2024 European Polar Science Week
Opening High Level Plenary

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Chair, Polar Institute, Wilson Center
Affiliate Professor, International Arctic Research Center,
University of Alaska Fairbanks

September 3, 2024

The Arctic Region

The Arctic's 7 Cs

#7
Competition

#1
Climate

#6
Cooperation

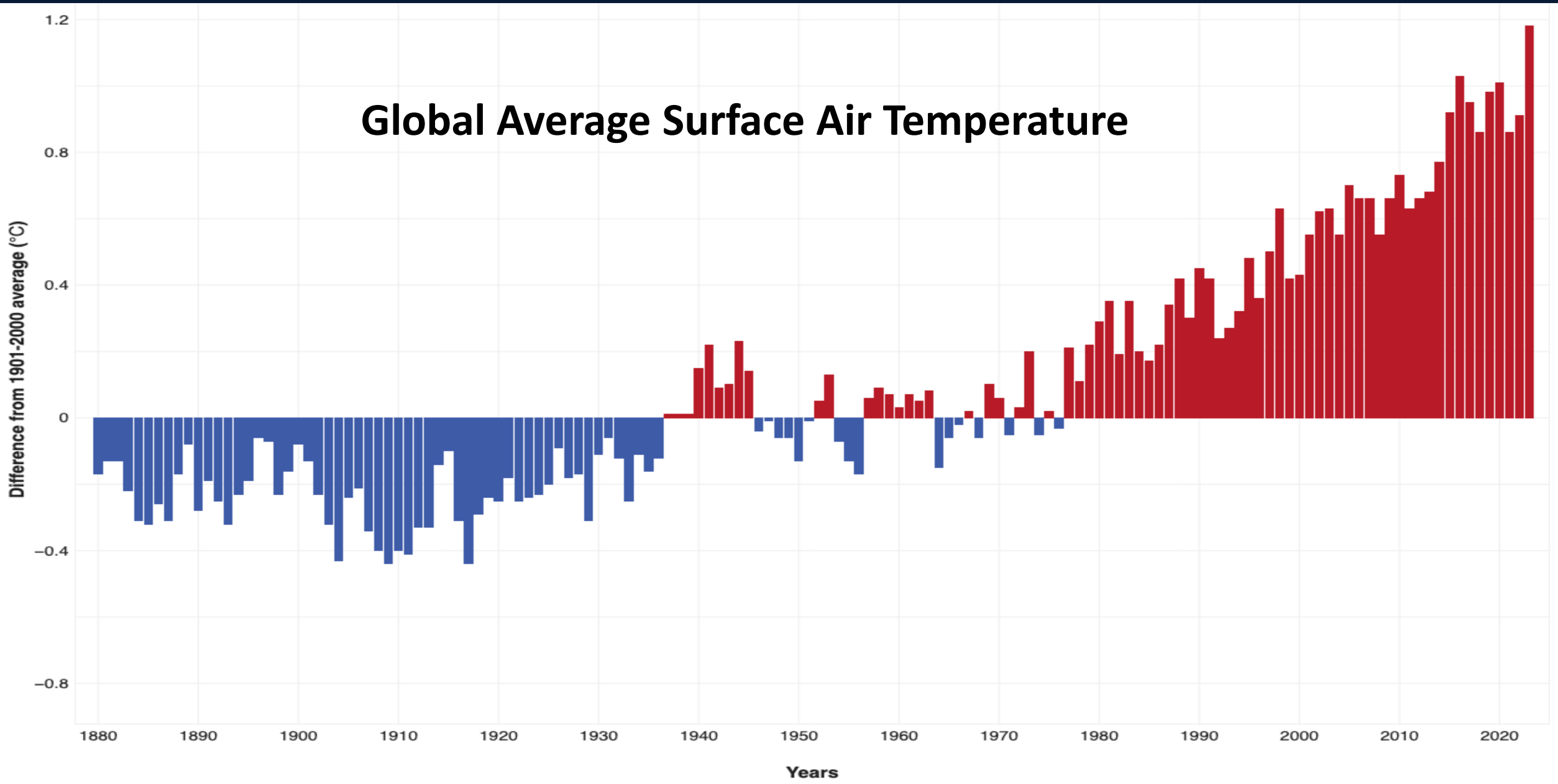
#2
Commodities

#5
Communities

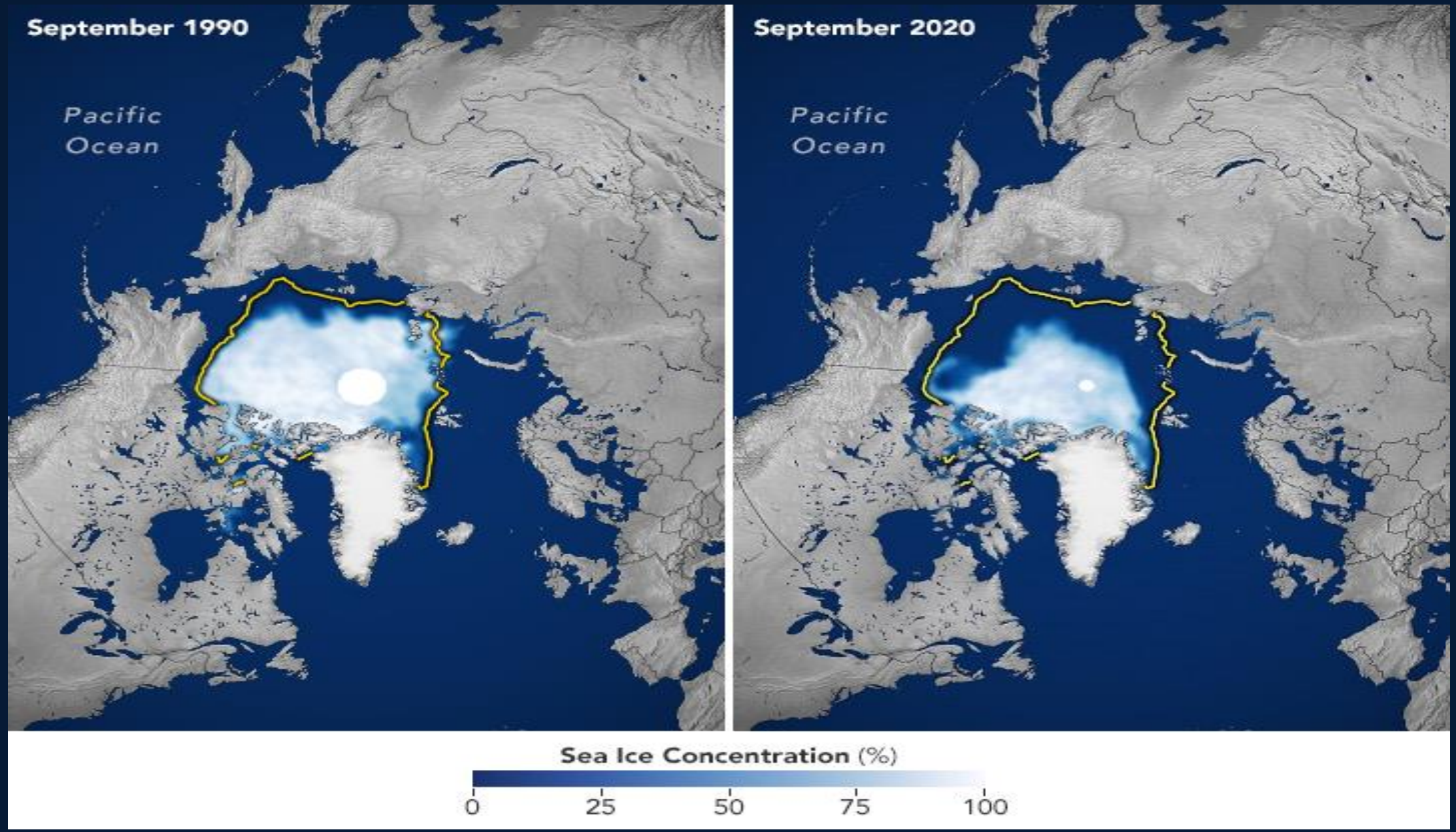
#3
Commerce

#4
Connectivity

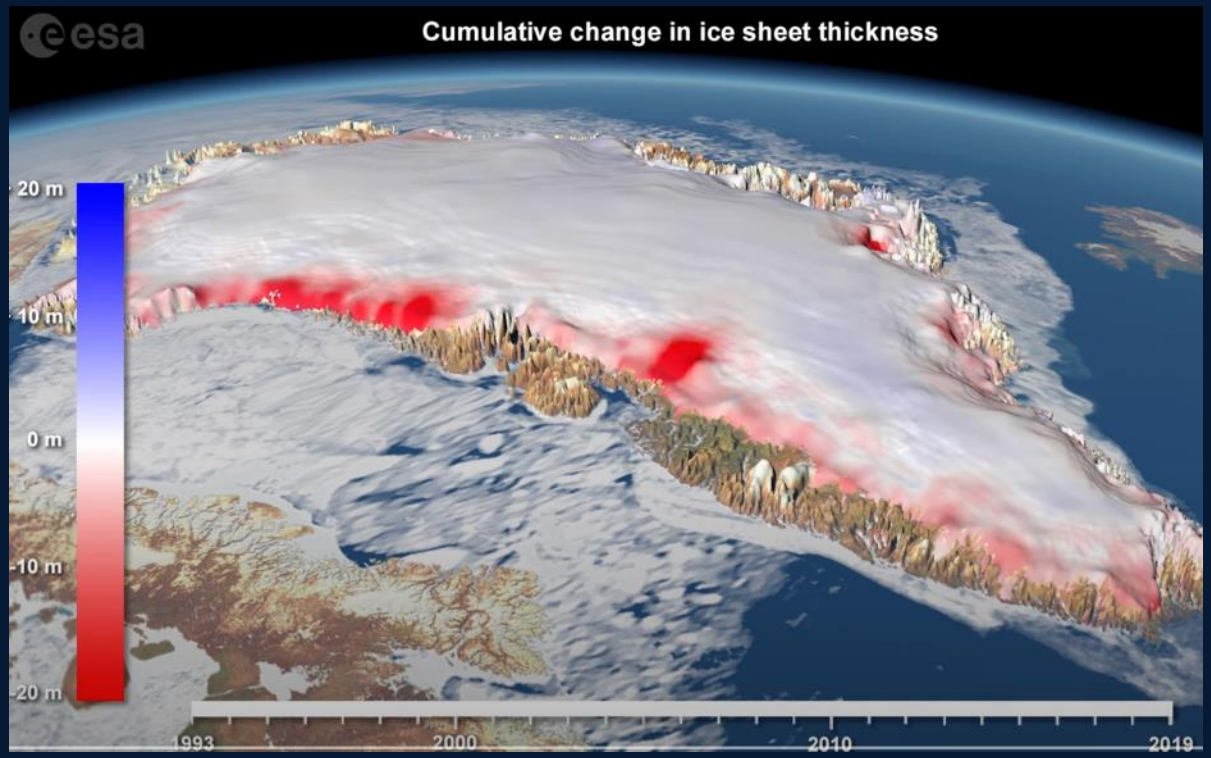
3 Rs of Global Warming: Real, Rapid and Relentless

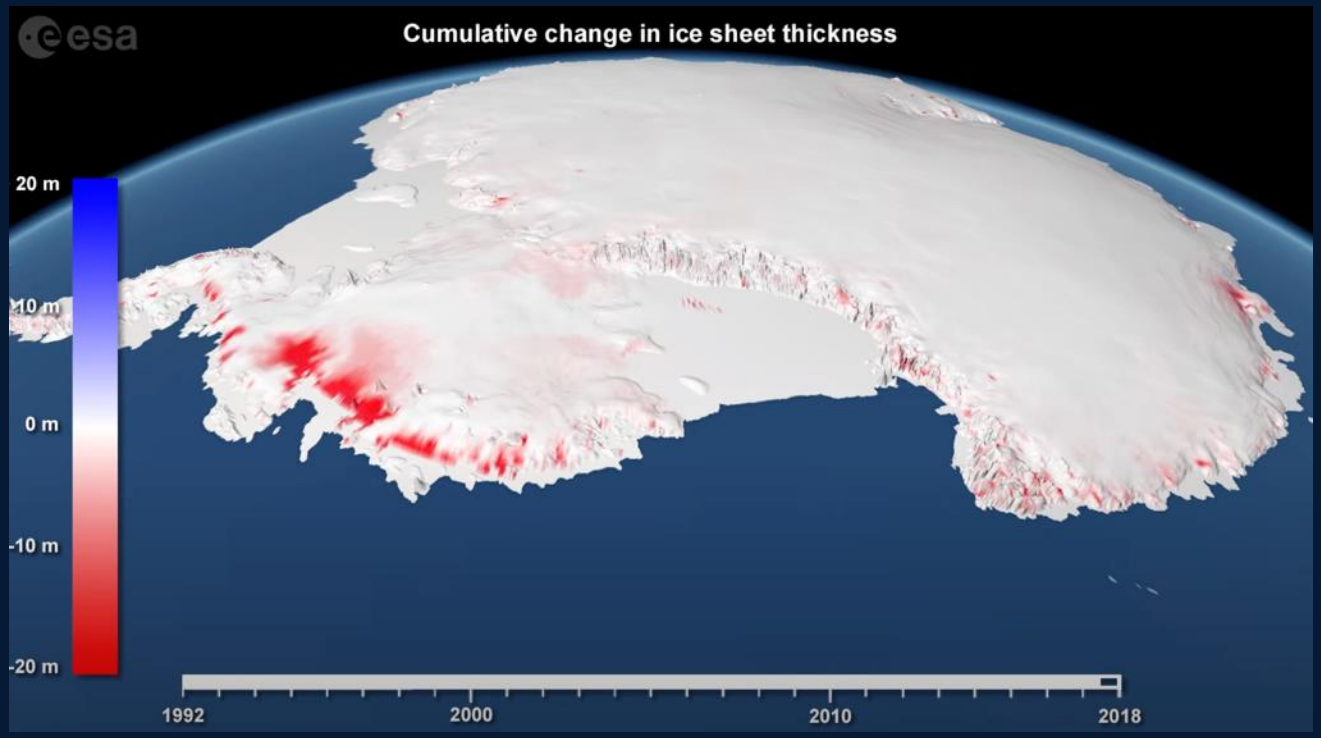


Decreasing Extent of Summer Sea Ice: 1990 versus 2020



Greenland and Antarctica are Melting, Raising Sea Level



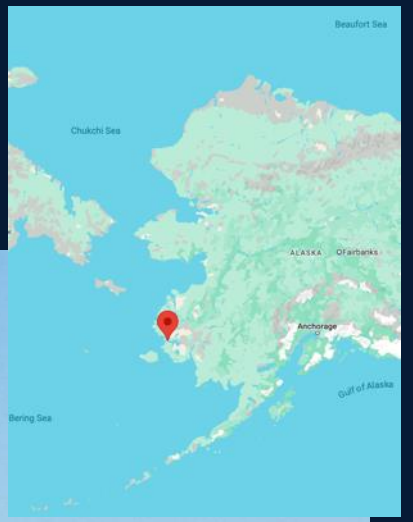


Of total global sea level rise, 23% is from icesheet melting (Greenland 15%, Antarctica 8%), 42% is thermal expansion of warming ocean, and 21% is from melting glaciers

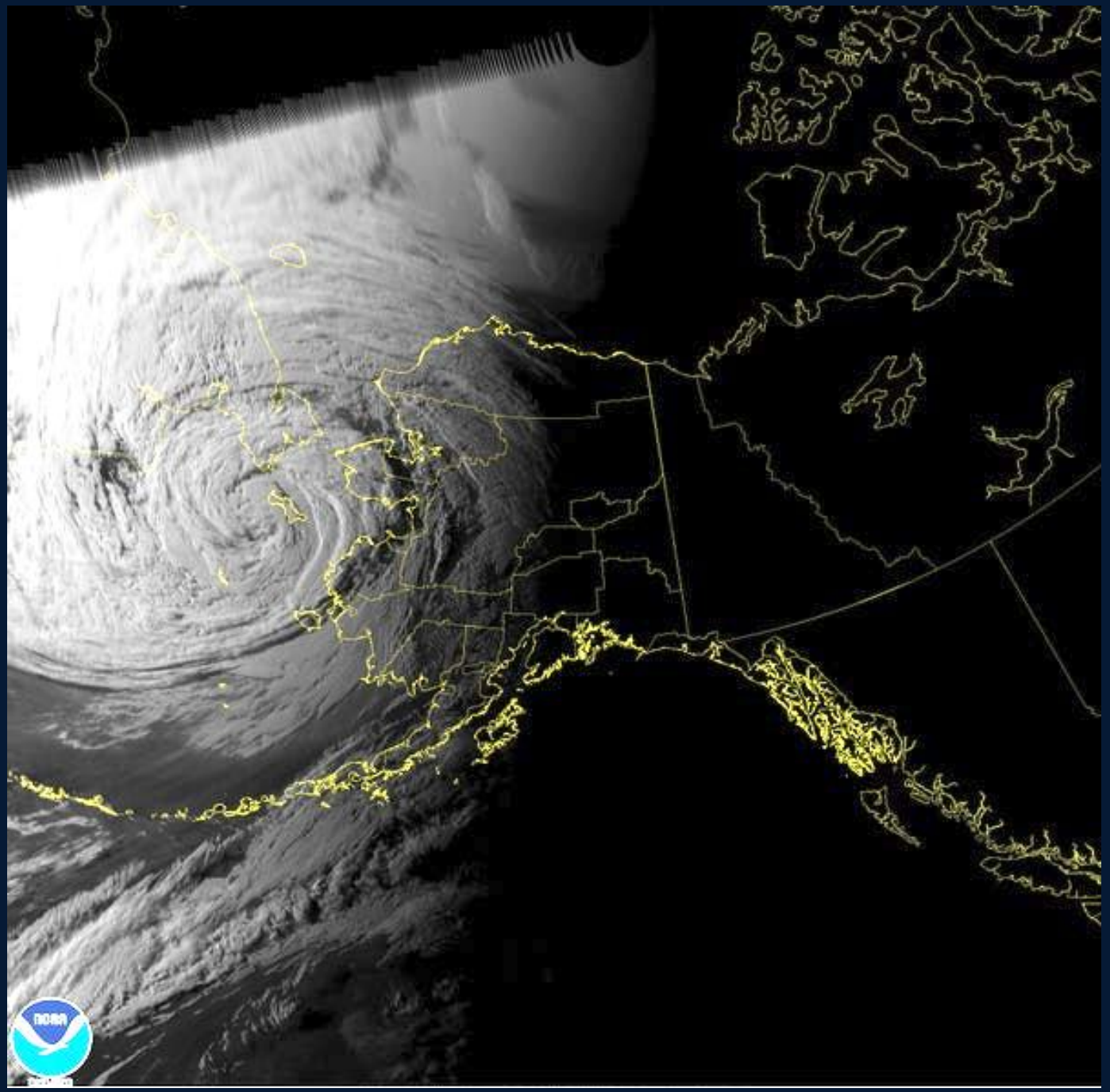
https://www.esa.int/ESA_Multimedia/Videos/2023/04/Ice_loss_from_Greenland_and_Antarctica

EWCRP Global Sea Level Budget Group: Global sea-level budget 1993–present, Earth Syst. Sci. Data, 10, 1551–1590, 2018

Permafrost erosion in Newtok, Alaska



Photos: USARC Commissioner Deborah Vo

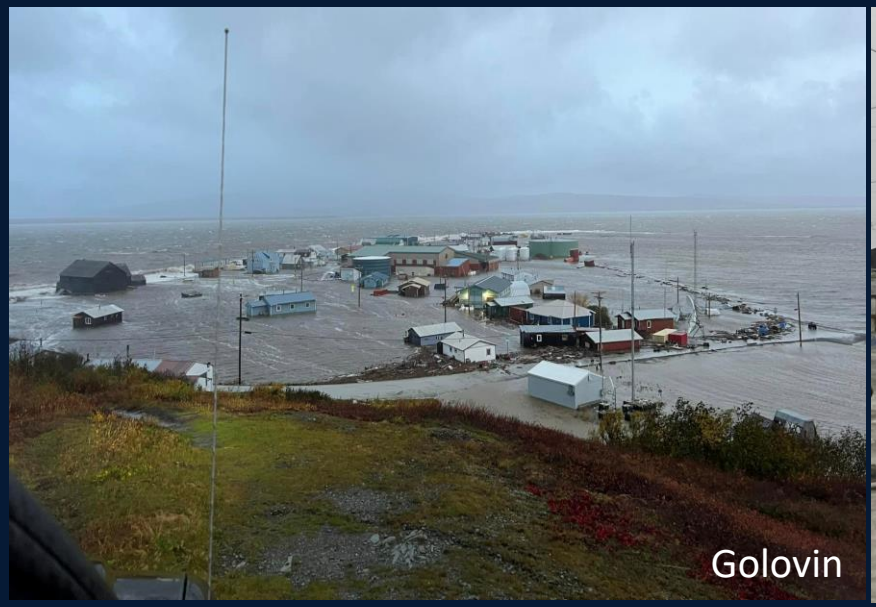


Ex-Typhoon Merbok, September 2022

Credit: NOOA

Impacts of Merbok

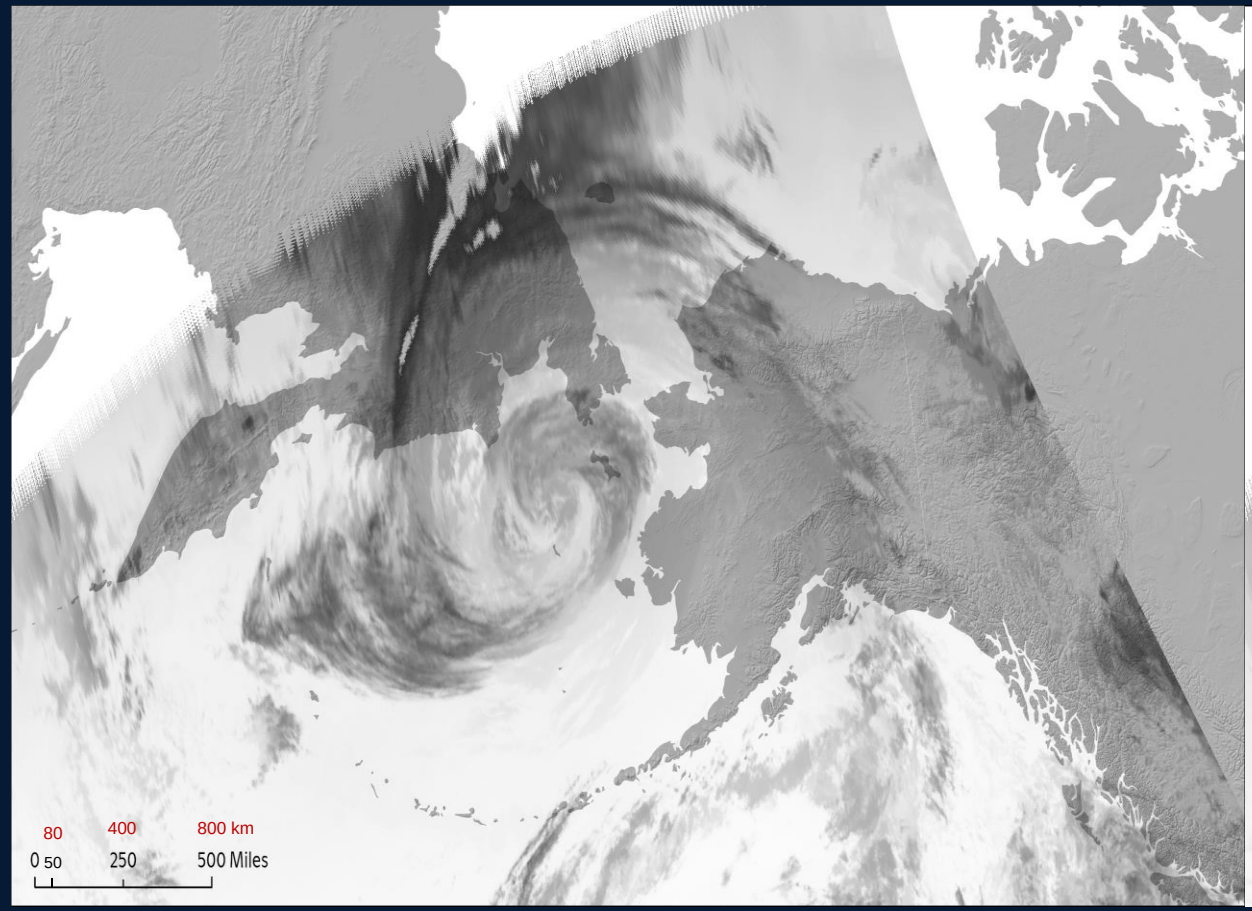
Family camps and subsistence cabins in Nome

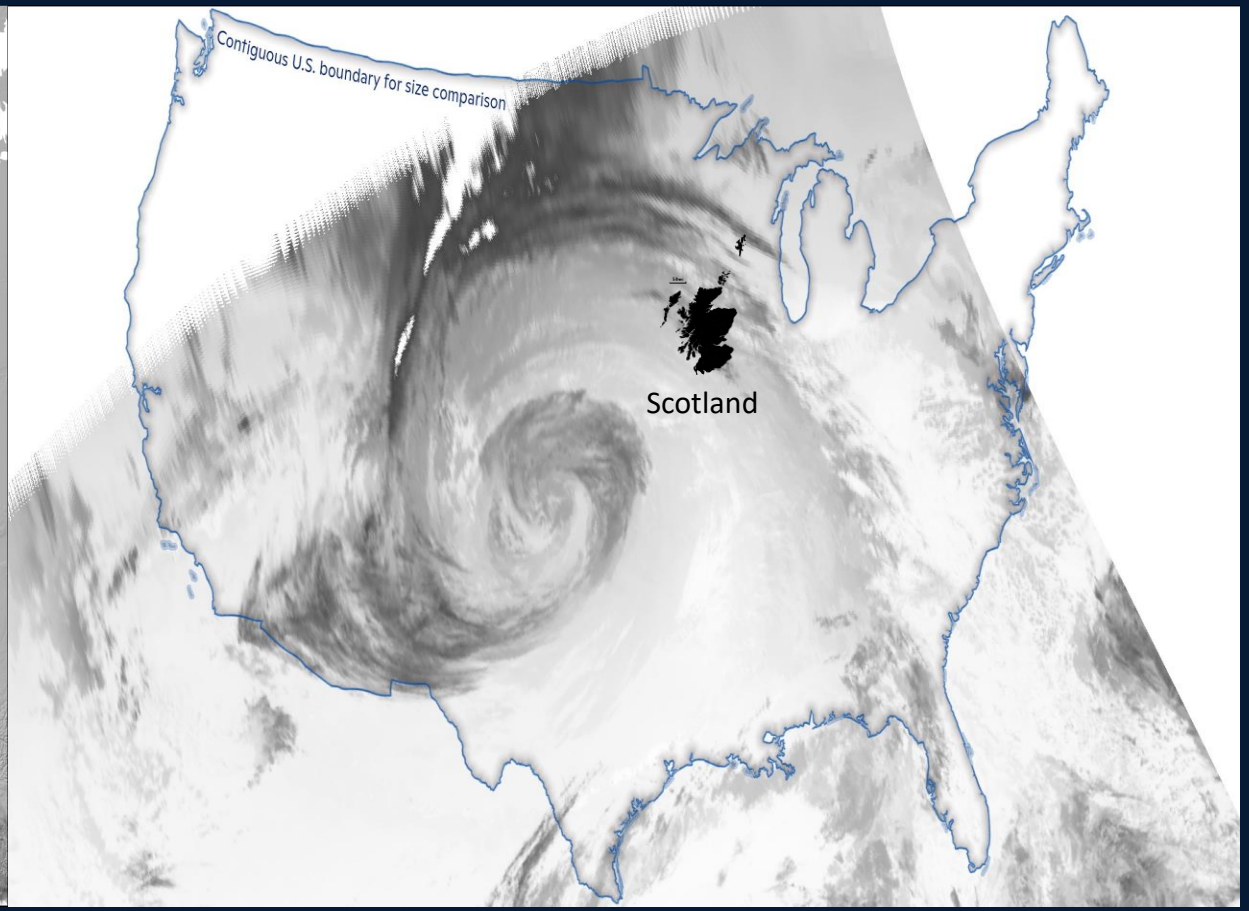

Golovin


Hooper Bay

https://permafrost.woodwellclimate.org/alaska-native-communities-face-winter-preparation-challenges-in-the-wake-of-typhoon-merbok/

How large was Merbok?





https://permafrost.woodwellclimate.org/alaska-native-communities-face-winter-preparation-challenges-in-the-wake-of-typhoon-merbok/

Four Arcs of the Arctic

North American – European Arc

As conceptualized by Dr. Mike Sfraga, Polar Institute

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Russian Federation Arc

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Atlantic Arc

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Pacific Arc

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Four Pillars of the US National Strategy for the Arctic Region

Pillar 1—Security: Develop Capabilities for Expanded Arctic Activity

Pillar 2—Climate Change and Environmental Protection: Build Resilience and Advance Adaptation, While Mitigating Emissions

Pillar 3—Sustainable Economic Development: Improve Livelihoods and Expand Economic Opportunity

Pillar 4—International Cooperation and Governance: Sustain Arctic Institutions and Uphold International Law

US Arctic Research Commissioners

David Kennedy

Dr. Mike Sfraga, Chair

Liz Cravalho

Dr. Mark Myers

Deborah Vo

Dr. Jackie Richter-Menge

Dr. Nikoosh Carlo

Dr. S. Panchanathan
Ex officio, NSF Director

5 Core Duties of the US Arctic Research Commission

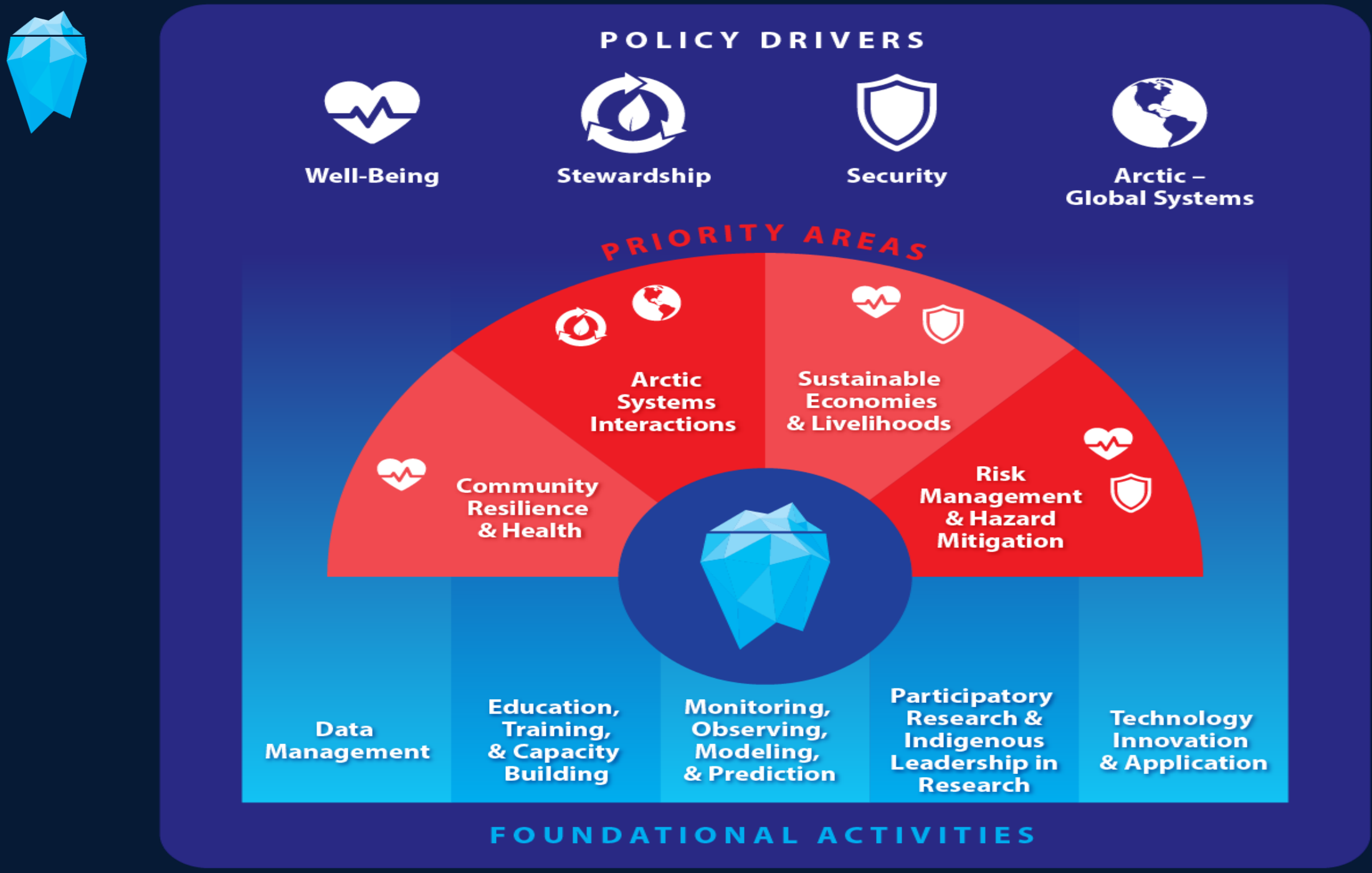
- Develops national Arctic research policy
- Facilitates Arctic research coordination
- Reviews federal Arctic research programs
- Recommends improvements for data sharing
- Facilitates cooperation w/Alaska & int'l researchers

Research Priorities

- Goal 1. Environmental Risks and Hazards
- Goal 2. Community Health and Well-Being
- Goal 3. Infrastructure
- Goal 4. Arctic Economics
- Goal 5. Research Cooperation

IARPC COLLABORATIONS

The United States and Arctic Research in the Next Two Years


POLICY DRIVERS
Well-Being
Stewardship
Security
Arctic – Global Systems
PRIORITY AREAS
Arctic Systems Interactions
Sustainable Economies & Livelihoods
Community Resilience & Health
Risk Management & Hazard Mitigation
Data Management
Education, Training, & Capacity Building
Monitoring, Observing, Modeling, & Prediction
Participatory Research & Indigenous Leadership in Research
Technology Innovation & Application
FOUNDATIONAL ACTIVITIES

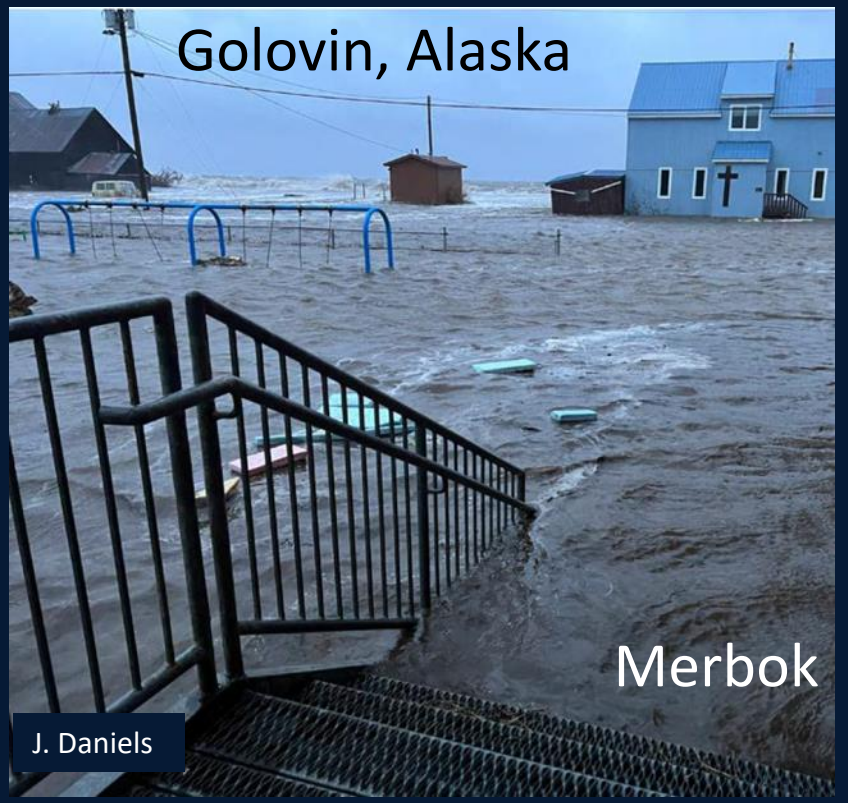
Goal 1. Environmental Risks and Hazards

Image credit: Josephine Daniels

People and Coastal Zones

- People live in coastal zones because of economics
  - Access to navigation, fisheries, subsistence, tourism and recreation
  - Critical inputs for industry (water, space), shipping of raw materials

- But coastal zones are threatened by climate change:
  - Sea level rise
  - Frequency and intensity of storm surges
  - Increases in precipitation
  - Flooding and erosion, land subsidence
  - Ecosystems degradation and coastal pollution
  - Damage to infrastructure and economic sectors



Goal 5. Research Cooperation

Image credit: Ann Fienup-Riordan

Motivation

- Arctic issues are often circumpolar and inherently transnational
- Cooperation promotes mutual values, trust, transparency, honesty, objectivity, normative behavior, & “soft power diplomacy”
- Demand for knowledge ultimately reignites cooperation (geopolitics)
- Co-production of knowledge results in genuine collective effort to increase understanding (thus follow ICC engagement standard)

Recommendations

- Expand US cooperation with Horizon Europe
- Expand and enhance bi-lateral and multilateral cooperation
- Start long-term planning for next generation Arctic icebreakers

“Four Cs of U.S. Commitment to the Arctic”

NSC/AESC - USARC - IARPC

- Continuation of Commitment to the Arctic
- Continuum of Commitment to the Arctic
- Continuity of Commitment to the Arctic
- Coordination of Commitments to the Arctic

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Nima Sarikhani/Wildlife Photographer of the Year

Thank you

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