ARCSS Components and Initiatives

- in order of appearance -

9:30am	Paleo-environmental Arctic Sciences (PARCS)	1989
10:00am	Ocean-Atmosphere-Ice Interactions (OAII)	1992
11:00am	Land-Atmosphere-Ice Interactions (LAII)	1992
11:30am	Russian-American Initiative on Shelf-Land Environments in the Arctic (RAISE)	1996
11:50am	Human Dimensions of the Arctic System (HARC)	1998
1:30pm	The Hydrologic Cycle and its role in Arctic and Global Environmental Change (Arctic-CHAMP)	2001
2:00pm	Study of Environmental Arctic Change (SEARCH)	2001
2:30pm	Nearshore and Coastal Processes Initiative	2002?
2:40pm	Biophysical Feedbacks and Transitions on the Arctic Regional System (Life Webs)	2002?

How to we get from here to there?

The Arctic climate system is tightly coupled, rich in its complexity.

ARCSS-funded Arctic research is similarly rich, but it is also somewhat fragmented.

To understand the Arctic climate system, we face the challenging task of integrating and coordinating our science both within the U.S. and across the global community.

The questions

1. What are the key remaining uncertainties?

For each key uncertainty:

2. What is the impact of this uncertainty on our understanding of the Arctic system?
3. What is our level of confidence in the above assessment?
4. What is our level of readiness to deal with this uncertainty?

Choosing critical focus areas for immediate attention should be driven by a high level of **importance, confidence and readiness.**

An example

Key uncertainty in projecting Arctic climate change (theme 1): Interactions between snow/ice and cloud feedback processes

The impact of clouds on the surface radiation flux and thus the state of the surface means that the cloud-radiation feedback processes in the Arctic are inextricably linked with snow/ice-albedo feedback processes.

The largest uncertainty in assessing the cloud-climate feedback mechanism is the change in cloud cover in response to a change in atmospheric temperature, and thus the sign of the cloud-climate feedback over the Arctic is unknown.

Assessment: Potential contribution of this feedback to uncertainty is high.

Confidence in assessment: high

Readiness of the community to address this uncertainty: excellent

Another example

Key uncertainty in detecting Arctic climate change (theme 5): Natural variability in the arctic circulation

Theoretical understanding of the natural modes of variability of the atmospheric circulation in high latitudes is lacking. Different methods of representing SLP variability give quite different results with respect to the teleconnections.

Further, the influences of stratospheric and surface forcing on atmospheric variability remain open questions.

Assessment: Potential contribution of natural variability to uncertainty is high.

Confidence in assessment: high

Readiness of the community to address this uncertainty: very good

Final question

5. Finally, should this focus area be addressed by a new or existing initiative, by one or a combination of existing ARCSS components, or by some other means?

In other words, how do we organize ourselves - components, themes, initiatives, all of the above?