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## Deformation pattern on Cerro Blanco volcanic complex (cbvc)

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Cerro Blanco Volcanic Complex (CBVC) located in Catamarca province in Argentina, is the youngest caldera of the southern segment of the Central Andes with the last eruption 4.2 ka ago. In this work we present the deformation pattern rates of the CBVC by two commonly applied techniques to monitoring volcano: Differential Interferometry Synthetic Aperture RADAR (DInSAR) and GNSS. Firstly, Envisat frames from 2003 to 2010 and COSMO-SkyMed frames from 2012 to 2015 were processed by using SBAS-DInSAR methodology obtaining a subsidence rate of  $\sim 1$  cm/yr and  $\sim 0.7$  cm/yr, respectively. Based on DInSAR results, analytical models of the deformation source were generated. The CBCV GNSS-GPS geodynamic network is defined for five benchmarks around the volcano. The observation surveys were carried out yearly in 2004, 2013 and 2015 that were processed giving similar subsidence rates than DINSAR. Also, we have compared our results with other authors that denote a continuous subsidence (ranging from  $-2.5$  cm/yr to  $-0.7$  cm/yr). According to modeling results, subsidence could be best fitted with an ellipsoidal oblate cavity, which is a horizontal lens whose extension underlies much of the CBVC or by a sill type source. This magmatic body is presumably located on the center to CBCr at about 6 km of depth. We interpret this deformation as a rearrangement of the volcanic system after the 4.2 ka eruption when volume of volcanic material from 56 to 75 km<sup>3</sup> was emitted. A continuous decrease in deflation rate has been observed but further studies had to be done to determine whether deformation goes to a change in sign and a possible reactivation or not. This enhances the importance of continuous monitoring deformation as useful indicator of activity at CBVC.