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Muon Tomography of Galeras Volcano: first results led by young scientists in Colombia

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Muon radiography is based on the observation of the absorption of muons in matter, as the ordinary radiography does by using X-rays. The interaction of cosmic rays with the atmosphere produce Extensive Air Showers (EAS), which provide abundant source of muons. These particles can be used for various applications of muon radiography, in particular to study the internal structure of different volcanoes edifice. In this talk we will present results led by young scientists in Colombia, and the relevance to provide guidance to future young undergraduate and high school students in software as ROOT, GEANT4 and C++ and their applications in fields as high energy physics. As part of the results to be presented, we will show the first study of the muon lateral distribution at Pasto City altitude (4276 m a.s.l.) using CORSIKA to model the interaction of the cosmic rays with the atmosphere. Furthermore the first simulation in GEANT4 of an active volcano in Pasto city (Colombia) and a particle detector located near the volcano cone will be presented.

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