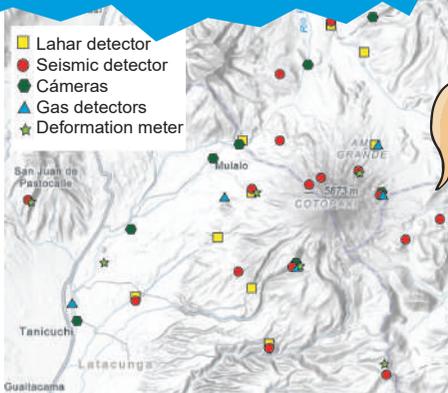


Cotopaxi Volcano Monitoring

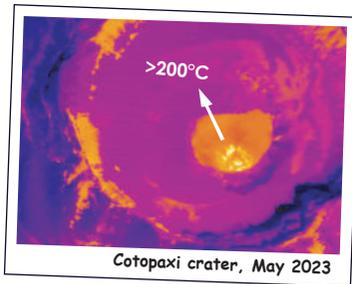
Cotopaxi is the best monitored volcano in Ecuador and one of the best monitored in the whole world. It has a network of more than 60 instruments including deformation measurement instruments, gas meters, seismographs and cameras.



All of them transmitting in real time to the IG-EPN headquarters in Quito.

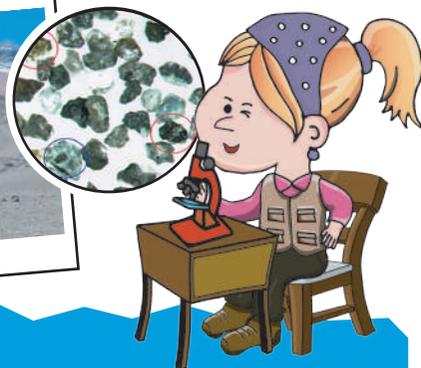
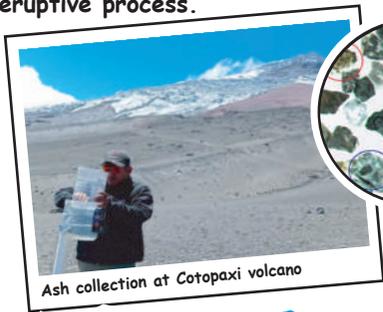


IG-EPN technicians monitor the volcano 24 hours a day, 7 days a week, to guarantee that the information will reach the authorities and the public truthfully and timely.



In addition, overflights to the volcano are carried out regularly with the support of the Ecuadorian Air Force. They allow the volcanologists to measure the temperature and gases present in the volcano's crater.

The ash emitted by the volcano is also collected and analyzed in order to provide valuable information about the eruptive process.



Learn about the hazard map



Do you know where your house is? Your workplace? Your children's school? Learn about the hazard map of Cotopaxi volcano.

The risk may vary according to your geographical position, so the first step is to know if you are in dangerous areas and what kind of volcanic phenomena could affect you.

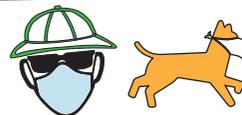
What to do in case of an eruption

Don't pay attention to internet rumors. Get information from official sources only.



Create a family emergency plan. Let each member of your family know what to do and where to go in case of an eruption.

If you live in a danger zone, Learn about sirens, evacuation routes and safe places.



In case of ash fall, do not forget to wear a mask and protective glasses. Cover your head with a cap or hat and wear long-sleeved clothing.

Take your emergency backpack. It must include warm clothing, a battery-powered radio, and enough supplies at least for three days.



Cotopaxi

an erupting volcano

For more information please visit:
www.igepn.edu.ec

English 1st Edition
(Translation: A. Vázquez, D. Sierra), Nov 2023.



Written and illustrated by: D. Sierra
Reviewers: S. Hidalgo, M. Segovia

IG
Instituto Geofísico EPN



Cotopaxi Volcano

It's an active volcano belonging to the Cordillera Real, located in the provinces of Cotopaxi and Pichincha. It has a glacier cap of approximately 11 square km.



The volcano began its formation about 500 thousand years ago with very explosive activity, after which it took a long rest. Approximately 5,000 years ago it resumed its activity with a very large eruption that caused part of the volcano to collapse, generating a large avalanche and mud flows that covered the entire Los Chillos Valley.

During historical times (since the arrival of the Spanish conquerors) it has had 5 major eruptions:



All of them caused significant harm and economic crises of regional scale.

1877 Eruption

T. Wolf and L. Sodiro chronicles describe great destruction, caused mainly by gigantic mud flows (lahars). Also "cannon shots" were heard in areas as distant as Guayaquil.

In addition, large clouds of ash fell over the capital, turning day into night.

Panic took over the population. There is no estimate of the victims but the chronicles speak of at least 300 people.



Artistic representation of the 1877 Cotopaxi eruption (Sierra, 2023).

Recent Activity

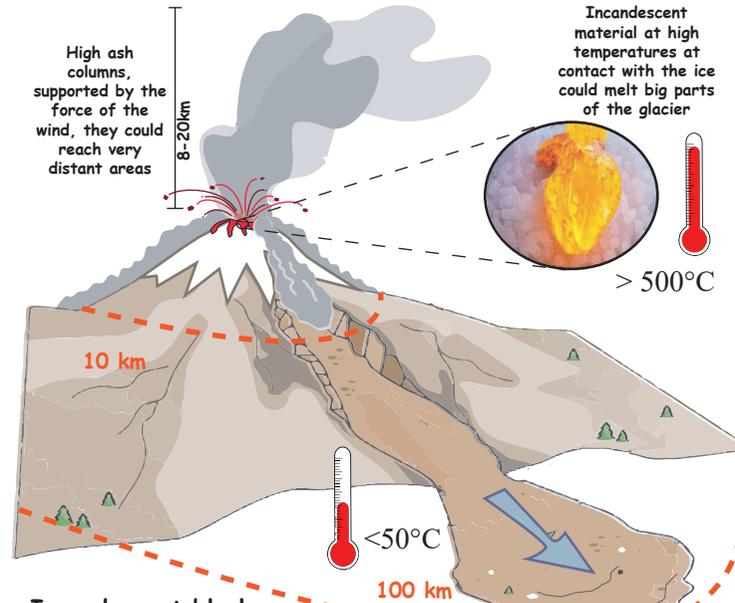
In August 2015, after several months of premonitory signs, Cotopaxi erupted. This phase lasted until the end of the year. Although it was of low magnitude, it generated ash falls with strong negative effects on economic and agricultural activities.



Between October 2022-July 2023, Cotopaxi began a new eruptive pulse characterized by gas and ash emissions. Some of the largest ones reached the capital city and Latacunga.

What makes Cotopaxi dangerous?

In the event of a large eruption, the high-temperature rocky material emitted by the volcano could melt important parts of the glacier, releasing a lot of water and generating large mud flows also called: lahars.

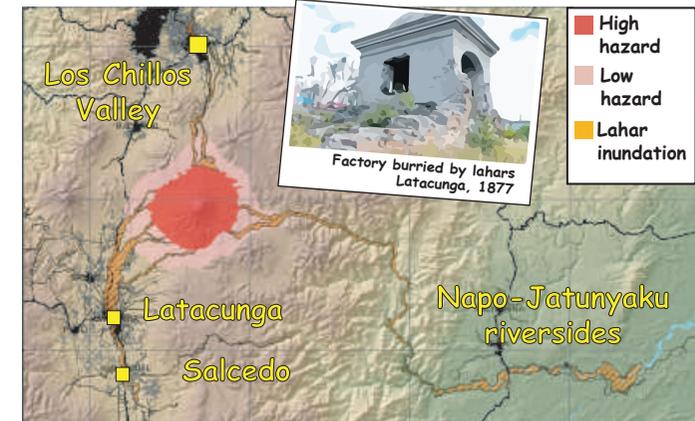


Incandescent blocks, lava flows and pyroclastic flows have a short range (less than 10km), so they will hardly leave the Cotopaxi National Park area, but mud flows (lahars) can reach distances of more than 100km from the source.

Lahars aren't very hot flows. But they descend through the ravines with a devastating force, carrying rocks, houses, bridges, trees, etc. with them.

Getting prepared for the worst scenario

1877 eruption has been used as a "model" to create the current hazard maps. This eruption constitutes a "probable maximum", that means, the worst scenario that is estimated to occur.



It has been estimated that 60-80 million cubic meters of material could descend down each flank of the volcano along the Northern, Southern and Eastern drainages, causing strong damage to Los Chillos valley, Latacunga, Salcedo and the riversides of the Napo-Jatunyaku rivers (affecting Pto. Napo, Pto. Misahualli).

To better understand the impact of a lahar we can remember what happened in La Gasca (Quito) in January 2022, when a mud flow destroyed houses, carrying away vehicles and everything on its path. The Cotopaxi lahars could be up to 800 times more voluminous in each of the drainages.



REMEMBER !

Mud flows or lahars travel through ravines and rivers, so these areas are usually the most vulnerable. In case of a lahar alert you should move laterally away from the river bed and look for a higher area.

