PAG & AOS 2018

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- Co-Chairs Organizing Committee Arctic Observing Summit 2018
  - Peter Schlosser, Columbia University & Earth Institute, USA
  - Koni Steffen, ETH Zurich, Switzerland
  - Jan-Rene Larsen, SAON
  - Maribeth Murray, Arctic Institute of North America

Arctic Observing Summit: Goals

- Provide **community-driven, science-based** guidance for the **design, implementation, coordination** and **sustained** long-term (decades) **operation** of an international network of Arctic observing systems that serves a wide spectrum of needs
- Create a **forum** for coordination and exchange between **academia, government agencies, local communities, industry, non-governmental organizations and other Arctic stakeholders** involved in or in need of long-term observations

PAG & AOS

- How can PAG activities benefit from involvement with AOS and vice versa?
- PAG has made great strides in communicating & planning of research cruises, identifying gaps, establishment of repeat stations (DBO) and serving as a forum for exchange
- Pacific Arctic sector is a region of rapid change & rapidly evolving issues & interests that cut across disciplinary foci

AOS 2018 Themes

Need for Observing System

- Societal Benefits – Long & short term perspective (e.g., UN-SDG, emergency response)

System Implementation

- Funding/support models
- Optimization of existing platforms & technologies
- New technologies to increase efficiency & impact
- Role of data management

Operating Observing Systems

- Success stories & lessons learned
- Use
  - Use of data & information relevant for business case
  - Data Management in support of public and private interests
  - Technology in support of public and private interests
  - Entrepreneurship and sustained observations

AOS 2018 Themes

- AOS 2018 Working Group 2 – ***Implementation*** is of particular relevance to PAG
- Prior to and at AOS, WG 2 is reviewing different observing activities with respect to
  - Maturity and sustainability
  - Connection to global/regional efforts
  - Consistency across regions and sub-systems
  - Governance structures
  - Resources needed
- Relevant examples: Benthic in vertebrate abundance

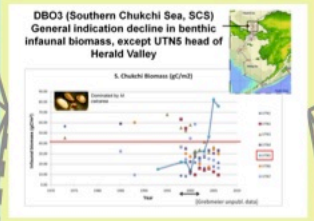
AOS 2018 WG 2 – Example

- Claire Eaton, University of New Hampshire

User base for the observing system & end-to-end "network"

Variable: Benthic invertebrate abundance and distribution

Fundamental Understanding of biological response to physical/environmental change in the Arctic

Arctic Societal Benefit Areas	Applications: End Users	Application Products: Time series data	Parameter "Phenomena"	Observing System
CLIMATE	RESEARCH		Ocean productivity	DBO
FUNDAMENTAL UNDERSTANDING OF THE ARCTIC SYSTEM	FEDERAL AGENCIES (e.g., NOAA)			AOOS
	STATE AGENCIES (e.g., FWS)			IOOS
MARINE/COASTAL ECOSYSTEMS	LOCAL & SUBSISTENCE COMMUNITIES	Output: abundance, biomass and composition of benthic fauna (both infauna and epifauna)	Food webs	Individual scientists
MARINE ECONOMY			Habitat modification	AMBON
RESILIENT LIVELIHOODS	NATURAL RESOURCE MGMT			CBM Networks

NSF ARCTIC DATA CENTER, NOAA, FWS

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Tabular Organization (Societal benefit > data repository)

Variable: Benthic invertebrate abundance and distribution

Societal benefits	Applications	Phenomena	Essential variable	Observing platform	Observing network	Data repository
▪ Climate ▪ Fundamental Understanding of Arctic Systems ▪ Marine and Coastal Ecosystems and Processes ▪ Marine economy ▪ Resilient livelihoods	▪ Climate analysis & assessment ▪ Ocean forecasting ▪ Ecosystem assessment ▪ Biodiversity assessment ▪ Sustainable management ▪ Assessing human impact on ocean	▪ Ocean productivity ▪ Food webs ▪ Habitat modification	▪ Benthic invertebrate abundance and distribution	• Satellites • Moorings • Ships of opportunity • Ship-based time series • Acoustic network	▪ DBO ▪ AOOS ▪ IOOS ▪ Individual scientists ▪ AMBON ▪ Community-based monitoring networks	▪ NSF/AON ▪ NOAA ▪ SERC (private) ▪ US FWS ▪ State FWS

Scores from 1 to 6 (low – 1; high – 6)
In color scale: score 1, score 2, score 3, score 4, score 5, score 6.

Sustainability	Implementation costs
Scientific and expert support	Costs for installation
Funding support	Costs for maintenance and development
Site representativeness	Costs for data management

AOS 2018 WG 2 Implementation

- Please join us at AOS 2018 to complete assessment of key observing system implementation approaches, with focus on observing requirements
- Unable to join? Please review Brief Statements & other documents on AOS 2018 Website
- Products, calls to action, and recommendations from AOS 2018 will feed into Arctic Science Ministerial (ASM-2) in Oct 2018
- Questions? Please e-mail heicken@alaska.edu