


Pre-CSA07 Exercises: Validation of 1_5_4 Samples

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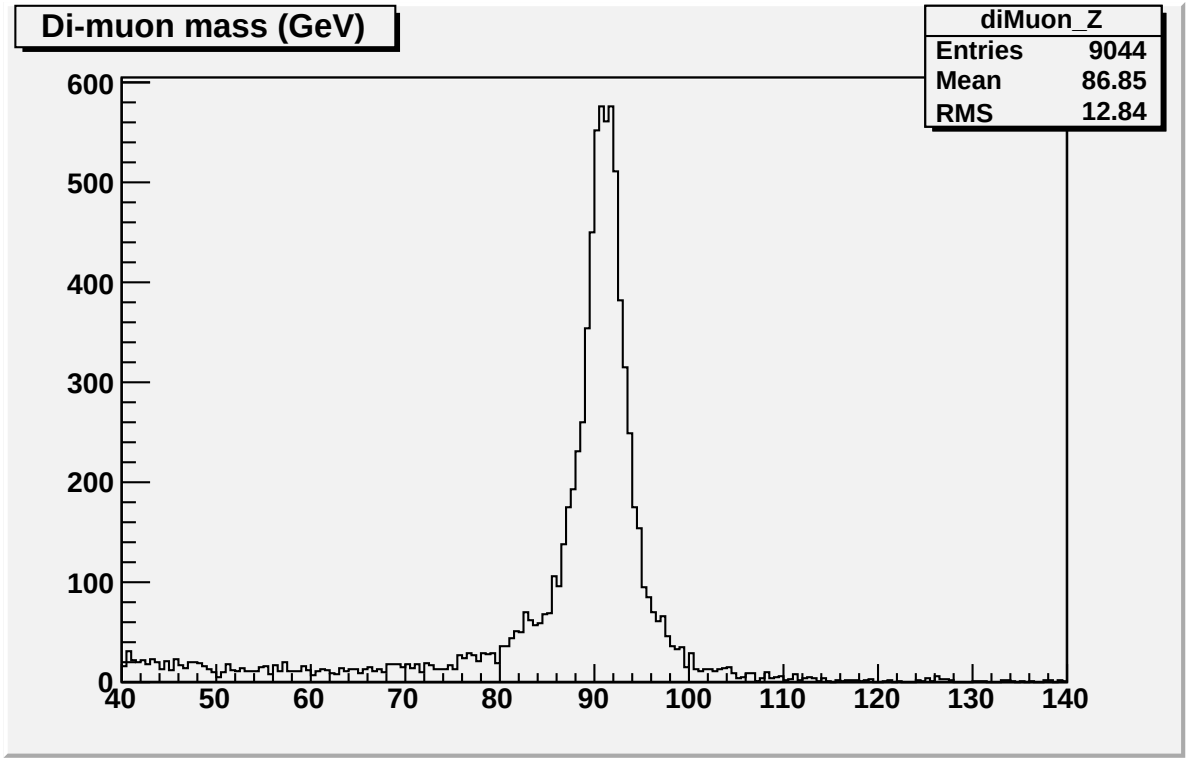
Last Friday's AlCa meeting

- I had some I/O troubles filtering 1_5_4 $Z \rightarrow \mu\mu$ samples for alignment tests ("converting to AlCaReco format")
- This will be produced officially sometime this week: I'll wait for that
- I did get to look at 10,000 ideal and short-term misalignment/miscalibration events
- (AlCa group will also produce miscalibrated but not misaligned samples)
- The following plots confirm that the ideal and short-term are what they claim to be, and I'll be able to do systematics studies with the 1_5_4 samples

Z peak in short-term scenario

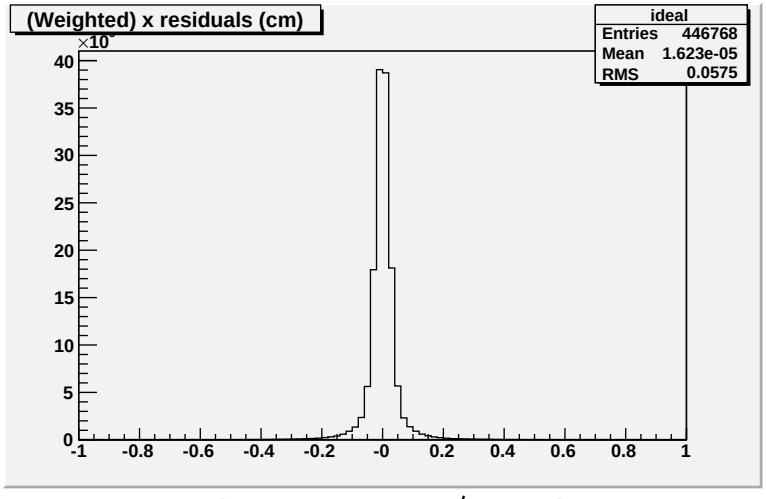
globalMuons, refit to tracker-only



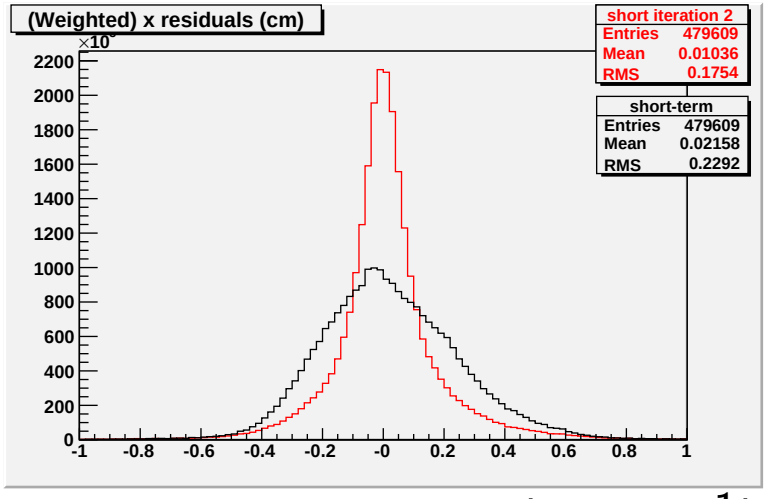
Confirms that event generation is okay and tracker is okay: says nothing about muon system

Residuals in the muon system

- Again, tracks fitted to the tracker, projected into the muon system



Ideal align/calib

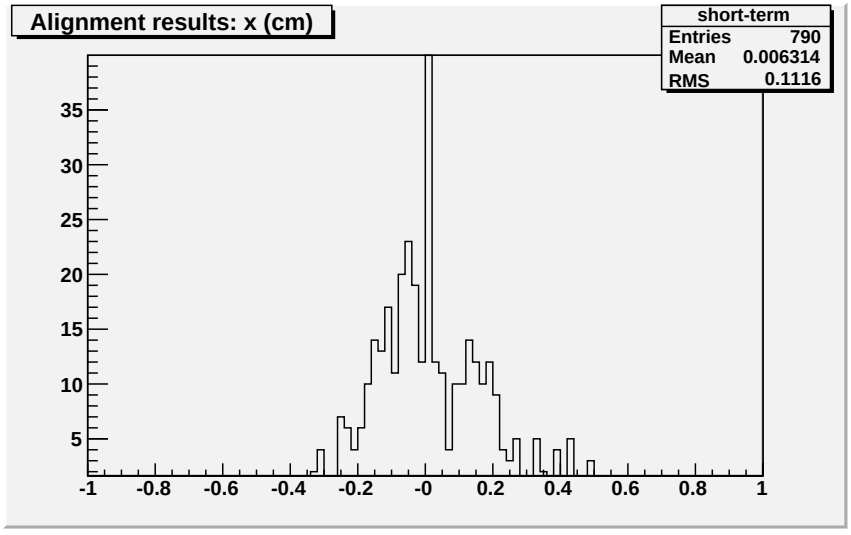


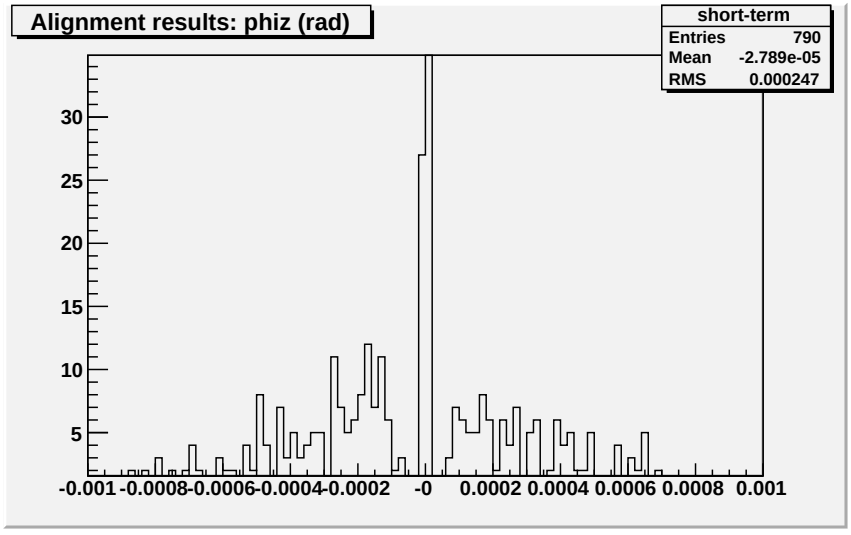
Short-term scenario (10 pb^{-1})

Red short-term is a quickie alignment: x and ϕ_z only, chamber-by-chamber, one iteration (~300/790 chambers aligned).

RMS from 2.3 mm $\longrightarrow$ 1.8 mm, with ideal being 0.6 mm

Is this the right amount of misalignment?





Yes: x misalignment dominated by wheel/disk, 0.2–0.25 cm

Yes: ϕ_z both wheel/disk and chamber, 0.25 mrad

(Majority of chambers did not align because they didn't have the minimum number of required hits)

Status

- Systematics studies will wait for official AlCaReco production ("this week")
- Meanwhile: MTCC alignment— track fits look *too* good. I should
  - look at layer-by-layer residuals
  - try fitting tracks to some chambers and projecting them to others

    I think this will be a good way of factorizing the problem and understanding the track-fitting algorithm better (and I know how to do it)
  - Alexey K.: are you available to work on this? Can we discuss this to share what I've learned?