See the Transit of Venus—the last one in your lifetime!

DISCOVER HAWAII

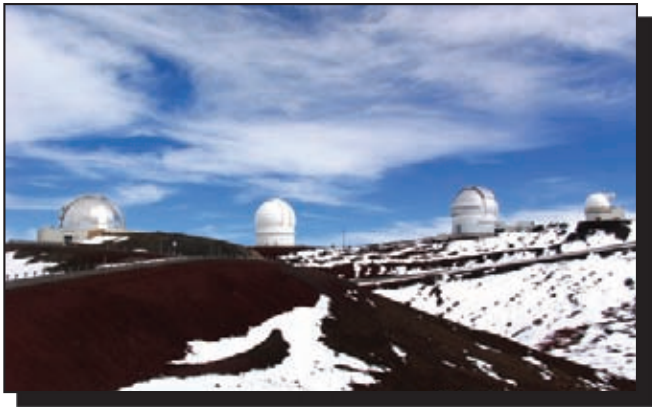
This year, travel with The Planetary Society! • ***June 4-12, 2012***

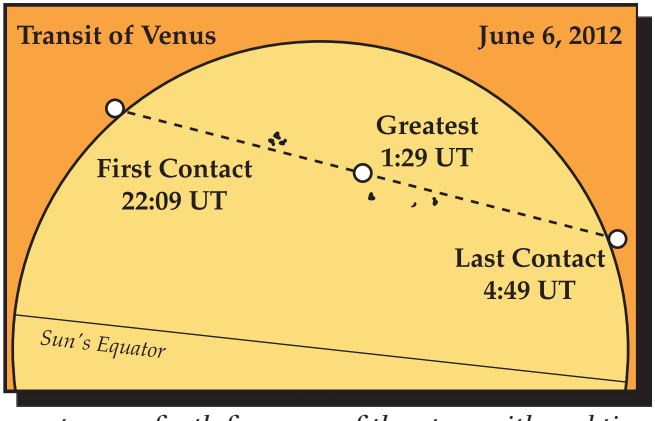
Dear Friends:

We invite you to join us in 2012, as we explore the greatest place on Earth to view our solar system, and see the ***Transit of Venus****, one of the fascinating astronomical events of our lifetime!*

On June 6, 2012, the planet Venus will be perfectly lined up with the Earth and Sun, so that we can see Venus slowly cross the Sun! This fascinating phenomenon has sparked travel to the remote corners of the globe includng the great voyage of Captain Cook in 1778. Now we can see the ***Transit of Venus*** *across the face of the Sun (it won't happen again for more than 100 years!).*

On this expedition, we will introduce the natural wonders of Hawaii—from lava flows to massive tree ferns. We will also show you some of the observatories which generate an enormous amount of information about our solar system, galaxies, black holes, and beyond!





In Hawaii, earth's forces create new land right before our eyes, as lava streams forth from volcanoes rising 33,000 feet from the ocean floor. The Pacific is home to a profusion of life—from whales to sea turtles, colorful birds and endemic flowers, many of which we can see walking trails.

More than a thousand years ago, indigenous people followed the stars across the Pacific from Tahiti to settle Hawaii, and brought Polynesian culture with them. In recent centuries, European explorers followed the same stars across the Pacific and discovered Tahiti, Hawaii, and New Zealand!

Our journey will begin in Kailua-Kona—on the dry side of the Big Island of Hawaii—where old black ribbons of lava flow to the sea. We will visit ***Galaxy Garden****, inspired by planetary artist Jon Lomberg, with a botanic scale model of the Milky Way Galaxy. Sit on the grassy slope facing the west and watch the* ***Transit of Venus.***

We'll cross the island between the two largest volcanoes on Hawaii, Mauna Loa and Mauna Kea. En route, we'll visit the W.M. Keck Observatory headquarters near the famous Parker Ranch to learn about their discoveries.

We will drive to the summit of Mauna Kea, at 13,796 feet, and see sunset from the mountain top near some of the world's largest observatories. We will return to Onizuka Visitor Center to look through telescopes at the wonders of the universe as seen from 19°N latitude.

At Hawaii Volcanoes National Park, we will see ancient lava formations which built the island and hot molten lava that is flowing to the sea.

At the world class 'Imiloa Astronomy Center of Hawaii we will explore the Hawaiian cultural and navigational understanding of the stars with real-time information obtained from the 13 telescopes on the Big Island.

Throughout our journey, we will enjoy leadership by a Hawaii naturalist and guest astronomical experts.

We invite travelers with an appetite for adventure and discovery to explore the day and night wonderland of our 50th state during this last opportunity in our lifetime to see the ***Transit of Venus.***

Sincerely,

Bill Nye

Bill Nye, The Science Guy®
Executive Director

THE PLANETARY SOCIETY

Hawaii Itinerary

Day 1 Home to Kailua-Kona, Hawaii

Expedition members fly from their nearest gateway city to Kailua-Kona on the Big Island of Hawaii. Transfer on your own to the *Outrigger Keauhou Beach Resort (3 nights)*. Afternoon at leisure. Welcome dinner and trip orientation. (D)

Day 2 Kealakekua Bay

Today we will explore Kona for an introduction to the marine world, people, and heritage of Hawaii. We will take a snorkeling boat off the coast to Kealakekua Bay Marine Reserve to enjoy the undersea wonders of Hawaii. Hawaii has over 1,200 species of fish and we will see some of the most colorful schooling varieties. Afternoon at leisure. Evening lecture in preparation for the Transit of Venus tomorrow. (B,L)

Day 3 City of Refuge, Galaxy Garden & Transit of Venus

This morning we will visit the City of Refuge, Pu'uhonua o Honaunau National Historical Park where ancient Hawaiians pardoned sinners who found sanctuary within its lava walls. Afternoon visit to the Galaxy Garden, designed by Jon Lomberg, who is on The Planetary Society's Advisory Council. Walk in the model of the Milky Way Galaxy and see the center, black holes, and the position of the Earth to scale. We will then view the Transit of Venus! The transit begins at 12:09 and ends at 6:44. (B)

Day 4 Onizuka Visitor Center & Mauna Kea Observatories

This morning we will drive along the shoulder of Mauna Kea to the cowboy town of Waimea. Here we'll visit the administrative offices of the Keck Observatory, see the displays, and learn about their research with the world's largest optical and infrared telescopes sitting atop Mauna Kea. We will then drive up the Saddle Road to the Onizuka Visitor Center at 9,300 feet on the south slope of Mauna Kea. With 4-wheel drive vehicles we will visit the summit of Mauna Kea at 13,796 feet to view the many observatory domes. See the sun set into the Pacific Ocean and then return to the Onizuka Visitor Center for an evening to view southern constellations and deep sky wonders. Late night drive to Hilo. *Hilo Hawaiian Hotel (5 nights).* (B,D)

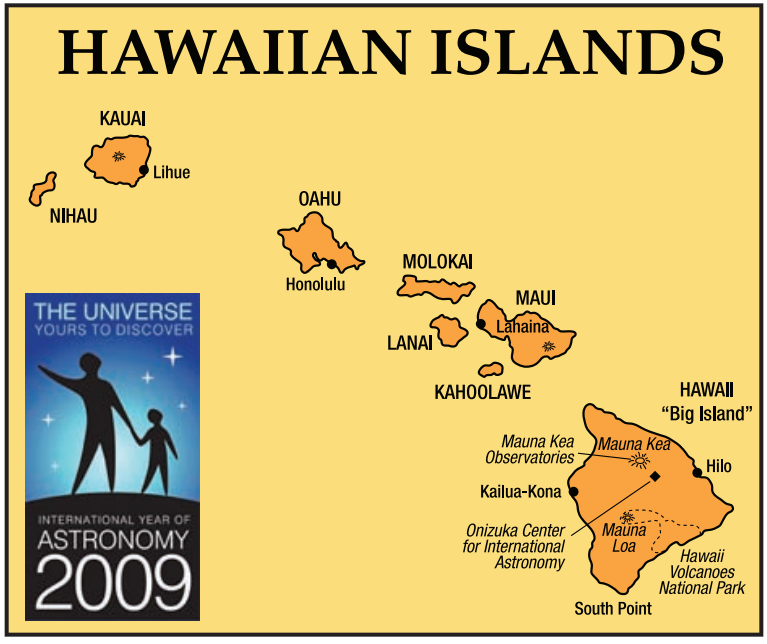
Day 5 'Imiloa Astronomy Center & Gemini

The 'Imiloa Astronomy Center is surrounded by most of the headquarters of the different observatories and is the focus of astronomy education in Hawaii. We will visit the center, attend a planetarium presentation, and see the many interactive displays on astronomy, Hawaiian voyaging, and other fields of science. Learn how today's astronomers use different wavelengths of the spectrum to explore our vast universe and the beginnings of life. Then depart for the University Park of Science and Technology. Gemini has two observatories, one

Transit of Venus
June 6, 2012

The Transit of Venus is among the most rare of predictable astronomical phenomena. It occurs as a pair every 105 to 121 years, with an eight year separation between the pairs. Before 2004, the last pair of Transits were in 1874 and 1882. Johannas Kepler first predicted the Transit of Venus in 1631. His calculations were refined by Jeremiah Horrocks who was the first to follow the path of Venus across the face of the Sun in 1639 and used his measurements to estimate the size of Venus and the distance between the Earth and the Sun.

The next Transits of Venus were in 1761 and 1769. Teams of astromers were dispatched all over the world to gather information to measure the parallax to better refine the size of Venus, and the distance between the Sun, Earth, and other planets. Captain Cook ventured to Tahiti to view and measure the Transit as did others in many far flung locations. These measurements and more in 1874 and 1882 helped refine the distance among planets in our Solar system. The next Transits of Venus will be in December 2117 and December 2125.



Coming May 14-21, 2012!

Grand Canyon Annular Eclipse

See the Annular Eclipse over the Grand Canyon and explore America's majestic canyonlands!

in northern Chile and one on Mauna Kea. They have developed the Angular Differential Imaging technique which gives them the opportunity to image exoplanets. (B)

Day 6 Hawaii Volcanoes National Park

We will start the day with a visit to the Jaggar Museum surrounded by an *ohia* and tree fern forest for an introduction to the natural history of the park. We'll have a late morning visit to Halemaumau Crater, which has been active since 2007. Depending on the activity level we will view the rising steam and the red molten lava from the rim of the massive crater. In the afternoon we will drive the Chain of Craters Road to see the immense black lava fields extending to the sea. Explore the many flows, cinder cones, and shiny lava as we proceed to the end of the road. Depending on activity level and weather conditions, we can walk to see the lava flowing into the sea with billowing steam shooting upward and lava exploding as it cools rapidly. (B)

Day 6 Thurston Lava Tube

Morning walk through Thurston Lava Tube, the remains of a colossal lava flow now surrounded by a Tree Fern Forest. Continue walking among tree ferns with the sounds of birds singing above and wildflowers at trail's edge. Drive up the slope of Mauna Loa for great views and walk. (L)

Day 8 Caltech Submillimeter Headquarters & Pacific Tsunami Museum

This morning we will visit the headquarters of the Caltech Submillimeter Observatory where they have a collection of eight radio telescopes directed to protostars and the envelope of cosmic dust surrounding their formation. Learn about their research on local galaxies that adds new understanding to the development of the universe. Afternoon visit to the Pacific Tsunami Museum which brings to life the destructive force of tsunamis. See the computer simulation and documentaries, but it is the first person histories of survivors that you will long remember. Enjoy a tour of Hilo and visit Rainbow Falls. Farewell dinner in celebration of our journey. (B,D)

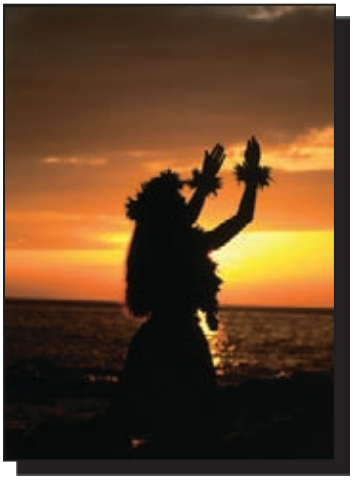
Day 9 Hilo to Home

After breakfast, transfer to the Hilo Airport. Connect with a flight to Honolulu and then a return flight to Los Angeles or other cities on the mainland. (B)

Coming November 2012!

Australia Total Solar Eclipse & New Guinea!

email: info@betchartexpeditions.com
phone: **(408) 252-4910** (Int'l.)
or **(800) 252-4910** (USA)
fax: (408) 252-1444



Reservations #1254

Yes! I/We want to join the **Hawaii Transit of Venus Expedition, June 4-12, 2012**, offered by **The Planetary Society & 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: _____

Membership: __ Planetary Society __ AAAS __ Sigma Xi __ ACS

Accommodations Preference:

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

Signature: _____ Date: _____

Signature: _____ Date: _____

Mail To: **Hawaii Transit of Venus 2012**
Betchart Expeditions Inc.
17050 Montebello Road
Cupertino, CA 95014-5435

Costs & Conditions

Expedition Fee: $3,495 per person twin share for 9 days (plus air fare from the mainland to Kailua-Kona, Hawaii, with return from Hilo).

Singles: We encourage singles to register on a "twin share" basis. Should you desire single accommodations, the single supplement is $695. 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 exploring the natural wonders in Hawaii and seeing the last Transit of Venus of our lifetime! We will learn about superb observatories and telescopes in Hawaii which discover sights literally "Out of This World!" Also explore the Big Island of Hawaii including the Kona coast, with important historic locations and great snorkeling. We will travel by 15-passenger van or bus and 4-wheel drive to the summit of Mauna Kea at 13,796 feet, then observe the night skies from the Onizuka Visitor Center.

See lava flows in Hawaii Volcanoes National Park, and visit some of the world class observatory administration centers in Hilo. Typically, it will be in the 80's along the coast to the 30's to 50's at the summit of Mauna Kea. 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 wonderland of our 50th state. (No smoking in vehicles, during lectures, or meals, please.)

Expedition Fee Includes: Land transport by coach, boat, or vans; 8 nights accommodations in first-class hotels, twin share with bath; 8 breakfasts, 1 lunch, and 3 dinners; Hilo group out transfer; group entrance fees; baggage handling; leadership, administration.

Expedition Fee Does Not Include: Air fare to Kona with return from Hilo; six lunches, five 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 Kona by 4:00 pm June 4, and to depart from Hilo after breakfast June 12.

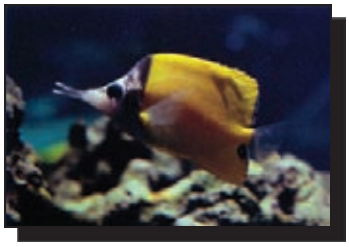
Cancellations & Refunds: The initial deposit for this expedition is refundable up to 60 days before departure less a handling fee of $100 per person. There will be no refund for any cancellation after the 60-day period unless your place can be resold, then only the handling fee of $100 is withheld. There 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.

For reservations, please contact

Betchart Expeditions Inc.

17050 Montebello Road
Cupertino, CA 95014-5435

Telephone	**(800) 252-4910** (USA)
or	**(408) 252-4910** (Int'l.)
Fax:	(408) 252-1444
Email:	marisa@betchartexpeditions.com



Courtesy of 'Imiloa Astronomy Center

World Class Astronomy in Hawaii

The Big Island of Hawaii is the world center for international scientific investigation into astronomy. The 13,796 foot summit of Mauna Kea provides the clearest and best viewing conditions on Earth. The skies are dry, the air is stable, pollution free, with no lights, and Mauna Kea rises above 40% of the Earth's atmosphere. The summit is home to the world's largest collection of astronomical observatories, with telescopes operated by scientists from 11 countries.

The W.H. Keck twin 10-meter optical and infrared telescopes are producing discoveries that were unimaginable a few years ago. They are researching new planets, gases on Mars, and star formation in the early universe, and have discovered the coldest brown dwarf. The Gemini Observatory is operated by seven countries with two optical and infrared telescopes, one in northern Chile and one on the summit of Mauna Kea. The 8.1 meter telescopes are studying galaxy formation, dark matter, dark energy, and massive black holes.

The Smithsonian Observatory has an 8 element radio interferometer, the Submillimeter Array. Their research focuses on star formation and development, early evolution and how stars shed their matter as they die.

Caltech Submillimeter Observatory houses a 10.4 meter diameter radio dish. Some of the research is directed to protostars and the envelope of cosmic dust surrounding their formation. Most of the local galaxies are being surveyed and adding new understanding to universe formation.

Map by April Milne. Photos on cover courtesy of David Morrison

CST# 2036304-40