

The mount pinatubo case study

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case study mount pinatubo THE MOUNT PINATUBO ERUPTION 1991 the mount pinatubo eruption was the second largest eruption of this century and by far the largest eruption affecting a densely populated area. the eruption occurred at mount pinatubo in the philippines on june 15 1991. in march and april 1991 magma rising towards the surface from more than 30 km below pinatubo started making small earthquakes and caused small powerful steam explosion that opened three craters on the north flank of the volcano. thousands of small earthquakes occurred and many tons of gas were also emitted by the volcano. from june 7 to june 12 the magma reached the surface of mount pinatubo. because of the gas pressure the magma erupted out with an amazing strength but did not cause an explosive eruption because it just formed a lava dome. on june 12 tons of gas charged magma reached the top of the volcano and erupted with the very first proper eruption. when even more magma reached the top the volcano erupted in a cataclysmic eruption on june 15. the eruption ejected more than 5 cubic kilometers of material. the ash cloud reached the height of 35 km in the sky. blanket of ash covered all the land around pinatubo. fine ash flew thousands of kilometers away reaching also the indian ocean. massive avalanches of hot ash rolled down the sides of pinatubo. the eruption removed so much material from the volcano that the volcano collapsed and from a clad era of 2.5 km. many hazards occurred with the volcano. the eruption produced high speed avalanches of hot gas and ash (pyroclastic flows) giant mudflows (lahars) and a cloud of volcanic ash covering hundred of miles across. early 20 millions tons of sulfur dioxide were blown in the air and were dispersed around the world causing an increase in temperature of around 0.5 degrees. Mt ST HELENS ERUPTION mt st helens is a strata volcano located in <https://assignbuster.com/the-mount-pinatubo-case-study/>

the state of Washington, US the eruption caused many hazards and many impacts on people environment and economy. the earthquake on May 18 led to a series of events: a 5.1 earthquake was caused by the massive eruption the bulge of the volcano slid away, resulting in a huge avalanche of rock and mud that filled 24 square miles of a valley. the eruption released a massive cloud of ash and pumice. the effect of the eruption also included: the volcano was reduced of 1300 feet, ash fell miles away from the eruption, the eruption lasted over 9 hours, around 60 people lost their lives. over 250 square miles of land were destroyed by all the eruption hazards. countless animals were killed. as in all the volcanoes the first signs of eruption were given by an increase in small earthquakes near the volcano area. this showed that the pressure inside the volcano chamber was increasing. soon lines of weakness were created by the earthquakes on the top of the mountain. earthquakes were many especially under the north flank of the volcano. in fact the first eruption was from the summit rather than from the flank. on the 27th of March this small eruption kept going. the volcano was mainly gas and ash and a small cloud of material was sent up over the cone. this stage was a Vulcanian type of eruption. but because the size of the eruption was small the ash fell down on the ground close to the summit and the main effect was simply to blacken the snowfields. the cause of these small eruptions was probably water from ice fields ending in the hot rock below and transforming suddenly into steam, throwing materials around. as the days went by a large bulge started forming across the north flank, about 2km across, separate from the central vent. it showed that the material blocking the central vent was stuck fast and that the magma was seeking a way out through the north flank. the earthquakes had weakened all the north

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flank more than any other part of the cone. on may 18 at 8 a. m the entire north flank of the volcano dropped down in a massive landslide of 2 cubic kilometers of rock. now with nothing to hold in place the magma and the gas , the gas rich magma exploded in a gigantic eruption. in fact the landslide was shattered in many parts by the explosion so that a mixture of rock fragments and gas was formed. this type of eruption was now a pelean type, and the pyroclastic flows were able to flow 250 kmh. part of this pyroclastic flow went near by spirit lake throwing out the water entirely from the lake. the blast demolished the huge dorset that lay on the north side of the volcano, leveling everything over an area of 550 square kilometers. close to the volcano the blast of the explosion was so strong that trees were simply blown away. in total some 10 millions trees were destroyed. ash was deposited miles away and the town of yakima was covered in ash. in the following days of the eruption very sticky laval began to flow into the new crater, building up a lava dome on the crater floor. all the snow and glaciers on the mountains were turned in to steam and they were now coming back on the ground as torrential rainfall. the rain swept most of the ash in the nearby rivers , causing flooding and at the same time silting them up.