
This year, travel with The Planetary Society as we explore:

Alaska Aurora Borealis

Come see the Greatest Light Show on Earth!

March 10-16, 2011

Dear Friends:

We invite you to join us in 2011, as we explore the great beauty of Alaska in winter, and see the famed Aurora Borealis or Northern Lights, the greatest light show on Earth!

We will gather in **Anchorage, Alaska**, to begin our adventure, situated at the head of the Cook Strait and at the foot of the Chugach Mountains, whose spectacular peaks define the coast of Alaska. After our welcome in Anchorage, we will drive through spectacular mountains to **Seward**, near Kenai Fjords National Park. Here we'll visit the Alaska Sea Life Center to see sea otters, seabirds, and a profusion of Alaska marine life. We will look at Alaska's major land mammals including grizzlies, moose, and muskox.

The following day we will travel on the classic train journey from Anchorage to **Fairbanks**, passing North America's tallest and most awesome mountain, **20,320-foot Mt. McKinley** en route.

We will arrive in Fairbanks to enjoy the annual winter **World of Ice Art Festival** and learn about the Aurora Borealis at a scientific institute as we discover the delights of Fairbanks and the night skies. The Fairbanks region is just south of the Aurora Oval and is a great vantage point to observe this magnificent phenomenon.

Our visits will include the **Geophysical Institute** at the University of Alaska, Fairbanks, which was established to study the Aurora and its effects. These studies have continued from the International Geophysical Year in



1957-58 to the present time and are conducted in both polar areas. They have added greatly to understanding the unique interactions between the Sun and Earth in the polar regions.

In Fairbanks we will stay at the comfortable Sophie Station Hotel and will go to the very best locations in the evening to look at the Aurora Borealis: **Mt. Aurora, Creamer's Field**, and the new Aurora-viewing facility at **Alpencrest Observatory**. In these remote locations, we will continue to learn about the Aurora and enjoy hospitality in rustic lodges while viewing the Aurora.

You will have afternoons to discover other delights of this snowy wonderland. We will see sled dogs and learn about the art of mushing, and the local Curling Club will demonstrate this popular winter sport. We will also visit the **Poker Flat Research Range** which launches rockets to study the Aurora Borealis.

We invite travelers with an appetite for adventure and discovery to explore the day and night winter wonderland of our 49th state this winter!

Sincerely,

Dr. Louis Friedman
Executive Director



Aurora Borealis Itinerary

Day 1 Home to Anchorage

Expedition members fly from their nearest gateway city to Anchorage, Alaska. Transfer on your own to the *Hilton Hotel* (2 nights). Afternoon at leisure, or visit the Anchorage Museum of History and Art for a fascinating introduction to the people and wildlife of Alaska. Welcome social, orientation, and dinner. (D)

Day 2 Seward & Resurrection Bay

Today we will travel south through the Chugach National Forest to the fishing village of Seward adjacent to Kenai Fjords National Park. Seward is named for U.S. Secretary of State, William Seward, who convinced Congress to buy Alaska from Russia in 1867 for less than 2 cents per acre. Here, we will explore the excellent Alaska Sea Life Center. We will see much of the marine life of the North Pacific including seabirds, sea lions, bald eagles, and more! Afternoon return to Anchorage via the Alaska Wildlife Conservation Center. (B)



Day 3 Anchorage to Fairbanks by Train

After breakfast we will board the famous Alaska Railroad for a scenic journey from Anchorage, along the Cook Inlet and inland to Fairbanks, situated in the interior of this vast state. The rail trip will take about twelve hours, with stops

Overview of the Aurora Borealis

The colorful Aurora Borealis is produced by a combination of solar winds and excited gases surrounding the Earth's magnetic field. The Earth has polarity with magnetic field lines radiating outward and connecting back on themselves. As the solar wind blows against and across the field lines it produces electricity, like a generator. The electricity, mostly electrons, flows most easily along the magnetic field lines. As the electrons collide with upper atmospheric atoms and molecules, they become "excited", and emit light that is a characteristic of each atom or molecule, thus producing the light we see as the Aurora. The Aurora colors can range from white to green to yellow, and red, with many shades in between.

The solar wind is the energy behind the Aurora. When the solar winds increase during a solar sun cycle or with an intense explosion, a solar flare, or increased amounts of energy, collides with the earth's magnetic field. During the increased interaction the Auroras are more intensely colored and can fill the night sky with color from horizon to horizon.

In 1963, scientists discovered that Auroras form a band encircling each polar region, the Aurora Oval. The oval band width varies between 200 and 800 miles in a single day and can move hundreds of miles in latitude. The Aurora Oval is fixed in relation to the Sun as the Earth rotates under the oval each day, making it a very dynamic phenomenon. Many Aurora Oval photos have been taken from space which have allowed scientists to better measure the daily movements of the Aurora.



along the way to allow locals to get to and from their homes when snow blocks many of the smaller roads. In winter, the views of Mt. McKinley, at 20,320 feet, can be outstanding with clear skies. The train has a dining car for meals. Arrive in Fairbanks and transfer to *Sophie Station Hotel* (4 nights). (B)

Day 4 Geophysical Institute, University of Alaska

This morning we will enjoy an introduction to the Aurora Borealis at the Geophysical Institute, University of Alaska, Fairbanks. The Institute has a long history of Aurora research that continues today. We will learn about the different types of Auroras, the colors, movements, and current research. Sound at different wavelengths is also emitted by Auroras, but whether a human can hear the sounds has long been debated.

Later in the day, we will visit the Fairbanks famed World of Ice Art Festival. Here, tantalizing images of moose, swans, and other fanciful works of imagination have been carved from massive blocks of ice and illuminated by colored lights to enhance the effects of size and realism.

Following dinner on your own, we will drive to the wildlife refuge, Creamer's Field, to be joined by local star gazers to view the night sky, and the Aurora Borealis. (B)

Day 5 Poker Flat & Mt. Aurora

This morning we will have a late breakfast and then enjoy a late morning lecture. After lunch we will visit the Trans-Alaska Pipeline, the 800-mile-long pipe that carries crude oil from Prudhoe Bay to Valdez for shipment by enormous oil tankers to the "lower 48." We will continue northeast of Fairbanks through rounded, snow-covered schist hills which were a focus of gold mining at the turn of the century. Millions of ounces of gold were taken from this region over a period of 60 years.

We then visit the Poker Flat Research Range. Poker Flat is the world's only university-owned and operated rocket range. The range has been in operation since 1968 and fires rockets to study the Aurora Borealis and do other atmospheric research. The facility houses a geophysical observatory, telemetry receiving stations, and rocket assembly. We continue to Mt. Aurora for a

lodge dinner and evening Aurora viewing. Late return to *Sophie Station*. (B,D)

Day 6 Sled Dogs, Ice Festival, and Aurora Borealis

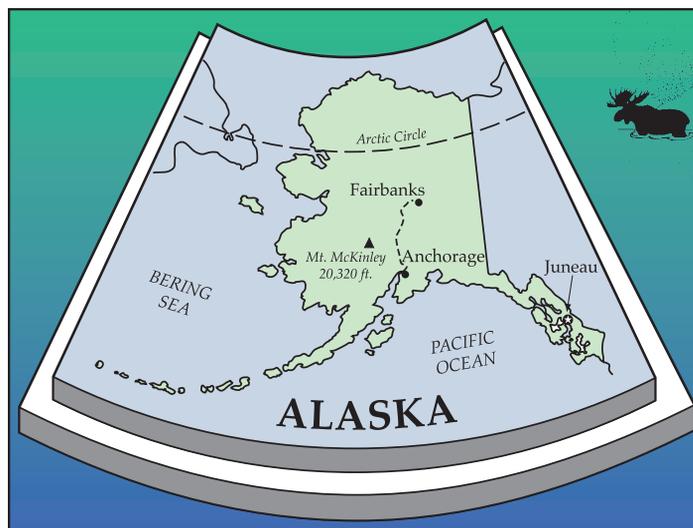
After a late breakfast, we will continue our lecture program. After lunch we will visit a kennel of dogs and learn about the art of raising sled dogs and driving dogsleds through the Alaskan wilderness. We then will be welcomed by the Fairbanks Curling Club to learn about the sport.

We will also visit the University of Alaska Museum of the North today. Here, we'll see examples of the many peoples who inhabit interior Alaska and displays of both migratory and non-migratory wildlife. We'll also visit the Large Animal Research Station to learn about their research and see the musk ox and caribou at the facility.

Farewell dinner. Tonight we will watch and photograph the Aurora from the new Aurora-viewing facility, Alpengrest Observatory, outside of Fairbanks. Some may choose to photograph the star trails. These dark nights might be a time to experience some of the hearty beverages that keep away the cold. (B,D)

Day 7 Fairbanks to Home

After breakfast, transfer to the Fairbanks Airport. Connect with a flight to Anchorage and fly to the "lower 48" states. (B)



Reservations

#1176

Yes! I/We want to join the **Alaska Aurora Borealis Expedition, March 10-16, 2011**, offered by **The Planetary Society and Betchart Expeditions Inc.** Please reserve _____ space(s) on the expedition. As a deposit, I/we have enclosed a check for \$_____ (\$500 per person), payable to Betchart Expeditions Inc. Trust Account.

Name(s): _____ Age ____ Sex ____

_____ Age ____ Sex ____

Address: _____

City _____ State ____ Zip _____

Phone: Home (_____) _____

Work (_____) _____

Email: _____

Citizenship: ___ USA ___ Canada Other: _____

Member: ___ Planetary Society ___ AAAS ___ Sigma Xi ___ ACS

Accommodations Preference:

___ Twin ___ Single Twin Share ___ with a friend *or*
 ___ assign a roommate

___ Nonsmoker ___ Smoker

Signature: _____ Date: _____

Signature: _____ Date: _____

**Please Mail To: Alaska Aurora Borealis Expedition
 Betchart Expeditions Inc.
 17050 Montebello Road, Cupertino, CA 95014-5435**



Coming in January 2011!

Arecibo & the Lesser Antilles!

Discover mysteries of deep space and near-Earth Asteroids! See the Arecibo Radio Telescope and explore the Lesser Antilles on board the 5-masted *Royal Clipper!*

email: info@betchartexpeditions.com

phone: (408) 252-4910 (intl.) or (800) 252-4910 (USA)

fax: (408) 252-1444

Costs & Conditions

Expedition Fee: \$2,795 per person twin share for 7 days (plus airfare to Anchorage, Alaska, with return from Fairbanks).

Singles: We encourage singles to register on a "twin share" basis. Should you desire single accommodations, the single supplement is \$595. If you do not have a roommate and we cannot assign one, you must pay the single supplement.

What to Expect: This expedition is for the travel enthusiast who would enjoy seeing the great beauty of Alaska in winter, including "the greatest light show on Earth"—the Aurora Borealis or Northern Lights. Visit Resurrection Bay for the winter wildlife and great scenery. Travel on the classic train journey from Anchorage to Fairbanks, passing North America's greatest mountain, 20,320-foot Mt. McKinley en route. See ice sculptures in Fairbanks, and learn about the Aurora Borealis at a scientific institute. Also visit the Museum of the North and musk ox research facility. Evenings we will view the Aurora at Mt. Aurora, Creamer's Field, and Alpencrest Observatory. Typically, it will be from 15° to 35°F during the days; with temperatures dropping to 10° to -30°F at night. If you have any questions, please consult your physician before you register. This expedition will be a tremendous experience for travelers with an appetite for adventure and discovery who would like to explore the day and night winter wonderland of our 49th state with an excellent leader. (No smoking in vehicles, during lectures, or meals, please.)

Expedition Fee Includes: Land transport by coach, train, or vans; six nights accommodations in first-class hotels, twin share with bath; six breakfasts, one lunch, and three dinners; group entrance fees; baggage handling; leadership, administration.

Expedition Fee Does Not Include: Airfare to Anchorage with return from Fairbanks; arrival transfers in Anchorage; four lunches, three dinners; independent airport transfers; optional activities; personal items such as alcoholic beverages, laundry, phone calls, bottled water, soda, snacks, or personal insurance.

Airfares & Airline Ticketing: Please make flight arrangements directly with the airlines to arrive in Anchorage by 4:00 p.m. March 10, and to depart from Fairbanks late morning March 16.

Reservations, Deposits & Payments: Please mail the completed reservation form with a deposit check for \$500 per person to: **Betchart Expeditions Inc., 17050 Montebello Road, Cupertino, CA 95014-5435**. All reservations will be acknowledged in the order received. Final payment is due January 10, 2011.

For reservations, please contact

Betchart Expeditions Inc.

**17050 Montebello Road
Cupertino, CA 95014-5435**

**Telephone (800) 252-4910
or (408) 252-4910**

Fax: (408) 252-1444

Email: Taunya@betchartexpeditions.com

Cancellations & Refunds: The initial deposit for this expedition is refundable up to 60 days before departure less a handling fee of \$100 per person. There will be no refund for any cancellation after the 60-day period unless your place can be resold, then only the handling fee of \$100 is withheld. There are no refunds for unused meals, accommodations, or other expedition features. Trip cancellation insurance will be offered; it will cover preexisting medical conditions if purchased within 15 days of the date on your confirmation letter and full trip payment.

Questions?

Please call **Taunya DeYoung, Betchart Expeditions Inc.,**

**Phone: (800) 252-4910 or
(408) 252-4910**

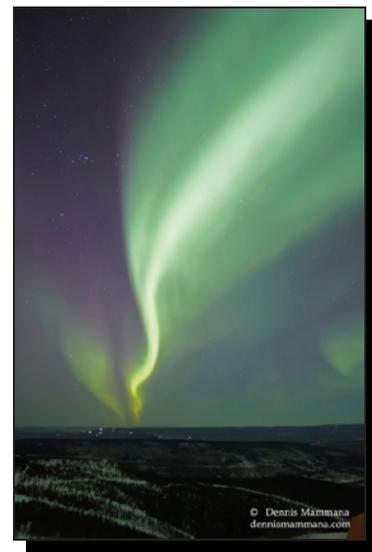
Fax: (408) 252-1444

Email:

Taunya@betchartexpeditions.com

Look on the Web:

www.betchartexpeditions.com



Auroras in Space

The magical colors of the Aurora Borealis and Aurora Australis come mostly from excited oxygen and nitrogen in the upper atmosphere. The origin of most of these gases is biological. Oxygen and nitrogen are given off by plants and animals and make their way to the ionosphere, where they are excited by solar winds in bands aligned by the Earth's magnetic field. In 1979, Voyager captured the first image of an Aurora on Jupiter. The Hubble Space Telescope has discovered Auroras on Jupiter and Saturn, pink from the concentration of hydrogen. Neither planet has a greenish Aurora because there is very little oxygen present. As we look deeper into space, any faint green Aurora may be the first glimpse of organisms that may have produced these telltale gases.

Responsibility: Betchart Expeditions Inc. and The Planetary Society act only as agents for the passenger with respect to transportation and hotels and exercise every care possible. We can assume no liability for injury, damage, delay, loss, accident, or irregularity in connection with the services of any airplane, ship, motorcoach, or any other conveyance used in carrying out the arrangements of the tour. 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, acts of God, terrorism, 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 substitute another leader of similar expertise or to cancel any tour prior to departure in which case the entire payment will be refunded with no further obligation on our part. The right is also reserved to decline to accept or retain any person as a member of the tour. No refund will be made for the unused portion of any tour unless arrangements are made in sufficient time to avoid penalties. The price of the program is based on current tariffs and rates, and is subject to change. Any tariff, exchange rate, or fuel increases will be passed on to participants. 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 concerned. 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.

©2010 Betchart Expeditions Inc. All rights reserved.

Photographs courtesy of Dennis Mammana.

Illustrations and map courtesy of April Milne & Narca Moore-Craig

CST# 2036304-40