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## Stress field and structural model of Nevados de Chillán Volcanic Complex

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Nevados de Chillán Volcanic Complex (NChVC) is located in the central segment of the Southern Volcanic Zone of the Andes and is one of the most risky Chilean volcanoes. It presents a NW-SE alignment of their craters. A major fault system that explains the volcanism has not been identified in the zone. Thus, it is necessary to propose a structural model, with kinematic and stress fields, to understand the distribution of volcanic products. For this, a structural mapping of the basement at NChVC was made and 5 structural sites were defined, where slip direction, texture, fault cut-relation, veins and dykes were measured. Over these data we performed a kinematic and dynamic analysis. The results are supported for spatial veins (T-fractures) and dykes analysis. This methodology was applied to several scales: structural site, geologic unit and regional scale. Preliminary results indicate that more than one strain stage are registered, which is evidenced in the heterogeneities of P- and T-axis distribution. The dynamic study shows 2 principal stress states. The first is characterized by the  $\sigma_1$  orientated NW and  $\sigma_3$  oriented NE. The second with  $\sigma_1$  and  $\sigma_3$  oriented NE and NW, respectively. The veins and dikes distribution shows two principal orientations, one of them NW-dominated and the other less abundant NE-dominated. The NE- $\sigma_1$  stress state is compatible with the current tectonic regime associated with plate convergence and by the extensional veins origin with NE-orientation. The other stress state NW- $\sigma_1$ , is uncoupled of current tectonic regime and is compatible with the major veins and NW dikes, and the alignment of volcanic craters. This can be the product of inherited structures that allow the fluid and magmas ascent combined with the inversion of tectonic regime during subduction earthquakes.