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Basement structural control on Quaternary volcanism in Chaitén-Michinmahuida Volcanic Complex.

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Chaitén-Michinmahuida Volcanic Complex (CVChM) is composed by the Michinmahuida and Chaitén volcanoes, and pyroclastic cones aligned between them along a NE-SW structure. The CVChM is emplaced over metamorphic rocks of a Paleozoic accretionary prism and intrusive rocks of late Cretaceous and Miocene ages. This last intrusive event is spatially associated with the Liquiñe-Ofqui Fault Zone (LOFZ), the main structural feature of the Southern Andes that absorbs the parallel-to-the-margin component of convergence between Nazca and South American plates. Activation of the structural arrangement under CVChM would in turn have played an important role during the 2008 eruption of Chaitén Volcano, as indicated by studies based on seismic and geodetic information. This demonstrates the strong link between eruptive dynamics and the surrounding basement, possibly conditioned by the structural framework of the volcanic complex, and crustal tectonics where it is located. In order to characterize the structure of the basement and evaluate the role it plays in the construction of CVChM especially during its latest eruptive cycle, we have acquired geological and structural field data whose preliminary results are presented in this contribution. The structural data were grouped into 4 structural sites, located in two main lineaments of the study area, corresponding to the LOFZ and a regional inferred fault of NNE-SSW orientation under Chaitén Volcano. It is noted that at these sites, the σ_1 direction (parallel to the subduction) and σ_3 (almost perpendicular to the subduction) are subhorizontal and σ_2 is very close to the vertical. This evidences a transcurrent regime in both regional faults in the study area, associated with NW reverse dextral faults and NNE normal dextral faults. Besides these regional lines, there are evidence of ductile deformation and mylonitization showing the impact of compressional regimen over intrusive and metamorphic rocks. During the meeting we will present a detailed analysis of these data and advance an interpretation in relation to volcanic activity.