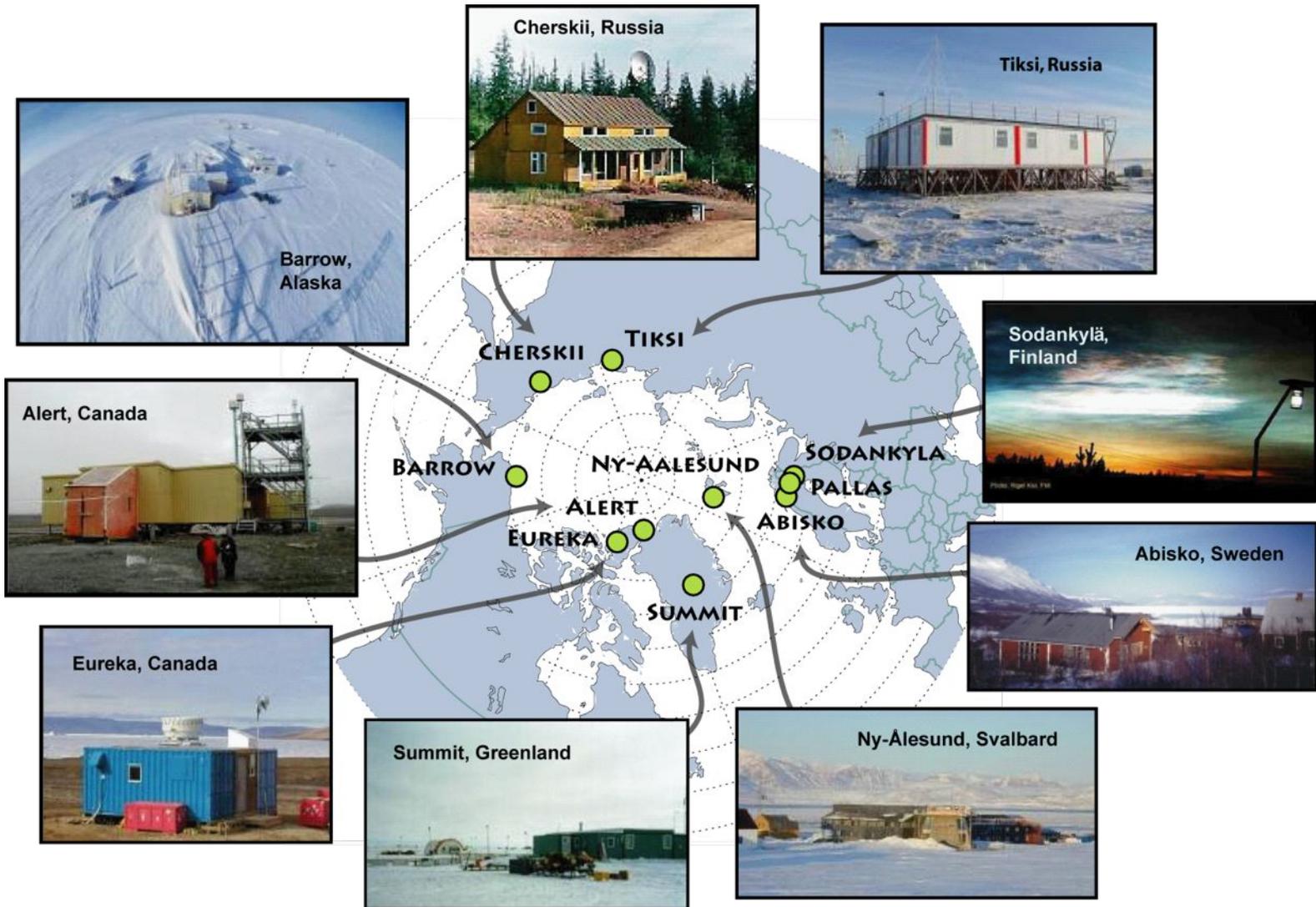


International Arctic Systems for Observing the Atmosphere

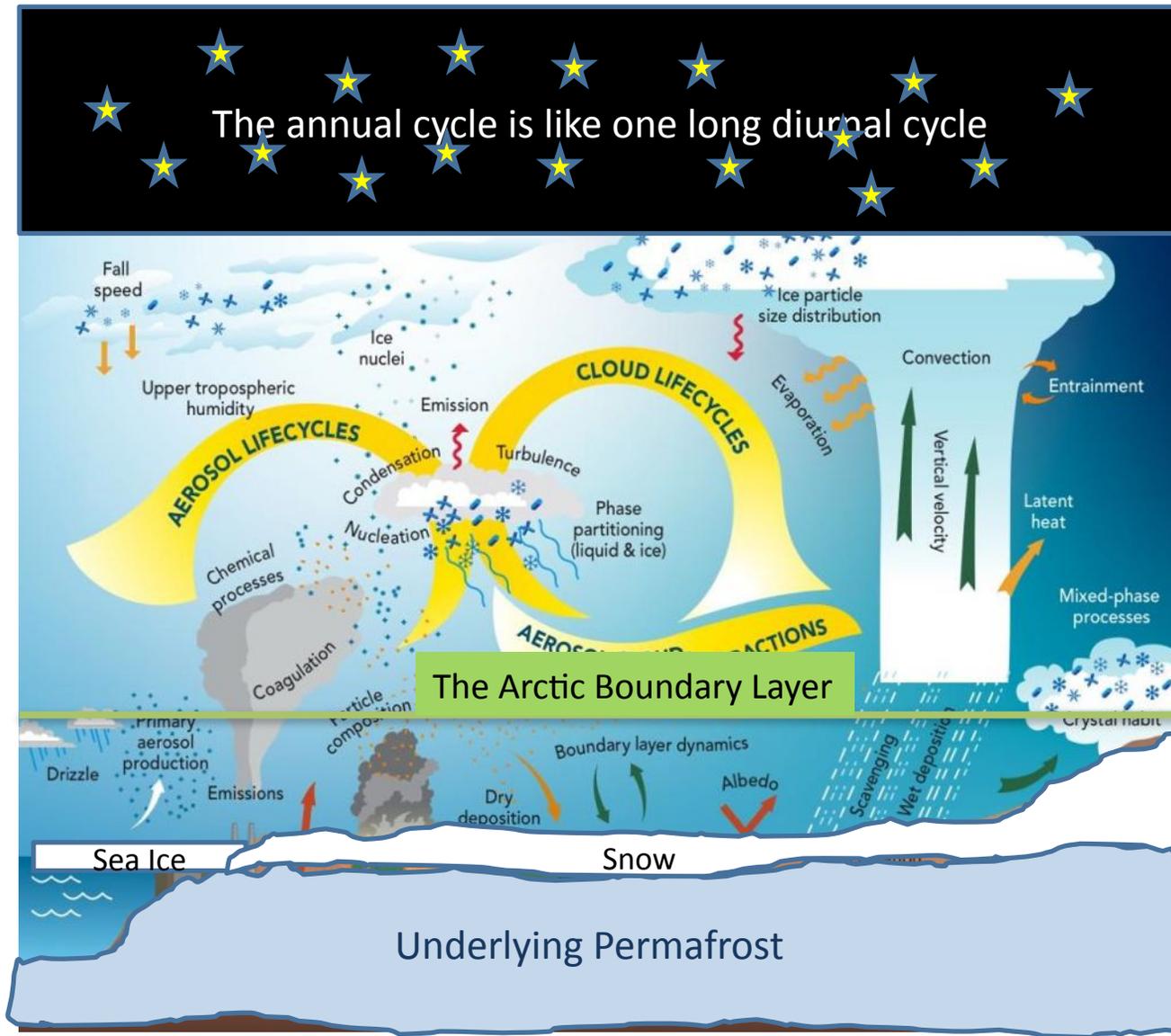
IASOA Overview
New Challenges for IASOA
Invitation for Participation

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Lisa.Darby@noaa.gov

IASOA Observatories



Complicated Processes with Unique Arctic Twists



The IASOA Concept



Determine **HOW** the Arctic atmosphere is evolving:

- Long term monitoring
- International programs (GAW, AMAP, BSRN etc.)
- Data coordination

BUT

Also emphasis **WHY** the Arctic atmosphere is changing

- Process Studies
- Research grade observations
- Model Support

ALSO

Need to respond to the **NOW** issues

- Sudden events

Proposed approach: Have an observational system with clearly defined products that allows for surprises

Atmospheric Fluxes (F_{atm}), Snow Depth (D_s), Surface Flux (F_o)

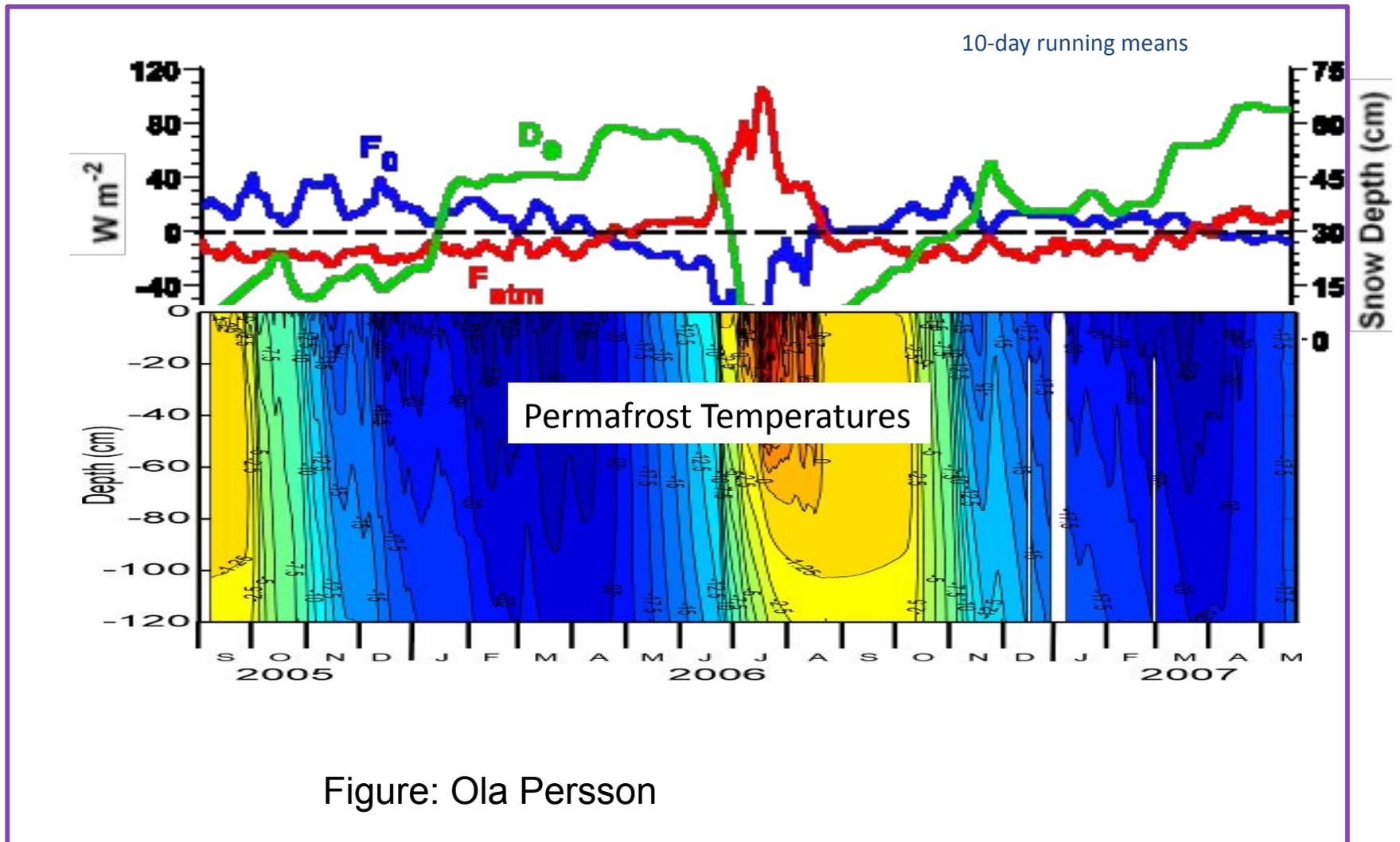
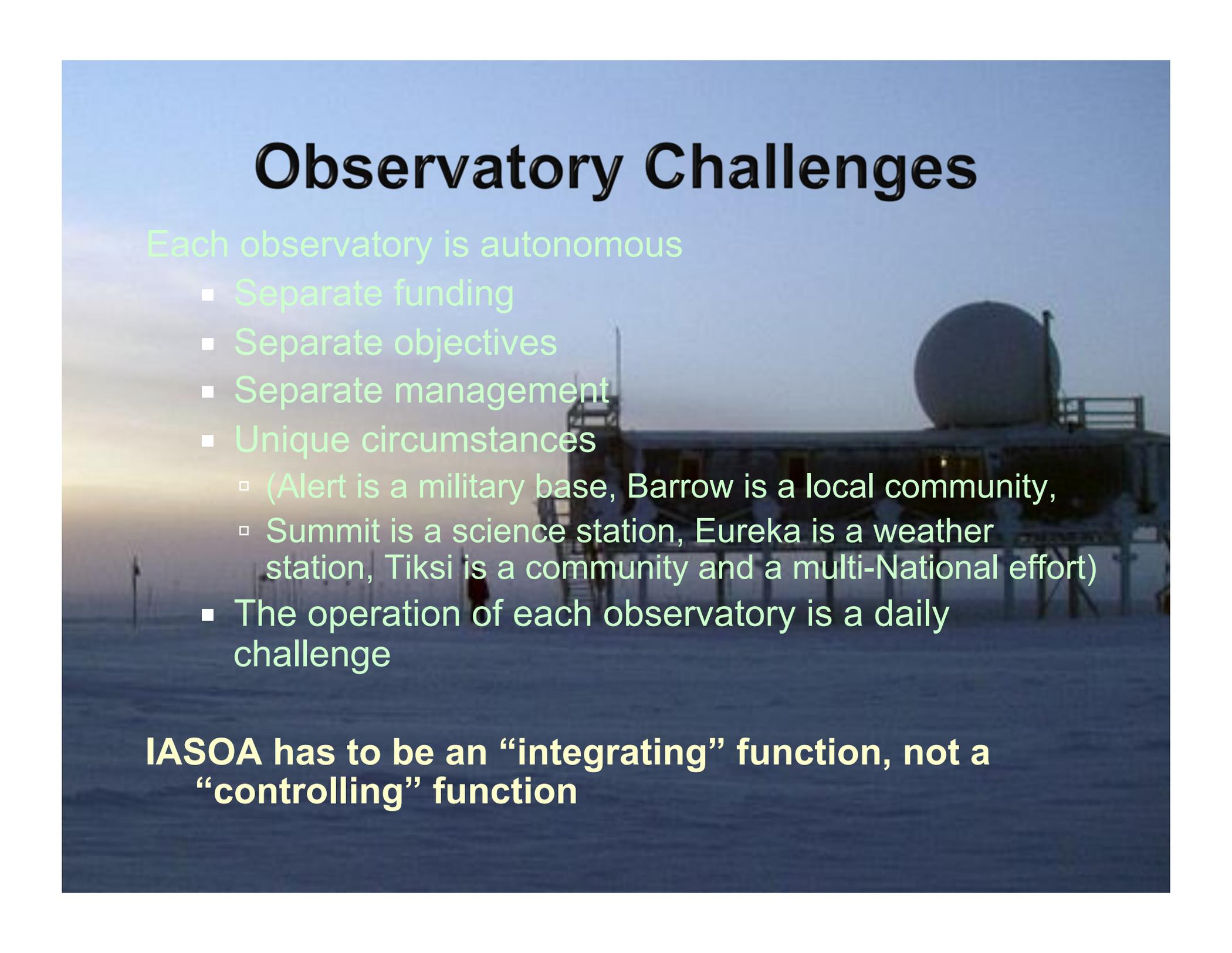


Figure: Ola Persson

Observatory Challenges

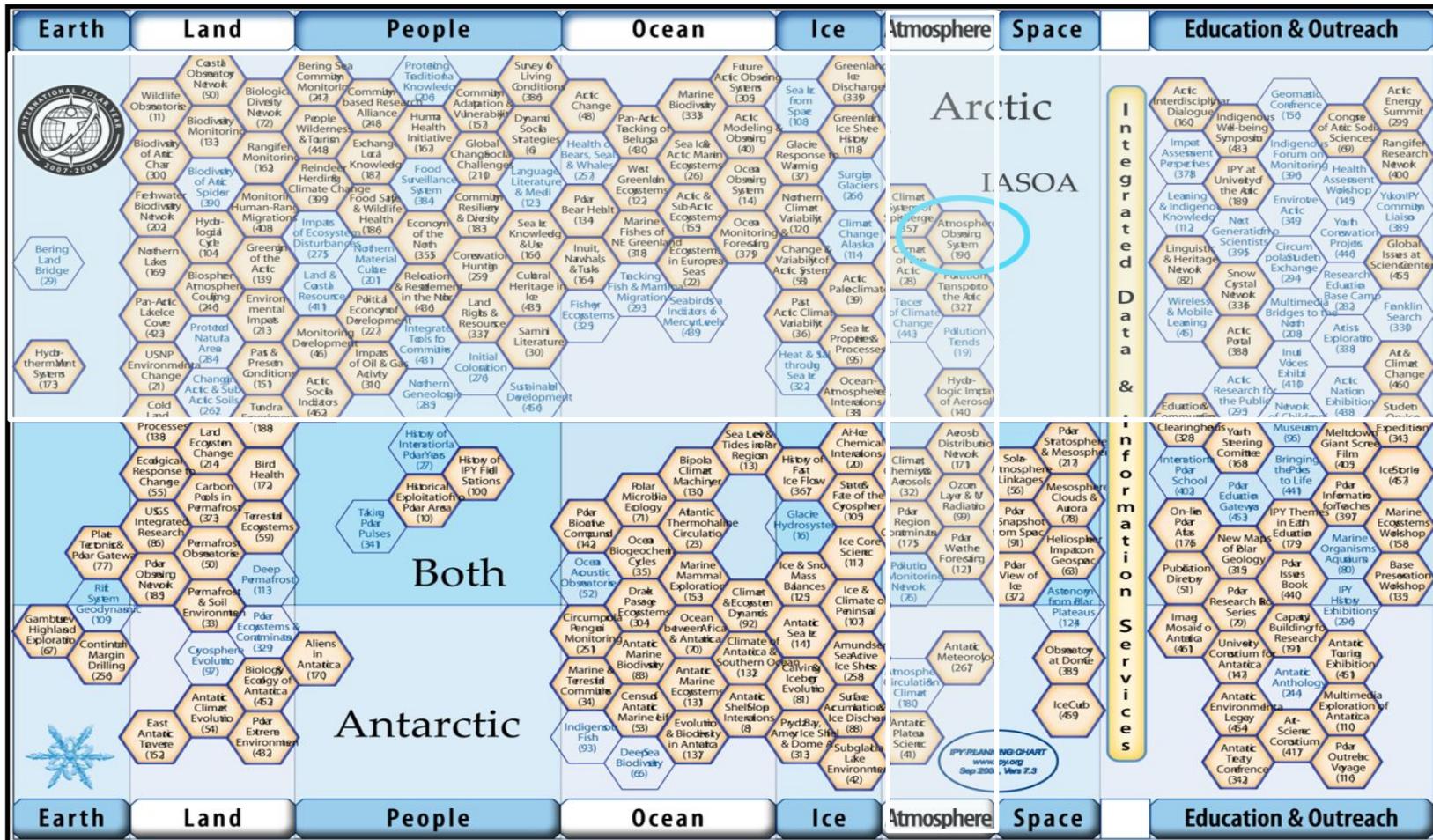


Each observatory is autonomous

- Separate funding
- Separate objectives
- Separate management
- Unique circumstances
 - (Alert is a military base, Barrow is a local community,
 - Summit is a science station, Eureka is a weather station, Tiksi is a community and a multi-National effort)
- The operation of each observatory is a daily challenge

IASOA has to be an “integrating” function, not a “controlling” function

Atmospheric Science and the IPY



Very few Arctic atmosphere projects – even less went forward.....

Thinking forward on implementing agreements

“Arctic treaty” cannot be modeled after the Antarctic treaty but it may be possible to have something for **atmospheric science** which does not have the territorial issues of marine sciences? (Weather Service and the postal service works)

THE ARCTIC OFFSHORE: MARITIME ZONES



Cont. Shelf up to 200 nmi: coastal state “exclusive, sovereign rights” to explore, exploit, protect resources of the seabed (coterminus w/ EEZ water column)

Outer Continental Shelves (beyond 200 nm): near-total coastal state rights to resources of the seabed

The Area: resources of seabed and subsoil= “Common Heritage of mankind” ISBA

IASOA committee could propose an atmospheric science treaty between the 8 Arctic countries



Organization of science sessions
 (T5-2H) Land-Based Atmospheric Arctic Observatory Networks
 Theme 5 -New frontiers, data practices, and directions in polar research.”

 INTERNATIONAL POLAR YEAR OSLO SCIENCE CONFERENCE 2010 8-12 JUNE					
Polar Science - Global Impact					
Theme 1 Linkages between Polar Regions and global systems	Theme 2 Past, present and future changes in Polar Regions	Theme 3 Polar ecosystems and biodiversity	Theme 4 Human dimensions of change: health, society and resources	Theme 5 New frontiers, data practices, and directions in polar research	Theme 6 Polar science education, outreach and communication
T1-1 Polar Oceans and their importance for global ocean circulation	T2-1 Climate and paleo-climate dynamics and processes	T3-1 Chemosynthetic ecosystems in polar waters	T4-1 Human health and well-being in the Polar Regions	T5-1 New frontiers and directions in biology, ecology and biodiversity	T6-1 Learning together: The impacts of integrating education, outreach and research in IPY
T1-2 Plate tectonics and polar gateways in earth history	T2-2 Troposphere and stratosphere dynamics and processes and their links with climate	T3-2 Invasive and introduced species in polar environments	T4-2 Natural resource extraction and utilization	T5-2 New frontiers and directions in observing and technologies	T6-2 Incorporating polar science into formal education
T1-3 Chemical exchanges between snow, ice, atmosphere and ocean in Polar Regions	T2-3 Snow and ice dynamics and processes	T3-3 Arctic-subarctic connections: Ecosystems and biodiversity	T4-3 History of polar exploration, cooperation, research and logistics	T5-3 New frontiers and directions in subglacial exploration	T6-3 Adventures in the field: Impacts of field programs for students, teachers, artists, writers and others
T1-4 Polar climate feedbacks, amplification, and teleconnections, including impacts on mid-latitudes	T2-4 Permafrost on a warming planet	T3-4 Processes in polar deep-sea benthic biodiversity	T4-4 Communities and change	T5-4 Data and other cross-cutting issues for future polar research	T6-4 Global learning: The impact of the media
T1-5 Polar contribution to sea level rise	T2-5 From land to ocean: Hydrological, coastal, near-shore and upper shelf processes in Polar Regions	T3-5 Arctic and Antarctic freshwater ecosystems	T4-5 Polar issues: Arctic and Antarctic governance and economics		T6-5 Informal initiatives and polar inspiration: IPY in museums, art, films, books and drama
T1-6 Arctic and Antarctic marine chemistry: The role of the polar oceans in global carbon cycling and acidification	T2-6 Ocean physical and geochemical dynamics and processes	T3-6 Impact of climate change on polar terrestrial ecosystems	T4-6 Human impacts in the Arctic and Antarctic: Environmental and management implications		T6-6 PolarCINEMA
T1-7 Postglacial atmospheric linking processes: Polar aerosols - sources and impacts	T2-7 Solid earth geophysical and geochemical processes	T3-7 Integrated processes in leads and polynyas			
	T2-8 Halosphere impact on permafrost	T3-8 Ecosystems of the Southern Ocean			

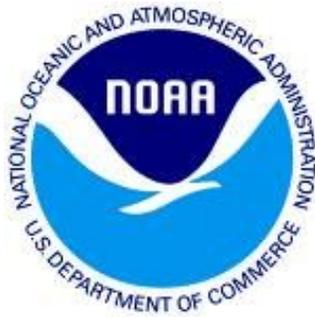
Deadline for abstract submissions: 20th January 2010 www.ipy-osc.no

IASOA can coordinate more sessions workshops and exchange programs

- 
- The image shows two large, white icebergs floating in a dark blue ocean. The sky is a clear, light blue. The icebergs have jagged, irregular shapes. The larger one is on the left, and the smaller one is on the right. The water around the icebergs is slightly churning.
- **Russian Drifting Station**
 - **IABP**
 - **CALM**

**Take advantage of marine and
terrestrial coordination
possibilities**

**IASOA supports the concept of
the International Polar Decade**



Tiksi was a major infrastructure goal of IASOA that has had great coordination successes

A blue-tinted photograph of a ceiling. In the center, there is a circular vent or light fixture. To the left and below it, there is a large, irregular water stain that has spread across the ceiling surface. The stain is darker blue, indicating where liquid has dried. The overall image has a monochromatic blue color scheme.

An IASOA Station Managers meeting will be a good start to addressing logistics and operations issues

Ny-Aalesund Newsletter

Click [here](#) to download the latest newsletter from Ny-Ålesund.

IASOA Email List

If you are interested in receiving emails about IASOA events, please contact Lisa Darby (lisa.darby@noaa.gov).

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Developing a legacy of continuous Arctic atmospheric measurements

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Observatories-At-A-Glance



Welcome to the IASOA Observatories-at-a-Glance page. This page has been designed to give you a quick look at what measurements & specialized instruments are available at the IASOA observatories.

For more detailed information regarding instrumentation at the individual observatories, click on the observatory's name.

"Y" means that the station does have the measurement or instrument listed in the left-hand column, to the best of our knowledge.

Click on the "Y" link in each box to direct your browser to a site listing archived data locations. To go to an exhaustive list of each measurement's data archives, click on the measurement or instrument link.

We welcome your comments - if you have any additions or corrections that apply to this page, please forward them to lisa.darby@noaa.gov or caroline.larsen@noaa.gov.

Measurement or Instrument	Abisko, Sweden	Alert, Canada	Barrow, U.S.A.	Cherskii, Russia	Eureka, Canada	Ny-Ålesund, Norway	Pallas/Sodankylä, Finland	Summit, Greenland	Tiksi, Russia
Meteorology - surface (T, Td, P, Ws, Wd)	Y	Y	Y	Y	Y	Y	Y	Y	Y
Meteorology - upper air		Y	Y	Y	Y	Y	Y	Y	Y
Precipitation	Y	Y	Y	Y	Y	Y	Y	Y	Y
Snow depth		Y	Y		Y	Y	Y	Y	Y
Micrometeorology tower			Y		Y		Y	Y	Y
Surface energy balance		Y	Y	Y	Y	Y	Y	Y	
Radiation	Y	Y	Y	Y	Y	Y	Y	Y	
Aerosol (surface and upper air)		Y	Y		Y	Y	Y		

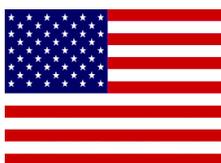
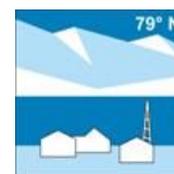
Survey the already extensively available Arctic data sets and think hard about how to extract integrate the information content

A Program Critically Dependant on Partnerships



Environment
Canada

Environnement
Canada



University of Idaho



International Linkages Past and Future



International Polar Year
March 2007 – March 2009



ARCTIC COUNCIL

Sustained Arctic Observing Network

You are Invited to do
Great System Science

Topic: The Arctic
Atmosphere

Observers, Modelers,
Operators, Data
Specialists Welcome!

Please RSVP
www.iasoa.org

