

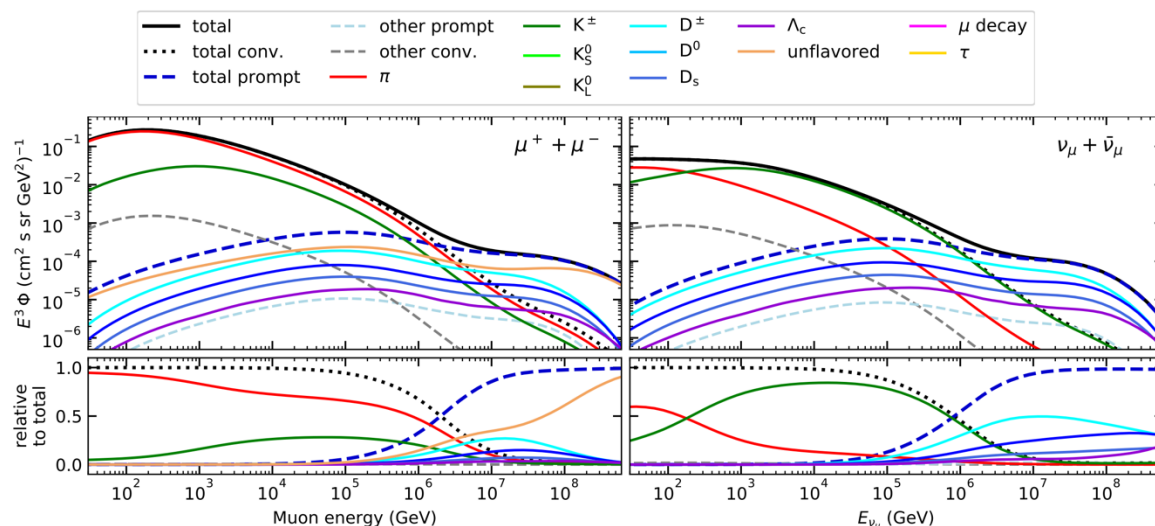
# ICRC: Measuring the Prompt Component of the Atmospheric Muon Flux using IceCube

## Motivation

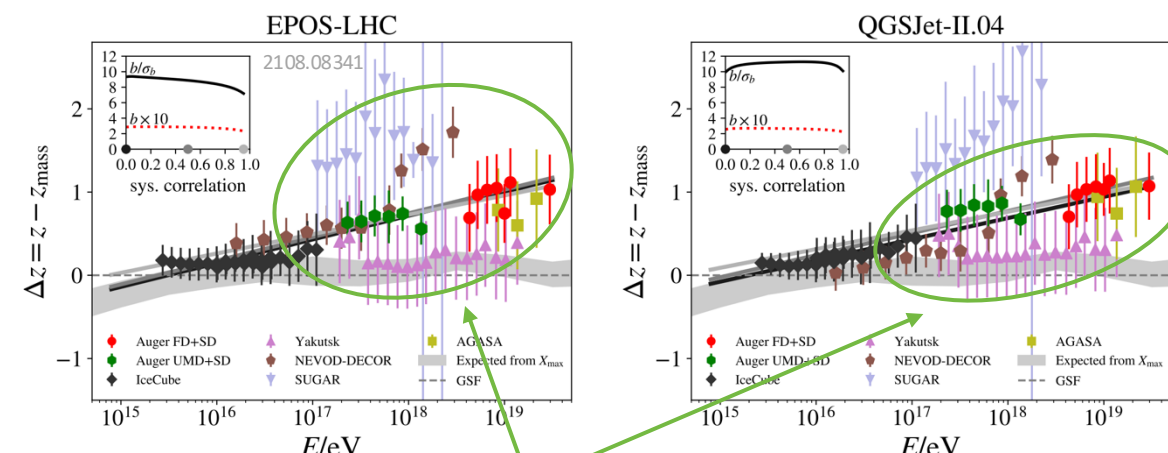
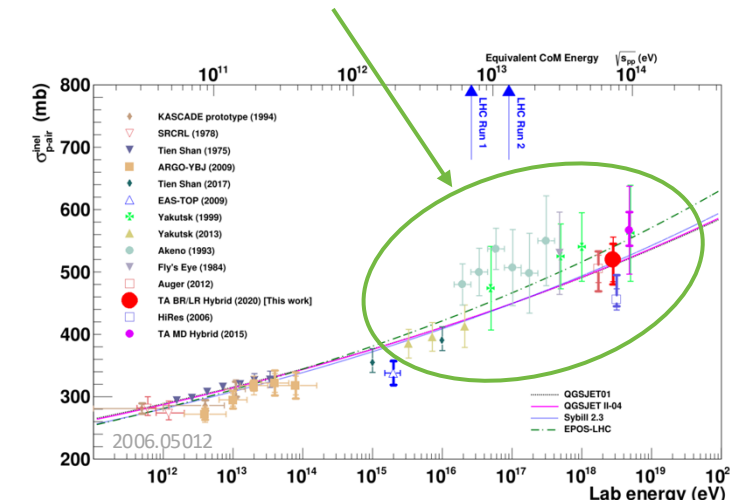
- fine-tune hadronic interaction models
- muon puzzle

## Analysis goals

- measure normalization of prompt muon flux
- unfold atmospheric muon flux

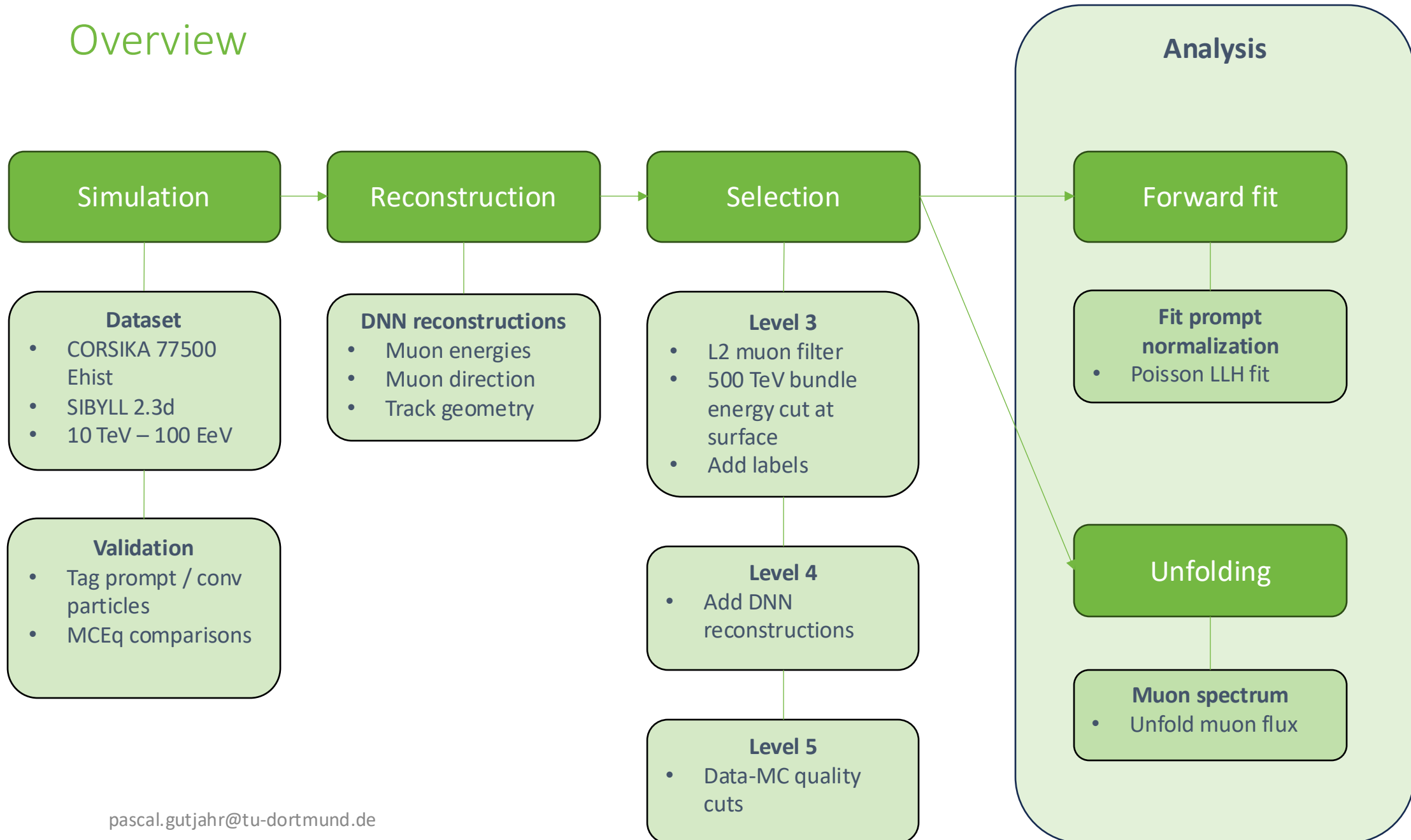


➤ Uncertainties at  $E > 10$  PeV



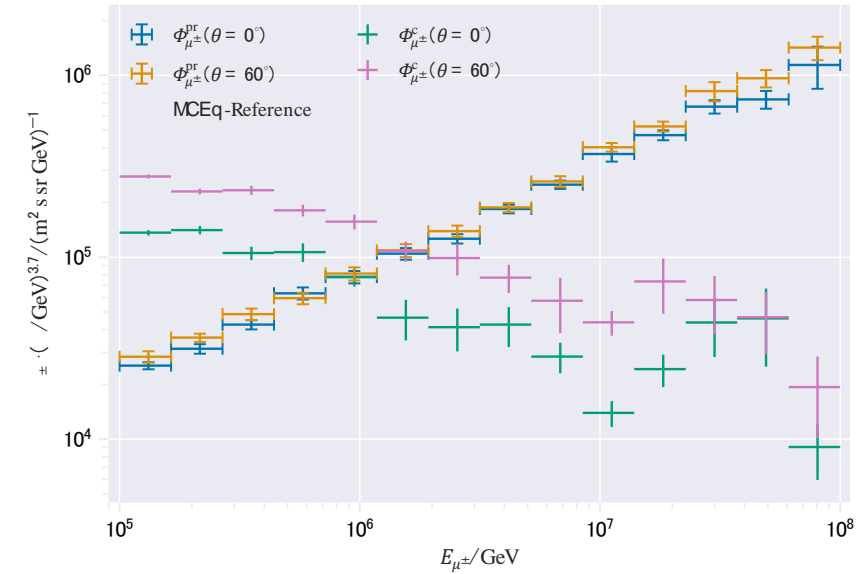
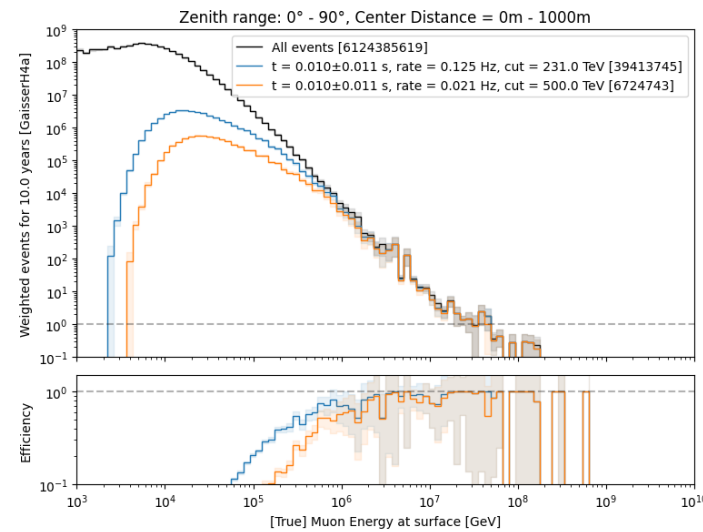
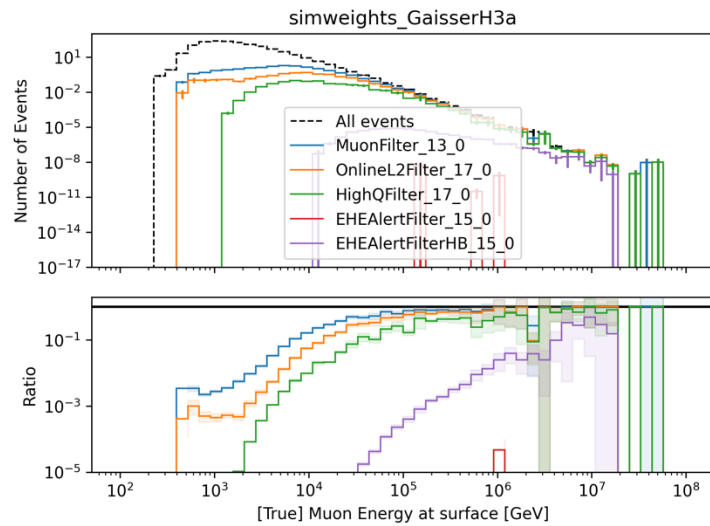
➤ More muons measured than simulated for  $E > 40$  PeV ~ cms 8 TeV 1

# Overview

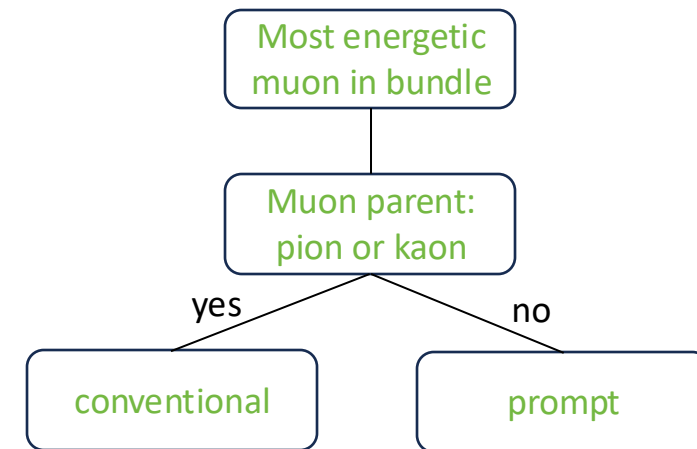
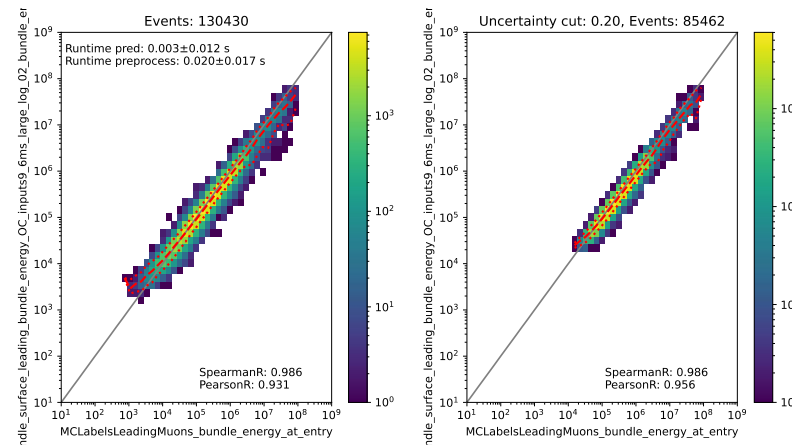


# Simulation, Reconstruction and Selection

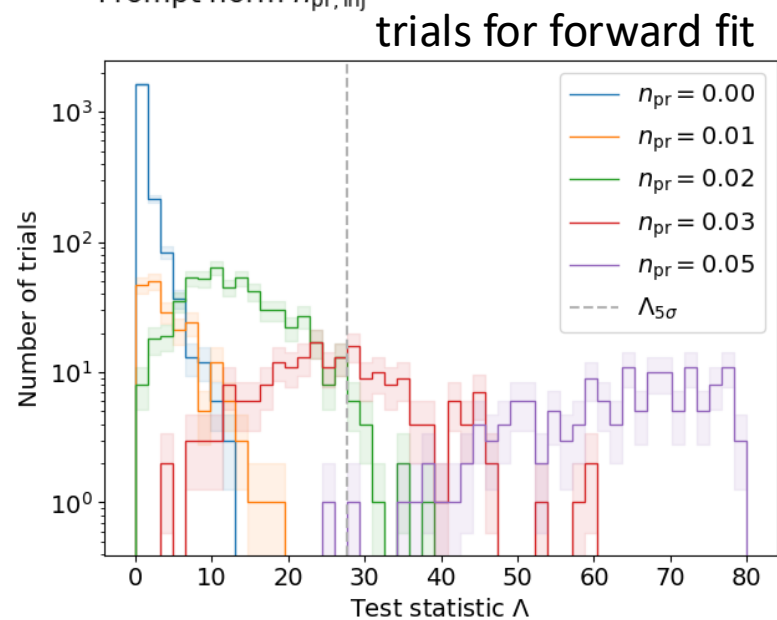
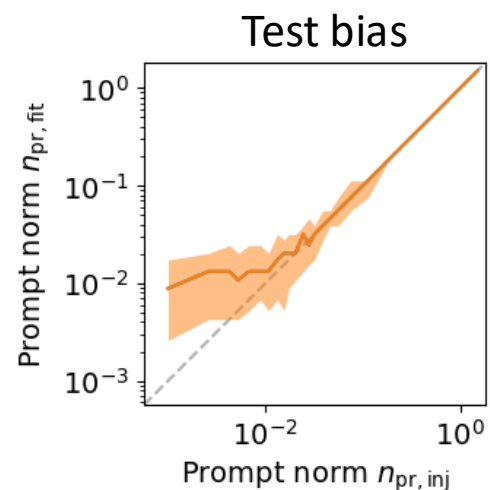
- new CORSIKA 7 extended history simulations compared to MCEq
- selection: muon filter, energy cut, data-MC quality cuts



- DNN reconstructions

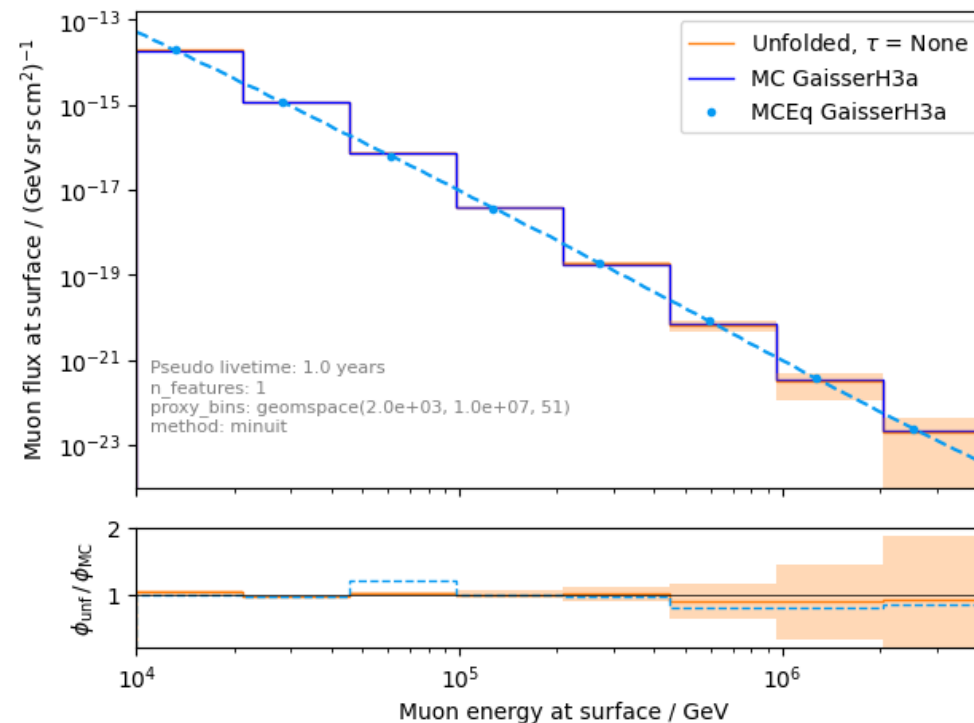


# Forward Fit and Unfolding

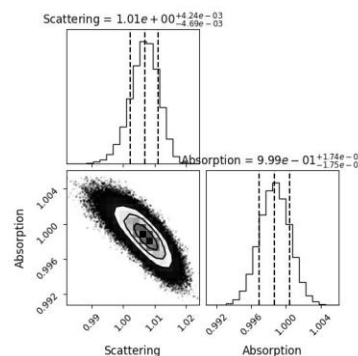


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## unfolded muon flux at surface



## systematics



## proxy variable

