

Study of Muon-Based Mass-Sensitive Parameter for the IceTop Surface Array

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What is this contribution about?

This contribution is about the muon-based mass-sensitive parameter with the IceTop surface array.

Why is it interesting?

This parameter can be applied to select datasets for different mass groups and further to do mass composition studies.

What have we done?

Considering the charge signal distribution, a muon parameter per individual shower was defined and estimated. Using the shower size S125 and the estimated muon parameter at a reference distance, the mass-sensitive ratio is estimated event by event, based on the interaction model of Sibyll 2.1 and 10% of 2012 IceTop data.

What is the result?

The estimated mass-sensitive parameter clearly shows the primary mass dependence and the data seems to favour heavy primaries in the energy range of 10 PeV. Further mass composition studies are in progress.