UFRGS HEPSim
UNIVERSIDADE FEDERAL DO RIO GRANDE DO SUL
High Energy Physics Simulations

IWARA
From Quarks to Cosmos

Ground Level Muon Flux Variation in a Cosmic Rays Simulation

A study of tidal frequencies in muon flux ground level detection using Corsika simulations

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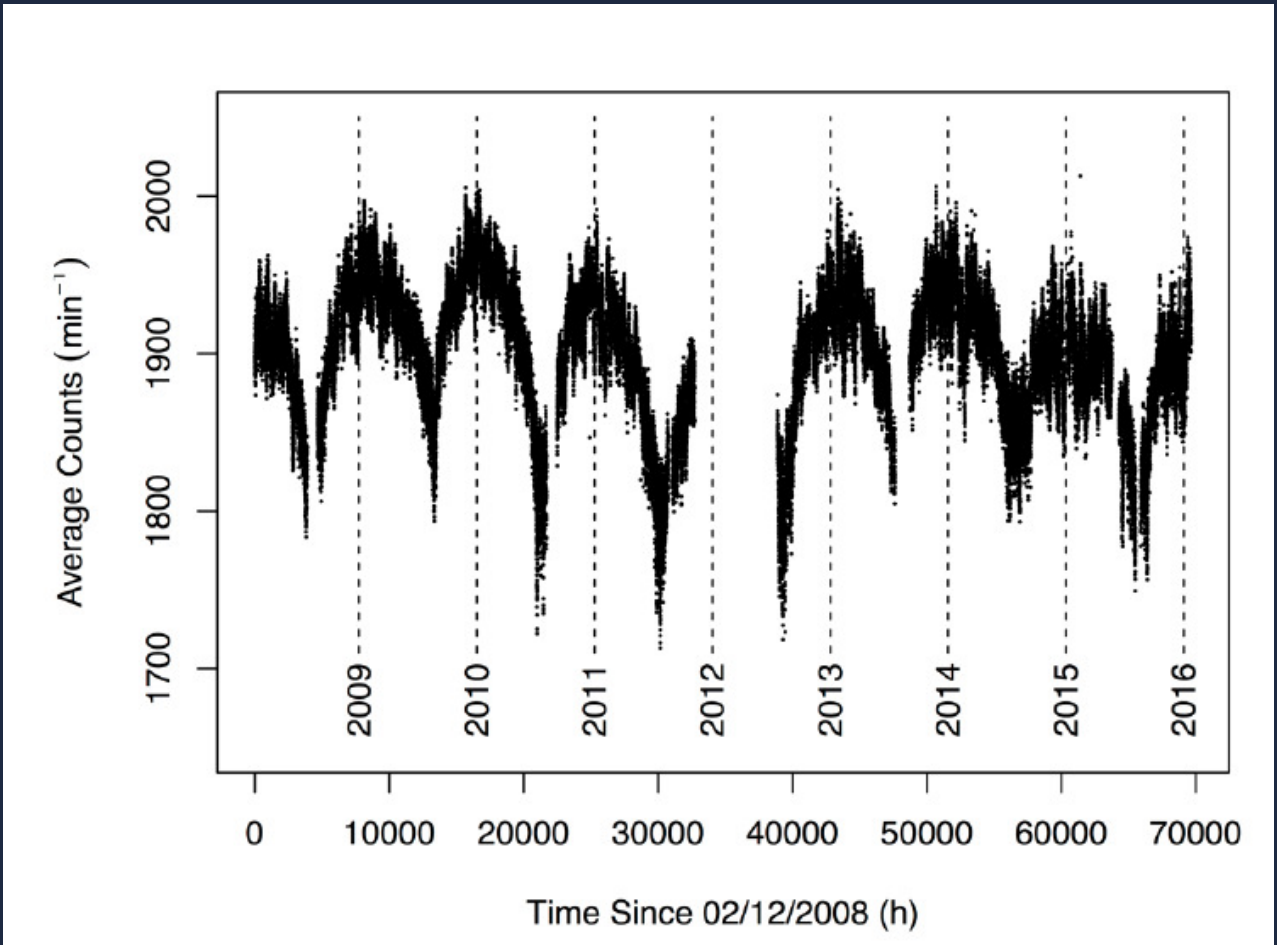
Tidal Frequencies in the Time Series Measurements of Atmospheric Muon Flux from Cosmic Rays

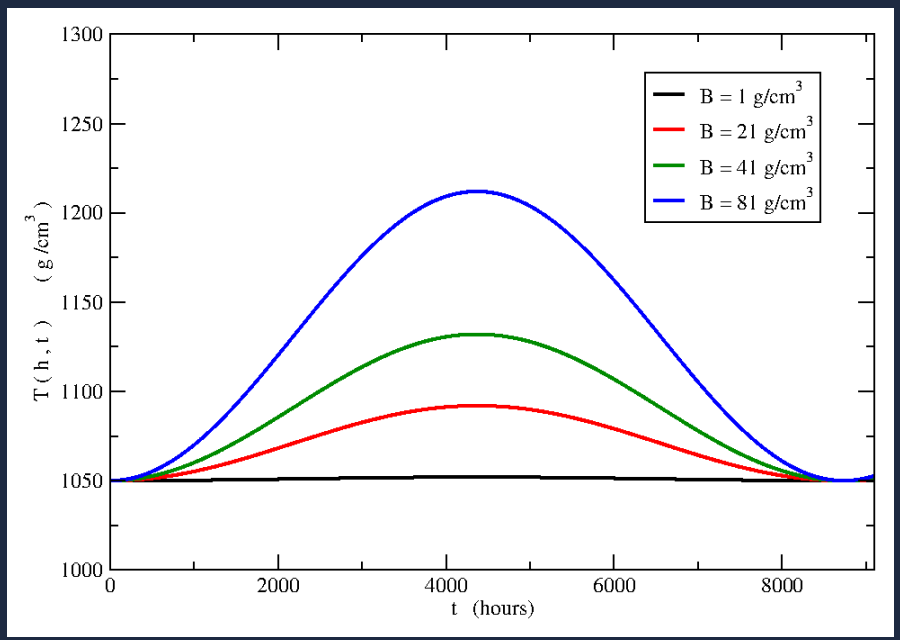
H. Takai et al.



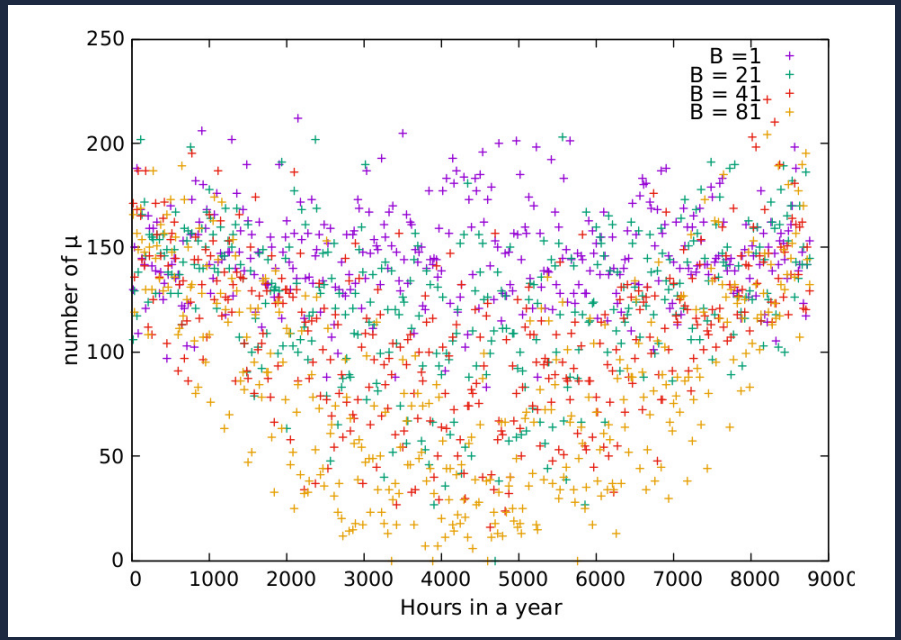
Muon counts over a period of 8 years.
source: arXiv:1610.05983 [astro-ph.HE].

Results

$$
\begin{aligned}
T(h,t) &= \left[a_i + B\sin^2(\omega\, t)\right] + \left[b_i + B\sin^2(\omega\, t)\right]\, e^{-h/[c_i + B\sin^2(\omega\, t)]}, \\
T(h) &= a_5 - b_5 \cdot h/c_5
\end{aligned}
$$



Model of the atmospheric density function $T(h,t)$.



Muon counts over a period of a year, for different B values.