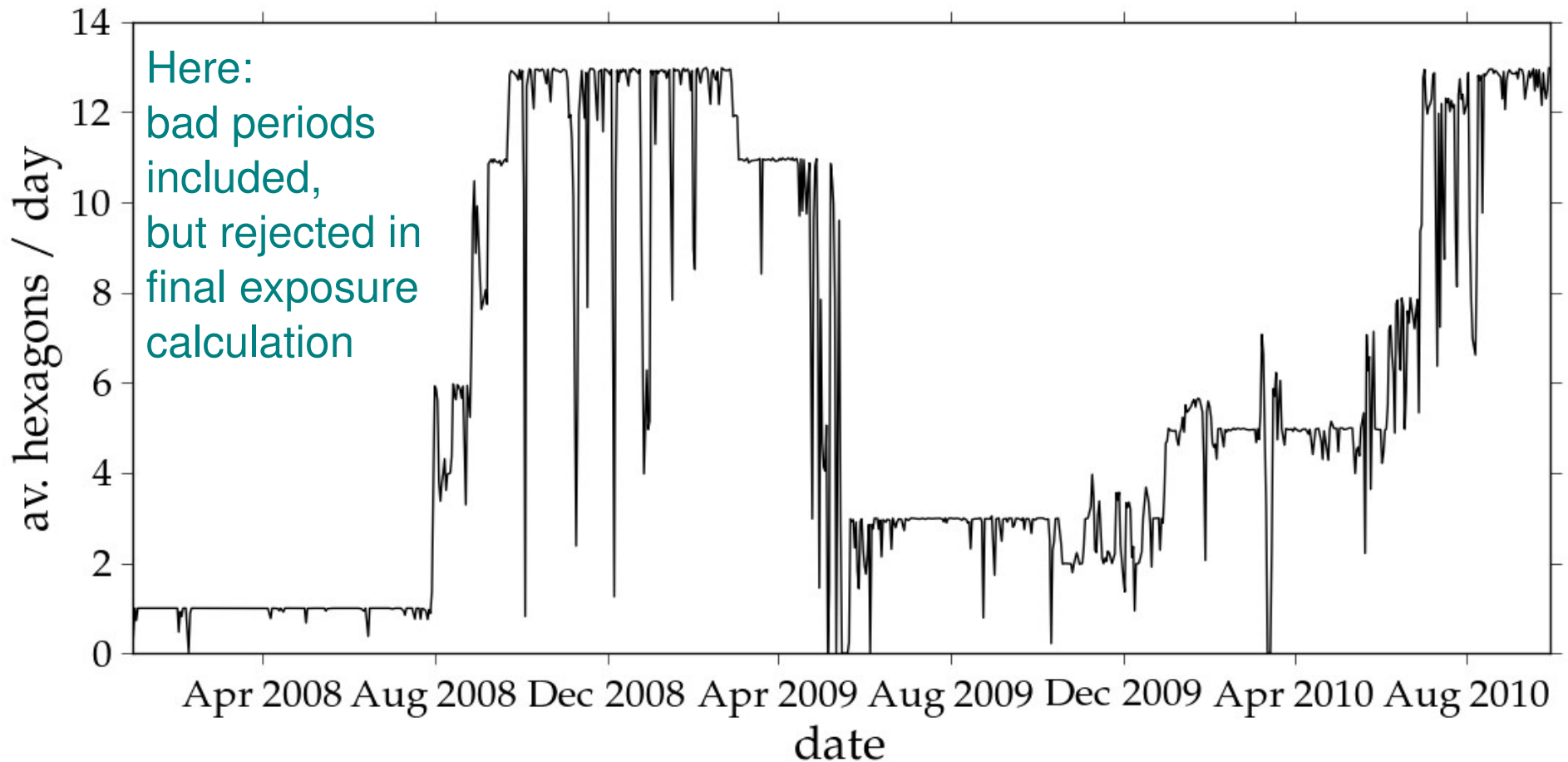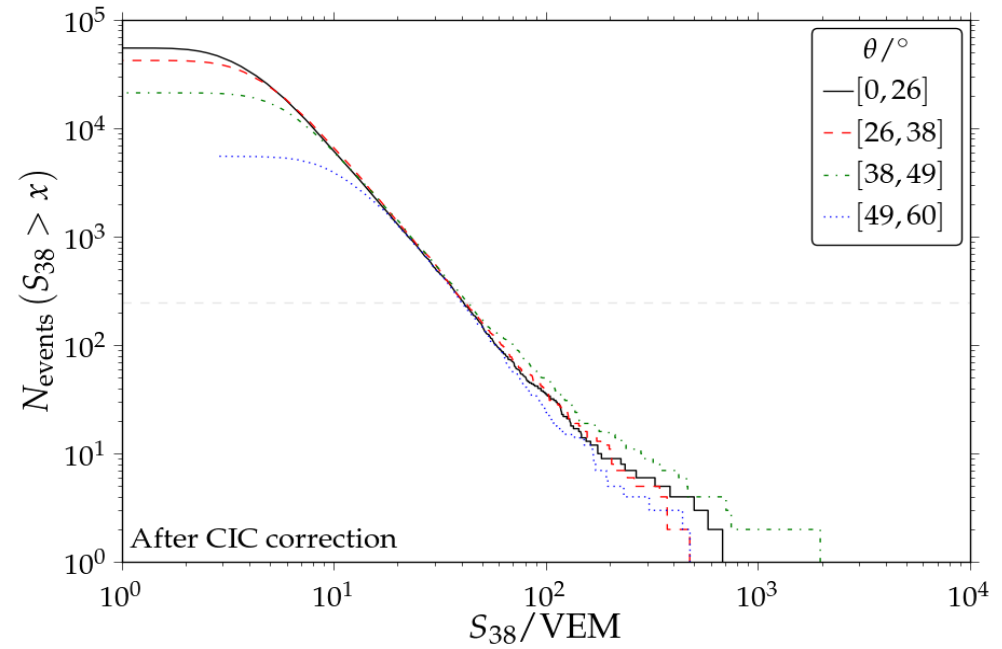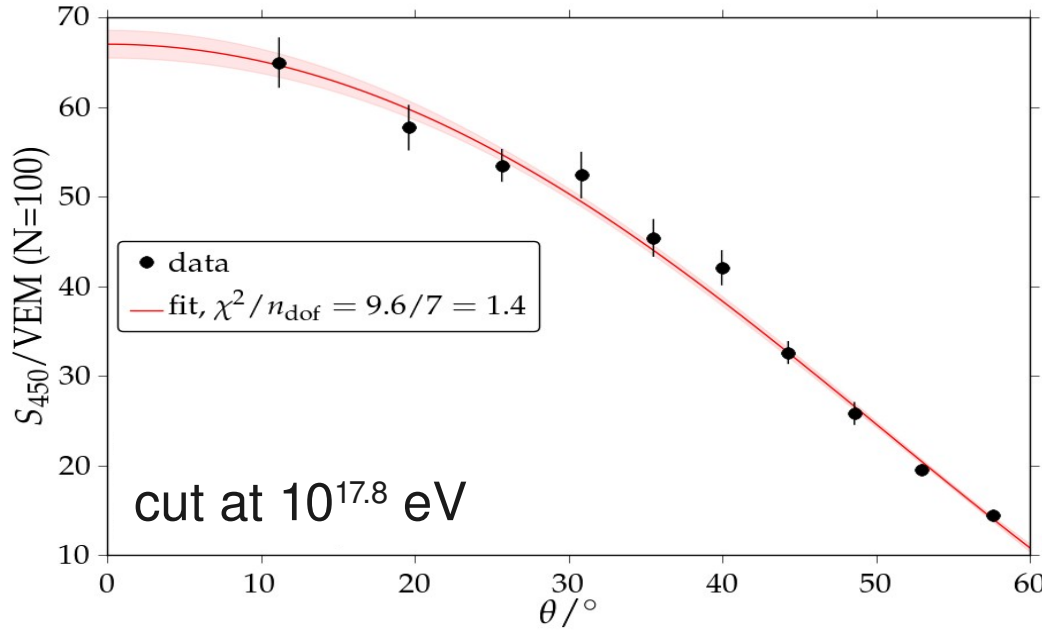# Summary

- Preliminary exposure calculation with Offline tools
- Offline-based Infill reconstruction with LDFFinderKG
    - Custom beta-parametrization (Jan Weseler)
    - Updated CIC
    - Custom energy calibration & golden hybrid selection (Jan Weseler)
- Dynamic theta-range extends full SD efficiency threshold to ~$10^{17.1}$ eV

Exposure calculation

- Current code based upon original exposure calculation of Ioana Maris
  - Uses T2 Life files & Offline's SStationList.xml for station positions
- Custom code to reject multiplets (not perfect yet due to moving stations)
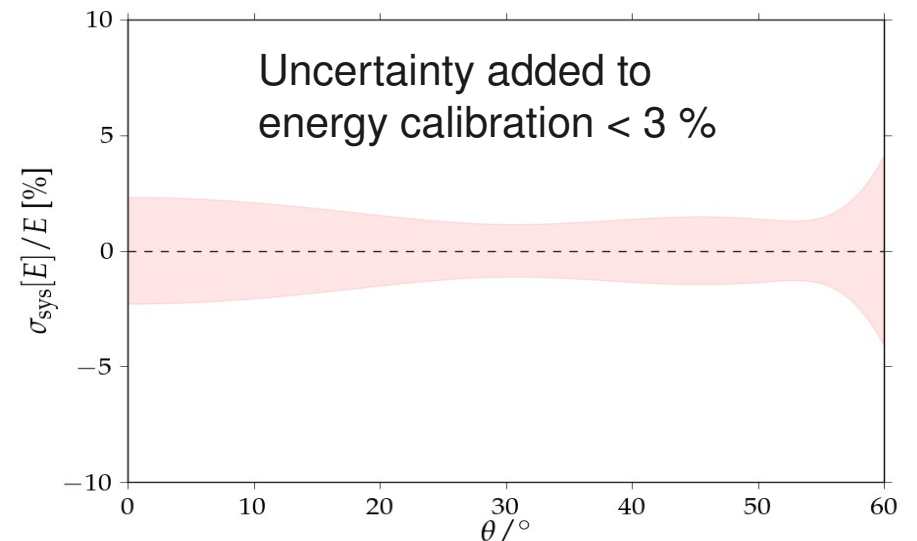- No special treatment of comms crisis period yet

Here:
bad periods
included,
but rejected in
final exposure
calculation

CIC correction

cut at $10^{17.8}$ eV

After CIC correction

Unbinned CIC fit

$$S_{450} = S_{38}\left(1 + a\,x + b\,x^2\right)$$

$$x = \cos^2(\theta) - \cos^2(38°)$$

a = 1.83 +/- 0.05
b = -0.40 +/- 0.19

Uncertainty added to
energy calibration < 3 %

Energy calibration

$A = 0.01918 \pm 0.00491$ EeV
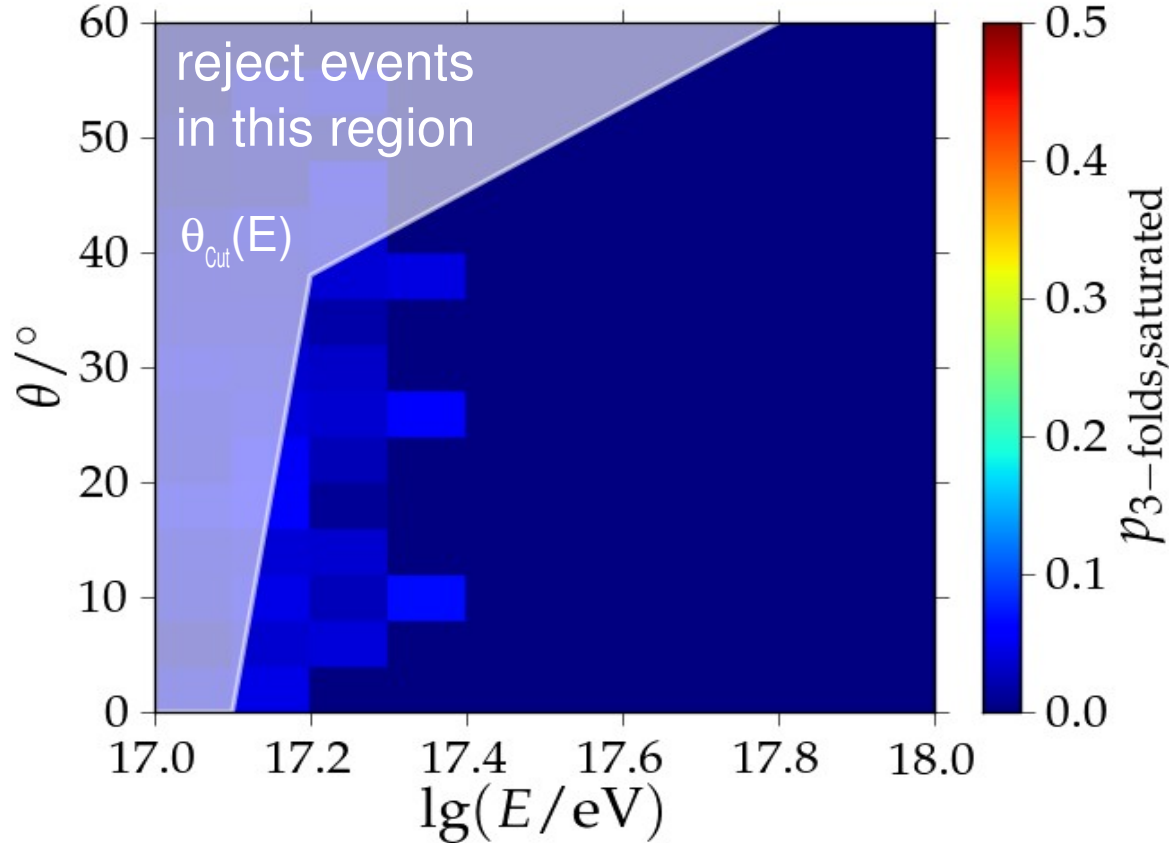$\gamma = 0.9298 \pm 0.05978$

Jan Weseler, KIT

Analysis by Ioana Maris
and Jan Weseler

- $E(S_{38}) = A \cdot S_{38}^{\gamma}$
- Max Likelihood Fit
- 29 events in total

Parameter	Value
A [EeV]	0.019 ± 0.005
γ	0.93 ± 0.06

Custom FD cuts based on self-consistency analysis

Extending SD trigger threshold

Analysis by
Jan Weseler

θ-limits based on
simulations

- SD trigger efficiency strongly depends on θ

- If $\theta < \theta_{Cut}(E)$, event is recorded at full trigger efficiency
  → use only events in energy-dependent θ-range to build spectrum

- Full trigger efficiency threshold is stretched to ~$10^{17.1}$ eV

Energy spectra