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INTERNATIONAL ARCTIC SYSTEMS FOR OBSERVING THE ATMOSPHERE (IASOA) – CREATING A COLLABORATION PLATFORM FOR PAN-ARCTIC RESEARCH

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Among the strategies for developing and sustaining networked observing systems (such as the idealized vision of the Arctic Observing Network presented by the U.S. National Research Councilⁱ) is the approach of merging existing, independently funded long-term observing assets into a network through collaboration “infrastructure”. The International Arctic Systems for Observing the Atmosphere (IASOA) has adopted such an approach and begins to demonstrate its value through synthesis science results in topics related to radiative transfer, aerosol properties and atmosphere-surface coupling processes.

IASOA working groups are established around focused synthesis science topics and draw from a pan-Arctic network of scientists representing the major flagship observatories of the IASOA constellation (Figure 1). IASOA working groups add value to existing long-term datasets beyond the necessary but mechanistic decisions of proscribing common data formats and correction schemes through developing true communities of practice around key topical areas. An IASOA working group does more than ask how can we best combine independently collected data sets, it asks what the combined information is revealing about the spatial and temporal variability of key parameters over climate time scales, the nature of the underlying processes and how these processes fit into the broader story of Arctic change. IASOA’s collaborative infrastructure further provides linkages with scientists from other disciplines on topics of vital interdisciplinary scientific collaboration, such as the intrinsically coupled atmosphere-terrestrial question on the fate of Arctic permafrost. IASOA’s working groups drive the technical and scientific frontiers of observational science through collective inquiry and knowledge exchange; synthesizing existing observations is a starting point, designing future experiments and envisioning a more robust network guide future work.

IASOA will report on the structure of its evolving collaborative infrastructure and demonstrate through emerging science outcomes the critical nature of such capacity to advancing our knowledge and moving towards truly networked science.



Figure 1. The atmospheric observatories that contribute to IASOA synthesis science.

ⁱ National Research Council. 2006. *Towards an Integrated Arctic Observing Network*. Washington, DC: The National Academies Press.