

02/20/14

**Presentations:
Center of
International
Governance
Innovation and
Marine
Exchange of
Alaska**

<TARGET><BILL></BILL><SUBJECT>02-20-14 Presentations
Center of International Governance Innovation and Marine
Exchange of Alaska</SUBJECT><COMM>HEDT28</COMM></TARGET>

Alaska State Legislature

Representative Shelley Hughes, Chair

Session Address:

Alaska State Capitol, Room 409

Juneau, Alaska 99801-1182

Phone: (907) 465-3743

Fax: (907) 465-2381

House District 8



Representative Lynn Gattis

Representative Bob Herron

Representative Pete Higgins

Representative Craig Johnson

Representative Kurt Olson

Representative Lance Pruitt

Representative Harriet Drummond

Representative Geran Tarr

House Special Committee on Economic Development, Trade and Tourism

AGENDA

February 20 , 2014

1. Call to Order

~Gavel~ Welcome members of the Economic Development, Trade and Tourism Committee.

2. Roll Call

- For the record, in attendance are: (representative xx, ... and representative xx)
- I would like to introduce Debbie Tillinghast, the committee recording secretary
- Info services person
- Ginger Blaisdell, committee aide for EDT

3. AGENDA

John Higginbotham, Head of Arctic Program at the Center of International Governance Innovation, Carleton University, Ottawa CA

“North America and the New Arctic”

Paul Fuhs and Ed Page, Marine Exchange of Alaska

“Alaska and the Future of the Northern Sea Route”

4. Before we ADJOURN:

- Tuesday, we’ll hear a presentation from Director of Economic Development, Don Dyer and Mat-Su Borough Mayor Larry DeVilbiss ~ Statewide Link to Economic Certainty; The Point MacKenzie Enterprise Zone.
- (nothing scheduled for Thursday – no meeting/couple of absences)

Thank you for wanting to be part of making Alaska one of the best economic environments in the nation. We are ADJOURNED.” ~gavel~

Ginger Blaisdell

From: Apache <apache@wwwjnu04.akleg.gov>
Sent: Monday, February 17, 2014 3:00 PM
To: LIO Juneau; Ginger Blaisdell
Subject: Teleconference Order Form

Meeting: new

Sponsor and/or Committee Name: Economic Development Trade and Tourism

Date of Teleconference: February 20, 2014

Start Time: 11:15am

End Time: 12:45pm

Chairing Site: capitol

Juneau Room: 124

Bill Information:

Streamed to akl.tv: yes

Executive Session: no

Contact Person: Ginger Blaisdell

Telephone Number: 465-5265

Email Address: ginger.blaisdell@akleg.gov

LIO Sites:

May other LIO's add: yes

Offnet Name(s):

I do not anticipate any offnet callers

Other Information:

NORTH AMERICA AND THE NEW ARCTIC

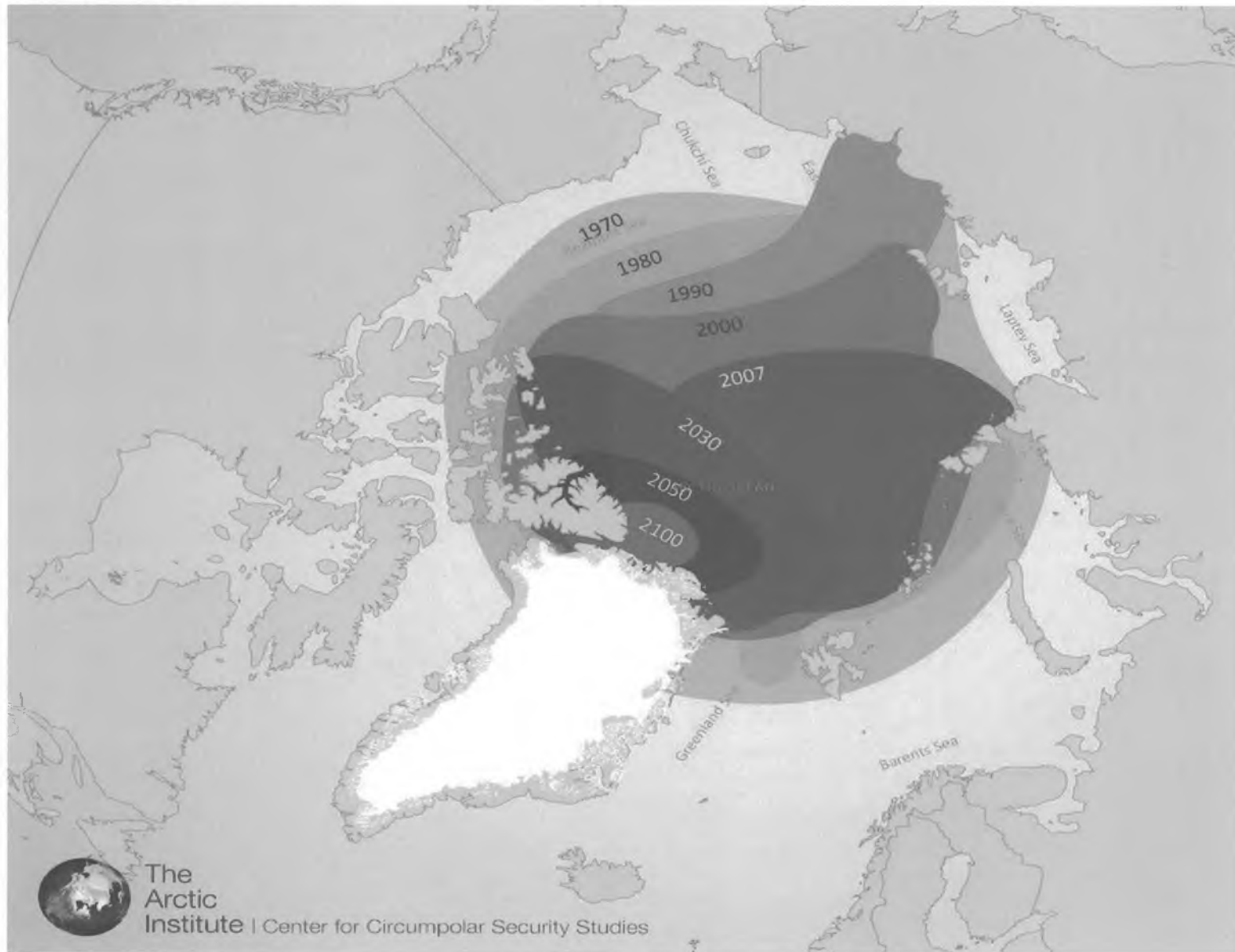
By John Higginbotham

For the **Economic Development, Trade and Tourism Committee,**
Alaska State House of Representatives

Ottawa-Juneau, February 20, 2014



The Big Melt

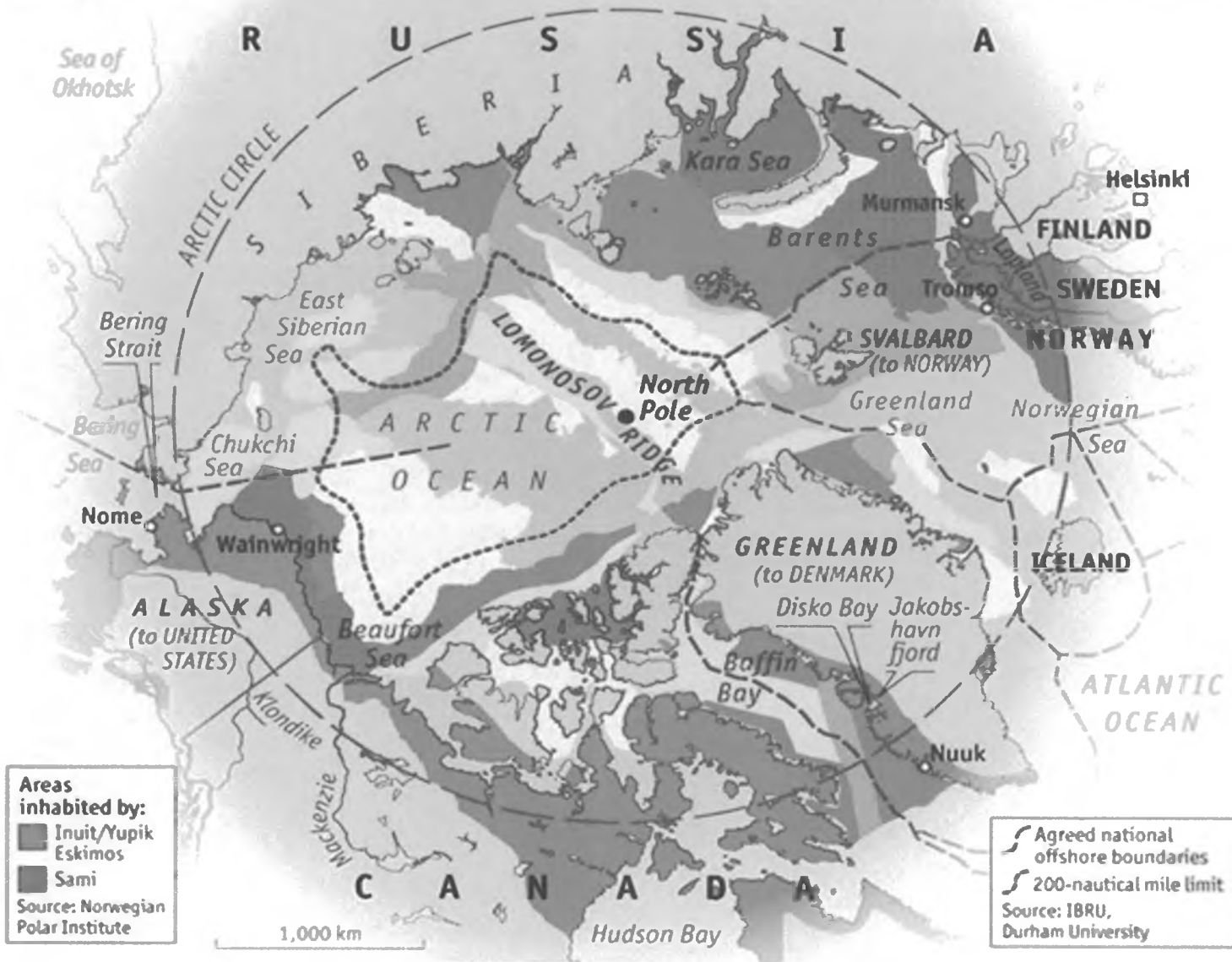


Undiscovered deposits, probability of oil and/or gas field*, 2008 estimates, %





Source: USGS

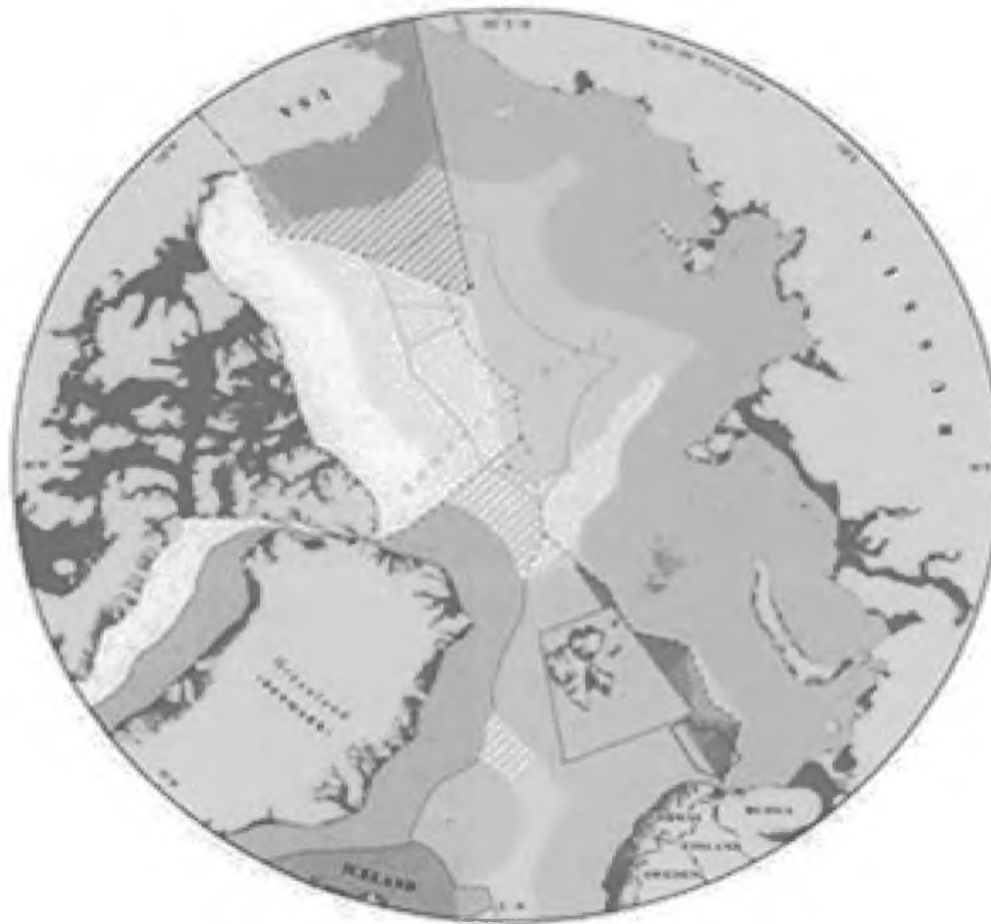
*At least one undiscovered oil and/or gas field with recoverable reserves greater than 50m barrels of oil equivalent



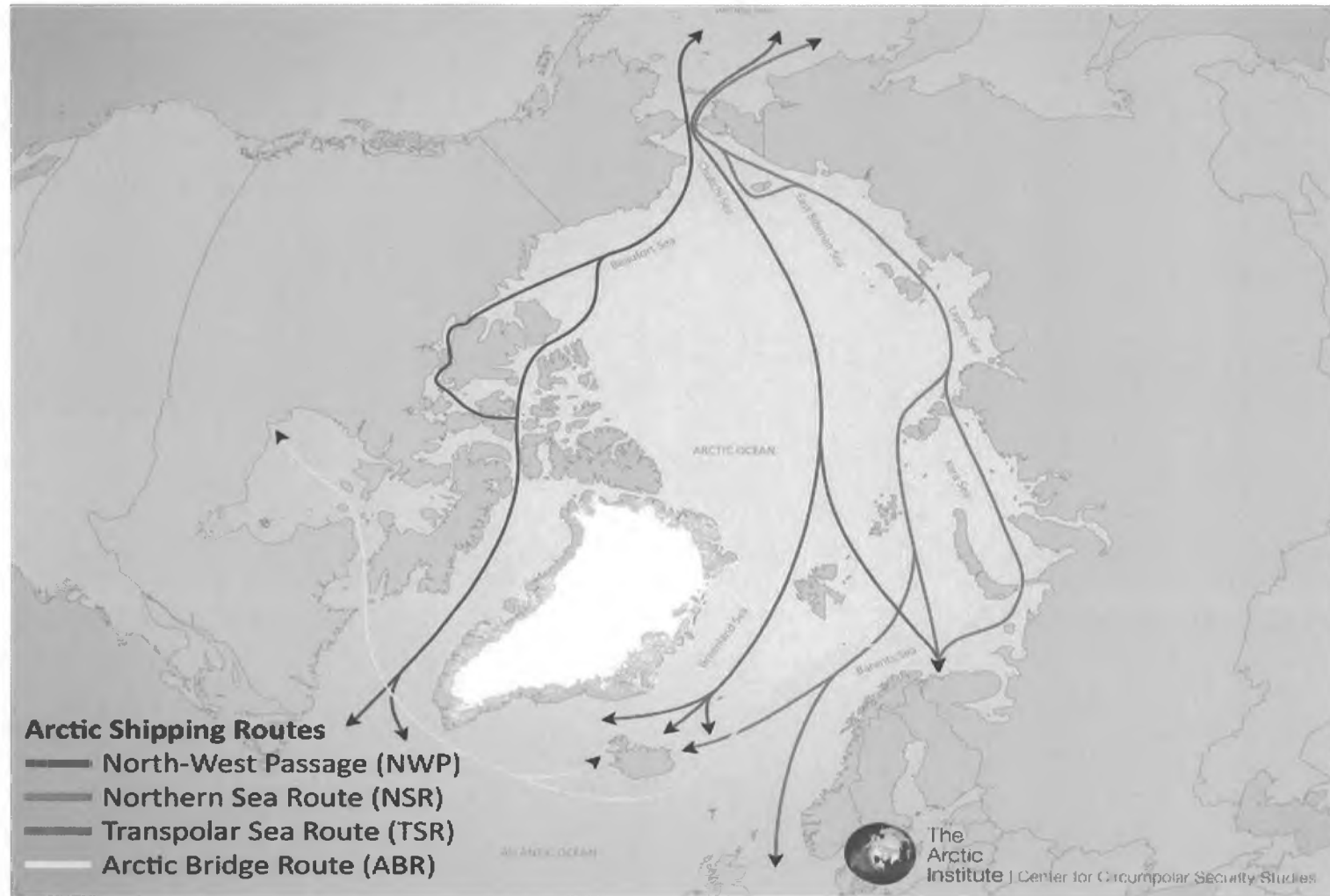
Areas inhabited by:
 Inuit/Yupik Eskimos
 Sami
 Source: Norwegian Polar Institute

 Agreed national offshore boundaries
 200-nautical mile limit
 Source: IBRU, Durham University

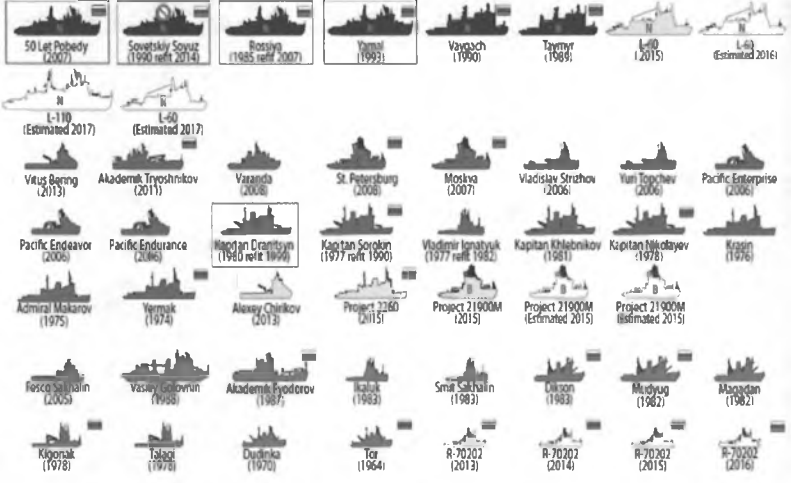







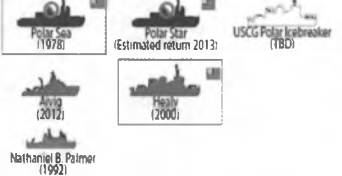







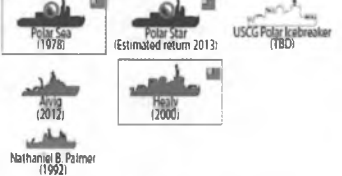




Arctic Boundaries Claims



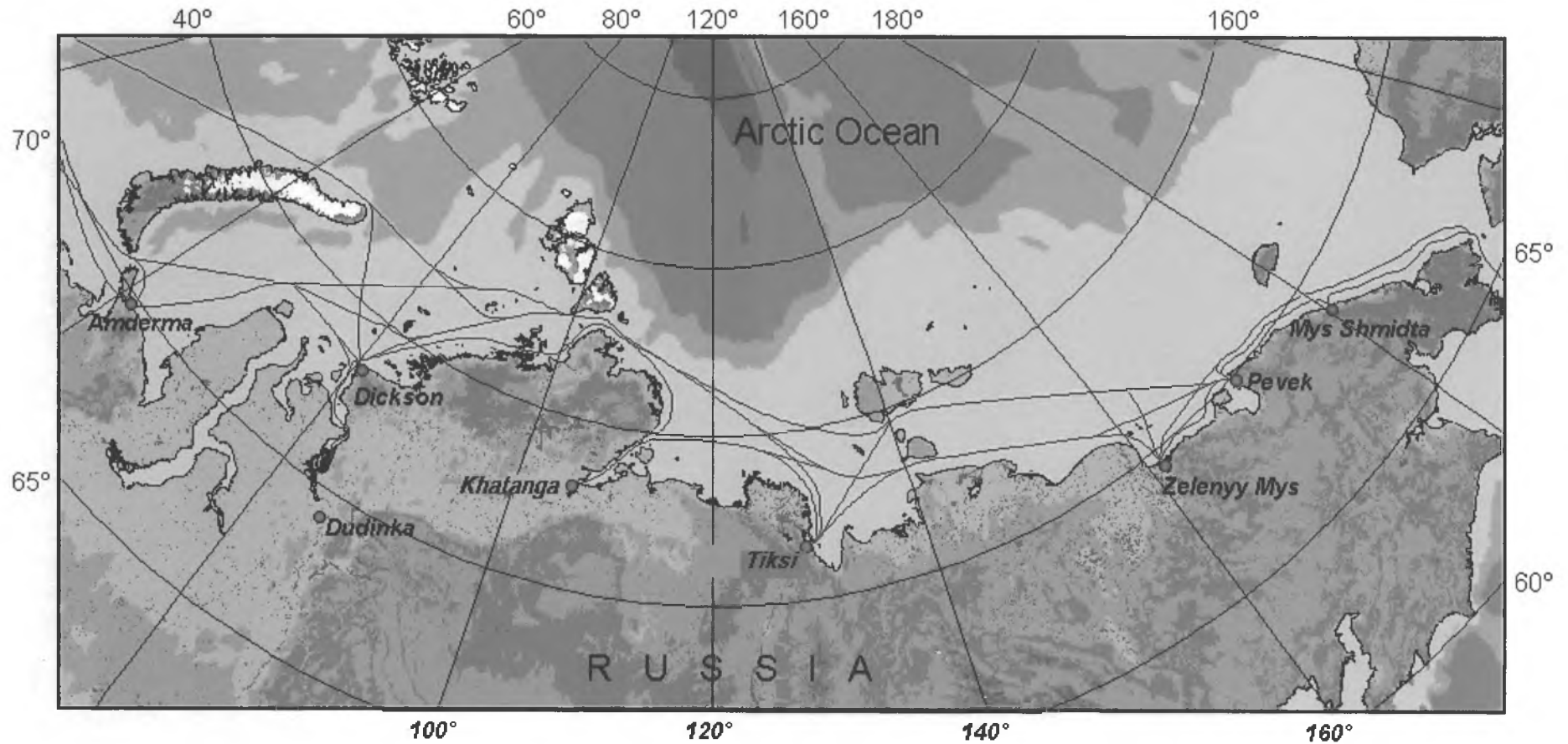
Arctic Shipping Routes



Icebreakers of the World (Source: USCG)

<p>RUSSIA (36) + 5 under construction + 8 planned</p> 	<p>CHINA (1) + 1 planned</p> 
<p>SWEDEN (7)</p> 	<p>ARGENTINA (1) Almirante Irizar (estimate return 2013)</p> 
<p>FINLAND (7)</p> 	<p>AUSTRALIA (1) Aurora Australis (1990)</p> 
<p>CANADA (6) + 1 planned</p> 	<p>CHILE (1) Almirante Oscar Viel (1967)</p> 
<p>USA (5) + 1 planned</p> 	<p>ESTONIA (2) Botnica (1998), Tarmo (1963)</p> 
<p>DENMARK (4)</p> 	<p>GERMANY (1) + 1 planned Polarstern (1982), Polar Research Vessel (Estimated 2016)</p> 
<p>FINLAND (7)</p> 	<p>JAPAN (1) Shirase (2009)</p> 
<p>CANADA (6) + 1 planned</p> 	<p>SOUTH KOREA (1) Araon (2009)</p> 
<p>USA (5) + 1 planned</p> 	<p>SOUTH AFRICA (1) Aulhas II (2012)</p> 
<p>DENMARK (4)</p> 	<p>LATVIA (1) Varma</p> 
	<p>NORWAY (1) + 1 planned Svalbard (2002), Polar Research Vessel (Estimated 2015)</p> 

Northern Sea Route



Canada's Northern Strategy (July 2009)

- *Government of Canada's vision for its North is based on 4 pillars that guide its actions.*

Statement on Canada's Arctic foreign policy (2010)



Sovereignty

**Economic
and Social
Development**

**Environmental
Protection**

Governance

DOMESTIC AND INTERNATIONAL DIMENSION

Exercising our Arctic sovereignty as international interest in the region increases.

Encouraging social and economic development and regulatory improvements that benefit Northerners.

Adapting to climate change challenges and ensuring sensitive Arctic ecosystems are protected for future generations.

Providing Northerners with more control over their economic and political destiny.

SCIENCE AND TECHNOLOGY UNDERPIN ALL FOUR PILLARS

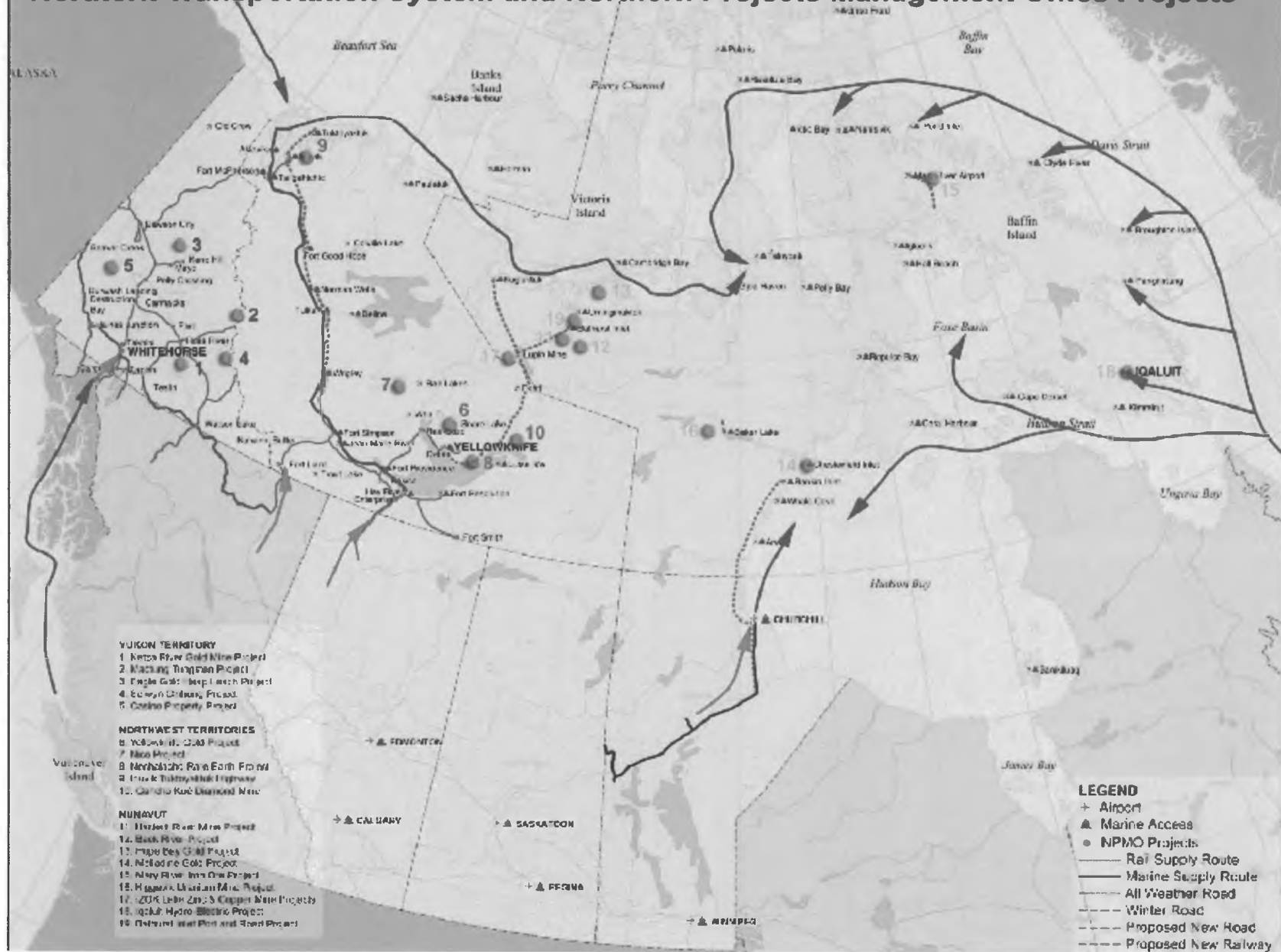
- Slide source: P. W. Lackenbauer, Assoc. Professor and Chair, History, St. Jerome's University, March 2013



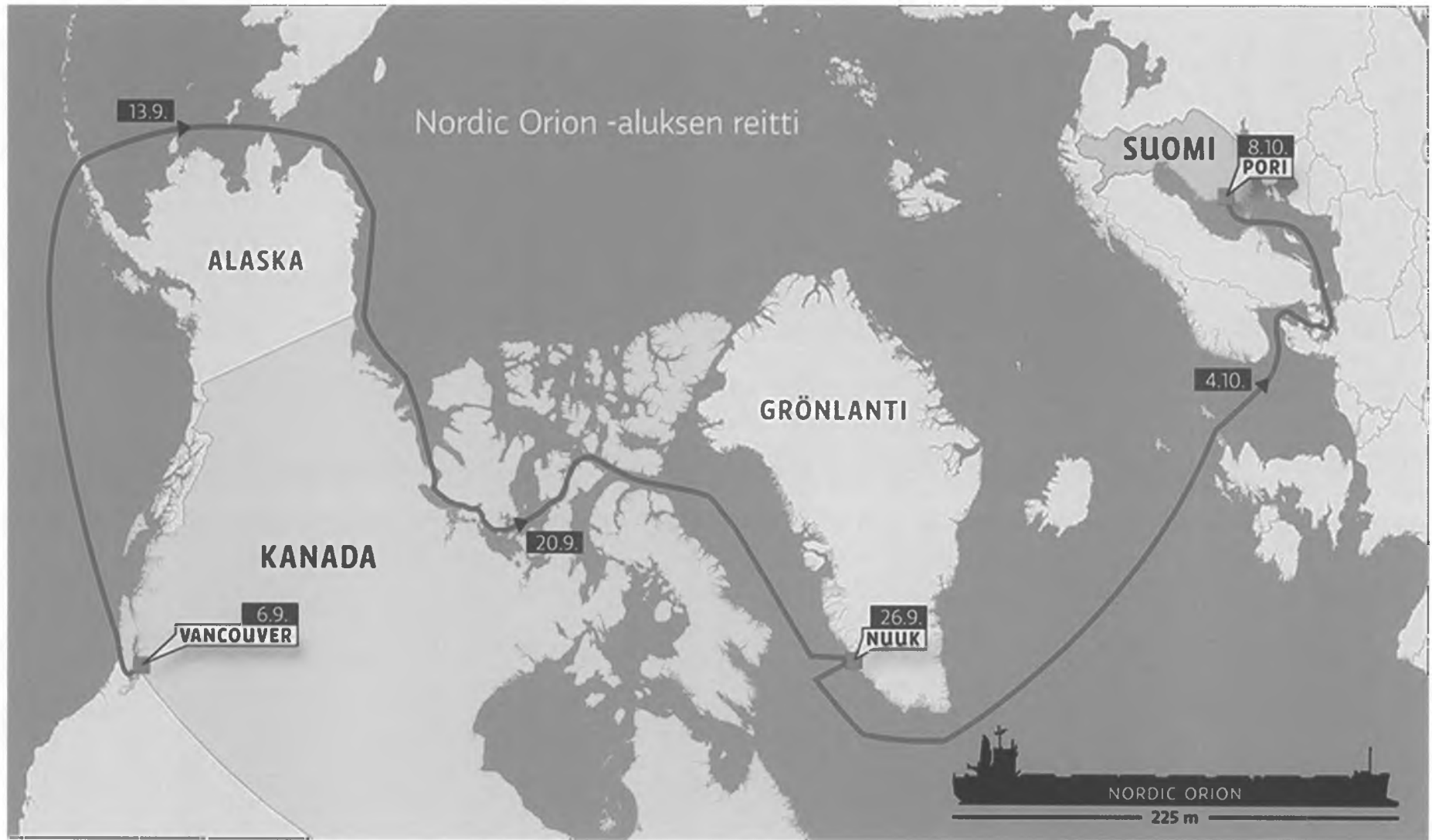
Canada's Arctic Council Priorities 2013-2015

- 1. Responsible Arctic resource development
- 2. Safe Arctic shipping
- 3. Sustainable circumpolar communities

Northern Transportation System and Northern Projects Management Office Projects



Nordic Orion's Voyage on the NWP



Source: http://yle.fi/uutiset/luoteisvaylan_avannut_nordic_orion_saapuu_porin_satamaan/6874171

The "North American Arctic Marine Highway"

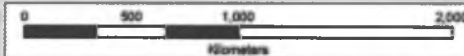
Approximate Travel Distances

Seattle to New Jersey via NWP: 16 700 km
Seattle to New Jersey via Panama Canal: 18 000 km



●Seattle, WA, USA

●New Jersey, NJ, USA



Prepared by Larissa Pizzolato for John Higginbotham, Carleton University and CIGI, 2013
Sources: ESRI, NOAA, NA/TEQ, and other contributors

Point of No Return

Arctic Development is Here to Stay

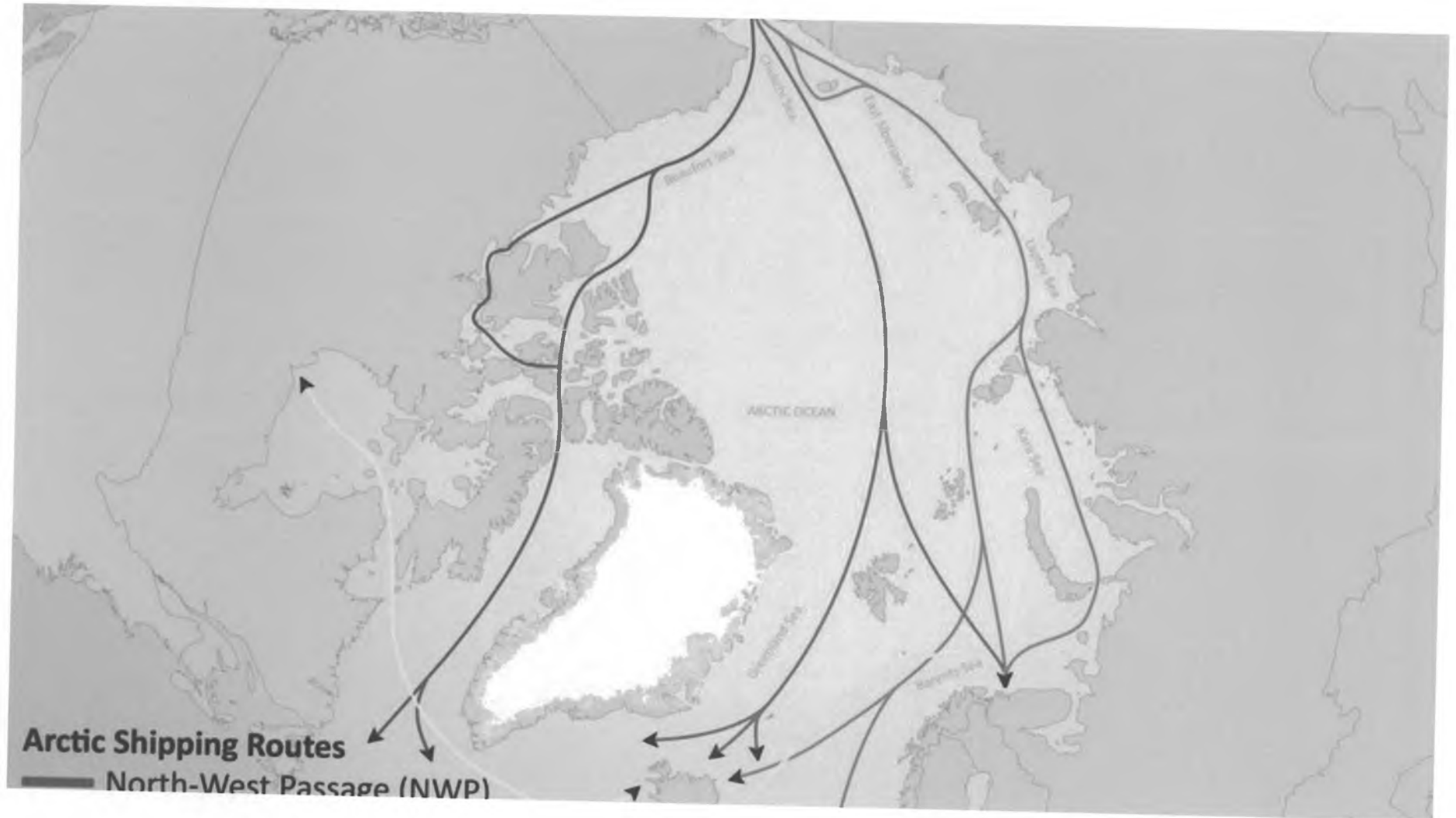


Humans Don't Go Back

Inupiat Endurance 10,000 yrs.

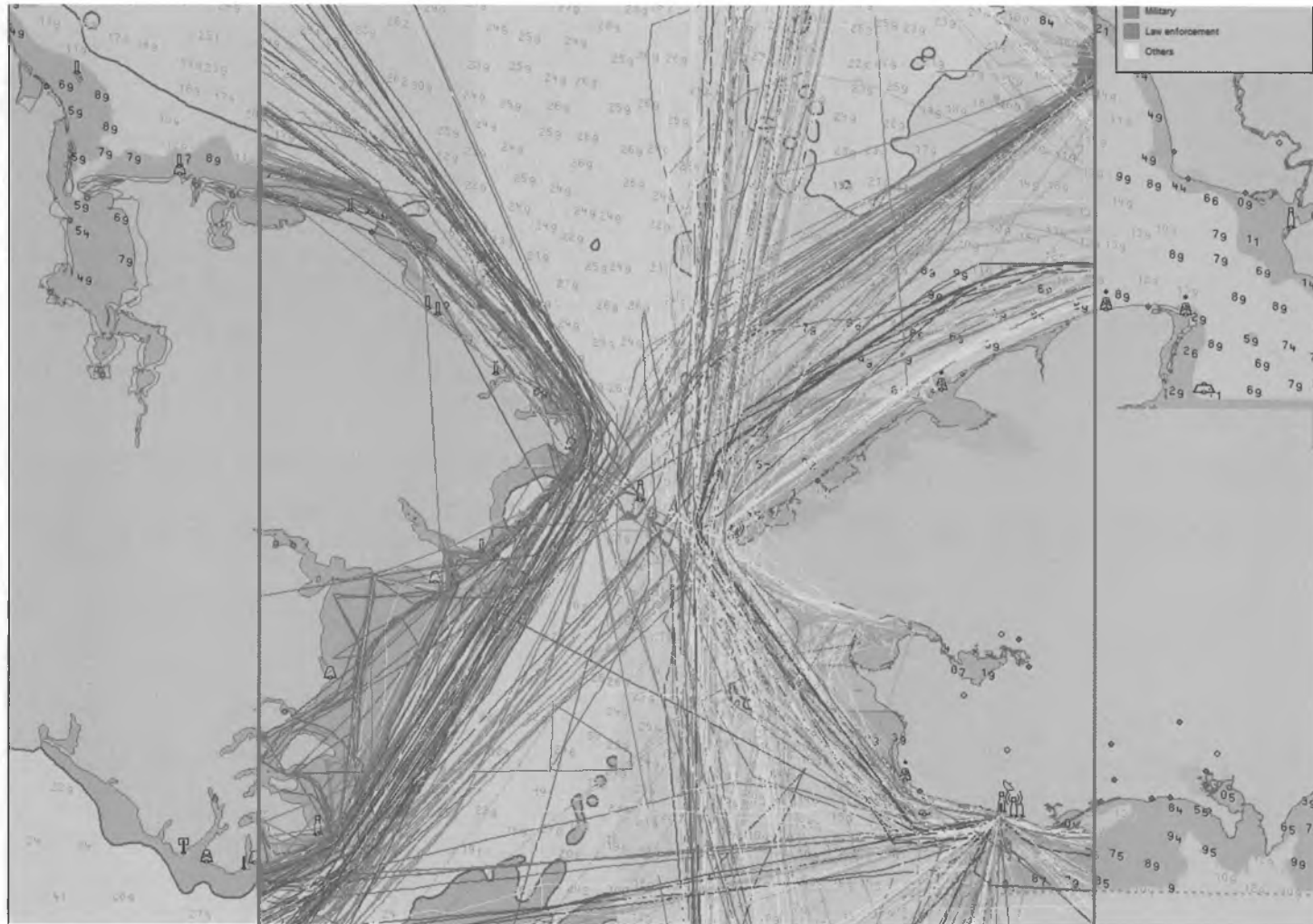


Arctic Shipping Routes

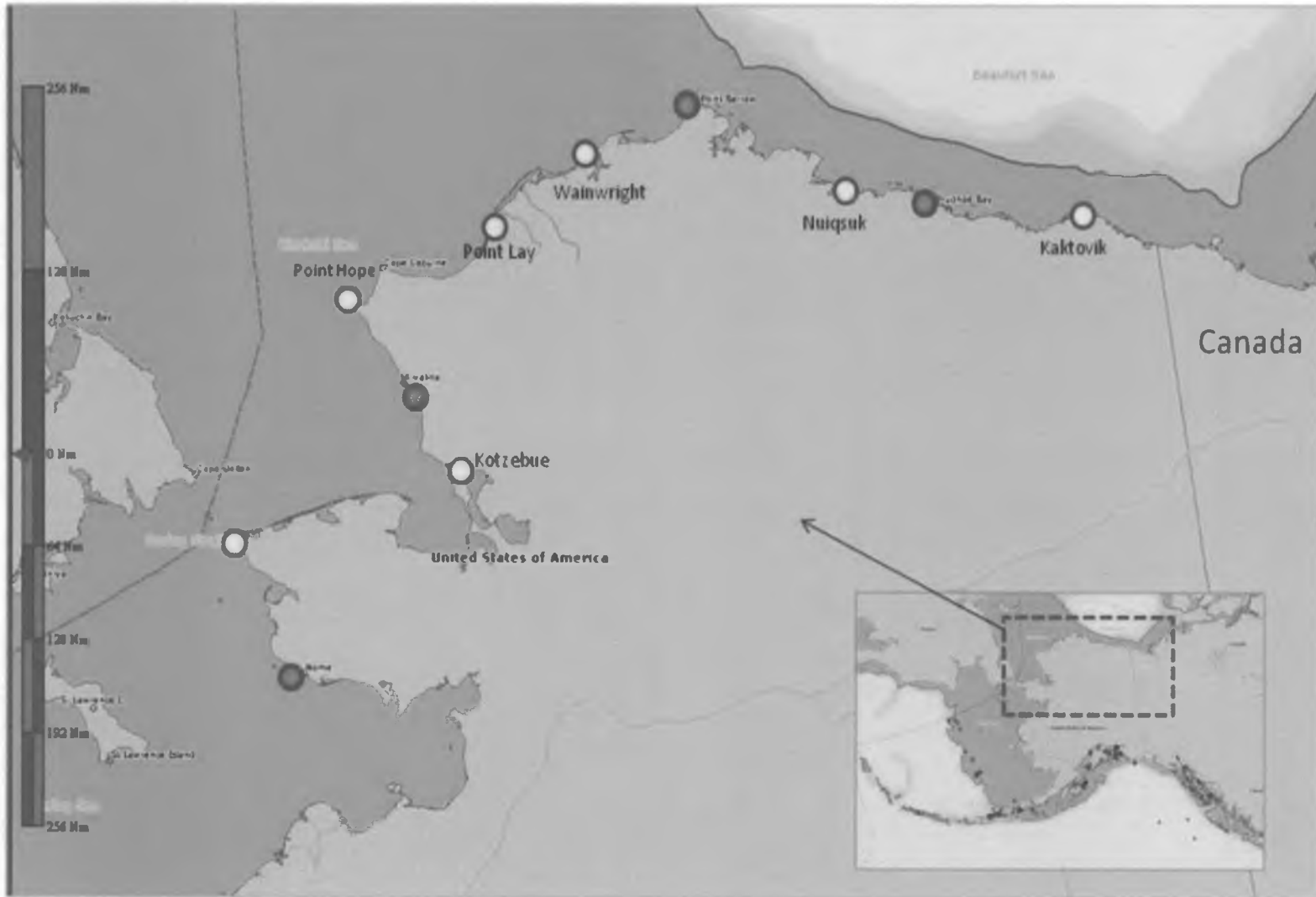


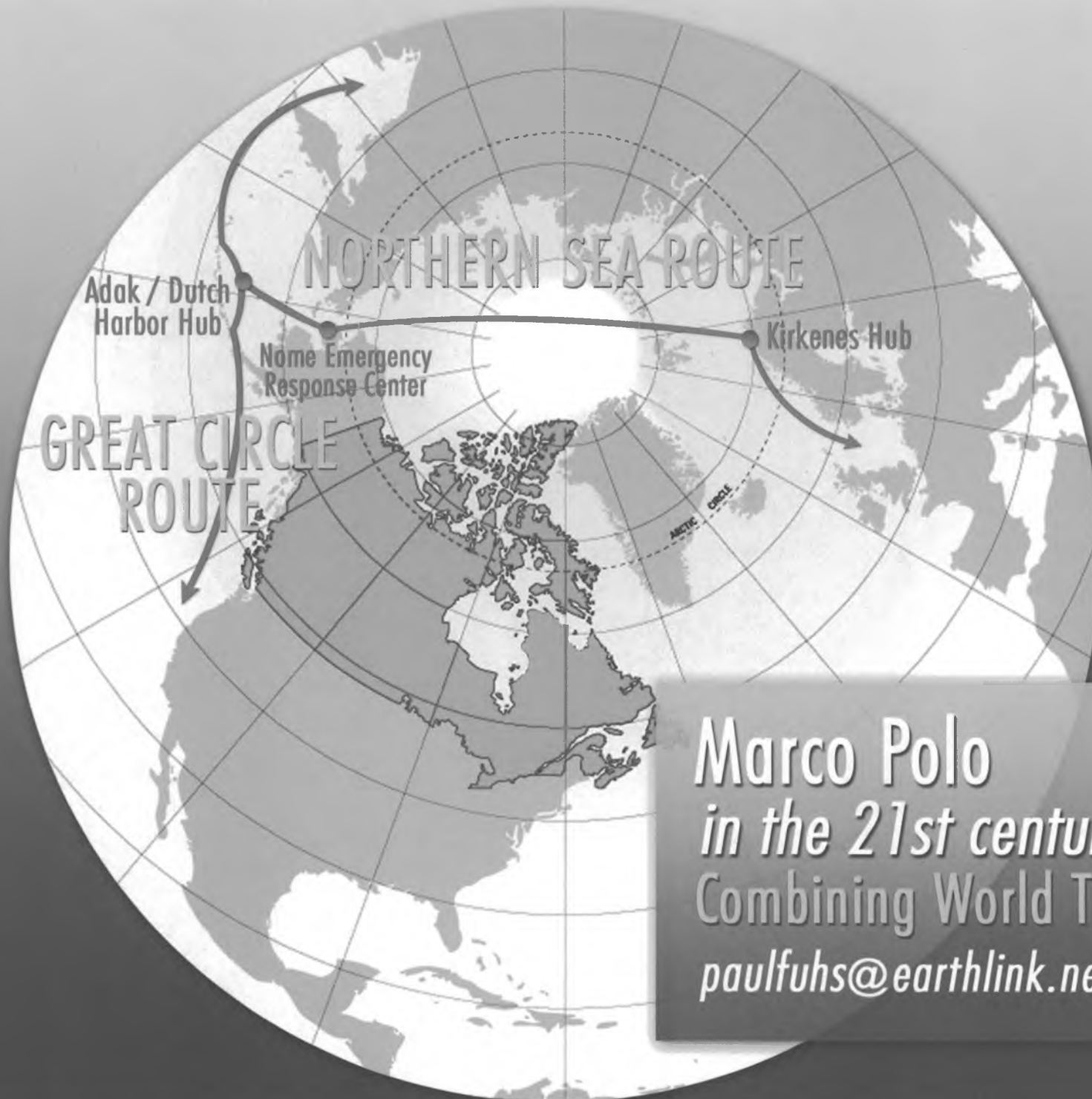
Bering strait

Vessel Traffic 2013



ARCTIC AIS SITES





NORTHERN SEA ROUTE

Adak / Dutch Harbor Hub

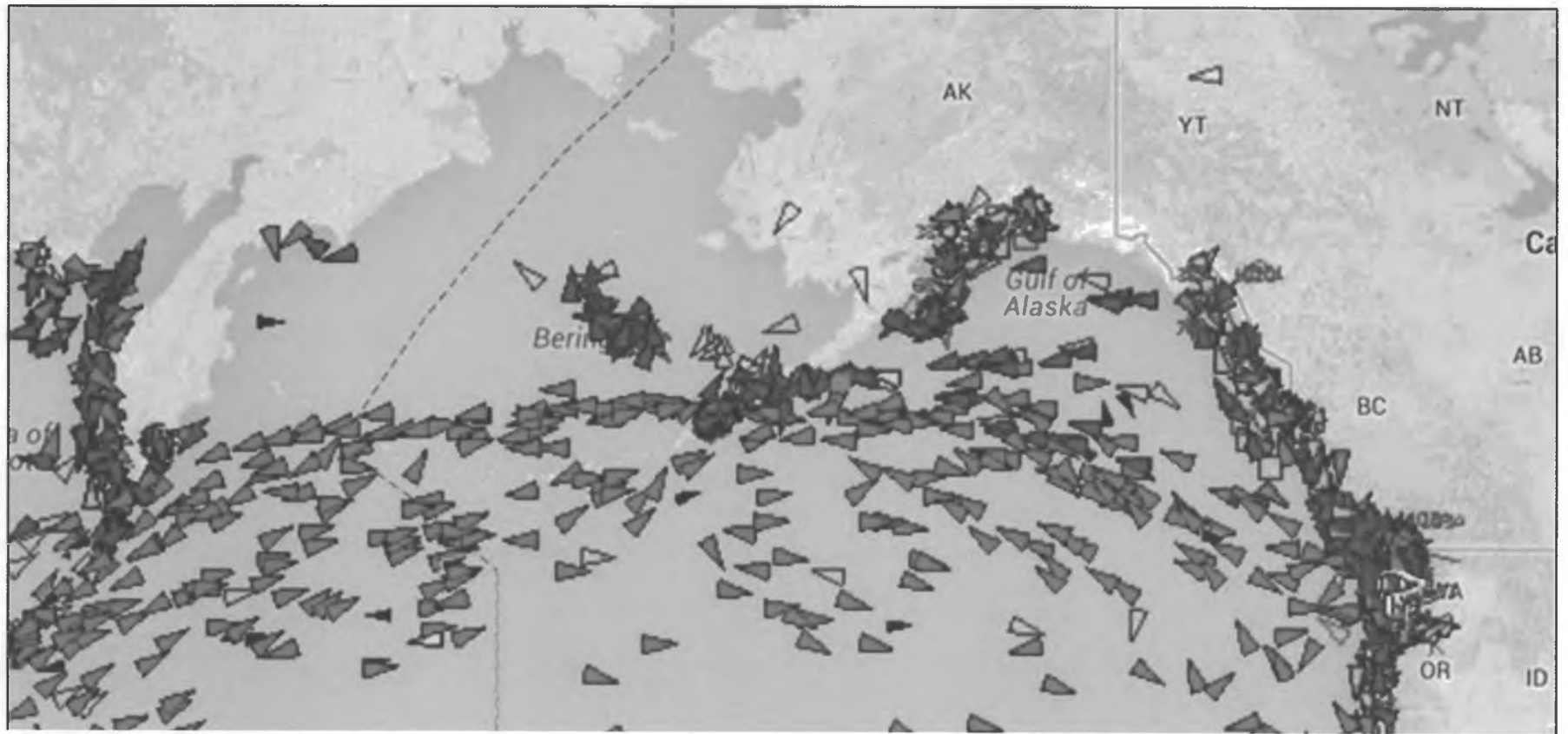
Nome Emergency Response Center

Kirkenes Hub

GREAT CIRCLE ROUTE

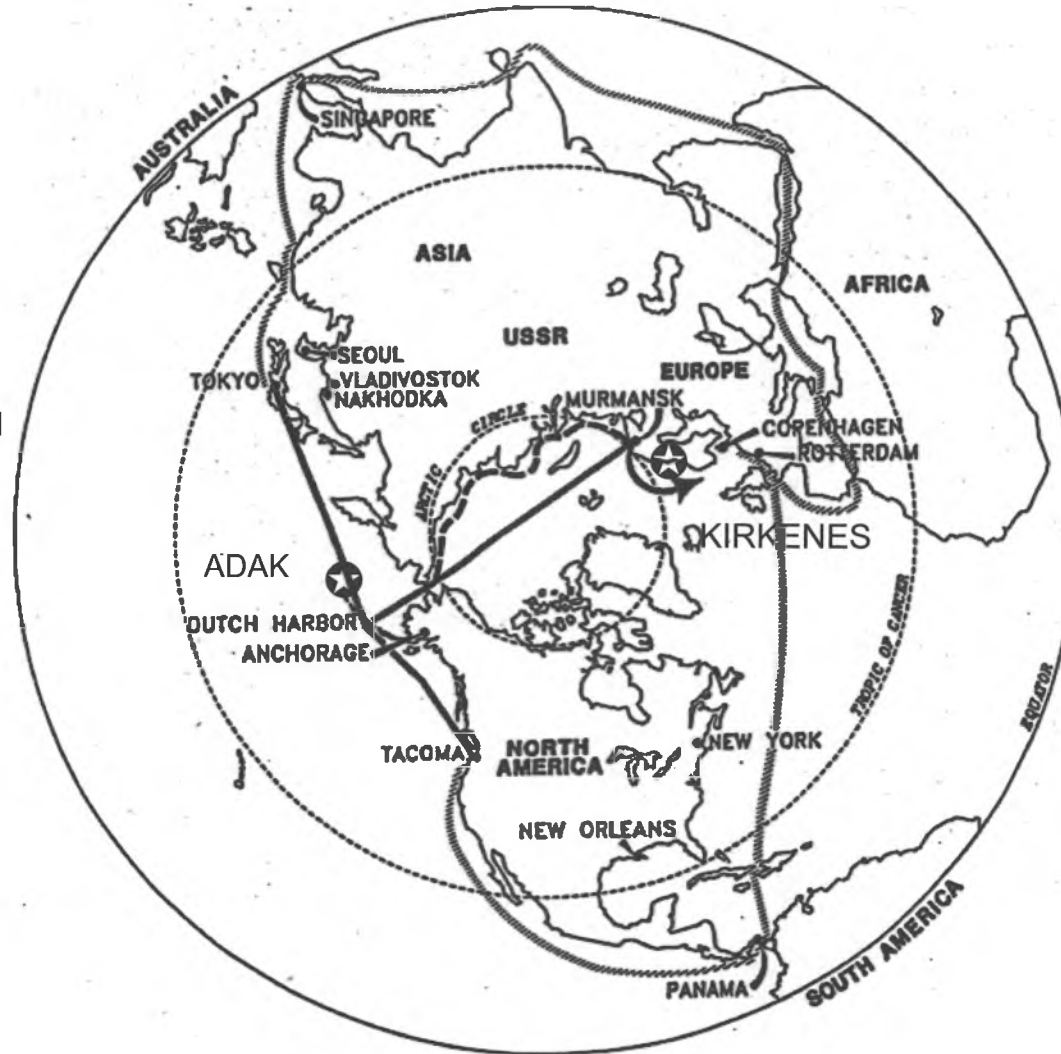
Marco Polo
in the 21st century
Combining World Trade Routes
paulfuhs@earthlink.net

Great Circle Route Vessel Traffic 1/22/14



NSR/Great Circle Route Container Hub Operations

Adak routes
cargo between
Europe, Asia and
US West Coast



Kirkenes routes
cargo between
Asia, the US West
Coast and Europe

paulfuhs@earthlink.net

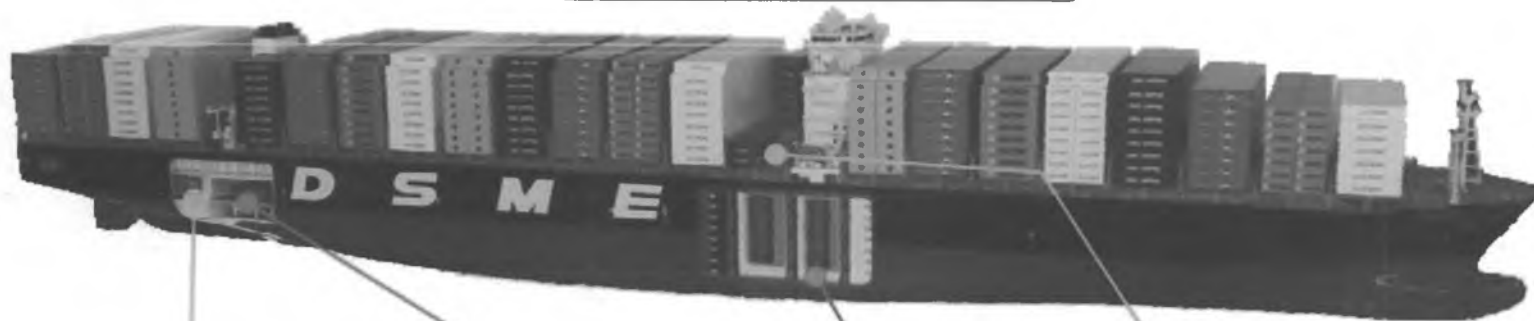
NSR voyages in dedicated ice
strengthened vessels

Korean Icebreaking Containership

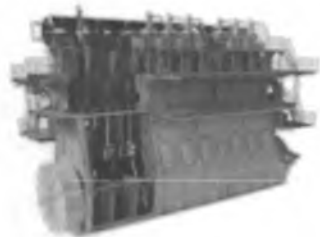
Overview of LNG-Fuelled Ship for NSR

3. DSME Activities

Zero(0) HFO Design



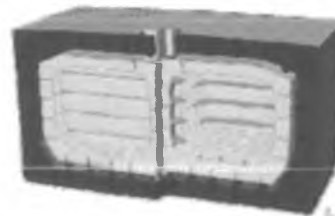
ME-GI Engine



Dual Fuel Diesel Generator Engine



ACTIB LNG Tank

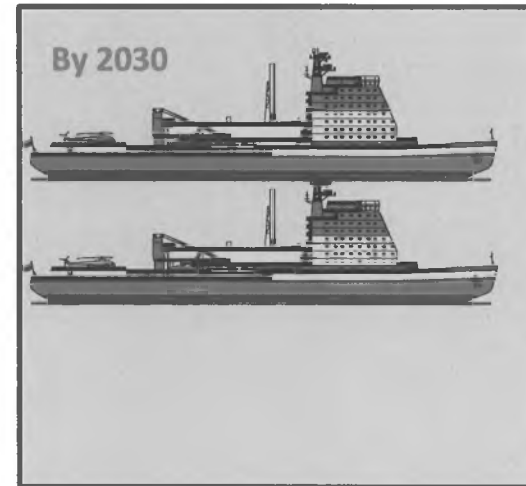
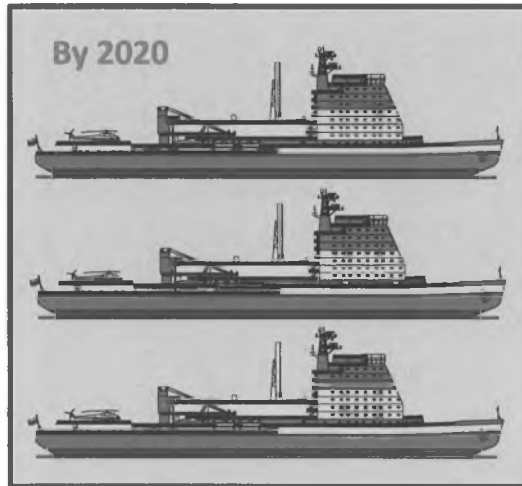


HIVAR Fuel Gas Supply Sys.

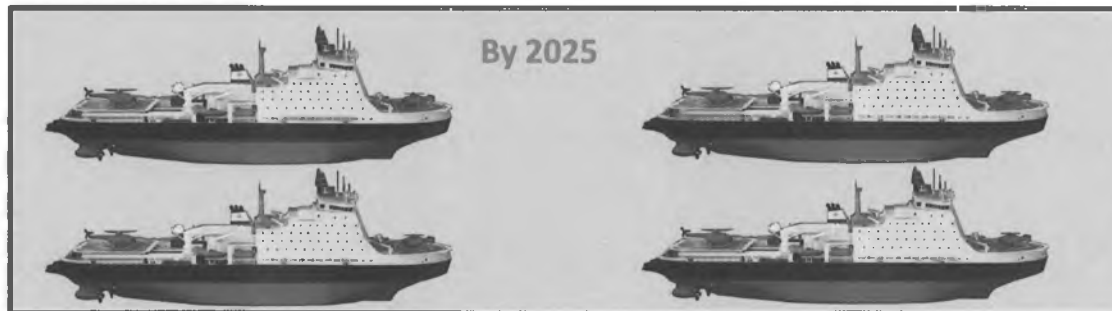


Russian Icebreaker Construction Schedule

Shaft power 60 MW



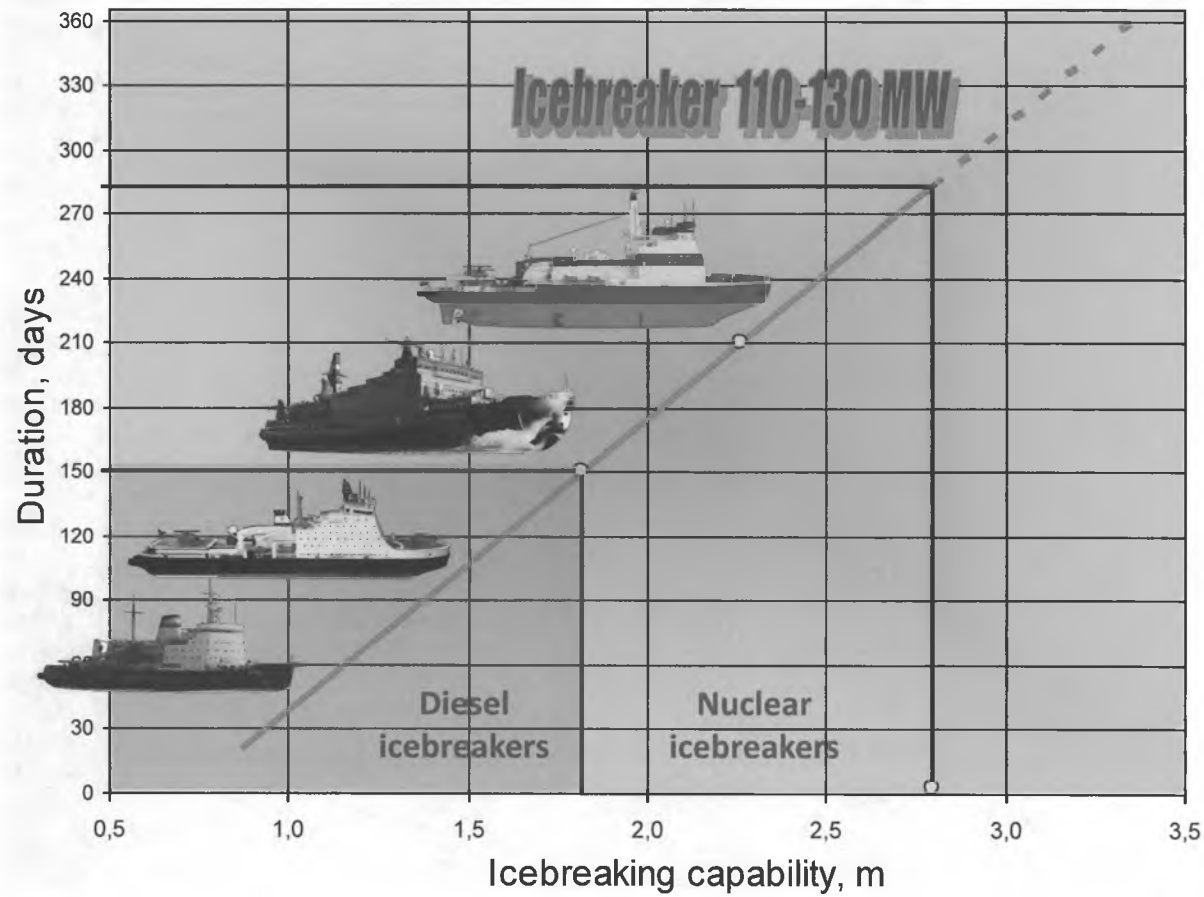
Shaft power 25 MW



Shaft power 18 MW



Icebreaking Capacity



Breaking All Barriers



Operational tasks

Escorting of ships on the traditional transportation directions during winter-spring period.

Escorting of large capacity ships in the year-round export of raw resources extracted on the arctic seas shelf.

Servicing of the through transit transportation between Western Europe and Far East

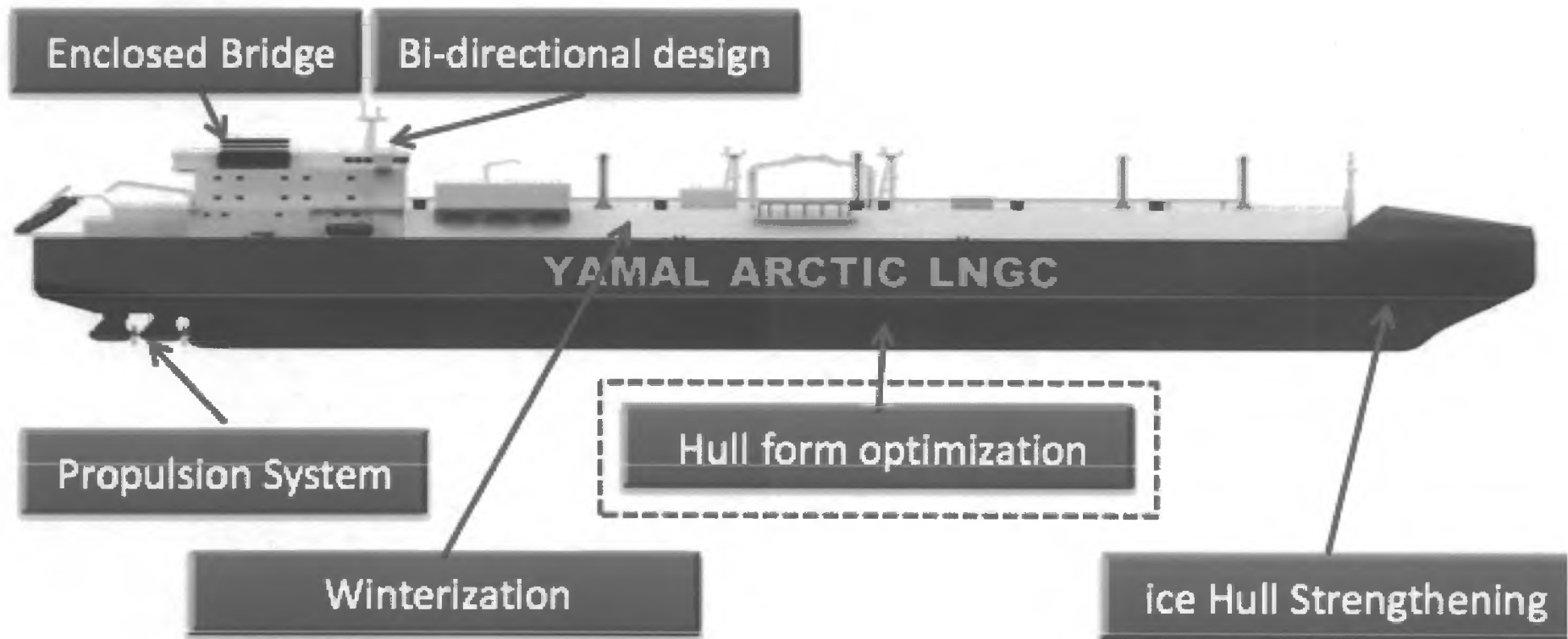
Parameters

Shaft power	110 MW
Length	193.6 m
Breadth	38 m
Draft	11-13 m
Displacement	55600 t
Icebreaking capability	3.5 m

Korean LNG Vessels

Yamal Peninsula Petroleum Development

Technical features of Arctic Vessel



Maritime Domain Awareness – September 2010



Arctic AIS Sites: Kaktovik, Prudhoe Bay, Barrow, Wainwright, Point Lay, Point Hope, Kivalina, Kotzebue
Subarctic AIS Sites: Wales, Nome, Gambell, Savoonga, Stebbins

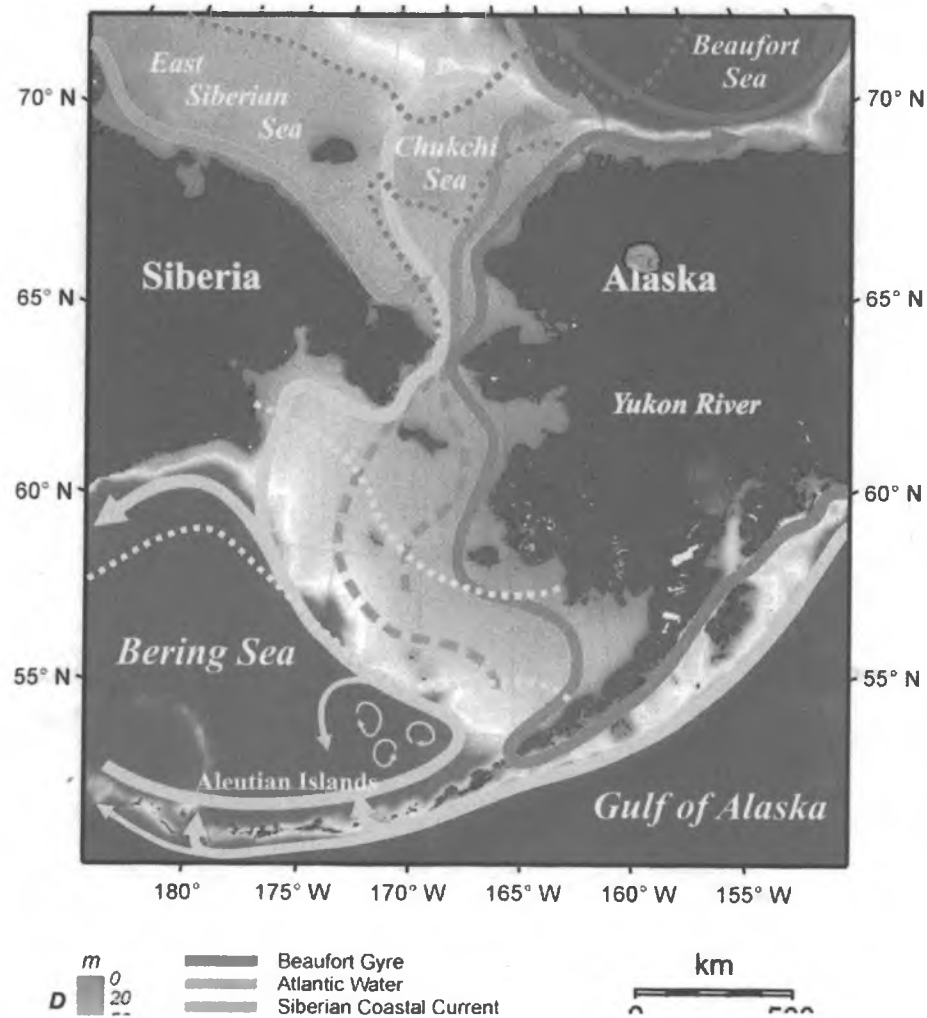
Everyone is Watching



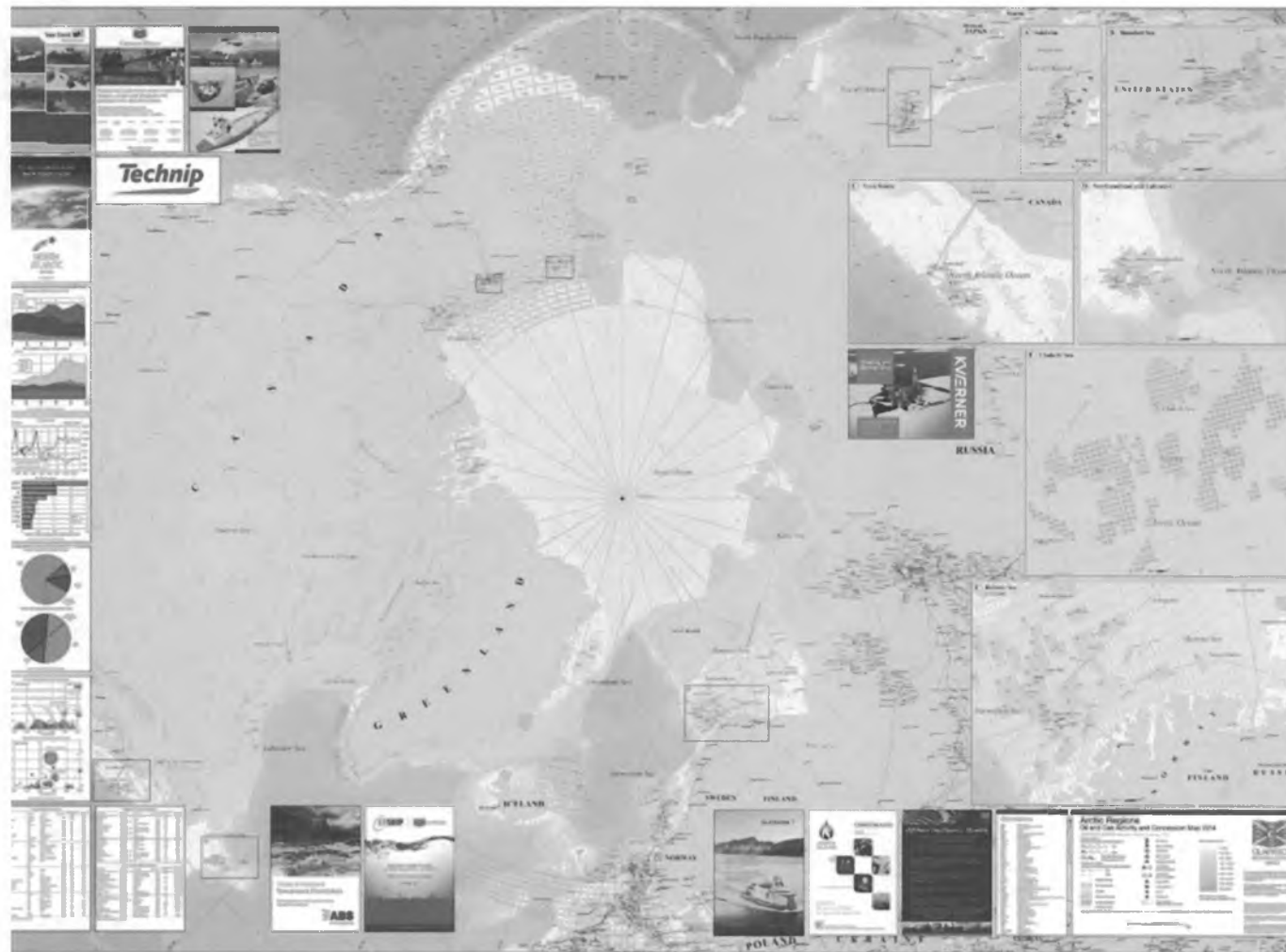
RISK FACTORS: 1.3 million tons cargo 2013
800,000 tons petroleum products



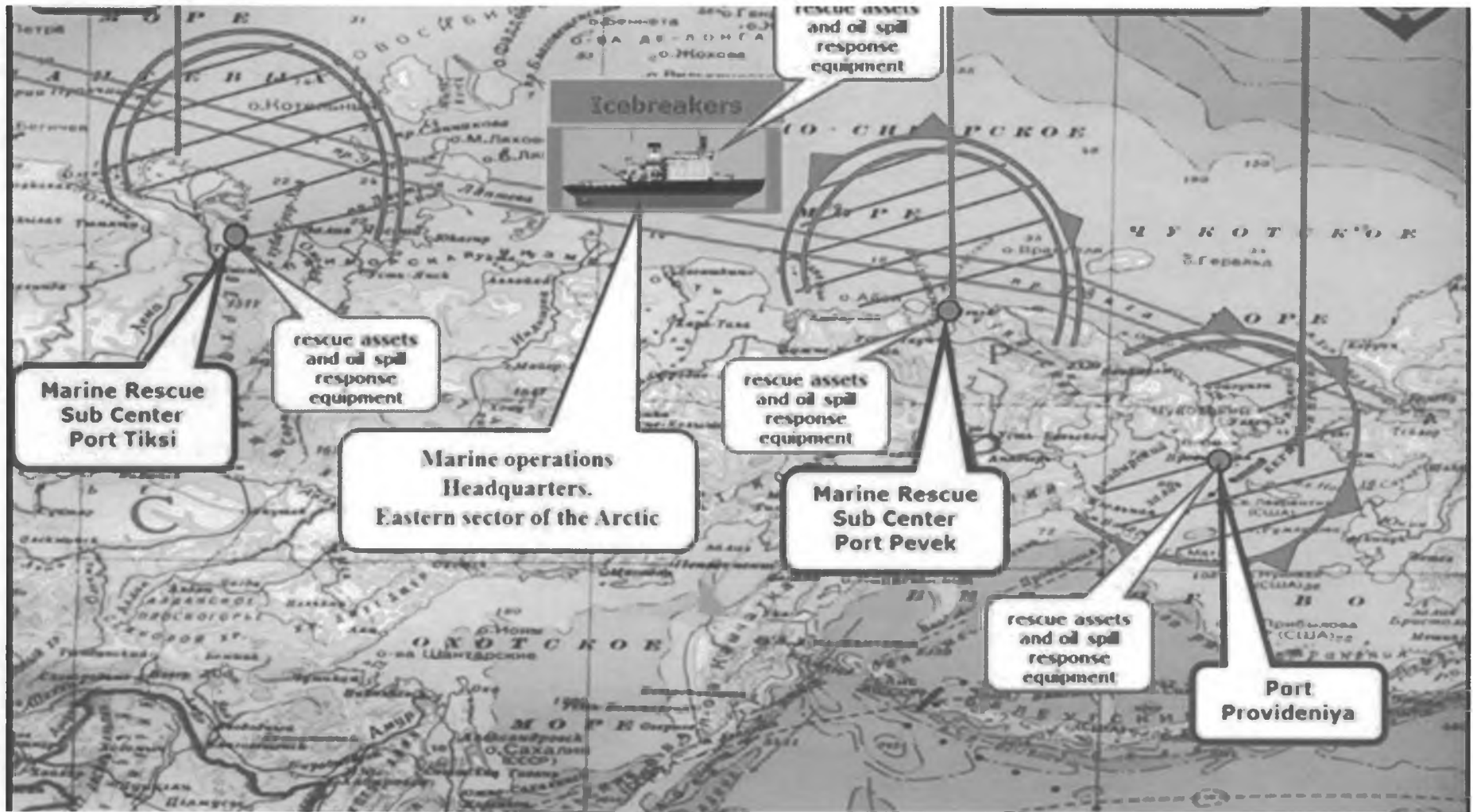
Arctic Circulation Patterns



ARCTIC OIL DEVELOPMENT



Russian Response Centers



Spectators or Actors?



Will we ride the wave
or be rolled over by it?



Don't Forget to Do It Right!



Door to a Brighter Future? It's up to us



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FOR \$20**



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GIFT GUIDE

Dave Barry's list
of season's most
puzzling presents

LIFE

TOURNEY

Harvard tips
TCU to win title;
UAA men finish last

SPORTS



\$1.50

Final Edition

Anchorage Daily News

Sunday, December 1, 2013

BREAKING NEWS AT ADN.COM

Alaska's Newspaper

B-6 Sunday, December 1, 2013

ALASKA

Anchorage Daily News

UAA takes research projects to marketplace

On a near-zero sunny Tuesday in mid-November, workmen in T-shirts poured a new sidewalk for a University of Alaska Anchorage building just off campus near University Lake. They never felt the cold because their work site was encased in a giant plastic bubble pumped full of warm air.

This was a demonstration project for anybody interested in seeing how a sidewalk that de-ices itself gets installed. Before workers poured concrete, they adjusted frames stripped with black carbon fiber tape. Each panel is attached to an electrode, and transformers connected to the electrodes send low voltage through the carbon fiber strips to generate heat. On top of all that goes the concrete.

A product safety engineer from Underwriters Laboratories Inc. out of Washington state was there to certify the sidewalk's safety and place a UL sticker on its electric box. Other curious parties included folks from city public works, the state Department of Transportation, a town home developer, the housing nonprofit NeighborWorks and an Anchorage resident with a steep driveway that stays icy and dangerous all winter.

"If this works," said homeowner Larry Chen, "I want it."

The self-de-icing pavement is the first tangible fruit of a two-year drive to commercialize research by UAA faculty and students. This particular invention comes from Joey Yang, a professor of civil engineering who usually works on structural bridge safety, but ice problems at his own house fired him up to find a better solution than continually chipping it away. His new company, CFT Solutions, is looking for customers and commercial work space to begin manufacturing the panels.

Taking products like Yang's to market is Helena Wisniewski's mission. She is vice provost for research and graduate studies at UAA. Two years ago, when she arrived from Stevens Institute of Technology in Hoboken, N.J., she quickly launched the UAA Innovate awards, an annual pot of \$200,000 in seed money for research, creative works and projects that might yield a patent and eventually income for the inventor and the university. Yang's idea was one of the first winners.

So far, Innovate dollars have contributed to 29 invention disclosures from faculty or students, 12 patents pending and two startup companies: Yang's CFT Solutions and Zensor, a company to manufacture cheap, battery-free wireless sensors for remote monitoring, developed by John Lund,



Photos by PHILIP HALL / UAA

Workers prepare to install a new snowless sidewalk at the University Lake Annex Building at the University of Alaska Anchorage. The sidewalk is the result of an effort by UAA to put academic research to commercial use.



KATHLEEN MCCOY

HOMETOWN U

a former UAA electrical engineering professor.

Other patents pending include a one-handed tool used in back surgery that lets doctors quickly shape support rods in the operating room; a mouth guard that collects data on head impact; a process for locating mineral deposits without the upfront costs of exploratory drilling; isolating the chemical compound in blueberries that staves off dementia; and a battery-operated knife that allows for more precise incisions during eye surgery.

To accommodate this new commercial direction, the UA Board of Regents approved Wisniewski's plan to create two entrepreneurial entities, Seawolf Holdings LLC and the



Plastic lifts are used to keep the rebar separated from the copper wiring in the snowless sidewalk.

Seawolf Venture Fund.

The first company holds equity in the startups on behalf of UAA and limits university liability. The Seawolf Venture Fund will finance startups emerging from university research. To date, it has raised \$1.5 million and is targeting \$10 million. The fund is intended to benefit companies like CFT Solutions and Zensor; CFT is

seeking an additional \$500,000.

Wisniewski said she's happy with the pace of things. When she was at Stevens Institute of Technology, she launched nine startups and sold two. "One or two a year is about right," she said. Then it can take three to five years to build a company before it's attractive for acquisition.

She is especially proud of the

team leading Seawolf Holdings LLC. Wisniewski as president is joined by Thomas Hook, CEO of Greatbatch Inc., a publicly traded company on the New York Stock Exchange; Stephen Socolof of New Venture Programs; John Wanamaker of Alaska Venture Partners; John Sibert, founding chairman of the National Association of Seed & Venture Funds; John Bischoff, former CFO of AOL; and UAA's provost, Elisha "Bear" Baker.

Springwell Partners, a private equity firm from Connecticut, has joined Seawolf Venture to manage that fund. What distinguishes the fund is access to new ideas coming right out of UAA, or as investors call it, a steady "deal flow."

All this demonstrates that Wisniewski has brought her experience and connections to Alaska. Partnerships and networks add expertise that can strengthen funding proposals, she said.

"In coming here two years ago, I saw a lot of untapped potential," she said. "There's more to come."

Indeed, she recently filed UAA's application to become a Center of Excellence for the Department of Homeland Security. That agency operates 12 such centers at universities around the United States to continually assess all kinds of risk, from terrorism to microbial hazards to food security.

This national center will focus on providing near real-time information on man-made and natural catastrophic events along the country's coastlines. How do you predict these events, prepare for them and survive them? With increasing arctic activity and Alaska's long shoreline, Wisniewski hopes UAA will be a serious contender.

Money for the center will be awarded in April 2014. Whichever university receives it will develop a facility to monitor coastline anomalies around the country. Partners in UAA's proposal include other coastline states that would benefit from the program, including Louisiana, Maryland, New York, California and Canada. Even the Port of Anchorage is a partner.

Just applying is an important step, Wisniewski said. If UAA's bid is not successful, she will still have forged new government and business connections around the country that can help put Alaska's potential on their radar.

Kathleen McCoy works at UAA, where she highlights campus life through social and online media.

ADN.com

UAA launches second start-up company

Posted on July 9, 2013



Carbon fiber strips in three of the five test panels kept them snow- and ice-free.

COURTESY UAA

ANCHORAGE, AK – The University of Alaska Anchorage launched its second start-up company, CFT Solutions™, an innovative approach to deicing and snow removal.

CFT Solutions™, a Seawolf Holdings company, was founded on the idea of creating an innovative, cost-effective and environmentally friendly approach to prevent snow and ice from accumulating.

CFT's patent-pending innovation is in embedding carbon fiber tapes under the pavement to heat the surface, which are easy to install and maintain. This system is ideal for high pedestrian traffic walkways, roads, high usage road intersections, bridges and roofs of buildings, as well as domestically for driveways and home roofs. It was successfully tested in Anchorage during the winter of 2011-12, which had a record snowfall for the area.

The company, created in May 2013, was established by UAA Vice Provost for Research and Graduate Studies Dr. Helena Wisniewski and faculty inventor Zhaohui "Joey" Yang, a UAA engineering professor.

But the idea for CFT Solutions™ began three years ago when Yang met his collaborator, Professor Gangbing Song from University of Houston. Song was experimenting with commercially available flexible

carbon fiber that is light, strong, non-corrosive and conducts low-voltage electricity generating a certain amount of heat. Song was using these to heat surfaces in his lab.

“Knowing how dangerous a slick sidewalk is to pedestrians in winter, I could not wait to test the material in more challenging winter conditions like we have here in Alaska,” Yang said. With a generous grant from Alaska University Transportation Center, their collaboration was born.

This is the second start-up company for UAA since it established Zensor™ in April earlier this year.

“Creating our second start-up company within a few months of our first illustrates UAA’s upward trend in commercialization and how our research can contribute solutions for local and national needs,” said Wisniewski, who develops and oversees the business infrastructure for commercialization of faculty and student research. This infrastructure led to the establishment of Seawolf Holdings and Seawolf Venture Fund, and world-class Board of Directors including corporate CEOs, venture firm partners, and entrepreneurs.

For more information about Yang’s research and the inception of CFT Solutions, visit:

<http://greenandgold.uaa.alaska.edu/?p=10660>

Read more about Professor Yang’s work at:

<http://www.uaa.alaska.edu/schoolofengineering/faculty-staff/yang.cfm>

For more information about CFT Solutions™, contact Dr. Helena Wisniewski at hswisniewski@uaa.alaska.edu or Dr. Joey Yang at zyang2@uaa.alaska.edu.



Photo
courtesy of
Zensor LLC

University of Alaska Anchorage Faculty Inventor and Electrical Engineering Professor Dr. John Lund holding a Zensor sensor, which he invented. The low-cost wireless sensors are powered by two small solar panels and can be used for monitoring remote infrastructure, asset management, surveillance, and security. Zensor sensors are patent pending.

Zensor Sensors

Opening the
door to research
commercialization
at UAA

By Vanessa Orr

When Dr. John Lund, a professor of engineering at the University of Alaska Anchorage (UAA), first began studying the remote monitoring needs of companies doing business in the Arctic, it spawned the idea of creating a longer-lasting, lower-cost, maintenance-free wireless sensor. It also launched UAA into a new role as the owner of its first ever startup company, Zensor.

While Zensor, established in February by Lund and UAA Vice Provost for Research and Graduate Studies Dr. Helena Wisniewski, is the first company to take part in UAA's new business infrastructure designed to commercialize innovative faculty and student research, it certainly won't be the last.

Already more than twenty-five UAA entrepreneurs have filed invention disclosures; a number significantly higher than when Wisniewski joined the UAA staff less than two years ago.

The Entrepreneurial Approach

"I was hired for two main reasons—to increase the research enterprise and to get technology commercialization in place," explains Wisniewski, who has been at the university for a year and nine months. "I was delighted that they wanted to go in this direction; the talent was here, but they needed someone to come in and pull it all together. Now we've gone from three invention disclosures to more than twenty-five, and two of these are from UAA students. Also,

"I was delighted that they wanted to go in this direction; the talent was here, but they needed someone to come in and pull it all together. Now we've gone from three invention disclosures to more than twenty-five, and two of these are from UAA students. Also, nine of these have evolved into patents pending with more in process."

—Dr. Helena Wisniewski

UAA Vice Provost for Research and Graduate Studies



nine of these have evolved into patents pending with more in process."

"This is an exciting time for UAA," agrees Chancellor Tom Case, adding that there were a number of reasons why the university chose to become involved in the commercialization of research. "There is real value in experiential learning, or learning by doing, in addition to classroom lectures, which is why the university has long placed an emphasis on undergraduate research. This approach also contributes to the growth of interdisciplinary work on campus, such as when engineering, computer science, and business students and faculty collaborate to take an entrepreneurial approach.

"We are also responsible for helping to meet the state's needs, especially in the area of economic development, when those needs match the university's mission," he continues. "And over time, mutually beneficial partnerships between universities and industries can result in the development of research parks clustered close to universities, which provides a good interface between entrepreneurship and research."

The Sensor that Started it All

Zensor LLC, a Seawolf Holdings company, offers a new generation of wireless sensors for use in remote monitoring, asset management, and surveillance and security. The sensors require no batteries, are effective with a small power source, and cost much less than comparable sensors on the market. "Zensor sensors are intended to make monitoring remote infrastructure cheaper, easy, and reliable," Lund says.

Unlike other sensors that are dedicated to one use, Zensor sensors collect and transmit data on humidity, light intensity, temperature, color, sound, thermal images, vibrations, and the tilt of a stationary object, such as a telephone pole. Additional capabilities can be added,

including GPS and gas sensing.

"Zensor sensors are designed to meet many market needs," explains Wisniewski. "In industrial installations

such as the pipeline, for example, the sensors can tell if there is gas or liquid leaking or if there are any cracks or structural instabilities in real-time.

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BUSINESS
APP
DESIGN

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smartphonecreative.com

"In the area of surveillance and security, the sensors can be placed along the border to detect vibration and can distinguish if the movement is caused by a person or animal," she adds.

"Zensor sensors can also be used at remote sites over large expanses to provide information in difficult-to-reach geographic areas. Sensors can be dropped from UAVs [unmanned aerial vehicles] to cover the landscape and provide information on environmental changes such as ice flow or melt."

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UAA launches second start-up company

Posted on July 9, 2013



Carbon fiber strips in three of the five test panels kept them snow- and ice-free.

COURTESY UAA

ANCHORAGE, AK – The University of Alaska Anchorage launched its second start-up company, CFT Solutions™, an innovative approach to deicing and snow removal.

CFT Solutions™, a Seawolf Holdings company, was founded on the idea of creating an innovative, cost-effective and environmentally friendly approach to prevent snow and ice from accumulating.

CFT's patent-pending innovation is in embedding carbon fiber tapes under the pavement to heat the surface, which are easy to install and maintain. This system is ideal for high pedestrian traffic walkways, roads, high usage road intersections, bridges and roofs of buildings, as well as domestically for driveways and home roofs. It was successfully tested in Anchorage during the winter of 2011-12, which had a record snowfall for the area.

The company, created in May 2013, was established by UAA Vice Provost for Research and Graduate Studies Dr. Helena Wisniewski and faculty inventor Zhaohui "Joey" Yang, a UAA engineering professor.

But the idea for CFT Solutions™ began three years ago when Yang met his collaborator, Professor Gangbing Song from University of Houston. Song was experimenting with commercially available flexible

carbon fiber that is light, strong, non-corrosive and conducts low-voltage electricity generating a certain amount of heat. Song was using these to heat surfaces in his lab.

“Knowing how dangerous a slick sidewalk is to pedestrians in winter, I could not wait to test the material in more challenging winter conditions like we have here in Alaska,” Yang said. With a generous grant from Alaska University Transportation Center, their collaboration was born.

This is the second start-up company for UAA since it established Zensor™ in April earlier this year.

“Creating our second start-up company within a few months of our first illustrates UAA’s upward trend in commercialization and how our research can contribute solutions for local and national needs,” said Wisniewski, who develops and oversees the business infrastructure for commercialization of faculty and student research. This infrastructure led to the establishment of Seawolf Holdings and Seawolf Venture Fund, and world-class Board of Directors including corporate CEOs, venture firm partners, and entrepreneurs.

For more information about Yang’s research and the inception of CFT Solutions, visit:

<http://greenandgold.uaa.alaska.edu/?p=10660>

Read more about Professor Yang’s work at:

<http://www.uaa.alaska.edu/schoolofengineering/faculty-staff/yang.cfm>

For more information about CFT Solutions™, contact Dr. Helena Wisniewski at hswisniewski@uaa.alaska.edu or Dr. Joey Yang at zyang2@uaa.alaska.edu.



Photo
courtesy of
Zensor LLC

University of Alaska Anchorage Faculty Inventor and Electrical Engineering Professor Dr. John Lund holding a Zensor sensor, which he invented. The low-cost wireless sensors are powered by two small solar panels and can be used for monitoring remote infrastructure, asset management, surveillance, and security. Zensor sensors are patent pending.

Zensor Sensors

Opening the
door to research
commercialization
at UAA

By Vanessa Orr

When Dr. John Lund, a professor of engineering at the University of Alaska Anchorage (UAA), first began studying the remote monitoring needs of companies doing business in the Arctic, it spawned the idea of creating a longer-lasting, lower-cost, maintenance-free wireless sensor. It also launched UAA into a new role as the owner of its first ever startup company, Zensor.

While Zensor, established in February by Lund and UAA Vice Provost for Research and Graduate Studies Dr. Helena Wisniewski, is the first company to take part in UAA's new business infrastructure designed to commercialize innovative faculty and student research, it certainly won't be the last.

Already more than twenty-five UAA entrepreneurs have filed invention disclosures; a number significantly higher than when Wisniewski joined the UAA staff less than two years ago.

The Entrepreneurial Approach

"I was hired for two main reasons—to increase the research enterprise and to get technology commercialization in place," explains Wisniewski, who has been at the university for a year and nine months. "I was delighted that they wanted to go in this direction; the talent was here, but they needed someone to come in and pull it all together. Now we've gone from three invention disclosures to more than twenty-five, and two of these are from UAA students. Also,

"I was delighted that they wanted to go in this direction; the talent was here, but they needed someone to come in and pull it all together. Now we've gone from three invention disclosures to more than twenty-five, and two of these are from UAA students. Also, nine of these have evolved into patents pending with more in process."

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"This is an exciting time for UAA," agrees Chancellor Tom Case, adding that there were a number of reasons why the university chose to become involved in the commercialization of research. "There is real value in experiential learning, or learning by doing, in addition to classroom lectures, which is why the university has long placed an emphasis on undergraduate research. This approach also contributes to the growth of interdisciplinary work on campus, such as when engineering, computer science, and business students and faculty collaborate to take an entrepreneurial approach.

"We are also responsible for helping to meet the state's needs, especially in the area of economic development, when those needs match the university's mission," he continues. "And over time, mutually beneficial partnerships between universities and industries can result in the development of research parks clustered close to universities, which provides a good interface between entrepreneurship and research."

The Sensor that Started it All

Zensor LLC, a Seawolf Holdings company, offers a new generation of wireless sensors for use in remote monitoring, asset management, and surveillance and security. The sensors require no batteries, are effective with a small power source, and cost much less than comparable sensors on the market. "Zensor sensors are intended to make monitoring remote infrastructure cheaper, easy, and reliable," Lund says.

Unlike other sensors that are dedicated to one use, Zensor sensors collect and transmit data on humidity, light intensity, temperature, color, sound, thermal images, vibrations, and the tilt of a stationary object, such as a telephone pole. Additional capabilities can be added,

including GPS and gas sensing.

"Zensor sensors are designed to meet many market needs," explains Wisniewski. "In industrial installations

such as the pipeline, for example, the sensors can tell if there is gas or liquid leaking or if there are any cracks or structural instabilities in real-time.

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