

= Mount Redoubt =

Redoubt Volcano , or Mount Redoubt , is an active stratovolcano in the largely volcanic Aleutian Range of the U.S. state of Alaska . Located at the head of the Chigmit Mountains subrange in Lake Clark National Park and Preserve , the mountain is just west of Cook Inlet , in the Kenai Peninsula Borough about 180 km (110 mi) southwest of Anchorage . At 10 897 feet (3 330 m) , in just over 5 miles (8 km) Mount Redoubt attains 9 150 feet (2 700 m) of prominence over its surrounding terrain . It is the highest summit in the Aleutian Range .

Active for millennia , Mount Redoubt has erupted four times since it was first observed : in 1902 , 1966 , 1989 and 2009 , with two questionable eruptions in 1881 and 1933 . The eruption in 1989 spewed volcanic ash to a height of 45 000 ft (14 000 m) . It caught KLM Flight 867 , a Boeing 747 aircraft , in its plume . After the plane descended 13 000 feet , the pilots restarted the engines and landed the plane safely at Anchorage . The ash blanketed an area of about 7 700 sq mi (20 000 km²) . The 1989 eruption is also notable for being the first ever volcanic eruption to be successfully predicted by the method of long -@ period seismic events developed by Swiss / American volcanologist Bernard Chouet . As of August 2015 , the Alaska Volcano Observatory has rated Redoubt as Aviation Alert Level Green and Volcano Alert Level Normal .

= = Name = =

The official name of the mountain is Redoubt Volcano , a translation of the Russian name " Sopka Redutskaya " , referring to , as does the word " redoubt " , " a fortified place " . A local name , " Ujakushatsch " , also means " fortified place " , but it is difficult to determine if one name is derived from the other . The Board on Geographic Names decided on the name " Redoubt Volcano " in 1891 .

The Global Volcanism Program of the Smithsonian Institution refers to the mountain simply as " Redoubt " , and lists the following as alternate names : Burnt Mountain , Goreloi , Mirando , Ujakushatsch , Viesokaia and Yjakushatsch . The Alaska Volcano Observatory also uses simply " Redoubt " ; it lists the same alternate names in addition to the following : Goryalaya ; Redoute Mtn . ; and Redutskaya , Sopka .

= = Geology = =

The volcano is about 3 @ 7 miles (6 @ 0 km) in diameter at its base with a rough volume of 7 @ 2 to 8 @ 4 cu mi (30 ? 35 km³) . The sides of the upper cone are relatively steep (in comparison to volcanoes in general) . Made up of pyroclastic flow deposits and lava flows , and resting on Mesozoic era rocks of the Aleutian Mountain Range batholith , the mountain has been somewhat weathered by movement of several glaciers that reside on it . The current main vent is on the north side of the crater by the head of the Drift glacier . Also present on the mountain are Holocene lahar deposits that extend as far as the Cook Inlet . This mountain has produced andesite , basalt and dacite , with relatively silicic andesite dominant in recent eruptions .

= = Eruptions = =

= = = Early reports = = =

Captain James Cook saw Mt . Redoubt during the summer of 1778 , describing it as " emitting a white smoke but no fire " which made some think it was no more than a white thick cloud such as we have frequently seen on the Coast , for the most part appearing on the sides of hills and often extends along a whole range and at different times falls or rises , expands or contracts itself and has a resemblance to Clouds of white smoke . But this besides being too small for one of those clouds , remained as it were fixed in the same spot for the whole time the Mountain was clear which was

above 48 hours . " However , several sources call this a " discredited eruption " . There are several other of these activities that are not called eruptions .

In 1819 , smoke was observed at the mountain . However , this is often not recorded as an eruption as the information was insufficient to identify it as such . Similarly , in 2003 , a blowing cloud of snow was mistaken by an employee of the ConocoPhillips Building in Anchorage for an ash plume . Possible steam @-@ vapor let off was observed in 1933 at the mountain .

== = 1881 == =

There was apparently an eruption described as " to the eastward , Redoubt Volcano , 11 @, @ 060 feet (3 @, @ 370 m) high , is constantly smoking , with periods of exaggerated activity . Fire has been seen issuing from its summit far out at sea . A great eruption took place in 1881 , when a party of native hunters half @-@ way up its slopes were overwhelmed by a lava @-@ flow and only two escaped . " However , this eruption is not well documented by other sources .

== = 1902 == =

The volcano erupted rather abruptly in 1902 , spewing out ash from January 18 to June 21 in the year . A local newspaper stated , " Word has just been received that Redoubt , one of the volcanoes at Cook 's Inlet had an eruption on January 18 , and the country for 150 miles (240 km) around was covered with ashes and lava . The news comes from Sunrise , but nothing definite has been ascertained as to whether any damage was done , for no boats have as yet been in the neighborhood of the volcano . " There were many other news reports on the eruption , one describing the eruption as " a terrific earthquake which burst the mountain asunder leaving a large gap , " which could possibly suggest the crack formation in the volcano 's crater , however , it is unlikely . Supposedly , the volcano was ejecting " flames " from its caldera , and the eruption terrified natives in the area . Newspapers seemed to suggest that the ash had traveled for more than 150 miles (240 km) , reaching the opposite side of the Cook Inlet .

== = 1989 ? 1990 == =

The volcano erupted on December 14 , 1989 , and continued to erupt for over six months . Sudden melting of snow and ice at the summit caused by pyroclastic flows and dome collapses caused lahars , or mudflows , which flowed down the north flank of the mountain . A majority of the mudflows coursed to Cook Inlet , about 22 miles (35 km) from the volcano . The lahars entered a nearby river , worrying officials that they might destroy an oil storage facility located along it .

Since lahars were produced repeatedly , scientists realized that they could use these to analyze a trial period for a newly developed device proposed to measure the movement of rocks against each other . This device , now known as an Acoustic Flow Monitor , alerts nearby stations to possible lahars .

The eruption also caused an airliner to have all four engines fail after a Boeing 747 @-@ 400 jumbo jet operated by KLM Royal Dutch Airlines flew into a cloud of volcanic ash . Damage from the eruption was estimated at \$ 160 million , the second costliest volcanic eruption in United States history .

== = 2009 == =

== = = Pre @-@ eruption == = =

On January 30 , 2009 , scientists from the Alaska Volcano Observatory (AVO) warned that an eruption was imminent , sending experienced Alaskans shopping for protection against a dusty shower of volcanic ash that could descend on south @-@ central Alaska .

By January 31 , volcanic earthquakes increased to several per hour , and a large hole in the glacier on the side of the mountain was spotted . Scientists began to monitor seismic data from the mountain twenty @-@ four hours a day in an effort to warn people in nearby communities . A flyover conducted by the AVO detected " significant steaming from a new melt depression at the mouth of the summit crater near the vent area of the 1989 @-@ 90 eruption . "

===== March 15 =====

Seismic activity at Redoubt increased beginning about 13 : 00 ATZ . An AVO observation flight reported that a steam and ash plume rose as high as 15 @,@ 000 feet (4 @,@ 600 m) above sea level and produced minor ash fall on the upper south flank of Redoubt . Later reports were that the plume was then mainly steam .

On the basis of this change in activity , AVO increased the level of concern and alert level to ORANGE / WATCH .

===== Emissions =====

The material ejected from the volcano mainly consisted of water vapor , along with smaller amounts of carbon dioxide and sulfur dioxide . Further study by airborne monitors suggests that the materials were not oxidized much , and little of the concentration contained sulfates , less than 20 % .

===== Large scale eruptions begin =====

Mount Redoubt erupted explosively late in the evening of March 22 , 2009 . AVO has recorded numerous volcanic eruptions and / or explosions at Redoubt volcano .