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## Atmospheric muon flux measurement near Earth's equatorial line

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We report measurements of muon flux over the sky of the city of Bogotá at  $4^{\circ} 35' 56''$  north latitude,  $74^{\circ} 04' 51''$  west longitude, and an altitude of 2657 meters above sea level, carried out with a hodoscope composed of 4 stations of plastic scintillators located equidistant over a distance of 4.8 meters. Measurements were taken at different zenith ( $\theta$ ) angles within the range  $1.5^{\circ} \leq \theta \leq 90^{\circ}$ , the muon flux data is statistically consistent with a  $\cos^2\theta$  dependence, with a  $\chi^2$  per degree of freedom near unity. If instead, we fit to a  $\cos^n\theta$  we obtain  $n = 2.145 \pm 0.046$  with a lower  $\chi^2$  per degree of freedom. Integrating the muon flux distribution as a function of the zenith angle over the solid angle of the upper Earth's hemisphere allows an estimation of the atmospheric vertical muon rate at the altitude and latitude of Bogota obtaining a value of  $255.1 \pm 5.8 \text{ m}^{-2}\text{s}^{-1}$ . This estimate is consistent with an independent direct measurement of the vertical muon flux with all detectors stacked horizontally. These measurements play a key role in the further development of detectors, aimed to perform muon imaging of Monserrate Hill, located in Bogota, where the detectors will be placed at similar locations to those used in the present study.

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