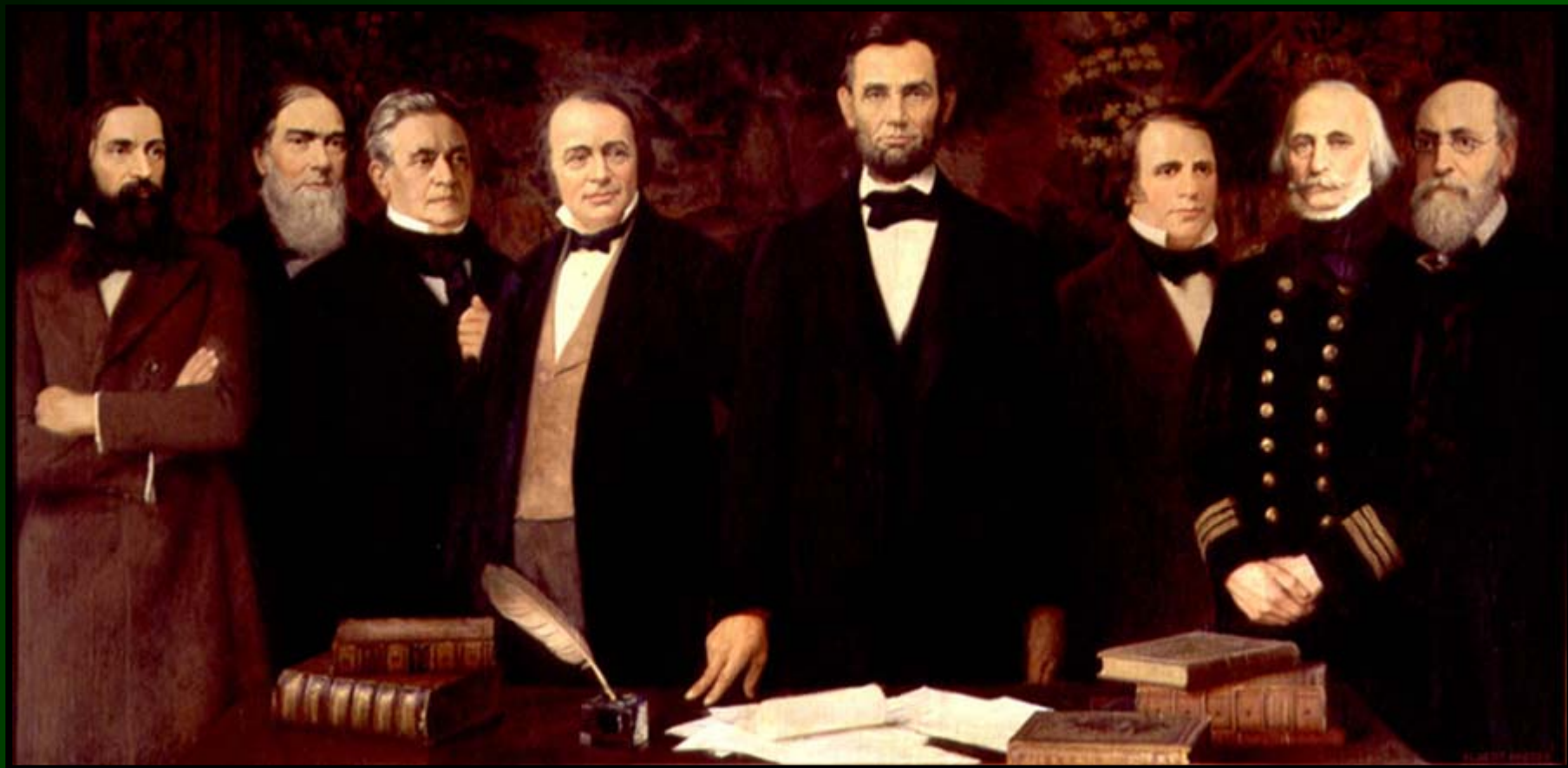




# Arctic Observing Network

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# National Academies



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THE NATIONAL ACADEMIES

*Advisors to the Nation on Science, Engineering, and Medicine*

# Project Scope



- ❖ Provide guidance to design an international Arctic land, atmosphere, and ocean observing network.
  - ❖ Conceptual foundation/key variables
  - ❖ Existing and planned global observing systems
  - ❖ Infrastructure needed for AON
  - ❖ Data management
  - ❖ Implementation strategy

# Project Tasks



- ❖ Provide an overarching philosophy of design for a comprehensive Arctic observing network and identify key variables that must be monitored.
- ❖ Briefly review the purposes and extent of existing and planned global observing systems and platforms, highlighting critical spatial, temporal or disciplinary gaps of importance to the Arctic.
- ❖ Describe the infrastructure needed to create a comprehensive Arctic observing network, including advice on types, number, and the distribution of network components; where stations might be placed; and the role that remote sensing and novel technologies might play. This discussion should explore two levels: an "ideal" network and a "minimal" network to help illustrate choices that may need to be made during implementation.
- ❖ Comment on how to ensure sound data management in this type of network, using perspectives from data managers, those generating data, and those who use or might use the data.
- ❖ Recommend a strategy to ensure efficient, coordinated implementation and operation of an Arctic observing network, including methods to ensure that data products from different sensors are spatially and temporally consistent, processes that could be used to design the optimal mix of observations and test for data redundancies, and approaches that could be used to keep the network current and cost effective.

# Timeline



# IPY Rec. 4



- ❖ IPY should be used as an opportunity to design multidisciplinary polar observing networks that provide a long-term perspective
  - ❖ *Design and establish integrated multidisciplinary observing networks that employ new sensing technologies and data assimilation techniques to quantify spatial and temporal change in the polar regions*

# IPY Rec. 5



- ❖ U.S. should investment in critical infrastructure (physical and human) and technology to guarantee enduring benefits
  - ❖ *Encourage development of innovative technologies to expand the suite of polar instruments and equipment, such as unmanned aerial vehicles (UAVs), autonomous underwater vehicles (AUVs), and rovers*
  - ❖ *Develop advanced communications systems with increased bandwidth and accessibility capable of operating in polar field conditions*
  - ❖ *Develop international standards, policies, and procedures that ensure data are easily accessible for the current generation and permanently preserved for future generations*

# Questions & Comments



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**For more information on the Polar Research Board –**  
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**For more information on the International Polar Year –**  
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