Infill energy spectrum

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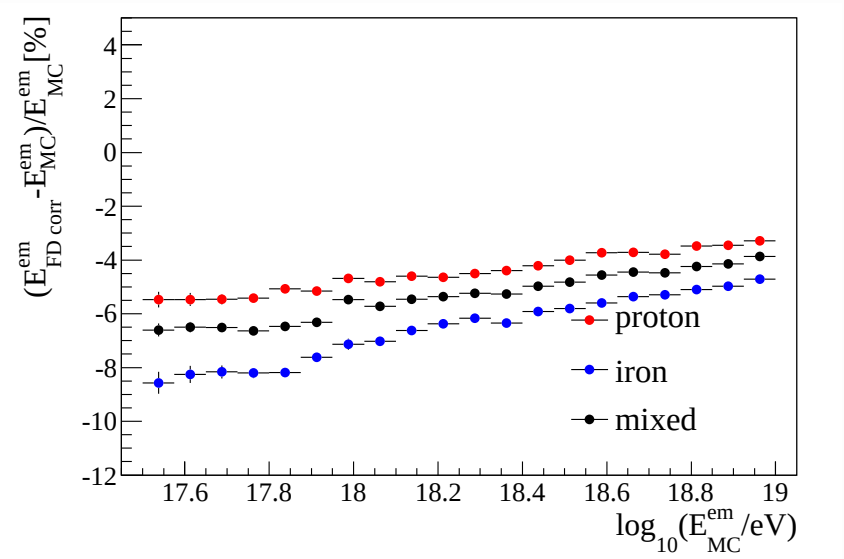
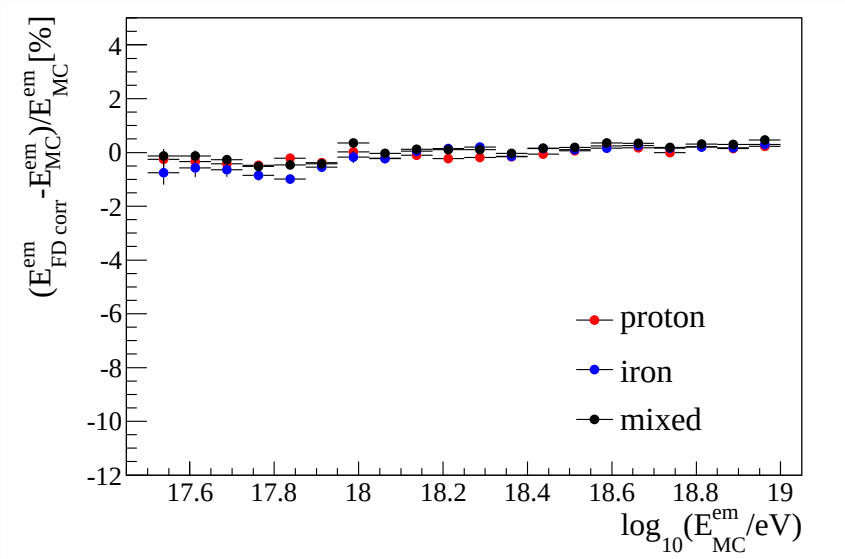
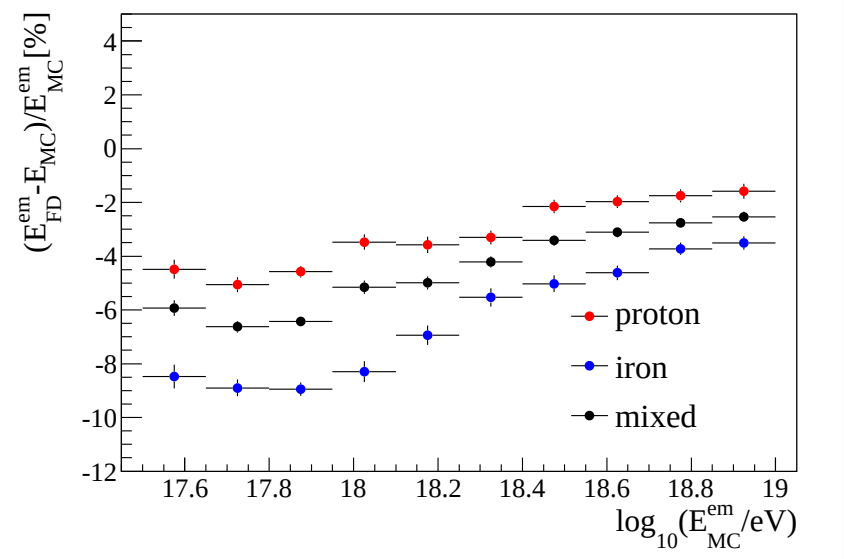
- FD energy reconstruction
- Observer vs CDAS
- ICRC vs other spectra
- energy resolution

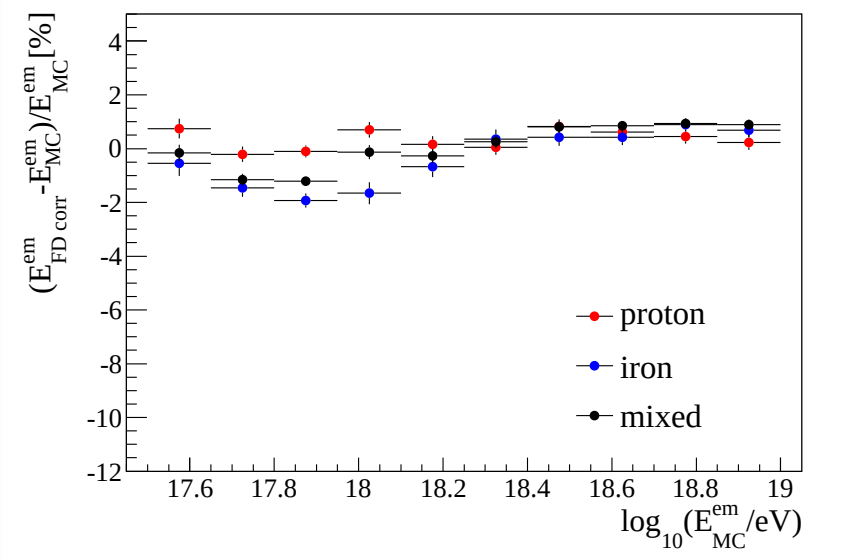
Before ICRC

Correction for the recontruction of FD energy









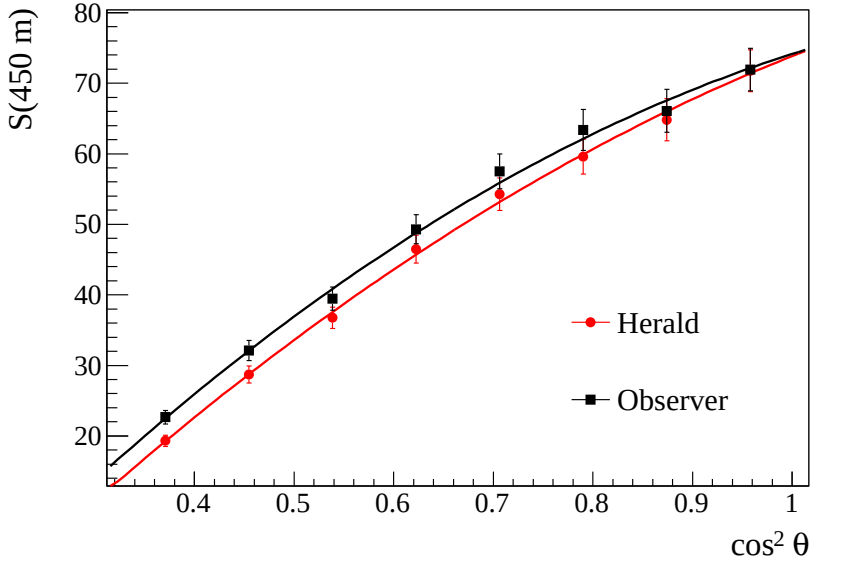
Attenuation Herald -Observer

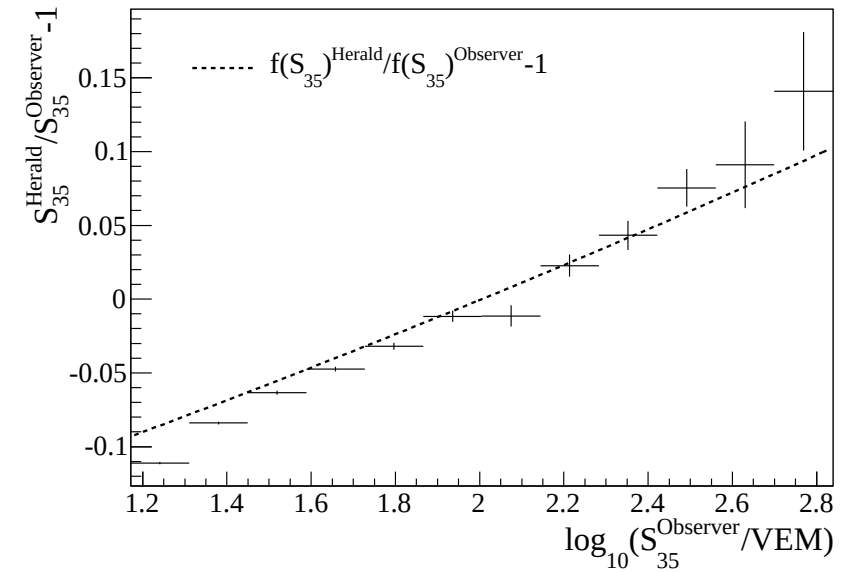
for Herald(v5r0)

$$a = 1.76 \pm 0.09, b = -0.97 \pm 0.38, S_{35} = 50.1 \pm 1.02 \quad (1)$$

Observer(v7r3)

$$a = 1.58 \pm 0.09, b = -1.12 \pm 0.38, S_{35} = 53.0 \pm 1.1 \quad (2)$$





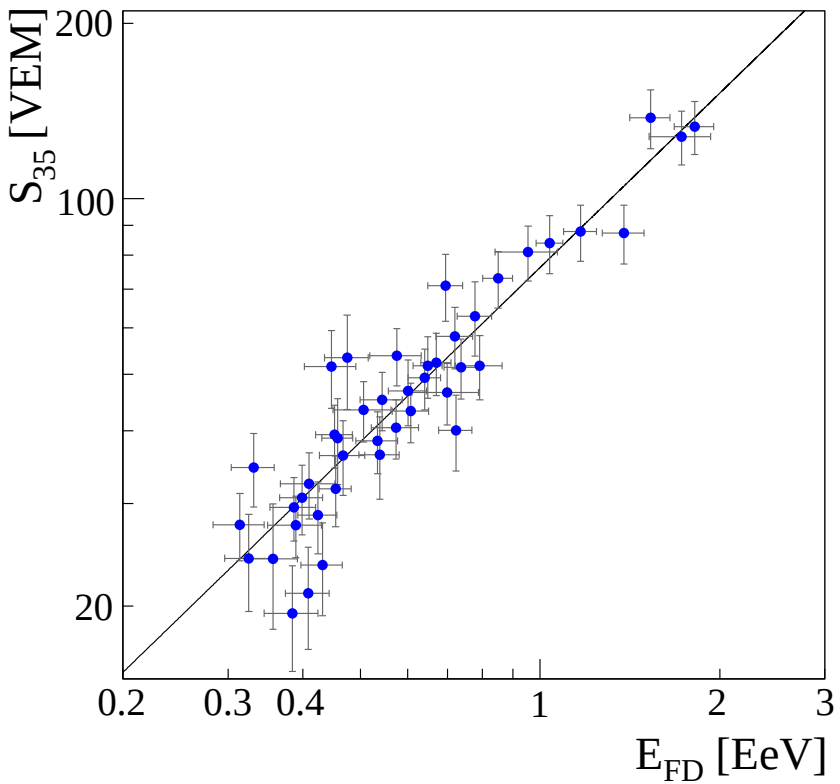
Energy calibration Herald-Observer

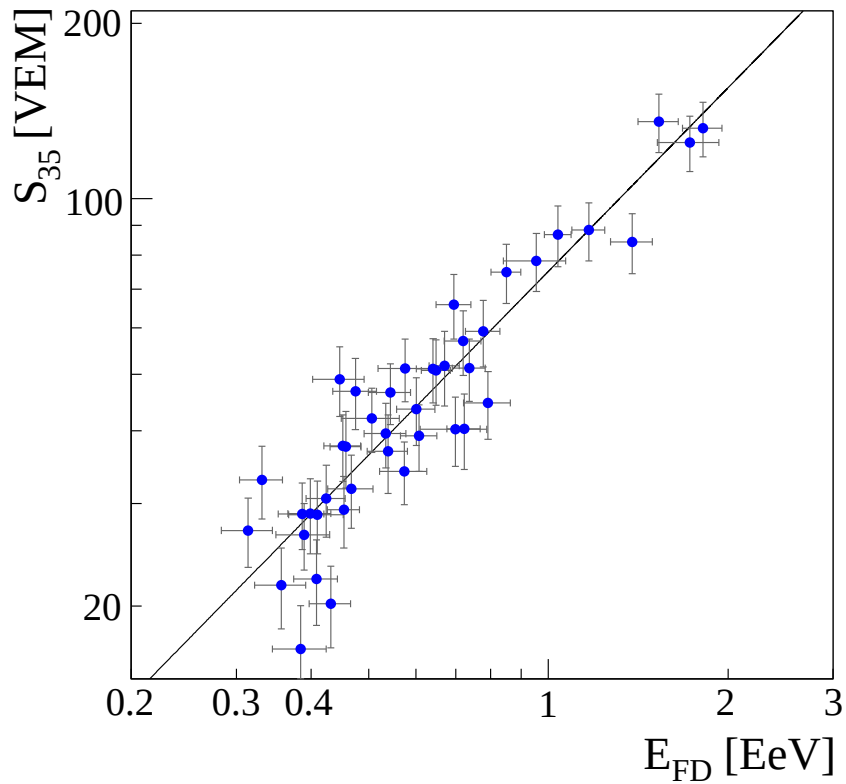
Observer

$$A = 0.01276 \pm 0.0025, \gamma = 1.006 \pm 0.051$$

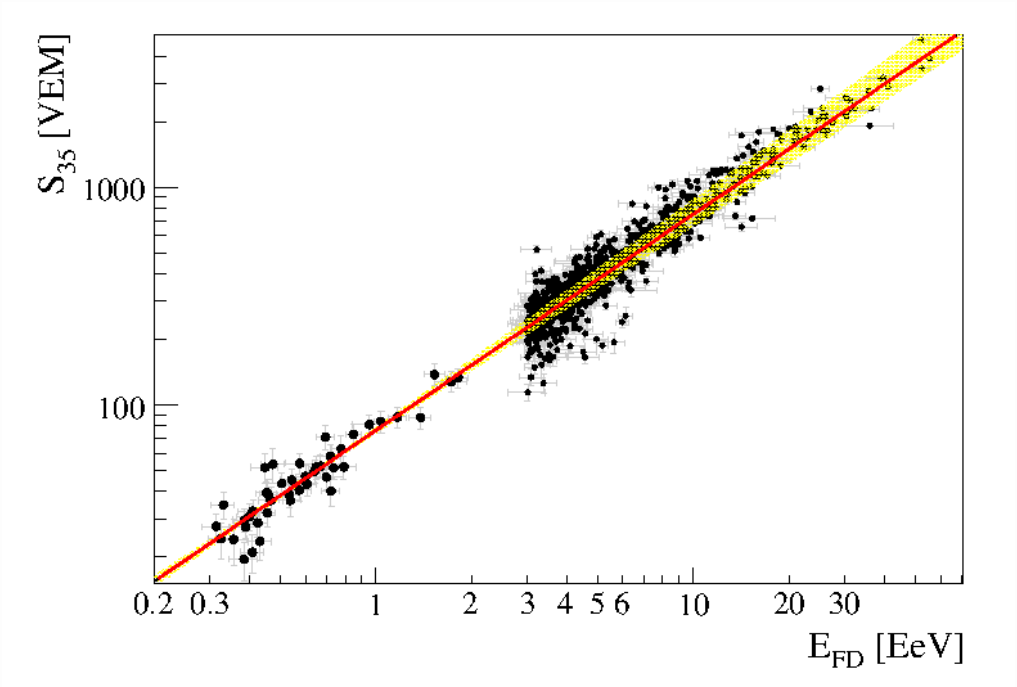
Herald

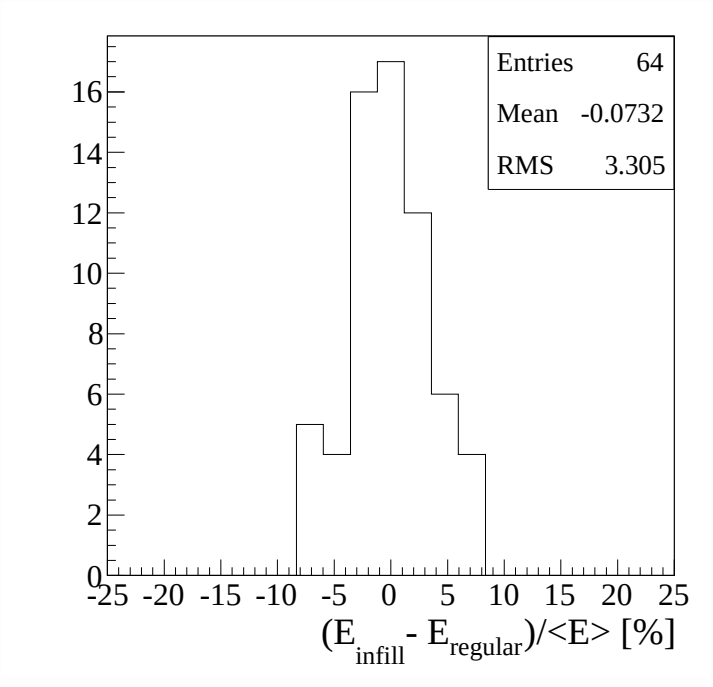
$$A = 0.0161 \pm 0.003 EeV, \gamma = 0.96 \pm 0.05$$



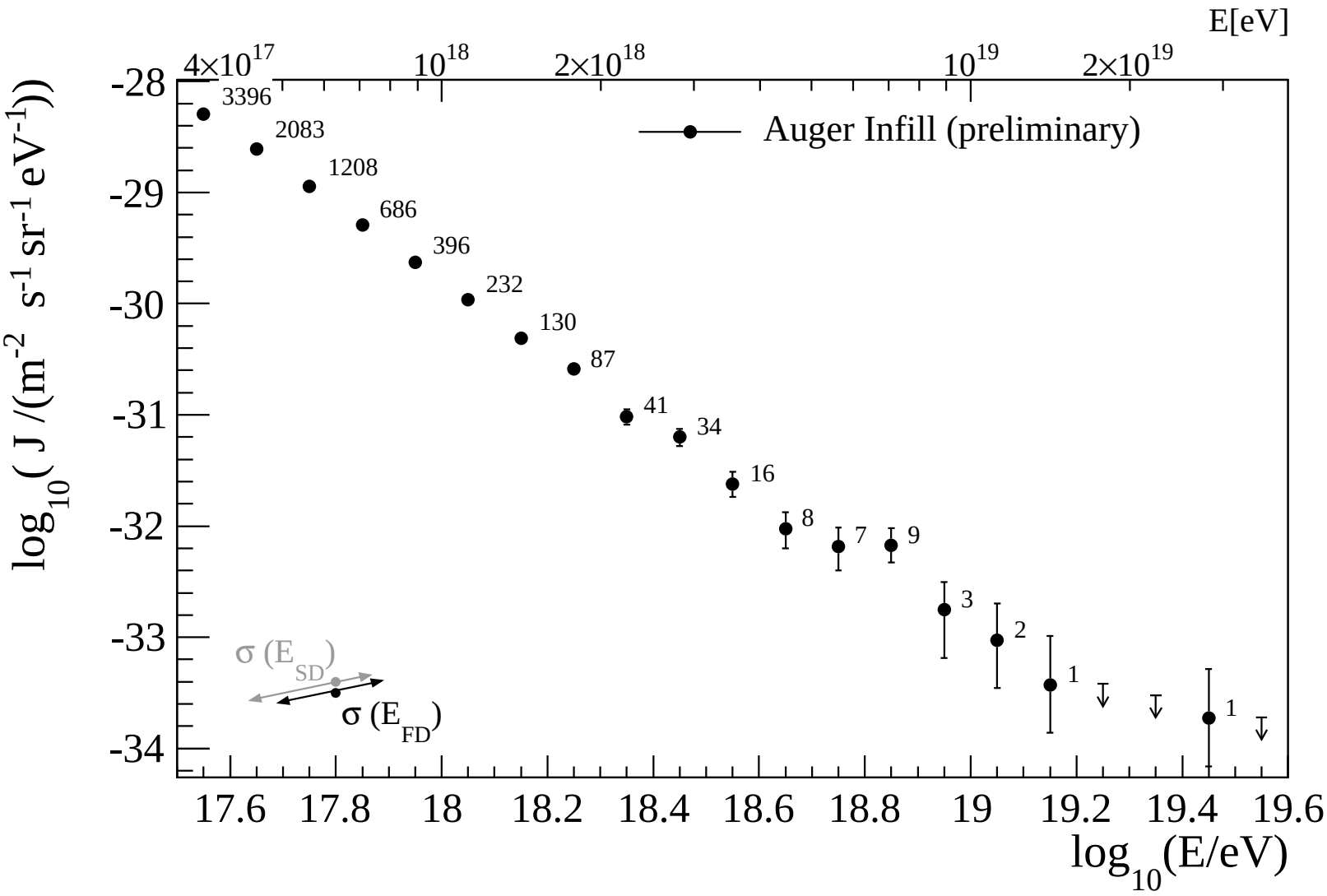


Comparison with regular array





Energy spectra comparisons (ICRC)



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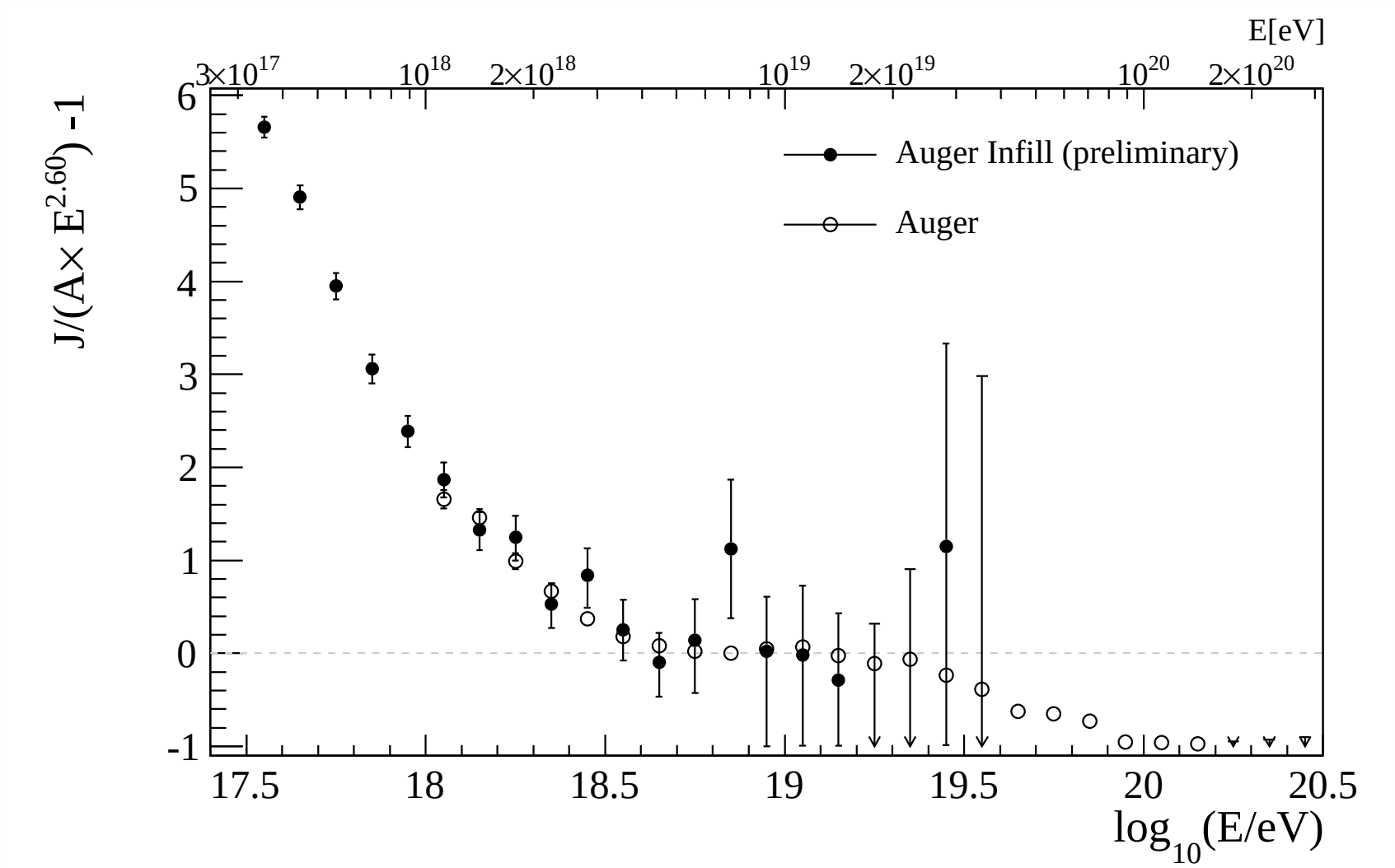

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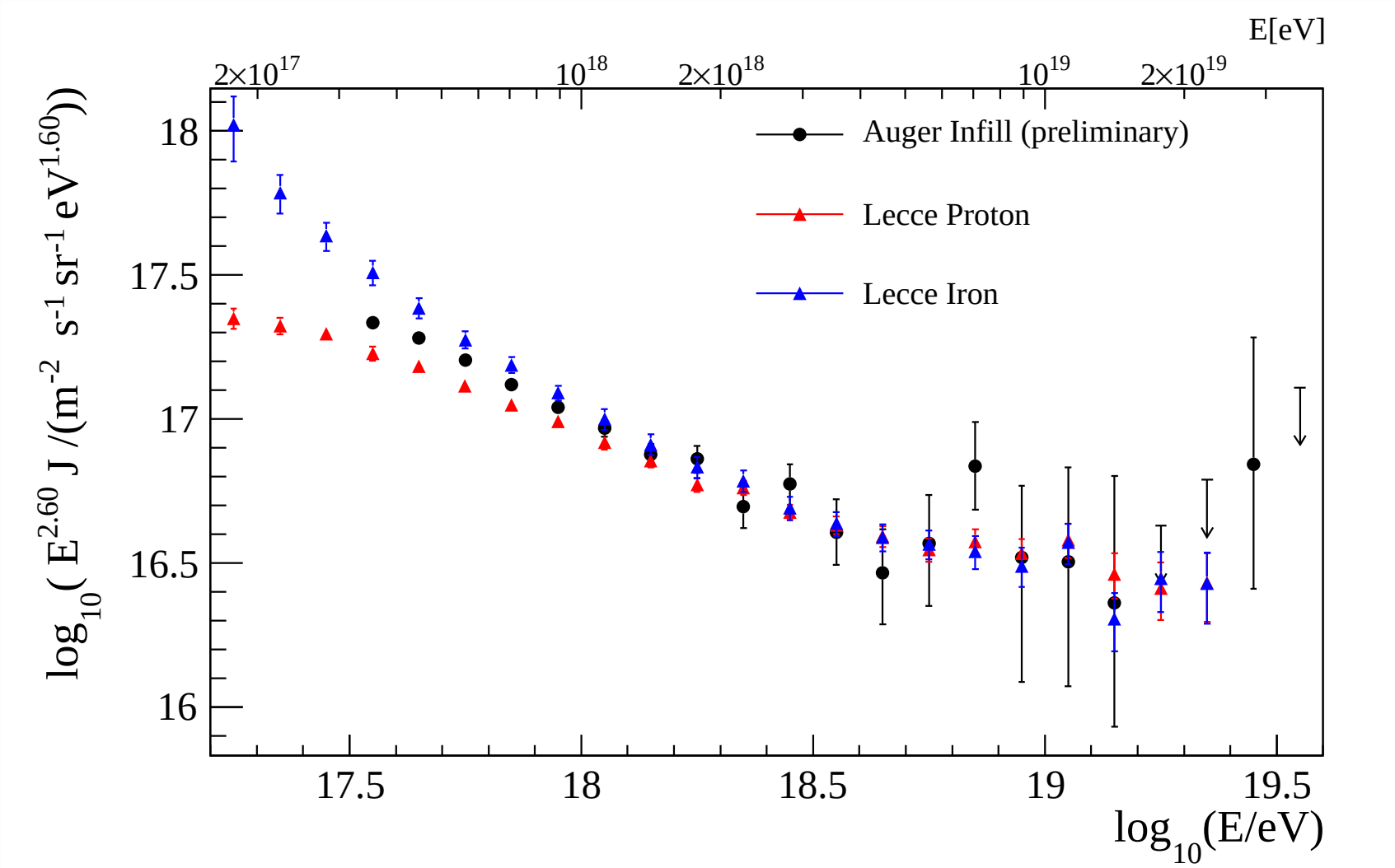

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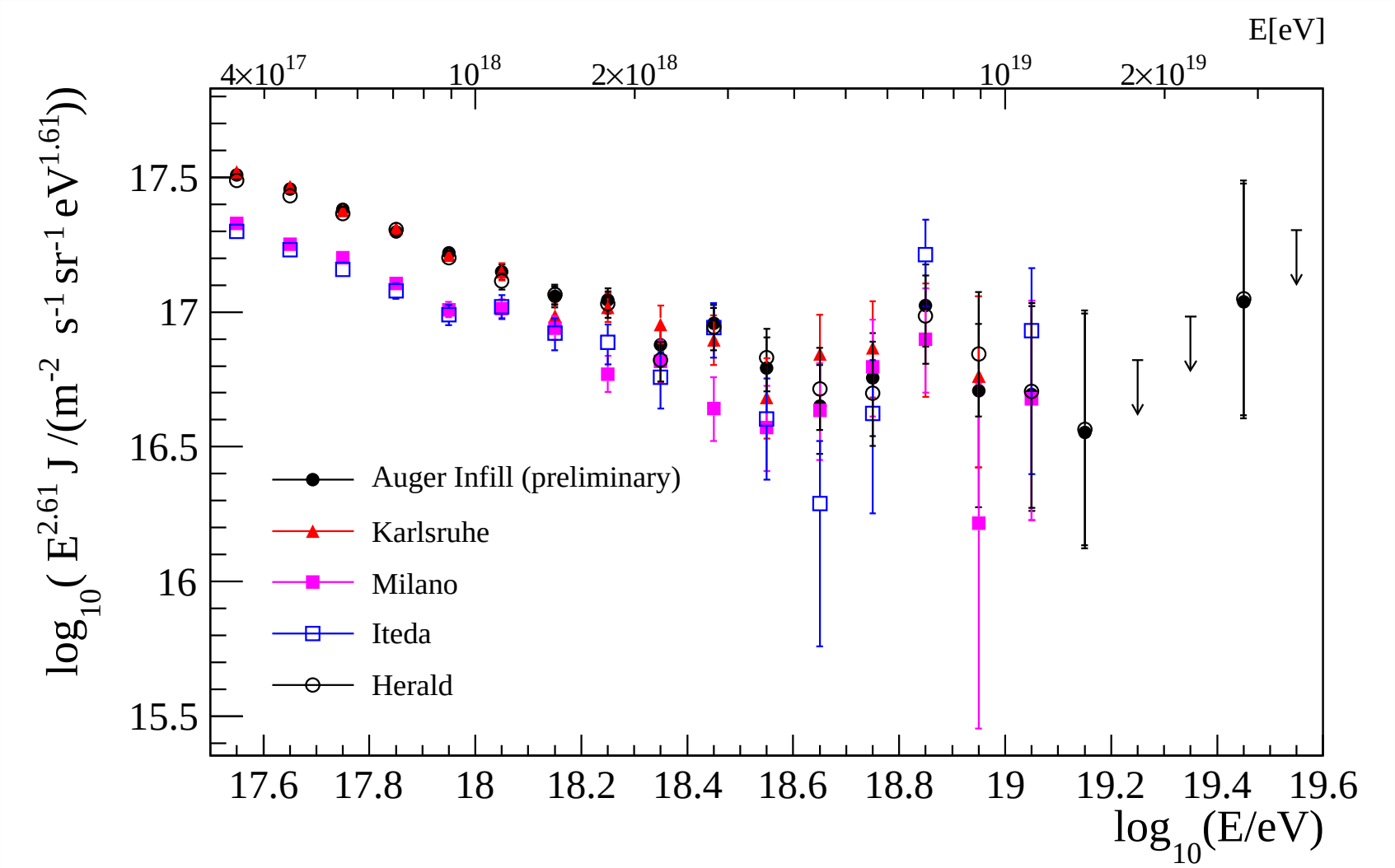

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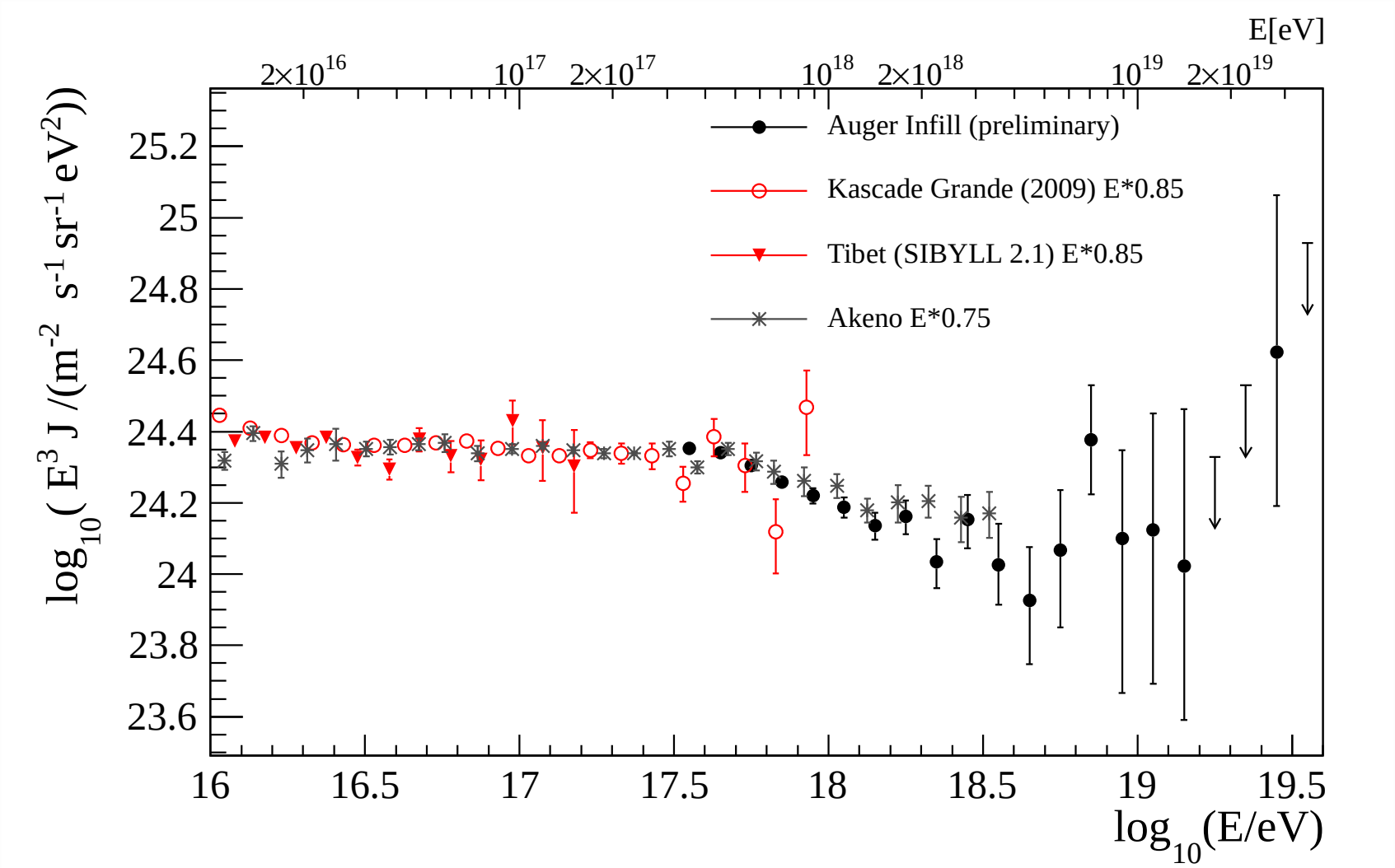
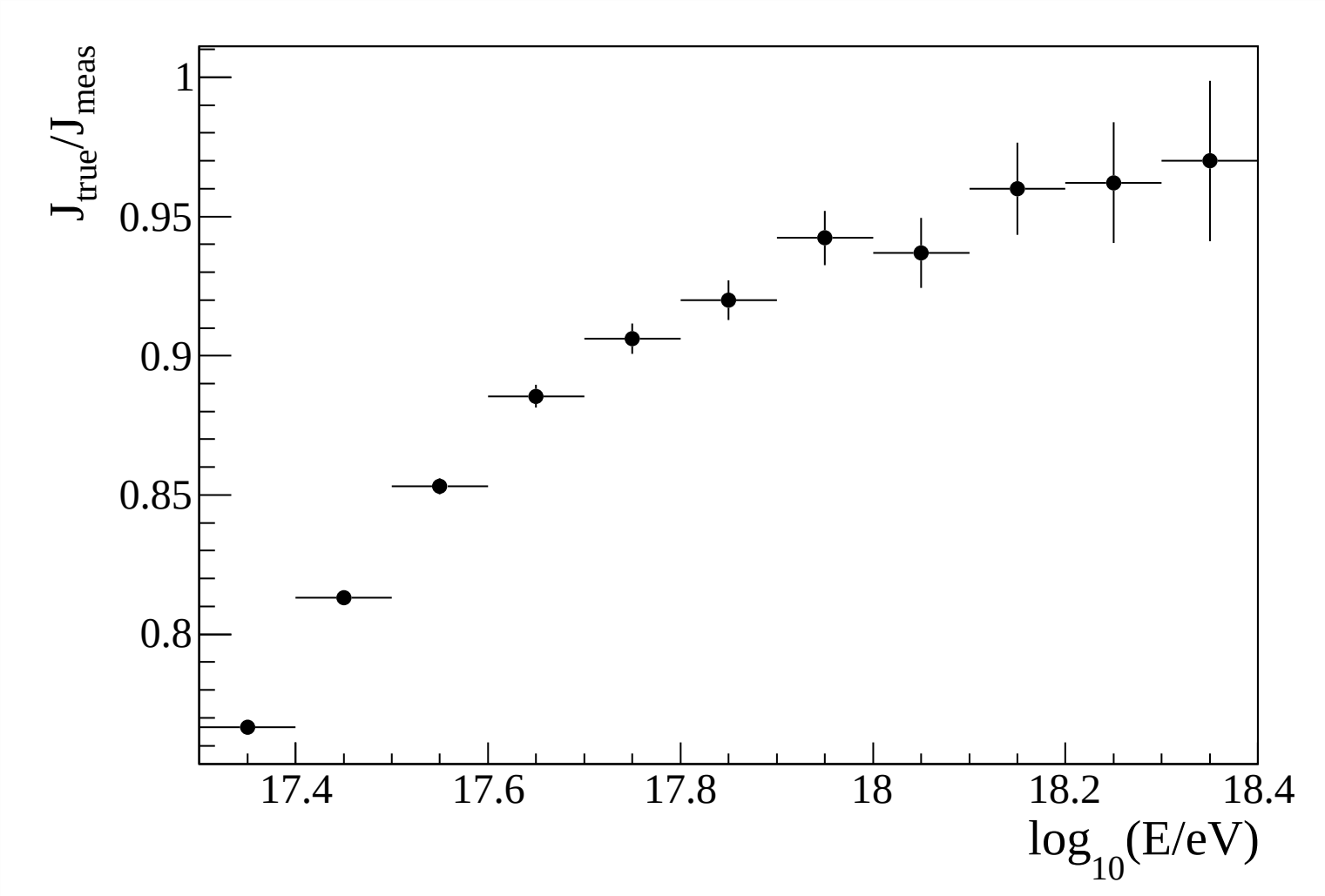


Resolution effects from Toy MC



After ICRC

- maximum likelihood reconstruction for FD energy?
- energy resolution effects on the spectrum
- Production status (OGSJet II):
  iron: CORSIKA 94.2%, Offline 31.4%
  proton: CORSIKA 96.1%, Offline 75.9%

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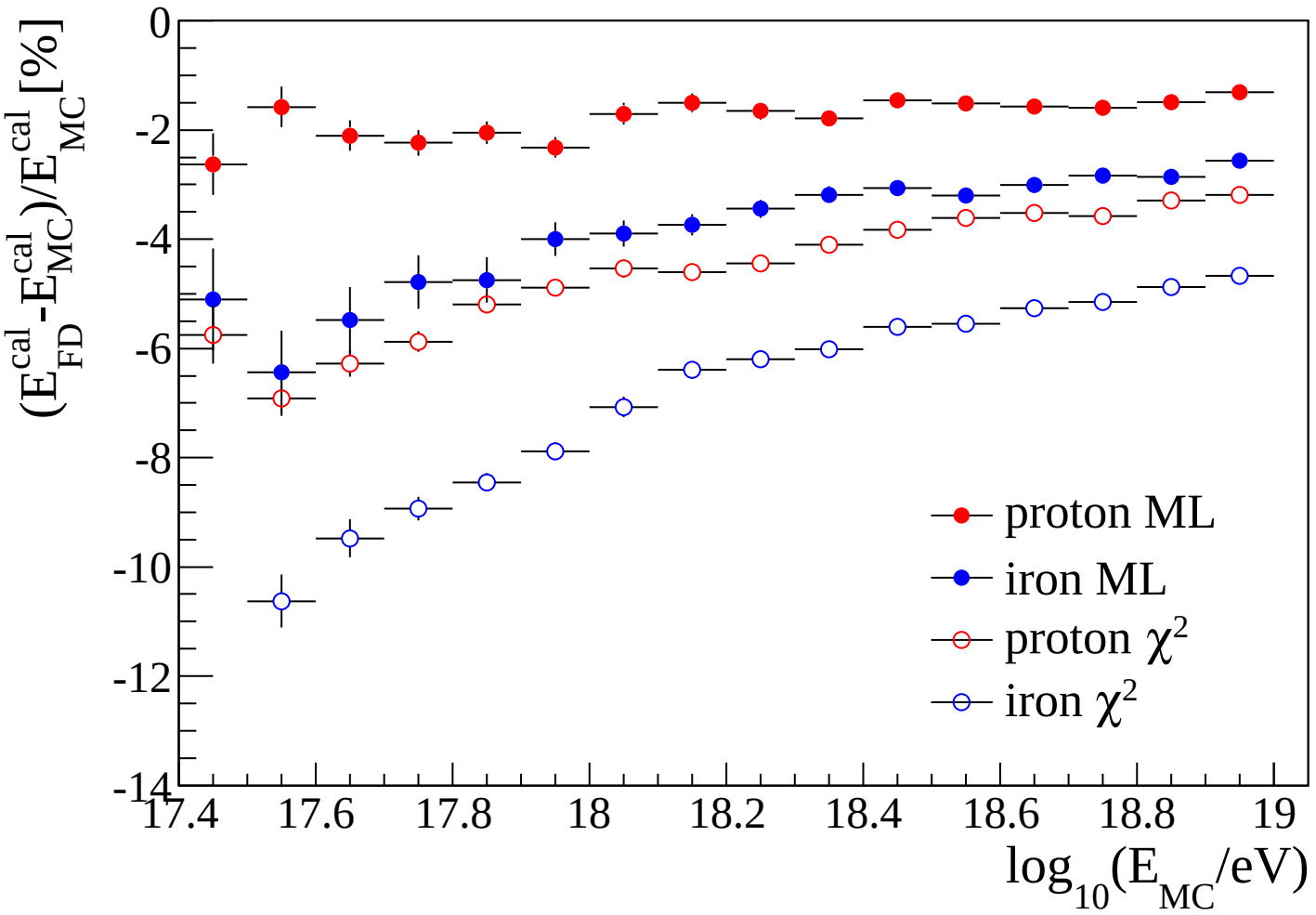
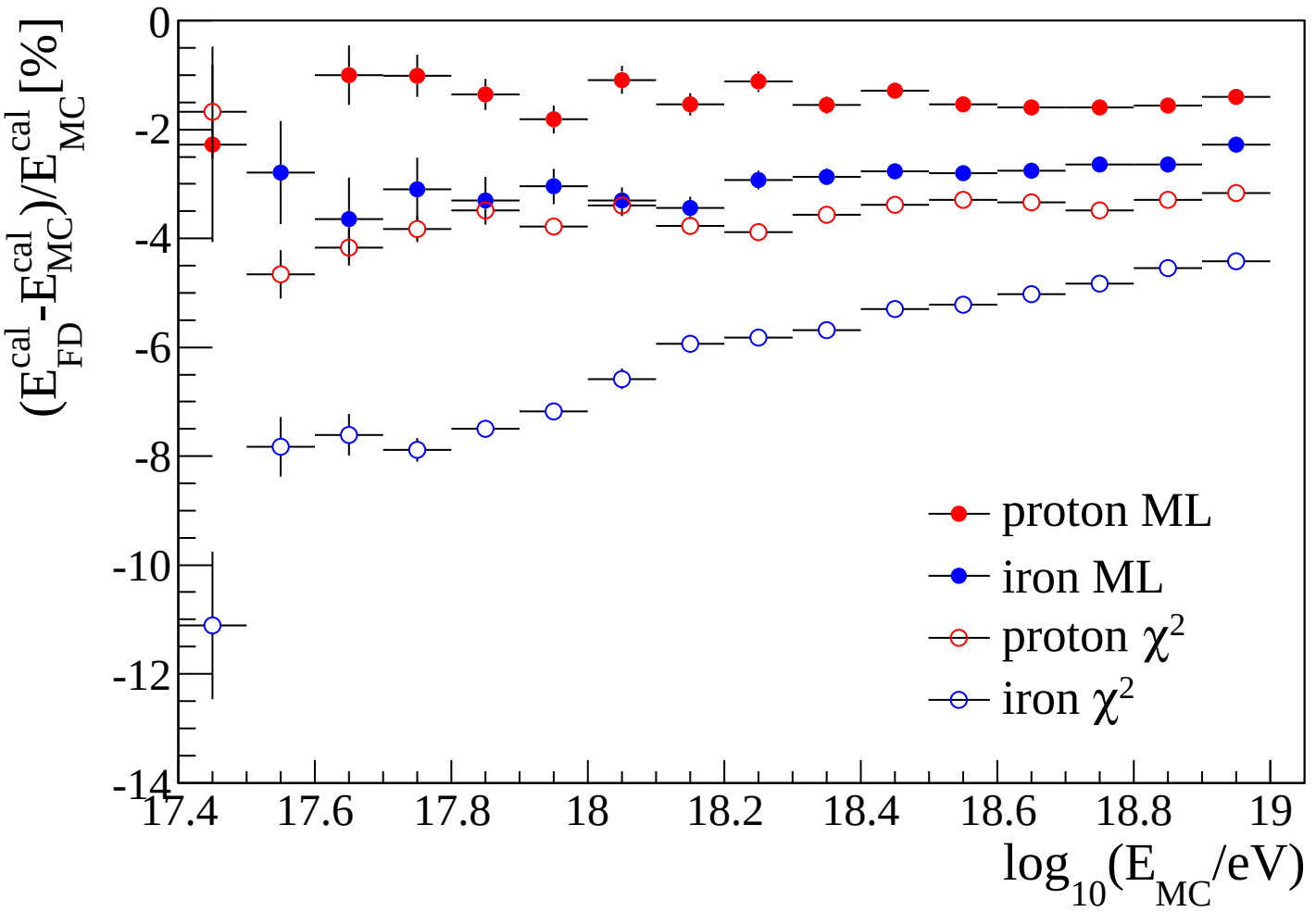
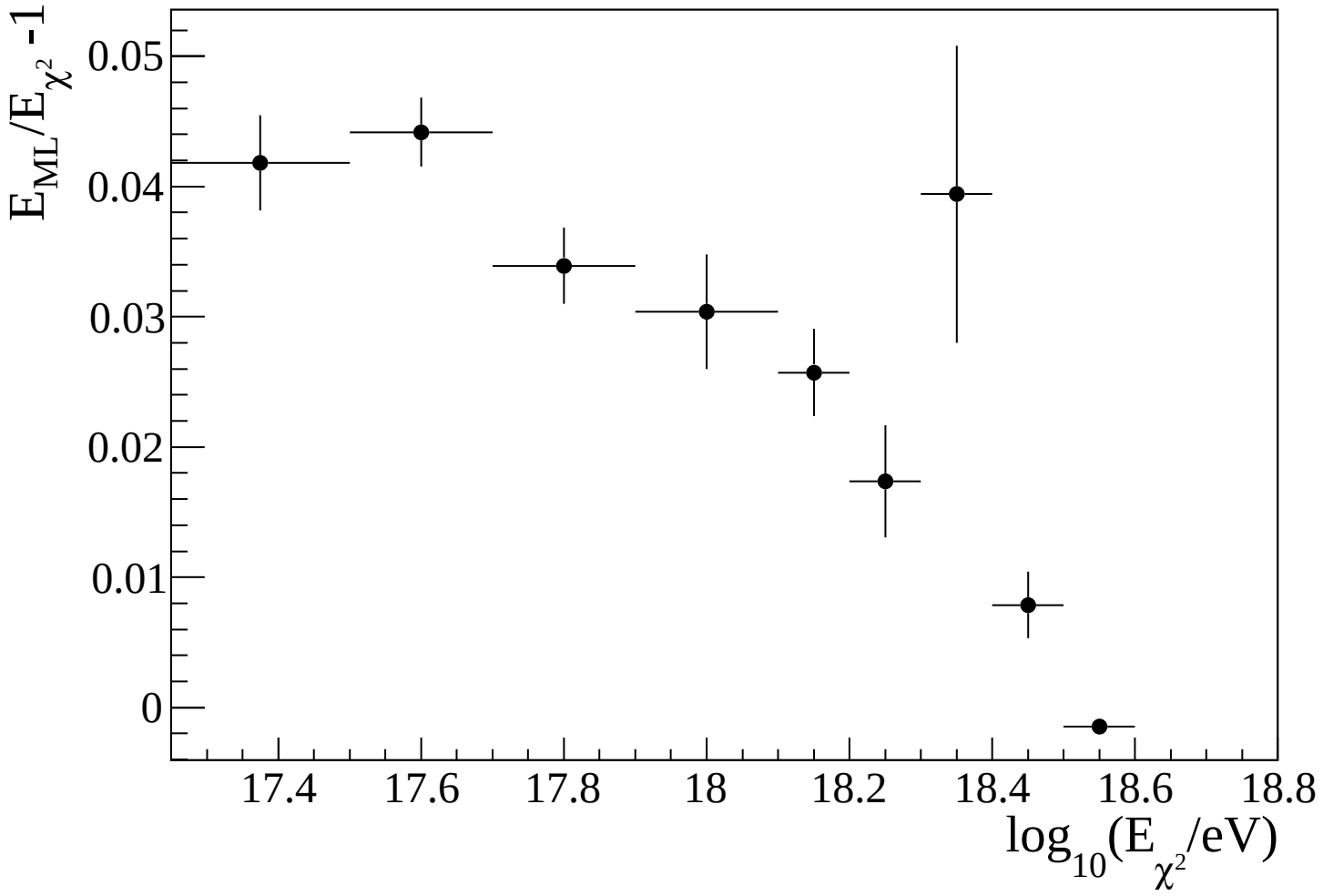
Infill quality cuts



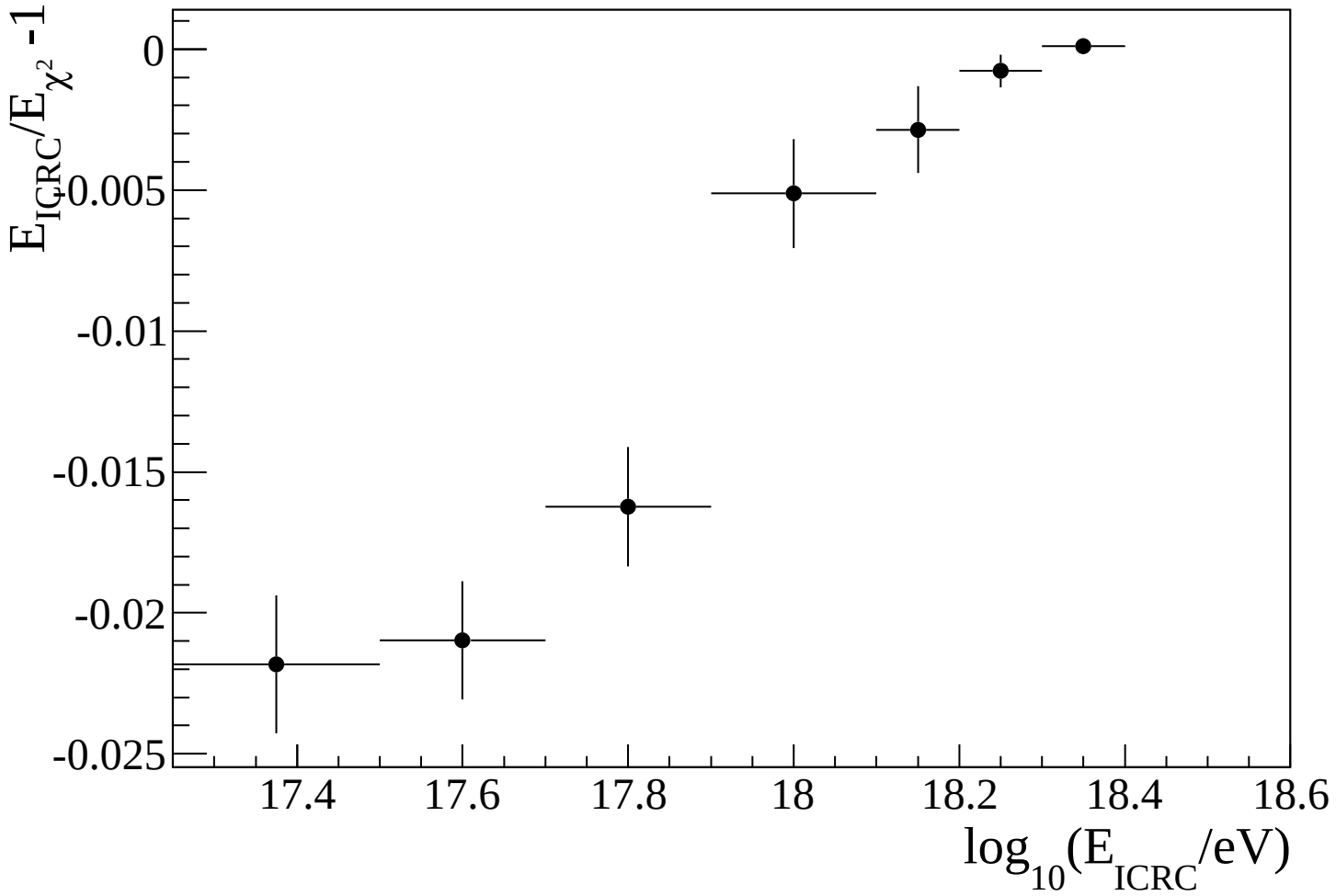
Infill quality cuts + FOV cuts



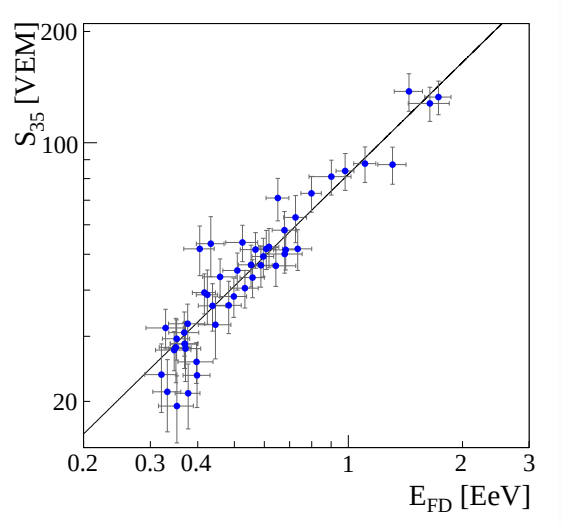
Data: Infill quality cuts + FOV cuts

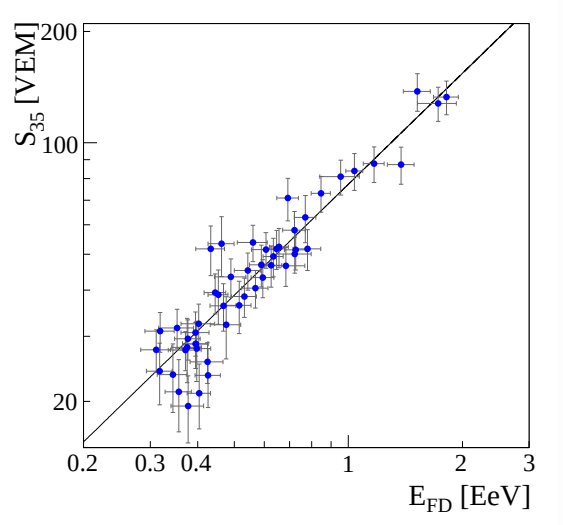


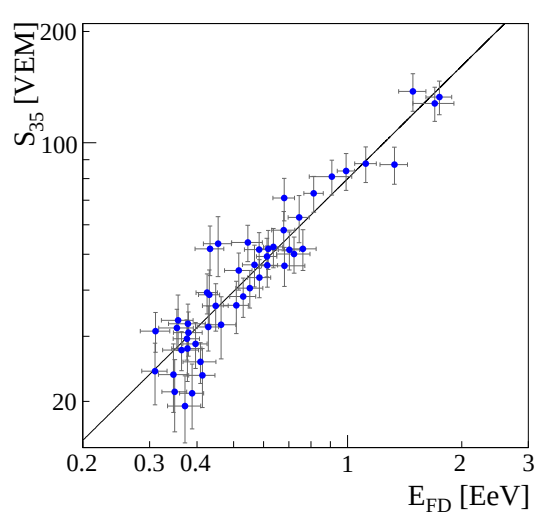
(private) Changes in the E_{FD} reconstruction



Energy calibrations ML vs χ^2 corrected

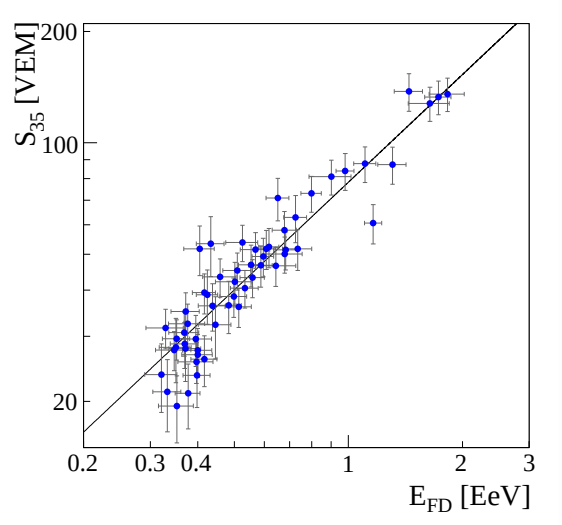


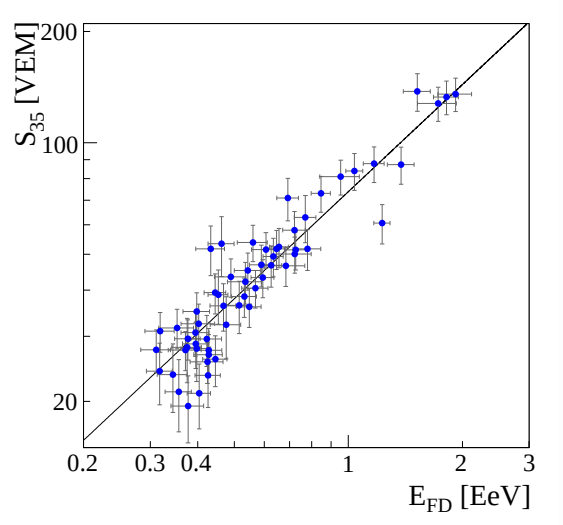


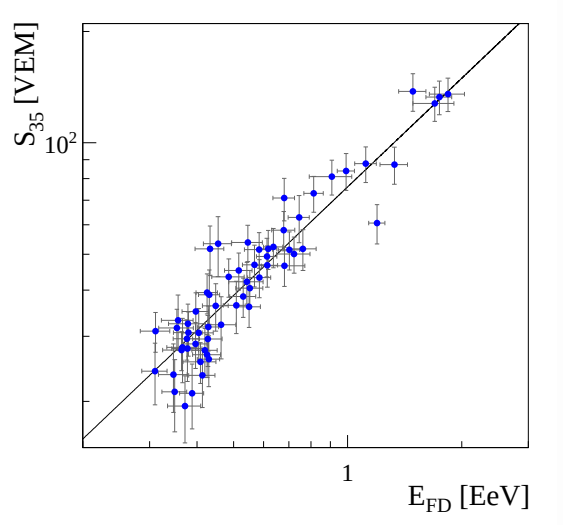


Fit	Events	A [PeV]	B
χ^2	49	12.45 ± 2.4	0.995 ± 0.049
χ^2 corrected	52	12.77 ± 2.3	1.003 ± 0.047
ML	50	13.14 ± 2.5	0.988 ± 0.050
χ^2-Δ	57	10.98 ± 1.9	1.035 ± 0.046
χ^2-Δ corrected	60	11.40 ± 1.9	1.040 ± 0.044
ML-Δ	62	11.76 ± 1.9	1.025 ± 0.044

Energy calibrations ML vs χ^2 corrected (no delta cut)







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