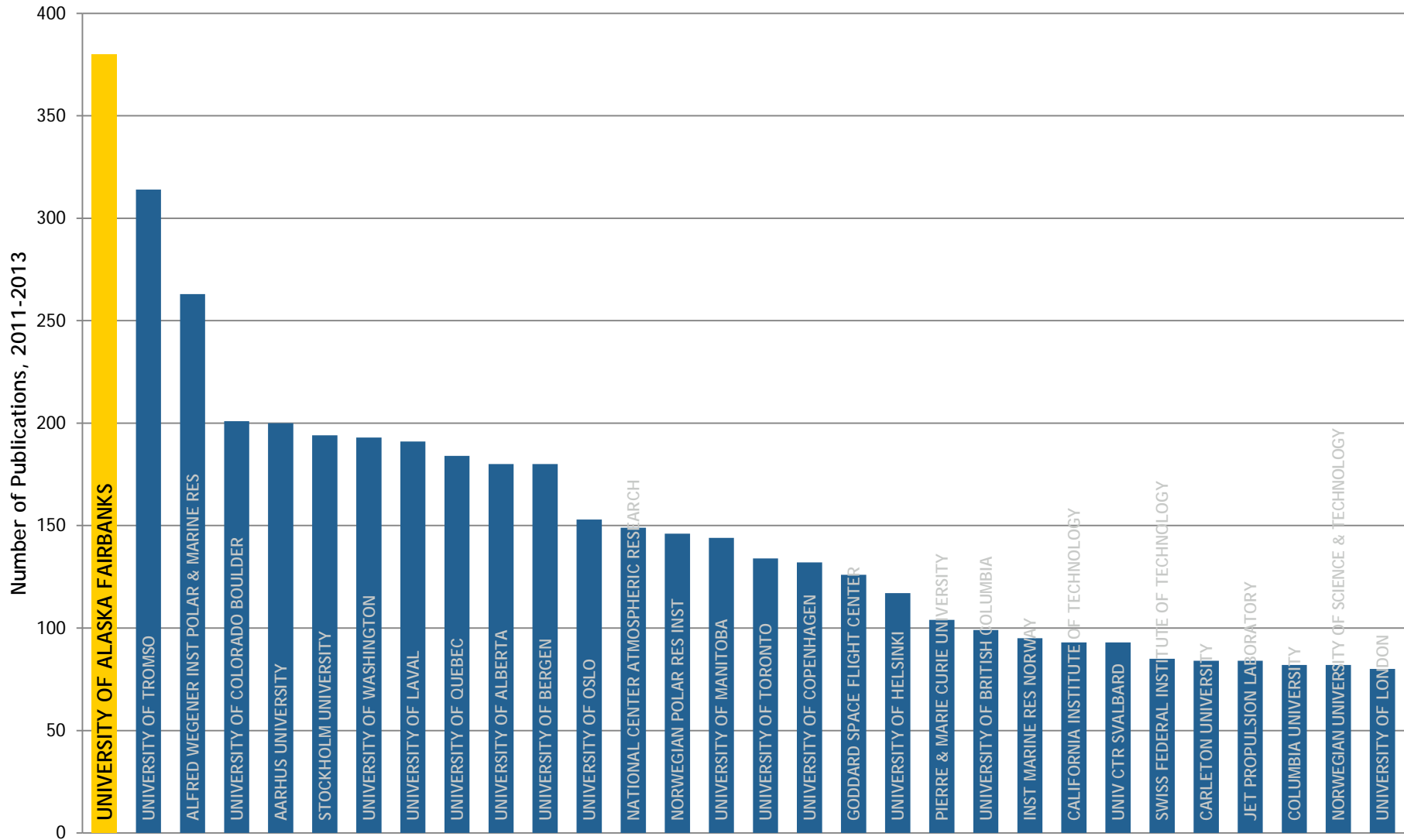




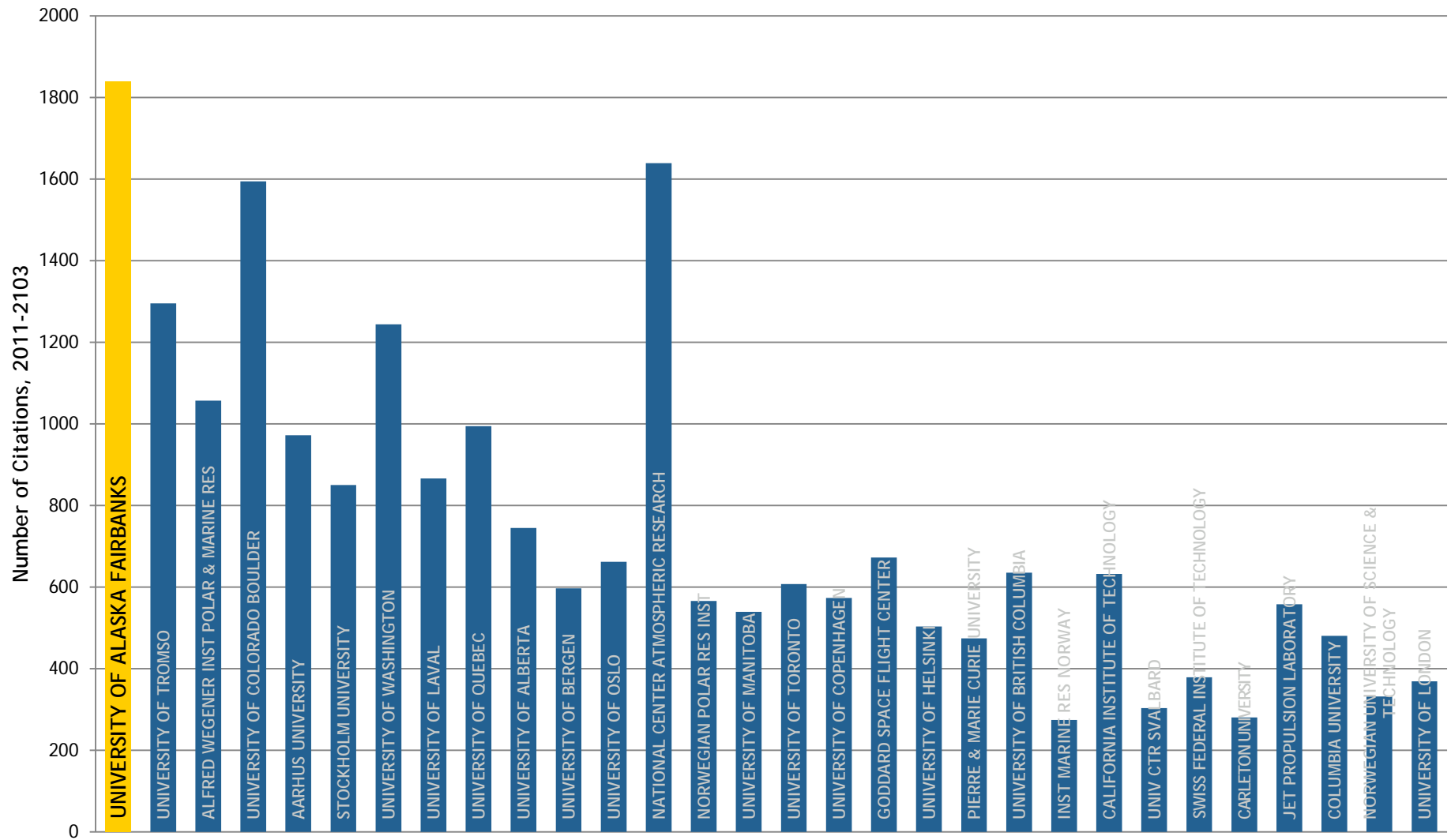
UAF Arctic Activities



Arctic Publications



Citations of Arctic Publications



UAF is active at many levels

- State
- Federal
- International



UAMN Arctic Research

Presented by
Aldona Jonaitis, Director
Patrick Druckenmiller, Curator of Earth Sciences,
Geology and Geophysics
UA Museum of the North











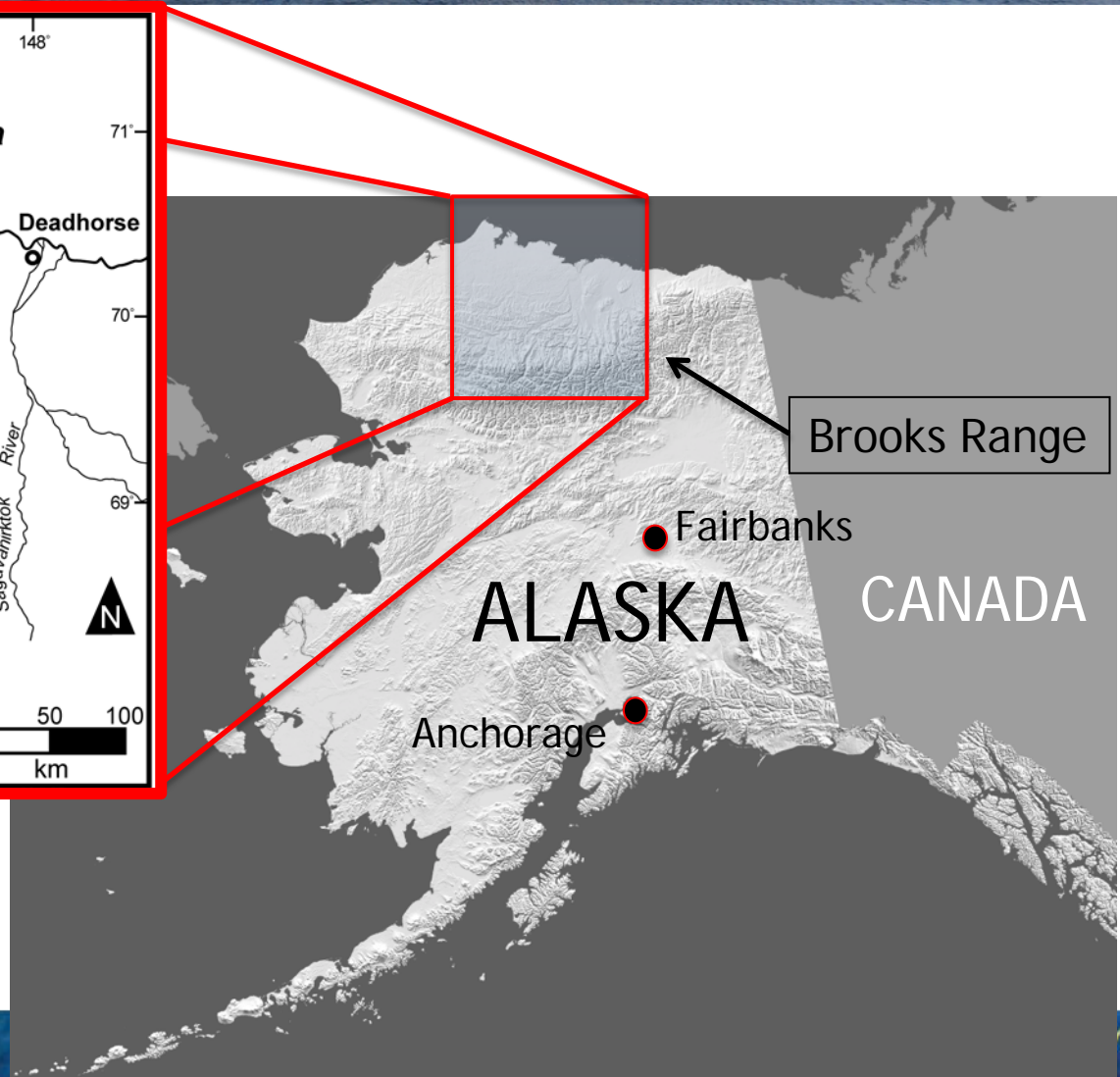
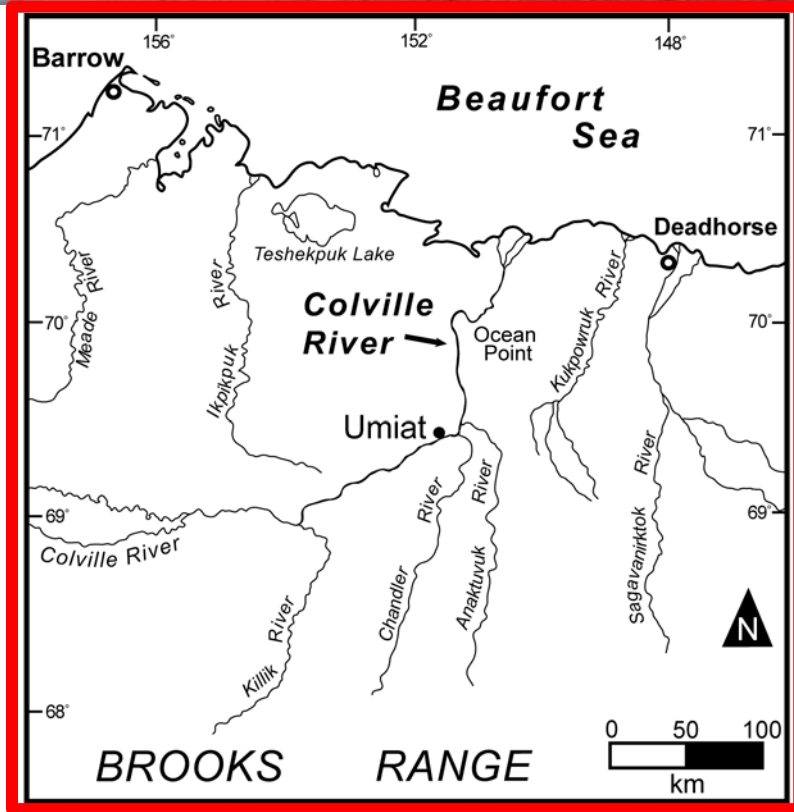
POLAR DINOSAURS FROM THE PRINCE CREEK FORMATION OF NORTHERN ALASKA

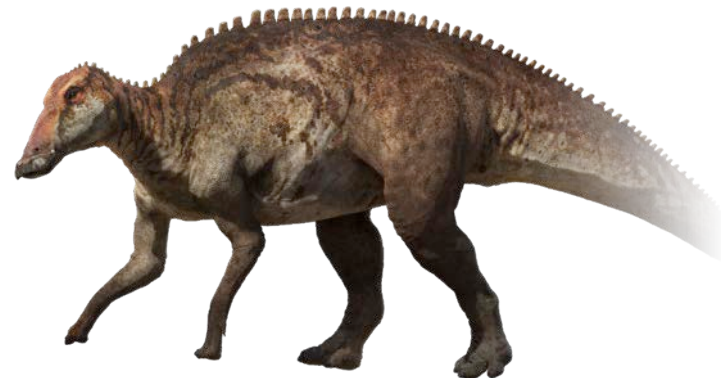
Patrick Druckenmiller

*University of Alaska Museum of the North
Department of Geology and Geophysics*



Study area: Colville River, North Slope, Alaska





Prince Creek Formation dinosaurs





North Slope, Alaska 70 million years ago

warm, polar forests...

...but extended
winter darkness





Research questions:

1. Are the Alaska polar species unique to the Arctic?
2. Did they migrate or stay put?
3. Did they have specialized physiology (warm-blooded)?

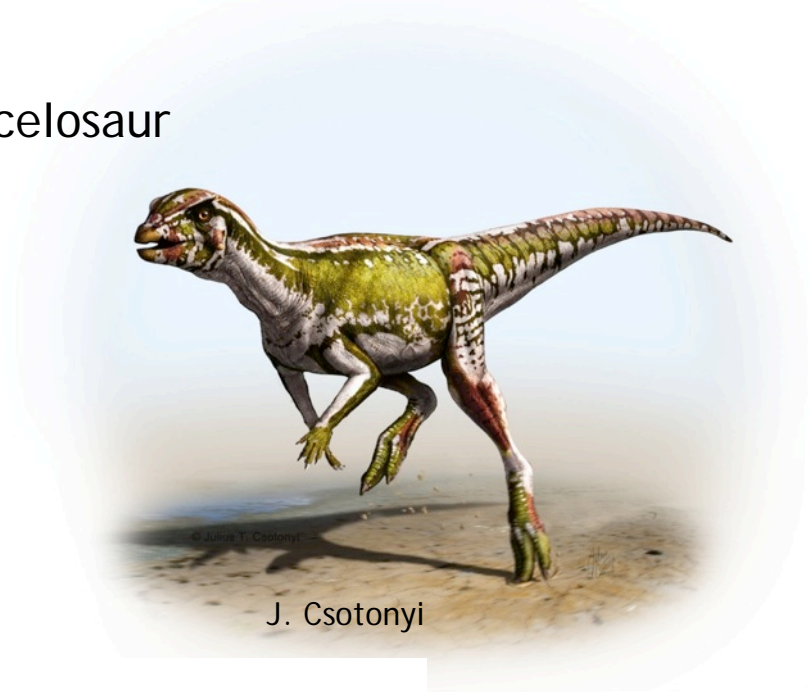
NP = North Pole

PCF = Prince Crk. Fm.



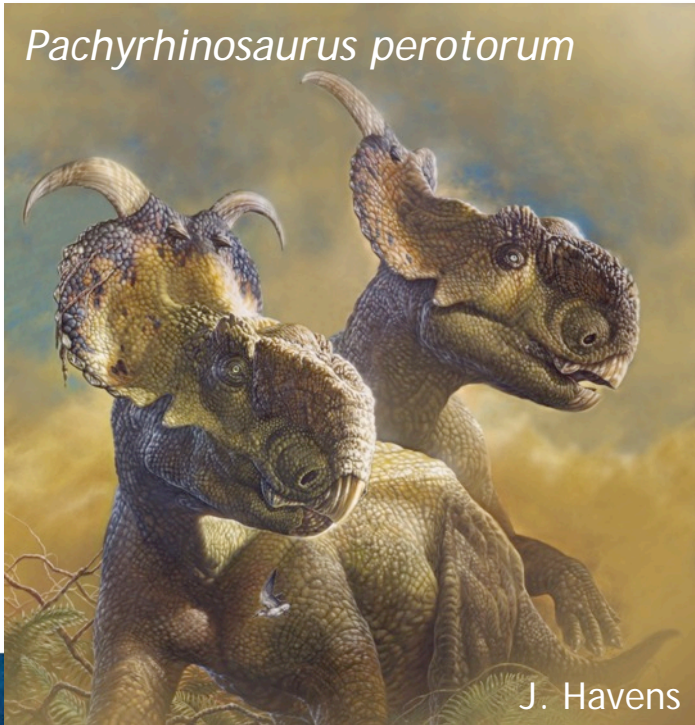
Edmontosaurus n. sp.

new thescelosaur



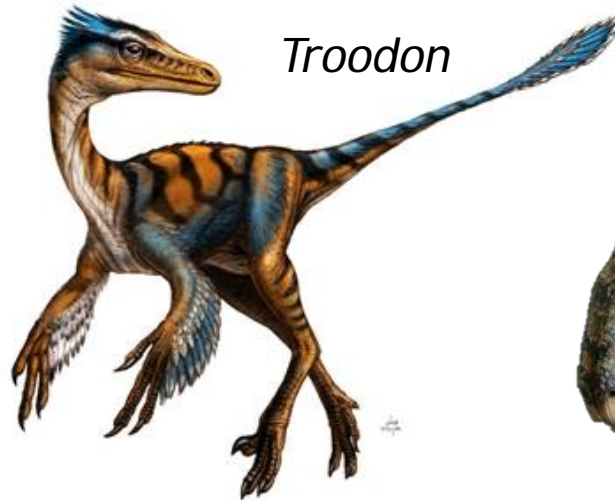
J. Csotonyi

Pachyrhinosaurus perotorum



J. Havens

Troodon

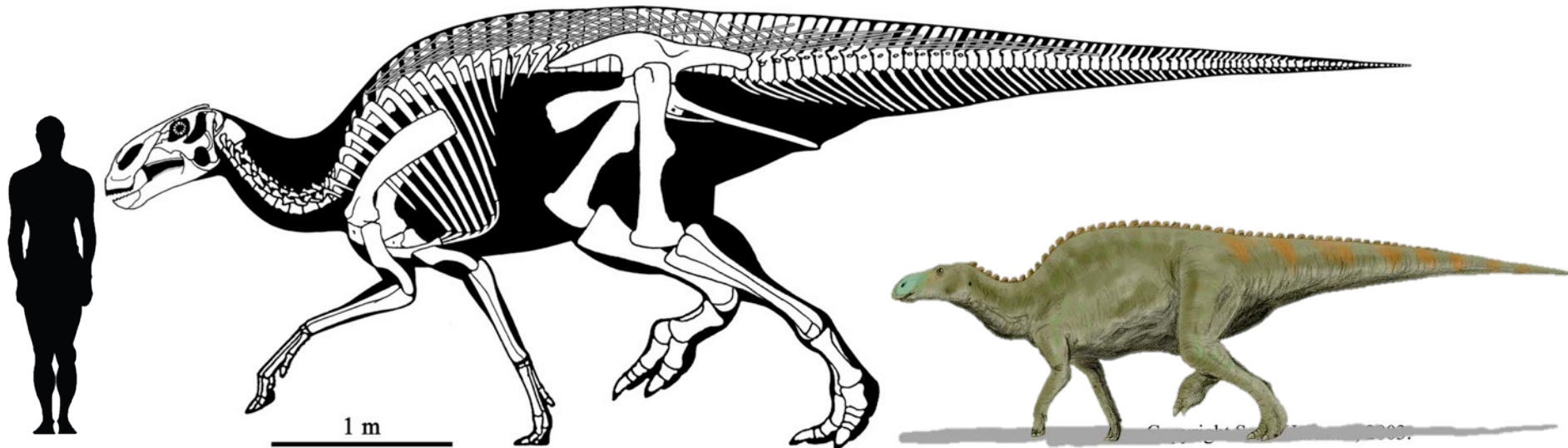


Alaskacephale gangloffii

since 1917



a new Alaska dinosaur, *Edmontosaurus* n. sp.



¹Paanjaqtat Province

(Iñupiaq - “up North” or “North Slope”)



Outreach:

Collaboration with North Slope Borough School District





SNAP's Engagement in the Arctic

Presented by
Scott Rupp, Director,
Scenarios Network for Alaska and
Arctic Planning



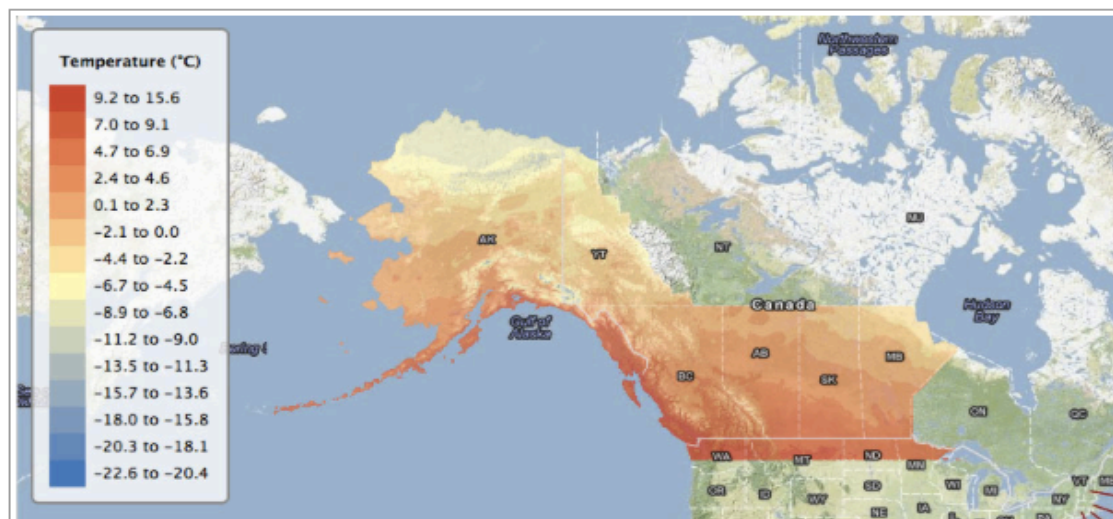
Exploring our future in a changing Arctic

[contact](#) | [blog](#)

SNAP is striving to implement useful climate data visualizations that make sense. The new map tool, with its interactive titles, forms the basis for future data and mapping enhancements.

open the map >>

1 2 3 4 5 6

**SNAP**

We develop plausible **scenarios** of future conditions through a diverse and varied **network** of people and organizations, which allow better **planning** for the uncertain future of Alaska and the Arctic.

What we do

SNAP is all [about](#) helping people plan in a changing climate. We work with a wide range of partners and [collaborators](#) on many [projects](#) to explore a range of possible futures based on the best scientific knowledge and [data](#) available. SNAP also strives to make our [resources](#) available and our [methods](#) known. SNAP has a strong partnership with [ACCAP](#) that allows us to leverage each other's strengths in order to inform a broad audience.

Community Charts: Fairbanks, Alaska

To load a chart, type your community's name:

Fairbanks, Alaska

Data Set

Temperature

Precipitation

Units

°F

°C

Emissions Scenario

Low (B1)

Medium (A1B)

High (A2)

?

Inter-Model Variability

Off

On

?



SNAP has created charts for communities in the area shown above.

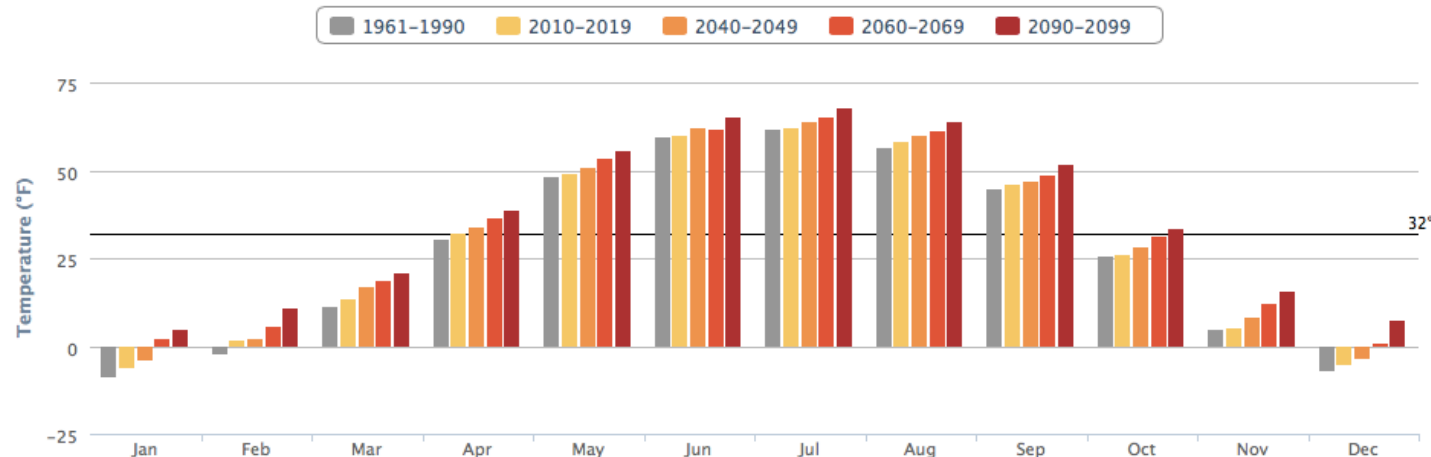
In cooperation with:



Export

Average Monthly Temperature for Fairbanks, Alaska

Historical PRISM and 5-Model Projected Average, Mid-Range Emissions (A1B)



Due to variability among climate models and among years in a natural climate system, these graphs are useful for examining trends over time, rather than for precisely predicting monthly or yearly values. For more information on derivation, reliability, and variability among these projections, please visit www.snap.uaf.edu.

Historical Sea Ice Atlas

Alaska sea ice, mid-1800s to the present

[Explore](#)

A joint project funded by the Alaska Ocean Observing System (AOOS), the Alaska Center for Climate Assessment and Policy (ACCAP), and the Scenarios Network for Alaska and Arctic Planning (SNAP)



Use this Atlas

History, planning, and uncertainty

[About](#)



Download data

Use these data for your own analyses

[Download](#)



Learn about sea ice

Common terms and phenomena explained

[Glossary](#)

Partners and funding. Funded by the National Ocean Service (NOS) at the National Oceanic and Atmospheric Administration (NOAA) through **AOOS** grant #NA11NOS0120020. Work was performed by University of Alaska Fairbanks (UAF) research institutes **ACCAP** (funded by the NOAA Office of Oceanic and Atmospheric Research) and **SNAP**, with assistance from the University of Illinois, Urbana-Champaign. **Legal and contact information.** See [Disclaimer](#), [Terms of Use](#) and [Credits](#). Please [contact us](#) if you are with a for-profit organization, and are interested in commercialization opportunities and/or collaborative research & development activities. **Copyright** © 2014 ACCAP and SNAP.

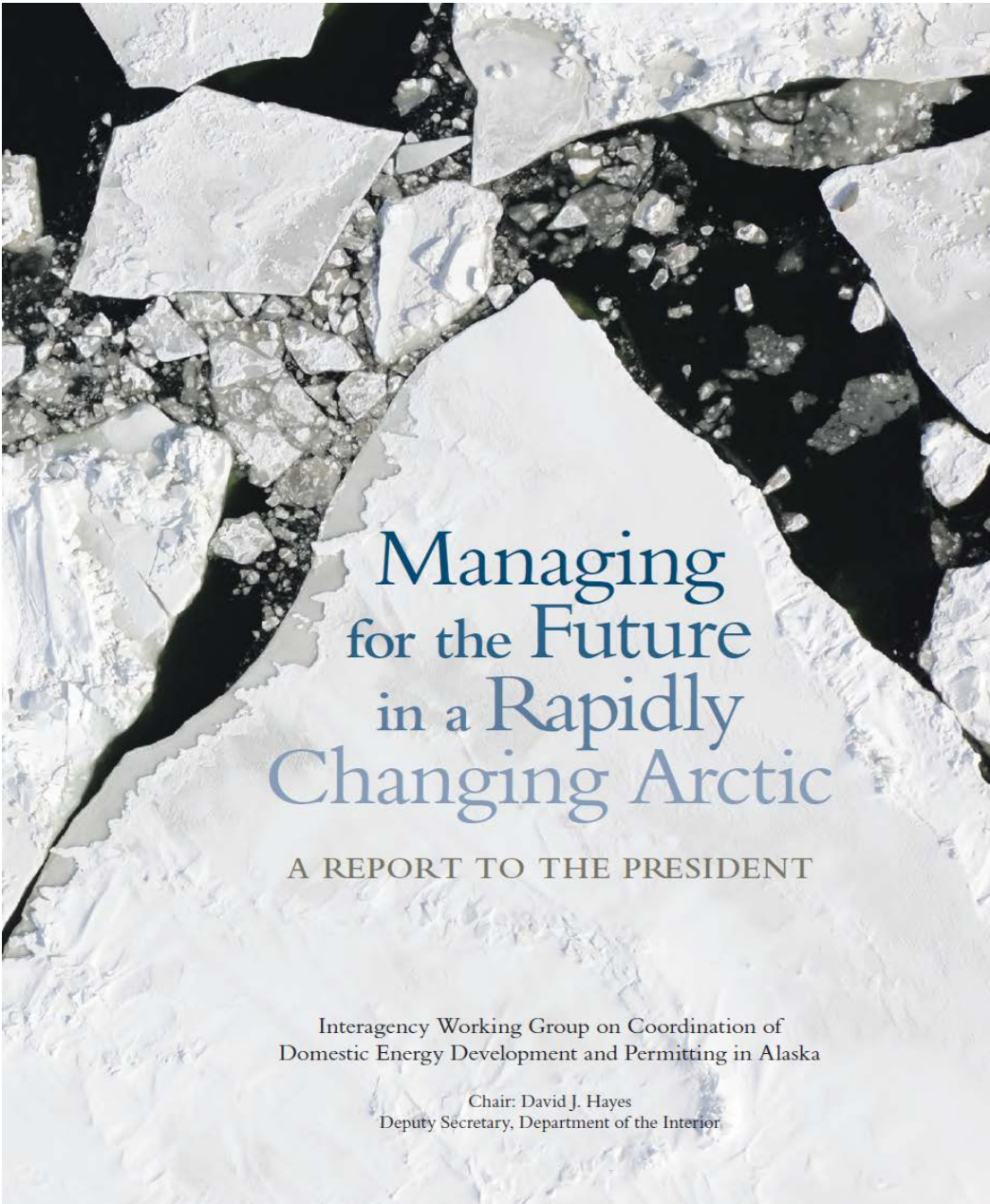
The University of Alaska Fairbanks is an affirmative action/equal opportunity employer and educational institution.

Alaska's Climate Change Strategy: Addressing Impacts in Alaska



*Final Report
Submitted by the Adaptation
Advisory Group to the Alaska
Climate Change Sub-Cabinet*

January 2010



Managing for the Future in a Rapidly Changing Arctic

A REPORT TO THE PRESIDENT

Interagency Working Group on Coordination of
Domestic Energy Development and Permitting in Alaska

Chair: David J. Hayes
Deputy Secretary, Department of the Interior

The United States National Climate Assessment— Alaska Technical Regional Report

Circular 1379

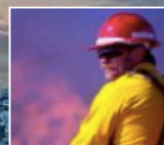
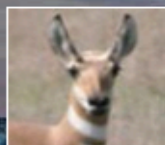
U.S. Department of the Interior
U.S. Geological Survey



*Climate Change in Alaska's
National Park Areas*

State *of* Change

DRAFT - DO NOT DISTRIBUTE



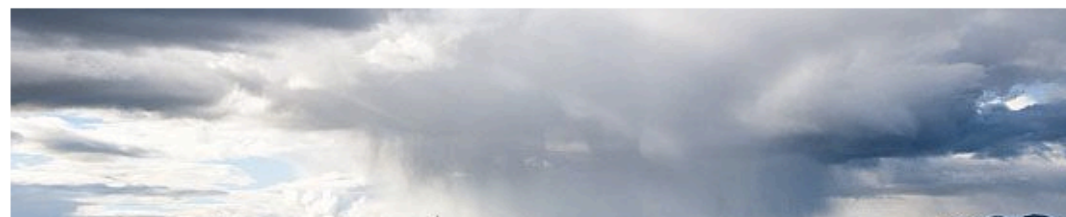
[BLM](#)>[More BLM Programs](#)>[Landscape Approach](#)>[Rapid Ecoregional Assessments](#)>[Central Yukon](#)

[Print Page](#)

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- [+ Contact Us](#)



Landscape Approach

- [Rapid Ecoregional Assessments \(REA\)](#)
- [Ecoregional Direction](#)
- [Monitoring for Adaptive Management](#)
- [Public Involvement](#)
- [Related Documents](#)
- [Landscape Approach Q&A](#)
- [AIM Q&A](#)
- [AIM Documents](#)



Locations of Rapid Ecoregional Assessments (REAs)

Legend

Ecoregion(s) in REAs*

* Locations of REAs (indicated by solid colors) are defined by one or more ecoregions. Ecoregions are based on Omernik Level III Ecoregions and Unified Ecoregions of Alaska. Hatched areas of ecoregions were not assessed.



BLM/Alaska Photo by Craig McCaa

Rainstorm in Brooks Range, Alaska

Assessment (REA)

Conservation Elements | Change

Work scheduled to begin in [redacted] and to be completed by mid-2014. [redacted] (workplan) will be completed by the [redacted] used to identify the scope of any [redacted] ports section for a list of scheduled [redacted] they become available.

Rapid Ecoregional Assessments (REA)

- [Central Basin and Range](#)
- [Central Yukon](#)
- [Chihuahuan Desert](#)
- [Colorado Plateau](#)
- [Madrean Archipelago](#)
- [Middle Rockies](#)
- [Mojave Basin and Range](#)
- [North Slope](#)
- [Northern Great Basin](#)
- [Northwestern Plains](#)
- [Seward Peninsula](#)
- [Sonoran Desert](#)
- [Southern Great Plains](#)
- [Wyoming Basin](#)
- [Yukon Kuskokwim](#)
- [REA Documents](#)
- [REA Data Portal](#)
- [REA Location Map](#)
- [REA Q&A](#)
- [REA Training Resources](#)



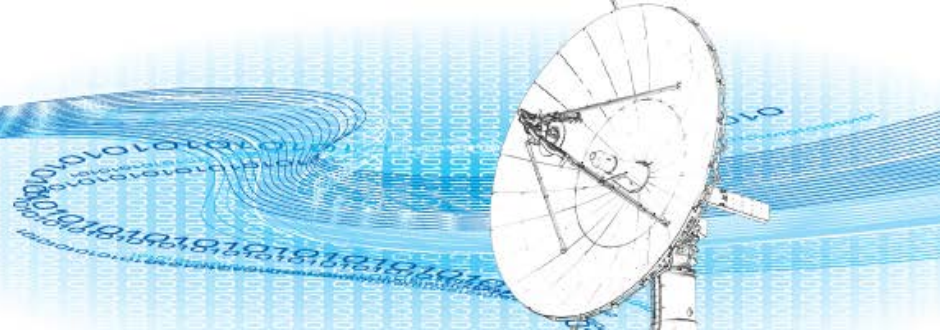
Arctic Domain Awareness at UAF

Presented by
Nettie La Belle-Hamer
AVCR and ASF Director

The Arctic Challenge

- Geology
- Physical geography
- Ecosystems and rate of ecosystem change
- Culture
- Infrastructure and access
- Climate and weather
- Data availability — depth, breadth and length of record

UAF has significant expertise and experience in the Arctic



Operated by the Geophysical Institute at the University of Alaska Fairbanks since 1991

- ASF SAR data center: one of 12 NASA data centers, ~\$8M/yr
- Satellite tracking station: NASA ground network, ~\$2M/yr
- ASF Enterprise: high-level remote-sensing applications
- GeoData Center: PI-generated data



ASF's growing capacity



AS1 (11m), AS2 (10m), AS3 (11 m)

Photo by Jeff Beiderbeck.



UAF1 (7.3m)

Photo by ViaSat.

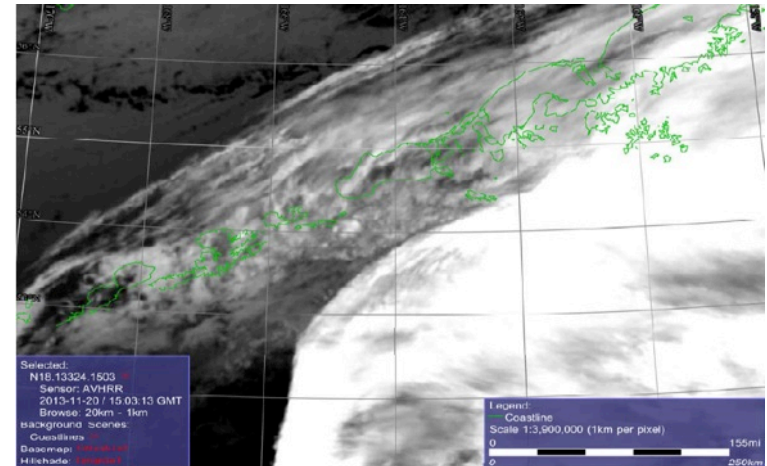


UAF2 (9.1m)

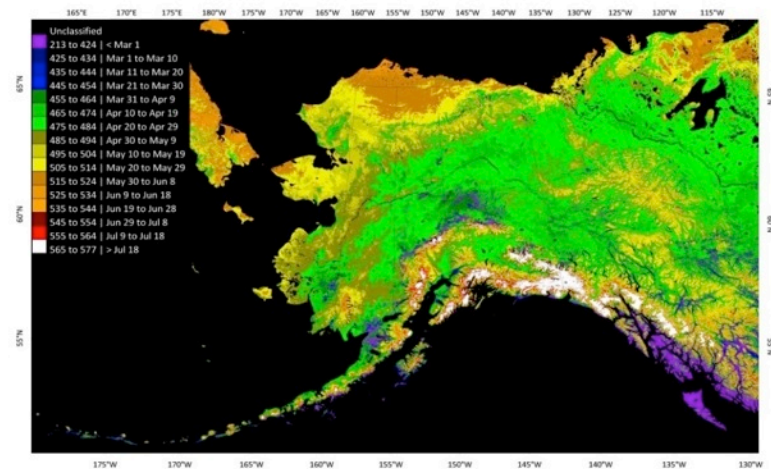
Photo by Jeff Beiderbeck.

GINA

- Federal agencies such as USGS, NOAA and NASA rely on GINA to provide them map data for Alaska.
- 29 million of GINA's map requests are from federal, local and tribal governments, the private sector and the general public.



Sample AVHRR image from GINA archive



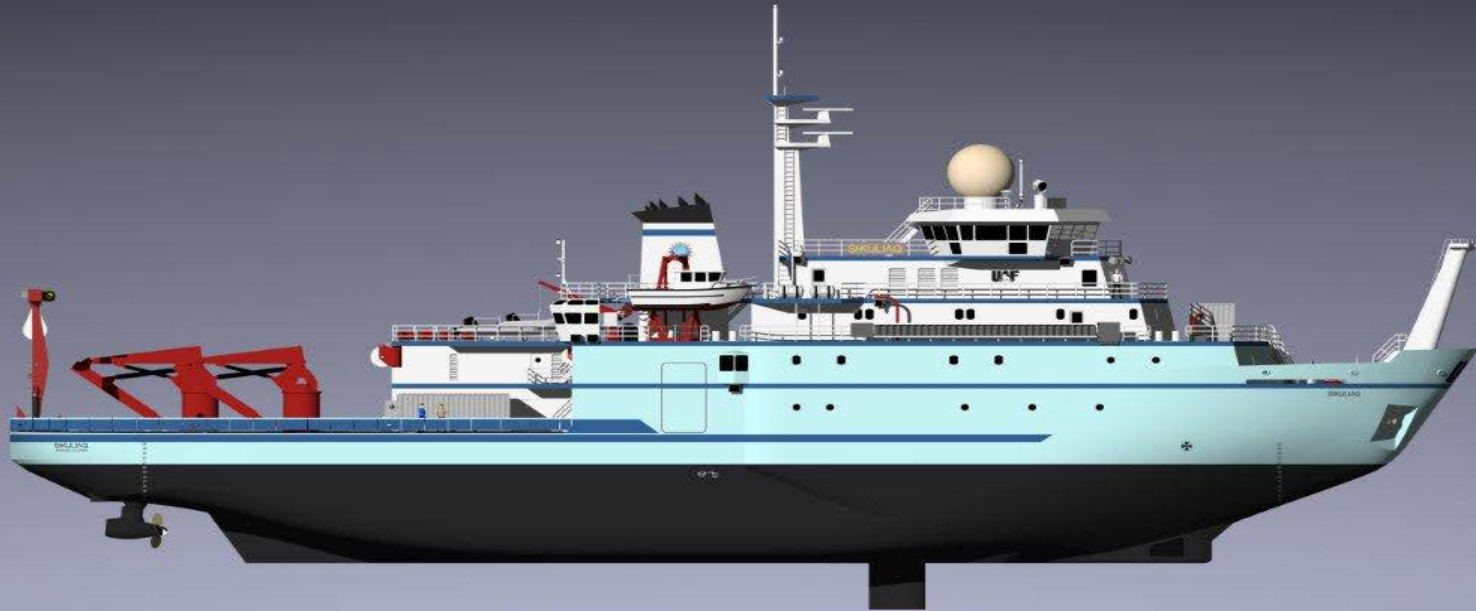
Sample MODIS image from GINA archive



SFOS/UAF Autonomous Remote Technology lab

- Operates three Webb Slocum Autonomous Underwater Vehicles (AUV) gliders
- Nonpropelled, autonomous, quiet, low-power, long-endurance specific AUV → up to ~ 3 month missions using lithium batteries
- Two-way real-time Iridium satellite communication → mission change on the fly + relay data to scientists, numerical models and decision makers
- Unique, high-resolution (vertical and horizontal) surface-to-bottom data coverage

A New, Ice-Capable Asset For Arctic Studies

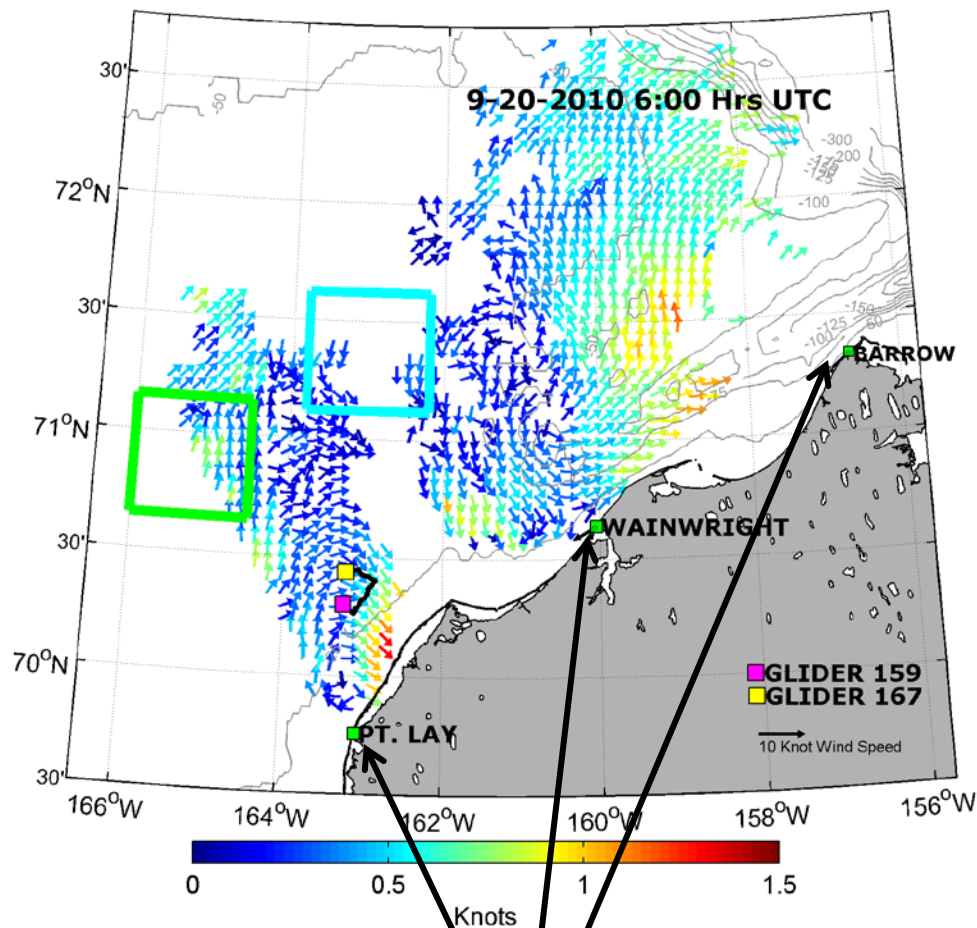


R/V *SIKULIAQ*

The *Sikuliaq* will allow researchers:

- To collect sediment samples directly from the seafloor
- Host remotely operated vehicles
- Use a flexible suite of winches to raise and lower scientific equipment
- Conduct surveys throughout the water column and sea bottom

Chukchi Sea, Alaska CODAR Measurement (depths in meters)



~4MHz

Shore-based power available

Coastal radar map surface
(upper 1 m) currents:

- hourly
- over broad areas (~175 km) at 6-km resolution
- real-time access via the web
- easily understandable
- cost-effective

To guide open-water response to marine spills (and other purposes).

Funded by:
BOEMRE, Shell, and ConocoPhillips

ACUASI



UAF Geophysical Institute: Poker Flat Research Range

Arctic Center for Oil Spill Research and Education

UAF's A-CORE seeks to bring together:

- Communities
- Educators
- Private investors
- NGOs
- Oil and shipping industry
- Government agencies

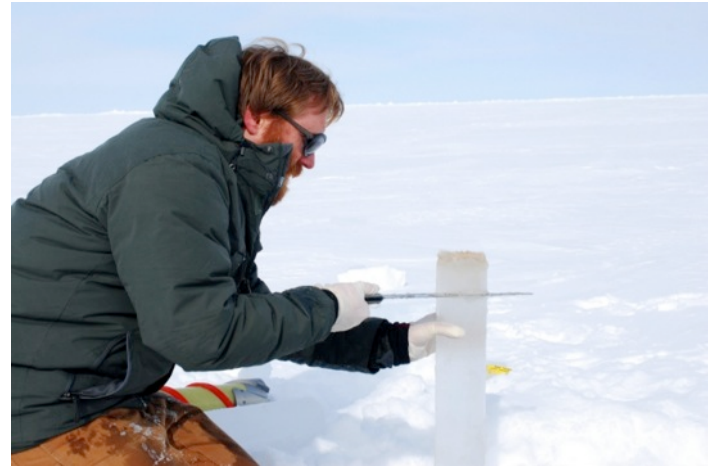
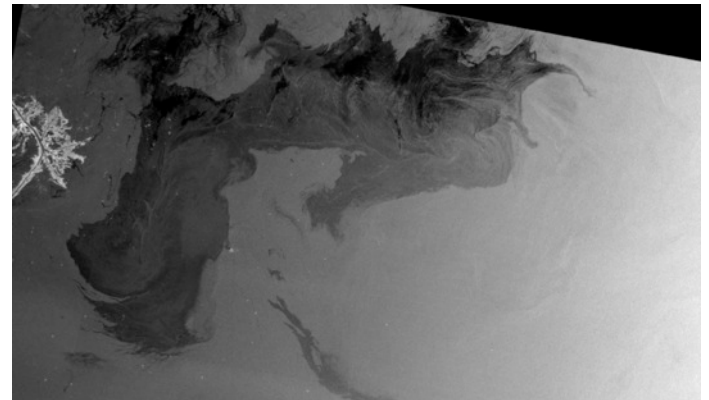


Photo courtesy of Eric Collins, SFOS



Deepwater Horizon oil spill as detected with SAR



C-SSHRP NorthCOM MOU

Presented by

Cam Carlson, Director

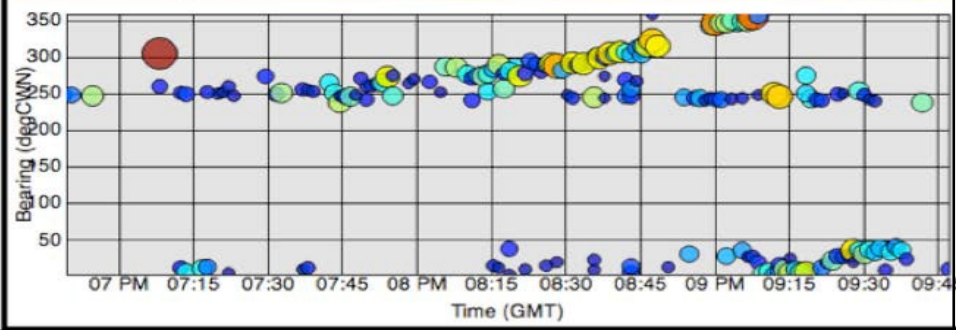
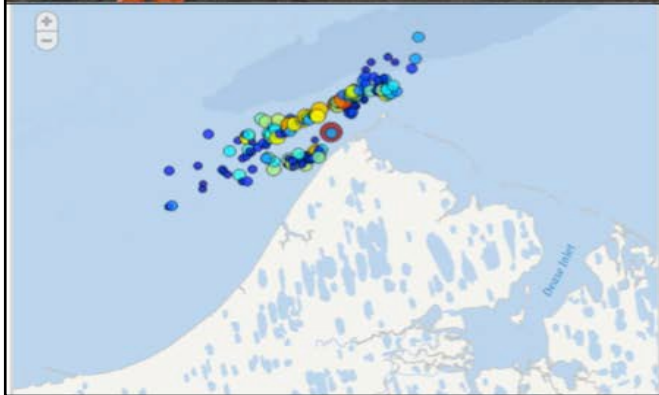
Center for the Study of Security, Hazards, Response and
Preparedness

Harry Bader, Director

Center for Island, Maritime and Extreme Environment Security



NATIONAL CENTER FOR ISLAND, MARITIME,
& EXTREME ENVIRONMENT SECURITY



Arctic Domain Security Orientation

University of Alaska Fairbanks

Center for the Study of Security, Hazards, Response and Preparedness (C-SSHRP)

Arctic Domain Security Orientation aka Arctic 101

Program development team:

Cameron Carlson — *Alaska PI and director, UAF HSEM Program*

Harry R. Bader — *Alaska PI CIMES*

Troy Bouffard — *UAF grad student*

Arctic instruction development highlights:

- Scalable curriculum and presentations
- Full-spectrum overviews (domain awareness)
 - The Arctic defined: science and political variations
 - Policies, strategies and security
 - Systemic, domestic and individual analysis
 - Arctic economic, social, military and political perspectives
- International relations and governance
- Comprehensive deliverables
- Direct access to leading experts and resources
- * Current focus is in supporting DoD (USNORTHCOM and JTF Alaska, Arctic Collaborative Workshop, UAF, April, 2014)



UAF Presence at AGU

Presented by
Bob McCoy, Director
Geophysical Institute

American Geophysical Union Fall Meeting 2013

- 2013 was largest UAF presence in 40+ years
- 52 talks and 116 posters





Live from D.C.

Presented by
Cathy Cahill
Professor of Chemistry/Biochemistry
Geophysical Institute

UAF Providing Scientific Support. Senate Energy & National Resource Committee

— Live from Washington D.C. —

Cathy Cahill
Congressional Fellow





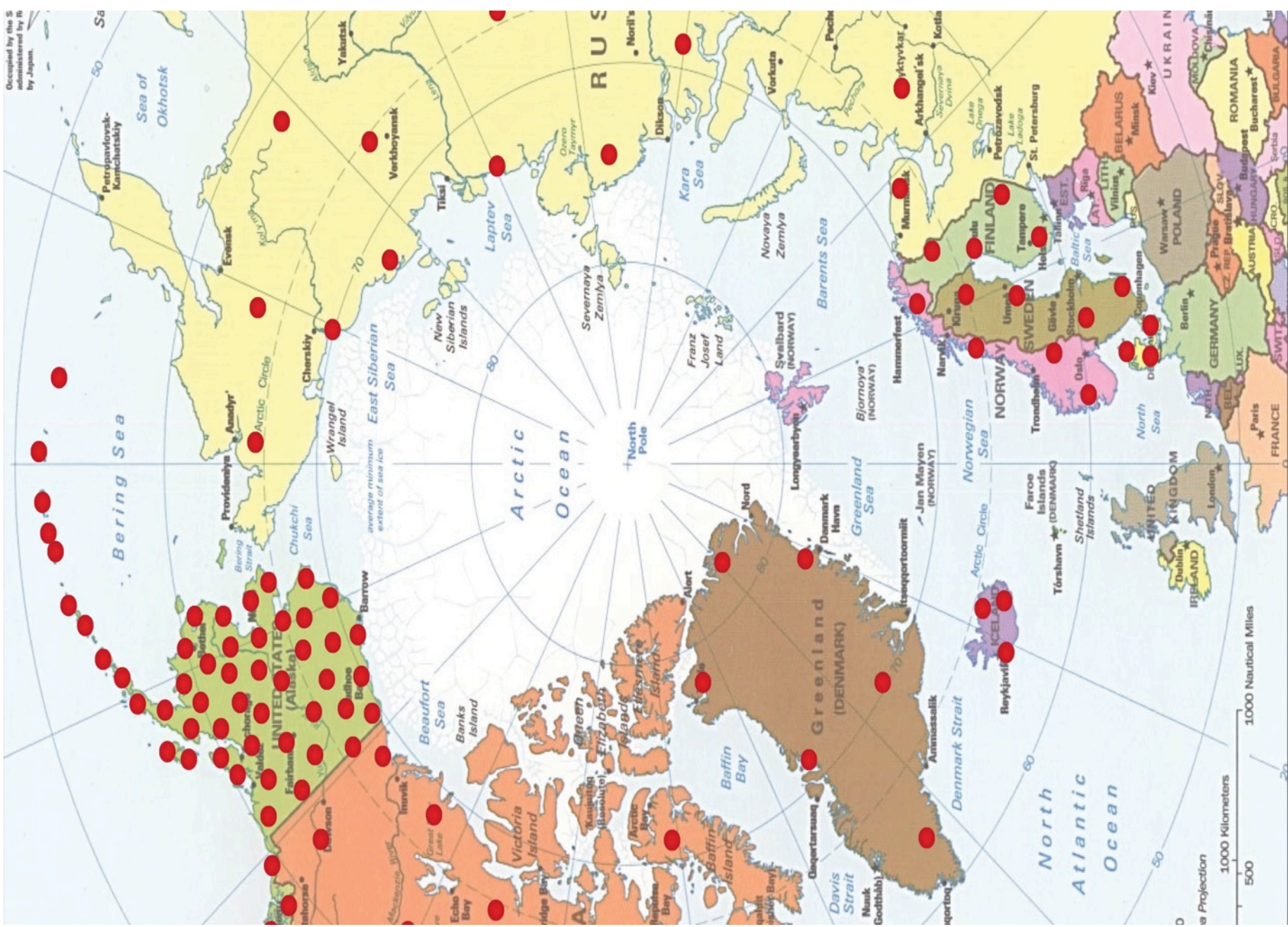
Arctic Council

Presented by

Mark Myers

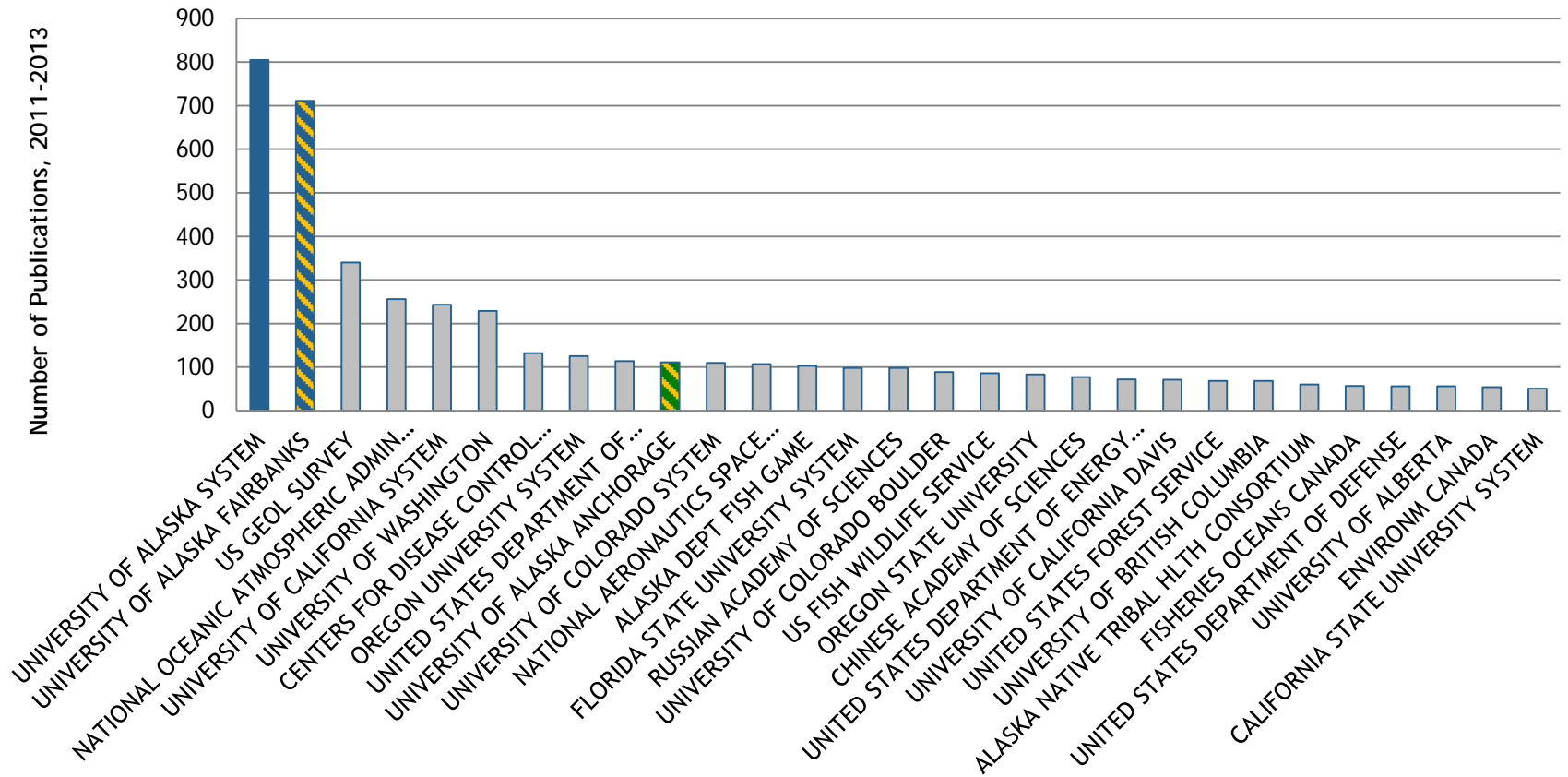
Vice Chancellor for Research

Occupied by the S
administered by R
by Japan.

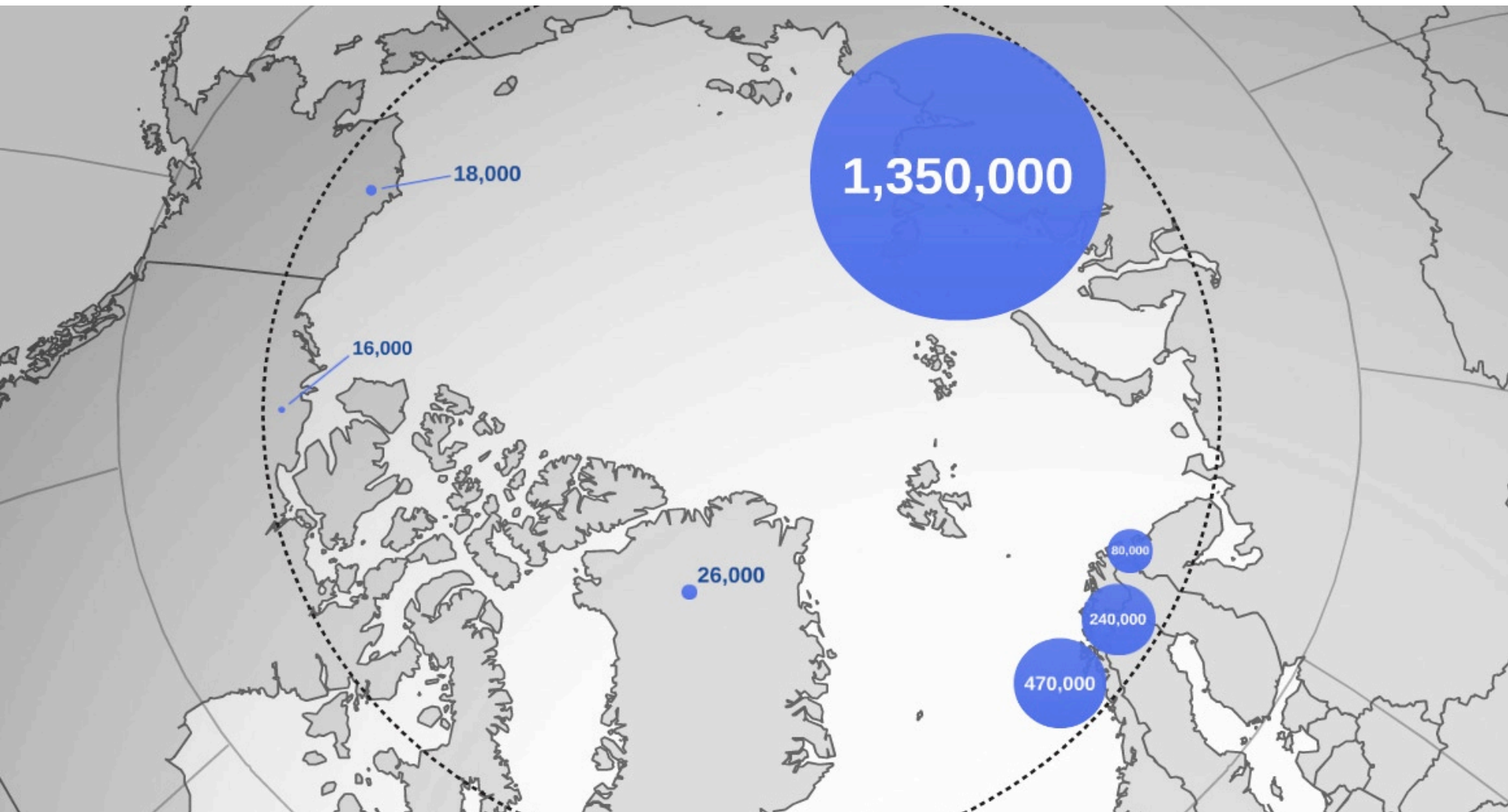


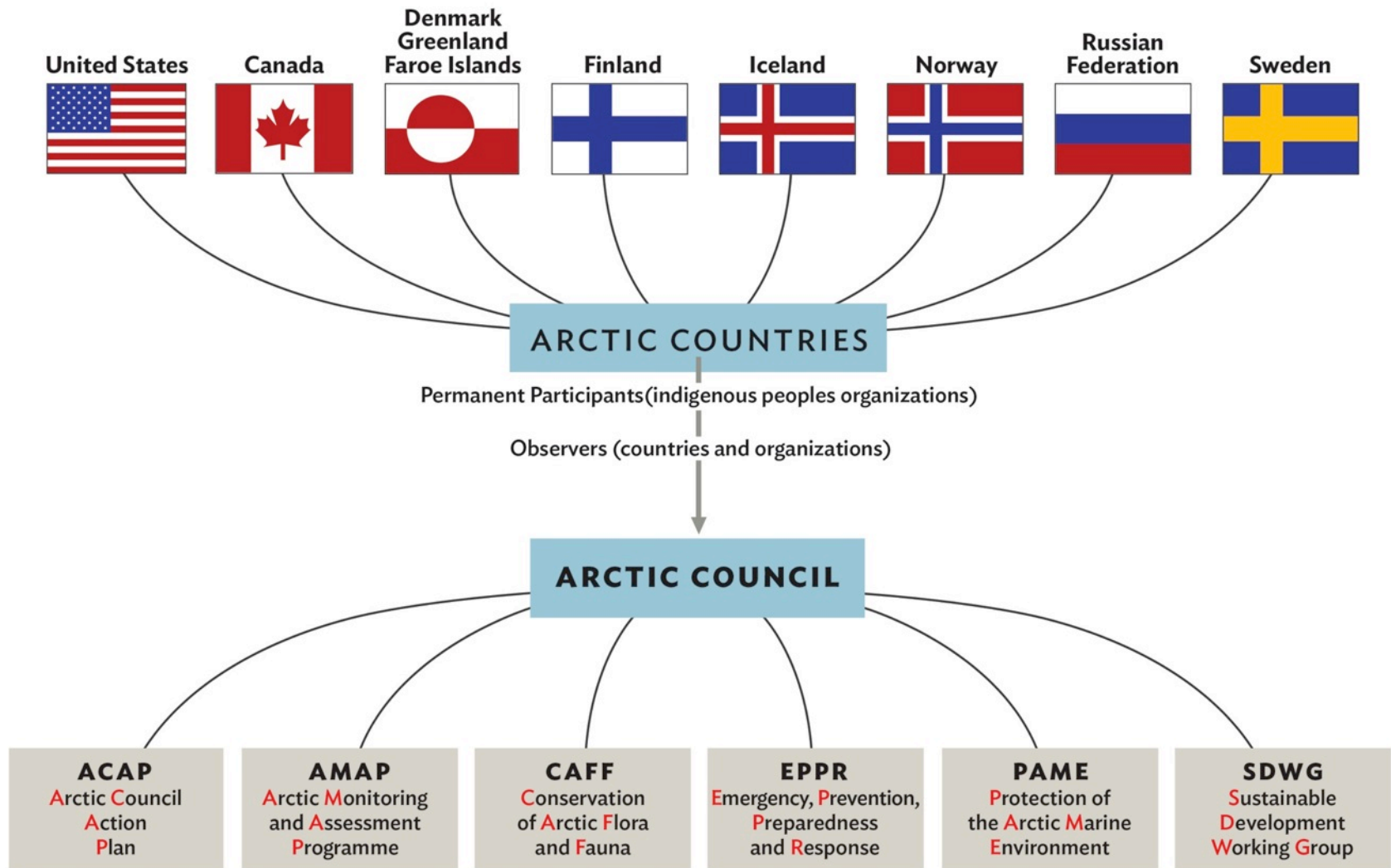
Alaska Publications 2011-2013

Alaska Publications



The population of people living above the Arctic Circle





UAF support of upcoming U.S. chairmanship of Arctic Council

- Providing technical advice on themes
- Working with State Department advanced team on locations for Arctic Council meetings in Alaska
- U.S. proposal Arctic Science Summit Week and Senior Arctic Official meeting for Fairbanks (March 2016)
- AK EPSCoR hosted SDWG Workshop in ANC February 10-12 (on behalf of Canadian chairmanship with support from U.S.)

Examples of UAF participation in Arctic Council activities

- University of the Arctic — Brian Rogers, Chair
- International Arctic Science Committee — Larry Hinzman, U.S. Representative
- ACCA — Mark Myers and Larry Hinzman
- Ecosystem Studies of Subarctic Seas — Franz Mueter, Vice Chair
- Circumpolar Reindeer Education Program — Greg Finstad
- Association of World Reindeer Hearers — Greg Finstad
- U.S. representatives on the Circumpolar Biodiversity Monitoring Program — Bodil Bluhm, Katrin Iken, Russ Hopcroft
- IASC marine working group — Rolf Gradinger, U.S. representative
- Arctic Council task force — Mark Myers, U.S. delegate



UArctic

Presented by
Brian Rogers

Chancellor, UAF, and Chair, UArctic
Board of Governors

University of the Arctic



- A cooperative **network** of 157 universities, colleges and other organizations committed to higher education and research in the North
- Created on the initiative of the Arctic Council

Arctic Council

8 arctic states Canada, Denmark/Greenland/Faroe I., Finland, Iceland, Norway, Russia, Sweden and U.S.

6 arctic indigenous peoples organizations

32 observers

12 nonarctic states: China, France, Germany, India, Italy, Japan, South Korea, Netherlands, Poland, Singapore, United Kingdom
20 nongovernmental organizations and intergovernmental organizations

3 specifically on Arctic Research and Higher Education

UArctic – a institution membership origination created by Arctic Council

International Arctic Science Committee – a national academy membership organization

International Arctic Social Sciences Association – a individual membership organization



UArctic membership at a glance



- 157 members
 - 111 higher education institutions
 - 46 research institutes and other organizations
- Eligible for full membership if in the arctic states
- Associate membership if outside the region

1,100,000

Students in member institutions (2012)

80,000

Teaching staff in member institutions (2012)

Governance

Board of Governors

- internationally representative board
- highest decision-making body
- responsible for strategic development, institutional priorities and finances

Council of UArctic

- consists of representatives from all UArctic members
- decides on membership of UArctic and nominates members of the board
- makes strategic decisions on UArctic's program development
- gives academic guidance for program implementation and delivery

Brian Rogers
Chair UArctic Board of Governors
Chancellor, UAF

George Iwama
Vice Chair UArctic Board of Governors
President, University of Northern British Columbia

Denis Mayrand
Associate Vice-President Research
Université Laval

Lindsay Whaley, Professor,
Vice-Provost and Associate Provost
Dartmouth College

Tove Søvndahl Pedersen
Director of Greenland Self-Government Office in Copenhagen

Jamie Reschyn (UNBC)
Student representative

Monika Margrét Stefánsdóttir
(Akureyri) Student representative elect

Mikhail J. Prisyajny
Vice Rector, North-Eastern Federal
University

Elena Kudryashova Rector,
Northern Arctic Federal University

Lauri Lajunen
Rector, University of Oulu

Kjell Åke Jonsson
Vice Chancellor, Umeå University

Lasse Lønnum
University Director
University of Tromsø



UArctic Board of Governors

Administration

Small, decentralized
administration based on
members across the region



UArctic Offices

President's Office
Arendal, Norway
International Secretariat
Rovaniemi, Finland
Vice-President Indigenous Office
Kautokeino, Norway
Thematic Networks Office
Oulu, Finland
Research Office
Arkhangelsk, Russia
Graduate Studies Office
Fairbanks, USA
Field School Program Office
Longyearbyen, Norway
Undergraduate Studies Office
Yakutsk, Russia
BCS Regional Office
Bodø, Norway
BCS Regional Office
Prince George, Canada
north2north Program Office
Alta, Norway
GoNorth Program Office
Tromsø, Norway
International Academic Office
La Ronge, Canada
Russian Information Center
Yakutsk, Russia
Finance Office
Fairbanks, USA

Rectors' Forum

Annually brings together university leaders around specific themes



Thematic Networks & Institutes

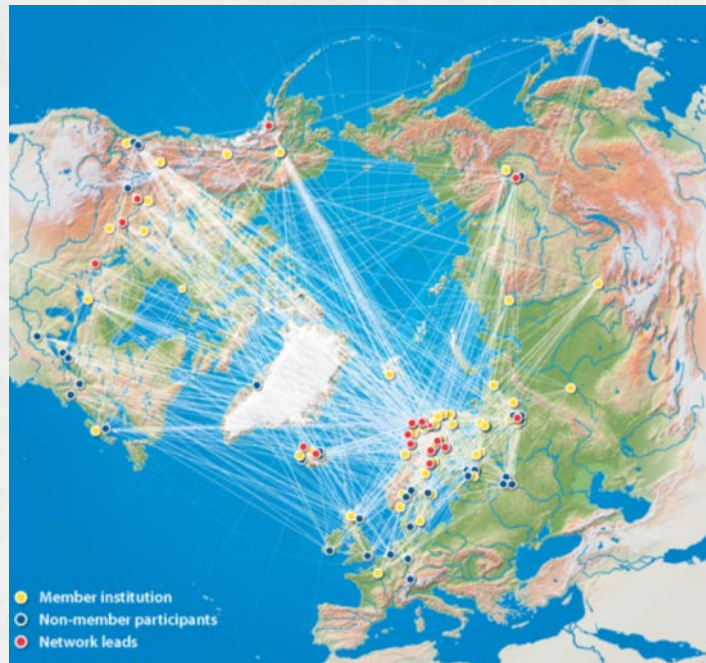
27 UArctic thematic
networks
3 UArctic institutes

Thematic Networks office
Oulu University



Thematic Networks & Institutes

27 UArctic thematic
networks
3 UArctic institutes



- Joint courses and (degree) programs
- Research
- Networking

- Arctic Coastal and Marine Issues
- Arctic Engineering and Science
- Arctic Extractive Industries
- Arctic Law
- Arctic Sustainable Arts and Design
- Business Management in the North
- Communicating Arctic Research
- Digital Media and Media Arts
- Distance Education and e-Learning
- Energy in New Time
- Environmental Impact Assessment of Industry Contaminated Areas
- Environmental Training and Education for Sustainable Development of the Arctic
- Geology of the Arctic
- Geopolitics and Security
- Global Change
- Health and Well-being in the Arctic
- Indigenous Arts and Crafts
- Local and Regional Development in the North
- Northern Food Security
- Northern Governance
- Northern Tourism
- Polar Ice, Climate and Land Dynamics
- Social Work
- The Verdde Program
- World Images of Indigenous Peoples of the North
- Permafrost
- Natural Hazards

UArctic Institutes

Northern Research Forum



North Meets North
Northern Veche
The Resilient North
The Borderless North
Seeking Balance in a Changing North
Our Ice Dependent World

Akureyri 2000
Novgorod 2002
Yellowknife 2004
Oulu/Luleå 2006
Anchorage 2008
Hveragerði 2011

Circumpolar Reindeer Husbandry



Sámi allaskuvla
Sámi University College



International Centre for Reindeer Husbandry
Международный Центр Оленеводства
Riikkaidgaskasaš Boazodoalloguovdđáš



Ассоциация «Оленеводы Мира»
Association of World Reindeer Herders

Applied Circumpolar Policy



north2north student mobility

A student exchange program that allows students at UArctic institutions to visit different northern regions and share experiences face to face, through study at other UArctic institutions

north2north student exchanges (in 2012)
167



UAF leadership in UArctic

- Brian Rogers — Chair, UArctic Board of Governors
- Pat Pitney — Vice President, Finance
- Mike Sfraga — Circumpolar Policy Institute
- Donna Anger — Council member
- John Eichelberger — UArctic Dean of Graduate Studies



Thank you