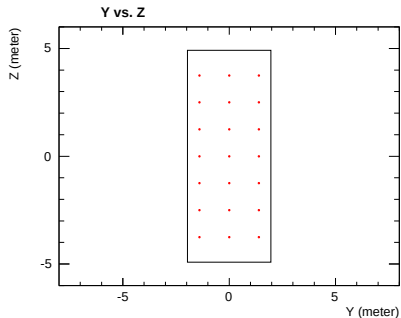
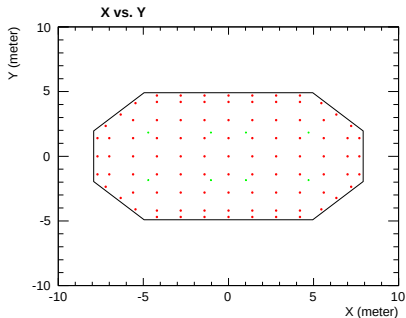


One zone Pool study

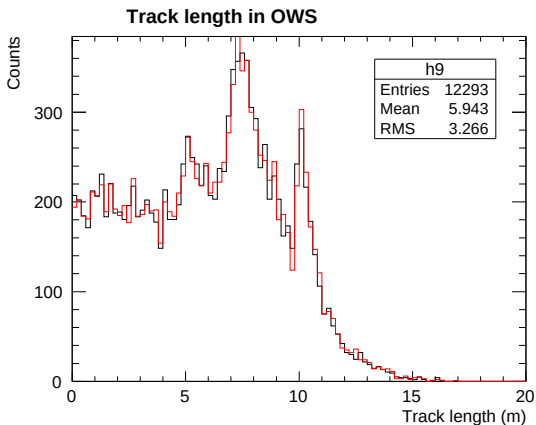
- Nominal: engineer's drawing of two zone pool, 291 PMTs in water pool.
- New: remove inner water pool, remove water pool curtain, remove unistrut, re-arrange PMTs. 289 PMTs on wall and bottom floor.

PMT positions



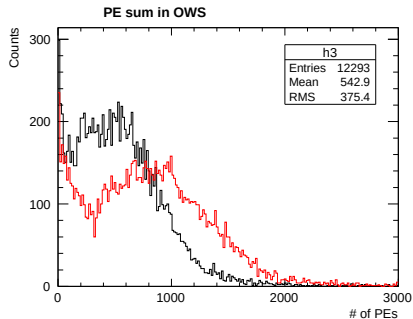
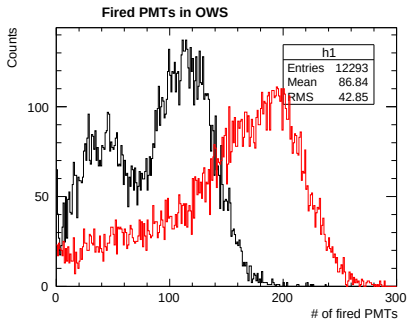
- Left: Look down the water pool. Right: Y-Z view of wall 1.
- Red points show PMT positions, green points show the supporting structure for ADs.
- 7 layers of PMTs on the wall, 65 PMTs on the bottom floor, 289 PMTs in total. PMTs are roughly 1.4 m apart from each other.

Track length in water



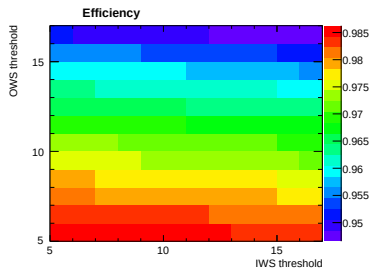
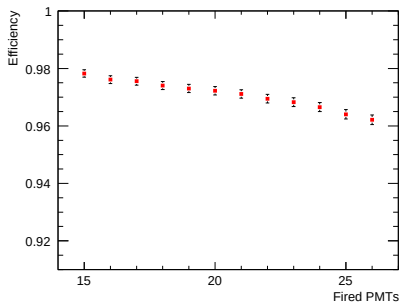
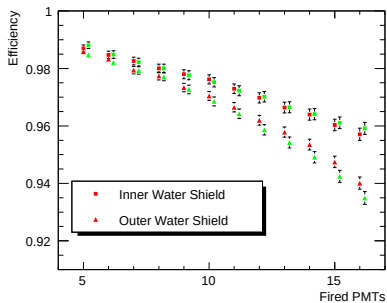
- Black histogram: Nominal.
- Red histogram: New.

Hits information



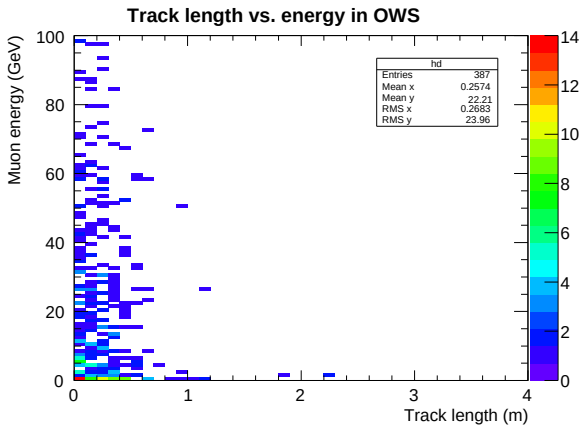
- Black histogram: Nominal. Red histogram: New.

Efficiency

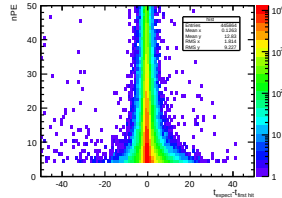
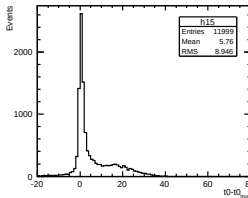
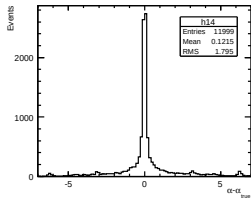
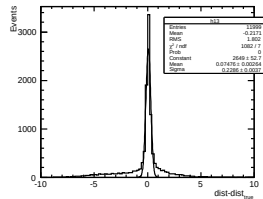
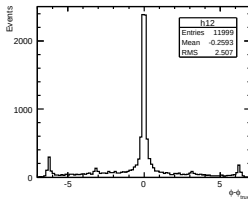
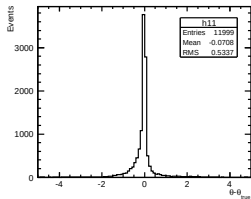


● Left: Nominal. Right: New.

Inefficient muons for new geometry

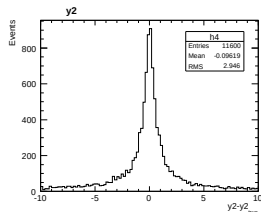
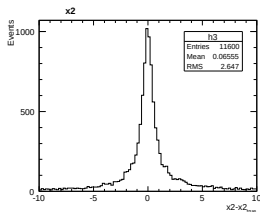
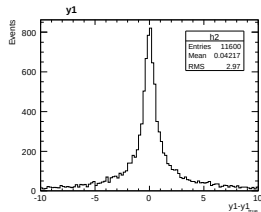
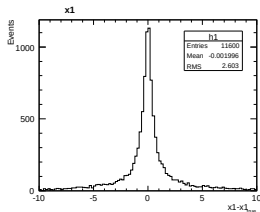


Reconstruction for new geometry



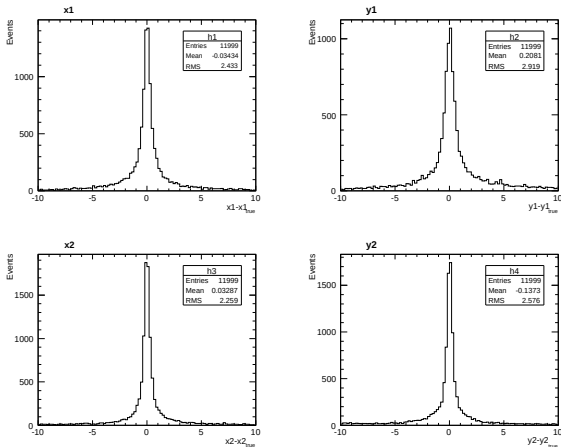
- 11999 events converged among 12171 events which pass muon trigger (98.6%).
- New geometry has better reconstruction due to more direct light, less reflect light.

Nominal fit results



- Calculate the intersect points at $z1 = 5$ m plane and $z2 = -5$ m plane and then compare with the true intersect points.

New geometry fit results



- Calculate the intersect points at $z_1 = 5$ m plane and $z_2 = -5$ m plane and then compare with the true intersect points.