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## SCIENTIFIC VERIFICATION OF THE HIGH ALTITUDE WATER CHERENKOV OBSERVATORY

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The High Altitude Water Cherenkov (HAWC) observatory is a TeV gamma-ray and cosmic-ray detector currently under construction at an altitude of 4100 m close to volcano Sierra Negra in the state of Puebla, Mexico. The HAWC observatory is an extensive air-shower array comprised of 300 optically-isolated water Cherenkov detectors (WCDs). Each WCD contains ~200,000 liters of filtered water and four upward-facing photomultiplier tubes. In Fall 2014, when the HAWC observatory will reach an area of 22,000 m<sup>2</sup>, the sensitivity will be 15 times higher than its predecessor Milagro. Since September 2012, more than 30 WCDs have been instrumented and taking data. This first commissioning phase has been crucial for the verification of the data acquisition and event reconstruction algorithms. Moreover, with the increasing number of instrumented WCDs, it is important to improve the scientific verification. In this work we present a comparison between Monte Carlo simulation and data for different detector configurations and results of muon discrimination algorithms.

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