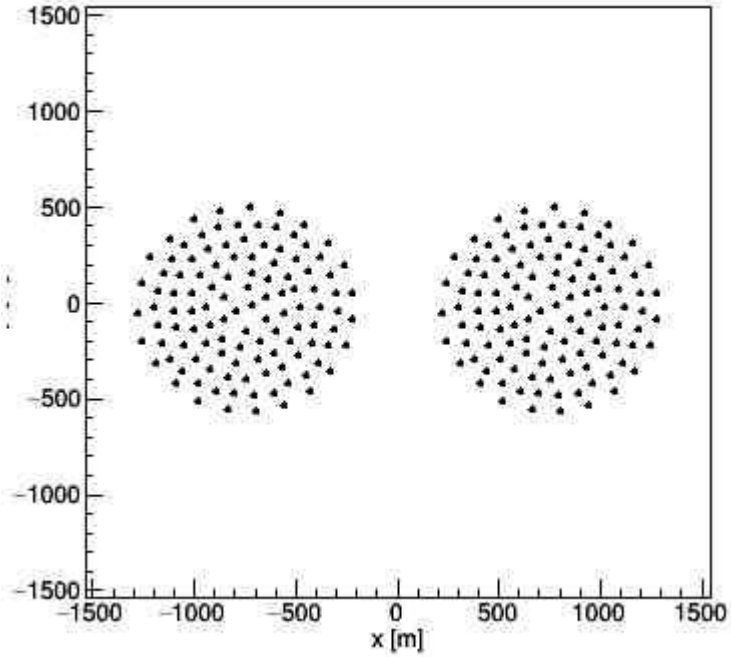
Simulation two ARCA building blocks

Two building blocks (d=1.5 km)

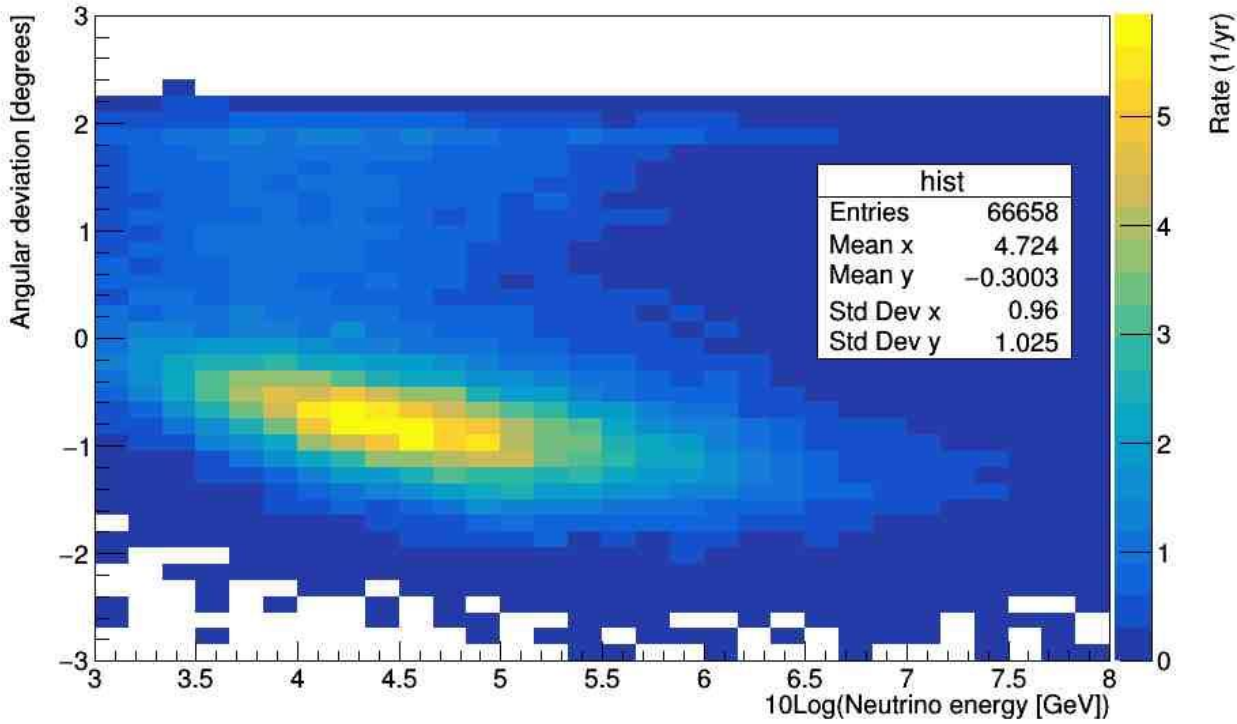
- Simulations with data_processing
  - Gseagen, 1e3 - 1e8 GeV , 5e6 events, nu_mu and anu_mu
  - new config_ARCA230.zsh file

- Distance between building block centers: 1.5 km
  - Detector file lyon: /sps/km3net/users/tvaneede/detector_files/two_bb_750.detx



Two building blocks (d=1.5 km)

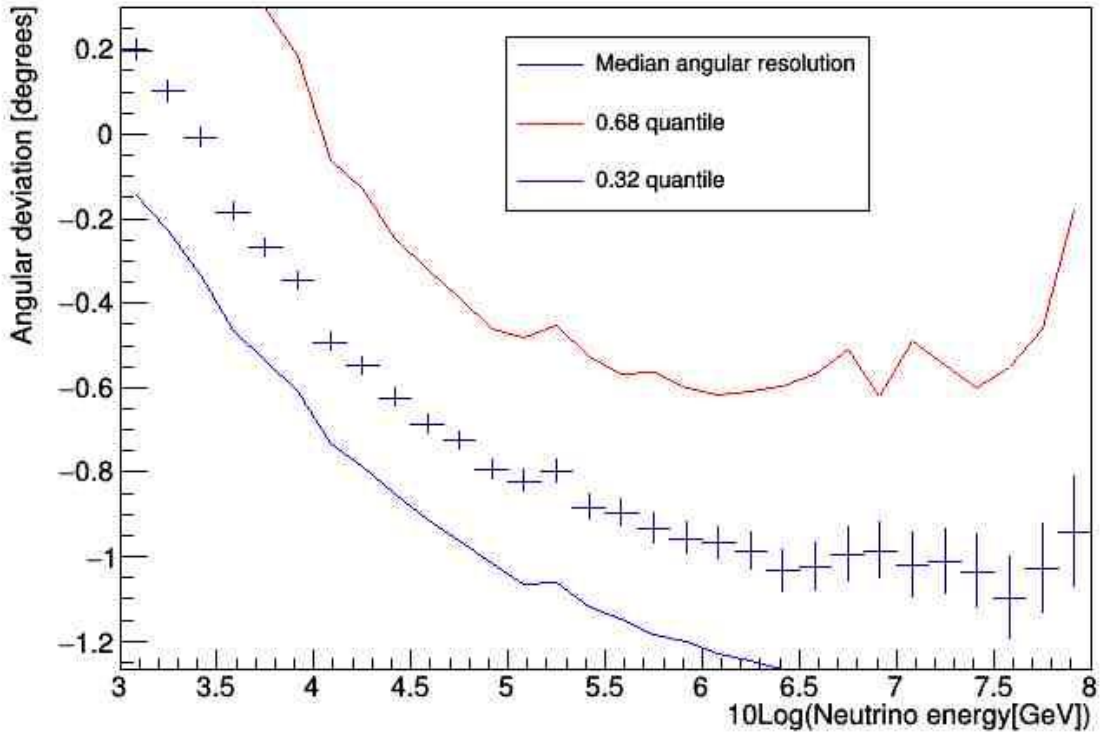
- events for flux: 1e-4 (E/GeV)^{-2} GeV^{-1} m^{-2} s^{-1}
- Integral: approx 700 events per year



Two building blocks (d=1.5 km)

- events for flux:
  1e-4 (E/GeV)^{-2}
  GeV^{-1} m^{-2}
  s^{-1}

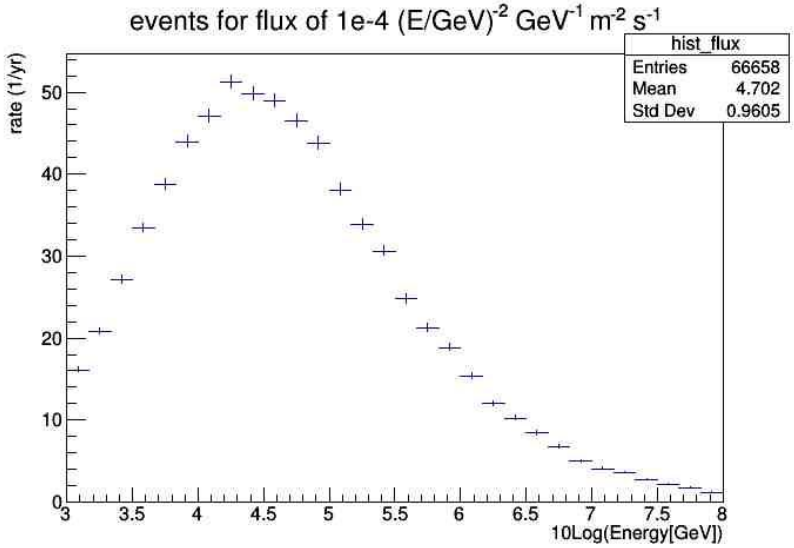
- Median E = 10 PeV
  → 0.1 degrees



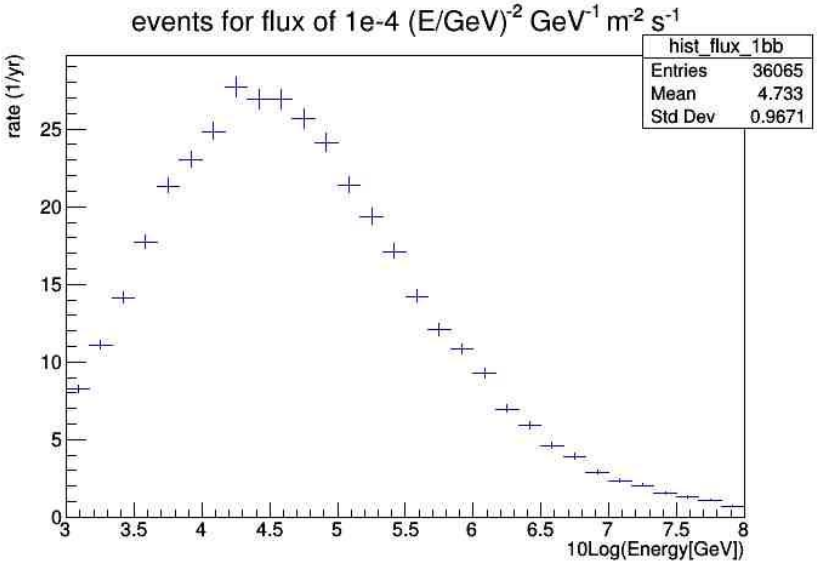
Two building blocks (d=1.5 km)

- events for flux: 1e-4 (E/GeV)^{-2} GeV^{-1} m^{-2} s^{-1}
- Muon and anti muon neutrinos!

Two building blocks



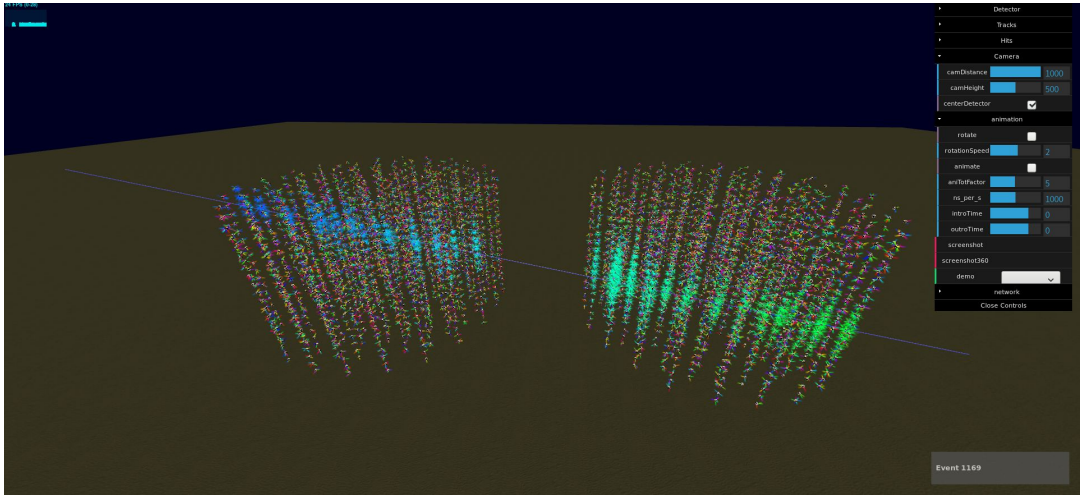
One building block



Golden events

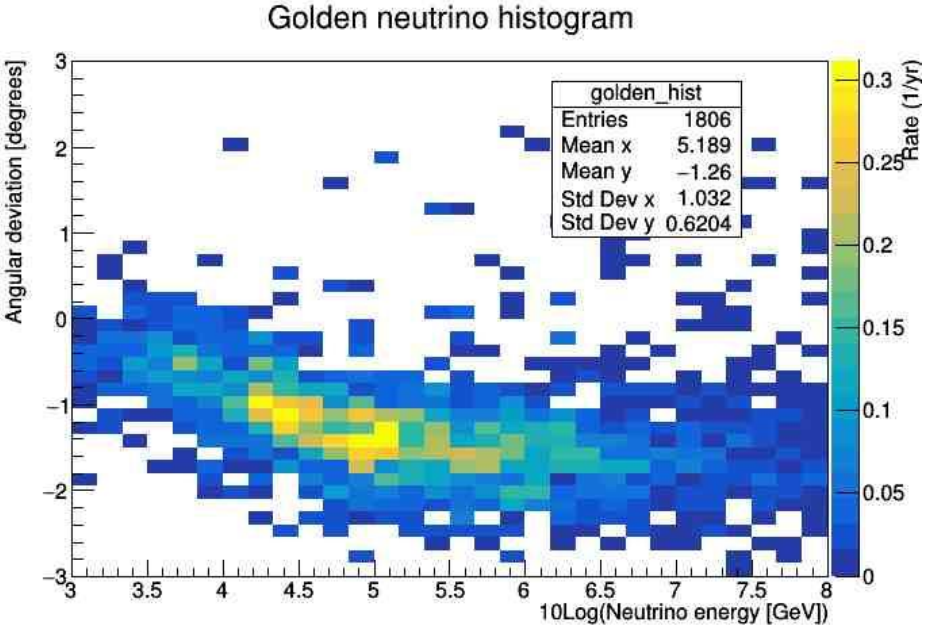
- Events that hit at least 10 lines in both building blocks

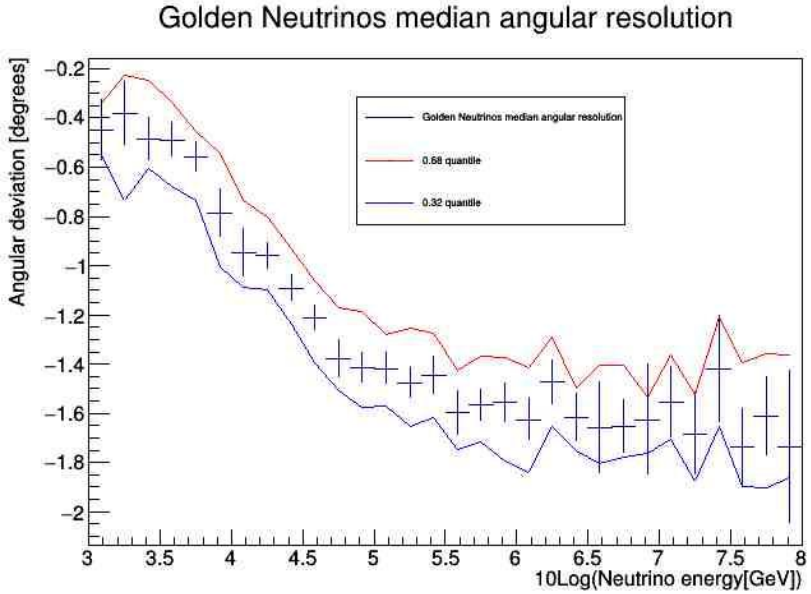
See event display of an example:
https://www.nikhef.nl/~tjuanve/www/index.html?f=BB1169.js.gz



Golden events

Small fraction of events has a *golden* angular resolution!





Repeated for varying distances

d (km)	Golden Evts/yr	Res(°) @ 10 PeV	fraction of events
1.5	28	0.025	0.0356
2.0	12	0.016	0.0178
3.5	3	0.01	0.0046

- Bad statistics for golden events at larger distances → need to improve efficiency of simulation