

Measuring the prompt component of the atmospheric muon flux

Pascal Gutjahr

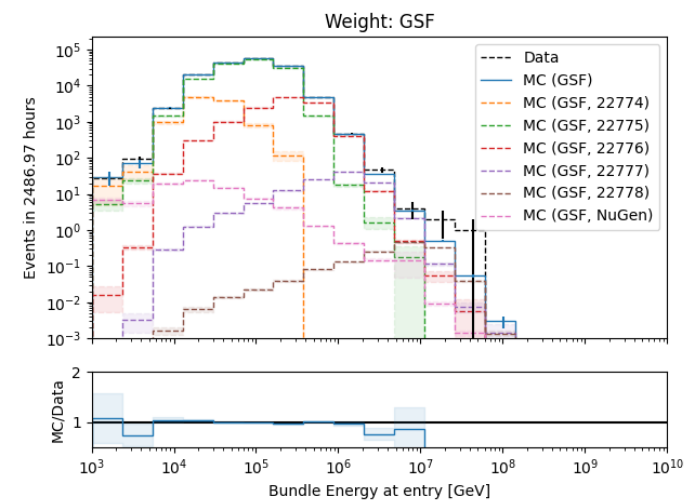
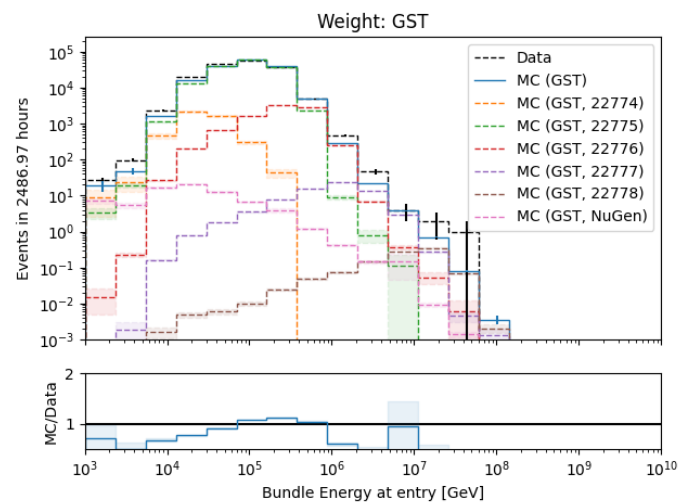
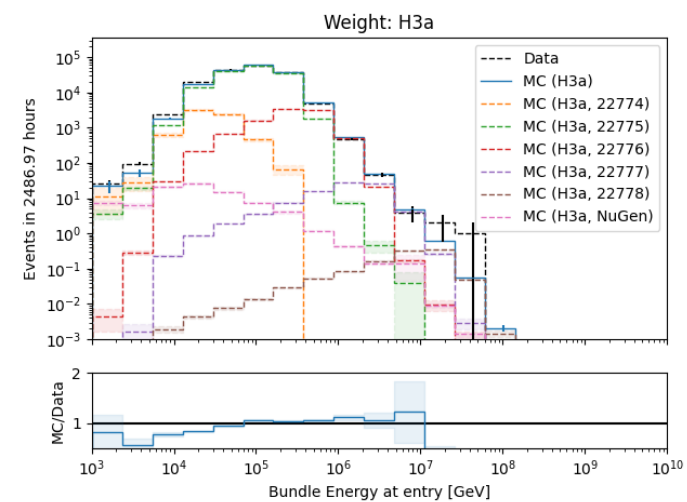
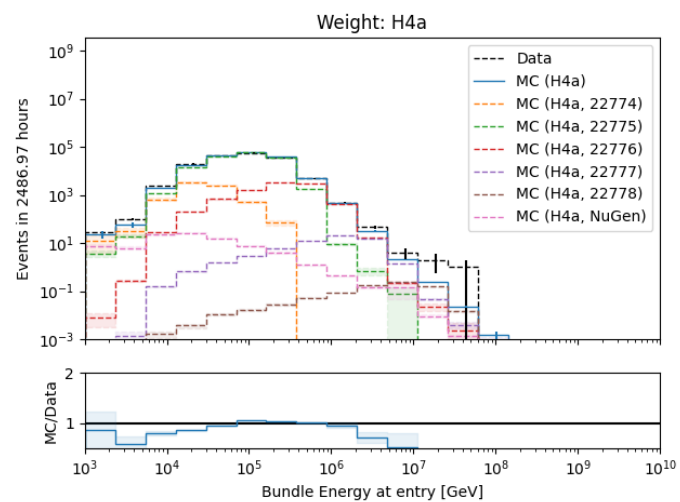
March 5, 2024

Muons

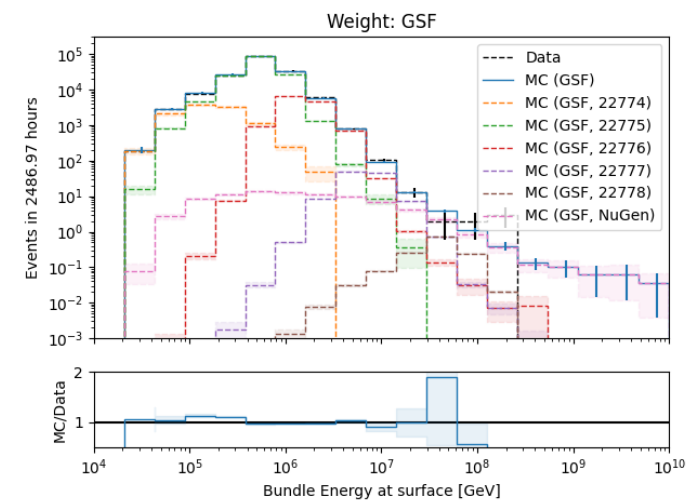
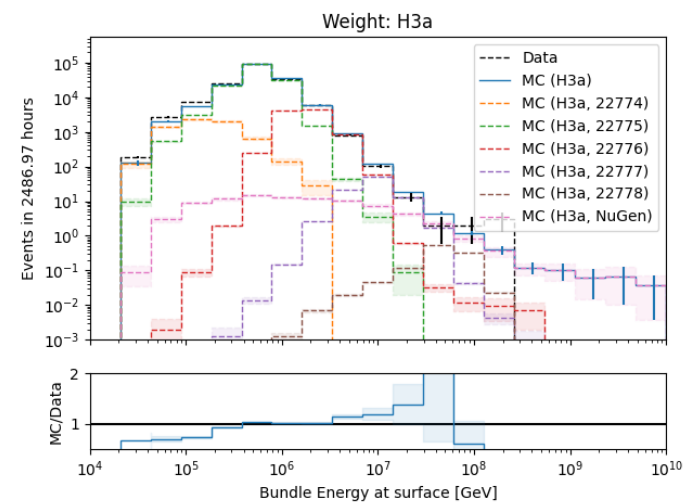
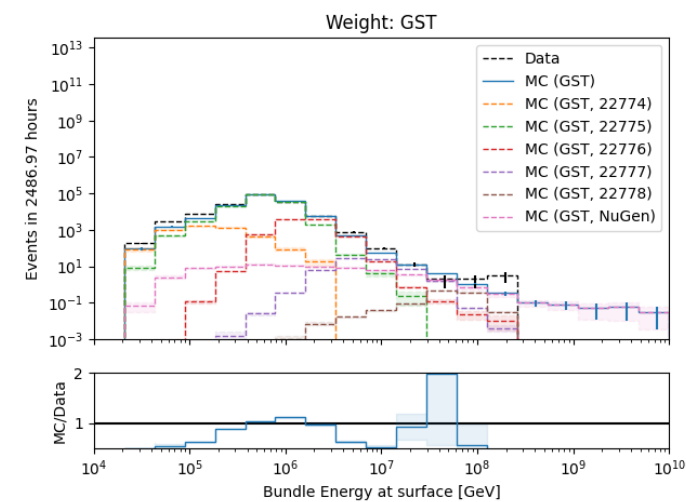
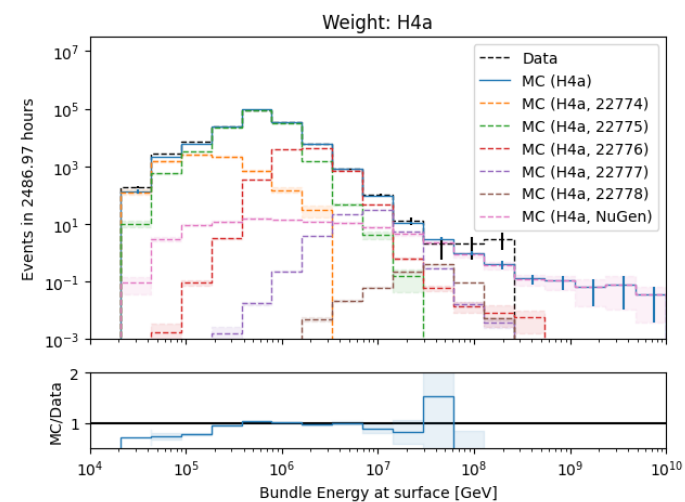
Source: NASA

level4

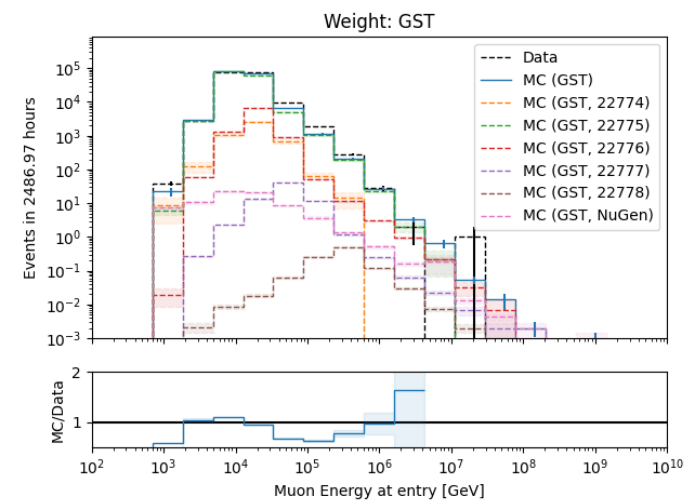
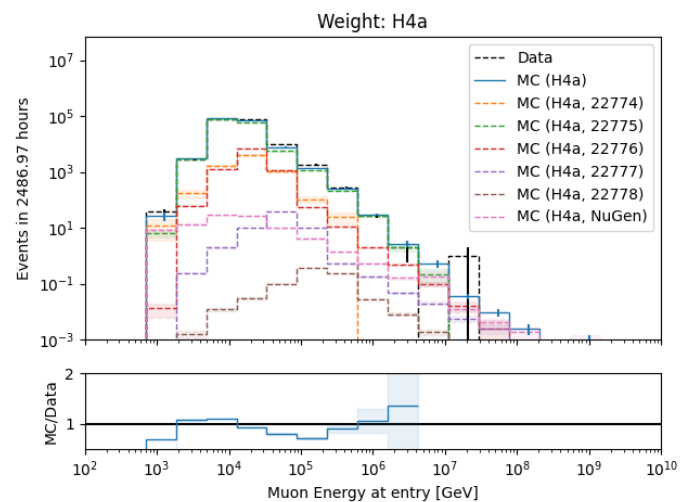
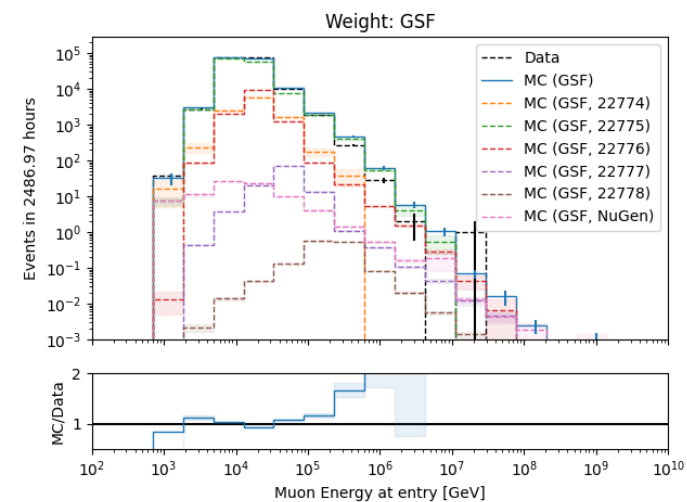
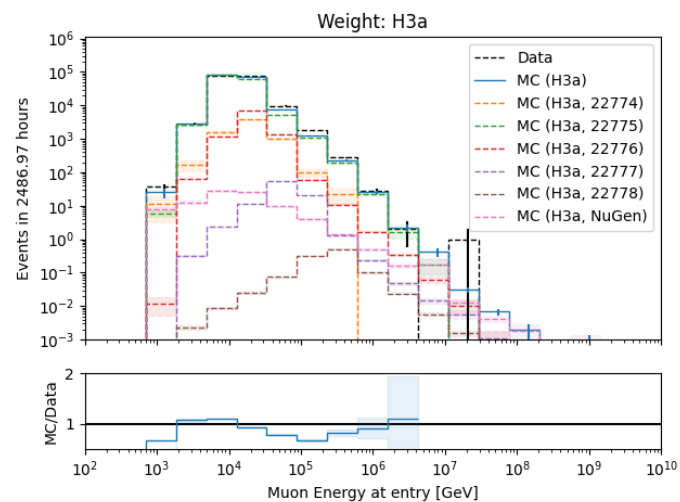
Bundle energy at entry



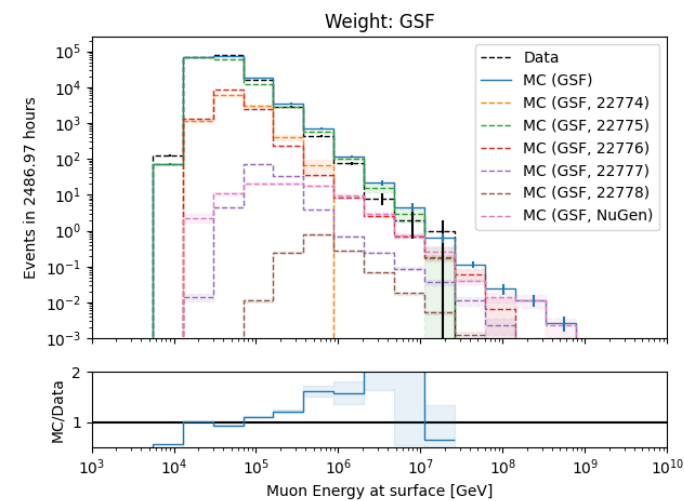
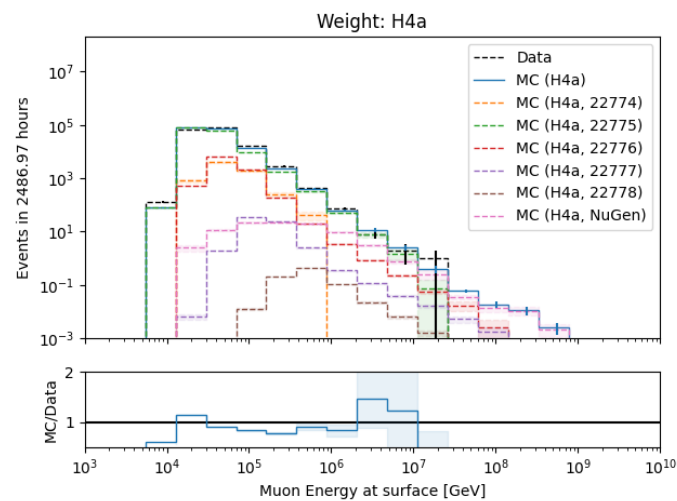
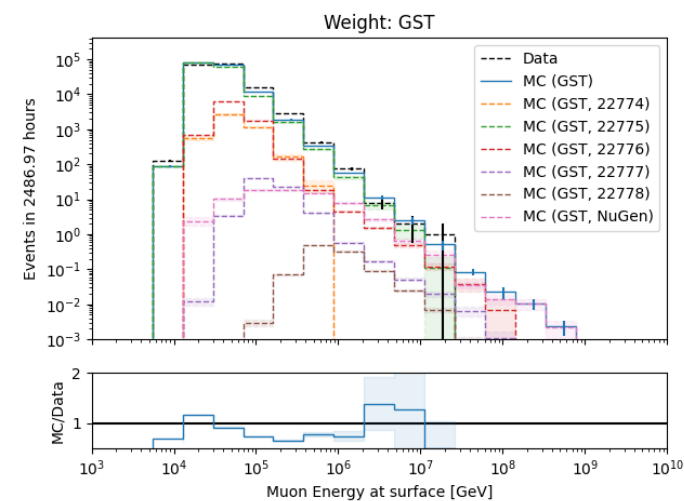
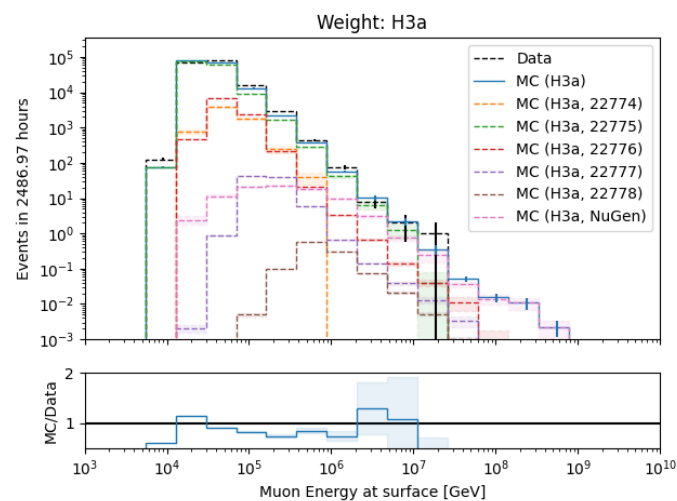
Bundle energy at surface



Leading muon energy at entry

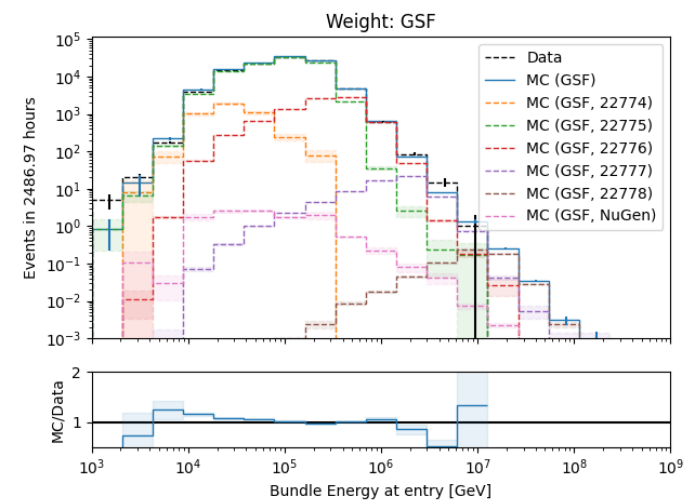
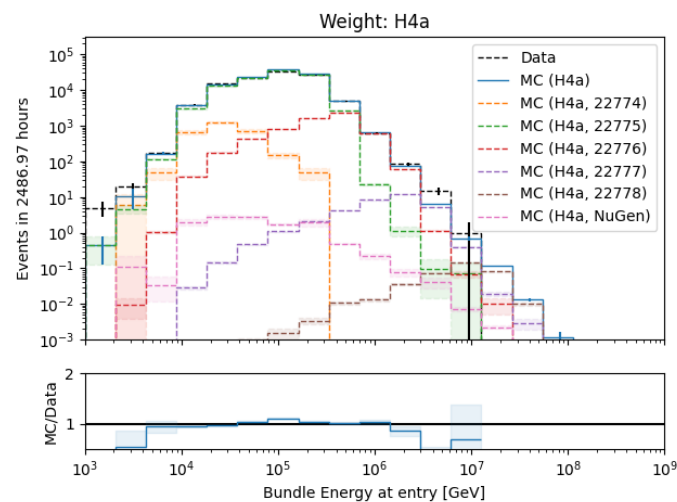
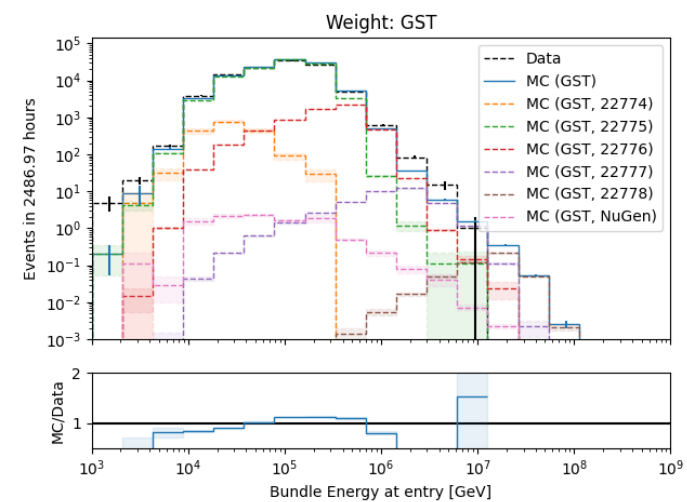
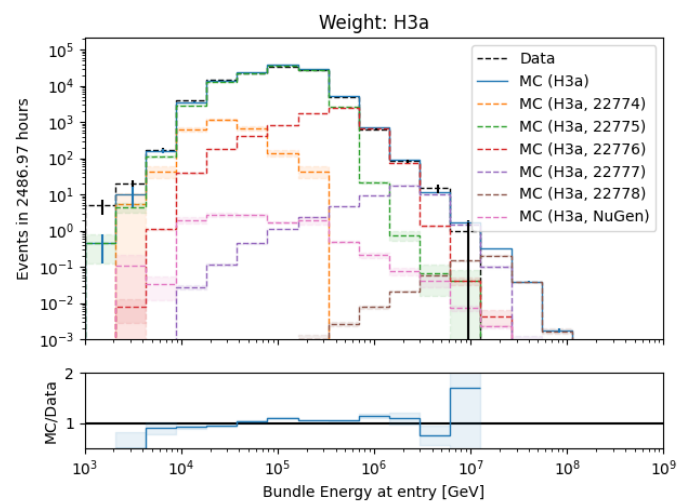


Leading muon energy at surface

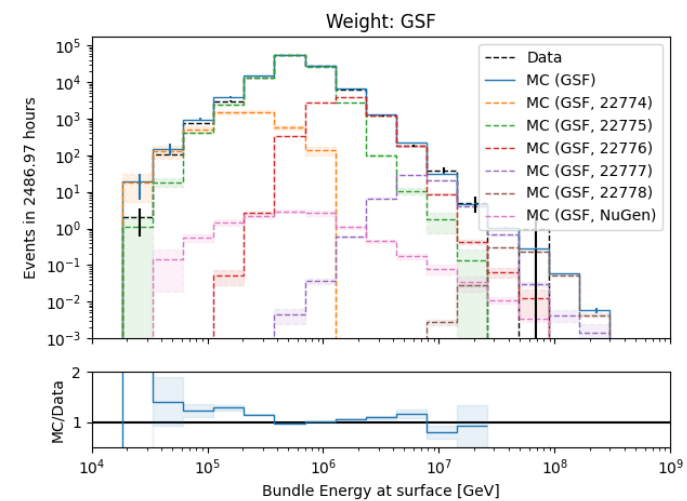
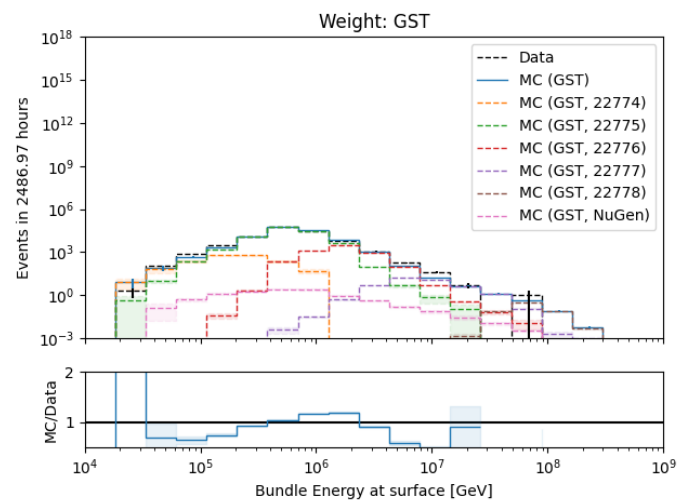
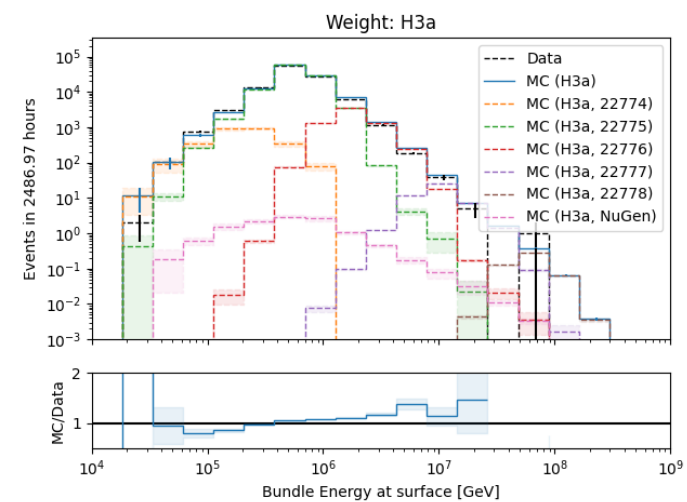
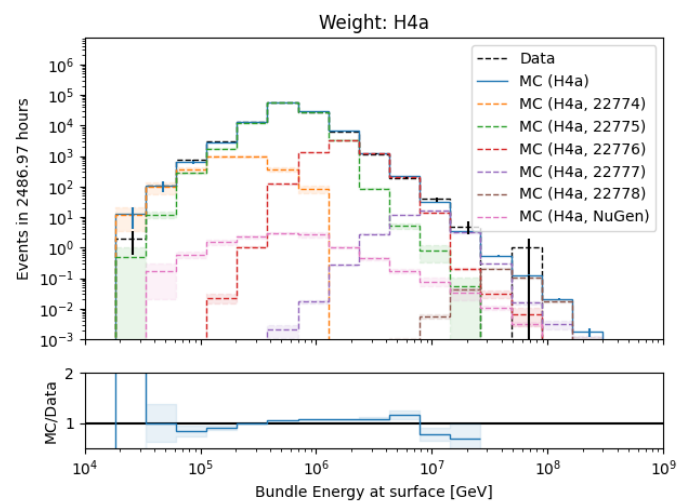


level5

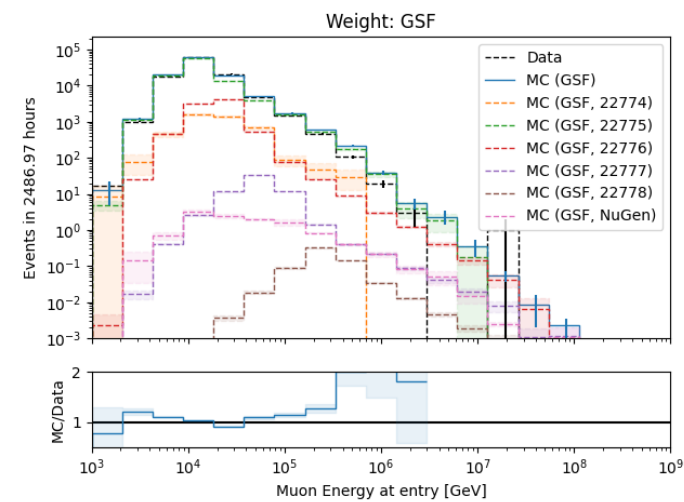
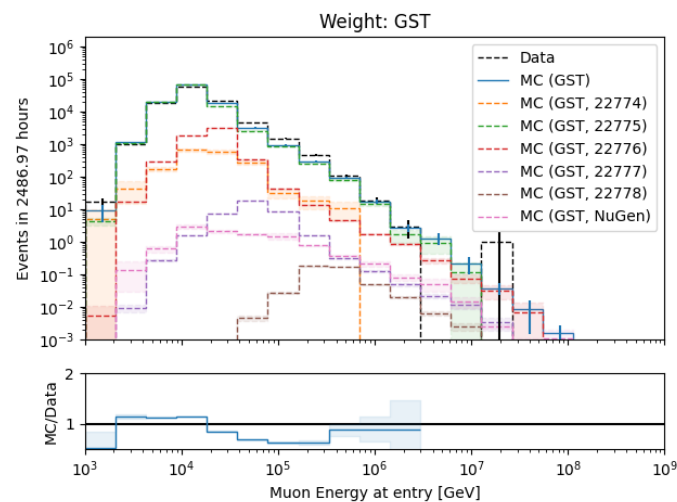
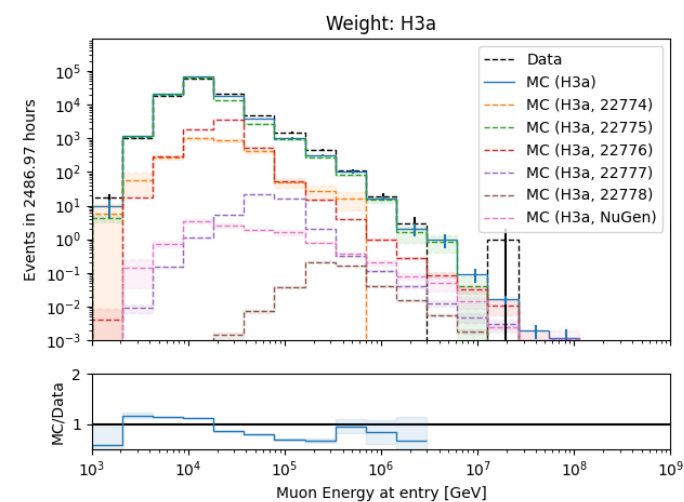
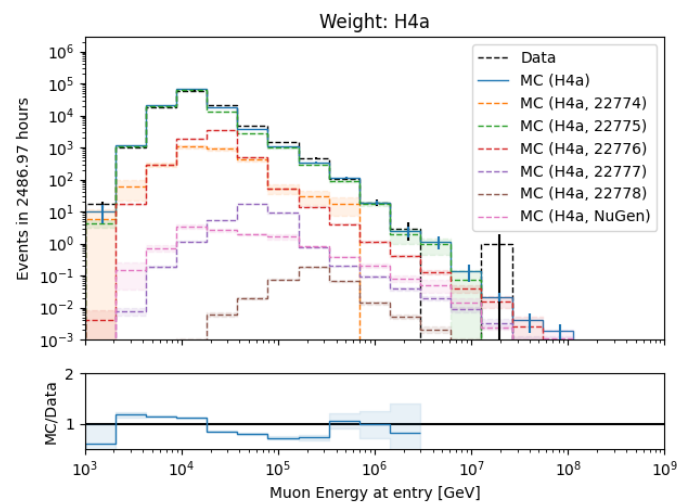
Bundle energy at entry



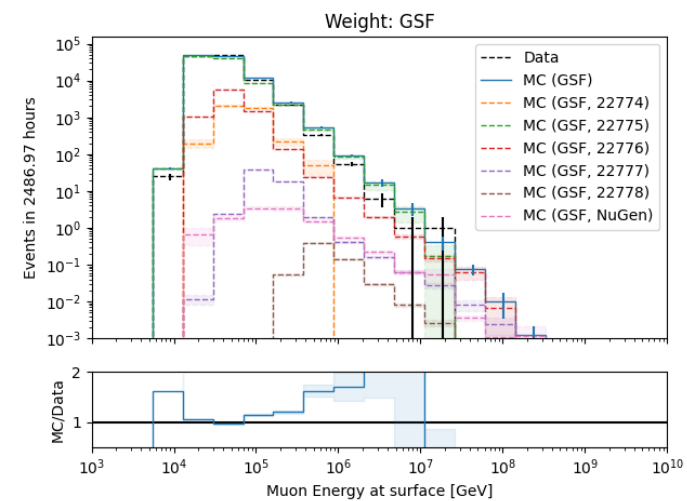
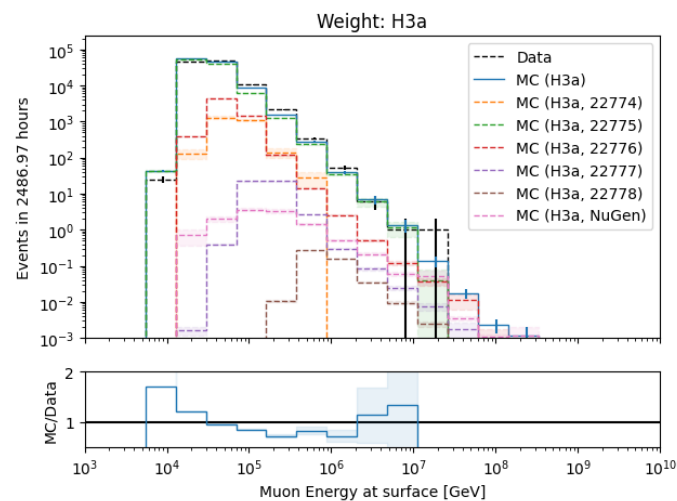
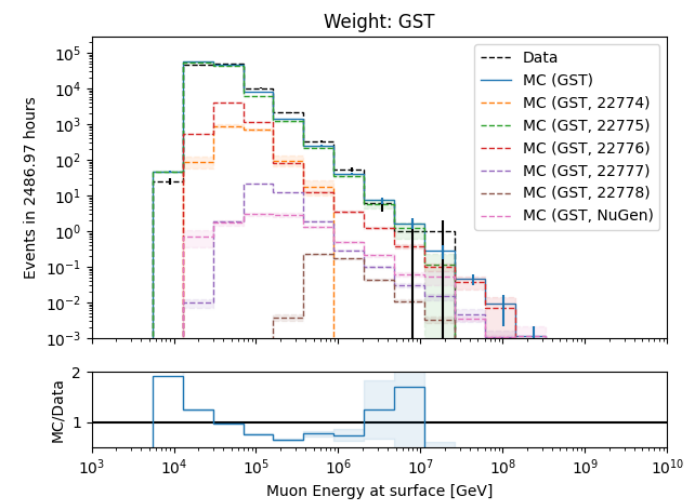
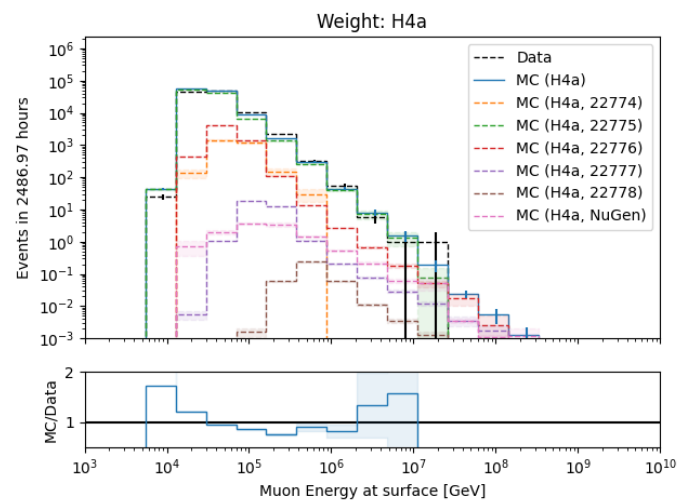
Bundle energy at surface



Leading muon energy at entry



Leading muon energy at surface



Check relevance of different primary particles for primary models as a function of the primary particle energy

- per particle means energy per nucleus
- ratio means the contribution of the particle to the total flux of all particles
- vertical lines indicate our 5 simulation datasets
- for example: He4 is very relevant in the high-energy region in GSF, but less relevant in the other weightings – in the other weightings, Fe56 is more relevant at high energies

