**RECENT ACTIVITY**

Cotacachi is considered a dormant volcano because there are no evidences of eruptive activity during the last 10,000 years. However, Cuicocha caldera which is the youngest part of the complex has had at least two eruptive phases in 3100 and 2900 aBP (Hillebrandt, 1989). That means that Cuicocha is a potentially active volcano according to Bernard & Andrade 2011.

**VOLCANIC MONITORING**

The seismicity and deformation of the Cotacachi Cuicocha Volcanic Complex (CCVC) is being monitored by the IG since 1988 (Fig. 5). The main aim is to register all the changes in the volcanic activity.

Since 2011 the IG performs periodic measurements of diffuse CO$_2$ degassing in the Cuicocha lake. The objective of this method is trying to identify changes in the carbon dioxide flux coming from the volcano (Fig. 6).

**REFERENCES**

COTACACHI VOLCANO

The Cotacachi-Cuicocha Volcanic Complex CCVC is located in the Province of Imbabura, 10 km West of Cotacachi town and 13 km South of Otavalo city. The complex is part of the Western Cordillera of Ecuador. Its base area is approximately 268 km² (Fig. 1).

The CCVC is formed by: a central edifice called Cotacachi whose summit is 4939 meters asl, four satellite lava domes: Cuicocha, Muyurcu, Loma Negra and Piribuela at the flanks of the central edifice and a volcanic caldera called Cuicocha (Fig. 2).

GEOLOGICAL HISTORY

Cotacachi is a dormant strato-volcano (Fig. 3). Over its entire evolution it had two big debris avalanches. Cotacachi volcano is divided into two edifices. The first one (Cotacachi I) was constructed from 162,000 to 108,000 yBP (years before present). It is composed of basaltic-andesitic lava flows at the base. On the top of that base andesitic lava flows and autobreccias are found. These deposits were strongly eroded by the glaciation. A debris avalanche is located on the right riverside of the Intag river at the northwestern flank of the volcano. According to the stratigraphy this event could have occurred at the end of the construction of Cotacachi I.

Later, the edifice Cotacachi II was constructed. It is shaped like an eroded pseudo-pyramide. It is composed of andesitic lava flows mainly at the southern flank. This sequence was intruded by small dacitic lava domes and dikes. While Cotacachi II was being constructed a debris avalanche occurred to the Northeast destroying part of the edifice. The deposits are located along the Ambi river. This deposit is found on the top of the Cachimbiro volcano’s avalanche and below the Imbabura volcano’s avalanche.

According to the stratigraphy we consider that the Cotacachi II avalanche could have occurred between 102,000 and 65,000 yBP. The end of the eruptive activity of Cotacachi II was marked by a sequence of lava flows filling the crater of the volcano (Fig. 3).

The deposits of the satellite lava domes (e.g. Piribuela, Cuicocha, etc.) are located over the volcano-clastic sequences of the Cotacachi edifices, including the northeast avalanche. That means that the formation of the lava domes probably occurred around 44,000 yBP (Relative age). This date includes the extrusion of the Cuicocha lava dome.

CUICOCHA CALDERA

The Cuicocha lava dome was destroyed by a big explosion 3100 yBP, generating a caldera structure (Fig. 4) at the southern flank of the Cotacachi volcano. Several quarries of pyroclastic flows pumice deposits in the vicinity of the Cuicocha are the evidences of the big explosion. In some towns like Quiroga the pyroclastic flows can reach more than 18 m of thickness. After this first stage, the Cuicocha caldera produced a sequence of explosive eruptions with surges and fallout deposits. In 2900 yBP, the cycle of explosive eruptions finished with the extrusion of the lava domes Wolf and Yerovi in the central part of the caldera. Finally, when the eruptive activity ended the caldera was filled by meteoric water forming the Cuicocha lake how it is known nowadays.