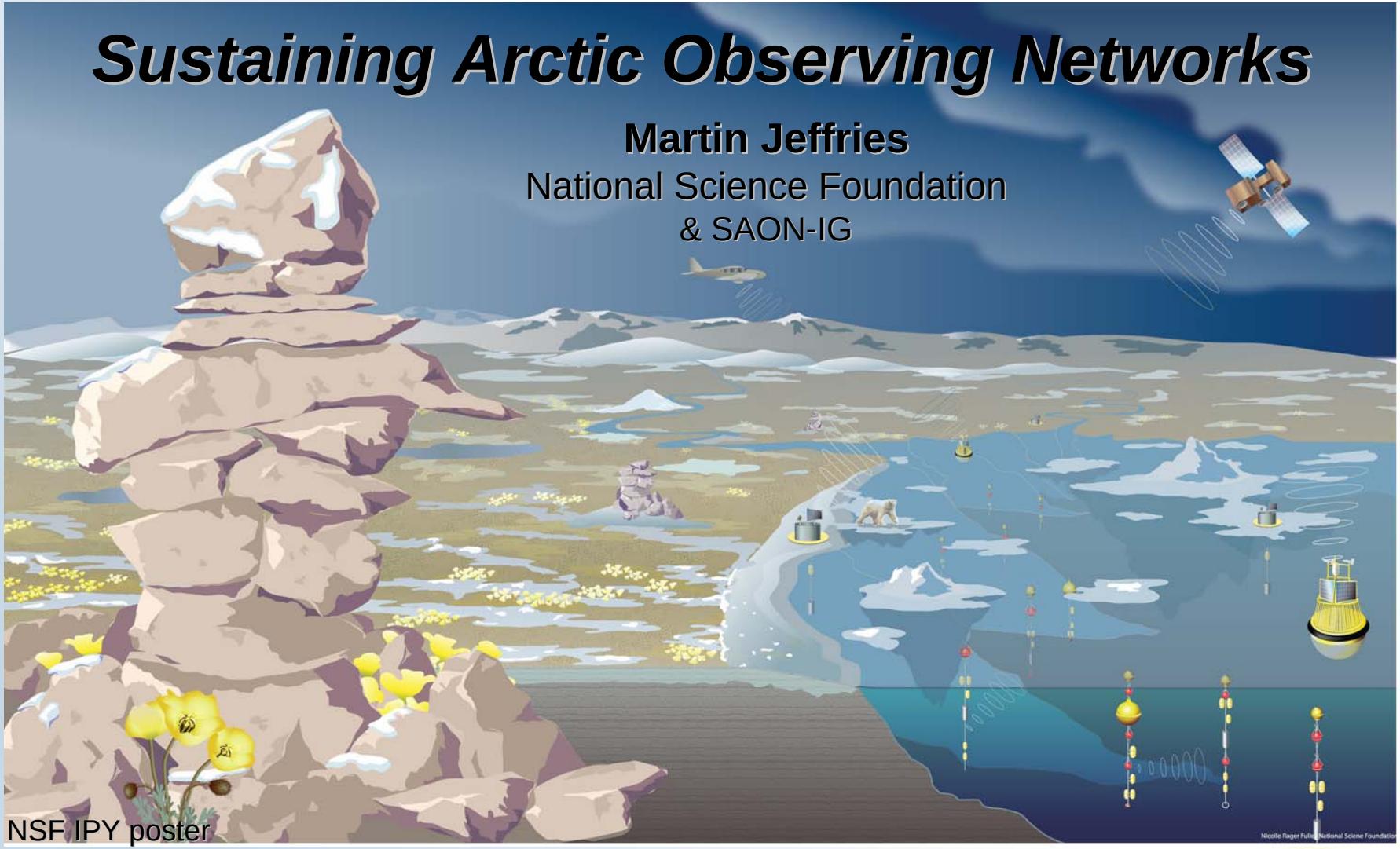
Sustaining Arctic Observing Networks

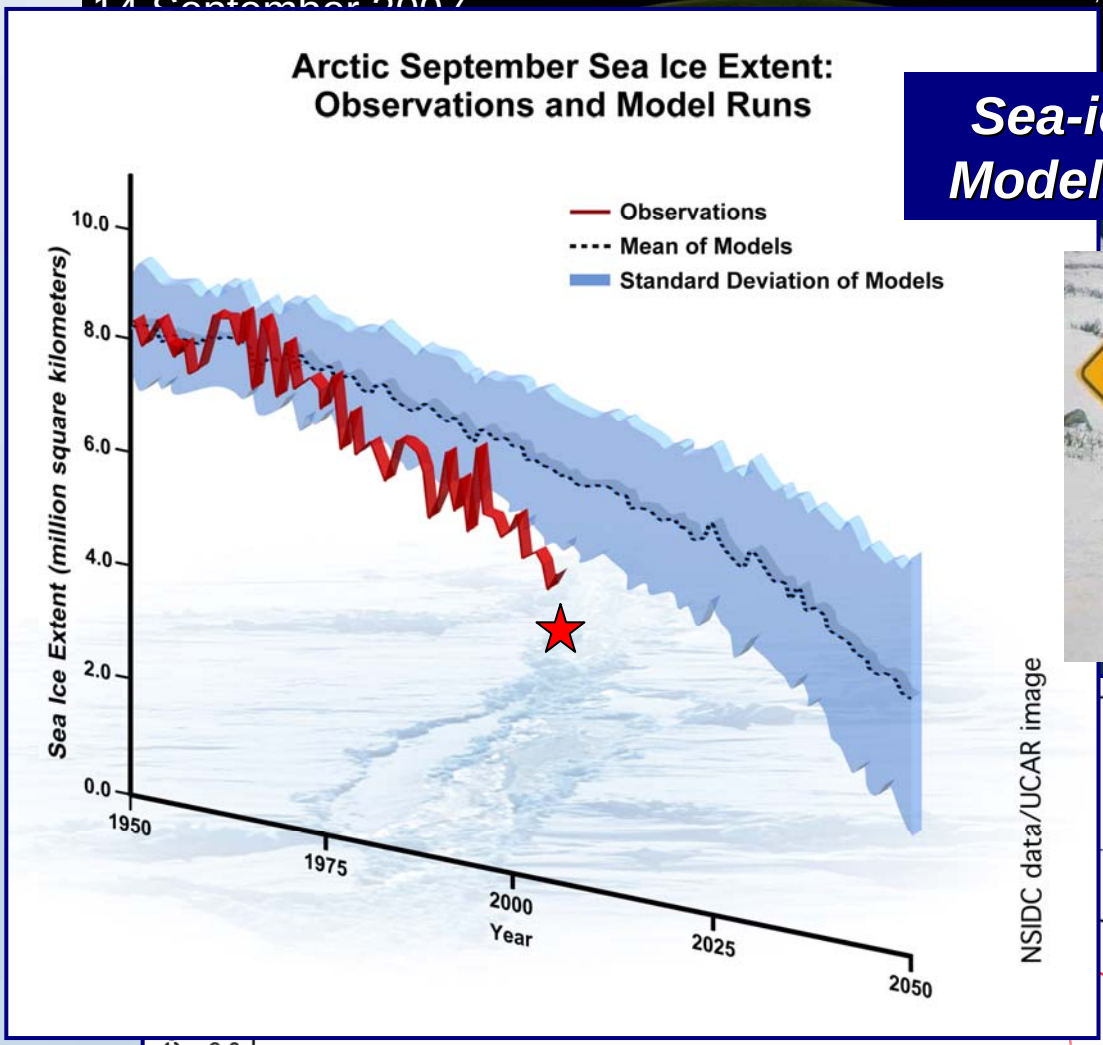
Martin Jeffries
National Science Foundation
& SAON-IG



NSF IPY poster

First IPY Workshop on
Sustaining Arctic Observing Networks,
Stockholm, Sweden, 12-14 November 2007

Sea-ice Observations and Models (& Polar Bears Too)



USGS Polar Bear Report
7 September 2007

2007: Rapid Arctic Change Continues

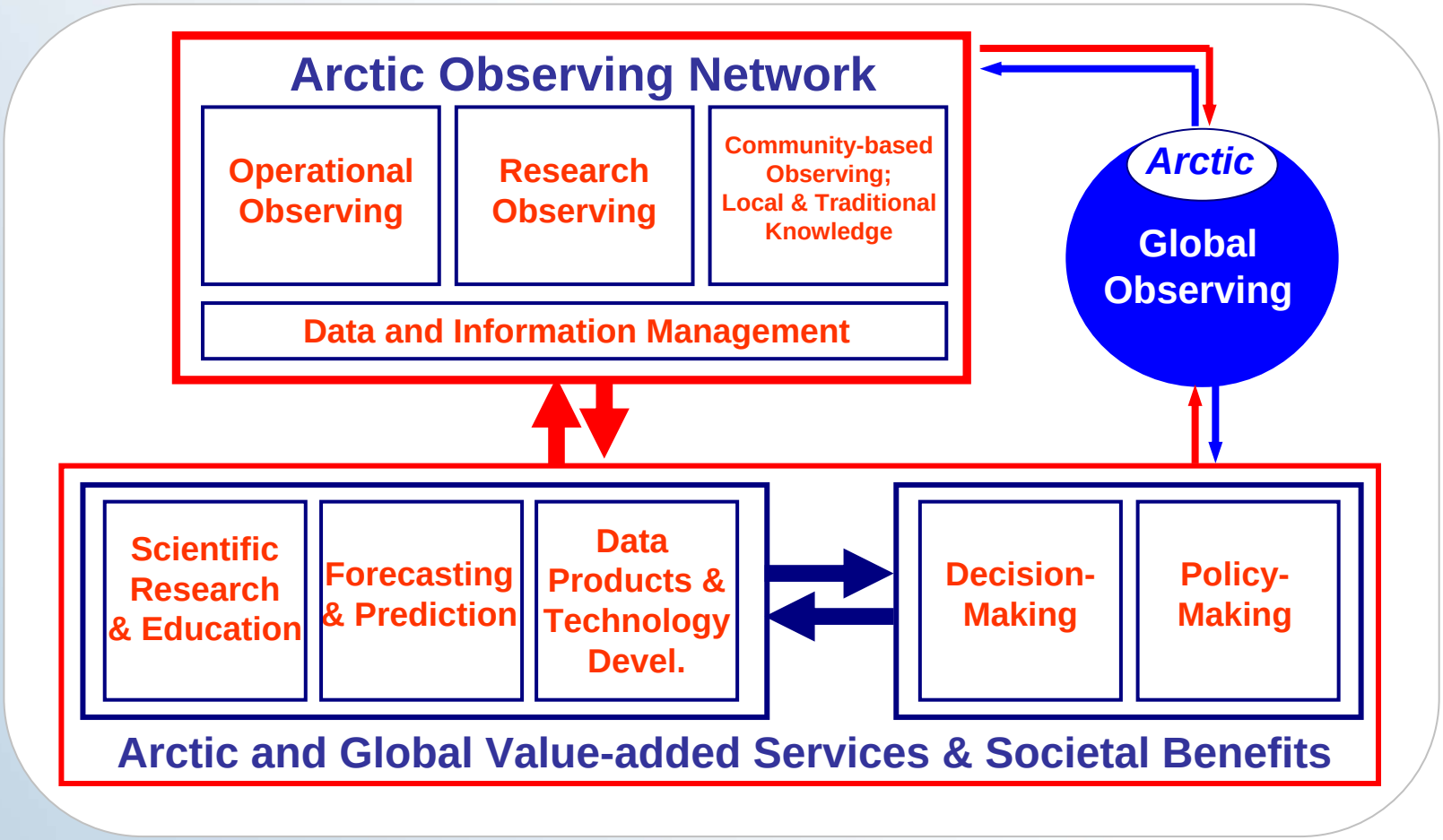
NOAA: Arctic Report Card, 2007

Observations, Computer Models and Arctic Change

- Observations provide data on the rate and magnitude of variation and change, e.g., how does the present compare to the past?

Observing and modeling are inseparable scientific activities that are vital for creating new knowledge and improved understanding. To paraphrase Karl Weyprecht, who inspired the first International Polar Year (1882-83), *it is not enough to observe how the Arctic is changing; we also need to understand why the Arctic is changing.*

- Observing change, understanding the causes and consequences of change, and predicting future change enable appropriate and effective responses to change to be identified, e.g., do we adapt, do we mitigate, do we do both?.



Arctic Observing: A Framework for Participation, Activities and Outcomes

Arctic Council Salekhard Declaration 2006

- Member countries to maintain and extend long term monitoring of change in all parts of the Arctic, and request AMAP to cooperate with other Arctic Council Working Groups, IASC and other partners in efforts to create a coordinated **Arctic observing network**, that meets identified societal needs.
- AMAP to cooperate with other Arctic Council working groups and relevant scientific bodies in continuously reviewing needs and gaps in climate monitoring in the Arctic so that coordinated action might be taken to ensure the full realization of a comprehensive **Arctic observing network**.
- Member States and other entities to strengthen monitoring and research efforts needed to comprehensively address Arctic change and to promote the establishment of a circumpolar **Arctic observing network** of monitoring stations …… as a lasting legacy of the IPY.

Keywords & phrases: Arctic change; monitoring of climate & change; monitoring and research; scientific; other partners & entities; scientific bodies; societal needs.

Sustained Arctic Observing Networks - Initiating Group (SAON-IG)

Purpose: Develop a set of recommendations on how to achieve long-term, Arctic-wide observing activities that provide free, open and timely access to high quality data that will realise pan-Arctic and global value-added services and societal benefits …… and a lasting legacy of International Polar Year 2007-2009.

Method: A series of workshops during the International Polar Year:

- *Stockholm, Sweden, autumn 2007;*
- *Calgary/Banff, Canada, spring 2008;*
- *Helsinki, Finland, autumn 2008.*

Delivery date: The end of IPY - 1 March 2009.

Recipients: Arctic Council, International Arctic Science Committee, WMO/ICSU IPY Joint Committee, governments, and others.

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

Sustaining Arctic Observing Networks
Five basic questions for the workshops and the development of recommendations

1. What Arctic observing sites, systems and networks (activities) currently exist?
2. What spatial, temporal and disciplinary gaps exist?
3. How will gaps be filled and the entire effort sustained?
4. How are these activities to be coordinated and integrated?
5. How are free, open and timely access to data to be achieved?

Over-arching Questions

Stockholm: Are current Arctic observing and data & information management activities sufficient to meet users' needs?

Calgary/Banff: How will Arctic observing and data & information management activities be coordinated and sustained?

Helsinki: Synthesis and completion.

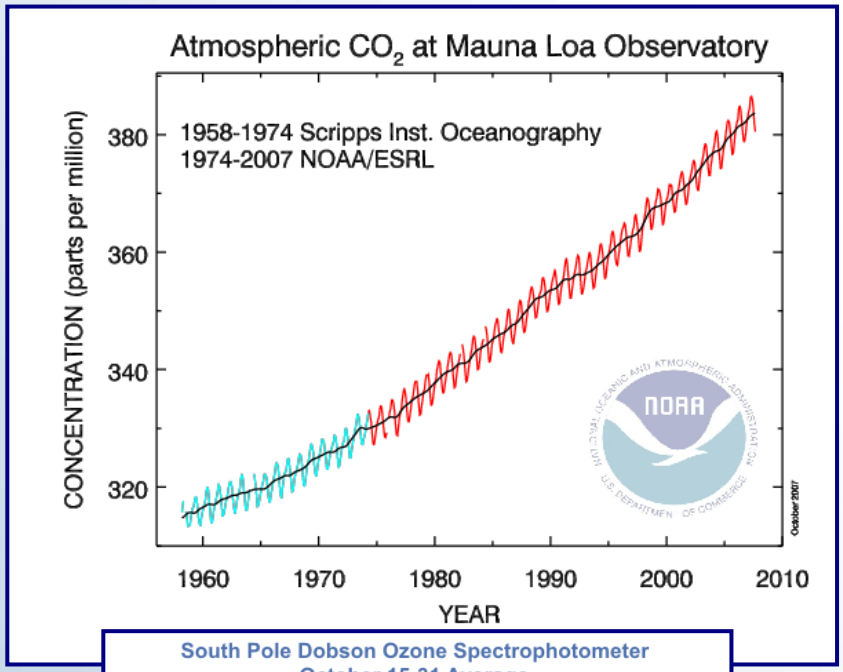
Stockholm Workshop

Plenary Sessions
- Climate and Weather
- Human Health & Well-being
- Biodiversity and Ecosystems
- Social and Economic Development
- Data and Information

Break-out Groups
- Atmosphere
- Ocean and Sea Ice
- Hydrology & Cryosphere
- Terrestrial Ecosystems
- Human Dimensions

Break-out Groups: Some Guidance
- We can't do everything ⇘ Need to prioritize.
- How to prioritize ⇘ Ask the right questions.
- Don't try to identify the questions ⇘ They already exist (you just need to know where to look).

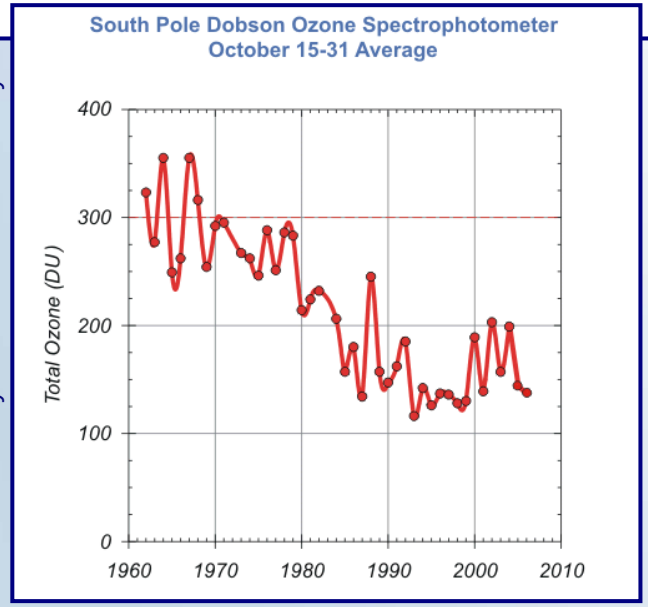
Arctic Environmental Change Priorities: Straw Man
1. Sea ice: what are the causes of the continuing retreat?
2. Greenland ice sheet: how is it changing and why?
3. Marine ecosystems: how are they changing and why?
4. Feedbacks of change: clouds & aerosols; terrestrial ecosystems and CH_4/CO_2 release.
5. How will Arctic communities adapt to changing ecosystem services, and how will those adaptations feed back to the ecosystems?



QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.



NOAA Earth System Research Laboratory