GLOBAL WARMING 
& CLIMATE CHANGE
A Symposium in the Russian Arctic
Aboard the Kapitan Khlebnikov
JULY 5–18, 2007
Moderated by Tom Brokaw

COLUMBIA alumni
ASSOCIATION
ROSS MACPHEE is former chairman of the Department of Mammalogy of the American Museum of Natural History, where he has been a curator since 1988. Dr. MacPhee’s wife, Clare Flemming, an associate in the Division of Vertebrate Zoology/Mammalogy at the Museum, will join us on this adventure.

“When people ask, What is the point of going somewhere as remote and hard to get to as Wrangel Island?, for me the answer is clear. Wrangel Island, we believe, was the locus of the woolly mammoth’s last stand. Mammoths were living there at least as recently as 3,700 years ago—effectively yesterday, in my line of work. Finding such young material greatly enhances the possibility of obtaining high-quality, abundant DNA from the bones and teeth that litter the tundra. My colleagues and I are currently attempting to sequence the entire functional genome of the woolly mammoth—in other words, everything that genetically made a mammoth a mammoth—and specimens like those from Wrangel and adjacent parts of arctic Siberia will make this possible.

“The fact that mammoths and other large Eurasian mammals are no longer with us raises obvious questions: Did they disappear because of dramatic climate change? Or was their demise due to overhunting by humans? Or were other, less obvious factors in play? The mystery of ice age extinctions continues to excite the imagination of scientists and lay people alike, and research into this area may help us anticipate and deal with future losses as well.”

JOHN HARTE holds a joint professorship in the Energy and Resources Group and the Ecosystem Sciences Division of the College of Natural Resources, University of California, Berkeley. His wife, Mary Ellen (“Mel”) Harte, will accompany him and share her expertise on arctic wildflowers and ethnic textiles and beadwork.

“As might be expected in a trip to Russia, this adventure is wrapped in an enigma. In one sense, the Eastern Siberian Arctic, and Wrangel Island in particular, are far from the beaten path. And that is why we will witness magical scenery, spectacular wildlife, splendid displays of wildflowers, and unique, fascinating, traditional cultures. But sadly, and in a different sense, these treasures also lie right in the path of civilization, for the region is at the front line of global warming.

“Considered by many scientists to be the most serious environmental threat to our planet, global warming will likely devastate the Arctic during the coming decades. On our uniquely historic voyage, we will witness early signs of its effects and learn why further impacts are expected. I study the interaction of climate and alpine ecosystems, so I will share with you 20 years of scientific findings on that topic and connect the sights we see to the science.”
RONALD PRINN is professor of atmospheric science at MIT, as well as director of MIT’s Center for Global Change Science and co-director of the Joint Program on the Science and Policy of Global Change.

“The Arctic has been warming at about twice the global average rate in recent decades, accompanied by a large decrease in the extent and thickness of Arctic summer sea ice, thawing of permafrost, coastal erosion, alterations of ice sheets and ice shelves, and changing patterns and densities of flora and fauna. If these trends continue, you may well be one of the last to see this remote region of our planet while it still resembles its historic frozen state.

“As a climate scientist, I will share with you our current understanding of what determines climate. How has it changed in the past, and why? How much of what we observe in the Arctic today is driven by accumulating greenhouse gases, and how much could be attributed to natural variability? What are the impacts of climate change on the tundra, ice sheets, and wildlife, now and in the future? I will introduce you to a bold effort at MIT to forecast future climate by linking science, economics, and policy. You will get to wager on the ‘greenhouse gamble,’ a ‘wheel of fortune’ with varying odds of dangerous climate change depending on the policies we choose. And I will address the ‘politics’ of climate: Why is it so difficult to form a global consensus about what to do?”

WILLIAM FITZHUGH is an arctic anthropologist and director of the Arctic Studies Center at the National Museum of Natural History, Smithsonian Institution.

“Wrangel Island, one of the most remote places on Earth, is also one of the last places settled by prehistoric arctic peoples and reached by modern explorers. Its secrets are only beginning to be revealed. Ten years ago I made an unsuccessful attempt to visit Chertov Ovrag, a 3,500-year-old archaeological site that was virtually the same age as the demise of the dwarf mammoths whose remains had recently been discovered on the island. Were the dates accurate? Had humans exterminated the last mammoths at this location? Or had mammoths succumbed before humans arrived?

“Like the wider problem of global climate change, we won’t solve this mystery overnight, but the human-mammoth encounter is symptomatic of issues facing the world today. Once tipped beyond a certain point, regime change occurs with untold consequences. We stand today at the cusp of a change whose significance is not easy to assess. Wrangel Island holds clues, as does the story of Vikings in Greenland and other arctic peoples who flourished and then disappeared as the world around them changed. Climate matters, and the scope of human impact has widened now to the entire globe. The challenge today is not just who can, or should, survive—hunter or mammoth—but how to make choices that will sustain both.”

EXPEDITION TEAM

An experienced and enthusiastic team of geologists, naturalists, ornithologists, historians, and marine biologists is an integral part of the Global Warming and Climate Change Symposium. They are experienced in—and enjoy—fielding questions, offering informal briefings, and engaging in discussions on everything from geography, geology, and environmental concerns to ornithology, marine biology, and the history of polar exploration. They broaden our understanding of marine ecosystems, bring to life the fascinating history of the places we visit, and interpret what we encounter during Zodiac and land excursions.
DEAR COLUMBIAN,

As the host of a recent documentary, veteran broadcast journalist Tom Brokaw investigated the “hot topic” of climate change. This summer, join Mr. Brokaw and a distinguished group of scientists aboard the expedition ship Kapitan Khlebnikov for a voyage into the Russian Arctic—one of the places where the consequences of rapid temperature change are especially evident. Mr. Brokaw will moderate lively debates and panel discussions with William Fitzhugh, director of the Smithsonian’s Arctic Studies Center; John Harte, a professor in the College of Natural Resources at the University of California, Berkeley; Ross MacPhee, curator of vertebrate zoology at the American Museum of Natural History; and Ronald Prinn, professor of atmospheric science at MIT.

The icebreaker Kapitan Khlebnikov is a polar-class ship that allows intrepid passengers to access remote corners of the globe. From its deck, board helicopters to travel over icy landscapes that could very well be disappearing. Sail the famed Bering Strait between Russia and the U.S., and cruise the Siberian coast to cross the Arctic Circle. Meet the Chukchi and other Arctic peoples—from artisans to reindeer herders—in their native landscapes, from the heart of the tundra to the sweeping seas. Discover the natural wonders of this awe-inspiring region, including 500-year-old skeletons of giant bowhead whales at Whalebone Alley; a variety of bird life, from the crested auklets of the Chukchi Peninsula to the nesting cormorants of Kolyuchin Island; and Wrangel Island’s thriving walrus population—one of the largest in the world.

For those curious about the possible effects of global warming on the future of our planet, this symposium provides a multifaceted introduction to the complex issue of global climate change. For those who simply wish to learn more, both intellectually and through hands-on experience, the Arctic is the place to be.

I hope you will join us and our cosponsors—Smithsonian, MIT, the American Museum of Natural History, Smith College, the University of California–Berkeley, and The Commonwealth Club—in the wondrous living laboratory of Russia’s Far North.

Sincerely,

Eric J. Furda ’94 TC
Vice President for Alumni Relations

P.S. Availability is very limited on this program. I encourage you to make your reservation right away. Please call 1-866-3-ALUMNI (1-866-325-8664) to book your space today. Or e-mail travelstudy@Columbia.edu.

ITINERARY

HOME / ANCHORAGE, ALASKA
Thursday, July 5
Fly from home to Anchorage, Alaska, and transfer to the Millennium Hotel. Gather this evening for a welcome reception.
MILLENIUM HOTEL (R)

ANCHORAGE / PROVIDENIYA, RUSSIA
Friday–Saturday, July 6–7
Take a morning flight from Anchorage to Provideniya, “losing” a day in crossing the International Date Line. After officially entering Russia, transfer by helicopter to the Kapitan Khlebnikov, which waits offshore. KAPITAN KHLEBNIKOV (B,L,D)

CHUKOTKA PENINSULA
Sunday–Monday, July 8–9
Enjoy presentations about the wildlife, geology, glaciology, and history of Russia’s Far North before embarking on shore adventures on the remote, rugged Chukotka Peninsula, a naturalist’s paradise where high-latitude plants such as Arctic poppies and saxifrages are in bloom. Explore the coast and nearby islands, home to myriad nesting seabirds, including least and crested auklets, tufted and horned puffins, and guillemots. At ancient cultural sites, examine ceremonial grounds, learning about the early inhabitants of the Russian Arctic. On Yttygran Island, walk among the 500-year-old skeletons of giant bowhead whales at Whalebone Alley, a sacred place for early native whalers. KAPITAN KHLEBNIKOV (B,L,D)

BERING STRAIT & CAPE DEZHN EV
Tuesday, July 10
Sail through the famed Bering Strait, the relatively narrow waterway separating Russia from the United States, with the island of Big Diomede, Russia’s furthest outpost, off the starboard bow. The politically significant strait is rich in wildlife, welcoming migratory seabirds in the summertime, as well as bowhead, gray, and minke whales. A planned stop at Cape Deznev, the easternmost point of Eurasia, allows time for a visit to the weather station and a walk to the monument to Russian navigator Semyon Deznev, who in the 1640s determined that Asia and North America were not attached. Continue north along the Siberian coast and cross the Arctic Circle.
KAPITAN KHLEBNIKOV (B,L,D)
**KOLYUCHIN ISLAND**  
*Wednesday–Thursday, July 11–12*  
Our journey northward offers a wonderful opportunity to watch from the deck as the Kapitan Khlebnikov plunges into the formidable pack ice of the Arctic Ocean. Visit the wildlife sanctuary on Kolyuchin Island, site of an abandoned weather station surrounded by thousands of nesting cormorants, murres, puffins, and other species.  
*KAPITAN KHLEBNIKOV (B,L,D)*

**WRANGLER ISLAND**  
*Friday–Saturday, July 13–14*  
Wrangel Island was discovered in 1820 by Baron Ferdinand Wrangel, although he never set foot on shore. It appeared as a fata morgana, a type of optical illusion that we also may see on our voyage. A UNESCO World Heritage Site, Wrangel Island is home to the Arctic’s largest winter population of denning polar bears and the world’s main concentration of walruses. Musk oxen and reindeer thrive here, as do tundra geese. In 1992, a tooth was discovered on Wrangel Island that apparently belonged to one of the last woolly mammoths, which roamed here just 3,600 years ago. Explore alpine valleys and the snow-covered tundra in the company of Russian scientists charged with protecting the island.  
*KAPITAN KHLEBNIKOV (B,L,D)*

**CHUKCHI SEA, SIBERIAN COAST**  
*Sunday–Tuesday, July 15–17*  
Heading south, leave the ice behind and explore Siberia’s coastal wilderness as well as remote Chukchi villages of the Chukchi, where the local people still herd reindeer and carry on traditional hunting (“Chukchi” is a derivation of a Tungusic word for “man who is rich in reindeer”). Visit a small museum in Uelen devoted to carving and other traditional crafts and activities.  
*KAPITAN KHLEBNIKOV (B,L,D)*

**PROVIDENIYA / ANCHORAGE**  
*Wednesday–Tuesday, July 18–17 (crossing International Date Line)*  
Returning to Provideniya on July 18, transfer by helicopter to the airport and board a flight over the Bering Sea back to Alaska, recrossing the International Date Line to reach Anchorage on July 17, the day before we left Provideniya.  
*MILLENNIUM HOTEL (B,L)*

**ANCHORAGE / HOME**  
*Wednesday, July 18*  
Transfer independently to the Anchorage airport for flights home.  
*(B)*

To acknowledge our responsibility for the health of our planet, High Country Passage will make a donation to Climatecare to offset the carbon emissions of this trip. Participants are also encouraged to make individual donations to [http://www.climatecare.org](http://www.climatecare.org).
**KAPITAN KHLEBNIKOV**

The *Kapitan Khlebnikov* was built in Finland in 1981, originally with the mission of keeping ice-bound shipping lanes open for other vessels. Not simply an ice-reinforced ship, the powerful 108-passenger, polar-class icebreaker has transported adventurous travelers to extremely remote reaches of the globe since 1992. Its interior provides comfortable passenger facilities, with accommodations in 51 first-class outside cabins and suites. Two helicopters assist with navigation and beach landings, and a fleet of sturdy Zodiacs is available for leisurely cruising of the Arctic waters and for shore excursions. There is an elevator for easy movement between decks, and a small medical clinic.

All accommodations have windows that can be opened, as well as adjustable vents to control the flow of air inside the cabin. Floors are carpeted and there is ample wardrobe and drawer space. En suite bathrooms include a shower. The ship has two dining rooms with unassigned seating, a small library, laundry service, bar, lecture room, sauna, swimming pool, and exercise room.

The atmosphere aboard the *Kapitan Khlebnikov* is relaxed and informal. Maritime regulations and weather conditions permitting, the bridge is open for visits, and passengers are encouraged to take advantage of this excellent venue for keeping a look out for wildlife and observing the ship’s operations. Dress is casual, as befits an expedition cruise.

**INCLUDED** • Two nights at the Millennium Hotel in Anchorage and eleven nights aboard the *Kapitan Khlebnikov* • Meals as indicated in the itinerary • Welcome reception including alcohol and wine • Comprehensive educational program by study leaders, moderator, and on-board expedition team • All shore excursions and Zodiak and helicopter activities throughout the voyage • Expedition parka • Charter flights between Anchorage and Provideniya • On-tour transfers and baggage handling between the hotel, airports, and ship • Arrival and departure transfers provided by Millennium Hotel courtesy shuttle • Airport, hotel, and departure taxes • Gratuities to guides, porters, and ship’s crew • Complete packet of pre-departure information including suggested reading list and luggage tags • Emergency evacuation insurance up to $100,000 (for citizens and residents of the U.S. and Canada)

**NOT INCLUDED** • U.S. domestic airfare • Passport and visa fees • Immunization costs • Airport security fees imposed by the government or airline • Meals and beverages, including alcohol and wine, not specified as included • Baggage and cancellation insurance • Any possible helicopter flying time in excess of that offered for the group (to be charged at an hourly rate announced onboard) • Personal items such as laundry, telephone, fax, and email charges, gratuities for non-group services, and other items not specified as included

**AIRFARE** Round-trip airfare between your hometown and Anchorage is not included in the program rates. Our tour operator is happy to assist you in making all of your air travel arrangements for this tour.

**PROGRAM RATES**, per person

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<th>TRIPLE</th>
<th>DOUBLE</th>
<th>SINGLE</th>
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<tr>
<td><strong>TRIPLE CABIN</strong></td>
<td>$11,995</td>
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<td>Upper and lower berths, sofa bed, window. 135 sq. ft.</td>
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<td><strong>TWIN CABIN</strong></td>
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<td>$15,995</td>
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<tr>
<td>Lower berth, sofa bed, window. 135 sq. ft.</td>
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<tr>
<td><strong>SUITE</strong></td>
<td>–</td>
<td>$19,995</td>
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<tr>
<td>Double bed, separate sitting room, refrigerator, TV/VCR/DVD-CD player, two windows. 285 sq. ft.</td>
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<td><strong>CORNER SUITE</strong></td>
<td>–</td>
<td>$21,995</td>
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<tr>
<td>Double bed, sofa bed, separate sitting room, refrigerator, TV/VCR/DVD-CD player, four windows. 285 sq. ft.</td>
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TERMS & CONDITIONS

PAYMENTS A $2,000 deposit is required to hold space for the program. Please make your check payable to High Country Passage and mail it with the completed reservation form to Columbia Alumni Travel Study Program, 245 Mill St., 2nd Floor, Greenwich, CT 06830. MasterCard and VISA are also accepted for deposit and final payment. Final payment is due March 21, 2007, 106 days prior to departure.

CANCELLATION & REFUNDS Deposits are fully refundable if a written notice of cancellation is received by Columbia Alumni Travel Study Program within 30 days of receipt of deposit; after that, they are 100% nonrefundable. Cancellations after final payment: 100% penalty.

COST, ITINERARY, OR PROGRAM MODIFICATIONS The itinerary, as contained in this brochure, is subject to modifications and change by the Columbia Alumni Travel Study Program and High Country Passage, the tour operator. Every effort will be made to carry out the program as planned, but alterations may still occur after the final itinerary is sent. Due to fluctuations in oil prices, a fuel surcharge may be added to your tour fee. Details and costs will be advised prior to your departure.

INSURANCE The Columbia Alumni Travel Study Program strongly recommends that all tour participants purchase Trip Cancellation, Emergency Medical Evacuation, Baggage, Accident, and Medical insurance for their tour. Further information will be sent upon registration.

HEALTH All participants should be in good health and capable of walking over sometimes steep, rough terrain. By forwarding the deposit, the passenger certifies that he/she does not have any physical or other condition of disability that would create a hazard for him/her self of other passengers.

ELIGIBILITY This program is open to Columbia University alumni, family, and friends.

RESPONSIBILITY Columbia University, its agent, TSS LLC, and the tour operator, High Country Passage (HCP), act only as agents for the passenger with respect to transportation and ship arrangements and exercise every care possible. However, we can assume no liability for injury, damage, loss, accident, delay, or irregularity in connection with the service of any boat, automobile, motorcoach, or any other conveyance used in carrying out this program, or for the acts or defaults of any company or person engaged in conveying the passenger or carrying out the arrangements of the program. We cannot accept any responsibility for losses or additional expenses due to delay or changes in air or other services, sickness, weather, strike, war, quarantine, force majeure, or other causes beyond our control. All such losses or expenses will have to be borne by the passenger, as tour rates provide for arrangements only for the time stated. We reserve the right to make such alterations in the published itinerary as may be deemed necessary, and to cancel or substitute lecturers. We reserve the right to cancel this program prior to departure, in which case the entire payment will be refunded without further obligation on our part. The right is also reserved to decline to accept or retain any person as a member of the program. No refund will be made for the unused portion of any tour unless arrangements are made in sufficient time to avoid penalties. Baggage is carried at the owner's risk entirely. It is understood that the air ticket when issued shall constitute the sole contract between the passenger and the airline. The airlines concerned are not to be held responsible for any act, omission, or event during the time passengers are not on board their plane or conveyance. Neither Columbia University, TSS, nor HCP accepts liability for any carrier's cancellation penalty incurred by the purchase of a nonrefundable air ticket connected with this program. We cannot guarantee the size of the Columbia Alumni Travel Study Group.

CABIN PREFERENCE

1st CHOICE

2nd CHOICE

SINGLE TRAVELERS ONLY

I prefer single accommodations.

OR

I plan to share accommodations with:

FIRST, LAST

OR

Please arrange a share for me (not guaranteed). If a share cannot be arranged, I agree to pay the single rate.

I am a smoker

non-smoker.

I/we have read the schedule of activities for this tour, as well as the terms and conditions as set forth in the tour brochure, and agree to them.

SIGNATURE DATE

SIGNATURE DATE
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WILDLIFE
Not all the animals listed may be seen on your expedition, nor is this list all-inclusive. Voyage routes, weather, ice conditions, shortages of food, and the natural life cycle of animals may limit the number of wildlife encountered in the Arctic at any given time.

MAMMALS
- Gray Whale
- Bowhead Whale
- Musk Ox
- Lemming
- Arctic Ground Squirrel (Suslik)
- Reindeer
- Walrus

BIRDS
- Pelagic Cormorant
- Tufted Puffin
- Horned Puffin
- Thick-billed Murre
- Common Murre
- Pigeon Guillemot
- Black Guillemot
- Glaucous Gull
- Kittiwake
- Eider
- Least Auklet
- Crested Auklet