

# **MC mass01 1999 - Status**

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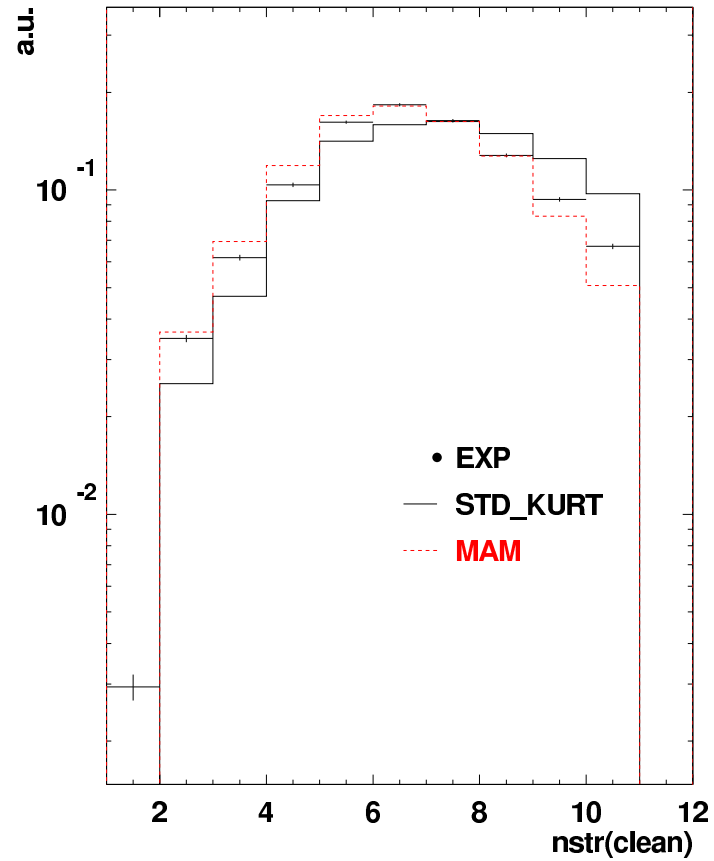
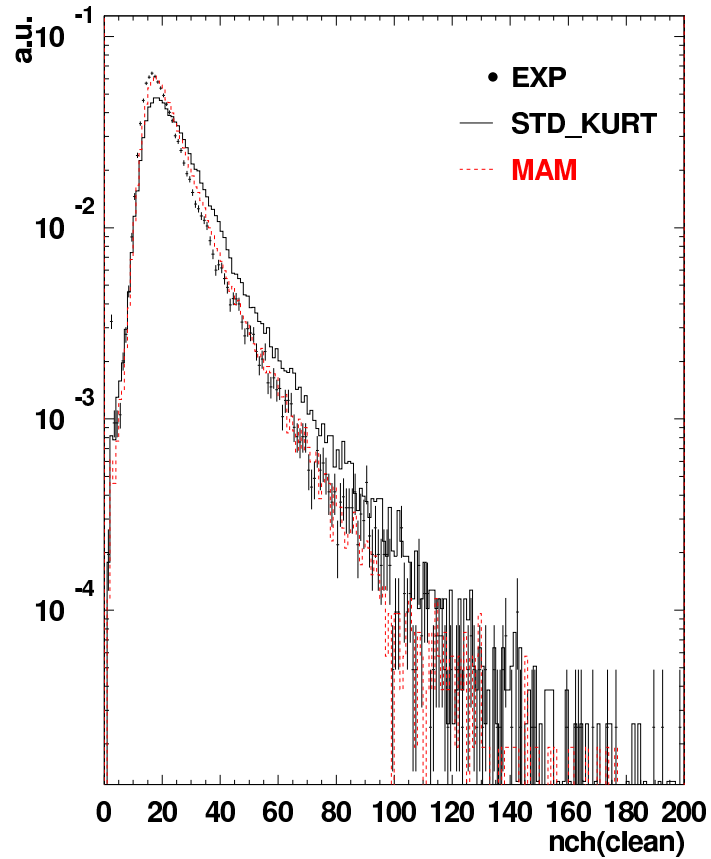
## Details of the production

- Atmospheric  $\mu$  background
  - 51 h 38' available at L2
  - Produced with `pcorsika-corama-mmc-amasim2`
  - Used `MAM` and `STD_KURT` ice
- Atmospheric  $\nu$  signal
  - 200000  $\nu_\mu$  and  $\bar{\nu}_\mu$  produced
  - Produced with `nusim-mmc-amasim2`
  - Used `MAM` and `STD_KURT` ice
  - Energy range `10 – 108 GeV`
  - Angular range `180 – 80°`

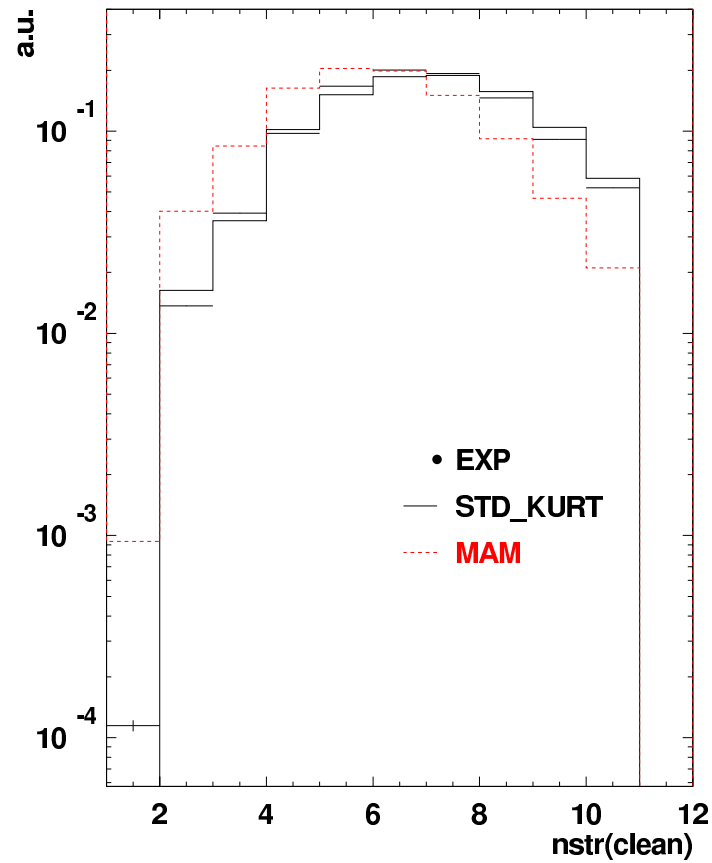
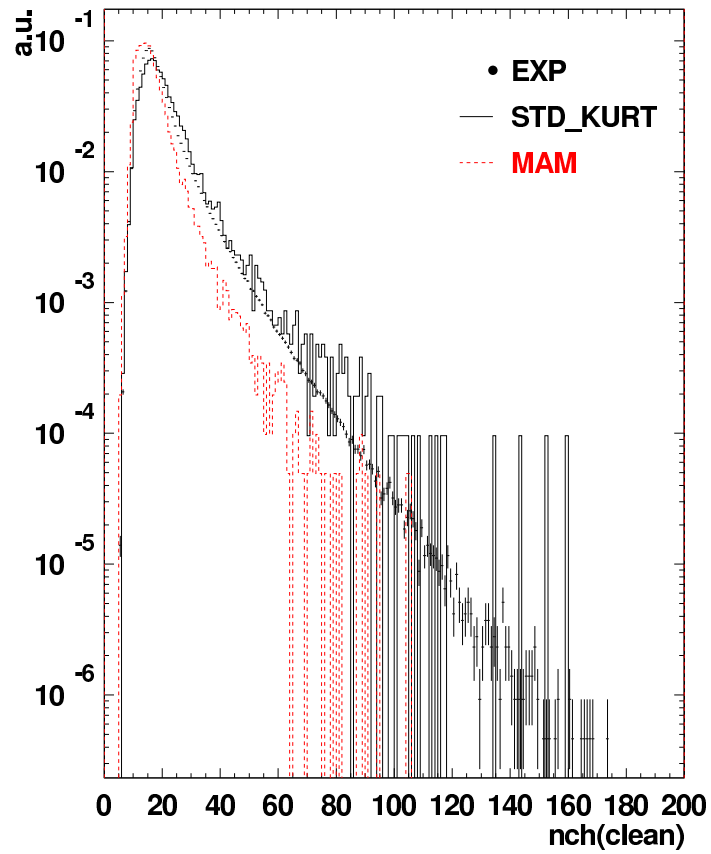
## Reconstruction

1. Calibration with suitable constants
2. First guesses: Tensor of inertia, line fit, plane wave
3. L1 cut: zenith by linefit  $> 70^\circ$
4. Reconstructions: Track likelihood (a\_upandel), Cascade likelihood (a\_pp\_upandel)
5. L2 cut: zenith of likelihood track fit  $> 80^\circ$ , greater equal 3 direct (-10. . . 25 ns) w.r.t. likelihood track

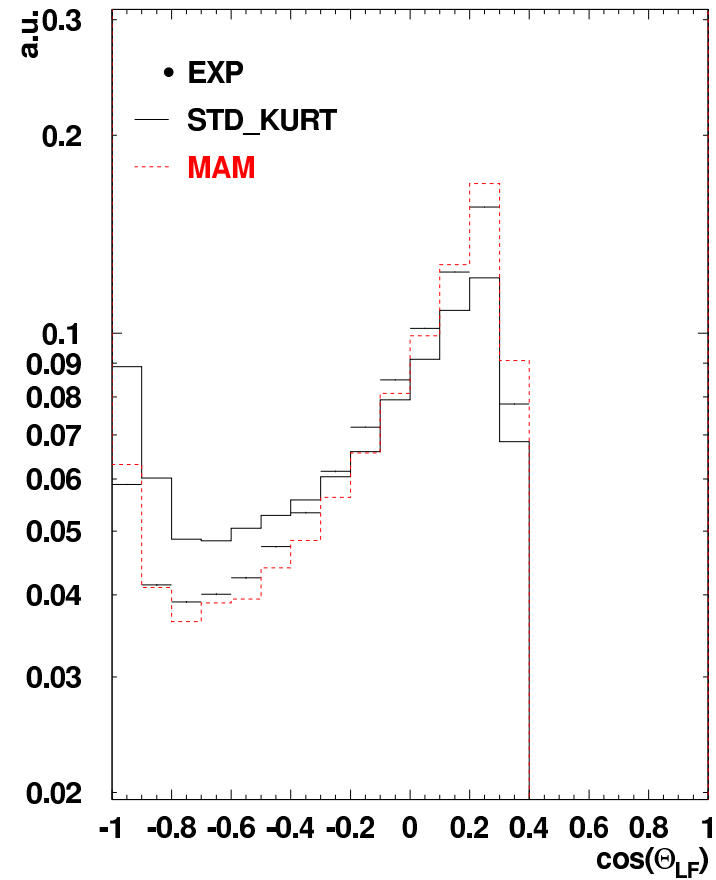
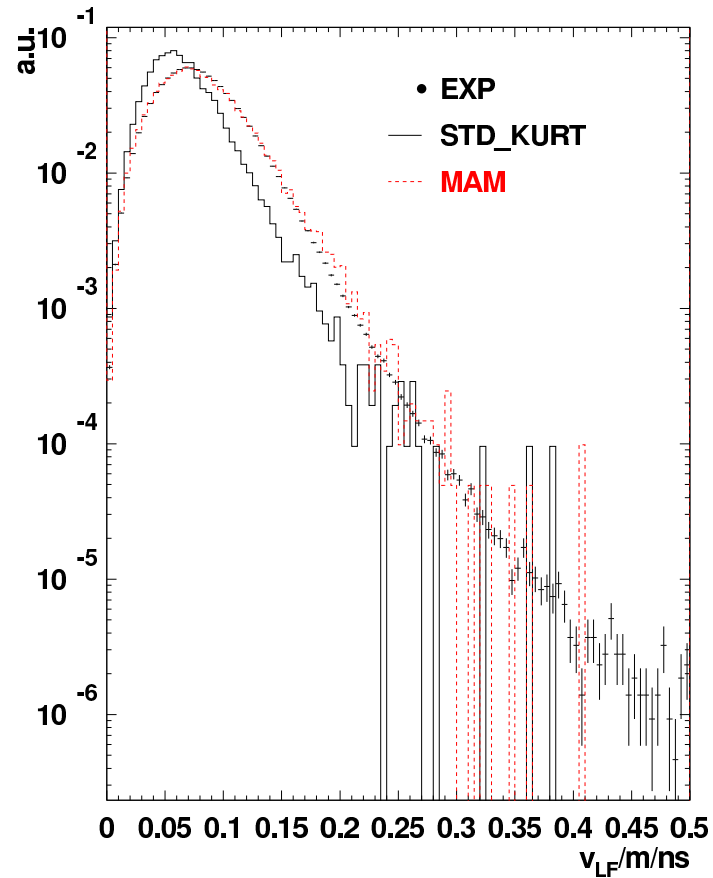
# Trigger level



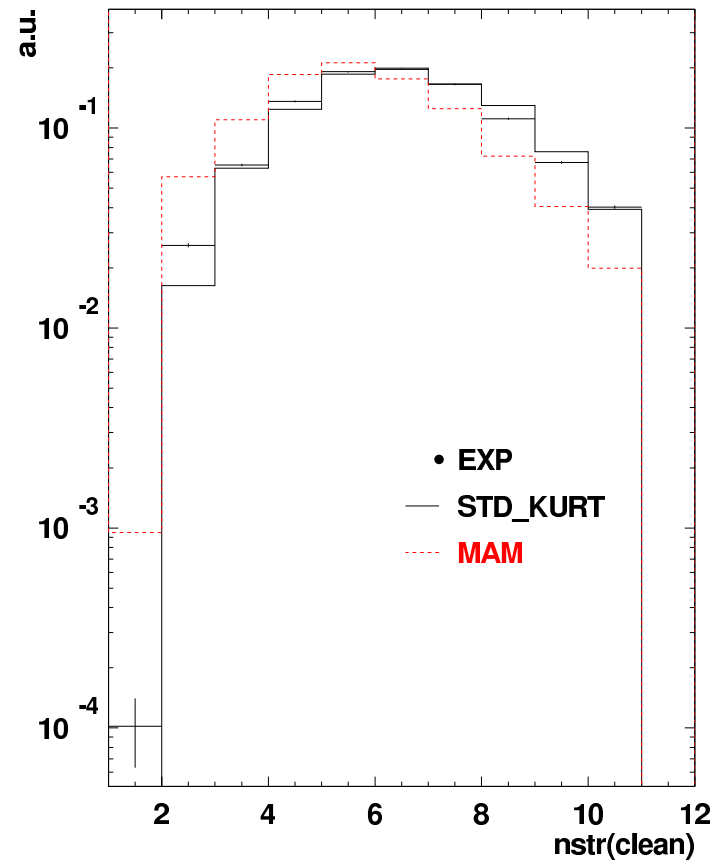
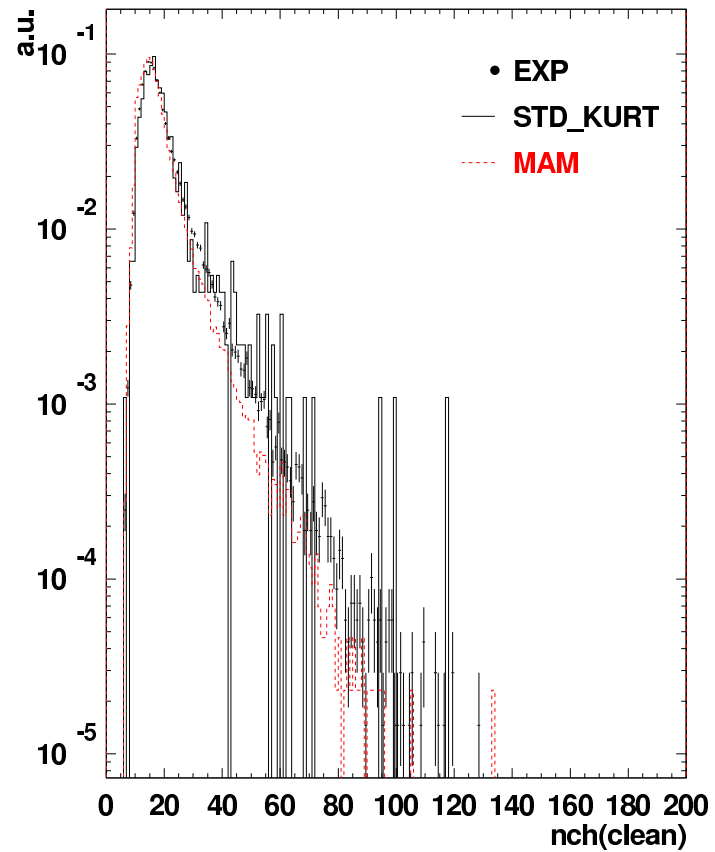
## Level 1: basic observables



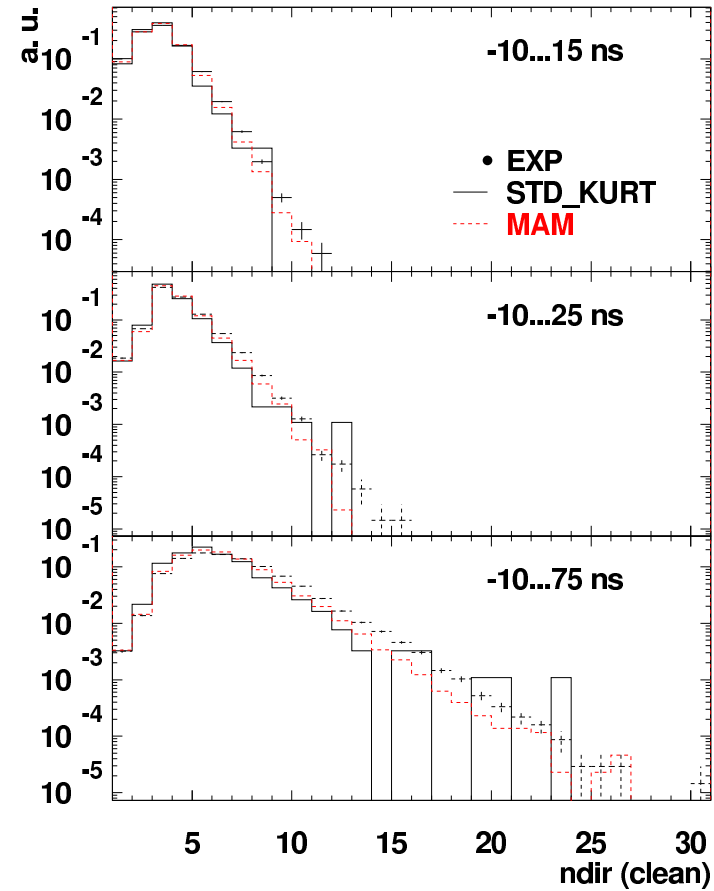
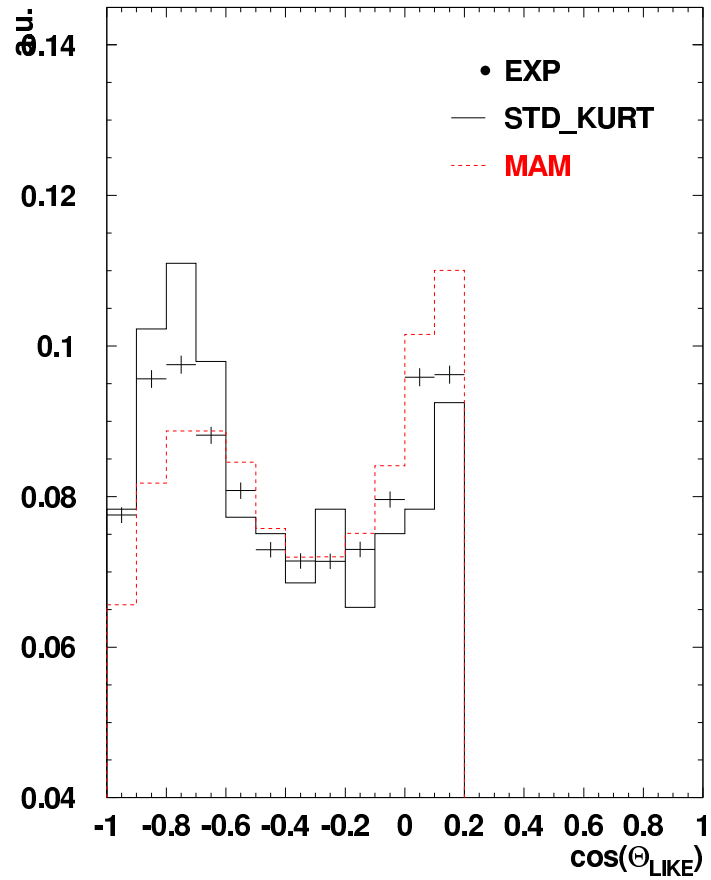
## Level 1: reconstruction results



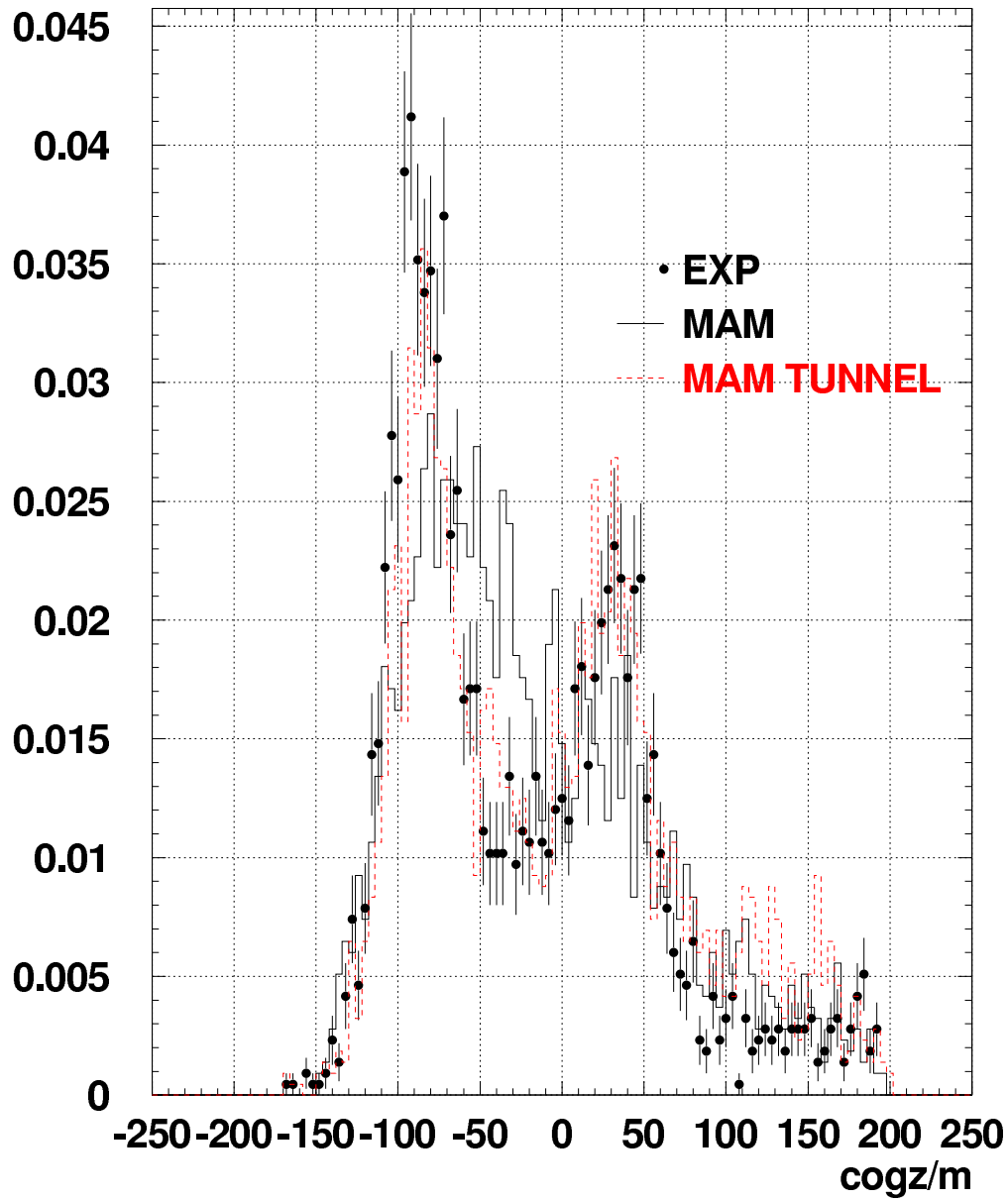
## Level 2: basic observables



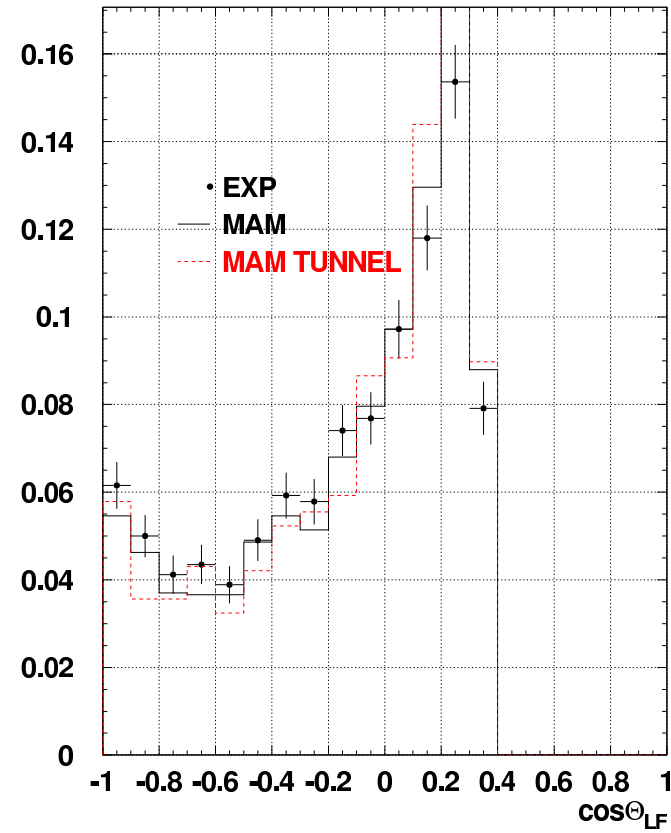
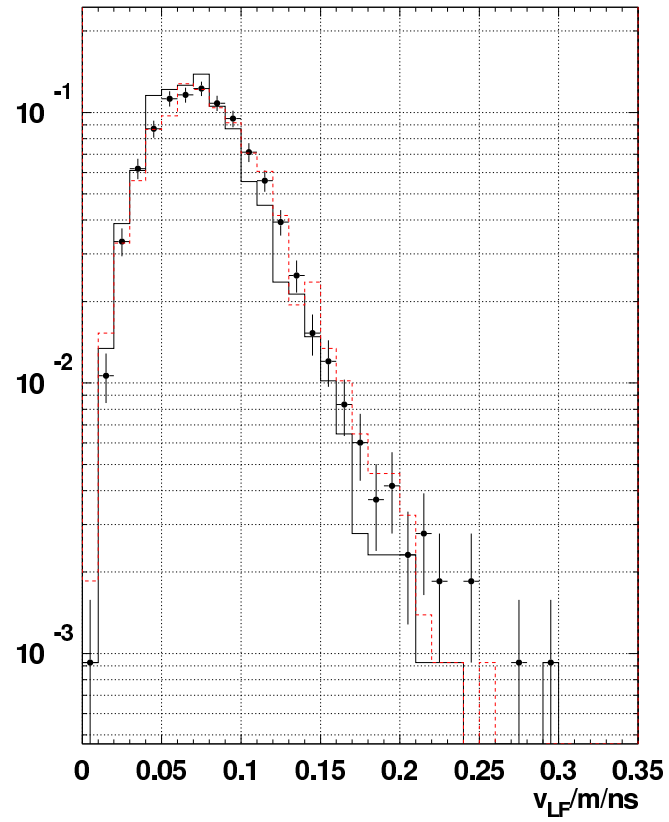
## Level 2: reconstruction results



# Tunnelling: Marek's effect on 1999 data



# Tunnel and reconstruction at L1

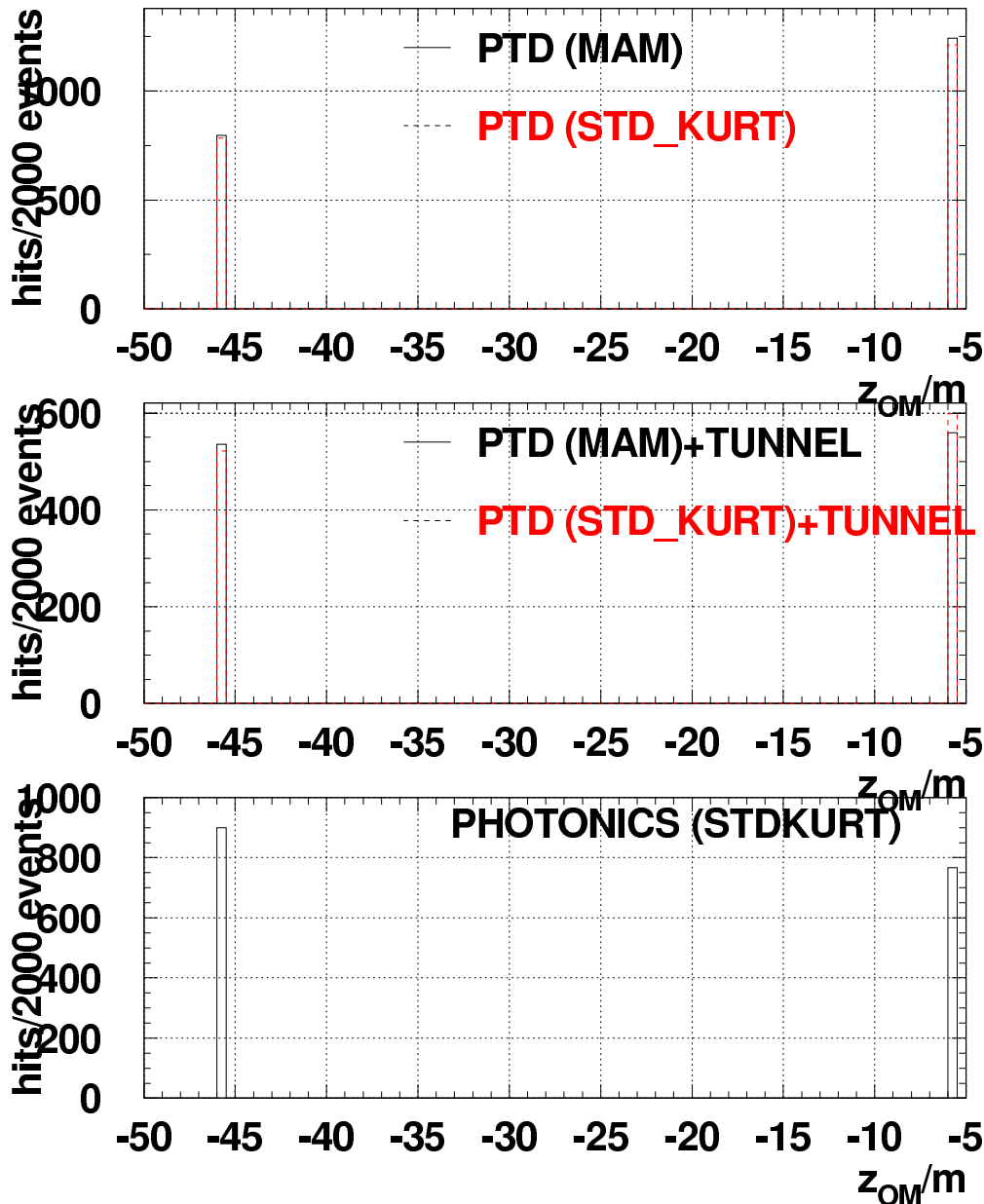


## Conclusion

- BG and Signal Simulation are used already with some result
- Evaluation of MAM vs. STD\_KURT is a bit arbitrary
- Tunnelling does not affect L1 reconstruction results

## Outlook: Justify tunnel ?

If **photonics** does the right job tracking in the ice, comparing with tunnelled **PTD** should produce roughly the same result. Check with OMs 69-70-71.



## PS: Fitting PHOTONICS with neural networks

- Fit several PHOTONICS tables into one network:  $z_{OM} = -5.9\text{m}, -25.9\text{m}, -45.9\text{m}, 2.5 \times 10^6$  samples
- Use a 6-10-10-10-1 network, 200 cycles, 344 weights+activation+bias

