

Interactive comment on “Atmospheric muons: experimental aspects” by S. Cecchini and M. Spurio

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AR2: > In the item at line 110 it is stated that the muon flux has the same power as the primary spectrum for muons with energy greater than the characteristic energy for muon decay but less than the critical energies for pion and kaon decay. I think this is not correct because the effect of muon energy loss in the atmosphere is still important up to 100 GeV. <

ANSWER: The comment is correct. We suggest to replace the following sentences: “In this energy range, almost all mesons decay and the muon flux has the same power law of the parent mesons, and hence of the primary CRs. The muon flux is almost independent on the zenith angle.” from lines 110–114 with: Above ~ 100 GeV,

C163

the muon flux has the same power law of the parent mesons, and hence of the primary CRs. Below 100 GeV, the effect of the muon energy loss in the atmosphere is still important, particularly going towards the horizontal direction.

AR2: > Stylistic changes suggested: Line 163: should read “...larger than the experimental...” (rather than “larger than”) <

ANSWER: ok

AR2: > Line 193: should read “...are not performed exactly at sea level.” <

ANSWER: ok

AR2: > Line 195: should read “...flux on the altitude...” <

ANSWER: ok

AR2: > Line 322: In the discussion of range straggling it might be useful to refer to the paper of Lipari and Stanev on this subject (Paolo Lipari and Todor Stanev, Phys. Rev. D44 (1991) 3543 <

ANSWER: ok. We add (Lipari and Stanev, 1991). \bibitem[(Lipari and Stanev, 1991)]{Lipari and Stanev, 1991} Lipari P. and Stanev T., Propagation of multi-TeV muons, Phys. Rev. D44, 3543, doi: 10.1103/PhysRevD.44.3543, 1991.

AR2: > Line 325 and line 329. The standard form is “depth-intensity relation” (instead of “deep intensity relation”) <

ANSWER: ok

AR2: > Line 418: should read “in the case of single muon events...” (not “of”, not “on”) 4 lines later should read “...depends on their distance...” <

ANSWER: ok

AR2: > Line 492 Add Lake Baikal to the list of locations of neutrino telescopes taking data <

C164

ANSWER: Correct. The sentence: "Neutrino telescopes are taking data under the Antarctic ice or in the Mediterranean sea." is replaced with: Neutrino telescopes are taking data under the Antarctic ice, under the Baikal lake and in the Mediterranean sea.

AR2: > Line 518: should read "These data were used to obtain..." <

ANSWER: ok

Interactive comment on Geosci. Instrum. Method. Data Syst. Discuss., 2, 603, 2012.