

GRAND CANYON

Transit of Mercury Expedition

May 3-10, 2016

Dear Travelers:

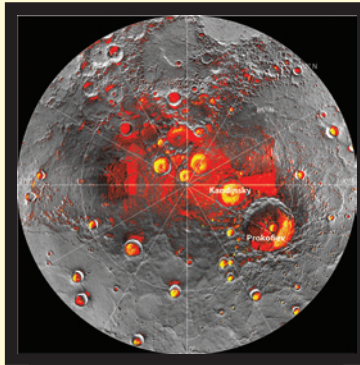
Join us as we explore the Grand Canyon and spectacular **Canyonlands** and see the **Transit of Mercury, May 9, 2016!**

With excellent naturalists, we will explore the dramatic wonderlands of **Zion National Park** and the **Grand Canyon**, including a half-day float trip on the Colorado River.

Our adventure begins in Las Vegas. We'll then depart for Zion National Park and the **St. George Dinosaur Discovery** site where hundreds of tracks were found in 2000. A land of exceptional scenic grandeur, Zion is the lowest in elevation of the parks we will visit (at approximately 4,000 feet) and represents a significant chapter in the geologic story of the Southwest.

The excitement will build today as we drive southeast from Zion to the **North Rim of the Grand Canyon**. We will drive through great forests of lodgepole and ponderosa pine as we approach the Grand Canyon. The splashes of color on the landscape en route are just a teaser of what awaits us!

From Page, we will enjoy a **half-day float trip from Glen Canyon Dam** along the upper



Polar Deposits on Mercury.

part of the Colorado River in the Grand Canyon. (This is on gentle water!) We will travel on a 22-passenger inflatable motorized river raft for 15 miles down the Colorado River. This river-level view of the canyon will include a short hike to see ancient petroglyphs.

We will also explore Antelope Canyon and the South Rim of the Grand Canyon for more fantastic views and nature walks.

The trip will culminate at the Lowell Observatory in Flagstaff where we will see the **Transit of Mercury**, a once in a lifetime opportunity!

Our groups observed the Transit of Venus in 2004 at Lake Baikal and again in 2012 at Lake Baikal and also in Hawaii.

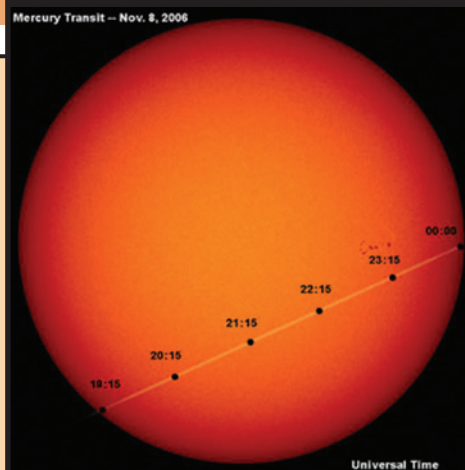
This is a wonderful opportunity to see the Transit of Mercury and America's spectacular canyonlands!

Bob Nansen

Naturalist

Transit of Mercury

Mercury Transit - Nov. 8, 2008



Mercury and Venus are the only planets which can pass between the Earth and Sun to produce a Transit. As the planet Mercury passes between the Earth and Sun, it will appear as a slow moving black dot crossing the face of the Sun.

Mercury is the planet closest to the Sun, and was visited by the Mariner 10 space mission in 1973 and 1974. The Messenger NASA spacecraft went into orbit around Mercury on March 17, 2011. It did three flybys of Mercury

in 2008 and 2009 before going into orbit. The initial mission determined Mercury has no atmosphere and is dotted with impact craters.

The European and Japanese BepiColombo mission to Mercury is set to launch in July 2016. It will study Mercury's magnetic field, its interior, and surface. It will do Mercury flybys in 2019-2023 and then orbit Mercury starting in January 2024. Missions pass by the planet Venus en route to Mercury.

ITINERARY

Day 1 Arrive in Las Vegas

All passengers arrive in Las Vegas today by 4 pm. Transfer to our *Hotel* by hotel shuttle. Welcome social, dinner, and introduction to the expedition. D

Day 2 Dinosaur Discovery & Zion National Park

This morning, we will drive to Zion National Park via St. George, Utah, originally founded for cotton farming by Mormon pioneers 150 years ago. En route, we will visit the St. George Dinosaur Discovery Site at Johnson Farm (discovered in February 2000) where a visitor center now protects this amazing find. Here we'll see hundreds of 13-18 inch long dinosaur tracks of *Dilophosaurus*-like dinosaurs found in 200 million-year-old sandstone.

We will continue to Zion, whose cathedral-like quality inspired its name, "the heavenly city of God." Overnight at *Lodge (2 nights)*. B,L

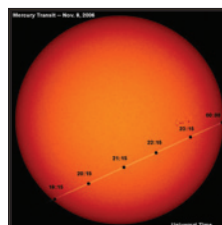
Day 3 Zion National Park

Today, we will explore Zion, including a walk along the Virgin River or up the Emerald Pools Trail. Here the red Navajo Sandstone is 1,800 feet thick and over 150 million years old. Magnificent rock temples, thrones, and domes tower high overhead. We will explore the park on short walks and hikes. At night, the skies are a feast of stars because of the exceptionally clear skies. B

Day 4 North Rim of the Grand Canyon

This morning we will drive southeast to Kanab, Jacob Lake, and the North Rim of the Grand Canyon. We will drive through great forests of lodgepole and ponderosa pines as you approach the Grand Canyon. We will explore the Cape Royal and Imperial Point regions of the Grand Canyon. We can see glimpses of bright Angel Creek far below.

The Grand Canyon is unmatched in its overall vastness, topographic complexity, striking landforms, and vast range of vivid colors. It is almost



Grand Canyon Transit ZION • GR May 3-10, 2016



300 miles long and between 4 to 15 miles across. The depth of the Canyon ranges from 3,500 to 6,000 feet below the North Rim. The oldest rocks at the bottom of the Canyon are over 2 billion years old and offer a glimpse of the early stages of plant evolution. Higher and younger layers have examples of trilobites, scales of ancient fishes, and dinosaur, reptile, and amphibian tracks. *Hotel, Page (2 nights)*. B,L

Day 5 Grand Canyon Float Trip & Antelope Canyon

From Page, we will enjoy a half-day float trip from Glen Canyon Dam along the upper part of the Colorado River into the Marble Canyon entrance to the Grand Canyon. (This is on gentle water!) We will travel on a 22-passenger inflatable motorized river raft for 15 miles down the Colorado River. This river-level view of the canyon will be a memorable experience, and will include a short hike to see ancient petroglyphs. After the float trip, we will explore Antelope Canyon with Navajo guides. This is a magnificent narrow slot canyon with towering cliffs over 100 feet high only separated by a few feet. B

Day 6 South Rim of the Grand Canyon

This morning, we will drive to the South Rim of the Grand Canyon. We will drive above Marble Canyon and along the Echo Cliffs to the South Rim, with a stop at Desert View for a commanding view of the canyon from the eastern boundary. From the South Rim, we will walk along the edge for a stunning view of one of the most picturesque landscapes in all of the world.

LEADERSHIP



Leading this expedition will be **Don Starks**, a biologist and life long birder. Don was the Executive Director of the San Francisco Bay Bird Observatory and led many natural history expeditions

for SFBBO in the southwest, including trips in the Canyonlands. He has also led Death Valley Expeditions for Betchart.

Joining Don at Lowell Observatory for the Transit of Mercury will be anthropologist and astronomer Brian Bates. They look forward to sharing the delights of Zion, the Grand Canyon, and Transit of Mercury with you.

Canyon Transit of Mercury!

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May 3-10, 2016



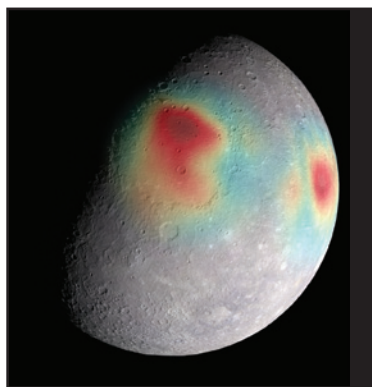

After a delightful day enjoying the incredible vistas of the Grand Canyon, we will head to our **Flagstaff Hotel (2 nights)** and the **Lowell Observatory**. B,L,D

Day 7 Transit of Mercury & Lowell Observatory

We will depart early for Lowell Observatory to see the Transit of Mercury. The Transit will appear at sunrise and we will have the morning to watch its passage across the face of the Sun with Lowell Observatory scientists. This afternoon we will visit the Museum of Northern Arizona to see the stunning exhibits of native American crafts and more! Evening dinner and celebration of the wonders of America's Canyonlands and the Transit! B,L,D

Day 8 Flagstaff to Home

After breakfast, we will depart Flagstaff on flights home.



Gravity Anomalies on Mercury.

Responsibility: Betchart Expeditions Inc., AAAS, Sigma Xi, and ACS (American Chemical Society) act only as agents for the passenger with respect to transportation, hotels, and tour arrangements, and exercise every care possible. However, we cannot assume liability for injury, damage, delay, loss, accident or irregularity in connection with the services of any airplane, van, boat, motorcoach, or other conveyance used in carrying out these arrangements. We also reserve the right to substitute other leaders. A full statement of responsibility will be provided upon request.

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Photos courtesy of Don Starks, NASA & Wikipedia commons.

Map by April Milne.

CST# 2036304-40

COSTS & CONDITIONS

Expedition Fee: \$3,295 per person twin share + air fare to Las Vegas with return from Flagstaff.

Expedition Fee Includes: Land transport; accommodations twin share; meals as indicated; entrance fees; baggage handling; leadership, administration.

Expedition Fee Does Not Include: Air Fare from your home to Las Vegas with return from Flagstaff; airport transfers; some meals; gratuities to expedition leaders; personal items such as laundry, phone calls, alcoholic beverages, snacks; personal insurance, or foreign airport departure taxes.

What to Expect: This expedition is for travelers who would like to see the Transit of Mercury and explore the geological and ecological heritage of the Canyonlands including the spectacular national parks Zion and the Grand Canyon. Traveling with naturalists will provide a superb experience. The group will travel in 15-passenger vans several days. Walks will be at a leisurely pace suitable for discovery. (No smoking in vehicles, during lectures, or meals please.)

Air Fare & Airline Ticketing: All passengers should arrive in Las Vegas by 4 pm on May 3rd, and depart Flagstaff on May 10th.

Accommodations: Are in comfortable first class hotels and lodges. Single accommodations are a supplement of \$595.

Reservations, Deposits & Payments:

To reserve a place on this expedition, please mail a deposit of \$500 per person with the completed reservation form to:

Grand Canyon Transit of Mercury 2016
Betchart Expeditions Inc.
17050 Montebello Road
Cupertino, CA 95014-5435

Balance of land fee is due 60 days before departure.

Cancellations & Refunds:

The initial deposit is refundable up to 60 days before departure less a handling fee of \$100 per person. There is no refund after the 60-day period unless your place is resold, then only the \$100 per person handling fee is withheld. There are no refunds for unused meals or other expedition features.

RESERVATIONS #1392

Yes! I/we want to join the **Grand Canyon Transit of Mercury, May 3-10, 2016**. Please reserve _____ space(s). As a deposit, I/we enclose a check for \$ _____ (\$500 per person) payable to Betchart Expeditions Inc. Trust Account.

Name(s) _____ Age _____

_____ Age _____

Address _____

City _____ State _____ Zip _____

Phone: Home (_____) _____

Work (_____) _____

Email Address _____

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

Accommodations Preference:

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

☐ Nonsmoker ☐ Smoker

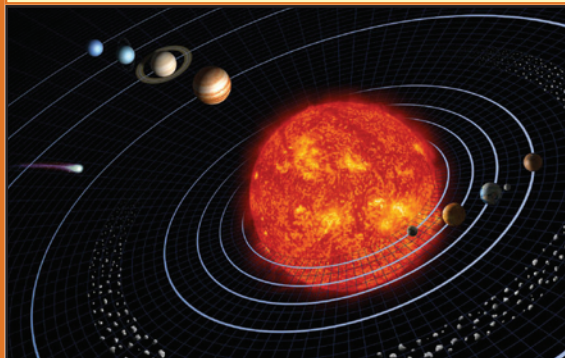
Signature _____ Date _____

Signature _____ Date _____

Mail To: **Grand Canyon Transit of Mercury 2016**
Betchart Expeditions Inc.
17050 Montebello Road
Cupertino, CA 95014-5435

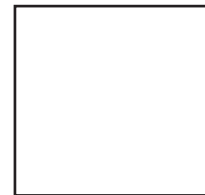
**AAAS Travels
ACS & Sigma Xi Expeditions
The Planetary Society**

BETCHART EXPEDITIONS Inc.
17050 Montebello Road, Cupertino, CA 95014-5435



*The Solar System with Mercury
closest to the Sun (not to scale).*

**Discover Zion,
the Grand Canyon &
Transit of Mercury!**
May 3-10, 2016



FIRST CLASS

Grand Canyon Transit of Mercury!
ZION • GRAND CANYON

May 3-10, 2016



***Come explore! Join our excellent
leader team and discover:***

- *Hundreds of dinosaur footprints at Dinosaur Discovery Site*
- *The incredible canyons & cliffs of Zion National Park*
- *Awesome vistas from the North Rim of the Grand Canyon*
- *The sheer delight of a half-day float trip on the Colorado River*
- *The world's best view: the Grand Canyon from the South Rim*
- *The planet Mercury as it slowly crosses the face of the Sun!*
- *The museum and telescopes at Lowell Observatory*
- *The amazing Indian collections at the Museum of Northern Arizona*