

**Xpedition**  
STUDENT INVESTIGATIONS



**Student Research Investigation  
to the “Roof of Africa”  
Mt. Kilimanjaro, Tanzania**



**A GLOBE Africa Project**

**Student & Teacher Welcome Packet**





# Scientist Driven

Congratulations! Your journey begins here. This packet contains all the information you will need for your trip to Tanzania as part of the Xpedition. Please be sure to sign and date all forms and return when due to [info@xpeditiononline.com](mailto:info@xpeditiononline.com). For those not 18 years of age, have a parent or guardian fill out all forms.

Your packet includes:

- Page 1: Swahili 101
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## Swahili 101: Important Swahili words for all Safari Travelers

It is always fun when a visitor learns a bit of the Swahili language. Below are some Swahili words that could help you get started.

Hello	Jambo	Coffee	Kahawa
How are you?	Habari	Milk	Maziwa
Thank You	Asante	Beer	Bia or pombe
Thanks You very much	Asante sana	Lion	Simba
OK / fine	Sawa sawa	Buffalo	Nyati
Yes	Ndiyo	Elephant	Tembo
No	Hapana	Rhino	Kifaro
Good	Mzuri	Leopard	Chui
Bad	Mbaya	Giraffe	Twiga
Please	Tafadhali	Hippo	Kiboko
Water	Maji	Antelope	Swala
Ice	Barafu	Bird	Ndege
Hot	Moto	Cheetah	Ndoa Ndoa, Duma
Cold	Baridi	Bug	Dudu



## **Climbing Kilimanjaro: The Basics**

### **Travel Documents**

The following link should answer all of your questions about visas. You will need to put in a rush order. You should have them back in two weeks. I send everything to D.C. and have never had problems. Tanzania Visa information <http://www.tanzaniaembassy-us.org/tzevisa>

### **Immunizations**

I have always used the local University Travel Clinic, The staff there are so helpful. They will be able to answer all of your questions and make sure you have the proper vaccinations. You will need the following, Hep A #1, Hep A #2, influenza, Menactra, polio and Typhoid immunizations. You will also need to ask about Malaria medication. You won't need this on the mountain due to the elevation but you will in the Serengeti. (Read more in Kilimanjaro Medical Issues)

### **Training**

This trip is rated Strenuous. Trip members should be strong and in excellent physical condition. Previous experience hiking at high altitude will be an asset to your chances of summiting on Kilimanjaro. Your physical fitness is important to your success on the climb. A serious physical conditioning program should be undertaken several months in advance to get into shape. Hiking hills for the legs, swimming to increase lung capacity and circulation, jogging and bicycling for overall fitness, these are excellent for building the strength necessary for the trek. The best training is extensive hiking up and down hills, putting in 10 mile hikes on weekends prior to the trip. Consult with your doctor.

### **High Altitude**

The summit of Kilimanjaro is at 19,340 and even with several rest days, the climb has rapid rate of ascent. We attempt to minimize the effect of altitude through our program of acclimatization. Most climbers experience some symptoms of altitude illness during the climb. These symptoms can include headache, nausea, loss of appetite, difficulty breathing and general weakness. More severe reactions can include both cerebral and pulmonary edema, which can result in permanent injury or death. The only cure is to descend. (Read more in Kilimanjaro Medical Issues)

### **Weather**

The weather on Kilimanjaro is quite diverse. The climb starts through a wide belt of wet tropical forest then goes through zones with generally decreasing temperatures and rainfall to the summit where there is permanent ice and sub-freezing temperatures.



# Alumni Guided

## Kilimanjaro Climb / Safari Packing Check List

This is a suggested list for the trek and the safari. You will note that you have most of these items. You decide what you need off this list. Please note that only 35 pounds of personal gear can be carried by porters on the mountain. Gear for the Safari and around town may be left securely in the hotel.

### General Notes:

The Personal pack that the porters carry is limited to 15kg (35 pounds)

Personal gear should be placed in a durable waterproof duffel.

Waterproof duffels can be rented in country if needed

Store electronics in sealed waterproof bags

Day-pack must contain water, sunglasses, camera, rain jacket, any other items you might need during the day.

### Baggage:

Day-pack, for you to carry

Large waterproof duffel bag or backpack for porters to carry. No hardback luggage or suitcase

Extra luggage can be left in a locked storage room at the hotel for no charge

### Clothing:

On the top of the mountain you want your inner layer to be wicking, no cotton. The next layer should be insulating and warm and the top layer should be water-proof but breathable. You will need clothes for hiking during the day, lounging in the evening and for sleeping. Layers are important as temperatures vary greatly. Kilimanjaro may be on the equator but it gets cold up there.

Shorts for first and last day of trek

Pants for hiking and for lounging in the evenings

Short-sleeved t-shirts

Long-sleeved t-shirts

Long underwear for the top of the mountain

Fleece jacket or wool sweater

Down jacket or ski parka (for temperatures well below freezing plus wind)

Rain jacket, needed in hot rainforest and cold snow

Rain pants, needed in hot rainforest and cold snow

Underwear (wicking, no cotton)

Sports bras for women



## **Cold Weather Accessories**

Mittens and or gloves (waterproof, one thin pair, one thick pair that can be layered)

Wool hat

## **Footwear**

Trekking shoes, preferably warm, waterproof and with ankle-support

Be sure to break in your shoes before you hike

Tennis shoes or sandals for lounging in the evening

Hiking socks for warmer conditions

Wool socks for colder conditions

## **Sleeping**

Sleeping bag (rated +15 degrees F or colder is recommended)

Sleeping bag can be rented there at \$30 for trek if you don't want to carry on the plane or buy a new one.

Tents are supplied at no charge

Foam sleeping pads are provided at no charge

## **Hydration**

Camelback (2 liters recommended)

Water bottles (1 recommended as backup)

Get 3 liters of water at the hotel before the climb. Guides will boil water for you on the climb.

To prevent water from freezing at Crater Camp, keep your water source inside your jacket. For Camelbacks, blow air back into the bladder after each sip to prevent line from freezing.

Gatorade or other drink mixes are a way to help vary the taste of water on the climb

## **Others**

Sun hat with brim

Sunglasses

Bandana or buff <https://www.buffwear.com/catalog/>

Trekking poles

Headlamp or flashlight

Camera

Batteries (bring extras for cold weather shortens their life)

Notebook, journal, pencil and pen

Pocketknife

Energy bars, hard candy, snacks (comfort food) for trail



# Student Focused

## Toiletries

- Toilet paper (in baggie for use while on trail)
- Small towel
- Toothbrush and toothpaste
- Baby wipes for daily wash

## Documents

- Passport (2 photocopies of passport for staff)
- Vaccination Records
- Airline tickets
- Small amount of cash (\$200 recommended) travelers checks can also be used

## First Aid Supplies

- Ibuprofen or aspirin / Throat lozenges / Moleskin / Sunscreen (SPF 50+) / Lip balm with sunscreen
- Insect repellent (with Deet) / Prescription Drugs (please inform us of all needed)
- Diamox (not recommended, please let us know if you are taking)

## Kilimanjaro Medical Issues

### Immunizations

If your community has a local University Travel Clinic, The staff there are so helpful. They will be able to answer all of your questions and make sure you have the proper vaccinations. You will need the following, Hep A #1, Hep A #2, influenza, Menactra, polio and Typhoid immunizations. You will also need to ask about Malaria medication. You won't need this on the mountain due to the elevation but you will in the Serengeti.

**Due to clinics having to order some vaccinations leave plenty of time to complete your immunizations.**

Please review this list with your doctor. Trekking is a strenuous adventure and should not be undertaken if you have any health conditions which may put you at risk. You are strongly advised to consult your physician for a thorough medical check-up and clearance before attempting this trek.

### Talk to your doctor about:

- Vaccinations (you will need to be current on all to travel)
- Hepatitis A / Hepatitis B / Typhoid / Yellow Fever / Tetanus / Polio / MMR / Malaria pills

In addition, some people may experience the effects of high altitude. Prepare yourself by reading more about altitude sickness below.



## **Altitude Sickness**

AMS – Acute Mountain Sickness – Mild symptoms will occur in most people traveling over 10,000 feet, these include: Fatigue / Dizziness / Headache / Nausea, vomiting / Disturbed sleep / Loss of appetite, indigestion

The symptoms typically begin immediately after arrival and tend to worsen at night. Mild AMS does not interfere with normal activity and symptoms generally subside within 2-4 days as the body acclimatize. (this is the reason we take the number of days to ascend and maintain a slow pace) As long as symptoms are mild, and only a nuisance, ascent can continue at a moderate rate.

## **HAPE – High Altitude Pulmonary Edema**

Is caused by fluid buildup in the lungs. Symptoms include:

Irritating cough (can produce frothy, often blood-tinged sputum)

Mental confusion, staggering drunken walk / Quick shallow breathing, difficulty breathing

Exhaustion / Gurgling noise in chest, chest pain / Debilitating headache and severe fatigue

Disruption of vision, bladder and bowel functions / Loss of coordination of trunk muscles (unable to walk heel-to-toe in straight line)

## **HACE- High Altitude Cerebral Edema**

Is caused by fluid buildup in the brain. Symptoms include:

Staggered gait (unable to walk heel-to-toe in straight line) / Severe weakness / fatigue, drowsiness

Impaired mental processing, confusion, changes in behavior / Headache

Decreasing levels of consciousness (loss of memory, hallucinations, psychotic behavior)

Difficulty speaking / Blindness / Vomiting / Paralysis of a limb / Seizures

If symptoms of HACE or HAPE occur, immediate descent (even at night) is required as these conditions can be fatal. Often times victims are confused and may deny their illness, it is imperative to report any symptoms you are feeling to your group and look out for others.

## **Prevention**

**Stay hydrated! Drink 4-6 liters of water per day**

**Avoid tobacco, alcohol and other depressant drugs (including sleeping pills)**

**Avoid diuretics such as coffee and tea**

**Eat high-carbohydrate foods while avoiding fatty food**

**Listen to your body!**



## **Kilimanjaro / Safari Books, Movies & Maps**

**KILIMANJARO & EAST AFRICA:** A Climbing and trekking Guide. Includes Mount Meru (Mountaineers Books) (Paperback) by Cameron M. Burns

**KILIMANJARO:** A trekking Guide to Africa's Highest mountain, Includes city guides to Arusha, Moshi and Dar Es Salaam. (Trailblazer) (Paperback) by Henry Stedman

**CLIMBING MOUNT KILIMANJARO** (Paperback) by Stephen Carmichael

### **THE SERENGETI LION – A STUDY OF PREDATOR-PREY RELATIONSHIP**

George B. Schaller – University of Chicago press. “Based on years of field observations, it is the most comprehensive scientific study yet published on the behavior of free-living lions.

### **SERENGETI: NATURAL ORDER ON THE AFRICAN PLAIN**

(Hardcover) by Mitsuaki Iwano (Photographer)

**NGORONGORO** (Hardcover) By Reinhard Kunkel (Author)

**ONE LIFE RICHARD E LEAKEY AN AUTOBIOGRAPHY** (Hardcover) By Richard leakey (Author)

**OUT OF AFRICA** Isak Dinesen (Karen Blixen) – Vintage Books

**I HAD A FARM IN AFRICA** A reissue of the book that inspired the critically acclaimed movie. Set in Africa, it is the story of Dinesens years in Africa.

**KILIMANJARO – TO THE ROOF OF AFRICA** (David Breashears) (IMAX Movie – 2002)

**VOLCANO ABOVE THE CLOUDS** (NOVA Movie – 2003)

**TANZANIA PARK MAPS:** Check out the following link for Maps of Northern Tanzania, Kilimanjaro National Park, Arusha National Park, Serengeti National Park, Mt. Meru, Ngorongoro National Park and Tarangire National Park. <http://xpeditiononline.com/consulting.html#maps>





## Kilimanjaro Lemosho Route

### **9 Day Lemosho Route including night in Kibo caldera!**

#### **Why this itinerary?**

The Kilimanjaro Lemosho Route offers the complete Kilimanjaro experience, more acclimatization time, more spectacular scenery, and even a night in Kibo caldera. Note: this itinerary ascends via Stella Point and NOT the Western Breach and is for that reason considered to be a safer route.

#### **Description**

Starting on the Western side of Kilimanjaro this ascent covers all of the most spectacular areas of Kilimanjaro. The trip is fully supported with spacious guest tents as well as a mess tent with lightweight tables and chairs and all cutlery. Our trips also include a toilet tent in camp and most importantly knowledgeable professional guides that go through bi annual training. Our logistics team at our base monitors your trip from start to finish.

#### **BASECAMP**

Upon arrival at Kilimanjaro International airport, you will be met by our driver and assisted through customs and immigration formalities. Thereafter, drive to Arusha the nerve center of East Africa, and getaway to several national parks in the north of the country. Overnight at a hotel

#### **DAY 1 - FOREST CAMP**

From our hotel we set out in vehicles to the starting point of our Kilimanjaro climb, the Lemosho trail. Here you meet the rest of your crew and set off at a leisurely pace into the Rain forest. Lunch is taken on trail and camp is reached by mid afternoon. Overnight Forest Camp (9200 ft/ 2804m)



## Kilimanjaro Lemosho Route

### **DAY 2 - SHIRA 1 CAMP**

From the forested slopes of Lemosho you ascend through Podocarpus and Juniper forest and break out of the forest on to the heath zone and the Shira Plateau. Lunch is taken on trail and you arrive in camp mid afternoon.

Overnight Shira 1 Camp (breakfast- lunch – dinner(11450ft/ 3500 mt)

### **DAY 3 – MOIR HUT**

Today we move even higher to Moir camp,13500ft (4114m).This spectacular camp is located beneath the Northern ice field of Kilimanjaro.Overnight Moir camp.

### **DAY 4 - LAVA TOWER CAMP**

The route to Lava Tower takes you out of the heath zone in to the alpine desert zone. Here relatively little flora or fauna can survive the extreme temperature ranges and conditions that typify this zone. Lunch is taken in camp. In the afternoon, dependant on weather conditions, there is an option to scramble to the top of the nearby Lava Tower. Overnight Lava Tower Camp 15090ft/4600mt.

### **DAY 5 – KARANGA CAMP**

Today we go downhill to the Baranco Valley, climb the Baranco Wall and travel to Karanga camp, 13900feet (4235mt) 5-6hrs

### **DAY 6 - KOSOVO CAMP**

Today is another half day ascending to Kosovo camp. Once again lunch is taken in at Barafu camp camp allowing plenty of time to relax before the summit bid. Desolate alpine desert and at times strong winds rip over this camp and yet in the evening splendid views of Mawenzi volcano are the norm.16,500ft 4-5hrs Overnight Kosovo Camp



## Kilimanjaro Lemosho Route

### **DAY 7 - CRATER CAMP**

Unlike other routes with a night time ascent, your hike selection affords you a day time ascent to Kibo crater. The going is slow but with constant encouragement from your climb team the rim of Kibo is reached before descending a little way into the caldera to Crater camp. The afternoon is spent relaxing and short walks can be taken with one of your guides. 18700ft/5700mt 5-6hrs Overnight Crater Camp

### **DAY 8 - MWEKA CAMP**

After a night in the crater you now have the shortest final summit bid of any route. With such a short distance to the summit from the crater (around 1 hour) means that timing arrival with the sunrise is much easier and quite spectacular. The summit of Kilimanjaro is the top of the highest freestanding mountain in the world 19339ft/5894mts. After your summit bid you then descend for a final night on the mountain at Mweka Camp 10,000ft passing back through the heath zone. Endemic Proteas, pollinated by Malachite Sunbirds are plentiful. 6-7hrs Overnight Mweka Camp

### **DAY 9 – PARK GATE - ARUSHA**

After breakfast you descend once again through Rain forest and around mid day after saying farewell to your crew, you are picked up and transfer back to your hotel for a well deserved shower!

### **Includes**

- Trained Kilimanjaro guides (1 guide to 2 clients)
- Guides, Porters and cooks salaries
- Kilimanjaro entry fees
- Emergency medical evacuation (Intensive care Air Ambulance)
- All accommodation as described in the itinerary
- Transfers as described in the itinerary
- Breakfast – Lunch – Dinner each day
- Snacks & drinks on the hike (water, tea, coffee & hot chocolate)
- Tips / Gratuities



## 3 Day African Safari

### 3 Day African Safari

#### Serengeti / Olduvai Gorge / Ngorongoro / Masai Burma

##### DAY 1 – OLDUVAI GORGE / SERENGETI NATIONAL PARK

Dreams become reality this morning as you depart Arusha in your custom made safari vehicle for your first experience at wildlife viewing, Big Expeditions Style. Your destination today is Serengeti National Park. Drive across the grasslands of the Serengeti; be prepared for bumps and bounces along the unpaved roads. A short stop at Olduvai Gorge, where famed archaeologists Louis and Mary Leakey discovered the fossilized remains of the earliest known man, believed to be about 1.8 million years old. You will have plenty of opportunities for wildlife viewing en route to your safari camp – from which you'll experience the full majesty of the African wilderness.

Take a deep breath and enter the exotic paradise of the Serengeti Plains, where your adventure promises thrilling game viewing, an incredible exploration of the unspoiled African plains. Dinner & Overnight at Mobile Camp

##### SERENGETI NATIONAL PARK

Arguably the most famous National Park in the World, the Serengeti perhaps defines the safari experience as surely as the wildlife that inhabits it. Established in 1951, and covering an area of almost 15,000 sq km –an area comparable to the state of Connecticut or Northern Ireland, the Serengeti hosts a fantastically diverse eco-system. The famous short and long grass plains of the south slowly unfurl into the Acacia savannah of the central area, the hilly, more densely wooded areas of the north, and the extensive woodland in the western corridor, each with its own resident variations of African wildlife. The Serengeti promises all that the first-time game-viewer or experienced safari-hand could ever hope to witness and it rarely, if ever, disappoints.



## 3 Day African Safari

### **DAY 2 – SERENGETI NATIONAL PARK**

Rise early for a morning game drive as a new day dawns in the Serengeti, witnessing first-hand vivid vignettes representative of Africa's circle of life. Your safari guide will share fascinating insights into the poignant everyday rituals of the wildlife residing within the African bush. Another game-watching this afternoon after lunch at your camp. In the evening return to your camp. Dinner & Overnight at a Public mobile camp

### **DAY 3 – NGORONGORO / MASAII BURMA / ARUSHA**

After an early breakfast descend into the crater to experience the true spirit of Africa, the Africa of bygone days, when you explore wildlife-rich Ngorongoro Crater, long regarded as the "Garden of Eden." Within the walls of the crater lie short grasslands, swamps, forests and a freshwater lake, inspiring continual migration of animals in and out of the crater. From the comfort of your four-wheel drive vehicle, crafted exclusively for Ecological Wilderness Adventures, you'll have an opportunity to spot the Big Five – buffalo, elephant, leopard, the black maned lion and the endangered, rare black rhinoceros – as well as hyenas, baboons, and flamingos. Enjoy a delightful picnic lunch in the heart of this ancient volcanic crater; it is sure to be a memorable highlight of your safari. On the way back to Arusha you will stop visit a local Masai village.

### **NGORONGORO CRATER**

The Ngorongoro Conservation Area (NCA) is not a national park, but an integrated region that strives to meet the social and developmental needs of the resident Masai people. The conservation area is also involved in soil, water catchments and wildlife conservation, as well as the sensitive development of ecotourism. Local Masai people have grazing rights on the NCA plains, and you may well be surprised by the sight of them tending their herds alongside zebra and other wild animals.

The Ngorongoro Conservation Areas centerpiece, the Ngorongoro Crater, often referred to as the eighth wonder of the world is the largest unbroken caldera in the world, and the first sight of it is truly breathtaking. The floor of the crater is home to a year round population of varied wildlife, including the almost extinct black rhino. Animal densities are high, and game viewing is excellent, with visitors after being able to get up close to the now almost habituated "wild" animals.



**2015 Kilimanjaro Learning Expedition, Tanzania, Arusha**  
**23 September – 1 October 2015**  
**Registration Form**

**1. PERSONAL DETAILS**

Surname (Family Name): \_\_\_\_\_ First Name: \_\_\_\_\_

Organisation / School / Institution: \_\_\_\_\_

Full Postal Address: \_\_\_\_\_

City: \_\_\_\_\_ Postal / Zip Code: \_\_\_\_\_ Country: \_\_\_\_\_

Telephone: Area Code \_\_\_\_\_ No: \_\_\_\_\_ Cell No.: \_\_\_\_\_

E-mail: \_\_\_\_\_

**2. REGISTRATION FEE**

3 day Serengeti, Lake Manyara and Ngorongoro Safari \$ 1200 per delegate

Kilimanjaro Learning Expedition (KLE) Students & Adults \$ 2500 per delegate

The KLE includes transfers to and from the airport and two nights accommodation in Arusha. Registration may be transferred to another person at no charge, subject to written notification to the organizer and prior to the Xpedition



### 3. ACCOMMODATION

**Please Note:**

- Any extras must be settled on departure directly e.g. telephone calls, room service, purchases of a personal nature, laundry, etc
- Reservations will only be guaranteed once full payment has been received.
- Cancellation fees will be applied as per the hotel’s standard cancellation policy.
- No refunds will be given for stays that are not completed as booked.
- The standard check – in time at most hotels is 14h00 and check – out time 11h00. We will endeavour to arrange earlier check – in, but should you require either a guaranteed early check – in or late check – out, it is recommended that you book an additional night to facilitate this option.
- Storage facilities will be provided while on the TREK

### 4. VISAS

Please ensure that you are in possession of a valid visa to travel to Tanzania, if required. All inoculations and travel requirements should be checked at your nearest High Commission. A letter to facilitate visa applications will be supplied on request.

### 5. DIETARY REQUIREMENTS

Please indicate if you have special dietary requirements: \_\_\_\_\_

### 6. AIRPORT TRANSFERS

Please book me a transfer on arrival from Kilimanjaro Airport to the Hotel

Arrival Date	Time of Arrival	Flight No(E.g. SA 223)	No of Persons

**All flights to Kilimanjaro Airport**

Please book me a transfer on departure from the hotel to Kilimanjaro Airport

Departure Date	Time of Arrival	Flight No(E.g. SA 223)	No of Persons



# Scientist Driven

## Frequently Asked Questions

### **1. What is the Xpedition Project?**

The Xpedition is a GLOBE Africa sponsored endeavor, to contribute scientific measurements to compare with previous research on the effects of climate change on Mt. Kilimanjaro. The Xpedition Team, made up of GLOBE Students, Educators and Scientists will travel to Tanzania, Africa to climb the largest freestanding mountain in the world to gather environmental data within the distinct biomes of Mt. Kilimanjaro. The Xpedition Team will share those results and their eyewitness account of the journey with followers around the world online at [www.xpeditiononline.com](http://www.xpeditiononline.com).

### **2. When is the Xpedition?**

The Xpedition starts on 23 September, 2015 and will conclude on 1 October, 2015. Questions will be accepted prior to the start of the Xpedition and posts from Team Members will continue for several days after 1 October, concluding with the Xpedition 2015 Revisited, approximately one week after the climb. A detailed Itinerary of the Xpedition can be found at <http://xpeditiononline.com/itinerary2015.html>

### **3. Who is sponsoring the Xpedition?**

The Xpedition is a GLOBE Africa project. All equipment and web content was provided by GLOBE Africa.

### **4. Will a scientist be involved with the Xpedition?**

Dr. Kenji Yoshikawa of the University of Alaska Fairbanks, one of the world's leading authorities on permafrost research was the lead scientist for the first several Xpeditions. This year several new researchers will be collecting data and working directly with the GLOBE students on the mountain as well as answering questions from students following online.

### **5. How can my school sign up for the Xpedition?**

Schools can sign up to receive email updates from the mountain at [info@xpeditiononline.com](mailto:info@xpeditiononline.com) All Additional information can be found on the Xpedition web site at [www.xpeditiononline.com](http://www.xpeditiononline.com)

### **6. How do I join the 2015 Xpedition as a Team Member on the mountain?**

Anyone interested in joining the 2015 Xpedition Team on Mt. Kilimanjaro should email [info@xpeditiononline.com](mailto:info@xpeditiononline.com) Climbing Mt. Kilimanjaro requires a great deal of preparation and spots for the 2015 Xpedition Team are filling up quick, don't hesitate.





## Frequently Asked Questions

### **7. How can my students participate in the Xpedition?**

Classrooms around the world are encouraged to participate by contributing descriptive biomes of their local environments and posting them on the Xpedition web site and interacting with the Xpedition Team of GLOBE Students and Scientist on the mountain. Students are also encouraged to collect data of their local environment using GLOBE Protocols. That data can be added to your biome description but should also be entered in the GLOBE database. Questions & Biome descriptions should be sent to [questions@xpeditiononline.com](mailto:questions@xpeditiononline.com)

### **8. How will students benefit from participating in the Xpedition?**

Students will learn more about their local environment and its relationship to other biomes, by collaborating with Earth systems scientists and other schools as they conduct their own investigations. Students will be introduced to the study of climate in an interactive environment that promises to fundamentally more engaging than classroom study alone.

### **9. How will student collected data be used by researchers?**

Student collected data on the mountain will be used to validate permafrost studies by Dr. Kenji Yoshikawa of the University of Alaska Fairbanks. GLOBE data collected by schools following the Xpedition will be added to the GLOBE database to assist with student centered regional climate change research.

### **10. Will my biome be posted on the Xpedition web site?**

All biomes that are sent to [info@xpeditiononline.com](mailto:info@xpeditiononline.com) will be posted on the Xpedition web site. To assure that your biome is posted during the climb, starting September 23rd, it is recommended that you send in your biome as soon as possible.

### **11. What is a biome?**

A biome is a large geographic area of distinctive plant and animal groups that are adapted specifically for a particular environment. Biome type is determined by the climate and geography of a region. Please email biomes to [info@xpeditiononline.com](mailto:info@xpeditiononline.com)



# Student Focused

## Frequently Asked Questions

### 12. Which GLOBE Protocols will be used on the mountain?

The following GLOBE Protocols will be used each day on the mountain by GLOBE students and the data collected will be displayed on the Google Earth feature of the Xpedition Web Site. Students following the Xpedition online are encouraged to use the same GLOBE Protocols to collect local data to contribute to the GLOBE Database.

- Soil Temperature Protocol
- Water Temperature Protocol
- pH Protocol
- Cloud Protocol
- Modified Air Temperature Protocol
- Modified Relative Humidity Protocol

Both the Air Temperature & Relative Humidity Protocol's are modified due to the absence of a certified GLOBE Weather Station at each collection point on the mountain.

### 13. Will my question be answered from the mountain?

The Xpedition Team will answer as many questions as possible from the mountain. Questions that are not answered during the climb will be addressed in Kilimanjaro 2015 Revisited, to be posted approximately one week after the completion of the climb. Email all questions to [questions@xpeditiononline.com](mailto:questions@xpeditiononline.com)

### 14. Why Mt. Kilimanjaro?

Mt. Kilimanjaro, located near the equator in Tanzania, Africa, is a World Natural Heritage Site. One of the World's 7 Summits, the highest mountains on each of the 7 continents, Kilimanjaro is the highest peak in Africa at 5,895 meters. Although it is not the tallest mountain on Earth, Kilimanjaro is the tallest free-standing mountain in the world, rising 4,602 meters from its base. The glaciers of Kilimanjaro are quickly disintegrating under the equatorial African sun. Snowfall during the rainy season isn't keeping pace with the melting that occurs during the dry season, and this lack of replenishment is taking its toll.

### 15. How is this year's Xpedition different than previous treks?

Students taking part in the collection of data on the mountain will be continuing the research began by the 2009 Xpedition Team. Students will compare their findings to historical data and new data loggers will be positioned on the mountain to be collected by future GLOBE students. New web features including a Google Earth guided tour and GLOBE Protocol Videos will also be included on the daily journal pages.