IARC’s mission is to foster Arctic research in an international setting to help the nation and the international community to understand, prepare for, and adapt to the pan-Arctic impacts of climate change. IARC serves as both mediator and driver to advance international collaboration aimed at comprehensive studies of the Arctic system by integrating strengths unique to university, state, federal, and international support levels.

Larry Hinzman, IARC Director  
Hajo Eicken, IARC Deputy Director  
John Walsh, IARC Chief Scientist  
Elena Sparrow, IARC Education/Outreach Director
A Message from the Director

The importance of Arctic science continues to grow with each passing month. The increasingly critical roles our region plays in global climate dynamics, policy, commerce, and security have pushed the Arctic into major U.S. strategic plans and assessments. This was made apparent recently when the White House issued, in quick succession, an Arctic Research Plan (February 2013), a National Strategy for the Arctic Region (May 2013), and an Implementation Plan (January 2014) for that strategy. And in July, Secretary of State John Kerry appointed Admiral Robert Papp (USCG retired) U.S. Special Representative for the Arctic, to elevate Arctic issues in America’s foreign policy and national security strategy because [...] Arctic policy has never been more important.

Meanwhile, we see substantial increases in interest, investment, and activity from states around the world. Canada, China, Japan, Russia, South Korea, and Sweden each conducted research expeditions in the U.S./Alaskan exclusive economic zone in summer 2014. The U.K. Natural Environment Research Council (NERC) recently established an Arctic Research Programme to address scientific uncertainties and changes in the Arctic. The Korean Polar Research Institute (KOPRI) has used their recently launched icebreaker Arason to establish new remote field stations in the Arctic Basin. And Canada is constructing a new High Arctic Research Station (CHARS) in Nunavut, scheduled to open in July 2017. All while Norway and Russia expand their own well-established and highly productive Arctic research programs.

Commercial interests are likewise expanding. In November, the Korean company Daewoo announced their intent to build icebreaking Liquid Natural Gas (LNG) tankers. Five years ago, 220 ships crossed through the Bering Strait. In 2013, 440 ships entered or exited through this passage, and we anticipate this number will continue to rise.

This increase in Arctic activity demonstrates the growing need for scientific understanding to inform policy, decision-making, investment, and development. Though understanding of mechanisms and teleconnections between Arctic and more temperate regional processes remains incomplete, the rapidly changing Arctic continues to emerge as a major role player in global climate dynamics nonetheless. We at the International Arctic Research Center (IARC) are proud to serve our national and international communities, providing the observations, global climate dynamics nonetheless. We at the International Arctic Research Center (IARC) are proud to serve our national and international communities, providing the observations, analyses, and understanding so critically important at this time. We collaborate with our national and international partners to provide the science needed to guide society through these rapidly changing times.

IARC is also pleased to announce the appointment of Hajo Eicken as Deputy Director. Professor Eicken has played a leading role as IARC responds to an ever changing scientific climate. With the commitment of our dedicated faculty, staff, and students, I am confident that we will meet the tremendous challenges before us.

Larry Hinzman
IARC Director
Sparrow views her work with GLOBE as a way to engage students and teachers as “citizen scientists.” “We feel strongly that early, hands-on participation in the scientific process is key to community environmental awareness and resources management,” she notes. As the U.S. Partner Coordinator for Alaska, Sparrow works cooperatively within the University of Alaska statewide system, and is responsible for recruiting GLOBE schools, training and supporting GLOBE teachers, and mentoring GLOBE students across Alaska.

In particular, Sparrow is also the Principal Investigator for the GLOBE Earth System Science Project on “Seasons and Biomes,” under which students in GLOBE schools organized by biomes (climatically defined regions of the Earth) are using GLOBE protocols to conduct official measurements of various types. “Over time,” Sparrow says, “we have been able to engage students in soils, land cover/biology, phenology, atmosphere, cryosphere, and hydrology research in an era of climate change.” She identifies persistent changes in seasonal events such as budburst, green-up and green-down, fresh-water ice freeze-up and break-up, and mosquito phenology as indicators.

Sparrow’s GLOBE work has also led to recent widespread workshop programs (in Alaska, and around the world) to aid and interact with science teachers, and to better integrate science education across curricula and diverse learning contexts. She has also led work to engage learners at K-12 levels and to present opportunities for early career scientists to share their expertise with diverse audiences. Consistent with IARC’s mission of Arctic system science, Sparrow has worked to develop ways of emphasizing the Earth as a system of interacting components and cycles, paying special attention to the participation and involvement of humans. Meanwhile, Sparrow is also leading efforts to use GLOBE science measurement protocols together with Native knowledge/observations in locally relevant environmental studies for students in rural Alaska.

Uniting her broad interests in climate research (currently focused on vegetation phenology), Earth system science, and science education, Elena Sparrow has built a model career for researchers with the type of depth, complexity, and well-roundedness IARC and UAF seek to promote. By using her research background and interests to develop education and outreach programs that will benefit local, regional, and global communities for generations to come, while also highlighting the value and potential contributions these communities can provide to the world of science, Sparrow continues to work as an example for others.
IARC researchers are among several select groups of international scientists convened in recent months to assemble the information and resources the U.S. government and industries will use in the near future to develop new strategies for addressing climate change.

Among these reports is the Third National Climate Assessment (NCA3), which summarizes the current and future impacts of climate change on the United States. Conducted under the auspices of the Global Change Research Act of 1990, the NCA3 represents an assessment undertaken at least every four years with efforts underway to create an ongoing, sustained assessment process. With a team of more than 300 experts, guided by a 60-member Federal Advisory Committee, the current report underwent an extensive review process, including by federal agencies and a panel of the National Academy of Sciences.

Two IARC scientists were among the 60-seat advisory committee for the NCA3. Chief scientist John Walsh served as a convening lead author on Our Changing Climate, the first of 30 subject chapters in the report. Our Changing Climate summarizes how climate is changing, why it is changing, and what is projected for the future. As Walsh notes, the chapter presents an overview of climate science and emphasizes “what scientists really know and are confident about.” Key statements include:

- the U.S. (including Alaska) is warming;
- the eastern and northern U.S. have been wetter, while the Southwest has been drier (with Alaska somewhere in the middle);
- the number of record hot days in the U.S. is increasing (as they also are in Alaska);
- events of heavy precipitation (leading to flooding) and intense rainfall/snowfall are increasing; and
- the hottest days are getting hotter, while the coldest days are getting less cold (as is also the case in Alaska).

The chapter also addresses other types of weather, including tornadoes and winter storms, about which climate scientists have little confidence when predicting future changes. Future predictions on droughts also vary, depending on the region.

Walsh also led the more technical Climate Science supplement to the report, which presents in more detail the NCA3’s twelve key messages about our changing climate, together with extensive supporting evidence for those messages. The discussion of each key message begins with a summary of recent variations or trends, followed by projections of the corresponding changes for the future.

Sarah Trainor, IARC’s Alaska Center for Climate Assessment & Policy (ACCAP) director; Terry Chapin, emeritus at the UAF Institute of Arctic Biology (IAB); and Dave McGuire of IAB and USGS were also convening and lead authors on the NCA3’s Alaska chapter. Among the report’s ten regional chapters, Alaska is the only state to receive its own singular geographical focus. Alaska has warmed twice as fast as the rest of the nation, bringing widespread impacts, including rapidly receding sea ice and shrinking glaciers.

The chapter has five key messages:

- summer sea ice is receding and is projected to disappear by mid-century;
- continued shrinkage of glaciers in Alaska and British Columbia will contribute to sea level rise;
- a trend of thawing permafrost will cause drier landscapes and more wildfire, along with the release of heat-trapping gases;
- increases in Alaska’s ocean temperatures and changes in ocean chemistry will affect marine fisheries; and
- the cumulative effects of climate change will strongly affect Native communities.

Despite the fact that global surface temperature has not increased in the past 15 years, we continue to see many signs of a warming planet, including continued loss of sea ice, glaciers, ice sheets, and permafrost, as well as warming of the deep oceans. The report discusses natural variability and heat uptake by the oceans as key reasons why the rate of warming at the surface has slowed.

IARC Plays Major Role in High-Stakes Arctic and Climate Change Reports
Readers are encouraged to experience the NCA3, available in both downloadable pdf format and as a dedicated, interactive web site, at globalchange.gov.

In addition to her work on the NCA3, Trainor, together with director Scott Rupp and the team at IARC’s Scenarios Network for Alaska Planning (SNAP), also played a leading role in the development of Managing for the Future in a Rapidly Changing Arctic, a report consisting of integrated scientific findings and management recommendations designed specifically for the Obama Administration.

Coordinated by the Department of the Interior, an inter-agency federal working group that also included the National Ocean Council, the National Security Staff, and the Arctic Research Commission initiated the report, which calls for a specialized management strategy for the rapidly changing Arctic. The report highlights the need for an integrated, collaborative approach that uses the best available science to integrate cultural, environmental, and economic factors in decision-making about development and conservation.

The report notes that the United States is one of only eight nations in the world with direct responsibility for stewardship of the Arctic, which is undergoing dramatic environmental, social, and economic changes. The implications of these changes, the authors argue, demand a fresh look from the Federal Government and its partners, toward addressing management challenges in the region. The report describes these challenges as they relate to the management of natural resources in the U.S. Arctic, and presents recommendations for advancing a common management approach with coordinated, forward-thinking solutions.

As a result, and prompted by the Arctic Monitoring and Assessment Program (one of six Working Groups of the Arctic Council), the AACA was initiated “to review the need for an integrated assessment of multiple drivers of Arctic change as a tool for Indigenous Peoples, Arctic residents, governments and industry to prepare for the future.”

The overall objective of the AACA is to enable more informed, timely, and responsive policy and decision making in a rapidly changing Arctic.

Hinzman is co-chairing the Bering-Chukchi-Beaufort component of the AACA report, one of its three focus regions. John Walsh and Sarah Trainor are lead authors on two chapters. The final report will be delivered to the Arctic Council in 2017.

IARC Scientists Retrieve New Methane Data Aboard Arctic Ocean Research Cruise

From July to October of 2014, IARC researchers Igor Semiletov and Natalia Shakhova took part in a major international research expedition through the Arctic Ocean, designed to study a host of issues crucial to the rapidly changing Arctic climate. Traversing the Laptev, East Siberian, and Chukchi Seas, the two-part mission is expected to yield research that will contribute greatly to ongoing efforts to quantify Arctic methane deposits and release mechanisms, transport of warm Atlantic water and carbon throughout the Arctic Ocean, and historical estimation of sea ice movement and extent.

Known as SWERUS-C3 (Swedish-Russian-US Arctic Ocean Investigation of Climate-Cryosphere-Carbon Interactions), the cruise projects enlisted the Swedish icebreaker ship Oden, one of the world’s foremost polar research vessels, along with advanced research equipment, laboratories, crew, and support staff. With Swedish, Russian, and American scientists on board, the expedition exemplified the international collaborative work IARC strives to facilitate.

As an ongoing research program, SWERUS-C3 focuses on the present and historical functioning of the multi-process interactions involving climate, cryosphere (sea ice and coastal permafrost), and carbon-deposit system of the East Siberian Arctic Ocean (ESAO). For Semiletov and Shakhova, the trip is the latest in a series of research cruises and field studies meant to quantify the massive amounts of trapped methane within Arctic permafrost and gas hydrates, especially along the coastal shelf and upper slope of the ESAO. As methane represents one of the most potent greenhouse gases in the dynamics of climate change, climate scientists are particularly sensitive to the warming potential and feedback risks that trapped Arctic methane continues to pose.
As a target area, the ESAO is experiencing some of the fastest rates of climate warming yet measured, while also holding vast stores of vulnerable carbon. Meanwhile, despite hosting 80% of the Earth’s subsea permafrost and the massive carbon and methane stocks therein, as well as the likely potential for its climate-induced mobilization, the area remains quite sparingly explored.

Departing from Tromsø, Norway, on July 5th, the first leg of the Oden’s journey travelled through the Laptev Sea and along the shallower portions of the Arctic Russian coast, where Semiletov and Shakhova were able to collect some of their most extensive emissions readings to date. As Stockholm University collaborator and chief scientist Örjan Gustafsson noted, “[f]or the first time, elevated methane concentrations were detected in the seawater all the way up to the surface along the continental slope.” From Siberia, the expedition continued to Barrow, Alaska on August 20th, where it exchanged crew and support staff and began its second leg and return trip to Norway. During the second stage of the cruise, the SWERUS-C3 exhibition shifted in focus, toward the dynamics of Atlantic water inflows into the Arctic Ocean, which bring with them discrepant warmth and assist in the transport of carbon from the Siberian shelf into the deeper waters of the Arctic Ocean. This leg involved coring of high-resolution post-glacial sediment archives, mapping of gas hydrates, oceanographic investigations, and water sampling for determination of greenhouse gas relevant properties.

The trip’s trajectory, which traveled over the unique sediment depositories of Herald Canyon in the Chukchi Sea, as well as the underwater Lomonosov Ridge mountain range, also provided researchers the opportunity to measure residual effects from historical ice sheet activity.

Taken together, the two legs provide the project with broad geographical coverage, while bolstering common at-sea sampling and observational strategies. Further, throughout the trip, atmospheric activity was measured continuously, providing additional data for studying the role Arctic cloud cover may play in the climate system. As the researchers begin the intensive process of analyzing the samples and data collected during the trip, they will continue to reflect on the primary questions the cruise program was designed to address: In what ways and amounts is Arctic methane being released to the atmosphere? How will trapped methane respond to increased ocean warming? Have carbon releases of this type occurred in the past? And have there ever been ice-free summer periods similar to the ones that much of the Arctic Ocean is experiencing now?
IARC research scientist Kazuyuki Saito has been working on a project to present large-scale distributions of permafrost conditions, throughout recent history and across the Northern Hemisphere. His work has produced maps of permafrost extent since the LGM (last glacial maximum), at which point frozen ground began the thawing and degradation that has continued to the present. The maps are unique and groundbreaking.

“Attempts at a project on this level have never before been successful,” Saito notes. “Though there have been similar partial results for areas as extensive as North America or northern Asia, all of which our project has found helpful, those individual studies have been discrepant in their methodologies and approaches.” Saito and his team of researchers, including IARC’s John Walsh, Amy Hendricks, and Kenji Yoshikawa, meanwhile, have arrived at a methodology that can successfully and consistently produce historical permafrost distributions for the entire Northern Hemisphere. This is what makes this study special.

Saito also identifies some innovations regarding its methodology. “Our results for LGM (18-21 thousand years ago) permafrost extent rely on existing numerical models, though the variables we use to diagnose those model scenarios are of our own design, and based largely on soil and air temperatures above the permafrost.”

The credibility of the results was enhanced by a complex validation process involving comparisons between wide arrays of modeled and observed air and soil temperatures and subsurface conditions. Beginning with global climate model (GCM) output, the group compared these results with compilations from the International Permafrost Association (IPA) from around the world, as well as past observations from as early as the 1800s. By adjusting their combination of GCM outputs and mapping imagery, the group obtained consistent results from the model simulations and the IPA’s available historical information.

Through their heavy reliance on both numerical modeling and observational data, Saito’s team is also attempting to bridge some common gaps that exist between modelers and field scientists. Saito’s own career as a scientist has positioned him well for such a challenge. “If it’s true that today’s researchers most often consider themselves divided between numerical analysts, numerical modeling, and observational study, then I’ve spent most of my time wandering around among the three,” he says. “The result is that I’m quite familiar with the challenges of each approach.”

The project has produced some unique information about the permafrost distributions of the past. One focus has been Beringia, or the area between Russia and Alaska, which today comprises much of the Bering Strait and Chukchi Sea. In the past, and during the period Saito’s study covers, however, much of Beringia was covered by the frozen ground of permafrost, enabling the mass migration of humans from Asia to North America. The time between the LGM and the present, during which that permafrost thawed and the coastlines of Siberia and Alaska retreated to their current states, is one of enormous consequence for climate modelers, anthropologists, linguists, and social scientists of all types, as well as the public at large. “We hope our study can inform other disciplines,” Saito says, “just as their work has informed ours.”
IARC scientists recently completed a two-year project to assemble a web-based, interactive tool for presenting historical Alaska sea ice data back to 1850. The first of its kind, and built from data previously quite disparate and/or difficult to access, the interface is meant to inform stakeholders in a wide variety of contexts.

Led by IARC chief scientist John Walsh as well as Sarah Trainor and Lena Krutikov of IARC’s Alaska Center for Climate Assessment & Policy (ACCAP), the publicly accessible Sea Ice Atlas is presented as an online display, allowing users to simultaneously view the synthesis of multiple sources of historical sea ice data in the Beaufort, Chukchi, and Bering Seas, showing sea ice conditions around Alaska over the past 160 years.

The map interface allows users to select a date or a location to visualize how open water seasons have varied in both time series and map format. Animations show changes in ice extent and concentration through time—over years and decades. The Atlas also offers a glossary defining types of sea ice and providing information about original data sources and how the data were compiled.

In its development, the project is more complex than its straightforward interface suggests. Maintained by IARC’s Scenarios Network for Alaska & Arctic Planning (SNAP), the database that provides the foundation for the Atlas comprises sea ice data measurements from more than ten unique sources, including US and Japanese satellite records, available from the early 1970s to the present; various U.S. Naval and National Ice Center compilations from the 1950s to the 1990s; various Canadian records from the 1950s to the 1980s; Danish and Norwegian sea ice information based on ship records from the mid-1800s to the 1970.

The first 100 years of information are derived mostly from log books and charts from whaling ships, provided by the New Bedford Whaling Museum, as well as the ice compilations from the Danish Meteorological Institute. For later decades, the National Snow and Ice Data Center scanned almost 7,000 charts made between 1953 and 1986, derived from surveys in support of the Navy and oil companies.

Across such varied sources of data, there were widespread differences in characteristics such as formatting and detail. “There were a lot of uncertainties,” Walsh said of using old records. Whaling ships, for example, would simply record their location and note if ice was visible on that date. Ice conditions can vary greatly within a month, creating challenges for determining the mid-month ice distributions that comprise the Atlas through 1952. From 1953 onward, the Atlas contains weekly information.

With funding support from the Alaska Ocean Observing System and NOAA, historical data were compiled and interpolated by researchers who supplemented existing, fragmented data with additional information. For months with incomplete data, the team would look for the most comparable ice coverage from more recent, complete records and supplement missing coverage with corresponding information from “analog” years.

Objectives for the Sea Ice Atlas include providing researchers and the public with a reliable tool for understanding and comparing ice cover variability. “Is there a 20-year cycle in sea ice?” Walsh asked. “If you only have 30 years of data, it’s really hard to say there is a 20-year cycle. But when you have 160 years of information, you can start to see if any cycles hold up over time, whether they are robust enough to be considered real.”

Regarding variability, Walsh also wished to investigate any particular precedents for the recent, extreme lack of summer ice from the past five or six years. “There were occasional one-year retreats, for example, in 1958 and 1968, where the ice edge was 300 or 400 miles north of Barrow,” Walsh noted. “[But] no precedent … for ice retreat as extreme as we’ve had in the last seven or eight years.”

Anyone with a current web browser and Internet access can access the Sea Ice Atlas, available at seaiceatlas.snap.uaf.edu.
IARC’s Scenarios Network for Alaska Planning (SNAP) research group has produced a new report for those interested and enthusiastic about the U.S. National Parks System. Comprised of scientific and local knowledge, “State of Change” represents the latest in SNAP’s innovative series of partnerships and collaborations, using advanced datasets and modeling to explore and explain possible futures in the face of climate change.

“State of Change” is the result of a three-year collaboration between SNAP researchers and the National Park Service (NPS), aiming to assist Alaska NPS managers, cooperating personnel, and key stakeholders in developing plausible climate change scenarios for all NPS areas in Alaska. The guide’s audience includes anyone who visits and works around Alaska’s national parks, as well as the scientific community working to understand and illustrate the changing climate. “State of Change” presents facts about climate science, visible evidence, examples of internal park-related efforts, and work that visitors can do to make a difference themselves.

The report notes that change isn’t new, and that our parks and ecosystems have undergone constant change since long before humans ever encountered them many thousands of years ago. But in the past 150 years in particular, the speed of this change has accelerated. In “State of Change,” scientists and other stakeholders engage important questions about the capabilities of our parks to keep up with rapid environmental changes, from breached banks in Yukon-Charley Rivers National Preserve to retreating rivers of ice in Kenai Fjords National Park.

Dr. Nancy Fresco, a project leader and SNAP researcher since 2007, has observed the unique role the national parks can play in communicating the drastic changes occurring within northern ecosystems. “Understanding the many ways in which climate change may affect Alaska is not just important, it’s crucial,” she notes. “Viewing those changes in the context of our treasured parks pulls all Americans into the conversation.”

John Morris, another project leader who works for the NPS in Anchorage, notes the significant and direct benefits the project will have for NPS workers. “In developing this visitor guide, we’re providing our rangers with a much-needed tool for raising awareness about this critical issue,” he said. “It’s likely to be a topic of conversation in the parks for many years to come.”

NPS and SNAP also released, in digital format, five detailed reports from planning workshops that explored climate change scenarios. The workshops were held in each of Alaska’s regional park networks. They brought together diverse groups of people to discuss plausible park futures in the face of climate changes. Adaptation, communication, education, and flexible management were core needs identified in the workshops.

“State of Change” is available in print at Alaska’s national parks and online in digital PDF format.
Education/Outreach Continues to Broaden Understanding and Interest in Arctic Science

IARC’s Education/Outreach team has long found ways, both innovative and consistent, to extend the meaning and impact of science well beyond its common boundaries in topical research communities. In 2014, they counted a number of exciting successes that have continued their proud tradition of accomplishments, while also providing examples of new ways forward.

In March, IARC welcomed for the fifth year students from Suwa Seiryo High School in Japan, on a trip to learn about the Arctic. These twenty-five students witnessed presentations on scientific phenomena and methods including Arctic Ocean research cruises, auroral displays, and experiments featuring GPS technology. In all, ten scientists from IARC and the Geophysical Institute spent time with the students, as part of an exchange program spearheaded by Japan’s Ministry of Education, Culture, Sports, Science, and Technology (MEXT).

And in April, as part of an event sponsored jointly by IARC, the Association for Women in Science Alaska chapter (AWIS-AK), the Girl Scouts Farthest North Council, and the Alaska Experimental Program to Stimulate Competitive Research (EPSCoR), Education Outreach director Elena Sparrow led an event known as “Experience Science, Expect a Challenge,” designed specifically to promote interest in science and scientific careers in young girls.

Over 60 girls in grades 4-8 participated in the event at UAF, which included a series of hands-on, “minds-on” science sessions focused on topics including telemetry, nanotechnology, physics, plant adaptation, and water and nutrient cycling in streams, among others.

Molly Tedesche, PhD student at IARC, led a session on hydrology. Tedesche believes some girls are well suited for science careers and that a science education opens many doors for women and gives them independence. “I want girls to know that they can achieve it, if they want it.”

In addition to these student-focused events, which also included Fairbanks Outdoor Days in May and trips by IARC researchers to visit students in outlying areas of Alaska like Barrow and the North Slope, the Education/Outreach team has also found ways to connect with educators.

These have included a hands-on workshop in June, which invited K-12 teachers from around the state of Alaska to spend six full days at IARC learning professional scientific approaches. Led by Sparrow as part of the Global Learning and Observation to Benefit the Environment (GLOBE) program, the workshop was one of an annual series, with funding this year from Alaska EPSCoR, as part of its efforts to increase research capacity.
During the workshop, Sparrow and her assistant Christine Butcher introduced participants to scientific inquiry, including observation, asking a research question, data collection, and designing and conducting a scientific investigation, as well as communicating their findings. They also guided them to learn and practice GLOBE protocols in permafrost, atmosphere, plant phenology, water, and soils studies.

In addition, participants had the opportunity to learn about forest ecosystems from IARC researchers Jessie Young and Bob Bolton through activities in the nearby UAF Boreal Arboretum, and about permafrost from IARC/INE researcher Kenji Yoshikawa. They were also introduced to social-ecological systems from a Northern Alaska perspective by EPSCOR scientist Gary Kofinas, and mapping as method by IAB technician Naomi O’Neal.

The participants went back to their home institutions to incorporate in their curriculum the science approaches that they newly acquired or refreshed at the workshop, with a goal to help students investigate their surrounding environment as a way to learn science.

For more information regarding IARC’s Education/Outreach efforts, visit www.iarc.uaf.edu/education_outreach.

Recently it was announced that in March of 2016, IARC and UAF will be the proud hosts of the Arctic Science Summit Week (ASSW), a yearly, collaborative event gathering international organizations engaged in supporting and facilitating Arctic research. In addition to the U.S. research community, state and federal government agencies, and many of its international collaborators, IARC is excited about this opportunity to welcome our colleagues from around the world, share information on scientific achievements, and promote a culture of collaboration.

Throughout its history, the purpose of ASSW has been to provide opportunities for international coordination, collaboration, and cooperation in all fields of Arctic science. This event presents an ideal fit with the mission of IARC, which also seeks to foster a clearer, broader understanding of Arctic concerns within a collaborative, global setting.

The ASSW has been an annual occurrence since 1999, and 2016 will represent only its second time in the U.S., and first since 2007, when it was held at Dartmouth College in New Hampshire. The 2016 ASSW occurs during the two-year term of the U.S. chairing the multi-national Arctic Council, as well as IARC director Larry Hinzman’s vice presidency of the International Arctic Science Committee. Together with UAF and a variety of other participating groups, these organizations will seek to facilitate a lively and rigorous exchange of ideas and perspectives as part of ASSW, all within a unique and fitting location dedicated to Arctic life and studies.

The ASSW assembly will feature three major components, including the business of ASSW members, a separate Arctic Observing Summit (AOS), and a series of sidemeetings by important Arctic organizations. Drawing participants from academia, government and non-government organizations, and Arctic residents, AOS is a biennial forum to discuss, coordinate, and plan the implementation of integrated long-term observations of Arctic change.

The conference will run for eight days, from March 12 to 20, 2016. The Arctic Council Senior Arctic Officials also plan to meet at UAF during the ASSW.

For more information regarding Arctic Science Summit Week 2016, visit www.assw2016.org.
Financial Statements for IARC

IARC Total Revenue $15.8 million

Expenditures $15.4 million

Total Revenue by Department

AK CSC: IARC Alaska Climate Science Center
CGC: IARC Center for Global Change & Arctic System Research
GINA: IARC Geographic Information Network of Alaska
SNAP: IARC Scenarios Network for Alaska & Arctic Planning
Photo credits

Cover: Researchers deploy a buoy to track the movement of ice during a 2014 expedition during which IARC researchers studied methane held in permafrost and gas hydrates in the East Siberian shelf seas. Photo by Stockholm University/Mikael Strindin.

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Page 4 (bottom): Photo by Christine Butcher

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Page 19: Photos by Tohru Saito

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Page 24 and inside cover: A research field trip to Valdez Glacier in Alaska. In the foreground is a ground penetrating radar system, a tool used to measure snow thickness. Photo by Alessio Gusmeroli.

Back cover: The 17-m research tower that is used to obtain flux data of carbon, water, and energy, at the Poker Flat Research Range near Fairbanks, Alaska. In the background dance the northern lights. Photo by Taro Nakai.
Understanding the Arctic as a System

The International Arctic Research Center is a focal point of excellence for international collaboration. IARC provides the Arctic research community with an unprecedented opportunity to share knowledge about science in the Arctic, with an emphasis on global change research.

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