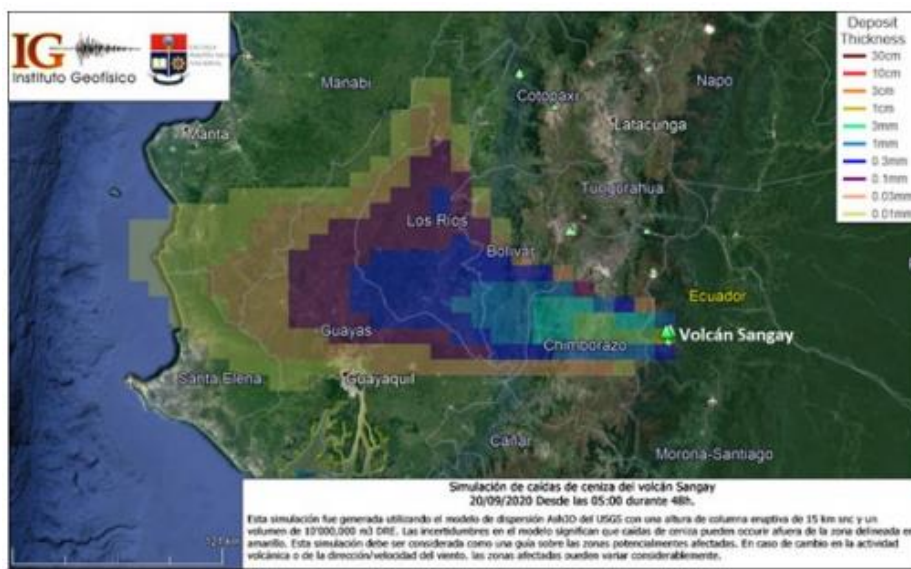


Forecast based Action by the DREF

## Forecast based early action triggered in Ecuador: Volcanic Ash Dispersion- Sangay volcano

EAP2019EC001



Ash fall dispersion model corresponding to Sangay's current activity  
The areas with higher probability of ash fall are shown. Source: Geophysical Institute of the National Polytechnic (*Instituto Geofísico de la Politécnica Nacional - IGEPN*).

### 1,000 families to be assisted

**246,586.27 budget in Swiss francs** (200,571.46 Swiss francs available)

**Locations:** Rural communities in the cantons of Alausí, Guamote, Pallatanga and Cumanda. The communities will be defined based on the analysis of information issued in the National Society's situation reports.

### General overview

The Ecuadorian Red Cross (ERC) has activated its Early Action Protocol for Volcanic Ashfall.

Since June 2020, the eruptive process of Sangay volcano has registered high to very high levels of activity. According to the report issued by the Geophysical Institute of the National Polytechnic (IGEPN), in the early morning of 20 September 2020, the volcano registered a significant increase in the volcano's internal and external activity. From 04h20 (GMT-5), the records indicate the occurrence of explosions and ash emissions that are more energetic and

stronger than those registered in previous months. From 04h00, according to the IGEPN satellite image, a large ash cloud has risen to a height of more than 6 to 10 km above the volcano's crater. The highest part of the cloud is registered to the eastern sector while the lowest part is located west of the volcano.

According to tracking and monitoring, ash dispersion models indicate the high probability of ash fall in the provinces of Chimborazo, Bolívar, Guayas, Manabí, Los Ríos and Santa Elena. The most affected provinces are Chimborazo and Bolívar, where it is estimated that the accumulation of ash is recorded at thresholds of >3 millimetres and >1 millimetre, a sufficient level that generates effects on agriculture and livestock.

Based on the information and monitoring conducted by the IGEPN, the special report issued at 09h00 on 20 September 2020, and by the Ecuadorian Red Cross, it is estimated that the most likely eruptive scenario is an eruption with a volcanic explosivity index IEV=3 (moderate eruption) corresponding to a SPECIAL REPORT C (Eruptive event with possible effect on the community, in which there is greater clarity on the most likely scenario in real time (height of the ash column, direction, etc.).

In the event of the scenario, the volcanic phenomena expected are pyroclastic falls (blocks and bombs near the volcano, lapilli and ash far from the volcano), pyroclastic flows (burning clouds of pyroclasts descending the flanks of the volcano at high speed), and primary lahars (mixture of pyroclasts and glacier meltwater).

The date and size of volcanic eruptions cannot be predicted. Thus, the present scenario may differ from what could occur.

The Ecuadorian Red Cross, in coordination with the IGEPN and National Service for Emergency and Risk Management (SNGRE), are conduction actions such as:

- Tracking and monitoring of volcanic activity.
- Information gathering in the affected sectors
- Evaluating possible damage and affectation
- Disseminating key messages on self-protection measures against ash fall.

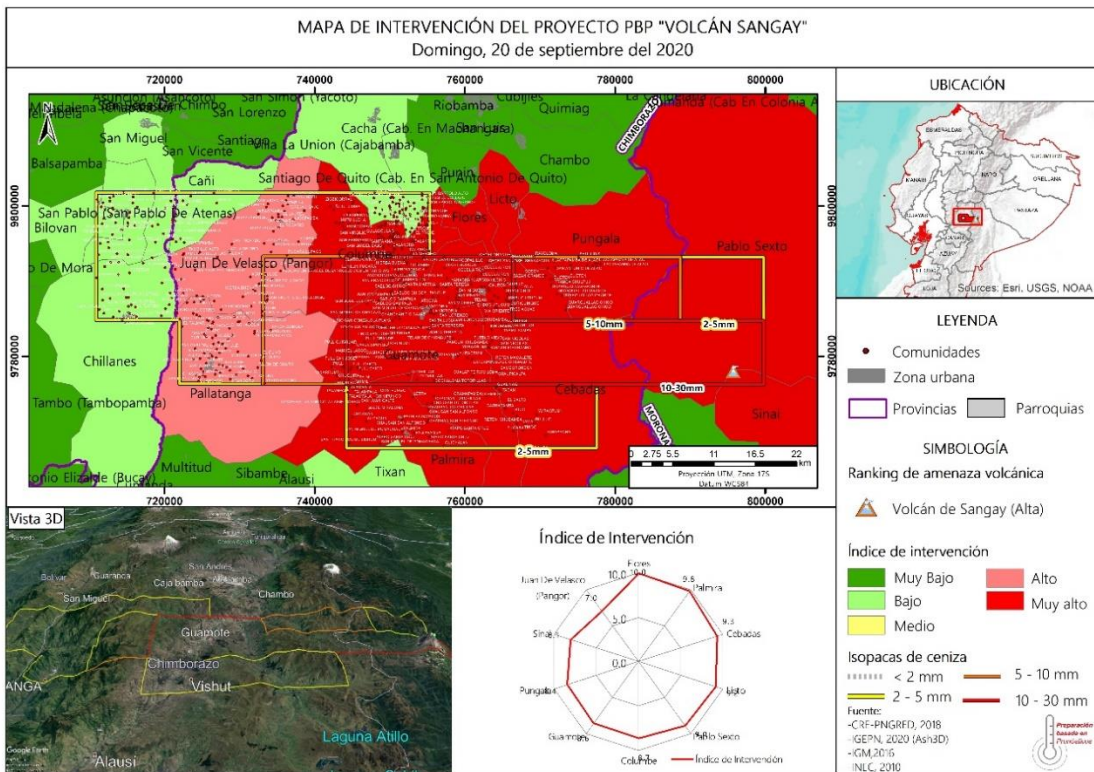
### Early Action Plan (EAP) Activation Process: Volcanic Ash Dispersion and Fall

The activation of the Early Action Plan will be implemented gradually, according to the parameters and thresholds established on the basis of the following detail:

Ash fall threshold (MM)	Impact	Suggested Action
2 – 5 MM	<ul style="list-style-type: none"> <li>- <b>Crops:</b> Harvest interruption</li> <li>- <b>Water and livestock:</b> Contaminated water sources, limited fodder and crop interruption.</li> <li>- <b>People:</b> Slightly affected eyes and respiratory tract.</li> </ul>	<ul style="list-style-type: none"> <li>- Distribution of health protection kits</li> </ul>

<p style="text-align: center;"><b>5 – 10 MM</b></p>	<ul style="list-style-type: none"> <li>- <b>Crops:</b> Minor reduction of productivity less than 50% of crops.</li> <li>- <b>Livestock:</b> Lack of food/ wear and tear on livestock animals' teeth and affectionation on water supply.</li> <li>- <b>People:</b> Affected eyes and respiratory tract/ pain in people.</li> </ul>	<ul style="list-style-type: none"> <li>- Distribution of health protection kits.</li> <li>- Distribution of livelihood protection kits.</li> </ul>
<p style="text-align: center;"><b>10 – 300MM</b></p>	<ul style="list-style-type: none"> <li>- <b>Crops:</b> Minor reduction of productivity less than 50% of crops. Remedies are required.</li> <li>- <b>Livestock:</b> dehydration, situation could cause intestinal obstructions.</li> <li>- <b>People:</b> ocular pain and discharge, increased involvement of the respiratory airways.</li> </ul>	<ul style="list-style-type: none"> <li>- Distribution of health protection kits.</li> <li>- Distribution of livelihood protection kits.</li> <li>- Distribution of Cash Transfer</li> </ul>





The intervention map was made with the volcanic ash dispersion simulation presented by the IGEPN at 09h02 on 20 September 2020. This map shows the parishes in red with a "Very High" intervention index according to the risk analysis conducted considering the vulnerability, response capacity and exposure of each parish. The red dots show the communities of each parish within the simulation. Also shown are the isopaths of ash fall represented in the form of quadrants which detail the expected thickness of ash in the communities. It can be seen that a range of 10 to 30 mm of ash thickness is expected in the parishes of Guamote, Cebadas and Palmira, 3 to 5 mm of thickness in the parishes of Pallatanga, Juan de Velasco, Pungalá, and 2 to 5 mm of thickness in the parishes of San Pablo de Atenas, San Miguel, Columbe and Chillanes Santiago de Quito.



Map of intervention of the Sangay volcano. 20 September 2020, 10h44. Source: ERC.

According to the National Institute for Statistics or Census (INEC) 2010 population census, the potentially affected population is estimated in the following areas:

- 2 - 5 mm: 30,057 people
- 5 - 10 mm: 2,708 people
- 10 - 30 mm: 20,188 people

	
<p><b>Ash fall in Pallatanga sector in Chimborazo province</b></p>	<p><b>Ash fall in Chunchi sector in Chimborazo province</b></p>
	
<p><b>Ash fall in Chillanes sector in Bolivar province</b></p>	<p><b>Measurement of ash thickness. Alausí canton in Chimborazo province</b></p>

## Sectors of intervention



### Livelihoods and basic needs

#### Actions:

- 1000 livelihood protection kits, consisting of a plastic tarpaulin measuring 4 x 6 m and a toolkit for families to make a shelter for their animals and/or to provide protection for harvested crops or animal fodder.
- Dissemination of key messages on self-protection measures.



### Health

#### Actions

- 1000 family health protection kits, consisting of: 5 N95 masks (2 adult and 3 child), eye protection goggles (2 adult and 3 child), saline solution, bag
  - Dissemination of key messages on self-protection measures.
- The activation for the implementation of actions related to cash transfer will be conducted based on the scenario and the effects on the communities in Chimborazo province, based on the follow-up, monitoring and information that validates the execution of the above, considering the established thresholds (10 - 300MM - MTP distribution).
  - Logistics, mobilization and distribution of available kits (Health and Livelihood Protection).
  - Travel and Mobilisation of Technical Staff, national intervention team (NIT) members and volunteers.
  - Training for the communities involved.

#### Reference documents

For a more comprehensive description of activities see the [Early Action Protocol summary Ecuador: Volcanic ash](#)

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