EPIC KILIMANJARO REFERENCE MANUAL

"So, if you cannot understand that there is something in a man which responds to the challenge of this mountain and out to meet it, that the struggle is the struggle of life itself upward and forever upward, then you won't see why we go. What we get from this adventure is sheer joy. And joy is, after all, the end of life. We do not live to eat and make money. We eat and make money to enjoy life. That is what life means and what life is for." George Mallory

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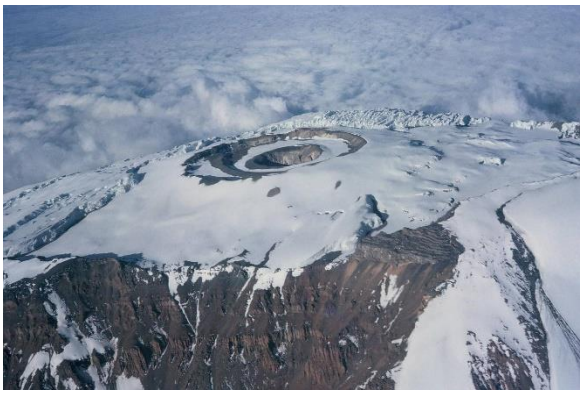
EPIC & KILIMANJARO

Epic boasts a summit success rate of over 90%. This can be attributed to a combination of factors, physical and mental preparation of clients, equipment specification, route selection, safety, comfort & the very best guides.



In the past few years there has been a proliferation of companies operating climbs on Kilimanjaro. Being the largest freestanding volcano in the world at 5,895 meters (19,354 feet), Kilimanjaro's upper slopes are classed in the extreme altitude range. Hiking at these altitudes is extremely dangerous.

Being well prepared, having the best guides, a full team of well trained and equipped camp crew and porters at your disposal (all you carry is a light daypack), nutritious food (in plentiful quantities), comfortable accommodations (high specification camping equipment) and most importantly having all safety issues accounted for (including testing your blood oxygen saturation levels and heart rate twice daily and having an emergency evacuation team on stand-by) are essential elements to a safe and successful climb.

Further, Epic adopts a strict ethical approach; we climb with a team of porters who are well paid and not overly burdened with their load. We also ensure that our presence on the mountain leaves no trace with waste materials being carried out.

Of course, to climb in this fashion is not a cheap enterprise. Climbing with Epic means we have fully assessed the risks and provisioned accordingly. We do not cut corners. We are committed to ensuring you have the best chance of summiting in the safest and most comfortable fashion possible. ***Doing it right is important if you wish to succeed.***

THE WEATHER

While it is possible to climb almost year-round, the weather conditions can make a big difference to your experience – notably the level of comfort and success rates. Another important point is that whilst on the mountain the weather conditions can change incredibly quickly from bright sunshine to drizzle or snow with penetrating high winds.

The table below will hopefully give you an insight into the seasonality:

Months	Expected conditions			
	Forest	Heath / Moorland	Alpine summit	Overall
Mid Jan – Mid Mar	Medium chance of rain	Medium chance of mist / drizzle	Not too cold	Great
Mid Mar – Late May	High chance of rain	High chance of mist / drizzle	High chance of snow	Really hard work
June – July	Medium chance of rain	Medium chance of mist / drizzle	Very cold	Good but cold
Aug – Mid Oct	Low rainfall	Often clear – mist / cloud cover in the afternoon	Temperature going up	Great
Mid Oct – Mid Nov	Medium chance of rain	Medium chance of mist / drizzle	Medium chance of snow	Can be very variable
Mid Nov – Mid Jan	Medium / high chance of rain	Medium / high chance of mist / drizzle	Medium chance of snow	Can be very variable / wet

THE CLIMATE

A journey up the slopes of Africa's highest mountain takes you on a climatic world tour, from the tropics to the arctic. Temperatures can vary dramatically given differences in altitudes and time of day. Similarly, precipitation can vary from dry to damp to wet.

Mount Kilimanjaro is made up of five distinct climate zones. Below we will look at each zone and what makes them unique. You will pass through all of these zones on your ascent of the tallest mountain in Africa.

CULTIVATED AREAS

ALTITUDE: 800 to 1,800m (2,600 to 6,000ft)

PRECIPITATION: 20 to 70 IN (500 TO 1,800 mm)

TEMPERATURE: Daytime 21C to 32C/70F to 90F and Nighttime 4C to 15C/40F to 60F

This region of the mountain receives the greatest annual rainfall. It also has many rivers formed by glacier run-off from the top of Kilimanjaro.

This zone is made up of farmland and small Chagga villages. These villages are where many of the porters and guides you will see on the mountain come from.

The farmland in this region is mostly used for coffee production. Some of Africa's best coffee comes from the foothills of Mount Kilimanjaro.

FOREST

ALTITUDE: 1,800-2,800m (6,000ft to over 9,200ft)

PRECIPITATION: 79 to 40 IN (2,000 TO 1,000 mm)

TEMPERATURE: Daytime 10C to 27C/50F to 80F and Nighttime -1C to 15C/30F to 60F

This rain forest circles a majority of Mount Kilimanjaro. However, most of the rain on the mountain falls on the south and the east side. The flora and fauna are diverse, striking flowers including orchids are swamped in clouds of beautiful butterflies. Monkeys, hornbills, and turacos live amongst the lush vegetation.

The rainforest jungle is simply amazing. The colors seem more vibrant than any forest you have ever seen. The trail is flanked by deep gorges of emerald blankets of every shade of green imaginable. Rising majestically out of the forest floor are twisted, ancient trees draped in coats of moss. When there is a break in the foliage, you get views of the clouds weaving their way through the treetops. The temperatures in the forest are usually mild and if it's going to rain on your climb, it will be here.

HEATHER AND MOORLAND

ALTITUDE: 2,800-4,000m (9,200ft – 13,200ft)

PRECIPITATION: 51 to 21 IN (1,300 TO 530 mm)

TEMPERATURE: Daytime 4C to 32C/40F to 90F and Nighttime -1C to 15C/30F to 60F

The rainforest quickly gives way to the Heather zone. The temperatures here are erratic and combined with less rain, gusting winds, giant heathers, wild grass, and a rocky trail replaces the rainforest very quickly. Some of the heather shrubs can grow to over 30 ft. high. As you climb tall grasses replace the heather as you enter into the Moorland zone.

Large fields of wild flower cover sections of the mountain and you will often see clouds floating at your eye level. Expect amazing blue skies at the upper end of this zone. There will be little cloud cover to protect you from the sun's UV rays. Brings lots of sunscreen.

Now that you are above the cloud line the views of the rainforest below and the top of Kilimanjaro 7,000 ft above are simply breathtaking. Once the sun sets, the stars are overflowing in the night skies and create a truly peaceful environment.

ALPINE DESERT

ALTITUDE: 4,000-5,000m (13,200ft – 16,500ft)

PRECIPITATION: 10IN (250mm)

TEMPERATURE: Daytime: -12C to 15C/10F to 60F and Nighttime -12C to 4C/10F to 40F

This region of the mountain is a strange place, truly deserving the title of Desert. The annual rainfall is less than 8 inches a year and what plant life exists at this altitude has to put up with the oppressive sun and sub-zero temperatures—all in the same day. This area also shows off its violent past with fields of volcanic rock of all shapes and sizes.

You are now close enough to the cone of Kibo to see the vast glaciers that cling precariously to its steep ledges. It has deep gorges on the slopes and breaches in the crater rim where molten lava blasted through during prehistoric eruptions. The landscape is barren and stranger than anything you may have seen before. Make sure to bundle up at night, at this altitude, the mercury dips well below freezing and you may wake up to frost on the ground in the morning.

ARTIC SUMMIT

ALTITUDE: Above 5000m (16,500ft)

PRECIPITATION: 4IN (100mm)

TEMPERATURE: Daytime: -12C to 4C/10F to 40F and Nighttime -26C to -7C/15F to 20F

The elevation begins around 16,500 ft. and continues to the top of Uhuru Peak at 19,340 ft. (5,000m – 5,895m)

The lower section of this zone is made up of loose dirt and gravel known as scree. Scree is quite difficult to climb. That is part of the reason the summit attempt begins at night when the evening dew has settled and frozen.

This allows the scree to knit together making it a more stable path. As you climb, ice will begin to appear in patches and soon in large fields as you approach the lower reaches of the summit glaciers. The traditional summit route takes you up to the rim of the volcano at Stella Point then heads west for one last push.

You will follow the crater rim as it rises beside a massive glacier to Uhuru peak, you finally approach the sign that signifies the feat you just accomplished.

You have made it to the Roof of Africa. To the east, the peak of Mawenzi is just visible behind the crater rim and to the north, Kenya spreads out on the horizon. Breathtaking views from the roof of Africa and into the Crater, cone, and ash pit.

AGE LIMITS / REGULATIONS

KINAPA, the governing body responsible for managing Kilimanjaro National Park, have set an age limit for ascending to the summit of 12 years old. Children and young people appear to be more susceptible to acute mountain sickness. We prefer to ere on the conservative side and generally will not consider climbers under 18 years.

We do not have an upper age limit on people attempting Kilimanjaro. That said all climbers need to be in good health (mentally and physically), be fit and have a desire to succeed. We insist that all people wishing to climb with Epic supply a medical certificate from their General Practitioner stating they are of sound body and mind to undertake the climb.

Many people suggest that older people do much better than their younger counterparts and we can certainly bear this out! Reasons for this have not been scientifically evaluated (at least not by us – yet) but perhaps the advice they receive to take it easy and enjoy the trip pays dividends later.

OUR SPECIFICATIONS

YOUR CLIMB LEADER

Each climb is led by a Climb Leader. He is responsible for overseeing all aspects of the climb. A Tanzanian climb leader is included as part of the cost of your climb. The services of an expatriate climb leader or climb doctor can be arranged although this is at additional cost.

All our climb leaders are trained on the medical front, very experienced in Africa and have climbed Kilimanjaro numerous times. Their focus is on you as the client, your well-being and safety.

YOUR GUIDES

To supplement the Climb Leader's efforts, we have a superb team of guides on hand. Chief among the guides is the Guide Team Leader. He is responsible for managing the staff, the operation of the camp and the logistics of resupply and relocation.

The guide team leader is generally the most experienced of all the guides. In many cases Team Leaders have been up the mountain more times than they can count. They are very experienced and have encountered many, if not all, the scenarios you face.

We climb with a very high client to guide ratio. Inevitably groups fracture on the final summit attempt. We ensure we have an appropriate number of guides should the group fracture for clients to continue to climb under a guide's supervision.

WHAT MAKES A SUPERB GUIDE?

- Experience: all guides have been working on the mountain from porters all the way up to guides
- Training: guides all have up to date mountain specific first aid training covering all aspects of altitude sickness and due to their experience on the mountain have been in almost all scenarios. Their training is ongoing, and they have refresher courses at least 2 a year as well as access to training resources (latest articles on mountain sickness, flora and fauna guides, Red Cross first aid refresher courses).
- Personality: guides not only show you the route on Kilimanjaro, but they are companions as well. Our guides have good English and are very amenable willing to share their knowledge on all aspects of Kilimanjaro as well as Tanzanian culture and life.

YOUR CREW

Our guides are part of a team. This team includes:

- A cook or cooks: it is amazing what they can prepare in a small tent on the side of a very big mountain! Fresh fruit / vegetables and meat allow them to prepare excellent meals that are designed to give you good nutrition value and lots of energy. They are the first up and last to go to bed.
- Camp crew: they set the tents and act as waiters as well. Working hand in hand with the cooks and guides you will see these guys scurrying around diligently keeping everything in order.
- Porters: the workhorses of the mountain. Our porters are all mountain porters and either work full time as porters or are working their way up the ranks towards becoming guides. They work hard to ensure that the entire camp is packed and set up before you arrive. All porters are selected from a core of trusted individuals.

OUR TEAM ON THE GROUND

The Operations base for the climb is Arusha. A small cadre is on stand-by 24 hours a day in the case of an emergency. We are normally in contact with base twice daily. The base team is responsible for all the logistics of operating on the mountain. Further they ensure the equipment deployed on the mountain is clean and in good working order.

CREW POLICY

- **Overview -** Each expedition is run like a military operation with set protocols and procedures in place.
- **Responsibilities -** The Operations team is responsible for managing all aspects of the climb including preparation, deployment, conduct and wash-up. They work in tandem with the climb leader, guides, and camp crew to ensure that all aspects of a trip are prepared and meet established guidelines for safety, quality, and expectations.

We have a core list of porters that we use on a regular basis. This list changes over time according to porter performance and whether they are suited to work as a porter. It is also an opportunity for porters to become recognized for selection to become assistants, camp crew or cooks. Sometimes due to group size extra porters are needed.

The head guide in this instance sources extra porters and they are strictly checked for age, health, suitability for porter work and that they have suitable footwear, jacket and sleeping bag or blankets. Ultimately the company is responsible for the wellbeing of all crew.

CREW NUMBERS

Due to our high specification of equipment on climbs the total crew numbers are very high. We are very strict on controlling the weight that our porters carry hence the numbers.

Indicative crew numbers are:

Route	Guests	Guides	Camp crew	Cooks	Porters	Total
Machame 7 day	2	2	1	1	16	**20**
Machame 7 day	4	3	1	1	25	**30**
Machame 7 day	14	6	2	2	50	**60**
Lemosho 9 day	2	2	1	1	24	**28**
Lemosho 9 day	4	3	1	1	36	**41**
Lemosho 9 day	14	6	2	2	64	**74**

TRIP PRE-REQUISITES

Preparation for any given trip is done in conjunction with the head guide, assistant guide(s), cook and camp crew. Prior to any trip the following lists are prepared:

- Food lists clients
- Equipment check – lists
- Suitable footwear
- Suitable sleeping gear
- Communications checklist

Food lists crew
Crew check - lists, including:
Suitable clothing
Client check lists equipment
First Aid check list

CLIMB PREPARATION

Baggage carried by porters is strictly limited by KINAPA regulations. All kit and food are weighed at the operations base prior to departure to ensure that the numbers of porters are known. The crew is introduced to the climbers prior to setting off.

CLIMB PROGRESS

All trips are monitored by twice daily communication to the operations base. The following checks must be performed:

- Client health & well-being – twice daily blood/oxygen saturation levels and heart rate are monitored to ensure your body is adjusting to your new rarified habitat.
- Forecasted progress and ability
- Crew health & wellbeing
- Forecasted progress and ability

The operations team, the climb leader and guide(s) take appropriate steps to ensure that all the above checks are performed accurately, and all the information is relayed to the operations team. There are some camps where communications are very difficult (such as Shira 1). However, all checks are performed and relayed at the next available communication point. All the above is also recorded at each camp. The completed checklist is returned to the operations team post trip.

CREW ILLNESS AND RESCUE

If members of the crew fall ill because of altitude sickness or any other malaise, then the head guide will make an assessment. If the crew member is unfit to continue the climb and must return down, then that person will be assisted by at least one other person. If the crew member can continue with the climb but is unable to perform his all his duties, then that person will continue to receive shelter and food. All the same backup procedures and equipment available to guests is also available to be used for crew.

ENVIRONMENTAL POLICY

We adhere to strict environmental guidelines ensuring we leave no "imprint" on the mountain. Our crews remove all rubbish from each camp, including all food scraps. Crews avoid damaging any flora in setting up of camps. We ask our guests to be very sensitive to the environment as to make sure that all waste, from paper wrappers to bottle tops, are given to the crew to pack away so that we can take it all back off the mountain.

BASIC EQUIPMENT COMMON TO ALL SPECIFICATIONS OF THE CLIMB

Each camp is set up with the following:

GUEST TENTS

- 3-man expedition dome tents, used for 2 people, and includes a fly sheet with vestibule for rucksacks and wet gear
- Foam mattress, typically 3 inches thick (Cot beds for VIP specification only)
- Large sleeping bags rated to -20Celsius
- Pillows

MESS TENT

- Standup size mess tent
- Lightweight table
- Lightweight stools
- Tablecloth
- Full cutlery and lightweight plates and bowls
- Thermoses of water for tea and coffee

TOILET TENT/S

- The toilet is like the type found on yachts – hand pumped flushable

Please note that on lightweight climbs (as opposed to luxury and VIP specification) toilet tents are not provided (rather you will use the permanent long drop toilets serviced by the National parks staff at each camp location). Also, you will need to provide your own sleeping bag and blow up pillow.

FOOD

On the mountain it is essential to try and eat as much as possible and to keep very well hydrated. Your body uses up to 3 times as much water at altitude compared to normal. Keeping hydrated is essential. During meals take in as much liquid as you can - hot drinks, cold drinks and soups are all there to keep you well hydrated. During the day you will also be encouraged to drink at every opportunity. The climb team monitors your intake very closely. At no point should you need a drink.

Studies have shown that your basal metabolic rate (BMR) increases with altitude – at 4300 meters this can be as much as 28% and so despite the fact that you may not feel like eating that much, your body needs the fuel.

Please note that people with special dietary requirements can normally be accommodated, but please let us know if you have ANY allergies or dislikes.

A SAMPLE MENU

Breakfast:

- A selection of fresh fruits
- Cereal/Porridge
- Cooked meal - eggs, sausage, tomato
- Tea / coffee / hot chocolate

Lunch: is often taken on route in the form of a picnic lunch. Your cook sets this up in advance. A typical picnic lunch would include:

- Fresh vegetables
- Fruit juice
- Sandwiches with cheese and ham or some similar
- Chocolate bar
- Hot soup
- Tea / coffee / hot chocolate

Dinner:

- Entrée of soup with bread
- Main course of a carbohydrate, such as rice or pasta with a meat dish, bolognaise or some other
- Pudding, banana fritters or some other
- Tea / coffee / hot chocolate

WATER

On Kilimanjaro the water is actually very clean – for the most part. We provide bottled water for the first 2 days. Thereafter we resupply of the mountain from the multitude of streams flowing off the summit. Water taken from streams is filtered, boiled and puritabs used (iodine purification tablets). You may like to bring water flavoring to mask the taste of the puritabs.

Each day you should have 3 liters of water on you when you start. For the entire day you should be drinking between 4 and 6 liters of water. Each person is different, but a simple rule is that your urine should be clear and copious: if it is not, keep drinking. Most clients use a "camelback" bladder (and fed by an INSULATED HOSE – this is important as a non-insulated hose will freeze on your summit attempt rendering your Camelbak unserviceable) as well as carrying 2 x 1 litre wide mouthed Nalgene bottles.

We cannot stress enough that keeping hydrated is essential. Your guides will be carrying extra water on route every day in their packs – if you run out just ask them for some water.

BEFORE YOU TRAVEL

KIT LIST / WHAT YOU SHOULD BRING

A detailed personal equipment is at the end of this document. Please also note that this list should be used to check off items that you have and this list. We will also check over your kit in the pre climb briefing in Arusha to make sure everything arrived safely – there are times when luggage does not arrive with the aircraft and in those circumstances we will do our utmost to make sure you are well prepared for you climb.

Please try and keep your total weight of equipment on the mountain to around 15kg (33lbs) in a soft sided kit style bag. Please advise us if you will be bringing more.

NOTE: It is a very good idea to wear your boots on the plane and hand carry your outer shell / waterproof jacket – in case your luggage gets misplaced en route. Also, if you are taking medication then this should also be carried on your person.

TRAVEL INSURANCE

All clients must have comprehensive travel insurance for Africa before embarkation. Cover should include climbing at altitude, hospitalization and evacuation from Tanzania should the need arise. Epic requires that you furnish a Certificate of Cover.

PERSONAL PARTICULARS/MEDICAL / INSURANCE

CLIENT INFORMATION FORM

You will be asked to complete prior to embarkation a detailed Client Information form. Amongst other things this requires passport details, next of kin, travel insurance details, dietary requirements, and most importantly pre-existing medical conditions.

The following conditions need careful pre-departure assessment to ensure climbers are considered fit:

- Asthma and other respiratory problems
- Hypertension
- Cardiovascular disease. Untreated angina is a contraindication
- Diabetes
- Epilepsy
- Hip, knee, or ankle problems

- Psychological problems - Trekking can be challenging emotionally and people going must be mentally stable. A person with effectively treated depression who is emotionally and mentally stable may go trekking. A person with a psychotic illness should not go.

People with hypertension (high blood pressure) and asthma, may climb to altitude provided these conditions are mild to moderate, stable, and well controlled, thoroughly assessed by a medical professional and have suitable preparations put in place. While climbing, an asthmatic should carry (in addition to their usual medication) a spacer, a course of antibiotic and oral prednisolone, and know how and when to use them in an attack. People with a history of unstable asthma, especially with severe attacks, are advised against climbing. This is because air travel, allergens and infection can all precipitate asthma attacks which are difficult to treat in a wilderness setting and potentially deadly.

Diabetics and epileptics may be at increased risk above 3000m.

MEDICAL CHECK-UP

Similarly, it is mandatory that all clients have a medical checkup with their General Practitioner prior to travel. A Health Assessment Form will be sent to you for completion well prior to embarkation. Epic requires a copy of this with the Travel Insurance proof of cover. This is especially relevant if you are above 40 years of age, or if you have had any conditions in the past that limited your ability to trek. The key thing to remember is that Kilimanjaro is not just a walk in the park. Prior preparation and planning for contingencies to ensure your safety.

INOCULATIONS & MALARIA

It is recommended that you consult your travel doctor more than 2 months prior to departure. Certain inoculations are recommended for travel to Tanzania as is taking a prophylaxis for malaria. Yellow fever is mandatory for Tanzania and you need to travel with proof of vaccination. Please consult your nearest Traveler's Medical Centre for advice. Your travel doctor will also be able to advise you on taking Diamox, a diuretic often used to counter the effects of altitude.

ALTITUDE AND ALTITUDE SICKNESS

Please note: this information has been collected from several sources, which include medical journals and outdoor training guides. It is not meant to be a definitive source of information but is designed to give our guests a basic understanding of the environment and reactions that the body may face at altitude as well as the inherent risks. Our mountain guides are trained to ensure that you are monitored at all stages and can recognize various forms of mountain sickness and their severity and to take appropriate steps. Their ability to make these decisions is also based on years of experience on the mountain and so their decisions must always be adhered to.

DEFINITIONS OF ALTITUDE

Different altitudes can be classified as:

- High: 8,000 – 12,000 feet (2438 – 3658 meters)
- Very High: 12,000 – 18,000 feet (3658 – 5487 meters)
- Extremely High: 18,000 + feet (5487 meters +)

Therefore, on a typical Kilimanjaro hike you will pass from High altitude on your first day all the way to extremely high at the summit. Kilimanjaro is an extremely high mountain.

ENVIRONMENTAL CHANGES AT ALTITUDE

As you ascend Kilimanjaro (more specifically as you ascend through the atmosphere) the barometric pressure decreases. The temperature also drops – for every 1000 feet around 5 degrees F (10 C per 1000 meters). The effects of these changes are a decrease in the density of air. Essentially there is less air to breath in, hence the term 'thin air'. The percentage of oxygen remains constant at around 21%, but there is simply less oxygen molecules for a given volume of air that you breath in.

ACCLIMATISATION

As you ascend your body needs to deal with the reduced amount of oxygen available in every breath. These changes that your body makes are the process of acclimatization. The main changes that occur in the body are:

- The depth of breathing increases
- Pressure in the pulmonary arteries increases – making blood flow into parts of the lungs not necessarily used at lower latitudes
- The body produces more red blood cells (the protein Hemoglobin being the oxygen carrier which resides in the red blood cell).
- Production of more of a certain enzyme that facilitates the release of oxygen from Hemoglobin to the body's tissues.
- You urinate more (altitude dieresis where the kidneys release more water from the body).

Failure to acclimatize properly therefore leads to certain symptoms – signs that your body is not adapting, or has not yet adapted, to the change in altitude.

RATE OF ACCLIMATISATION

How quickly you acclimatize – the rate of acclimatization, is affected by a few main factors:

- How quickly you ascend: an ideal target rate is 1000 feet a day (305 meters per day) and even 3000 feet spend an extra day at the same altitude.

- The amount of time spent at a particular altitude: extra days spent at the same altitude help. The maxim 'walk high, sleep low' also applies.
- The condition of your body: being prepared and taking it easy ensure that your body is given the best chance of dealing with the changes in environment.
- How well hydrated you are and diet: high carbohydrate diet combined with lots of fluids are essential.

TYPES OF ALTITUDE SICKNESS

If your body is not able to deal with the change in altitude, then there are 3 main types of illness that may be apparent:

- **Acute Mountain Sickness**: several symptoms that indicate you are not acclimatised to your current altitude. These include a headache combined with loss of appetite, fatigue (even at rest), dizziness, mild swelling in extremities, and disturbed sleep. The important thing to note is that a large proportion of people climbing Kilimanjaro do get mild mountain sickness and with rest and time your tolerance for altitude increases and so most people will be able to continue. Fluid leakage on the brain is the predominant cause of a headache and severe forms of this can lead to HACE.
- **HACE**: High Altitude Cerebral Edema. Excess fluid leakage causes mental impairment, and this can be fatal. The hallmarks of HACE are a severe headache and impairment of the ability to think. Ataxia, or the loss of coordination is an easy sign to recognise. Descent is the only cure.
- **HAPE**: High altitude pulmonary edema – fluid on the lungs. Signs can include breathlessness even at rest, cough (possibly frothy or pink sputum), rattling breaths, lack of blood to the extremities and drowsiness. HAPE can be confused with pneumonia, but rapid decent soon differentiates the two.

PORTABLE OXYGEN CHAMBER & OXYGEN CYLINDERS

We carry up the mountain oxygen cylinders in the unlikely event that someone should contract severe mountain sickness. Perhaps this is perceived by some as an over precaution. That said we plan for the worst-case scenario. Also, we sometimes climb with a portable oxygen chamber. Mostly this is taken on routes that involve sleeping in the crater at the summit.

Periodic breathing or 'Cheyne – Stokes' respirations are not an illness. Periodic breathing often happens at night whereby the climber may experience wildly fluctuating breathing cycles in their sleep. It can be quite disturbing to listen to or to suddenly wake up to, but it is not considered abnormal at high altitudes. Acetazolamide (Diamox) can be helpful in relieving periodic breathing.

DIAMOX / ACETAZOLAMIDE

Diamox (the brand name) is a sulfur-based drug that is a carbonic anhydrase inhibitor. Essentially the effect it has is to act as a respiratory stimulant, which impacts your breathing particularly at night and can eliminate periodic breathing. Clinical trials have not been performed conclusively, but it is widely known to increase the rate of acclimatisation. It is certainly not a wonder drug that will work for everyone in the same ways – in fact, the research, and data for how well it works for different people is very limited indeed.

KEY POINTS:

- It is a sulfur-based drug and so some people are allergic to it – your doctor must prescribe it for you to take it.
- It is a diuretic
- Some side effects include tingling in the fingers and toes, altered taste and possibly ringing in the ears.
- It is used in the following ways:
    - At the start of the climb and during climb to prevent mountain sickness
    - On the onset of any signs of mountain sickness
    - As a treatment for mountain sickness
    - The only real cure for altitude sickness is removal from altitude.

If you intend taking Diamox it is strongly recommended that you take two days' worth of tablets prior to embarkation to ensure no allergic reaction. Being in your own environment will easily enable you to finger Diamox should you have an adverse reaction. Once on the mountain the process of elimination becomes considerably more complicated.
Please note that our guides are asked not to give out their own supplies of Diamox to people that have not been prescribed Diamox to avoid allergic reactions.

DOSES

Consult your doctor for advice. From experience we have found that a good dose is 125mg twice a day, at breakfast and then after dinner. This minimizes side effects and helps keep a steady breathing pattern when you are asleep. Some information from medical journals indicates that the effectiveness of Diamox may be very limited unless the maximum daily dose of 750mg is taken. We wait for proven clinical results!

MOBILE PHONES

Mobile phones (on global roaming) do work in Tanzania and even on Kilimanjaro. For Americans, your phone will need to be tri or quad band. It is suggested that you bring a spare battery as there are no recharging facilities on the mountain.

PHOTOGRAPHY

Most people bring a camera with them for shots of Kilimanjaro. We have found that over the years the specification and performance of small compact cameras has improved phenomenally, and they are lightweight. Digital cameras are also slowly becoming the norm and many of these are also very lightweight and compact. These sorts of camera are ideal for day-to-day shots as they can be kept on your person tucked away in a pocket.

Here are a few points to consider:

- The camera will be used in severe cold and should be protected against freezing whilst not in use. A decent pouch for the camera, to ensure that it does not freeze on the final ascent is a good idea, although keeping your equipment in interior pockets of your clothing should be sufficient. (Do not keep your camera in your backpack at higher elevations). It is advisable that you remove the batteries from your camera on the summit night and keep these in a pocket close to your body. This keeps them warm so that when you reach the summit they will work.
- Wide-angle, telephoto and zoom lenses will add greatly to the quality of photos for SLR cameras, but weight is definitely a consideration. You will generally find that a good 28-80mm zoom lens covers most shots and keep your weight down.
- A polarizer or neutral density filter will greatly enhance results – there is a lot of glaze and UV at altitude.
- Video photography is an excellent method of recording the sights and sounds of your climb and is highly recommended, and the more lightweight it is the less you will be carrying!
- Note: supplies of batteries and memory cards are limited in Tanzania. Our suggestion is to take more than what you might think is necessary.

GETTING YOUR BODY PREPARED

Essentially Kilimanjaro is a multiple day hike. In light of this hiking and walking are ideal forms of preparation for your body. Hiking at altitude is hard work and so the more preparation you do the better – but not to the point of overexerting yourself or stressing your body especially a few days before the climb. Therefore, the best bet is to work exercise into your daily routine and where possible try to have extended walks where you can wear in your boots, carry your rucksack and get used to some light weight on your shoulders and increase your aerobic ability. If you can combine more exertive exercise, such as swimming and even other forms of aerobic exercise then great – ***remember that you will be walking for a number of days and so the fitter you are the more adapt your body is to this level of exercise***.

Epic will provide an indicative 8-week training program to assist with your preparations. In general, your fitness efforts in the 3 months prior should incorporate:

Climb date minus 3 months

- Gym / fitness class / any selection of fitness session x 2 times a week: choose workouts that make you work hard and increase fitness rather than build muscle
- Walking: walk whenever possible – At least 1-hour continuous walk per week preferably over varying terrain to incorporate hills and steps.
- Diet: cut out soft drinks with sugar or sweeteners and junk food. Remember this is a once in a lifetime event – use it as a great excuse to get healthy!!

Climb date minus 2 months

- Gym session x 3 times a week: again, choose workouts that make you work hard and increase fitness rather than build muscle. No need to go crazy but doing 3 workouts a week breeds discipline and mental stamina as well as improving physical conditioning. You can even substitute 1 gym session for an alternative activity such as Yoga (even better yoga session every morning!) or swimming
- Walking: keep walking! – Increase your frequency to 2 x 1-hour walks per week. Hills and steps are a must as is weight bearing during walks. Your daypack should be carried with upward of 10 kgs of weight inside. Some stationary step-ups on the likes of park benches etc. should also be incorporated.
- Diet: keep healthy but remember to feed the fire! When you exercise you will burn lots of calories and so replace lost fuel and keep very well hydrated – water is life, drink, drink. Lots of water helps flush out toxins and maintains a healthy perfusion of the body's cells.

Climb date minus 1 month

- Gym session x 3 times a week: no need to go crazy on the gym sessions, simply keep up a good routine. Do not over exercise! Going over 3 times a week increases the risk of injury and muscle damage which will prevent you from even starting, which is not what we want.
- Walking: be realistic and set 8 hikes for this month of around 2 – 3 hours each. Keep walking whenever possible. Again, overexertion and strains should be avoided at all costs. Hills, steps terrain of varied footing should be the norm.
- Diet: a good well-balanced diet is the way to be. Any loss of body weight or toning should really have been done in the last couple of months and now keeping healthy and maintaining the status quo is our goal. Lots of water and enough calorie intake to complement your exercise routine.

Climb date minus 1 week

- RELAX. No need for last minute blasts or burn outs. Take a good walk at the beginning of the week and then simply partake in some light cardio-sessions where possible. If you haven't prepared up to this point then training one week from your arrival is not going to help (people that take that approach should expect to find the hike hard work and possibly be ready to fail). Being MENTALLY RELAXED is as important as physical conditioning. Even if you have not managed to put in lots of training time the same applies.

Note: wearing in your boots will avoid discomfort on the mountain – serious blisters can seriously affect your ability to walk and for this reason we also recommend carrying / wearing them on the plane.

Getting your body prepared tends to go further than this. Many people work really hard right up to the night before they leave, and then arrive tired and start climbing tired. A stressed body will not acclimatize as well as a relaxed body and so give your body a chance and try to prepare early. You can also spend extra days in Tanzania relaxing or even doing light acclimatization walking – there are a number of activity options in the Kilimanjaro area from walking with Maasai in wilderness to seeing Chagga culture on foot. 2 or 3 nights before you climb can make a world of difference.

BEFORE YOU TREK

MEET AND GREETS AND ACCOMMODATION

On arrival in either Tanzania or Kenya you are met by an Epic representative. They will meet you at the airport with a signboard with your name on it. After collecting your baggage, you will be transferred to your accommodation, as per your itinerary. Your itinerary will also stipulate a number of key contacts on the ground in Tanzania in the event of an emergency.

PRE-CLIMB BRIEFING

WHO / WHAT / WHY / WHEN?

The pre climb briefing is an opportunity to introduce you to your guides, check that you have everything you need for the climb, answer any outstanding questions, and help with anything we can. The climb briefing is normally done by the climb leader. We normally do the pre climb briefing at least a day before you set off.

That's is not always possible if you arrive on a night flight and climb the next day (we recommend you give yourself at least a day to relax and get over your flight, and most likely the stress of leaving work!) in which case we brief you on the morning in which case we come armed with spare clothing just in case.

INTRODUCTION TO GUIDES AND CREW

Your guide will be with you for the next few days. They are there to fulfill many functions from ensuring your safety, showing you the way, and giving you an insight into the mountain, its surroundings, and this wonderful part of the world. They are great companions and you should feel comfortable asking them all sorts of questions, as this is a learning experience for everybody and a chance to make some great friends.

In the briefing you will be told your exact crew numbers and make up. Your head guide is your number one point of contact, but you will also come to recognize and interact mostly with your assistant guides and camp crew. For crew numbers see 'crew numbers' in the Specifications section.

Your crew is in touch with base daily sending very specific sets of information, such as your health and performance, anticipated problems, as well as the health and performance of ALL crew members as well.

GOING OVER THE ROUTE

GOLDEN RULES ~ IMPROVING ACCLIMATISATION

There are a couple of key rules that can make a huge difference to your climb:

1. 'Pole Pole'. You will hear this from your guides. It means slowly, slowly, and this applies to you pace on the mountain. This is especially important for the first 2 days where the altitude does not feel like a limiting factor and you are tempted to set a fast pace – for most people that is the normal reaction but it is the wrong one! Your body will be dealing with trying to acclimatise over the next few days and stressing it out and overexerting your body will have a negative impact on acclimatization. Your guides will set the pace and you may find it almost intolerably slow – bear with them it is for a good reason.
2. Drink lots of fluids. Hiking up steep hills at normal altitudes generates quite a lot of sweat and at altitude your body can be using up to 3 times the amount of water and so keeping hydrated is essential.

Every so often your guides will simply stop you and at these points have a drink. In pack water carriers (camelbak, platypus and so on) are also great as you can easily keeping drinking all day long). A good test to see if you are drinking enough is that your urine should be clear and copious. If it is yellow, then there is a good chance that you are dehydrated, and you should take immediate steps to counter this (i.e. drink water). Your guides will also carry extra water – so do not worry about running out.

For a more in depth look at altitude and Diamox please refer to our Kilimanjaro reference section at the end. If you wish to take Diamox (acetazolamide) then you must consult your doctor first. Diamox is a sulfa-based drug and some people are allergic to this compound (Your doctor or physician will be able to advise you on this).

Note that for serious forms of mountain sickness – specifically HACE (High Altitude Cerebral Edema) and HAPE (High Altitude Pulmonary Edema) the only cure is removal from altitude. Our guides' decision on removal from altitude is final (note that it can be the case that in non-serious cases you may meet the group at a lower camp).

STARTING OFF FROM ACCOMMODATION

We normally like to get to the trailhead relatively early. We will advise the start time in the actual briefing. The key thing is to be prepared to depart the night before hence:

1. Pack your day sack and include
    i. Waterproofs
    ii. Camera / video
    iii. Water bottles (bottled water can be provided at the trail head, but if you want to you can always fill up at the lodge).
    iv. Poncho / umbrella (dependent on season)
    v. Hat
    vi. Sunglasses
    vii. Extra snacks if you have them
    viii. First aid kit if you have

NOTE: on all days try to keep your day sack as light as possible. Your porters have been hired to carry most of your gear and carry extra gear will only make you more tired and stress your body out more, making it harder for your body to deal with the altitude.

2. Pack your soft bag for the porters. This should have everything else you require on the mountain.

3. If you have extra baggage for an onward trip, or things that you find you do not need post kit check, then these need to be put separately and can be left with the hotel or with the driver that transfers you to the mountain who will return it to the base for safe keeping. Please, if you do want to give all the porters a t-shirt or some other gift that you have brought with you, there is no need to carry it for the whole trip, simply ask us to bring it to the end of the climb!

THE GATE

After transferring to the gate your guide will head off to fill in the necessary paperwork whilst the mountain authorities and your crew arrange all bags into correct weights. All baggage is normally weighed. When all the formalities are complete you set off with your guides. Your porters will catch you up later, pass you and set up camp by the time you arrive.

TO THE FIRST CAMP

The first day is a good chance to get to know your guides and they will also be on hand to explain and describe some of the flora and fauna. This first day is an ideal opportunity to start a few good habits:

- Drink lots of fluids
- Eat snacks as often as you can
- Walk slowly

DAY TO DAY ROUTINE

Each evening & morning your head guide will brief you in the mess tent. This briefing will include:

1. How the day went, how your pace was and how to improve your performance
2. What lies ahead for the next day
3. What time tea and hot water will be brought to your tent
4. What time you need to get up
5. Breakfast times
6. What to include in tomorrow's day pack?
7. Departure time from camp
8. Where lunch will be (in next camp or en route)
9. Approximate arrival time / walking times

It is also a good opportunity for the guide to see how everyone is eating and feeling. Be very open and straightforward so that the guide can assess you. **Good feedback is essential for the guides to be able to monitor your progress.**

As a general guideline:

- Tea & hot water: 6.30am
- Breakfast: 7.00am
- Briefing: 7.30am
- Depart: 8.00am
- Lunch: depends on whether lunch is en route or in camp, but around 12pm to 1pm
- Afternoon tea: 3 – 4 pm
- Evening tea: 6pm
- Dinner: 7pm
- Evening briefing: 7.30pm

Most people tend to go to bed soon after dinner, but you can stay up writing trip reports, or even playing cards.

THE SUMMIT BID

For most routes, the final summit bid is a little different. Here are the key stages and what to expect:

EVENING BRIEFING

At this point your head guide will go over the day's events and how the summit section will be tackled. Your guides will have assessed your performance over the previous days and if necessary, may want to start some members of your group slightly earlier – this is especially relevant in large groups. The starting time for all routes that ascend via Stella point (Machame, Lemosho, Umbwe) or Gilman's (Marangu or Rongai) will always be at night. Hence, you may start as early as 11pm or possibly as late as 1am but your guide will decide this. The target is to try to reach the summit by sunrise as you have a long downhill afterwards as well.

BEFORE YOU GO TO SLEEP

Ensure that all preparations are complete. If you need to put additional items of clothing on when woken later in the evening for your summit attempt, it is a good idea is to set out your clothes in the order you will put them on – inner layers first, up to the outer layers.

WHEN YOU WAKE UP

You will be given a wake-up call at a pre-arranged time. From here you dress, put your boots on and make sure everything you take in your daypack is packed and then go to the mess tent with your daypack where you will meet your guides and have a hot drink and check over last minute items.

DEPARTURE

We always have guides at the front and back of the group keeping pace and checking your performance. Your guides set the pace.

GETTING TO THE RIM OF KIBO

Getting to the rim, Stella Point, usually takes around 6 hours. It can sometimes be shorter or even significantly longer. This is one place where different abilities can often show, but not to worry. If the group needs to split up, then the time to do so will be determined by the head guide and guides will be assigned to each group.

This is the hardest part of your entire trek – for some people, the hardest thing they will ever do. It is often mental stamina that counts for a huge amount here, and motivating your colleagues is essential.

Your guides will also be motivating you and checking you every so often. Follow the methodical steps of your guide to maximize grip and maintain a slow steady momentum.

RIM TO THE SUMMIT

Stella point it is still a further hour or so to the summit. Some people are happy to turn back here, after all you are at the top of Kilimanjaro, but most likely you will persevere to the summit.

HYGIENE

Hygiene is very important on the mountain, and so fresh underwear, fresh socks and washing are all important. Hot water is provided in the morning by your tents and when you arrive in camp in the afternoon. Water is also available after you have been to the toilet with soap. All crew members are also under strict instructions to maintain a very high level of hygiene.

WHAT HAPPENS IN AN EMERGENCY?

ROLE OF THE GUIDE(S)

One of the main roles of your guides is to make sure that you are safe, and in the eventuality that you do have to go down, the whole team is on hand to make sure that this is done quickly and efficiently. Importantly they will be able to discern whether it is necessary for you to go down or if resting at the same altitude is safe.

COMMUNICATIONS

Our guides have both radios and mobile telephones and have communication lines with both KINAPA (Kilimanjaro National Park authorities) and the operations base.

EVACUATION ROUTES

Depending on where you are on the mountain, a different exit point may be used. KINAPA vehicles are allowed onto the Shira plateau and can also access some way up the Mweka route

and the Marangu route. To get an evacuee there our crew work together to either make a stretcher, use a KINAPA stretcher (if available) or even carry the person if necessary. At least one person assigned is an assistant guide.

A key aspect of our climbs is to try, wherever possible, to make sure that a guest can walk out safely by themselves. Our guides will decide if you need to turn around and their decision is final. Please respect this.

AFTER THE MOUNTAIN ~ OPTIONS

If someone does decide to go down, then depending on the exit point, KINAPA vehicles may drive up as far as the track allows to meet you and then we will have a vehicle at the gate to take over. From here there are the following main scenarios:

1. The guest does not or did not have signs of altitude sickness and is physically ok. They are then transferred back to a hotel to rest. We monitor their performance and keep in regular contact and a manager visits them to make sure everything is ok.
2. They have had mountain sickness but appear fine. The guest is taken to a good hospital nearest to their accommodation in either Arusha or Moshi for a checkup before being transferred to a hotel to rest. We monitor their performance and keep in regular contact and a manager visits them to make sure everything is ok.
3. The guest had a severe case of mountain sickness or other forms of sickness / condition and may still be feeling discomfort. In this case they go straight to KCMC in Moshi and are treated. If it is a very serious case, we would arrange for flying doctors to affect an evacuation to Nairobi. Hence, having your emergency contact details and insurance details is of paramount importance. We monitor their performance and keep in regular contact and a manager visits them to make sure everything is ok.

For the extra transfers, accommodations and any medical costs we charge the client at cost price and if payment is a problem at that immediate time then we can make sure everything is covered and can be paid back at some later point.

OTHER AILMENTS

Dehydration

Dehydration is caused by a lack of fluid in your body. As already indicated, your body uses a lot of water at altitude and so drinking as much fluids as possible should be a major goal. Consider these times and potential sources of fluid:

- Breakfast: porridge, hot drinks, water (approx. 1 litre)
- Hiking: water bottle (approx. 3 litre)
- Lunch: fruit juices, hot drinks, water (approx. 1/2 litre)
- Afternoon tea: hot drinks, water (approx. 1/2 litre)
- Dinner: soups, hot drinks, water (approx. 1 litre)
- In bed night: water (approx. 1 litre)

This guide simply shows places where you may be able to get fluids – drinking 7 litre a day is probably a tad excessive!

Blisters

Badly worn in hiking boots, or new boots are the main culprits for a blister. Blisters can vary in their seriousness and this will affect your ability to walk. To avoid this please train in your boots and get them worn in. Wearing in a pair of leather boots can take time – sometimes at least a month and so be wary of this in your preparation.

Golden rule: if you feel a hot spot developing, stop and sort it out. A hot spot may be where you are experiencing friction and rubbing and is likely to develop into a blister. Having blister patches and good socks and well-worn in boots are ideal to avoid this.

Cramp

Cramp is normally the result of muscle fatigue, overexertion and or dehydration. Hence, keeping hydrated and not overexerting yourself if essential. Light stretching normally helps the cramps go away in a matter of minutes.

Sun burn / wind burn

The amount of harmful UV rises as you ascend. Having high factor sun block is essential (see packing list). This should be applied at the start of each day. A small tub of Vaseline is also very handy for chapped lips and moisturising hands as well.

Sprains

Sprains are not that common if people take our advice and do not rush. Areas where you are particularly at risk are in the forest section, some rocky sections such as the Barranco wall or mid-way up to the summit as well as on your descent. Hence, a slow pace and care are ideal.

For those with weak joints due to previous sprains, breaks or ligament tears, be prepared! Having and wearing if necessary, a support for the injured muscle / joint is far better than overstressing the injury and not being able to go all the way to the summit!

TIPPING

There are sometimes different expectations when it comes to tipping from different nationalities and we have found expectations are quite often in line with cultural norms in respective home countries. In East Africa tips are customary in most service industries and on the mountain is no different. Nonetheless it is not obligatory, and we pay very well compared to many other operators and, in comparison to average Tanzanian wages.

On smaller groups (2 or 3 people) our crews also appreciate that the tipping burden can be quite high as our crew numbers are also to ensure your comfort. A common phrase in Kiswahili is 'Zawadi ni Zawadi' – a tip is a tip.

How and when to tip

You will often find that the subject of tipping comes up at the final camp, which is probably a good place to arrange the final tips as most of the porters leave at that stage and go home, so it is preferable to be able to present it to them on the final morning.

We try to keep tipping as transparent for the crew as possible. All tips should be written down on the form provided to add transparency. The amount of tip generally differs depending on the staff job being done. Your Chief Guide will assist you with this. We require all guides to announce the group tip (where possible) on the final morning of descent with our guests present and to communicate in both Swahili and English.

Having change (USD dollars are the best) is a good idea. Please plan for this before the climb or we have to organise tipping later on back at base and this becomes more complicated. **Transferring money from your home country after the climb is not ideal as it will have to go through formal bank accounts and taxes are expected from these payments to the government.**

What to tip – Guideline amounts

These figures are designed to be a guideline based on what have become normal tipping amounts over time. Remember that you should not feel obligated to pay exact amounts and if you feel like giving more or less then please do – it is a tip after all!

The key is that on the last day guests fill out their pledges and then the head guide is tipped SEPARATELY. That way the head guide is out of the tipping procedure and can assist splitting.

We go through all this in the briefing. We always try to ensure that a good baseline is met with the porters such that they receive at least USD 20-30 per porter if possible. Skilled staff – chefs, assistant guides, camp managers and guides will get graduated amounts from this base amount.

- **6 to 7 day - Luxury / VIP climbs:** USD 350.00 per person, but with small groups consider budgeting USD 400.00 per person. As there are no economies of scale and so a very high proportion of crew to clients.
- **8 to 9 day - Luxury/ VIP climbs:** USD 400.00 per person, but with small groups consider budgeting USD 500.00 per person. As there are no economies of scale and so a very high proportion of crew to clients.

You will find that as a very rough guideline tipping works out to 10% of your trip value.

Please also consider that unused snacks, equipment, and clothing will also be gratefully accepted by the staff.

AFTER YOUR TREK

FEEDBACK

Once you are back at your hotel, and after a well-deserved hot shower, there will be time to relax and have a celebratory dinner. The following morning your climb leader will be there to receive any feedback that you have. We will have an assessment form for you and straightforward, critical feedback is ideal – we are always aiming to improve our service and standard on the mountain.

KILIMANJARO NATIONAL PARK

- National Park. 756 sq. km.
- The tallest mountain in Africa (19,340 feet or 5895 meters)
- Actually, a triple volcano
    - Oldest is Shira, collapsed caldera
    - Middle aged is Mawenzi
    - Youngest and still dormant is Kibo
    - Uhuru peak is on Kibo (5895 meters)
    - Perfect ash pit in the center of Kibo crater

- The National Park itself only includes the mountain area above 8,860 feet that make up the moor and highland areas, the Shira Plateau and the two peaks of Kibo (the "summit") and Mawenzi (16,894 feet).
- The area below the Park is, however, gazetted as forest and game reserve; five main vegetation zones rise from the lower slopes in succession, each getting colder and dryer with correspondingly fewer fauna populations.

GEOLOGY

Mount Kilimanjaro lies on a tectonic line intersection about 80km east of East Africa's tectonically active Rift Valley. Many people have been told that Kilimanjaro is a volcano, but that is not strictly true – it's actually three volcanoes.

Roughly 750,000 years ago, molten lava burst through a gap in the surface of the Great Rift Valley. The great pressure that caused this eruption also pushed part of the Earth's crust skywards, creating the Shira volcano, the oldest of the volcanoes forming the Kilimanjaro massif, which stopped erupting and became extinct roughly 500,000 years ago. The Shira volcanic cone collapsed leaving the Shira Ridge as part of its Caldera Rim. Subsequent eruptions over the following 50,000 years gave birth to Mawenzi and Kibo.

Kibo erupted a number of times over the proceeding 100,000 years or so which took its summit ever higher and also brought about the black volcanic rock which today helps make Kilimanjaro such an incongruous and fascinating sight, especially when taken in contrast to the white glacial summit. The main summit point of Uhuru Point is located on Kibo's outer crater rim.

The striking and imposing rock walls on Kilimanjaro and Mawenzi are generally composed of lava and ash. While Mawenzi has been significantly eroded over the years, it retains a striking volcanic shape and makes for great photographs on your way to Uhuru Peak.

Deep gorges or Barrancos have been cut into the soft rocks and ash of Kilimanjaro. The most impressive of these is the Great Barranco below the Western Breach and the two Barrancos on the east side of Mawenzi. Kibo's last volcanic eruption was 200 years ago. Today, it is classified as dormant rather than extinct.

GLACIOLOGY

Despite being 3 degrees south of the equator, Kilimanjaro has numerous glaciers. Glaciers have also been an awesome force in shaping Kilimanjaro, especially the youngest peak, Kibo. Previously Kibo would have been covered by a vast ice cap, over 100 meters deep in places, and glaciers moving down the slopes breached the crater rim, and as they crept their way down the mountain left their distinctive u – shaped valleys, flanked and fronted by moraine ridges.

From pictures taken in 1912 compared to the present day it has been observed that Kilimanjaro has lost in excess of 75% of its ice cover, although the impressive ice cliffs on the northern and eastern side remain as do glaciers on the south and south western flanks. If the present rate of recession continues the majority of the glaciers on Kilimanjaro could vanish altogether in the next few years.

HISTORY

Given the fossil and bone evidence in the region, such as Olduvai Gorge, Kilimanjaro has no doubt been host to man and his predecessors long before written records first detailed the snow-clad peak. Stone bowls and other artifacts dating back some 2000 years have been found, and many artifacts have been found relating to the incumbent Wachagga tribe that lived in the area for at least 400 years continue to dominate large swathes of Kilimanjaro's slopes. Maasai are also prominent on the West and Northern slopes and they are believed to have arrived after the Wachagga peoples and came to dominate much of Northern Tanzania.

The Mountain was a landmark for Arab and Chinese traders. The earliest historical references to the mountain (described as a snow island in the sky), appear in the writing of Ptolemy, a Graeco-Roman polymath, or a man of many talents.

The first westerners to see Kilimanjaro were missionaries. Johann Rebmann first set eyes on the mountain on the 11th of May 1848. His finding was reported in the Church Missionary Intelligencer in April 1849 and sparked strong debate at the Royal Geographic Society in London as to its existence and whether there was snow on its summit.

It was 13 years later that Rebmann's findings were validated. In 1861 Baron Karl Klaus von der Decken approached Kilimanjaro from Mombasa with geologist Richard Thornton.

Thornton estimated the height to be between 19,812 and 20,655 feet and the group did attempt to ascend although they did not pass into the heath zone (lower forest zone).

The following year in 1862 Baron K. K. von der Decken returned this time joined by Otto Kersten. They reached 14,200 feet before being turned back by bad weather and uncooperative porters.

Thereafter Charles New, an English missionary, attempted again in 1871 and reached the snowline. In 1884 Harry Johnston claims to have reached almost 5000 meters (4994 m) but his claim has been questioned. In June 1887 Count Samuel Teleki reached 5575 meters, and in July of that same year Hans Meyer and Herr von Eberstein reached 5575 meters on the Ratzel glacier.

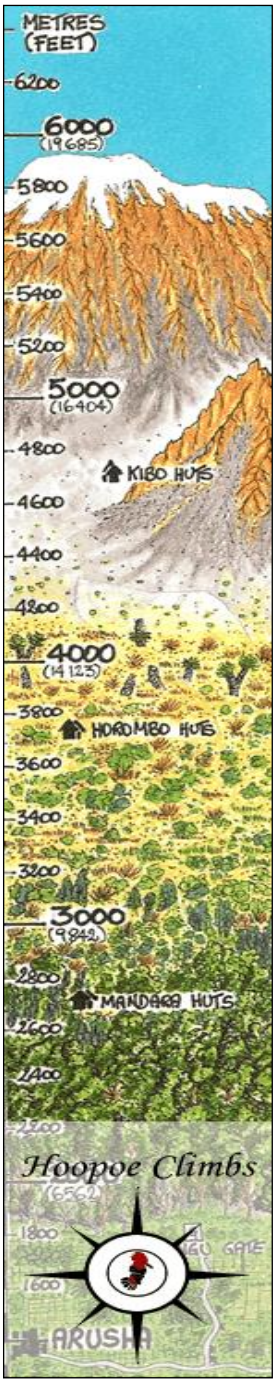
Finally, in 1889 Hans Meyer returned with alpine guide Ludwig Purtscheller and after reaching the rim on one attempt finally reached the summit on 5th October and named it Kaiser Wilhelm Spitze.

Subsequent attempts by several people provided many of the names for features on the mountain, from Glaciers to landmarks key points. Interestingly Hans Meyer, returning in 1889 with Herr E Platz, noticed a significant retreat of the glaciers (by around 100 meters). The first woman to reach the summit was Frau von Ruckteschell in 1914. Mawenzi was first summated in 1912.

One of the key points in the modern History of Kilimanjaro was the climb in 1961 in Tanzania's year of Independence when the freedom torch was placed at the summit as a symbol of hope for all Africa. The summit was renamed Uhuru Peak, Uhuru meaning 'Freedom'.

Today many thousands of people visit and attempt to reach Uhuru peak, with vast variation in age, physical ability and with vastly different reasons and expectations. Despite being the highest free-standing mountain in the world and the highest mountain in Africa, Kilimanjaro remains entirely accessible to a great variety of people.

FLORA AND FLAUNA



Kilimanjaro's terrain can be divided into 4 core eco-zones: the lower slopes and rainforest, the low alpine, the high altitude desert, and the Arctic ice cap. Each zone has its own distinct weather conditions, fauna, and flora. As a rule, conditions become harsher, temperatures cooler, and plant, bird, and animal life sparser as you ascend higher up the mountain, but all of Kilimanjaro's zones have their own unique beauty.

FOREST ZONE

The Kilimanjaro forest reserve was created in colonial times in 1940 as a water catchment reserve and is administered by the Forestry Dept. The Kilimanjaro National Park encompasses the whole mountain above the forest reserve excepting a corridor of forest comprising part of the area from Marangu to Mandara hut. Most of the forest zone starts at about 1800 metres and extends to 2,700 metres.

The nature of the forest depends on elevation and aspect and the more southern & eastern slopes are wetter than the Northern and western. Generally, as one ascends the rainfall pattern increases to an optimum then decreases again with further elevation and this is one factor in the differences or zoning of the forests with marked changes in speciation as one ascends/descends. Another factor is temperature and from 2,800-meter zone in the wetter Eastern forest & the 3000-meter zone in the west the forest gives way to sub-alpine heathland. Fingers of montane forest are found in the sheltered and steeper riverine areas below 1,800 meters and typical forest vegetation of Wild Mango (Tabernaemontana pachysiphoni) and Quinine tree (Ravolvia caffra), & Albizia gummifera are found on river banks, often as forest remnants outside the reserve. Similarly fingers of forest, mostly Hygaena abyssinica extend into the heathland following sheltered river valleys.

The highest rainfall in the wettest areas may exceed 4000mm p.a. and as low as 900mm on the Northern slopes. Mean temperatures are from a mean of 16degrees C at 1,500 m to 7 degrees C at 3000m. The upper limits of the forest are subject to frost and such species as Hygaena abyssinica and Juniperus procera and Podocarpus falcatus in the West & Podocarpus latifolius in the East are able to survive milder frost. The upper forest margin is determined by a mixture of soil type, exposure to regular and more severe frost. Therefore, exposed ridges with thin soils and an exposed aspect are more quickly devoid of trees.

Fire is another factor which drives back the forest boundaries particularly when fire rages through the heather zone taking with its mature trees on the drier forest edges as can be seen on leaving the forest above tree camp on the Lemosho route.

The forest zone shows the most biodiversity and the understory of herbs and shrubs is best developed in the wetter forest whereas the Western forest generally has more glades and is more open. The presence of elephant and buffalo in the drier forest undoubtedly helps to keep the understorey less thick.

However, the formation of the glades so typical of the Lemosho route are not understood nor the reason for the die off in places of large numbers of Hygaena trees of various ages. This could be an indicator of rapid climatic change and changes in the water table.

The soils are derived from Volcanic rocks both ashes and basalt lavas and are mostly andesites. The Lemosho ascent through the drier western forest is in marked contrast to the descent after (hopefully) having summitted, through the more Southern wet rain forest. Therefore, for any person with botanical leanings or simply wanting to enjoy some of the least spoiled forest on the planet in the most beautiful surroundings will find this route takes a lot of beating!!!

The forests are home to great biodiversity, mammals great and small beautiful and brightly coloured sunbirds like the noisy Eastern double collared sunbird and many birds adapted to the forest environment from the friendly & pretty Abyssinian ground thrush which can be found in and around Tree camp scrounging. Then there are skulkers and LBJ's (Little brown jobs) that disappear into the undergrowth before they can be readily identified.

The Lemosho route is entered by checking in at Lemosho gate then driving through introduced pine & Eucalyptus plantation forest. A great chunk of pristine endemic forest was cleared in colonial times to make way for growing fast growing introduced soft woods. While this agro forestry has served the country well it has been at the expense of biodiversity and if at least 50 % had been given over to indigenous hard woods these hardwoods would now be worth millions of dollars as hard woods are so much scarcer now. However, in 1940 it might have seemed that there was enough hard wood around the world to last forever.

Another downside of plantation forest is the lack of understory which is cleared and or close planting precludes any sunlight below the pines. The resulting decrease in humous content means less water retention by the soil therefore reducing the amount of water reaching streams through springs.

The area below the present plantation forest was also cleared to make way for wheat farms and West Kilimanjaro had about 17 large-scale European owned farms in colonial times mostly wheat farms & these were farmed by mostly people of British descent. During the 1970's in the socialist era these productive farms were taken by the government of the day. These farms are passed as the approach is made to Lemosho gate before entering the forest.

THE CLIMB AND VEGETATION ZONES LEMOSHO ROUTE

Lower Altitude Dry Montane Forest

The drive to the start point takes one through Pine and Eucalyptus plantation forest with forest remnants such as Pillar trees, Cassipourea malosana and the very interesting looking Euphorbia nyikae which unlike the E.candelabra has a straight bole only branching at its canopy as it seeks to compete with other tall forest trees.

Other forest remnants before the forest proper are Macaranga kilimandscharica, Podocarpus and Olea capensis, Cussonia holstii, often riverine.

Height at start of climb 2,383 meters. The canopy of the trees can be 20 meters high but with emergents that are even taller. The most obvious trees at the start are the Hygaena abyssinica trees. On the edge of the parking place is a shrubby tree Pyschotria kirkii that is related to coffee in the family Rubiaceae.

The climb from the start is quite steep and soon Hygaena becomes mixed with fine specimens of Podocarpus one of two indigenous conifers and Nuxia congesta, found on other mountains including Ngorongoro has a fluted trunk which looks like a jumble of trees gathered together and crudely joined to form one large giant of a tree.

And in the first most significant sized glade is a forest Commiphora eminii that is a small tree at 2367 meters (03 degrees 00 40 South 037 degrees 09. 24 East. If you have a GPS!!!!). The roots of this plant are used by the Meru tribe as an aphrodisiac.

The beautiful bright orange single flower of a creeper covers low underbrush where it is exposed, and sunny & the flower is borne singly but often in number wherever the creeper is strong. Commonly known as Black- eyed Susan. Rhamnus prunoides is an interesting tree that is quite common and has bright shiny leaves. The nettle is found along the side of the path and any foray off track must be cautious.

The beautiful indigenous and endemic flower Impatiens kilimandscharica is found although not in the profusion of the wetter south and eastern slopes of the mountain.

Mosses (Usnea) festoon the trees and help to trap moisture from swirling mist and can account for 10-20% of the moisture that reaches the ground in the forest.

Ferns (Pteris catopetra) are common particularly in moister parts of the forest and can indicate boggy conditions. The blackberry, Rubis, very similar to its Northern hemisphere relative climbs in thorny tangles and provides fruit for birds and animals and are much liked by the porters.

Rhamnus prunoides at 03 degrees 26 South 037 degrees 09.19 East is used by the Maasai who make a concoction from the roots to cure rheumatism and arthritis. The Meru use the plant in medicine too to cure gonorrhea. Teclae nobilis (a member of the same family as the orange tree) is common & it is a straight trunked tree found on all the northern mountains.

A small shrub Embelia shimperii found along the path in places can be used to cure worm infestation and the leaves have a tart not unpleasant taste. A species of Dracaenaceae is found before Tree camp and this is commonly used to mark boundaries by the Warusha and it as taboo to claim or use land so demarcated.

In Chagga culture we are informed, the plant is used to make peace. In a dispute a sprig is covertly secreted into a person's pocket or clothing as a charm. It is said that an obdurate person that has a charm so placed will on finding it make peace! A person failing to give in on an issue will similarly give in. Piper capense is very common herb that has a white catkin and is found around Tree camp and along the path.

The upper forest zone is more open and the Podocarpus and Juniperus dominate. The indigenous conifers are huge and quite stately. It is rare now to see mature trees of such grandeur and one is reminded of the Redwoods of the Western USA. Hypericum revolatum appears above tree camp amongst stands of the forest. It has bright yellow flowers. Giant heather also makes its first appearance and can be found around the second and third campsites near Tree camp.

The Forest zone ends very abruptly at 3000 meters (higher than the wetter side of the mountain) and tongues of forest are found in the deeper sheltered valleys but on slopes and hilltops it is frost that prevents tree growth.
Fire may also be a factor and one can see cedar remnants with straight bare poles still standing after the last great fire which swept through the heather zone and burning the forest margins.

The forest is home to Buffalo and elephant, bushbuck and duiker and leopard. The elephant has adapted to the mountain and have smaller more compact bodies than the lowland elephant of Amboseli. They are darker in colour and can have thin up turned tusks. The larger game is rarely seen by the climber, but their tracks are obvious and the impact they have on the vegetation is significant.

Black and white (Colobus abyssinicus) Colobus monkeys are found in small noisy bands and they communicate by a rough coughing sound that carries for miles. At night, the Cacophony of noise they produce close to camp can be quite unnerving. Their long white mains and long white tails help to keep troop members in touch as they move through dense foliage of the forest canopy.

The monkey is vegetarian so must spend most of its day moving through the trees eating leaves of its preference. Less common are blue monkeys which travel in small bands and these have a more catholic diet & eat fruit, especially figs of the Ficus sycamoros and Ficus thoningei or strangler fig. They also eat insect grubs. They can be found in association with baboons on the periphery of the forest. Smaller mammals include various mongoose, genet cats, the porcupine which is a rodent, covered in quills and the giant rat.

The silvery-cheeked hornbill is frequently seen and has a raucous mocking call. The most beautiful bird to be seen is the Turaco (Hartlaubs trace). This bird has a green mantle and bright crimson underwings that show as it flits from tree to tree. Thy travel in pairs but also in small noisy parties. The call for such a pretty bird is surprisingly raucous.

Heathland

3000 meters- 4000 meters

The extremes of climate in this zone with frosty nights and sometimes very hot days make the environment harsh and the number of species found drops dramatically from the forest. Hardy heather, Ericacea arborea, Philipa excelsa and hypericum revolatum (same family as St. John's Wort) dominate.

The area has suffered greatly from extensive fire in recent years and the ericacea have often been burned too form stumps, but regeneration is occurring so that the vegetation is now once more shoulder high and more in sheltered areas.

Protea species (national emblem of South Africa) are also found but are not as common as on the moister south and east of the mountain (on Kilimanjaro Protea Kilimandscharica is the most commonly found species). It is also more common on the north facing dry heathland where fire is more common as the plant thrives and reproduces better in a fire regime.

Arimacea a small blue coloured shrub with soft leaves forms under shrub and the leaves are chewed as a malaria cure, for fever, pneumonia, and flu. The taste of this leaf is incredibly bitter. As the heathland diminishes it gives way to the Alpine zone & flora.

The Alpine Zone

As the edge of the former Shira caldera rim is reached at 3500 meters the view across the Shira plateau is of moorland. This zone extends to 4-5000 meters depending on exposure. This zone is even more intimidating to plants than the previous zone. Not surprisingly there are less species of plant in this zone. Many of these are of the same family. Rainfall and or sleet or snowfall but the annual precipitation is low. It freezes at night and frost stay on the ground into morning but when the sun shines it heats up quickly. The huge variances in temperature cause solifluction or soil creep that can tear apart roots. The lack of atmosphere to screen harmful UV rays means that light is intense and destructive to life. Grasses tend to grow in clumps and are so called tussock grasses. The outer margins are the oldest and die off to form a protective shield around the younger growing points. Examples are Festuca pilgeri but other grasses are Pentaschistis which has a reddish inflorecence and Agrostis. The most obvious and numerous plants are the everlasting flowers of the Helichrysum family, and they have silvery petals and whitish leaves to reflect the sun's rays.

Yellow is a common colour of flowering plants and these include Sclerophylous, a shrub, Senecio kilimanscharica & Senecio amplificatus. Carduus keniensis is a cactus looking plant that has fine prickly hairs that serve to reflect light.

The Lobelia that is found in sheltered valley bottoms is very different and striking is Lobelia deckenii and reaches 3 meters in height. It closes the leaves around its central core at night and exudes a mucilaginous or slimy substance over the core rosette of leaves. The slime freezes but in so doing the growing point of the plant underneath is protected.

The giant Senecio, Senecio kilimanjari and Senecio cottoni are tree like and grow to over 5 meters high. Lobelia and Senecio are best seen after lava tower and approaching Barranco camp.

The backdrop of snowcapped Kibo and the Barranco wall with Lobelia and Senecio in the foreground are scenes to remember for a lifetime. The Shira plateau has resident buffalo and the writer has tracked these from watering places near Fishers camp. They are shy and live in small herds. They have more hair than their lowland cousins.

They are also reddish in colour. Eland also lives on the plateau. Whether this is seasonal or sporadic is yet to be determined, but tracks are quite easy to find on the Shira plateau near Shira 1 camp.
Both species live on the grasses found in the more sheltered moister valleys and have become accustomed to the cold.

There are many rodents mostly species of mice and they are food for the civet and serval cat. Most of the scats found along the pathway are civet droppings and they are full of rodent hair. The civet marks its territory by leaving its calling card at frequent intervals.

Klipspringer is very common on the plateau and hide amongst the jumbles of volcanic rock. They are preyed upon by the leopard that is often melanistic and can appear almost black. The Lobelias and Senecios are visited by sunbirds and cross-pollinated by them. The scarlet tufted malachite sunbird is beautiful and has no fear of man and can be seen at close quarters if one is lucky. It has a melodic call.

Falcons are found in this area and occasionally the rare lammergeyer glides overhead in search of carrion. The lammergeyer picks up bones and carries then drops them from a height so that they fracture on the rocks below. They can then eat the marrow from the shattered bones. Augur buzzards are also regularly seen.

The alpine chat is a friendly little bird that will feed from scraps of picnic lunches as weary climbers rest on their steep ascent. The ubiquitous streaky seedeater is a small plain bird that is also common. In the thicker stands of heather many warblers are found including visiting palearctic migrants. The large white naped raven hangs around campsites scrounging for scraps. It has an ugly guttural call like many corvids. This bird appears to have an amazing tolerance for altitude, and numerous ravens has been seen soaring on the edge of Kibo's crater rim near the Western Breach, playing in the wind currents in a hectic game of chase. Watching them acting so seemingly energetically defies belief when you are halfway up the Western Breach!

Other common birds include the common stonechat. The large Alpine swift is master of the air and fly's past at high speed on the occasional flurry of wing beats and at close range one can hear the thin air being cut by the strong wing beats.

Desert

4000 meters to 5000 meters

Only the hardiest of plants survive. It freezes at night, but it can be 40 degrees c in the sun and moisture is scarce. Not surprisingly only the hardiest of life forms survive. But amazingly 55 species of plant survive. However, wherever there is more shelter from the elements such as the lee of larger rocks and in small depressions or against the wall of a scarp that is out of the wind flowering plants grow. Beautiful orange coloured lichens grow on the rocks.

Tussock grasses such as Pentaschistis minor survive and rosette plants are found near them as the tussock grasses afford them protection. The rosette is close to the ground and therefore not exposed while it has a strong taproot that can cope with soil movement. The white petalled Arabis alpina is a welcome surprise and grows wherever there is sufficient shelter and can be found between Barranco and Barafu camps.

The descent from the Kibo summit to Mweka camp is very rapid…. The climber is exhausted and probably has little time contemplate the beauty of the surroundings and the zones on the descent are little different from the Lemosho ascent however there is more moisture on this side of the mountain so that at Millennium camp the Heather zone has taller heather and Hypericum revolatum.

At 3035 meters at Mweka camp the giant heather is at its tallest and shortly after camp on the Hygaena and Podocarpus appear and the Podocarpus here is another species with lanceolate leaves. The cedar Junipers procure is also common in the higher reaches of the forest, but the giants seen on the western slopes are absent. The Olive Olea europa africana is more common on the dry side of the mountain but a few are found here on the forest margins. Lower down in the forest the appearance of Ocotea usambarensis is a welcome sight as the trees are of huge girth and fine remnants of a part of the forest that was once logged for its lovely red hard wood. (Camphor wood). Some trees are 150 feet tall and as the gate is approached much of the forest is regenerated Oclea. The flowers in this moister part of the mountain are stunning and impatiens species are most obvious and violets like Viola eminii. The Tree Fern Cyanthea species are common wherever there is plenty of ground water and shelter.

GEAR LIST – KILIMANJARO

INTRODUCTION

In this document you will find a list of items we believe to be essential for your ascent and a list of items that will make your trip more comfortable. While what follows is an extensive list, clothing and equipment are also a personal thing. For example, some people prefer a down jacket to a fleece, others prefer a camelback to drinking from a water bottle. Therefore, when reading through the document keep this in the back of your mind.

EQUIPMENT – HIRE OR BUY?

Trekking can be an expensive hobby to undertake and we fully understand tackling a high-altitude summit could well be a once in a lifetime adventure for some people. So where does that leave you? Most people already have a lot of the clothing required as they tend to hike as a hobby already. This leaves some of the more technical equipment like head torches, poles, and layers to handle the extreme cold only left to buy.

We would recommend buying your own pair of boots (for reasons see section on footwear). Anything else can be rented and is down to your own personal choice. If hiring equipment though, please make sure it works beforehand and that you are comfortable using it. For example, if you have rented poles make sure that they extend fully, and the latches are not broken.

We have some kit to hire in Tanzania, but it should only ever be used for people who have lost or forgotten their own equipment as we cannot guarantee we will have the kit spare.

LAYERS

Layering your clothes is essential when trekking anywhere and no less so on the mountain. By dressing in multiple lighter layers, as opposed to a single thick or bulky layer, the hiker can better adapt to a wider range of conditions. Layers can be removed or added according to the weather and/or exertion level at any given time.

Ideally your clothing selections should complement each other so that each layer works together as part of a flexible overall system designed to maximize efficiency and comfort.

IMPORTANT: If the conditions demand, you should be able to comfortably wear all your clothing simultaneously. When it comes to the outdoors, there are three principal layers: **Base Layer, Mid Layer** and **Outer Layer**.

BASE LAYER

The foundation layer worn next to the skin.
Keeps the skin dry by wicking away moisture.
Ideally it should be lightweight and dry quickly.
Avoid cotton which clings to the skin when wet, does not insulate and takes longer to dry.

MID LAYER

The warmth or insulation layer/s. It keeps the warm air in and the cold air out.
Can be multiple items, depending on the temperature and conditions.
Common examples include fleece, down or synthetic insulation.
Fleeces are good for quick drying and breathable warmth whereas down is extremely effective in colder temperatures and great for low intensity activity or keeping warm in camp at night.

OUTER LAYER

Provides protection from the wind, rain, and snow.
It should be both windproof and waterproof but also breathable to allow your base and mid layer to wick the moisture and heat away from your body.

FOOTWEAR

Footwear is, without a doubt, the most personal and important choice when it comes to trekking. Your jacket: a bit loose or a bit tight, for the most part it will still do its job. Your shoes however, too small and they could steal your toenails; too big and they will cause you irritating blisters. They are the most important piece of kit in one's outdoor arsenal should not be sniffed at.

So how do we choose the right shoes for a mountain like Kilimanjaro? Especially with the hundreds of different options available staring blankly back at you from the shelves in the store. It can be a daunting experience even for the mountain savvy but after reading this section on choosing your footwear, hopefully you will be better armed when entering that mountain footwear arena.

GENERAL ADVICE

Go to a reputable adventure shop who knows what they are talking about when it comes to footwear. Tell the shop attendant where you plan to use your boots and ask for his advice. Your boots should have ankle support. Mountains are an extremely easy place to roll or even break an ankle. Not something you want to do on day 1 after travelling so far to conquer a mountain only to be defeated at the first hurdle; especially when it could have been so easily avoided.
Do not rush buy your boots. Your boots are a big investment, if you do not feel completely happy with them then try a different pair.

OPTIONS

It is said that each pound (0.45kg) on your feet equates to at least five pounds (2.3kg) on your back. That should not mean however that you sacrifice other important qualities to save a few grams on your feet. In our minds there are only really 2 options when it comes to mountain boots. We see a lot of people on the mountain with a third option, which works fine almost all the time. However, if the weather closes in, the temperature drops and the rain clouds break, it will be the extremities of the body that are hit first.

The 3 options for mountain and high-altitude trekking are:

B2 Alpine Boots

Designed specifically for the mountain environment
Weight: 1kg (2.2lbs) and up
Stiffened mid-sole
Higher ankle profile
Thicker upper with the facility to attach crampons
Great for someone who climbs mountains regularly and ventures above the snow line
Expensive as more technical than other options.

Heavyweight Boots

Usually all-leather.

Weight – 1.5 kg (3.3 lbs.) and up. Considerably more if water gets inside after days of walking through mud and crossing rivers.

Generally, require a long break-in period.

The most durable, waterproof, and warmest of all trekking footwear.

Can be expensive

Lightweight Boots

Generally, weigh between 1 (2.2 lbs.) and 1.5 kg (3.3 lbs.).

Most popular footwear for backpackers.

Often made from a fusion of synthetic materials, suede, and occasionally split-grain leather.

Require very little break-in time.

Comfier, more breathable, and dry quicker than their heavier equivalents. Less so than trail runners and running shoes.

Most high-end models come with a waterproof-breathable lining. Such linings usually work OK whilst the shoe is new but lose their effectiveness after repeated wear.

Not as durable as heavier, leather models, but more durable than trail runners.

THE MOUNTAIN

Now that we have discussed the types of boot, let us look more closely at the terrain we can expect on mountains like Kilimanjaro.

- **Temperature -** Varied. It can be as high as mid 20's (°C) during the day in the lower sections and down to -25°C (including wind chill) at the summit. Our advice would be to plan for the cold as it is much easier to deal with hot feet than a case of frost nip at the summit.
- **Rain -** Rain is highly likely at some point at least during your hike on the mountain. Gortex or a similar waterproof boot is essential for your trek to keep your feet dry and warm.
- **Snow -** Depending on the time of year you intend to climb will decide the amount of snow that there is at the higher elevations. This is where the B2 Boot comes into its technical element as you can attach crampons however, you can also purchase ice grippers, which will fit any non-technical boot. When walking on snow for a period, the cold WILL penetrate the boot so it is just as essential to have a good pair of thermal socks inside your boot as well.
- **Your Feet -** Your feet are unique to you for several reasons and therefore a notoriously difficult subject to advice on. Depending on the type of arch you have, the length of your toes, the width of your foot and even the past injuries you have sustained all has a huge bearing when walking.

The gold standard of advice on all matters to do with feet would obviously come from a podiatrist and if you are serious about hiking we would strongly suggest an appointment with one as your feet can easily affect the rest of your body if not looked after correctly. It is worth mentioning that different makes of shoes will fit different types of feet better. For example, one make will suit a wider foot whereas another will suit a thinner foot more.

- **Size -** Over the course of a long hike your feet WILL swell. This is especially true when hiking in hot conditions. Shoes that feel nice and snug in the store, will most probably feel tight and uncomfortable after a few long days on the trail. Many salespeople will recommend a gap of one finger between your heel and the back of the shoe. This is a personal preference, but you can go up to 2 fingers even. It is easier to wear another thin pair of socks until your feet swell than to have boots that are too tight. Tight boots also cause your toes to hit the front of the boots during the descent, which after time can lead to losing a toenail or 2!

  If possible, try the shoes on with the same socks you will be wearing on the hike. Before purchasing walk up and down stairs, run around the store and wiggle your toes vigorously. If there is any tightness whatsoever, the shoes are too small. Most decent stores will have an area where you can simulate walking up and down hills. Some stores will also let you take the shoes home and walk around inside as much as you want to make sure the fit is correct, which is worth considering. Remember, your feet WILL swell.
- **Break Them In -** No matter what your choice in footwear, go for at least a few hikes before embarking on a multi-day trek. Your feet will need time to adapt. This especially holds true if you purchase boots, which may require weeks of regular wear before they feel completely comfortable. Blisters are much easier to deal with new boots after a single day's trekking. Blisters on the mountain, when you have another 4 days to hike,6 can be much more bothersome!

ESSENTIAL ITEMS

- **Solid Hiking Boots**: Boots should have high ankle support with a solid Vibram, or equivalent, sole. Gore-Tex, or other waterproofing, is recommended to have for wet days as well as added insulation. Be sure to break your boots in at least 4 WEEKS prior to departure. Additionally, bring a spare set of laces.

- **Sunglasses**: Your sunglasses should have 100% UV protection and should reduce glare as well as visible light. The frames should be lightweight with a wrap-around design for enhanced grip and staying power. Additionally, side shields are recommended to block peripheral light.

- **Day Pack**: The most important things to look for if you need to purchase one is size (30L is good), hydration pack compatibility, hip and chest straps, frameless, good padding on shoulder straps, and water bottle holders.

- **Water/Wind proof Jacket**: Your water/windproof jacket is your outer water repellent layer. Gore-Tex, seam-sealed is recommended as well as a hood for added warmth.

- **Water/Wind proof Pants**: Your water/wind proof pants will be worn on summit day as well as on rainy afternoons. These pants are essential for warmth and should be Gore-Tex lined and have lower leg zips.

- **Water/Wind proof Mittens or Gloves**: These are used for extreme temperatures and primarily worn on summit day. Be sure your gloves or mittens have a wrist cords as well as a reinforced palm to maintain grip during wet conditions. A removable liner is essential for drying, washing, and replacing.

- **2 Duffel (Soft-Sided) Bags**: Leave one bag at the hotel in Arusha to store non-essential gear when on the mountain (such as clean clothes for changing when off the mountain and for onward travel) and the other for carriage by the porters when on the mountain. Bear in mind porters cannot carry more than 20 kgs/44 lbs on the mountain so your mountain duffel does not need to be too large.

- **Things to Keep in Mind About the Essentials:** Look for items that will add less volume to your overall pack. We will be using mules to carry our equipment however they are limited in the amount each can carry. Heavy synthetic materials will be very limiting and could cause issues when packing up for the hike. If you have any questions about an item you currently own please call, or bring it to a preparation hike, and we can discuss it.

CLOTHING & LAYERING:

- **2 Pair Synthetic Warm Weather Trekking Socks:** These socks are for trekking in the warmest part of the day since they are made of a CoolMax fabric. CoolMax wicks moisture, dries quickly and breathes well, keeping your feet dry and preventing blisters.

- **4 Pair Heavier Synthetic or Wool Blend Socks:** Your wool socks are ideal for around camp when the temperature drops as well as on cold mornings. Merino wool is very comfortable and dries quickly with fewer odours than synthetic blends.

- **2 Pair Long Underwear Top:** This will be your base layer for colder mornings, evenings, and days where the temperature drops considerably. The material is lightweight, tight fitting, moisture wicking, and comfortable.

- **2 Pair Long Underwear Bottom:** This will be your bottom base layer for colder mornings, evenings, and days when the temperature drops considerably. The material is lightweight, tight fitting, moisture wicking, and comfortable.

- **Warm Pants:** These pants are ideal for evenings around the camp and cold days on the trail. Typically made of lightweight fleece, and Wind Pro material, these pants should offer the added warmth in case of cold nights or high winds on the summit.

- **Fleece Top:** This Polartec 200 weight top will provide added warmth during the evenings as well as on cold morning starts. Please look for fleece material and stay away from cotton sweatshirts. Ideally, this item is worn over the thermal base layer and underneath your water/wind proof jacket.

- **2 Pair Shorts/Pants for Hiking:** These convertible shorts/pants will be what we hike in every day. They should be of a lightweight, quick drying nylon material. Some come with UPF protection and mosquito protection.

- **2 Pair Long or Short Sleeve Shirts for The Trail:** Your trekking shirt is what we should wear early in the climb in warmer climates. The shirt is moisture wicking, light weight, and designed for multi-day hikes.

- **Mid-Layer Top:** This shirt is a long sleeve version of the one provided above. The long sleeve trail shirt offers added warmth, more protection from the sun, and an additional layer for evenings and early morning starts.

- **Warm Hat:** This fleece or wool hat is ideal for evenings and will be valuable in the event of cold weather and temperatures on the summit. The hat should be tight fitting with minimal loose ends.

- **Lightweight Gloves:** Fleece gloves are essential. Look for gloves that are Polartec 200 weight with a leather reinforced palm. For more protection wind proofing is available and will add an extra layer of warmth.

- **Balaclava:** The balaclava provides added warmth on summit day and colder evening. The balaclava should be of synthetic or wool material, light weight, and close fitting.

- **Sun hat:** Your sun hat should be worn at the lower camps and should provide ample coverage for the face. A full brimmed hat is good for added shade. Additionally, a neck scarf should also be considered to protect the back of the neck.

- **Waterproof Breathable Gaiters:** Your gaiters should be lightweight and durable. Look for Gore-Tex lined with the ability to fit over your boots. Velcro or adjustable sides for easy access is recommended.

- **Down Jacket:** 800 fill down jacket will add much need warmth for cold evenings as well as the added layers for summit day. Down is recommended for its compressibility and is comfortable around camp in the early nights on the climb. Patagonia, Mountain Hardware, Marmot, and North Face are branding the guides wear.

- **Things to Keep in Mind for Clothing:** Less is more!!! It is important to bring the essential gear discussed above, but it is more important to refrain from bringing items that are not recommended. Items to stay away from are cotton socks, jeans, multiple pairs of shoes, and heavy sweatshirts. Look for items that are moisture wicking and quick drying fabrics as opposed to cotton fabrics.

ADDITIONAL ITEMS:

- **Yaktrax**: Yaktrax Walk Traction Cleats for Walking on Snow and Ice. These are important for when the weather calls for more traction and grip on the mountain.

- **Head Lamp:** Petzl and Black Diamond make several models of small and efficient head lamps. Look for ones that have multiple lighting levels, LED bulbs and uses AAA batteries. Please bring at least 3 sets of spare batteries to ensure ample lighting on your summit attempt.

- **Camp Shoes (Teva, Crocs, Sandals):** These are great for around camp after a long day on the trail. These can also be used for creek crossings that may be higher than the boot. Flip flops work well in warmer climates but are not as effective during cold nights.

- **Hydrator:** Hydrators are ideal when hiking for several hours because they enable you to drink slowly and frequently. 2-3 litres are a good size and should fit easily into your pack. All Camelbaks come with a bite valve, or on/off switch, as well as a large access port for filling. You must bring a **NEOPRENE SLEEVE** for the hose to prevent freezing.

- **Bug Spray:** DEET based products work well and we find that the spray on versions last longer and are less messy. 4-6-ounce repellents that are perspiration and splash resistant is great.

- **Sunscreen:** 30 SPF or higher is recommended as well as waterproof and sweat proof. 8 ounces will be plenty, and we typically carry one with 45+ SPF for our faces and a 30 SPF for other exposed areas. Banana Boat, REI, Kinesis and All Terrain are good options.

- **2 Wide Mouth Water Bottles:** 2 x 1 litre water bottle is essential for hydrating at lunch, around the camp, and refilling throughout the day. Stay away from glass and heavy metals and look for Lexan for durability.
  For males, a third water bottle should be considered for use as a potty at night and must be labelled accordingly.

- **Dry Bag:** A 20 litre + dry bag is great for ensuring your personal items are safe in case of rain. Cameras, wallets, money, and any other valuables can be kept dry at all times. It could also be used as a pillow by filling it with clothes and wrapping it in a fleece jacket.

- **Pack Cover:** The pack cover is an additional item we recommend everyone carry in case we encounter heavy rains. The pack cover should have a drawstring cord and elastic edges to fit firmly over your bag. A 40-litre cover will work well on any day pack.

- **Trekking Poles:** Collapsible poles are great for steep downhill terrain and assistance up hill. If you have knee problems, they reduce the impact on your joints by 20-30%. A nice soft foam grip will help prevent blisters and the ones with an aluminium shaft are durable and light weight.

- **Camp Towel:** The camp towel should be of a polyester nylon blend that dries quickly and compacts tightly in your pack. The large (50 X 27 inches) is a good size and can be used to wash up at the end of the day. Stay away from house or beach towels.