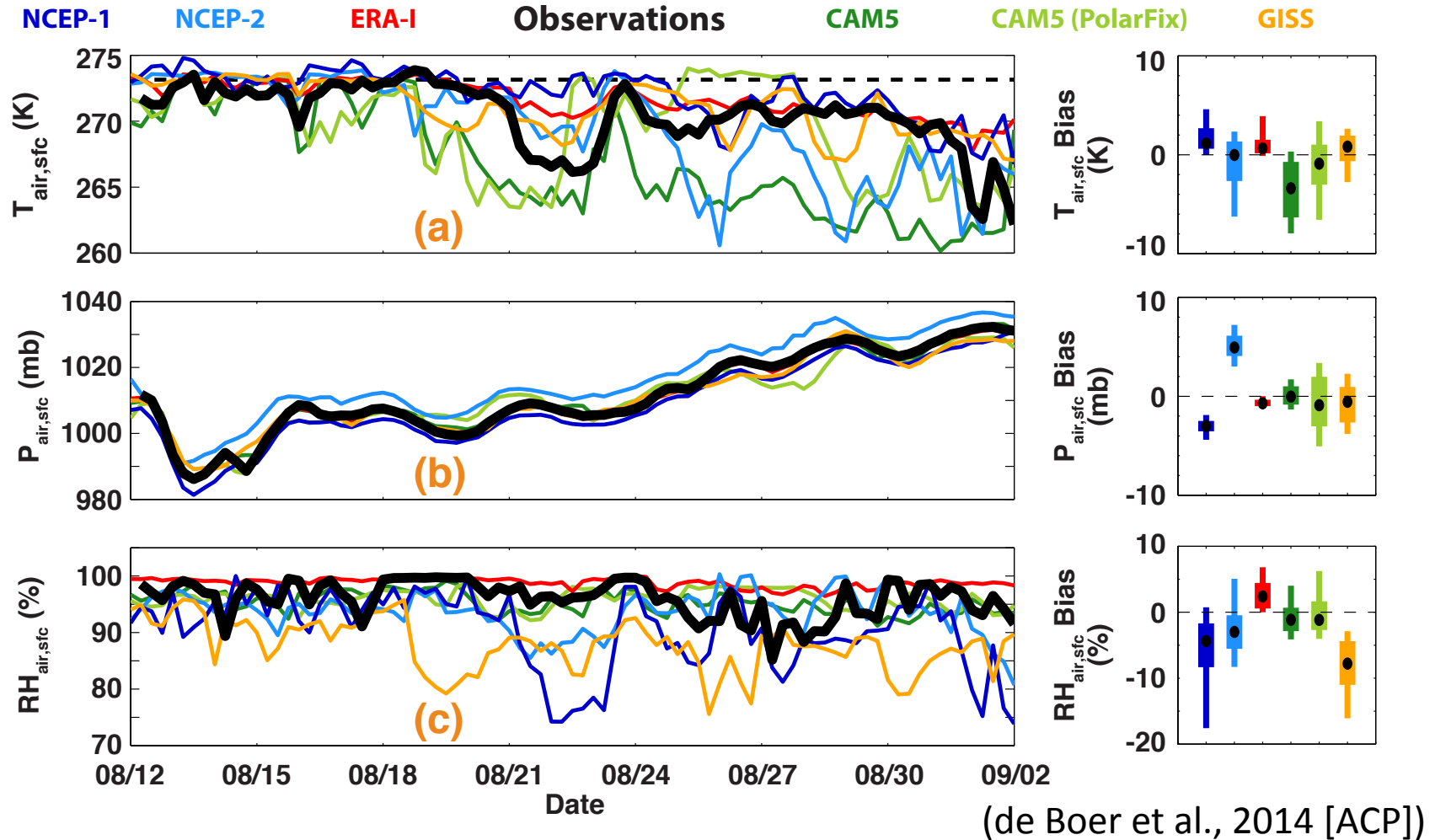
# PSD Observations in the Arctic



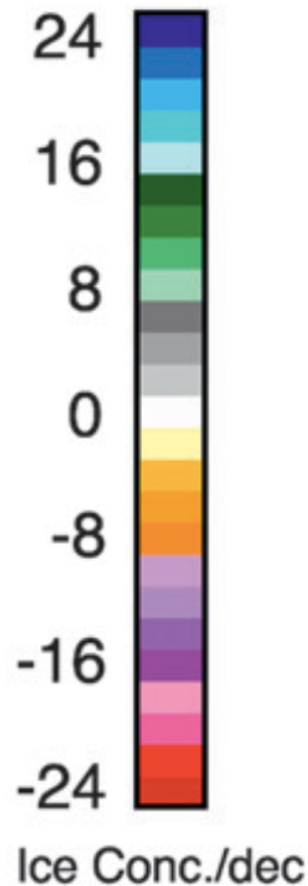
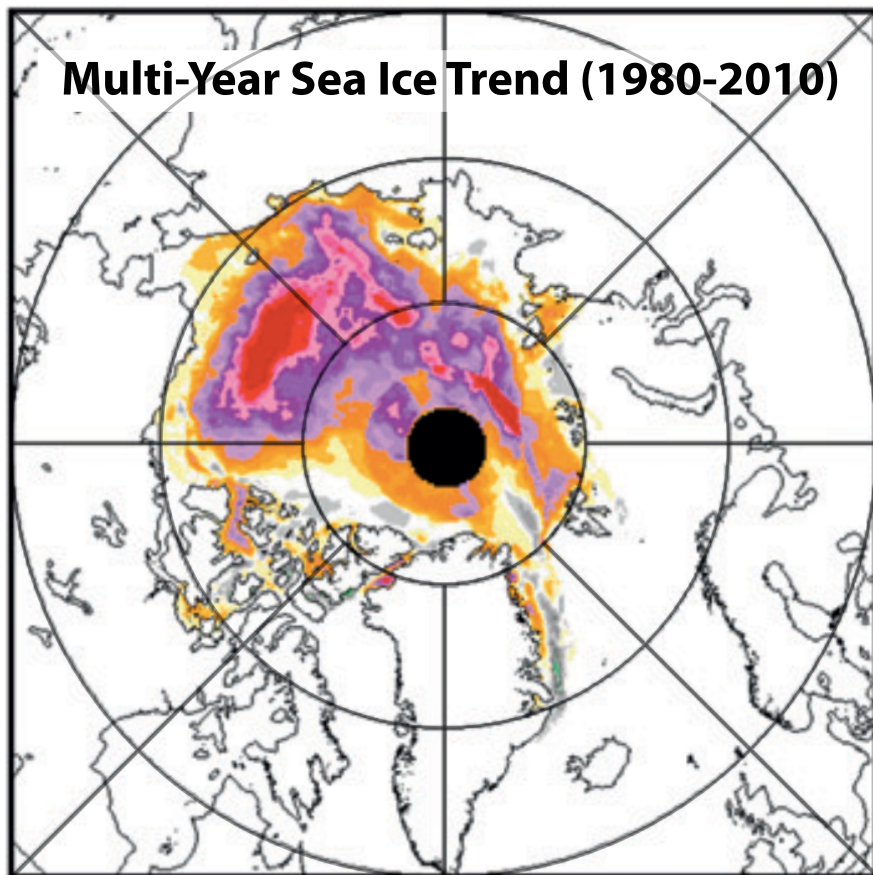
# Science Driver: Aerosol-Radiation Interactions



# Science Driver: Understanding Spatial Variability

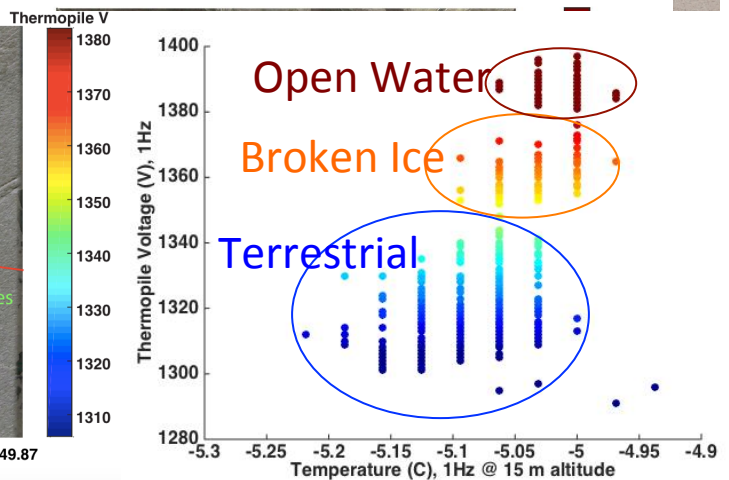
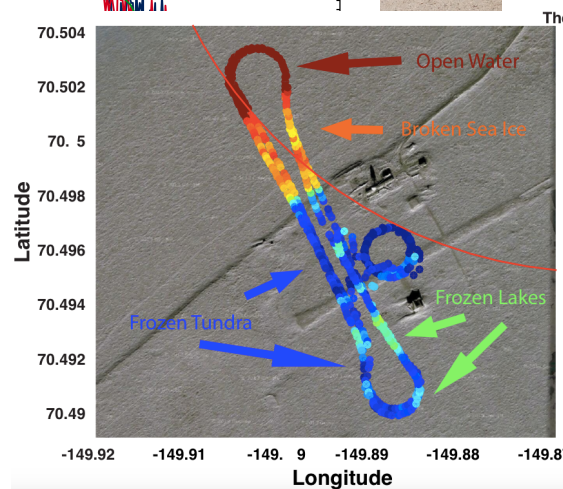
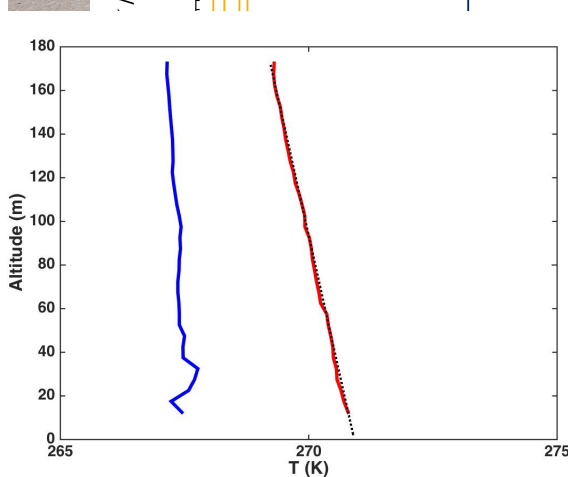


# Science Driver: The Evolving Arctic Surface



(Comiso, 2012 [J. Clim.])

# Arctic Unmanned Aircraft Activities



## Summary and Conclusions

- PSD observing advances Arctic physical process understanding and aids in validation of models and reanalyses
- These efforts benefit from measurements made using new platforms such as unmanned aircraft systems (UAS)
- Current UAS efforts focus on development and deployment of platforms measuring lower atmospheric thermodynamic state, aerosol size distribution, and radiative transfer
- These UAS provide critically-needed three-dimensional insight and can operate over thin and broken ice environments,
- Such activities enhance existing capabilities at observatories and from ice breakers and can benefit upcoming Arctic studies (e.g. YOPP, MOSAiC).