



**Study of Environmental Arctic Change (SEARCH)
Program Report & Planning
3 July 2015**

Reporting Period: 1 August 2014 - 1 June 2015 (Portion of Year 1)

I. OVERVIEW

This report summarizes activities for a portion of Year 1 and planned activities of the grant, “Collaborative Research: Research, Synthesis, and Knowledge Transfer in a Changing Arctic: Science Support for the Study of Environmental Arctic Change (SEARCH)” (PLR-1331083/1331100). The focus of Year 1 has been on kick-off activities, governance, staffing, and ramping up Action Team and several cross-cutting activities. Descriptions of activities are organized below in the following sections: II. Organizational/Structural Activities; III. Action Teams; IV. Cross-Cutting Program Activities; V. Budget Dashboard; and VI. Conclusions and Looking Ahead.

II. ORGANIZATIONAL/STRUCTURAL ACTIVITIES

In Year 1, we undertook several critical organizational and structural tasks, essentially building out and changing the SEARCH program from its previous structure that focused on planning to a structure focused on implementation of the SEARCH 5-year strategy and building collaborative networks of participants. The summary table below provides an at-a-glance summary of tasks and objectives. Details for each task are described below the table.

Summary Table:

Color coding: green = completed or ongoing; yellow = in progress; red = significant change from original scope or timing, or critical priority

Task or Objective	Status	Notes
Initiate and process awarded grant, including subawards to Action Teams	Completed	Award letters received 13 August 2014; program year start considered 1 September.
1. Organize and Convene SEARCH kick-off meeting	Completed	Kick-off meeting held: http://www.arcus.org/search-program/meetings/2014/kick-off-tactics
2. Develop New Terms of Reference and Governance Structure	In progress	Terms of Reference developed and expected to be adopted by SSC vote during July 2015 teleconference
3. Hire SEARCH Executive Director	In progress; timeline delayed	In-person interviews completed on 2 July; decision and offer expected July.
4. Science Steering Committee (SSC) Rotations	In progress	Successful process of open call for nominations; SSC approved new slate for

		invitations. Appointments of regular SSC members finalized in July. Appointment of new SSC Chair expected August.
5. Additional SEARCH Staffing	Completed	All other SEARCH staffing positions recently filled.
6. Regular Planning Teleconferences and Meetings	Ongoing	Teleconferences and SSC meetings held as planned; next in-person meeting planned for Year 2
7. Develop Detailed Year 2 Work Plan	High Priority	High priority item immediately after Executive Director is on board.

Discussion:

1. Organize and Convene SEARCH Kick-off Meeting

The first task for the award was to organize and convene a SEARCH “Kick off” meeting, gathering key participants to discuss and plan the organizational and tactical aspects of the new SEARCH structure and activities.

The outcomes of the meeting were:

- Provided the first opportunity for the Science Steering Committee (SSC) members, Action Team leads, data management representatives, and other key participants to meet in person as a group and reaffirm the common vision for implementation of SEARCH’s five-year goals
- Obtain input from Interagency Program Management Committee (IPMC) and Interagency Arctic Research Policy (IARPC) on key elements of SEARCH strategy and tactics, in particular as relevant to SEARCH Terms of Reference and agency engagement
- Agreement on scientific directions for SEARCH and what “Knowledge to Action” means in a SEARCH context
- Agreement on overall scientific directions for each Action Team
- Agreement on key aspects for Terms of Reference and roles for the SSC and Action Teams
- Agreement on a recruitment strategy for hiring the Executive Director, and for identifying and recruiting new SSC members and chair and Action Team members.

The agenda was as a mix of structured yet flexible plenary and breakout sessions. Forty-four participants attended the meeting: 36 in-person participants and 8 via virtual/web, including SEARCH SSC members, Action Team leads, agency representatives and data management experts and project office staff.

The agenda, participant list (both in-person and web participants), background documents and readings, and presentation files are all available at:

<http://www.arcus.org/search-program/meetings/2014/kick-off-tactics>

In addition, by request from several meeting participants, the recording of a talk by Bob Bindschadler and Susan Crate (SSC members) on “Knowledge to Action” was made available via ARCUS’ YouTube channel: <https://www.youtube.com/watch?v=X0vzNeqNOeE>. This was considered by several at the meeting to be a transformative talk and impacted the rest of the meeting discussions and subsequent planning.

2. Develop New Terms of Reference and Governance Structure

A major task with the SEARCH award was to finalize decisions for a new governance structure and Terms of Reference, moving SEARCH from a planning structure with “panels” to one of Action Teams and the inclusion of an Executive Director, which is a new position in the SEARCH effort.

The key aspects discussed and decided were:

- New roles and duties for the SSC;
- SSC Committee membership: number, eligibility, selection process, terms, and executive officer roles;
- Rules of procedure: in-person and virtual meetings, voting;
- Action Teams: terms, structure, membership, size, and SSC oversight
- Executive Director: roles and responsibilities, oversight structure, relationship to SSC; and
- Decision by Interagency Arctic Research Policy Committee (IARPC) on the existence or role of any agency committee (see below).

Decisions on two items for the Terms of Reference were not decided at the kick-off meeting, as they required further discussion:

The first item was the existence or role of an interagency SEARCH committee. In the previous SEARCH structure, the SEARCH Interagency Program Management Committee (IPMC) was considered the agency oversight committee of the SSC and also approved SSC membership. With the re-invigoration of IARPC and the new SEARCH structure, IARPC was asked to decide on any changes in the structure of a SEARCH agency committee. In December 2014, IARPC decided to dissolve the IPMC and retain Neil Swanberg (NSF) as a liaison between the SEARCH SSC and the IARPC. In addition, IARPC would not provide oversight or approve membership of the SSC nor have official role in SEARCH governance. Currently, the main mode of operation between SEARCH and IARPC is through SEARCH SSC, Action Team members, and ARCUS staff participating in IARPC Collaboration Team meetings, as appropriate. At the same time it was recognized that should the SSC so desire, it could create an ad-hoc committee composed of agency representatives to address specific questions or seek formal advice concerning the SEARCH program.

The second item was the question of the future role for the SEARCH Observing Change Panel (OCP). The SEARCH proposal contained a position for an Arctic Observing Network (AON) Coordinator to facilitate AON discussions, coordination, and strategy in the research and stakeholder communities. This position was not funded, and with potential new directions in the IARPC AON Collaboration Team, the SSC decided to keep the current OCP structure until late 2015, at such time the SSC will review the AON landscape, work with the new NSF AON Program Director, and make recommendations on a re-defined role and membership needs of

any SEARCH Observing group. (This issue was revisited and reaffirmed in a SEARCH Community Position Paper to NSF-PLR in early 2015).

The draft SEARCH Terms of Reference is available in Appendix A. We expect that the SSC will adopt the Terms during the July SSC teleconference, which is scheduled for July 17. In Year 2 and subsequent years, the Terms of Reference will be reviewed by the SSC on an annual basis for any needed changes or adjustments, thus providing a structured yet adaptive governance framework.

3. Hire SEARCH Executive Director

Over the first year, several steps for hiring a SEARCH Executive Director through the International Arctic Research Center (IARC)/U of Alaska Fairbanks (UAF) were completed:

- Coordinated the administrative process for the search and hiring of the SEARCH Executive Director at IARC.
- Convened a hiring committee: Uma Bhatt (chair), Hajo Eicken, Steve Vavrus (SSC members) and Helen Wiggins (ARCUS/SEARCH Project Office).
- Finalized the position description.
- Finalized an agreement with IARC (represented by its director), via a written memo, that the work of the SEARCH ED would be evaluated annually by the SSC with the “administrative supervisor” at IARC.
- Announced the position and follow-up recruitment activities. The position was announced January 2015 (see announcement at: <http://www.arcus.org/arctic-info/archive/22892>).
 - The announcement was delayed from the original timeline of September 2014, as the time required for finalizing the position, administrative details, and HR approval at UAF took longer than anticipated.
- Initial application review.
- Selection of a group of candidates for phone interviews; conducted phone interviews.
- Selection of candidates for in-person interviews at IARC/UAF.
- Conducted in-person interviews, including candidate interactions with SSC and Action Team leads.
 - The in-person interviews are completed by 2 July, and we expect a final selection and offer to the selected candidate later in July.

The delay in the hiring of the Executive Director has also impacted the timeline of a detailed Year 2 work plan, which should be completed in partnership between the SSC, Executive Director, and project office; this will be top priority once the Executive Director has been hired.

4. Science Steering Committee (SSC) Rotations

We are currently undertaking the 2015 SSC rotation process.

- **New SSC Members:** To facilitate a diverse membership, an open call for nominations for SSC members was announced and distributed in February 2015. The announcement is archived at: <http://www.arcus.org/arctic-info/archive/22942>. As a result of the open call for nominations and additional SSC discussions with others in the research community as well as informal input from agency representatives, five new members have been invited to join in

July 2015: Marika Holland (<https://www2.ucar.edu/atmosnews/people/marika-holland>), Courtney Carothers (<https://www.sfos.uaf.edu/directory/faculty/carothers/>), Ian Eisenman (<http://eisenman.ucsd.edu/>), Betsy Baker (<http://www.vermontlaw.edu/directory/person?name=Baker,Betsy>), Dee Williams (<https://www.linkedin.com/pub/dee-williams/53/727/902>)

- In Year 2, a regular annual rotation process will again include open calls for nominations, with a goal of diverse and high-caliber membership.
- **SSC Chair Rotation:** The SSC is currently in discussions with possible SSC chair candidates; we expect a new chair summer 2015.
 - **Past-chair:** The SSC voted to invite H. Eicken (current SSC Chair) to serve as past chair for the first six months of new chair's tenure and Eicken accepted.

5. Additional SEARCH Staffing

In addition to the SEARCH Executive Director, two other SEARCH positions are now in place:

- The Sea Ice Action Team hired a Communicator/Facilitator in June 2015 (see Section III.1)
- ARCUS SEARCH Staff: ARCUS has approximately 1.2 FTE total for SEARCH tasking. ARCUS staff capacity build-up for SEARCH was delayed in the first year, as H. Wiggins, ARCUS PI on the SEARCH grant who also provides day-to-day SEARCH project management, was also serving as ARCUS Interim Executive Director and this interim term was longer than originally anticipated. ARCUS hired a project manager in May (the archived position description is available here: <http://www.arcus.org/arcus/jobs/search-pm>), who will be primarily decided to SEARCH tasking, and Wiggins' term of interim ARCUS Executive Director also ended in May. Therefore, ARCUS staff capacity is quickly ramping up to the full FTE budgeted.
- Other than those at the Action Team level, no other staffing additions are expected in Year 2.

6. Regular Planning Teleconferences & Meetings

Planning meetings have been held as originally scheduled and are ongoing.

- **SSC/Action Team Teleconferences** – approximately monthly teleconferences are held between SSC members, Action Team leads, the chair of the OCP, and ARCUS staff. Over the reporting period the following teleconferences were held: 5 September 2014, 31 October 2014, 2 December 2014, 12 February 2015, 19 March 2015, 17 April 2015, and 29 May 2015.
- **SSC In-person meeting** – The SEARCH SSC held a business meeting in conjunction with the fall 2014 AGU meeting on 15 December 2014. The meeting agenda included discussion of the SEARCH Executive Director position announcement; terms of reference, including IPMC/IARPC involvement with SEARCH (Simon Stephenson participated); the AON position paper; and SSC membership rotations.
- **Planning Teleconferences**– Regular planning teleconferences between H. Eicken (Lead PI), O. Lee (Research Associate/former post-doc for Eicken) and ARCUS are held to review tasks and set next action items; scheduled monthly or as needed.

In addition, much of SSC and SEARCH business is accomplished via frequent email exchange and phone calls.

Notes and action items from the SEARCH SSC teleconferences are also posted on a password-protected webpage for SSC use and reference, and action items from all meetings are placed and updated in a shared online master task list.

In Year 2, regular planning tele/webconferences will continue. The next in-person meeting, a SEARCH Leadership Workshop, is tentatively planned for September 2015 (contingent on the timing of the SEARCH Executive Director hire and availability). This leadership workshop will gather the SSC, Action Team Leads, the Executive Director, NSF staff, ARCUS staff, and other key participants to discuss science and synthesis products and other cross-cutting activities between the Action Teams and towards “Arctic 2050” scenario products.

7. Develop Detailed Year 2 Program Plan

Other than the hiring and onboarding of the SEARCH Executive Director, the next major organizational priority is to develop a detailed Year 2 SEARCH workplan. The Year 2 workplan would include a timeline of activities and milestones and internal and external communications plans, and would build on ongoing planning conversations at the Action Team and SSC level.

III. ACTION TEAMS

Brief highlights status summaries of Action Team activities are included below; full Action Team reports are included as Appendices and are referenced below.

1. Improve Understanding, Advance Prediction, and Explore Consequences of Changing Arctic Sea Ice

The “Sea Ice” Action Team has focused on hiring a Communicator/Facilitator and convening a Strategy Task Force.

Summary Table:

Task or Objective	Status	Notes
Agreement on Overall Directions of Action Team	Complete	From SEARCH kick-off meeting and subsequent discussions
Hire Action Team staff	Complete	Hired Communicator/Facilitator (instead of supporting a post-doc)
Strategy Task Force Workshop	Planned for September 2015/Year 2	Strategy Task Force Workshop planned (September 9-10, 2015) to develop strategy and identify needed expertise for Action

		Team
Populate Action Team	Year 2	To be populated after guidance from Strategy Task Force Workshop
Communication Activities	Ongoing/Year 2	Convene AGU session with PRB titled: Global Eyes on the New Arctic: Impacts of Rapid Warming on Ecosystems, Society, and Policy
Launch Science & Communication Activities	Priority	Activities now underway with hire of Communicator /Facilitator

The Sea Ice Action Team report is available in Appendix B.

In addition to the activities described in the Sea Ice Action Team report, additional SEARCH-related tasks focused on Arctic sea ice include the Sea Ice Prediction Network (SIPN; <http://www.arcus.org/sipn>) and the Sea Ice for Walrus Outlook (SIWO; <http://www.arcus.org/search-program/siwo>). Both projects are contributions to SEARCH and are coordinated with other SEARCH activities, but are supported through other awards, agency in-kind contributions and volunteer efforts at the Alaska coastal community level.

2. Improve Predictions of Future Land-ice Loss and Impacts on Sea Level

The “Land Ice” Action Team has focused Year 1 efforts in facilitating the establishment of a Greenland Ice Ocean Observing System (GrIOOS) in conjunction with the GRenland Ice Sheet-Ocean interactions GRISO Science Network, and has convened a team focused on planning a two-day workshop to be held December 2015 on the design and implementation of GrIOOS.

Summary Table:

Task or Objective	Status	Notes
Agreement on Overall Directions of Action Team	Complete	From SEARCH kick-off meeting and subsequent discussions
Create linkages with Greenland Ice Sheet Ocean Network (GRISO)	Complete	All current Action Team activities are coordinated with GRISO
Convene GrIOOS Action Team	Complete	List of Action Team members in Action Team report
Plan workshop on Greenland Ice Sheet-Ocean Observing System	In progress/Planned for Year 2	Workshop planned for December 2015
Engaging science community and stakeholders	Initiated	Presentations at science and policy conferences

The Land Ice Action Team report is available in Appendix C.

3. Document and Understand How Degradation of Near-Surface Permafrost Will Affect Arctic and Global Systems

The “Permafrost” Action Team has focused on SEARCH activities as part of a Permafrost Carbon Network.

Summary Table:

Task or Objective	Status	Notes
Agreement on Overall Directions of Action Team	Complete	From SEARCH kick-off meeting and subsequent discussions
Permafrost Carbon Network Meetings	Complete	Held December 2014 and May 2015.
Session at “Our Common Future Under Climate Change” Conference	In progress	To be held July 2015
Hold Permafrost Carbon Network Meeting	Planned for Year 2	Planned for December 2015/Year 2
Synthesis Products	In progress	Progress in five working groups
Convene SEARCH-specific Action Team	Timing under discussion	Form steering committee representing carbon, infrastructure, and fish/wildlife objectives. Develop plans for infrastructure and fish/wildlife objectives. Convene meeting of steering committee to coordinate among plans for objectives.

The Permafrost Action Team report is available in Appendix D.

IV. CROSS-CUTTING PROGRAM ACTIVITIES

The activities reported below do not focus on one particular science goal or action team, but rather integrate across the SEARCH effort. These activities include: 1. Arctic observing activities, 2. A joint CLIVAR working group, 3. Collaboration with other relevant national and international groups, 4. Dissemination and outreach, 5. Network analysis (Planned for Year 2), and 6. Arctic shelves methane synthesis.

Summary Table:

Task or Objective	Status	Notes
1. Arctic Observing		
a. Arctic Observing Position Paper	Complete	Final paper posted and announced April 2015
b. Arctic Observing Open Science Meeting	In progress/Year 2	Planning underway for November 2015 meeting
c. Planning for 2016 Arctic Observing Summit	In progress/Year 2	Planning underway for March 2016 Meeting
d. Observing Change Panel Meetings	Currently on hold	In-person meeting held December 2014; meetings on hold
2. CLIVAR Working Group	Recently Initiated/Planned for Year 2	A SEARCH SSC and Action Team Member will serve on a working group on Arctic-Mid-latitude Climate Connections
3. Discussions with Relevant Programs and Agencies	Ongoing	Discussion with several programs on areas of mutual interest
4. Dissemination and Outreach	Ongoing	Online newsletter articles, AGU Town Hall and sessions, meeting presentations, etc.
5. Network Analysis	Planned for Year 2	Network Analysis scoping to be completed September 2015
6. Arctic shelves methane synthesis	Planned for Year 2	Initial planning started

1. Arctic Observing Activities

a. **Arctic Observing Network Community Position Paper** – This position paper offered feedback in response to NSF efforts and requests for input from the research community in discussions about the U.S. AON. The paper was led by Craig Lee, chair of the SEARCH Observing Change Panel (OCP), with input from the OCP, SEARCH Science Steering Committee, Olivia Lee, and ARCUS, and synthesizes discussions within SEARCH over the preceding year. The paper was revised in response to community feedback gathered during an open comment period, then finalized and posted online on 1 April 2015.

The final position paper, as well as a matrix of comments and the earlier deliberative draft is available at: <http://www.arcus.org/search-program/aon>

SEARCH leadership continues to reference the Position Paper in discussions on research community priorities of AON.

b. Arctic Observing Open Science Meeting (Year 2) – The Open Science Meeting will be held 17-19 November 2015 in Seattle, Washington. The goals of the Arctic Observing Open Science Meeting are to:

- Present and discuss scientific findings and advances resulting from Arctic observing projects funded by U.S. agencies and organizations;
- Review operational and technological achievements of observing programs funded through local, state, and federal agencies and private and non-profit organizations;
- Explore how well new scientific achievements meet science and mission objectives; and
- Further define and strengthen collaborations.

The Co-Chairs for the meeting are: Craig Lee (U. Washington), Matthew Shupe (NOAA), and Cathy Wilson (Los Alamos National Laboratory). The other Organizing Committee members are: Mia Bennett (UCLA), Elizabeth Hoy (NASA), Ron Kwok (JPL/NASA), Michael Macrander (Shell Oil), An Nguyen (MIT), David Payer (Arctic LCC), Ted Schuur (Northern Arizona U.), Sandy Starkweather (NOAA/IARPC), Leigh Stearns (U. of Kansas), and Helen Wiggins (ARCUS). More information about the meeting is posted as it is available at:

<http://www.arcus.org/search-program/meetings/2015/aoosm>. The logistics costs for the meeting (venue, travel, etc.) are funded through another award (ARCUS' Cooperative Agreement with NSF) as a contribution to SEARCH.

c. Arctic Observing Summit 2016 Planning (Year 2) – The SEARCH SSC is coordinating input to the planning of the Arctic Observing Summit (AOS). H. Eicken is co-chair of the Summit Executive Organizing Committee and is participating in numerous teleconferences and in-person meetings with organizing committee and working group leads. More information on the AOS will be posted as it is available at: <https://assw2016.org/about> and <http://www.arcticobservingsummit.org/>.

d. Observing Change Panel Meetings – The Observing Change Panel (OCP) met via teleconference on 10 September 2014 to prepare for the SEARCH kick-off meeting and in-person on 17 December 2015 at the AGU 2014 Fall Meeting to discuss the AON Position Paper and the Arctic Observing Open Science Meeting. Four OCP members serve on the Arctic Observing Open Science Meeting Organizing Committee (Lee, Shupe, Wilson, Kwok) to ensure continuity between meeting planning and previous OCP discussions. OCP meetings are on hold until further discussion with the SSC and incoming NSF AON Program Director on priority goals and activities for the OCP.

In addition, H. Eicken and C. Lee travelled to the DC area in March 2015 to discuss Arctic observing issues with NSF, NOAA, OSTP, U.S. Group on Earth Observations and Office of Naval Research.

2. CLIVAR Working Group – SEARCH has partnered with the U.S. Climate and Ocean-Variability, Predictability, and Change (CLIVAR) program to endorse the formation of and contribute to a CLIVAR Working Group on Arctic-Mid-latitude Climate Connections. Jennifer Francis, Co-Lead of the SEARCH Sea Ice Action Team, and Steve Vavrus, member of the SEARCH SSC will participate as members of the working group. Working group activities will commence in Year 2. At the international level, discussions with the CLIVAR Science Steering

Group on collaboration are the topic of a meeting with Fairbanks-based SSC members and the co-chair of CLIVAR, D. Stammer in September.

3. Discussions with Relevant Programs and Agencies

SEARCH SSC members have engaged in ongoing discussions with relevant programs on issues of mutual interest. The programs with which we have communicated include U.S. Global Change Research Program (USGCRP), US Group on Earth Observations (GEO), EU Arctic Climate Change Economy and Society (ACCESS), CLIVAR, the World Climate Research Program's Climate and the Cryosphere Project (CliC), ArcticNet, Canadian Marine Environmental Observation Prediction and Response (MEOPAR), and the EU Ice, Climate, Economics - Arctic Research on Change (ICE-ARC) project.

SSC and Action Team members also participate in IARPC Collaboration Team meetings, as appropriate.

SSC Chair and project PI Eicken has focused particular attention on engagement of SEARCH partner agencies. At the top of the list is NOAA which is poised to make progress in addressing key goals of its 2012 Arctic Vision and Strategy. SEARCH has an important role to play in this context and Eicken has held meetings and phone conversations with NOAA leadership on appropriate collaboration and partnering. These conversations are ongoing but have resulted in an effort to help refocus the scope and goals of NOAA's dedicated "Arctic" cooperative institute, the Cooperative Institute for Alaska Research (CIFAR). Starting July 1, SSC member Uma Bhatt will serve as CIFAR director. CIFAR and SEARCH SSC will then collaborate on a white paper to outline how the research community can help NOAA achieve its Arctic Vision and Strategy.

These discussions are ongoing and will continue, as appropriate to advance SEARCH goals.

4. Dissemination and Outreach

SEARCH activities have been disseminated through several means, including:

- SEARCH Town Hall at AGU 2014: Held an AGU Town Hall during the Fall Meeting in San Francisco to provide updates on new SEARCH funding and activities; discuss how researchers and others can participate in SEARCH; gather input from the community; and address questions and concerns. Over 80 participants attended.
- SEARCH Poster at AGU 2014: "SEARCH: Study of Environmental Arctic Change—A System-scale, Cross-disciplinary Arctic Research Program"
- SEARCH-ACCESS Poster at AGU 2014: Presented a poster on "Creating collaboration opportunities for marine research across the Arctic: The SEARCH-ACCESS partnership and an emerging sea ice prediction research network."
- SEARCH articles in Witness the Arctic newsletter, which has over 12,600 subscribers:
 - June 2014: <http://www.arcus.org/witness-the-arctic/2014/2> (Before notice of funding, but negotiations were underway and we posted a summary of the expected 'new SEARCH framework')
 - December 2014: <http://www.arcus.org/witness-the-arctic/2014/3/article/22788>
 - February 2015: <http://www.arcus.org/witness-the-arctic/2015/1>
 - June 2015: <http://www.arcus.org/witness-the-arctic/2015/2/article/23164>

- SEARCH presentations by H. Eicken were given at an OSTP Arctic Observing Meeting, North Slope Science Initiative Oversight Group Meeting, ACCESS General Assembly, CliC Steering Group Meeting, Arctic Science Summit Week Partnership between Arctic Scientists and Stakeholders Meeting, National Institute for Polar Research Japan, U.S.-Japan Arctic Policy Workshop and other venues.
- Participation by O. Lee to represent SEARCH at the Consortium for Ocean Leadership Arctic Science Forum in March 2015.
- Planned outreach in Year 2 for AGU 2015 Fall Meeting:
 - AGU 2015 Session: Global Eyes on the New Arctic: Impacts of Rapid Warming on Ecosystems, Society, and Policy Conveners: Lauren M Everett, Jennifer Ann Francis, Hajo Eicken, and Henry P Huntington
<https://agu.confex.com/agu/fm15/preliminaryview.cgi/Session8477>
 - We will submit a SEARCH Town Hall proposal and several presentation and paper abstracts to relevant sessions.
- All meetings and products are available through the SEARCH website, which is currently under revision to reflect new structure, terms of reference, and SSC and Action Team activities.
 - Note: With the recent increase in ARCUS staff capacity, the launch of a substantially improved SEARCH website is expected in July and development and maintenance will continue through Year 2.
- Additional outreach vehicles, such as a quarterly newsletter, will be developed in Year 2.

5. Network Analysis (Year 2)

In order to track and document SEARCH collaborations and participation, in Year 2 we will initiate a network analysis of SEARCH participants and products, led by ARCUS staff (Helen Wiggins and Brit Myers) and Olivia Lee (IARC). A network analysis utilizes various techniques (surveys, data collection) and network mapping software to evaluate connections between people and as network connectivity, health, and results (*sensu* “The State of Network Evaluation”, 2014, Center for Evaluation Innovation). We are currently scoping this effort to formulate the specific network research questions we want to address and what is tractable within the award budget. For example, SEARCH network evaluation questions might ask: Who is participating in SEARCH? What disciplines and perspectives are represented? Are there key gaps in disciplinary linkages? Are we increasing the disciplinary breadth of SEARCH participants? Are SEARCH participants and products becoming more inter-disciplinary as time goes on? Are there key missing connections that we need to improve? Network evaluation questions and a plan of work will be developed by September 2015 for discussion at the SSC Meeting.

6. Arctic shelves methane synthesis (Year 2)

Building on the efforts by the Permafrost and Sea Ice Action Teams, we plan a synthesis and assessment effort to address the largest uncertainty in present-day and anticipated future greenhouse gas fluxes: methane degassing of Arctic subsea permafrost. While the processes at work are increasingly understood, and while the importance of subsea Arctic methane release is well understood, there is a broad range of perspectives concerning its magnitude in relation to other greenhouse gas fluxes. This is of particular interest in the context of the U.S. Arctic

Council Chairmanship with one of the priorities focusing on the role of the Arctic in the context of international greenhouse gas treaty frameworks. Building on preparatory work by the SEARCH Action Teams, an activity (most likely in the form of a workshop with a strong online component) is planned to identify the policy relevance of this issue, review the current state of knowledge and identify next steps to reduce uncertainties. Specific questions addressed include (1) the potential role of sea ice retreat and surface ocean warming over Arctic shelves in potential disproportionate increases in gas transfer into the atmosphere, (2) the role of uncertainty and magnitude in the shelf seas methane flux into the atmosphere in the context of greenhouse gas treaties and broader policy, and (3) the guidance from (1) and (2) in designing and implementing an international shelf sea methane observing effort.

V. BUDGET DASHBOARD

IARC/UAF (including sub-awards):

Original Total Budget for Year 1: \$606,725

Expended To-date: \$68,039 inception to date (6/15/15) + \$278,117 commitments = \$346,156

Remaining: \$260,569

Budget expenditures are lower than originally budgeted due to the SEARCH Executive Director not hired until July 2015 (expected), which freed up salary and travel funds. Note, however, that both finalists for the position currently command significantly higher salaries than requested in the proposal. We plan to draw on unspent Year 1 funds to support a salary level above that originally budgeted.

An IARC budget report is included as Attachment E.

Subaward Detail:

Sea Ice Action Team:

Rutgers YR1 (8/15/14-7/31/15)

Budget: \$115,667

Invoiced to date: \$6,911

Remaining YR1 balance: \$108,756

Permafrost Action Team:

Northern Arizona University YR1 (09/01/14-08/31/15)

Budget: \$109,073

Invoiced to date: \$2,328

Remaining YR1 balance: \$106,745

Land Ice Action Team

WHOI YR1 (08/15/14-07/31/15)

Budget: \$55,984

Invoiced to date: \$33,454

Remaining YR1 balance: \$22,530

University of Colorado YR1 (09/1/14-8/31/15)

Budget \$38,116

Invoiced to date, \$4,451

Remaining YR1 balance: \$33,665

ARCUS:

Original Total Budget for Year 1: \$398,499

Expended to-date (as of May 1, 2015)

Remaining: \$219, 782

The final expenditures for Year 1 are expected to be lower than originally budgeted due to the kick-off meeting logistics costs being lower than estimated and an ARCUS project manager not drawing salary until May 2015. A portion of Year 1 remaining funds will be transferred to early in Year 2 for website content writing through a consultant science writer, applied to the network analysis activity; and any remaining unexpended funds from Year 1 would be applied to/defray the Year 2 budget request.

See Attachment F for a detailed budget report.

VI. CONCLUSIONS AND LOOKING AHEAD

Significant progress has been made in launching the new SEARCH structure. The kick-off meeting re-affirmed a shared vision of “scientific understanding of Arctic environmental change to help society understand and respond to a rapidly changing Arctic.” Discussions during and after the kick-off meeting of how to translate the SEARCH vision in the context of the SEARCH science goals (<http://www.arcus.org/search-program/goals>) provided guidance and inspiration for the Action Team activities. All major decisions for the governance structure have been made and are expected to be adopted in July. A high-quality team of SSC members, Action Team leads, and staff has been assembled. The SEARCH Executive Director hire will be finalized this summer; other staff positions are in place and program activities are underway. In addition to the specific activities listed in this report, a meaningful outcome has been the conversations amongst the growing SEARCH network—rich discussions on emerging scientific challenges in environmental Arctic change and how to respond to them. Our main priority in the coming month is the hire and settling-in of the Executive Director, and development of a more detailed Year 2 program plan. In Year 2, particular attention will be paid to development of SEARCH science products as well as activities that advance us towards the Arctic Futures 2050 synthesis, ensuring that Action Team and all activities feed into the larger SEARCH mission and goals.