Mount Kilimanjaro

**Mount Kilimanjaro** ([/ˌkɪlɪmənˈdʒɑːroʊ/](https://en.wikipedia.org/wiki/Help:IPA/English))[[4]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro" \l "cite_note-4) is a [dormant](https://en.wikipedia.org/wiki/Volcano#Dormant) [volcano](https://en.wikipedia.org/wiki/Volcano) in [Tanzania](https://en.wikipedia.org/wiki/Tanzania). It has three [volcanic cones](https://en.wikipedia.org/wiki/Volcanic_cone): Kibo, Mawenzi, and Shira. It is the highest [mountain in Africa](https://en.wikipedia.org/wiki/African_mountains) and the highest single free-standing mountain above sea level ([Mauna Kea](https://en.wikipedia.org/wiki/Mauna_Kea) measured from the sea floor is higher) in the world: 5,895 metres (19,341 ft) above sea level and about 4,900 metres (16,100 ft) above its plateau base. It is the [highest volcano](https://en.wikipedia.org/wiki/List_of_volcanoes_by_elevation) in [Africa](https://en.wikipedia.org/wiki/Africa) and the [Eastern Hemisphere](https://en.wikipedia.org/wiki/Eastern_Hemisphere).

Kilimanjaro is the [fourth most topographically prominent](https://en.wikipedia.org/wiki/List_of_peaks_by_prominence) peak on Earth. It is part of [Kilimanjaro National Park](https://en.wikipedia.org/wiki/Kilimanjaro_National_Park) and is a major hiking and climbing destination. Because of its shrinking glaciers and ice fields, which are projected to disappear between 2025 and 2035, it has been the subject of many scientific studies.

Geology and geography[[edit](https://en.wikipedia.org/w/index.php?title=Mount_Kilimanjaro&action=edit&section=2" \o "Edit section: Geology and geography)]

Kilimanjaro is a large dormant [stratovolcano](https://en.wikipedia.org/wiki/Stratovolcano) composed of three distinct volcanic cones: Kibo, the highest; Mawenzi at 5,149 metres (16,893 ft);[[15]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro" \l "cite_note-15) and Shira, the lowest at 4,005 metres (13,140 ft).[[16]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Kaser-16) Mawenzi and Shira are [extinct](https://en.wikipedia.org/wiki/Volcano#Extinct), while Kibo is [dormant](https://en.wikipedia.org/wiki/Volcano#Dormant) and could erupt again.[[17]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-NonnottePhilippe-17)

Uhuru Peak is the highest summit on Kibo's crater rim. The [Tanzania National Parks Authority](https://en.wikipedia.org/wiki/Tanzania_National_Parks_Authority), a Tanzanian government agency,[[1]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-TNP-1) and the [United Nations Educational, Scientific and Cultural Organization](https://en.wikipedia.org/wiki/United_Nations_Educational,_Scientific_and_Cultural_Organization)[[18]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-UNESCO-18) lists the height of Uhuru Peak as 5,895 m (19,341 ft), based on a [British survey](https://en.wikipedia.org/wiki/Ordnance_Survey) in 1952.[[19]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Digital-19) The height has since been measured as 5,892 metres (19,331 ft) in 1999, 5,902 metres (19,364 ft) in 2008, and 5,899 metres (19,354 ft) in 2014.[[19]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Digital-19)

A map of the Kibo cone on Mount Kilimanjaro was published by the British government's [Directorate of Overseas Surveys](https://en.wikipedia.org/wiki/Directorate_of_Overseas_Surveys) (DOS) in 1964 based on aerial photography conducted in 1962 as the "Subset of Kilimanjaro, East Africa (Tanganyika) Series Y742, Sheet 56/2, D.O.S. 422 1964, Edition 1, Scale 1:50,000".[[20]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-20) Tourist mapping was first published by the [Ordnance Survey](https://en.wikipedia.org/wiki/Ordnance_Survey) in England in 1989 based on the original DOS mapping at a scale of 1:100,000, with 100 feet (30 m) contour intervals, as DOS 522.[[21]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Stewart2012-21) West Col Productions produced a map with tourist information in 1990, at a scale of 1:75,000, with 100 metres (330 ft) contour intervals; it included inset maps of Kibo and Mawenzi on 1:20,000 and 1:30,000 scales respectively and with 50 metres (160 ft) contour intervals.[[21]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Stewart2012-21) In recent years, numerous other maps have become available, of various qualities.[[2]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-map-2)

**Volcanology**[[edit](https://en.wikipedia.org/w/index.php?title=Mount_Kilimanjaro&action=edit&section=3" \o "Edit section: Volcanology)]

The volcanic interior of Kilimanjaro is poorly known because there has not been any significant erosion to expose the [igneous](https://en.wikipedia.org/wiki/Igneous) strata that comprise the volcano's structure.[[22]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Preliminary-22)

Eruptive activity at the Shira centre commenced about 2.5 million years ago, with the last important phase occurring about 1.9 million years ago, just before the northern part of the edifice collapsed.[[17]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-NonnottePhilippe-17) Shira is topped by a broad [plateau](https://en.wikipedia.org/wiki/Plateau) at 3,800 metres (12,500 ft), which may be a filled [caldera](https://en.wikipedia.org/wiki/Caldera). The remnant caldera rim has been degraded deeply by erosion. Before the caldera formed and erosion began, Shira might have been between 4,900 and 5,200 m (16,100 and 17,100 ft) high. It is mostly composed of basic lavas, with some [pyroclastics](https://en.wikipedia.org/wiki/Pyroclastics" \o "Pyroclastics). The formation of the caldera was accompanied by lava emanating from [ring fractures](https://en.wikipedia.org/wiki/Fracture_(geology)), but there was no large scale [explosive activity](https://en.wikipedia.org/wiki/Explosive_eruption). Two cones formed subsequently, the [phonolitic](https://en.wikipedia.org/wiki/Phonolite" \o "Phonolite) one at the northwest end of the ridge and the [doleritic](https://en.wikipedia.org/wiki/Diabase" \o "Diabase) Platzkegel in the caldera centre.[[17]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-NonnottePhilippe-17)[[22]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Preliminary-22)[[23]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-JohnBarryDawson-23)

Both Mawenzi and Kibo began erupting about 1 million years ago.[[17]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-NonnottePhilippe-17) They are separated by the Saddle Plateau at 4,400 metres (14,400 ft) elevation.[[24]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-AnAscentOfKilimanjaro-24): 3

The youngest dated rocks at Mawenzi are about 448,000 years old.[[17]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-NonnottePhilippe-17) Mawenzi forms a horseshoe-shaped ridge with [pinnacles](https://en.wikipedia.org/wiki/Rock_pinnacle) and ridges opening to the northeast, with a tower-like shape resulting from deep erosion and a [mafic](https://en.wikipedia.org/wiki/Mafic) [dike swarm](https://en.wikipedia.org/wiki/Dike_swarm). Several large [cirques](https://en.wikipedia.org/wiki/Cirque) cut into the ring. The largest of these sits on top of the Great Barranco gorge. Also notable are the East and West Barrancos on the northeastern side of the mountain. Most of the eastern side of the mountain has been removed by erosion. Mawenzi has a [subsidiary peak](https://en.wikipedia.org/wiki/Subsidiary_peak), Neumann Tower, 4,425 metres (14,518 ft).[[17]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-NonnottePhilippe-17)[[22]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Preliminary-22)[[23]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-JohnBarryDawson-23)

[](https://en.wikipedia.org/wiki/File:Mount_Kilimanjaro_Dec_2009_edit1.jpg)

An aerial view of Kilimanjaro in December 2009.

Kibo is the largest cone on the mountain and is more than 24 km (15 mi) wide at the Saddle Plateau altitude. The last activity here, dated to 150,000–200,000 years ago, created the current Kibo summit crater. Kibo still has gas-emitting [fumaroles](https://en.wikipedia.org/wiki/Fumarole) in its crater.[[17]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-NonnottePhilippe-17)[[22]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Preliminary-22)[[23]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-JohnBarryDawson-23) Kibo is capped by an almost symmetrical cone with [escarpments](https://en.wikipedia.org/wiki/Escarpment) rising 180 to 200 metres (590 to 660 ft) on the south side. These escarpments define a 2.5-kilometre-wide (1.6 mi) caldera[[25]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro" \l "cite_note-Glaciers_of_Middle_East-25) caused by the collapse of the summit.

Within this caldera is the Inner Cone and within the crater of the Inner Cone is the Reusch Crater, which the Tanganyika government in 1954 named after Gustav Otto Richard Reusch, upon his climbing the mountain for the 25th time (out of 65 attempts during his lifetime).[[26]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-26)[[27]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-27) The Ash Pit, 350 metres (1,150 ft) deep, lies within the Reusch Crater.[[28]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-28) About 100,000 years ago, part of Kibo's crater rim collapsed, creating the area known as the [Western Breach](https://en.wikipedia.org/wiki/Western_Breach) and the Great Barranco.[[29]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-29)

An almost continuous layer of lava buries most older geological features, with the exception of exposed [strata](https://en.wikipedia.org/wiki/Stratum) within the Great West Notch and the Kibo Barranco. The former exposes intrusions of [syenite](https://en.wikipedia.org/wiki/Syenite" \o "Syenite).[[22]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Preliminary-22) Kibo has five main lava formations:[[17]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro" \l "cite_note-NonnottePhilippe-17)

* [Phonotephrites](https://en.wikipedia.org/wiki/Phonotephrite) and [tephriphonolites](https://en.wikipedia.org/wiki/Tephriphonolite" \o "Tephriphonolite) of the Lava Tower group, on a [dyke](https://en.wikipedia.org/wiki/Dike_(geology)) cropping out at 4,600 metres (15,100 ft), dated to 482,000 years ago.
* Tephriphonolite to phonolite lavas "characterized by rhomb mega-phenocrysts of sodic feldspars" of the Rhomb Porphyry group, dated to 460,000–360,000 years ago.
* [Aphyric](https://en.wikipedia.org/wiki/Phenocryst) phonolite lavas, "commonly underlain by basal obsidian horizons", of the Lent group, dated to 359,000–337,000 years ago
* [Porphyritic](https://en.wikipedia.org/wiki/Porphyry_(geology)) tephriphonolite to phonolite lavas of the Caldera Rim group, dated to 274,000–170,000 years ago
* Phonolite lava flows with [aegirine](https://en.wikipedia.org/wiki/Aegirine" \o "Aegirine) [phenocrysts](https://en.wikipedia.org/wiki/Phenocryst), of the Inner Crater group, which represents the last volcanic activity on Kibo

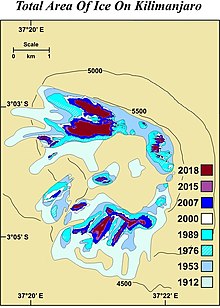
Kibo has more than 250 [parasitic cones](https://en.wikipedia.org/wiki/Parasitic_cone) on its northwest and southeast flanks that were formed between 150,000 and 200,000 years ago[[17]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-NonnottePhilippe-17) and erupted [picrobasalts](https://en.wikipedia.org/wiki/Picrobasalt" \o "Picrobasalt), [trachybasalts](https://en.wikipedia.org/wiki/Trachybasalt" \o "Trachybasalt), [ankaramites](https://en.wikipedia.org/wiki/Ankaramite" \o "Ankaramite), and [basanites](https://en.wikipedia.org/wiki/Basanite).[[17]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-NonnottePhilippe-17)[[22]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Preliminary-22)[[23]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-JohnBarryDawson-23) They reach as far as [Lake Chala](https://en.wikipedia.org/wiki/Lake_Chala) and [Taveta](https://en.wikipedia.org/wiki/Taita-Taveta_County" \o "Taita-Taveta County) in the southeast and the Lengurumani Plain in the northwest. Most of these cones are well preserved, with the exception of the Saddle Plateau cones that were heavily affected by glacial action. Despite their mostly small size, lava from the cones has obscured large portions of the mountain. The Saddle Plateau cones are mostly cinder cones with terminal effusion of lava, while the Upper Rombo Zone cones mostly generated lava flows. All Saddle Plateau cones predate the last glaciation.[[22]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Preliminary-22)

According to reports gathered in the 19th century from the [Maasai](https://en.wikipedia.org/wiki/Maasai_people), Lake Chala on Kibo's eastern flank was the site of a village that was destroyed by an eruption.[[30]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-ShearsonHyland-30)

**Glaciers**[[edit](https://en.wikipedia.org/w/index.php?title=Mount_Kilimanjaro&action=edit&section=4" \o "Edit section: Glaciers)]

[](https://en.wikipedia.org/wiki/File:Kilimanjaro-1938-uwm.png)

An aerial view of the Kibo summit of Kilimanjaro in 1938.

[](https://en.wikipedia.org/wiki/File:Kilimanjaro_dymamics2.jpg)

Kilimanjaro's glaciers retreat in 1912–2018.

Kibo's [diminishing](https://en.wikipedia.org/wiki/Retreat_of_glaciers_since_1850) ice cap exists because Kilimanjaro is a little-dissected, massive mountain that rises above the [snow line](https://en.wikipedia.org/wiki/Snow_line). The cap is divergent and at the edges splits into individual glaciers. The central portion of the ice cap is interrupted by the presence of the Kibo crater.[[24]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-AnAscentOfKilimanjaro-24): 5 The summit glaciers and ice fields do not display significant horizontal movements because their low thickness precludes major deformation.[[31]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-TraceElements-31)

Geological evidence shows five successive glacial episodes during the [Quaternary](https://en.wikipedia.org/wiki/Quaternary) period, namely First (500,000 [BP](https://en.wikipedia.org/wiki/Before_Present)), Second (greater than 360,000 years ago to 240,000 BP), Third (150,000 to 120,000 BP), Fourth (also known as "Main") (20,000 to 17,000 BP), and Little (16,000 to 14,000 BP). The Third may have been the most extensive, and the Little appears to be statistically indistinguishable from the Fourth.[[32]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-32)

A continuous ice cap covering approximately 400 square kilometres (150 sq mi) down to an elevation of 3,200 metres (10,500 ft) covered Kilimanjaro during the [Last Glacial Maximum](https://en.wikipedia.org/wiki/Last_Glacial_Maximum) in the [Pleistocene](https://en.wikipedia.org/wiki/Pleistocene) epoch (the Main glacial episode), extending across the summits of Kibo and Mawenzi.[[16]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Kaser-16)[[25]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Glaciers_of_Middle_East-25) Because of the exceptionally prolonged dry conditions during the subsequent [Younger Dryas](https://en.wikipedia.org/wiki/Younger_Dryas) [stadial](https://en.wikipedia.org/wiki/Stadial" \o "Stadial), the ice fields on Kilimanjaro may have become extinct around 11,500 years BP.[[31]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-TraceElements-31) [Ice cores](https://en.wikipedia.org/wiki/Ice_core) taken from Kilimanjaro's Northern Ice Field (NIF) indicates that the glaciers there have a basal age of about 11,700 years,[[33]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-33) although an analysis of ice taken in 2011 from exposed vertical cliffs in the NIF supports an age extending only to 800 years BP.[[34]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-34) [Higher precipitation rates at the beginning](https://en.wikipedia.org/wiki/African_humid_period) of the [Holocene](https://en.wikipedia.org/wiki/Holocene) epoch (11,500 years BP) allowed the ice cap to reform.[[31]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-TraceElements-31) The glaciers survived a widespread drought during a three century period beginning around 4,000 years BP.[[31]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-TraceElements-31)[[35]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-unabated-35)

[](https://en.wikipedia.org/wiki/File:Kibo-gro%C3%9Fer_Gletscher(big_glacier).jpg)

Vertical margin wall of the [Rebmann Glacier](https://en.wikipedia.org/wiki/Rebmann_Glacier" \o "Rebmann Glacier) in 2005 with [Mount Meru](https://en.wikipedia.org/wiki/Mount_Meru_(Tanzania)), which is 70 kilometres (43 mi) away, in the background.

In the late 1880s, the summit of Kibo was completely covered by an ice cap about 20 square kilometres (7.7 sq mi) in extent with outlet glaciers cascading down the western and southern slopes, and except for the inner cone, the entire caldera was buried. Glacier ice also flowed through the Western Breach.[[16]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Kaser-16)[[25]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Glaciers_of_Middle_East-25) The slope glaciers retreated rapidly between 1912 and 1953, in response to a sudden shift in climate at the end of the 19th century that made them "drastically out of equilibrium", and more slowly thereafter. Their continuing demise indicates they are still out of equilibrium in response to a constant change in climate over the past century.[[16]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Kaser-16)

In contrast to the persistent slope glaciers, the glaciers on Kilimanjaro's crater plateau have appeared and disappeared repeatedly during the Holocene epoch, with each cycle lasting a few hundred years.[[36]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-36): 1088 It appears that decreasing specific humidity instead of temperature changes has caused the shrinkage of the slope glaciers since the late 19th century. No clear warming trend at the elevation of those glaciers occurred between 1948 and 2005. Although air temperatures at that elevation are always below freezing, solar radiation causes melting on vertical faces. Vertical ice margin walls are a unique characteristic of the summit glaciers and a major place of the shrinkage of the glaciers. They manifest stratifications, [calving](https://en.wikipedia.org/wiki/Ice_calving), and other ice features.[[37]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-SinghSingh2011-37) "There is no pathway for the plateau glaciers other than to continuously retreat once their vertical margins are exposed to solar radiation."[[16]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Kaser-16) The Kilimanjaro glaciers have been used for deriving ice core records, including two from the southern icefield. Based on this data, this icefield formed between 1,250 and 1,450 years BP.[[38]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-38)

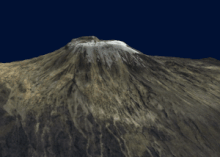
[](https://en.wikipedia.org/wiki/File:Kilimanjaro_sunrise_at_GillmanPoint(1).jpg)

A vertical glacier margin wall as seen from Gilman's Point on the crater rim at sunrise in 1998

Almost 85 percent of the ice cover on Kilimanjaro disappeared between October 1912 and June 2011, with coverage decreasing from 11.40 square kilometres (4.40 sq mi) to 1.76 square kilometres (0.68 sq mi).[[39]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Retreat-39): 423 Between 1912 and 1953, there was about a 1.1 percent average annual loss of ice coverage.[[35]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-unabated-35) The average annual loss for 1953 to 1989 was 1.4 percent, while the loss rate for 1989 to 2007 was 2.5 percent.[[35]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-unabated-35) Of the ice cover still present in 2000, almost 40 percent had disappeared by 2011.[[39]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Retreat-39): 425 Ice climber Will Gadd noticed differences between his 2014 and 2020 climbs.[[40]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-40) The glaciers are thinning in addition to losing areal coverage,[[35]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro" \l "cite_note-unabated-35) and do not have active accumulation zones; retreat occurs on all glacier surfaces. Loss of glacier mass is caused by both melting and [sublimation](https://en.wikipedia.org/wiki/Sublimation_(phase_transition)).[[31]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-TraceElements-31) While the current shrinking and thinning of Kilimanjaro's ice fields appears to be unique within its almost twelve millennium history, it is contemporaneous with widespread [glacier retreat](https://en.wikipedia.org/wiki/Retreat_of_glaciers_since_1850) in mid-to-low latitudes across the globe.[[35]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-unabated-35) In 2013, it was estimated that, at the current [rate of global warming](https://en.wikipedia.org/wiki/Climate_change), most of the ice on Kilimanjaro will disappear by 2040 and "it is highly unlikely that any ice body will remain after 2060".[[39]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Retreat-39): 430

A complete disappearance of the ice would be of only "negligible importance" to the water budget of the area around the mountain. The forests of Kilimanjaro, far below the ice fields, "are [the] essential water reservoirs for the local and regional populations".[[41]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-41)

**Drainage**[[edit](https://en.wikipedia.org/w/index.php?title=Mount_Kilimanjaro&action=edit&section=5" \o "Edit section: Drainage)]

[](https://en.wikipedia.org/wiki/File:Kilimanjaro_3D_-_version_1.gif)

A 3D model of Kibo.

Kilimanjaro is drained by a network of rivers and streams, especially on the wetter and more heavily eroded southern side and especially above 1,200 metres (3,900 ft). Below that altitude, increased evaporation and human water usage reduces the water flows. The [Lumi](https://en.wikipedia.org/wiki/Lumi_River_(East_Africa)" \o "Lumi River (East Africa)) and [Pangani](https://en.wikipedia.org/wiki/Pangani_River" \o "Pangani River) rivers drain Kilimanjaro on the eastern and southern sides, respectively.[[42]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-42)

[](https://en.wikipedia.org/wiki/File:The_Kibo_and_Mawenzi_Cones_of_Mt._Kilimanjaro.jpg)

Two of Kilimanjaro's volcanic cones: Kibo (left) and Mawenzi (right).

Human history[[edit](https://en.wikipedia.org/w/index.php?title=Mount_Kilimanjaro&action=edit&section=6" \o "Edit section: Human history)]

[](https://en.wikipedia.org/wiki/File:Der-Kilimandscharo.jpg)

Kilimanjaro in 1911

[](https://en.wikipedia.org/wiki/File:The_National_Archives_UK_-_CO_1069-3-175.jpg)

From the UK [National Archives](https://en.wikipedia.org/wiki/The_National_Archives_(United_Kingdom))

First aerial photograph of Kibo taken by [Walter Mittelholzer](https://en.wikipedia.org/wiki/Walter_Mittelholzer) in 1929

**African culture**[[edit](https://en.wikipedia.org/w/index.php?title=Mount_Kilimanjaro&action=edit&section=7" \o "Edit section: African culture)]

Kilimanjaro is attested to in numerous stories by the peoples who live in East Africa. The [Chagga](https://en.wikipedia.org/wiki/Chagga_people" \o "Chagga people), who traditionally lived on the southern and eastern slopes of the mountain, tell how a man named Tone once provoked a god, Ruwa, to bring famine upon the land. The people became angry at Tone, forcing him to flee. Nobody wanted to protect him but a solitary dweller who had stones that turned miraculously into cattle. The dweller bid that Tone never open the stable of the cattle. When Tone did not heed the warning and the cattle escaped, Tone followed them, but the fleeing cattle threw up hills to run on, including Mawenzi and Kibo. Tone finally collapsed on Kibo, ending the pursuit.[[43]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-legend-43)

Another Chagga legend tells of ivory-filled graves of elephants on the mountain, and of a cow named Rayli that produces miraculous fat from her tail glands. If a man tries to steal such a gland but is too slow in his moves, Rayli will blast a powerful snort and blow the thief down onto the plain.[[44]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-44)

**Early records**[[edit](https://en.wikipedia.org/w/index.php?title=Mount_Kilimanjaro&action=edit&section=8" \o "Edit section: Early records)]

The mountain may have been known to non-Africans since [antiquity](https://en.wikipedia.org/wiki/Classical_antiquity). Sailors' reports recorded by [Ptolemy](https://en.wikipedia.org/wiki/Ptolemy) mention a "moon mountain" and a spring lake of the Nile, which may indicate Kilimanjaro, although available historical information does not allow differentiation among others in East Africa like [Mount Kenya](https://en.wikipedia.org/wiki/Mount_Kenya), the mountains of [Ethiopia](https://en.wikipedia.org/wiki/Ethiopia), the [Virunga Mountains](https://en.wikipedia.org/wiki/Virunga_Mountains), the [Rwenzori Mountains](https://en.wikipedia.org/wiki/Rwenzori_Mountains), and Kilimanjaro. Before Ptolemy, [Aeschylus](https://en.wikipedia.org/wiki/Aeschylus) and [Herodotus](https://en.wikipedia.org/wiki/Herodotus) referred to "Egypt nurtured by the snows" and to a spring between two mountains, respectively. One of these mentions two tall mountains in the coastal regions with a valley with traces of fire between. [Martín Fernández de Enciso](https://en.wikipedia.org/wiki/Mart%C3%ADn_Fern%C3%A1ndez_de_Enciso), a Spanish traveller to [Mombasa](https://en.wikipedia.org/wiki/Mombasa) who obtained information about the interior from native caravans, said in his *Summa de Geografía* (1519) that west of Mombasa "stands the Ethiopian Mount Olympus, which is exceedingly high, and beyond it are the Mountains of the Moon, in which are the sources of the Nile".[[30]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-ShearsonHyland-30)[[45]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-meyer-45): 1–5[[46]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Burns2006-46): 114

**European exploration**[[edit](https://en.wikipedia.org/w/index.php?title=Mount_Kilimanjaro&action=edit&section=9" \o "Edit section: European exploration)]

The German missionaries [Johannes Rebmann](https://en.wikipedia.org/wiki/Johannes_Rebmann) of Mombasa and Johann Krapf were the first Europeans known to have attempted to reach the mountain. According to English geographer [Halford Mackinder](https://en.wikipedia.org/wiki/Halford_Mackinder" \o "Halford Mackinder) and English explorer [Harry Johnston](https://en.wikipedia.org/wiki/Harry_Johnston), Rebmann in 1848 was the first European to report the existence of Kilimanjaro.[[47]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-47)[[48]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-48) Hans Meyer has claimed that Rebmann first arrived in Africa in 1846 and quotes Rebmann's diary entry of 11 May 1848 as saying,

This morning, at 10 o'clock, we obtained a clearer view of the mountains of Jagga, the summit of one of which was covered by what looked like a beautiful white cloud. When I inquired as to the dazzling whiteness, the guide merely called it 'cold' and at once I knew it could be neither more nor less than snow.... Immediately I understood how to interpret the marvelous tales Dr. Krapf and I had heard at the coast, of a vast mountain of gold and silver in the far interior, the approach to which was guarded by evil spirits.[[45]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-meyer-45): 6

In August 1861, the Prussian officer Baron [Karl Klaus von der Decken](https://en.wikipedia.org/wiki/Karl_Klaus_von_der_Decken) accompanied by English geologist Richard Thornton[[49]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-49) made an attempt to climb Kibo but "got no farther than 2,500 metres (8,200 ft) owing to the inclemency of the weather".[[45]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-meyer-45): 9[[50]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-50) In December 1862, von der Decken tried a second time together with [Otto Kersten](https://en.wikipedia.org/wiki/Otto_Kersten), reaching a height of 4,300 metres (14,000 ft).[[51]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Verdcourt-51)

In August 1871, missionary [Charles New](https://en.wikipedia.org/wiki/Charles_New) became the "first European to reach the equatorial snows" on Kilimanjaro at an elevation of slightly more than 4,000 metres (13,000 ft).[[45]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-meyer-45): 11 In June 1887, the Hungarian Count [Sámuel Teleki](https://en.wikipedia.org/wiki/S%C3%A1muel_Teleki_(explorer)" \o "Sámuel Teleki (explorer)) and the Austrian Lieutenant [Ludwig von Höhnel](https://en.wikipedia.org/wiki/Ludwig_von_H%C3%B6hnel) made an attempt to climb the mountain. Approaching from the saddle between Mawenzi and Kibo, Höhnel stopped at 4,950 metres (16,240 ft), but Teleki continued until he reached the snow at 5,300 metres (17,400 ft).[[52]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-52) Later in 1887, the German geology professor Hans Meyer reached the lower edge of the ice cap on Kibo, where he was forced to turn back because he lacked the equipment needed to progress across the ice.[[53]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Stewart-53): 81 The following year, Meyer planned another attempt with [Oscar Baumann](https://en.wikipedia.org/wiki/Oscar_Baumann), a [cartographer](https://en.wikipedia.org/wiki/Cartographer), but the mission was aborted after the pair were held hostage and ransomed during the [Abushiri Revolt](https://en.wikipedia.org/wiki/Abushiri_Revolt" \o "Abushiri Revolt).[[53]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Stewart-53): 82 In the autumn of 1888, the American naturalist Dr. Abbott and the German explorer [Otto Ehrenfried Ehlers](https://en.wikipedia.org/wiki/Otto_Ehrenfried_Ehlers) approached the summit from the northwest. While Abbott turned back earlier, Ehlers at first claimed to have reached the summit rim, but after severe criticism of the claim, withdrew it.[[45]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-meyer-45): 17–19

In 1889, Meyer returned to Kilimanjaro with the Austrian mountaineer [Ludwig Purtscheller](https://en.wikipedia.org/wiki/Ludwig_Purtscheller) for a third attempt.[[53]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Stewart-53): 82 This attempt was based on the establishment of several campsites with food supplies so that multiple attempts at the top could be made without having to descend too far.[[53]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Stewart-53): 82 Meyer and Purtscheller pushed to near the crater rim on 3 October but turned back exhausted from hacking footsteps in the icy slope.[[53]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Stewart-53): 82 Three days later, they reached the highest summit, on the southern rim of the crater.[[53]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Stewart-53): 82 They were the first to confirm that Kibo has a crater.[[53]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Stewart-53): 82 After descending to the saddle between Kibo and Mawenzi, Meyer and Purtscheller attempted to climb the more technically challenging Mawenzi but could only reach the top of Klute Peak, a subsidiary peak, before retreating due to illness.[[53]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Stewart-53): 84 On 18 October, they reascended Kibo to enter and study the crater, cresting the rim at Hans Meyers Notch.[[53]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Stewart-53): 84 In total, Meyer and Purtscheller spent 16 days above 4,600 metres (15,000 ft) during their expedition.[[53]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Stewart-53): 84 They were accompanied in their high camps by Mwini Amani of [Pangani](https://en.wikipedia.org/wiki/Pangani" \o "Pangani), who cooked and supplied the sites with water and firewood.[[45]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-meyer-45): 135–186

The first ascent of the highest summit of Mawenzi was made on 29 July 1912, by the German climbers [Eduard Hans Oehler](https://en.wikipedia.org/w/index.php?title=Eduard_Hans_Oehler&action=edit&redlink=1) and [Fritz Klute](https://en.wikipedia.org/w/index.php?title=Fritz_Klute&action=edit&redlink=1), who named it Hans Meyer Peak. Oehler and Klute went on to make the third-ever ascent of Kibo, via the [Drygalski Glacier](https://en.wikipedia.org/wiki/Drygalski_Glacier_(Tanzania)" \o "Drygalski Glacier (Tanzania)), and descended via the Western Breach.[[53]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Stewart-53): 85

In 1989, the organizing committee of the 100-year celebration of the first ascent decided to award posthumous certificates to the African porter-guides who had accompanied Meyer and Purtscheller.[[54]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Lauwo-54) One person in pictures or documents of the 1889 expedition was thought to match a living inhabitant of [Marangu](https://en.wikipedia.org/wiki/Marangu" \o "Marangu), Yohani Kinyala Lauwo.[[54]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Lauwo-54) Lauwo did not know his own age,[[54]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Lauwo-54) nor remember Meyer or Purtscheller. He did recall joining a Kilimanjaro expedition involving a Dutch doctor who lived near the mountain, and that he did not wear shoes during the climb.[[54]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Lauwo-54) Lauwo claimed that he had climbed the mountain three times before the beginning of [World War I](https://en.wikipedia.org/wiki/World_War_I).[[54]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Lauwo-54) The committee concluded that he had been a member of Meyer's team and therefore must have been born around 1871.[[54]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-Lauwo-54) Lauwo died on 10 May 1996, 107 years after the first ascent. It is sometimes suggested that he was a co-first-ascendant of Kilimanjaro.[[55]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-55)

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| **Mount Kilimanjaro** | |
| [Mt. Kilimanjaro 12.2006.JPG](https://en.wikipedia.org/wiki/File:Mt._Kilimanjaro_12.2006.JPG)  View of Kibo (5892 m) in 2006. | |
| [Mount Kilimanjaro is located in Tanzania](https://en.wikipedia.org/wiki/File:Tanzania_relief_location_map.svg)  Mount Kilimanjaro  Mount Kilimanjaro  Kilimanjaro's location in Tanzania  Show map of TanzaniaShow map of AfricaShow all | |
| **Highest point** | |
| [**Elevation**](https://en.wikipedia.org/wiki/Summit) | 5,895 m (19,341 ft) [[1]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro#cite_note-TNP-1) |
| [**Prominence**](https://en.wikipedia.org/wiki/Topographic_prominence) | 5,885 m (19,308 ft)  Ranked 4th |
| [**Isolation**](https://en.wikipedia.org/wiki/Topographic_isolation) | 5,510 km (3,420 mi) |
| [**Listing**](https://en.wikipedia.org/wiki/Lists_of_mountains) | * [Great Rift Valley](https://en.wikipedia.org/wiki/Great_Rift_Valley) * [List of highest mountain peaks of Africa](https://en.wikipedia.org/wiki/List_of_highest_mountain_peaks_of_Africa) * [Seven Summits](https://en.wikipedia.org/wiki/Seven_Summits) * [Seven Third Summits](https://en.wikipedia.org/wiki/Seven_Third_Summits) * [Seven Third Summits](https://en.wikipedia.org/wiki/Seven_Third_Summits) * [ultra-prominent peak](https://en.wikipedia.org/wiki/Ultra-prominent_peak) * [Volcanic Seven Summits](https://en.wikipedia.org/wiki/Volcanic_Seven_Summits) |
| [**Coordinates**](https://en.wikipedia.org/wiki/Geographic_coordinate_system) | https://upload.wikimedia.org/wikipedia/commons/thumb/5/55/WMA_button2b.png/17px-WMA_button2b.png[03°04′33″S 37°21′12″E](https://geohack.toolforge.org/geohack.php?pagename=Mount_Kilimanjaro&params=03_04_33_S_37_21_12_E_type:mountain_region:TZ-09_scale:100000)[Coordinates](https://en.wikipedia.org/wiki/Geographic_coordinate_system): https://upload.wikimedia.org/wikipedia/commons/thumb/5/55/WMA_button2b.png/17px-WMA_button2b.png[03°04′33″S 37°21′12″E](https://geohack.toolforge.org/geohack.php?pagename=Mount_Kilimanjaro&params=03_04_33_S_37_21_12_E_type:mountain_region:TZ-09_scale:100000) |
| **Geography** | |
| **Location** | [Kilimanjaro Region](https://en.wikipedia.org/wiki/Kilimanjaro_Region), [Tanzania](https://en.wikipedia.org/wiki/Tanzania) |
| [**Parent range**](https://en.wikipedia.org/wiki/Mountain_range) | The [Eastern Rift mountains](https://en.wikipedia.org/wiki/Eastern_Rift_mountains) |
| [**Topo map**](https://en.wikipedia.org/wiki/Topographic_map) | Kilimanjaro map and guide by Wielochowski[[2]](https://en.wikipedia.org/wiki/Mount_Kilimanjaro" \l "cite_note-map-2) |
| **Geology** | |
| [**Age of rock**](https://en.wikipedia.org/wiki/Geologic_time_scale) | 4 million years |
| [**Mountain type**](https://en.wikipedia.org/wiki/List_of_mountain_types) | [Stratovolcano](https://en.wikipedia.org/wiki/Stratovolcano) |
| [**Last eruption**](https://en.wikipedia.org/wiki/Types_of_volcanic_eruptions) | Between 150,000 and 200,000 years ago |
| **Climbing** | |
| [**First ascent**](https://en.wikipedia.org/wiki/First_ascent) | (European) 6 October 1889 by [Hans Meyer](https://en.wikipedia.org/wiki/Hans_Meyer_(geologist)) and [Ludwig Purtscheller](https://en.wikipedia.org/wiki/Ludwig_Purtscheller) |
| [**Easiest route**](https://en.wikipedia.org/wiki/Normal_route) | [Hiking](https://en.wikipedia.org/wiki/Hiking) |