

Why ISAC?

- The Arctic has in recent decades been characterized by a complex of *interrelated, pan-arctic changes, occurring across the terrestrial, oceanic, atmospheric and human systems*
- Observed changes have large impacts on arctic ecosystems and society
- Anthropogenic activities are a cause of observed changes.
- An international program required to address the scientific challenge to understand these changes

ISAC Objectives

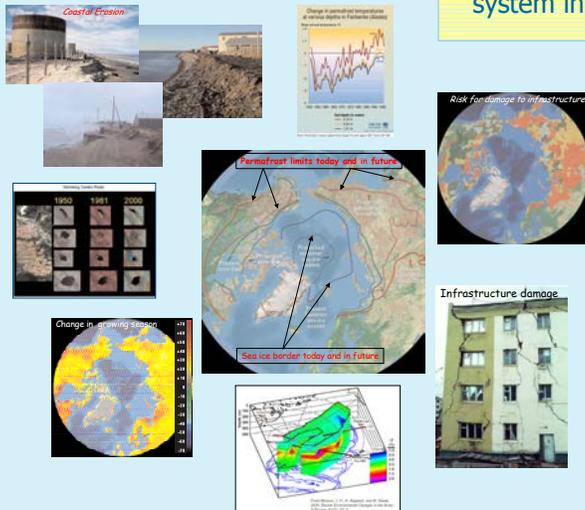
- To take a **system approach** to facilitate **expansion and deepening of our knowledge base of the arctic system**
- To **document changes in the Arctic** with respect to spatial and temporal patterns.
- To **project changes into the future**
- Study options for **response to changes**

Meeting the objectives requires:

- To **collect, analyze and disseminate data** from an integrated arctic system observing network
- study **natural variability** in the arctic region (separate from secular changes)
- quantify current environmental changes and predict future changes** in the arctic system in the context of past changes

ISAC Hypotheses

- The complex of interconnected changes is **driven by global change** but also **influenced by regional Arctic feedbacks**.
- Amplification of climate signals in high latitudes**, especially in the Arctic, lead to amplitudes of observed changes that are larger than those observed in lower latitudes.
- The observed **changes are expected to continue** and possibly accelerate in the future.
- The **observed changes in the Arctic have a large impact on ecosystems and societies**.

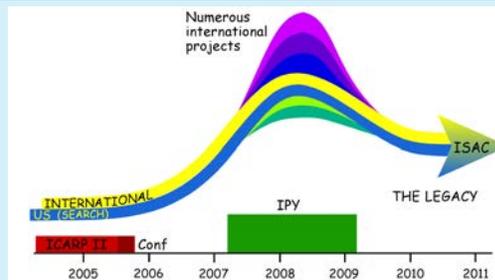


Observing plans: Example from SEARCH



Steps to establish ISAC

- ISAC established** under the umbrella of IASC and AOSB end of 2003
- Interim Science Planning Group** formed spring 2004
- Science Overview Document** published January 2005
- Science Steering Group** formed in 2006
- ISAC Project Office** will have its home in **Stockholm** (Royal Swedish Academy of Science)
- ISAC will have **national and regional programs**. Examples are the U.S. SEARCH and European DAMOCLES programs.
- ISAC has been endorsed as an **IPY Project**
- ISAC Science Plan** is under development



ISAC and the IPY Legacy

- ISAC examines Arctic environmental change **across domains**
- ISAC has an **unprecedented scope** in terms of spatial and temporal scales.
- This requires **integrated observing systems** alongside activities targeted at **understanding of and responding to Arctic change**.
- ISAC needs **strong national and regional programs** to accomplish its goals (examples: SEARCH, DAMOCLES)