

Observatorio Vulcanológico y Sismológico de Costa Rica. OVSICORI-UNA **Small phreatic eruption on January 13, 2008: Poás Volcano, Costa Rica.**

Field report

A visit on January 18th, 2008 confirmed a report of a small phreatic eruption occurred within the perimeter of the hot-acidic lake of Poás volcano, around 9am on Sunday, January 13th, 2008.

The first notice was given by a park ranger and described as cipresoidal shape with ejection of water and sediments out of the center of the lake. It did reached some 200m high and subsequently collapsed to change rapidly the lake's color from a dark green to a intense white (Fig 1).

This event was also witnessed by a group of tourists who were temporarily evacuated but were always safe at some 1200m, observing the volcano from the main viewpoint.

Field inspection revealed also that the explosion produced a wave of 1.5m all around the lake leaving a mark along its rim. Only to the south, next to the north dome's terrace, squirts of sediments were found reaching distances of some 8m from the shore. Such sediments were washed off, probably by the returning wave and reached a thickness no greater than 10cms (fig 2). Such pockets of sediments contain a large quantity of shining crystals and other preexistent minor debris from the bottom of the lake. No blocks were expelled out of the lake. The person that made the first report emphasized the calm conditions of the lake and dome before the eruption. Also, a small landslide (8x20m) was documented on the north face of the dome. It did leave a chaotic deposit of heavily altered angular blocks in a gray matrix altered by hidrothermalism. A slurry of yellowish materials reached the edge of the lake (Fig 3).

Due to rapid outlet of gases in concentric convection cells from the center of the lake, the lake changed its color progressively in a matter of some 3 hours during the visit of OVSICORI's staff. Even more, rapid degassing from the surface of the lake impedes the sight to the other side, due to thick columns of toxic gases (Fig 4). Lake temperature dropped to 45°C and water level raised 1.5m compared to the last estimate at the end of November 2007. Nonetheless rapid evaporation promotes rapid reduction of such level.

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Fig. 1. Picture taken by Carlos Cordero (Park ranger) a moment after the collapse of the phreatic eruption.



Fig. 2. Dried and solidified sediments expelled from the bottom of the lake.



Fig. 3. Minor rockslide involving part of the dome and reaching the lake.



Fig. 4. Dense columns of gases on the surface of the hot lake.