



Witness The **ARCTIC**

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Study of Environmental Arctic Change (SEARCH) Update

SEARCH Transition to Implementation Phase

SEARCH continues to transition from a planning-focused structure to an implementation phase. As follow-up from a SEARCH [kick-off meeting this past fall](http://www.arcus.org/search-program/meetings/2014/kick-off-tactics) (<http://www.arcus.org/search-program/meetings/2014/kick-off-tactics>) and with input from a SEARCH Town Hall and related [meetings](http://www.arcus.org/search-program/meetings/2014/agu) (<http://www.arcus.org/search-program/meetings/2014/agu>) at the AGU Fall Meeting, SEARCH has made progress on key governance and structure issues, including posting and announcement of three new SEARCH positions and rotations in the Science Steering Committee (SSC):



- **SEARCH Executive Director:** SEARCH announced the position of Executive Director, who will work with the SEARCH SSC, researchers, stakeholders, and agency personnel to implement the goals and objectives of SEARCH. The announcement can be found [here](http://www.arcus.org/arctic-info/archive/22892) (<http://www.arcus.org/arctic-info/archive/22892>) and application review for this position begins 15 March 2015.
- **SEARCH Communicator/Facilitator:** SEARCH announced a SEARCH Communicator/Facilitator position, which will work with a Sea Ice Action Team and SEARCH as a whole to enable communication and collaboration among members of the SEARCH organization, scientific community, stakeholders, other related programs, funding agencies, and government organizations. The announcement can be found [here](http://www.arcus.org/arcus/jobs/communicator) (<http://www.arcus.org/arcus/jobs/communicator>) and applications for this position are due 1 April 2015.
- **Project Manager:** A third position opening announced was for a Project Manager at ARCUS to implement and support a variety of SEARCH activities. The application period for this position is now closed; the archived announcement can be found [here](http://www.arcus.org/arctic-info/archive/22926) (<http://www.arcus.org/arctic-info/archive/22926>).
- **Call for Science Steering Committee (SSC) Nominations:** A call for nominations for the SEARCH Science Steering Committee was circulated last week. SEARCH seeks nominations of candidates for the SSC who are broad and cross-disciplinary thinkers, good communicators and consensus-builders, and have a strong commitment to the [SEARCH vision](http://www.arcus.org/search-program/vision) (<http://www.arcus.org/search-program/vision>). The full announcement is [here](http://www.arcus.org/arctic-info/archive/22942) (<http://www.arcus.org/arctic-info/archive/22942>) and the nomination deadline is 9 March 2015.

In addition to hiring and SSC nominations, SEARCH is finalizing an updated Terms of Reference and related governance issues.

Arctic Observing Open Science Meeting 2015

Initial planning for an Arctic Observing Open Science Meeting is underway. This meeting, which will be scheduled for November 2015 in the Seattle, Washington area, will gather members of the Arctic research community to share and discuss observing activities and related scientific findings. Meeting co-chairs are [Craig Lee \(University of Washington\)](http://www.apl.washington.edu/people/profile.php?last=Lee&first=Craig) (<http://www.apl.washington.edu/people/profile.php?last=Lee&first=Craig>), [Matthew Shupe \(Cooperative Institute for Research in Environmental Sciences, University of Colorado and NOAA Earth Systems Research Laboratory\)](http://www.esrl.noaa.gov/psd/people/matthew.shupe/) (<http://www.esrl.noaa.gov/psd/people/matthew.shupe/>), and Cathy Wilson (Atmosphere, Climate & Ecosystem Sciences Team Leader, [Earth and Environmental Sciences Division, Los Alamos National Laboratory](http://ees.lanl.gov/source/orgs/ees/)) (<http://ees.lanl.gov/source/orgs/ees/>). Funding for core meeting activities is being provided by the [NSF Arctic Observing Network program](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503222&org=PLR&from=home) (http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503222&org=PLR&from=home); co-sponsorship is sought for additional activities, including web streaming, poster session, student/early career researchers travel scholarships, and development of meeting products. Updates on the meeting will be announced through [ArcticInfo](http://www.arcus.org/arctic-info) (<http://www.arcus.org/arctic-info>), and the [SEARCH](http://www.arcus.org/search-program) (<http://www.arcus.org/search-program>) and [ARCUS](http://www.arcus.org/) (<http://www.arcus.org/>) websites.

Arctic Observing Network (AON) Position Paper

A [draft position paper](http://www.arcus.org/search-program/aon) (<http://www.arcus.org/search-program/aon>) on the design and implementation of an integrated AON is undergoing final revision. Key issues addressed in the paper include governance, network integration, and sustained funding. The draft was circulated for input and comments are now being integrated; the final paper will be circulated in the coming weeks.

Sea Ice Prediction Network (SIPN)

The SIPN project, a contribution to SEARCH, has several achievements since the last [update in *Witness the Arctic*](http://www.arcus.org/witness-the-arctic/2014/3/article/22788) (<http://www.arcus.org/witness-the-arctic/2014/3/article/22788>). A post-season report for the Sea Ice Outlook (SIO) was finalized and released. The final report was developed by a [Sea Ice Outlook Action Team](http://www.arcus.org/sipn/action-team) (<http://www.arcus.org/sipn/action-team>) that worked with SIPN leadership to develop a draft, which was circulated to SIPN members. The report addresses physical processes that factored into the sea ice dynamics during the 2014 melt season, as well as a discussion of the various SIO methods. The final report, including a short highlights summary, can be found [here](http://www.arcus.org/sipn/sea-ice-outlook/2014/post-season-highlights). (<http://www.arcus.org/sipn/sea-ice-outlook/2014/post-season-highlights>)

SIPN held an open meeting at the AGU Fall Meeting focused on issues related to sea ice modeling and initial conditions. The presentation and notes from the meeting, as well as a SIPN poster presented at an AGU session, can be found [here](http://www.arcus.org/sipn/meetings/agu/2014/modeling) (<http://www.arcus.org/sipn/meetings/agu/2014/modeling>).

SIPN will hold a webinar, "Sea Ice Modeling: Characteristics and Processes Critical for the Radiation Budget" on Tuesday, 3 March 2015 from 10:00 a.m. to 11:00 a.m. AKST. The speaker will be Elizabeth Hunke (Los Alamos National Laboratory) and the webinar is targeted for the sea ice research community and others interested in learning about sea ice modeling from the global climate model perspective. More information and registration is available [here](http://www.arcus.org/sipn/webinars/3-3-2015) (<http://www.arcus.org/sipn/webinars/3-3-2015>).

More information and updates on SIPN can be found via the [SIPN website](http://www.arcus.org/sipn) (<http://www.arcus.org/sipn>) and [mailing list](http://www.arcus.org/sipn/mailling-list) (<http://www.arcus.org/sipn/mailling-list>). An open LinkedIn group has also been created; more information on the group is [here](https://www.linkedin.com/groups/Arctic-Sea-Ice-Prediction-Network-6940799) (<https://www.linkedin.com/groups/Arctic-Sea-Ice-Prediction-Network-6940799>).

For more information about any SEARCH activity, see the SEARCH website or contact Hajo Eicken, U. of Alaska Fairbanks (SEARCH SSC Chair) at hajo.eicken@gi.alaska.edu or Helen Wiggins, ARCUS (SEARCH Project Office) at helen@arcus.org. Updates on all SEARCH activities are also provided through ARCUS' twitter account: [@ArcticResearch](https://twitter.com/ArcticResearch).

Updates from NSF's Arctic Research Support and Logistics Program

The NSF Arctic Research Support and Logistics (RSL) program funded an Arctic Field Safety Risk Management Workshop on 4-5 February 2014 to initiate a discussion of Arctic field safety risk management. Over 50 participants attended representing diverse academic disciplines, facility managers, university risk management offices, and field support providers and incorporating experiences from across the Arctic. A pre-publication draft of the workshop report will be available online in March 2015. The final publication will be released in Spring 2015 and announced via [ArcticInfo](http://www.arcus.org/arctic-info) (<http://www.arcus.org/arctic-info>) and other information channels.



For more information, see the workshop [webpage](http://rslriskworkshop.com/) (<http://rslriskworkshop.com/>) or contact Renée Crain (rcrain@nsf.gov) or Pat Haggerty (phaggert@nsf.gov).

Arctic Research Support Opportunities and Events

To increase the efficiency of travel for U.S. researchers attending [Ilulissat Climate Days 2015](http://www.polar.dtu.dk/english/Ilulissat-Climate-Days/Registration) (<http://www.polar.dtu.dk/english/Ilulissat-Climate-Days/Registration>), NSF and NASA are co-sponsoring a flight on the 109th Air National Guard. The flight departs 31 May 2015 from Stratton Air Force Base to Kangerlussuaq. The return flight, from Kangerlussuaq to Stratton, is 6 June 2015. Individuals are responsible for their travel to Ilulissat and for all lodging and expenses associated with travel. Only the flight on the 109th Air National Guard is covered. The closest commercial airport to Stratton is in Albany, New York. The deadline for abstract submissions was 13 February 2015. The deadline for accommodation request is Sunday, 1 March 2015.

This flight is for NSF and NASA-funded researchers, their students, and related research personnel. This flight is not appropriate for spouses or others not affiliated with NSF and NASA-funded research. To arrange use of this flight, please contact Kyli Cospers (kyli@polarfield.com).

More information about traveling to and within Greenland is available [here](http://cpspolar.com/project-locations/greenland/) (<http://cpspolar.com/project-locations/greenland/>). For questions, please contact your funding program manager or Renée Crain (rcrain@nsf.gov).

The 11th Annual Polar Technology Conference (PTC) (<http://polartech.datatransport.org/>) will convene 24-26 March 2015 in Denver, Colorado. The primary purpose of this conference is to provide a forum for polar scientists and technology developers to exchange information on research system operational needs and technology solutions that have been successful in polar environments. This exchange of knowledge helps to address issues of design, implementation, and deployment for systems that are to achieve their research goals in polar regions. More information about the conference, online registration, and abstract submission instructions is available [here](http://polartech.datatransport.org/) (<http://polartech.datatransport.org/>).

ACADIS Data Management At Your Service

By: ACADIS Community Support Team members Toni Rosati, Lynn Yarmey, Lisa Booker, Don Stott, Janet Scannell, Eric Nienhouse, and Sean Arms

The Advanced Cooperative Arctic Data and Information Service ([ACADIS](http://www.aoncadis.org/)) (<http://www.aoncadis.org/>) team continues to support the data management needs of projects funded by NSF's Division of Polar Programs (PLR) Arctic Sciences Section with data submission, preservation, search, and sharing services. Updates include:



- A new and improved data submission interface is now available for data submission on the ACADIS website. For a quick review of changes, please see the documentation [here](http://bit.ly/acadissubmission) (<http://bit.ly/acadissubmission>) or download full documentation [here](https://www.aoncadis.org/media/ProvidersGuide.pdf) (<https://www.aoncadis.org/media/ProvidersGuide.pdf>).
- ACADIS team members are ready to help meet NSF proposal requirements and encourage community members to request a review of their individual Data Management Plan (DMP). The DMP template is also freely available for download and use [here](http://bit.ly/datamgmtplan) (<http://bit.ly/datamgmtplan>).
- ACADIS is in the process of reviewing and cleaning metadata. Metadata updates will ultimately improve data search services. Some Principal Investigators (PIs) may be asked for participation, so keep an eye out for an email from the ACADIS team. The cleanup project is an ongoing process to help ensure that this critical component of the archive is accurate for all datasets. The metadata serves as a key link for interoperability with other archives and search engines to discover and access ACADIS data holdings.
- The Arctic Data Explorer (ADE) search portal for Arctic data across agencies, repositories, and nations has greatly increased in speed and efficiency. The search tool now includes over 20,000 datasets across 10 repositories. It is available [here](http://bit.ly/arcticdatasearch) (<http://bit.ly/arcticdatasearch>).

ACADIS, funded by NSF, is a joint effort by the National Center for Atmospheric Research ([NCAR](http://ncar.ucar.edu/)) (<http://ncar.ucar.edu/>), the University Corporation for Atmospheric Research ([UCAR](https://www2.ucar.edu/)) (<https://www2.ucar.edu/>), and the National Snow and Ice Data Center ([NSIDC](http://nsidc.org/)) (<http://nsidc.org/>).

For more information about ACADIS; to send feedback; or to submit, retrieve, and search data; please visit the ACADIS [website](http://www.aoncadis.org/) (<http://www.aoncadis.org/>) or contact the team via email (support@aoncadis.org) or call 720-443-1409.

Executive Order Issued to Coordinate Arctic-Related Activities

President Obama issued an [Executive Order](http://www.whitehouse.gov/the-press-office/2015/01/21/executive-order-enhancing-coordination-national-efforts-arctic) (http://www.whitehouse.gov/the-press-office/2015/01/21/executive-order-enhancing-coordination-national-efforts-arctic) on 21 January 2015 to help coordinate Arctic-related activities across the Federal Government and to enhance collaborations with state, local, and Alaska Native tribal governments and similar Alaska Native organizations, academic and research institutions, and the private and nonprofit sectors.

The Executive Order establishes an Arctic Executive Steering Committee that will serve as a coordinating mechanism on federal Arctic activities and facilitate cohesive guidance to departments and agencies. The Director of the Office of Science and Technology Policy, Dr. John P. Holdren, will chair the committee.

According to its press release, the Office of Science and Technology Policy "looks forward to continuing its work with collaborators within and outside government to apply the best scientific information, data, and tools to support stewardship, preparedness, and long-term sustainability in the Arctic region."

More information about the Administration's Arctic priorities and activities can be found in [The National Strategy for the Arctic Region](http://www.whitehouse.gov/sites/default/files/docs/nat_arctic_strategy.pdf) (http://www.whitehouse.gov/sites/default/files/docs/nat_arctic_strategy.pdf), the [Arctic Implementation Plan](http://www.whitehouse.gov/sites/default/files/docs/implementation_plan_for_the_national_strategy_for_the_arctic_region_-_fi....pdf) (http://www.whitehouse.gov/sites/default/files/docs/implementation_plan_for_the_national_strategy_for_the_arctic_region_-_fi....pdf), and on this White House [website](http://www.whitehouse.gov/climate-change) (http://www.whitehouse.gov/climate-change).

For further information about the [Executive Order](http://www.whitehouse.gov/the-press-office/2015/01/21/executive-order-enhancing-coordination-national-efforts-arctic) (http://www.whitehouse.gov/the-press-office/2015/01/21/executive-order-enhancing-coordination-national-efforts-arctic) and source material for this article, see the Office of Science and Technology Policy [press release](http://www.whitehouse.gov/blog/2015/01/21/promoting-science-based-stewardship-security-and-opportunity-arctic-region) (http://www.whitehouse.gov/blog/2015/01/21/promoting-science-based-stewardship-security-and-opportunity-arctic-region).

IARPC Supports Expanded Communication and Collaboration in Arctic Research

By: Sara Bowden, IARPC Executive Secretary; and Jessica Rohde, IARPC Project Coordinator/Web Manager

In 2013, the Principals of the Interagency Arctic Research Policy Committee approved the following vision statement: *IARPC envisions a prosperous, sustainable, and healthy Arctic understood through innovative and collaborative research coordinated among Federal agencies and domestic and international partners.* The IARPC community has embraced this vision in 2014 and expanded its focus from federal-only discussions to a more collaborative effort that involves both federal and non-federal partners to better harness the talent of the broader scientific and stakeholder community. A number of tools have been put in place in order to enable this far-reaching communication and collaboration. In some cases these tools are tried and true, while others are new, innovative, and even experimental in nature.

Collaboration Teams: The heart of the discussion

The Obama Administration released the five-year [Arctic Research Plan: FY2013-2017](http://www.whitehouse.gov/sites/default/files/microsites/ostp/2013_arctic_research_plan.pdf) (http://www.whitehouse.gov/sites/default/files/microsites/ostp/2013_arctic_research_plan.pdf) in February 2013. The Arctic Research Plan focuses on advancing knowledge of the Arctic by improving collaboration in seven priority research areas (sea ice and marine ecosystems, terrestrial ice and ecosystems, atmospheric studies, observing systems, regional climate models, human health studies, and adaptation tools for communities). From these seven research areas, 12 collaboration teams were formed to respond to the 145 milestones laid out in the plan. The collaboration teams are charged with enhancing inter-institutional and interdisciplinary implementation of scientific research on local, regional, and circumpolar environmental and societal issues in the Arctic.



IARPC Collaborations - Iceberg photo courtesy of Nick Salava.

The collaboration teams are chaired by Federal program managers, and in some cases co-chaired with an external partner. They meet on a regular basis by teleconference or screen-sharing to inform one another about ongoing and planned programs and new research results, as well as to inventory existing programs, identify gaps in knowledge and research, and address and implement the plan's milestones. These conversations are open to researchers in state agencies, local communities, research labs, non-governmental organizations (NGOs), industry, and universities. All meetings of the collaboration teams are announced on the new IARPC collaborations website.

Innovative Tools

IARPC Collaborations Website

In October 2014, IARPC launched a new website to advance the way researchers collaborate. Entitled "[IARPC Collaborations](http://www.iarpcollaborations.org/index.html)," (<http://www.iarpcollaborations.org/index.html>) this website is an experiment in new ways to "do" science, an effort to help funders and researchers work together across agencies, sectors, and disciplines. Anyone in the Arctic research community can request an account on the member space, including non-federal and international partners. These members then contribute information about their research activities by posting their own updates, documents, and events. Members comment on each others' posts to create a dialogue about research in an open forum that includes contributions from new members of the community. IARPC Collaborations leverages social media to:

- Foster dialogue in an open forum where new collaborators can contribute;
- Give researchers the power to share information themselves, without going through a webmaster;
- Bring each member an individually customized email digest of website posts based on their research interests and at the frequency of their choosing; and
- Curate a crowd-sourced "dictionary" of acronyms related to Arctic research and policy.

Everyone in the Arctic research community is invited to join the conversation by establishing an IARPC Collaborations account [here](http://www.iarpcollaborations.org/request-account.html) (<http://www.iarpcollaborations.org/request-account.html>). For more information contact full-time Web Manager, Jessica Rohde (rohdej@arcus.org).

Webinars

IARPC collaboration teams recognize that to implement the Arctic Research Plan, Federal program managers and the research community must learn from one another. Therefore, many of the teams are using short informational webinars to highlight new research results, datasets, models, etc. These webinars are announced on the IARPC

collaborations website, open to the research community, and recorded and posted so that they can be viewed at any time. Webinars have covered topics such as black carbon, ice sheets in coupled climate models, the Marginal Ice Zone field experiment, food security, satellite data visualization for the Distributed Biological Observatory, and development of the Terrestrial Ecosystems Observing Network.



IARPC Collaboration Team leaders discussed how to improve internal and external communications during their meeting 4-5 November 2014 in Washington D.C. Photo courtesy of Jessica Rohde.

Evaluation and Evolution

In an effort to provide the collaboration team leads with the opportunity to learn more about each other and discuss future information sharing and collaboration among teams, a face-to-face meeting was held 4-5 November 2014 in Washington, D.C., eighteen months after most of the teams had been created. The meeting provided an opportunity to discuss current team successes, challenges, and opportunities; and reflect on how to improve internal and external communication, including expanding the IARPC information sharing network. Through a series of whole and small group discussions and activities focused on the various teams' successes and challenges, team leaders generated a list recommendations to make IARPC collaborations more successful and to better accomplish the many and varied IARPC research milestones. Facilitated activities ranged from discussions on each team's strengths and how they might be replicated in other teams, to comparing and contrasting individual team challenges. The teams also reviewed approaches to increasing effective participation at both Federal and

non-federal levels, which included a review of the IARPC collaborations website. A public summary of the workshop can be found [here](http://www.iarpccollaborations.org/news/1705) (<http://www.iarpccollaborations.org/news/1705>).

Forging New Ground with Many Partners

Simon Stephenson is the current Executive Director of IARPC and Assistant Director for Polar Science in the White House Office of Science and Technology Policy (OSTP). Stephenson brought his knowledge of the Arctic research enterprise garnered over many years at the National Science Foundation (NSF) to this position in July 2014 following the departure of Brendan Kelly. Early in his tenure as Executive Director, Stephenson said, "The U.S. Government supports research that increases our knowledge of our changing planet. In the last five years we have increased attention on coordinating Federally funded research in the Arctic that helps with this understanding. While IARPC is a government committee, the collaboration teams are not. They combine the expertise and talents of U.S. government program managers and scientists with those of researchers in academia, state and local government, industry, non-profits, and the increasingly critical involvement of local communities in the research enterprise. We are forging new ground by providing tools to share information and enter into dialogue with research partners in a way which I believe will yield good results in the years ahead." Stephenson and the Collaboration Team leaders invite the Arctic research community to engage in discussions and collaborations taking place on the IARPC Collaborations [website](http://www.iarpccollaborations.org/index.html) (<http://www.iarpccollaborations.org/index.html>).

More information about IARPC is available [here](http://www.nsf.gov/geo/plr/arctic/iarpc/start.jsp) (<http://www.nsf.gov/geo/plr/arctic/iarpc/start.jsp>). For questions, contact IARPC Executive Secretary Sara Bowden (bowden@arcus.org).

More information about the IARPC Collaborations website is available [here](http://www.iarpccollaborations.org/index.html) (<http://www.iarpccollaborations.org/index.html>). For questions, contact IARPC Project Coordinator/Web Manager Jessica Rohde (jrohde@mail.arcus.org).

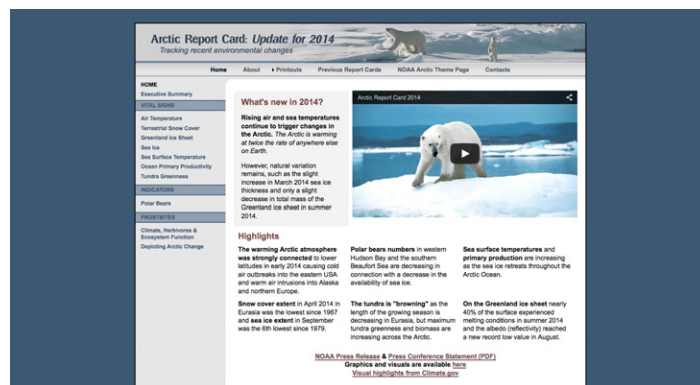
NOAA's 2014 Arctic Report Card

The [2014 Arctic Report Card](http://www.arctic.noaa.gov/reportcard/index.html) (<http://www.arctic.noaa.gov/reportcard/index.html>) was released on 17 December 2014 during a press conference led by Martin Jeffries, Principal Editor of the Arctic Report Card and Program Officer for [Arctic and Global Prediction at the Office of Naval Research](http://www.onr.navy.mil/Science-Technology/Departments/Code-32/All-Programs/Atmosphere-Research-322/Arctic-Global-Prediction.aspx) (<http://www.onr.navy.mil/Science-Technology/Departments/Code-32/All-Programs/Atmosphere-Research-322/Arctic-Global-Prediction.aspx>). Other speakers at the press

conference were co-editor Jackie Richter-Menge of the U.S. Army Corps of Engineers, Cold Regions Research and Engineering Laboratory ([CRREL](http://www.crrel.usace.army.mil/)) (<http://www.crrel.usace.army.mil/>), Geoff York of [Polar Bears International](http://www.polarbearsinternational.org/) (<http://www.polarbearsinternational.org/>), and Craig McLean of NOAA's Office of Oceanic and Atmospheric Research ([OAR](http://www.research.noaa.gov/)) (<http://www.research.noaa.gov/>).

This is the eighth annual update to the Report Card, which provides reports on key indicators and components being tracked in the Arctic. The 2014 update contains 10 essays by 63 scientists from 13 different countries. Each essay was subject to an independent peer-review organized by the Arctic Monitoring and Assessment Programme ([AMAP](http://www.amap.no/)) (<http://www.amap.no/>) of the Arctic Council.

The 2014 Report Card is structured differently than those published previously. This year there are three sections entitled "Vital Signs," "Indicators," and "Frostbites." The "Vital Signs" section includes seven topics that have appeared in previous Report Cards and will be updated annually in the future: air temperature, terrestrial snow cover, the Greenland Ice Sheet, sea ice, sea surface temperature, ocean primary productivity, and tundra greenness. The "Indicators" section also includes topics that have appeared in previous Report Cards, but will now be updated every 2-4 years. Examples of these topics include ozone, UV radiation, permafrost, and glaciers and ice caps. The "Frostbites" section is entirely new and will feature reports on new and newsworthy items, describe emerging issues, and address topics that relate to long-term scientific observations in the Arctic. Two articles are featured in the 2014 "Frostbites" section. One focuses on how climate and herbivore size affect the workings of the Arctic terrestrial ecosystems. The second article focuses on the importance of choosing a reference period of study since it can affect how the magnitude of climate change is depicted.



Arctic Report Card

Another addition is the Editorial Advisory Board, formed for the 2014 Report Card and subsequent issues, which advises the editors on the choice of topics for the "Indicators" and "Frostbites" sections, and participates in the internal review of the Report Card prior to the independent peer review.

Highlights from the 2014 Report Card include:

- Rising air and sea temperatures continue to trigger changes in the Arctic. However, natural variation remains, such as the slight increase in March 2014 sea ice thickness and only a slight decrease in total mass of the Greenland Ice Sheet between June 2013 and June 2014.
- The warming Arctic atmosphere was strongly connected to lower latitudes in early 2014, causing cold air outbreaks into the eastern U.S. and warm air intrusions into Alaska and northern Europe.
- Snow cover extent in April 2014 in Eurasia was the lowest since 1967, and sea ice extent in September was the 6th lowest since 1979.
- Polar bear numbers in western Hudson Bay and the southern Beaufort Sea are decreasing in connection with a decrease in the availability of sea ice.
- The tundra is "browning" as the length of the growing season is decreasing in Eurasia, but maximum tundra greenness and biomass are increasing across the Arctic.
- Sea surface temperatures and marine primary production are increasing as the sea ice retreats throughout the Arctic Ocean.
- On the Greenland Ice Sheet nearly 40% of the surface experienced melting conditions in summer 2014 and the albedo (reflectivity) reached a new record low value in August.

The Report Card editorial team is:

Martin Jeffries, Office of Naval Research, Arlington, Virginia;

James Overland, NOAA Pacific Marine Environmental Laboratory, Seattle, Washington; and

Jackie Richter-Menge, U.S. Army Corps of Engineers, Cold Regions Research and Engineering Laboratory, Hanover, New Hampshire.

Financial support for the Arctic Report Card is provided by the [Arctic Research Program in the NOAA Climate Program Office](http://cpo.noaa.gov/ClimatePrograms/ClimateObservation/ArcticResearch.aspx) (<http://cpo.noaa.gov/ClimatePrograms/ClimateObservation/ArcticResearch.aspx>), and in-kind support is provided by the [Office of Naval Research](http://www.onr.navy.mil/) (<http://www.onr.navy.mil/>).

The 2014 Arctic Report Card, a link to a YouTube video, and previous report cards are available on the Report Card [website](http://www.arctic.noaa.gov/reportcard/) (<http://www.arctic.noaa.gov/reportcard/>). Visual highlights from the Report Card are available on NOAA's Climate.gov [website](http://www.climate.gov/news-features/understanding-climate/2014-arctic-report-card-visual-highlights) (<http://www.climate.gov/news-features/understanding-climate/2014-arctic-report-card-visual-highlights>).

More information about the 2014 Arctic Report Card is available [here](http://www.arctic.noaa.gov/reportcard/about.html) (<http://www.arctic.noaa.gov/reportcard/about.html>). For questions contact Martin Jeffries (martin.jeffries@navy.mil) or Jackie Richter-Menge (Jacqueline.A.Richter-Menge@usace.army.mil).

Many thanks to Martin Jeffries and Jackie Richter-Menge for their review and contributions to this article.

Integrating Arctic Research – a Roadmap for the Future

By: Volker Rachold, Executive Secretary, International Arctic Science Committee

The Third International Conference on Arctic Research Planning (ICARP III)

The scientific, political, and economic interest in the Arctic is rapidly growing and the increasing number of Arctic and polar research programs requires a better coordination in order to agree on shared objectives and ensure the best value for funds spent. Consequently, the International Arctic Science Committee (IASC) (<http://www.iasc.info/>) initiated the planning of a third International Conference on Arctic Research Planning (ICARP III) (<http://icarp.iasc.info/>) and invited all interested partner organizations to participate in shaping the future of Arctic research needs. ICARP III is a process to:

- Identify Arctic science priorities for the next decade;
- Coordinate various Arctic research agendas;
- Inform policymakers, people who live in or near the Arctic, and the global community; and
- Build constructive relationships between producers and users of knowledge.

Beginning with a formal launch at Arctic Science Summit Week (ASSW) 2014 (<http://www.assw2014.fi/>) in Finland and culminating in a final conference at ASSW 2015 (<http://assw2015.org/>) in Japan, the ICARP III program includes a series of activities, meetings, and events during 2014-2015.





ICARP III is governed by a Steering Committee established by the participating organizations. The last Steering Group meeting was held 11-12 November 2014 in Potsdam, Germany. Photo courtesy of the IASC Secretariat.

Outcomes and Products

The primary outcome of ICARP III will be an inventory of reports and recommendations from the various ICARP III activities. Each ICARP III activity will report back to the ICARP III Steering Group, and based on a reporting template the Steering Group will extract the key messages and findings of the individual activities and compile a consensus statement identifying the most important Arctic research needs for the next decade.

This overarching ICARP III statement, having the endorsement of all ICARP III partner organizations, will be presented at the main ICARP III conference held during ASSW 2015 in Japan.

The ICARP III outcome will also be linked to the conclusions of the forward-looking Horizon Scan conducted by the Scientific Committee on Antarctic Research ([SCAR](http://www.scar.org/)) (<http://www.scar.org/>) and it will include contributions to the development of the International Polar Partnership Initiative ([IPPI](http://www.europeanpolarboard.org/activities/scientific-initiatives/the-international-polar-partnership-initiative-ippi/)) (<http://www.europeanpolarboard.org/activities/scientific-initiatives/the-international-polar-partnership-initiative-ippi/>).

Recipients

The audience of ICARP III includes the international Arctic scientific community (both individual scientists and scientific organizations), funding agencies supporting Arctic research, Arctic policymakers, and residents. All of these stakeholders will benefit from a broadly approved document identifying the priorities for forward-looking, collaborative, interdisciplinary Arctic research, and observing and providing a roadmap for research priorities and partnerships.

Further information is available [here](http://icarp.iasc.info/) (http://icarp.iasc.info/) or email icarp@iasc.info.

Update on Arctic Science Summit Week 2016

By: Kristin Timm, Science Communications Lead, Scenarios Network for Alaska and Arctic Planning, Alaska Climate Science Center, University of Alaska Fairbanks

Plans are underway for Arctic Science Summit Week (ASSW) 2016, which will convene 12-18 March 2016 in Fairbanks, Alaska. ASSW, an annual gathering of international scientists and policymakers, provides a forum to share Arctic research findings and to advance understanding and planning for a rapidly changing Arctic. Over 500 scientists, policymakers, administrators, students, and members of the media from around the world are expected to attend. The conference will consist of several separate but related activities to strengthen international coordination, collaboration, and cooperation in all fields of Arctic science. These activities include:



- 12-15 March 2016: Arctic Science Summit Week
- 15-18 March 2016: Arctic Observing Summit
- 15-17 March 2016: Arctic Council Senior Arctic Officials

Arctic Science Summit Week 2016 - Summary Event Schedule						
Saturday, March 12	Sunday, March 13	Monday, March 14	Tuesday, March 15	Wednesday, March 16	Thursday, March 17	Friday, March 18
Arctic Science Summit Week (ASSW)						
			Arctic Observing Summit (AOS)			
			Arctic Council • Senior Arctic Officials			

Most conference activities will take place on the University of Alaska Fairbanks campus. Field trips and local events will provide additional opportunities. Image courtesy of Kristin Timm.

ASSW is an initiative of the International Arctic Science Committee (IASC) (<http://www.arcus.org/witness-the-arctic/2015/1/article/22940>). The intention of the first ASSW, convened in 1999 in Tromso, Norway, was to combine science and management meetings to increase travel and time efficiencies. ASSW has developed a history of being an efficient method of coordinating and facilitating international research programs, which is reflected by the enhanced collaboration and improved communication that has emerged.

Additional conference details including program summaries, science themes, and exhibiting opportunities will emerge in the coming months. Further information about ASSW 2016 is available [here](http://assw2016.org/) (http://assw2016.org/). The community is also invited to subscribe for email updates at <http://www.assw2016.org> and join the community via Facebook at <http://www.facebook.com/ASSW2016> and on Twitter @Arctic2016.

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Meet the Board of Directors – Mark Ivey

Mark Ivey was elected to the ARCUS Board of Directors in 2012. His three-year term ends in 2015.

Mark is the manager for the Department of Energy's (DOE) Atmospheric Radiation Measurement ([ARM](http://www.arm.gov/)) (<http://www.arm.gov/>) climate research facilities in Alaska. These facilities, managed by Sandia National Laboratories for DOE, include ground-based systems in Barrow, Oliktok, and Atqasuk, Alaska. Ivey is also a distinguished member of the technical staff at Sandia where he has worked since the early 1980's. He received his PhD in electrical engineering from the University of New Mexico. In addition to working for Sandia, Mark has worked for technology start-up companies in New Mexico, and he taught briefly as an adjunct professor in the electrical engineering department at Montana State University in Bozeman.



Mark Ivey

At the ARM facility, Mark is part of an extended and internationally-distributed climate research team with ongoing efforts to characterize the structure of the atmosphere and the formation and elevation of clouds. Their work to improve the precision in measuring these parameters has provided valuable data to enhance the accuracies of global climate models. These efforts have helped to transform scientists' understanding of what the future may hold for Earth's climate.

Mark comments, "The Arctic has always been a unique and important place, and it plays a critical role in the Earth's climate systems. Recognition of the Arctic's role in global-scale issues is growing quickly. When we compare what our models are telling us with what we measure, it's clear that there's much to be done in improving our understanding.

"I am glad to be part of current efforts to improve our understanding of the Arctic atmosphere. ARCUS plays an important role in distributing information across many domains and disciplines. I don't know of any other organization that connects such a broad range of stakeholders with science and reaches out to the public with updates on the Arctic environment."

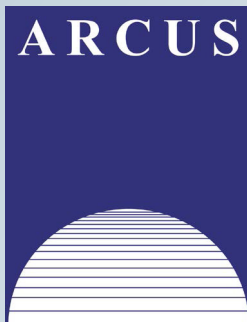
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