

***SIKU*: Sea Ice We Want Our Children To Know.  
Strengthening Indigenous Contribution to International Polar Year 2007–08**

**Preliminary Report under the ‘Shared Beringia’-NPS Award,  
Cooperative Agreement, No. H9807070005**

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**Executive Summary**

The NPS award was given in spring 2007 for a two-year (20 months) Beringia-focused project aimed to strengthen Beringia residents’ participation in, and their contribution to, the International Polar Year (IPY) 2007–2008 program. IPY 2007–2008 is a major concerted attempt by the polar science community to document the current status of polar environment; it is also the first major polar science initiative, in which participation of Northern indigenous people is actively sought and their knowledge of the ice-dominated polar ecosystems is promoted.

The *SIKU* project’s main goal is to engage Beringian residents and local communities in IPY 2007–2008 science activities via local sea ice observation, sharing of ecological knowledge, and the documentation of indigenous ice forecasting and navigational practices. The project covers both the Alaskan and Russian portions of Beringia and it is implemented as a collaborative effort with several local partners, including indigenous experts, natural scientists, institutions and cultural specialists from the U.S. and Russia. This NPS award, under the **Cooperative Agreement No. H9807070005**, supports the ‘Beringian’ (Alaska-Chukotka) component of a broader international venture named *SIKU* (Sea Ice Knowledge and Use in the North), which is a part of IPY 2007–2008 (Project # 166). The *SIKU* project also includes Canadian and Greenlandic components funded via separate Canadian, Greenlandic, and French sources, as well as other collaborative efforts that are carried out in Alaska (Barrow, Wales, Shishmaref, Tununak, Toksook Bay) under the funding provided by NSF to individual PIs.

Due to the later disbursement of funds, the project expanded into 2009, to cover another full observational ‘ice year’ of 2008/2009. This brief report covers project activities during second half of 2008 and 2009. Major project achievements included: (1) local ice and weather observations; (2) documentation of indigenous sea ice terminologies (‘ice dictionaries’); (3) publication and science dissemination; and (4) engagement of local residents in science research, knowledge documentation, and local observations.

- 1. Local Ice and Weather Observations:** during 2008-2009, *SIKU* team continued community observations by local indigenous monitors in *eight* communities across the Beringia region: in Uelen, Yanrakynnot, Sireniki, and Novoe Chaplino in Russia, and in Gambell, Shaktoolik, Wales, and Barrow in Alaska (at two latter sites the observers were supported by the NSF-funded SIZONet project). Altogether, the team has collected a

truly unique database of local observational records spanning three winters, 2006/2007, 2007/2008, and 2008/2009 as its key contribution to the International Polar Year science and observation program.

2. **Documentation of indigenous knowledge:** during 2008-2009, *nine* local sea ice terminologies have been documented in four indigenous languages in the Bering Strait Region: Siberian and St. Lawrence Island Yupik (in Sireniki, Siberia, over 60 terms); Naukanski Yupik (in Lavrentiya, Siberia, over 60 terms), Inupiaq (in Wales, over 120 terms; Shishmaref, over 60 terms; Shaktoolik, over 40 terms; Barrow, over 100 terms; and Wainwright – re-transliteration of an earlier list, Nelson 1969, over 90 terms); and Chukchi (in Uelen, over 120 terms; Yanrakynnot, over 60 terms).
  
3. **Publication, dissemination of science:** in 2000–2009, the SIKU team published over 20 papers and short reports in English and Russian, and submitted a book for publication to the major academic publisher, Springer, for its IPY scholarly series (see Appendix 1). The book, *SIKU: Knowing Our Ice. Documenting Inuit Sea Ice Knowledge and Use* (Igor Krupnik, Claudio Aporta, Shari Gearheard, Gita Laidler, and Lene Kielsen Holm, editors) is a major 600+page scholarly collection of 20 chapters written by over 50 scientists and indigenous collaborators from Alaska, Canada, and Greenland. The book is scheduled for publication in April 2010. A separate Russian volume on the Russian *SIKU* operations aimed at the general Russian and local Chukotka audiences is currently in preparation. The team also produced several overviews of the SIKU project activities, including the one published in 2009. A Russian *SIKU* book is currently in preparation for the Russian audience (to be published in Russian in late 2010 or early 2011, under the editorship of Lyudmila Bogoslovskaya, Boris Vdovin, and Igor Krupnik).

SIKU team also organized special full-day session at the 6<sup>th</sup> International Congress of Arctic Social Sciences (Nuuk, Greenland, August 2008) chaired by Igor Krupnik, Gita Laidler, Shari Gearheard and Lene Kielsen Holm. During 2008-2009, members of the SIKU team gave talks at various meetings in the US, Russia, and Canada, including the ‘Beringia Days’ annual conferences in Fairbanks (October 2008) and Anadyr (September 2009), and other national and international science meetings (see Appendix).

4. **Engagement of local residents:** Altogether, the SIKU team included over 30 indigenous residents in both Alaska and Siberia, who acted as project participants, local weather and ice monitors, experts, interviewers, etc. Several participants, particularly on the Russian side (Victoria Golbtseva, Arthur Apalu, Oleg Raghtilkun), received their first training in science work through the SIKU project. The project was especially beneficial to the small office of the Russian ‘Beringia’ Park in Provideniya and stimulated their first full-scale science program, series of local seminars, training of local observers, collection and processing of observational records, ice ‘dictionaries,’ photographs, etc. All of these records will be kept in the Beringia Park office, thus producing their first ‘scientific archive’ related to local environmental observation and heritage documentation.

**Appendix: Publications (a) and posters/presentations (b) given at conferences and workshops on the outcomes of the SIKU and affiliated projects, 2006–2010**

**a) Publications**

Krupnik, Igor, Claudio Aporta, Shari Gearheard, Gita Laidler, and Lene Kielsen Holm, eds. *SIKU: Knowing Our Ice. Documenting Inuit Sea Ice Knowledge and Use*. 2010. Springer Publishers, 600+ pages (in print, due April 2010)

Krupnik, Igor and Ludger Muller-Wille. (2010). Franz Boas and Inuktitut Terminology for Ice and Snow: From the Emergence of the Field to the ‘Great Eskimo Vocabulary Hoax’. In Krupnik, I., C Aporta, S. Gearheard, G.Laidler, and L. Kielsen Holm, eds. *SIKU: Knowing Our Ice. Documenting Inuit Sea Ice Knowledge and Use*. 2010. Springer Publishers, (in print, due April 2010).

**Krupnik, Igor and Winton Weyapuk, Jr. (2010).** *Qaanuq Ilitaavut: How We Learned What We Know (Wales Inupiaq Sea Ice Dictionary)*. In Krupnik, I., C Aporta, S. Gearheard, G.Laidler, and L. Kielsen Holm, eds. *SIKU: Knowing Our Ice. Documenting Inuit Sea Ice Knowledge and Use*. 2010. Springer Publishers, (in print, due April 2010)

Krupnik, Igor, Leonard Apangalook, Sr., and Paul Apangalook (2010). It’s Cold, But Not Cold Enough: Observing Ice and Climate Change in Gambell, Alaska in IPY 2007-2008 and Beyond (with Leonard Apangalook and Paul Apangalook), 35 pp., August – for “SIKU – Knowing Our Ice” (2010) – for “SIKU – Knowing Our Ice” (2010)

**Krupnik, Igor, Claudio Aporta, and Gita Laidler (2010).** *SIKU: International Polar Year, #166 (An Overview)*. In Krupnik, I., C Aporta, S. Gearheard, G.Laidler, and L. Kielsen Holm, eds. *SIKU: Knowing Our Ice. Documenting Inuit Sea Ice Knowledge and Use*. 2010. Springer Publishers, (in print, due April 2010)

Krupnik, Igor. (2010). “How Many Eskimo Words for Ice?” Collecting Inuit Sea Ice Terminologies in IPY 2007–2008. *Canadian Geographer* (special issue on the SIKU-ISIUOP project). June 2010.

Arnestad Foote, Berit. 2009. Point Hope. Life on Frozen Water/Tikigaaq : en fotografisk reise blant eskimoene i Point Hope 1959-1962. Chicago and Fairbanks, University of Chicago Press and University of Alaska Press/ Oslo,

Bogoslovskaya, Lyudmila, Boris Vdovin, and Victoria Golbtseva. 2008. Izmeneniia klimata v regione Beringova proliva: Integratsiia nauchnykh i traditsionnykh znaniia (Climate Change in the Bering Strait Region: Integration of Scientific and Indigenous Knowledge (SIKU, IPY #166). *Ekonomicheskoe planirovanie i upravlenie* 3–4 (8–9):58–68. Moscow (in Russian).

Bogoslovskaya, L.S. and V.V. Golbtseva. 2007. Traditional Navigation Techniques and Safety Rules. In *Osnovy morskogo zverboinogo promysla*. L. Bogoslovskaya, I. Slugin, I.

- Zagrebin, and I. Krupnik, eds. Moscow and Anadyr, pp. 334-341 (in Russian)
- Golbtseva, V.V. 2008. Wind Regime and Indigenous Knowledge about Local Winds in Uelen. In *Chukotka: Rational Resource Management and Ecological Security. Proceedings of the Chukotka Branch of the SVKNII* 12. Magadan, pp. 145-161 (in Russian).
- Golbtseva, V.V. 2009. Types of Sea Ice in Marine Hunters' Lexicon and Safety Measures during Sea-Mammal Hunting. *Kerek Pedagogical Readings* 2. St. Petersburg, Polytechnical University (in Russian).
- Krupnik, Igor. 2008. Project *SIKU*: IPY Study of Indigenous Knowledge of Ice. *Arctic Studies Center Newsletter* 15, 16–18.
- Krupnik, Igor. 2009 a. 'The Ice We Want Our Children to Know': *SIKU* Project in Alaska and Siberia, 2007-2008. *Park Science in the Arctic: Proceedings of the Arctic Alaska Park Science Symposium and Beringia Conference. Alaska Park Science. Volume 8, Issue 2. December, 2009*, pp. 122-127.
- Krupnik, Igor. 2009b. *SIKU* (Sea Ice Knowledge and Use) Study Advances in Its Third Year. *Arctic Studies Center Newsletter* 16:26–28.
- Krupnik, Igor. 2009c. "The Way We See It Coming": Building the Legacy of Indigenous Observations in IPY 2007–2008. In *Smithsonian at the Poles: Contributions to International Polar Year Science*. I. Krupnik, M. Lang, and S. Miller, eds. Washington, DC, Smithsonian Institution Scholarly Press, pp. 129–142.
- Krupnik, Igor. 2009d. When the Ice, Photos, and Memories Come Together. In: Berit Foote. *Point Hope, Alaska. Life on the Frozen Water. Photographs 1959-1962*. Fairbanks, University of Alaska Press, pp. 10-11.
- Krupnik, Igor. 2009e. *SIKU* ("Sea Ice Knowledge and Use") Study Advances in its Third Year – paper for the *ASC Newsletter* 16, 2009, 26-28
- Krupnik, Igor. 2006. We Have Seen These Warm Weathers Before. Indigenous Observations, Archaeology, and the Modeling of Arctic Climate Change. In: Arneborg, Jette and Grønnow, Bjarne (eds.): *Dynamics of Northern Societies. Publications from the National Museum, Studies in Archaeology and History*, Vol. 10. Copenhagen. pp. 11–21
- Krupnik, Igor, and Lyudmila Bogoslovskaya. 2007. Izmeneniie klimata i narody Arktiki. Proekt *SIKU* v Beringii (Climate Change and Arctic People: *SIKU* Project in Beringia). *Ekologicheskoe planirovanie i upravlenie* 4(5):77–84.
- Krupnik, Igor and Lyudmila Bogoslovskaya. 2008. International Polar Year 2007 –2008. Project *SIKU* in Alaska and Chukotka. In *Beringia: A Bridge of Friendship*. Tomsk, TSPU Press, pp. 196–204.

Vdovin, B.I., and A.Yu. Yevstifeev. 2008. Climate Change in Eastern Chukotka over the Past Century, According to the Instrumental Records. In *Beringia: A Bridge of Friendship*. Tomsk, TSPU Press, pp. 17–24.

## **b) Posters/Presentations**

Bogoslovskaya, Lyudmila S. 2009. Indigenous observations of climate change in Russian Beringia. Paper presented at the SIKU-Beringia workshop. Russian Institute for Cultural and Natural Heritage, Moscow. February 18.

Golbtseva, V.V. 2009. Sea Ice as a Life Source to the People of the Bering Strait Region. Paper presented at the ‘Shared Beringia Heritage’ Conference, Anadyr, Russia, September 15, 2009.

Krupnik, Igor. 2009. Sea Ice and a Cultural-Ethnographic Landscape. Paper presented at the Russian Institute of Cultural and Natural Heritage, Moscow, Russia, February 15, 2009.

Krupnik, Igor. 2009. As the Ice Keeps Thinning: Update on Arctic People-Sea Ice Connections, 2007–2009. Paper presented at the symposium “Impact of an Ice-Diminishing Arctic on Naval and Maritime Operations. Annapolis, MD, June 10, 2009.

Krupnik, Igor. 2009. Riding the Tide of Climate Change: Indigenous People Interpret Their Changing Environment – Paper presented at the conference “Emotional Process in Society,” Georgetown University, April 19.

Krupnik, Igor. 2009. IPY and Indigenous People: Local Knowledge Contributes to the Study of Arctic Change – NOAA Science Seminar series, NOAA, April 15, 2009

Krupnik, Igor. 2008. ‘The Changing Arctic’: IPY 2007-2008 and Northern Residents. Public lecture. Nome, NW UAF Campus. February 18.

Krupnik, Igor. 2008. “The Ice We Want Our Children to Know”: *SIKU* Project (IPY #166) Overview, with an Emphasis on Alaska and Siberia. Paper presented at the ICASS-6 session, Nuuk, August 26, 2008

Krupnik, Igor, and Winton Weyapuk, Jr. 2008. “Qanuq Ilitaavut: How we Learned What We Know”. *Wales Inupiaq Sea Ice Dictionary*. Paper presented at the ICASS-6, Nuuk, August 2008.

Krupnik, Igor (moderator). 2008. How We Learned What We Know: Indigenous Experts Document Arctic Ice and Climate Change. Special Panel, with Hajo Eicken, Herbert Anungazuk, Winton Weyapuk, Ronald Brower, Sr., and Joe Leavitt. University of Alaska Fairbanks, Fairbanks, AK, October 15, 2008.

- Krupnik, Igor. 2007. On a Thinning Ice: Arctic Residents face Climate Change. Paper presented at the symposium “Impact of an Ice-Diminishing Arctic on Naval and Maritime Operations,” Washington, DC, July 12
- Krupnik, Igor. 2007. The Way We See It Coming. Building the Legacy of Indigenous Observations in IPY 2007–2008. Paper presented at the Symposium, “Smithsonian at the Poles: Contributions to IPY Science” – Washington, DC, May 4<sup>th</sup>.
- Krupnik, Igor. 2007 Arctic Residents and Climate Change: Contributions to IPY Science – presentation at the ‘Science Day,’ Arctic Science Summit Week, Hanover, NH, March 19, 2007
- Krupnik, Igor. 2006. On a Thinning Ice: Indigenous People and Icebreaker Community Face Arctic Climate Change. Paper presented to the Committee on the Assessment of U.S. Coast Guard Polar Icebreaker Roles and Future Needs, U.S. National Academies, March 2, 2006
- Krupnik, Igor and Lyudmila Bogoslovskaya. 2007. International Polar Year 2007 –2008. Project *SIKU* in Alaska and Chukotka. Paper presented at the ‘Shared Beringia Heritage’ Conference. Anadyr, Russia, September 16.
- Vdovin, Boris. I. 2009. Scientific data on the recent climate change in Beringia. Paper presented at the *SIKU*-Beringia workshop. Russian Institute for Cultural and Natural Heritage, Moscow. February 18.
- Vukvukai, N.I. and V.V. Golbtseva. 2007. The Use of Traditional Knowledge in Monitoring Climate Change in the Arctic Zone of Chukotka. Paper presented at the ‘Shared Beringia Heritage Conference,’ Anadyr, Russia, September 18, 2007.
- Wisniewski, J. 2008. Learning as Doing, Being as Knowing about *Sigu*: An Iñupiaq Hunting Pedagogy of Experience in Shishmaref, Alaska. Paper presented in session “*SIKU*: Polar Residents Document Arctic Ice and Climate Change,” ICASS VI, Nuuk, Greenland. August 22-26, 2008.