Appendix 2: Agendas for 2009 and 2012 ADI Workshops

Arctic Observing Network (AON)
Design and Implementation (ADI) Task Force Meeting

December 2-4, 2009
Millenium Harvest House, Boulder, CO

Wednesday, December 2 ***Workshop convenes at 1:15 pm***

Introduction and background:

1:15-1:35 Brief welcome and introduction to workshop—Hajo Eicken
1:35-2:05 Introduction to AON and NSF's perspective on ADI—Martin Jeffries
2:05-2:20 Overview of the AON status based on summary of AON PI Meeting —Craig Lee
2:20-2:35 AON status in the context of SEARCH science drivers: An assessment by the SEARCH Understanding Change Panel—John Walsh

Other observing system efforts relevant to ADI & AON:

2:35-2:50 The ARGO float program—Breck Owens
2:50-3:05 TOGA/TAO array—Mike McPhaden
3:05-3:20 The LTER Program—John Vande Castle
3:20-3:35 NEON Overview and Observing System Simulation Experiments— Dave Schimel, Paul Duffy and Michael Keller

3:35-4:00 BREAK
4:00-4:15 Satellite remote sensing and the AON—Walt Meier
4:15-4:30 Overview of outcomes from OceanObs 2009 conference and white papers— Craig Lee and/or Peter Schlosser

Overview talks on key approaches to observing system design, implementation and optimization:

4:30-4:45 Arctic Atmospheric Reanalysis—Keith Hines
4:45-5:00 Arctic Ocean Reanalysis—Andrey Proshutinsky
5:00-5:15 Adjoint data assimilation technique and optimal network design— Frank Kauker
6:30-8:30 Icebreaker reception at Laudisio, 1710 29th Street
(5 minute walk or take the hotel shuttle)

Thursday, December 3

Overview talks on key approaches to observing system design, implementation and optimization continued:

8:30-8:45 Observing system simulation experiments and biophysical process studies related to the predictability of land-ocean interactions—Villy Kourafalou

8:45-9:00 SEACOOS Program: Lessons Learned—Harvey Seim

9:00-9:15 Adaptive Observatory Network Design—Sandy Andelman

9:15-9:30 Ecosystem services in the design of observing systems—Terry Chapin

9:30-10:30 Working group plans and objectives, with plenary questions and discussion—Hajo Eicken
- Discuss and define scope of predictive understanding of change (i.e., what magnitude of change over what time frame?) in the AON context;
- Review overarching constraints on and challenges of AON design, implementation, and optimization

10:30-11:00 BREAK

11:00-5:00 Working groups. Break as needed, lunch provided.

Working groups:
- Ocean/sea ice
- Atmosphere
- Terrestrial
- Stakeholders

Each group will address the same set of tasks toward developing workshop products:

- Approaches:
  Summary evaluation of ongoing or past observing system efforts relevant to AON design and optimization;
  Scope out small proof-of-concept or exploratory studies to assess value of different quantitative design and optimization approaches, some detailed and some broad, including potential deliverables and questions answered;
  List of example questions to encourage exploratory studies to take a variety of approaches (e.g., what is the information content of observations from gateway arrays [budgets] vs internal system measurements [patterns]); what are the tradeoffs between flagship observatory sites and distributed networks, or should the network consider hybrid models; what type of guidance can be given on placement of moorings or sensor arrays)
  List of groups or efforts that could complete such studies within the context of the ADI process and assessment of the potential value of such activities in relation to ADI goals (i.e., ranking of relevance)

- Metrics:
  Identify metrics needed from exploratory studies

- Implementation and optimization:
  Identify specific opportunities and constraints in AON design, implementation, and optimization;

List of prioritized constraints for network design (e.g., siting/representation (representation of environmental gradients, latitudinal gradients, etc.) criteria, cost constraints, staging (i.e., implementation rate), etc.
Define integration needs and opportunities within and among observing system components, with international partners, and with interagency cooperators
Identify effective methods for serving information needs of stakeholders.

5:00-5:30 Plenary Session. Brief progress reports from each working group.

Friday, December 4

8:30-9:30 Continued working group discussions.

Review and discussion of working group findings/recommendations
9:30-9:50 Sea ice/ocean group
9:50-10:10 Terrestrial group
10:10-10:30 Atmosphere group
10:30-10:50 Stakeholder group

10:50-11:15 BREAK

11:15-12:00 Plenary discussion:
- Integration of working group findings/recommendations
- Scoping of exploratory studies
- Considerations in optimizing observations within and across systems
- Vision for broader AON design & optimization approaches
- Next steps, workshop products

Workshop adjourns at lunch
- Task force in executive session (working lunch): Process and outline of remainder of task force activities
- Task force adjourns early afternoon

Arctic Observing Network (AON)
Design and Implementation (ADI) Task Force Meeting

June, 27-29 2012
UCAR Foothills Lab, Boulder, CO

Wednesday, June 27 ***Workshop convenes at 9:00 am***

9:00 – 9:15 am Brief welcome and charge to meeting participants – *[Hajo Eicken]* Recap of current status of ADI Task Force Report

Morning Discussion on ADI Task Force Guidance to NSF & Other Funding Agency Partners Supporting an Evolving AON

9:15 – 9:30 am Review of NSF guidelines for ADI Task Force, expectations and uses of report – *[Erica Key via phone]*

9: 30 – 10:00 am Challenges of observing system design. Framing lessons learned from 2009 ADI and ADI Task Force Meetings, ADI Task Force Report process, and community survey – *[Hajo Eicken, Presentation and discussion]*

10:00 – 10:30 am Observing System Design: Overarching discussion on lessons learned from other observing system efforts – *[Olivia Lee, Discussion leader]*

10:30 – 11:15 am Prioritization of network components. Density and distribution design methodology; applicability of lower latitude observing methods to the Arctic – *[Harvey Seim, Discussion leader; Breck Owens, Discussion leader]*

11:15 am – 12:15 pm Broader community input on AON design and optimization: Survey questions, results, and incorporation into ADI Task Force Report – *[Lawrence Hamilton and Olivia Lee, Presentation and discussion leader]*

12:15 – 1:30 pm *Lunch*

Afternoon Discussion on Lessons Learned from Other Programs and Observing System Efforts

1:30 – 2:30 pm Observing system design for Arctic system science with a focus on

impacts on people and ecosystems – lessons learned from the Freshwater Initiative (FWI) – *[Jennifer Francis, Presentation and discussion; Mark Serreze, Discussion leader]*

2:30 – 3:00 pm Biodiversity monitoring programs and lessons for observing system design – *[John Van Decastle, Discussion leader]*

3:00 – 3:15 pm *Break*

3:15 – 3:45 pm Ecosystem services and observing system design – *[John Van Decastle, Discussion leader]*

3:45 – 4:15 pm Balance between network components. Design methodology and integration and balance across disciplines and scales. *[Open discussion]*

4:15 – 4:30 pm Recap of Day 1, plans for writing assignments (evening and Day 2)

Thursday, June 28

9:00 – 9:15 am Overview and Goals for Day 2 *[Hajo Eicken]*

9:15 – 9:45 am Seasonal and interannual scale prediction of sea ice – lessons from the Sea Ice Outlook – *[Jim Overland, Presentation and discussion lead]*

9:45 – 10:45 am Collaborative Research: Toward optimization of observational arrays in the Arctic Ocean – *[Dmitri Nechaev, Presentation and discussion]*

10:45 – 11:00 am *Break*

11:00 – 11:30 am Review of the state and trajectory of the current AON in relation to key science questions identified by Arctic research community; interpret Understanding Change report and other recent reports in light of ADI design and optimization *[Craig Lee, Discussion leader; John Walsh, Discussion leader]*

11:30 am – 12:30 pm <u>Morning Breakout Sessions</u>

The morning will be devoted to 2-3 breakout themes based on yesterday's topics. ADI Task Force Members will discuss and draft key recommendations to NSF.

Morning breakout groups:

Example breakout topics (to be refined by ADI Task Force members):

- Review what we have learned regarding different approaches, are we missing something that we haven't heard about? (Will require some analysis of the survey)
- How can the science of observing system design and optimization be advanced in areas that are currently less well developed (such as ecosystem services and social sciences)
- Revisit discussion on balance (i.e., discipline, scale)
- How can observing system design and implementation be best coordinated between different agencies and at the international level?
- How can information arriving from the existing observing system components and quantitative design studies be best synthesized for a pragmatic approach to guide system design and refinement?

12:30 – 2:00 pm	*Working lunch* (continue morning breakout session)
2:00 – 3:00 pm	Plenary -- Breakout groups report back on key recommendations, full group discussion.
3:00 – 3:15 pm	*Break*
3:15 – 4:45 pm	Group discussion on next steps. Writing groups to draft any additional sections to include in final ADI report.

Friday, June 29

9:00 – 9:15 am	Overview and Goals for Day 3 *[Hajo Eicken]*
9:15 am – 12:00 pm	Completion of ADI Task Force document Draft key recommendations to deliver to NSF and other agency partners, future trajectory of AON.
12:00 – 12:30 pm	Meeting wrap-up

Lunch