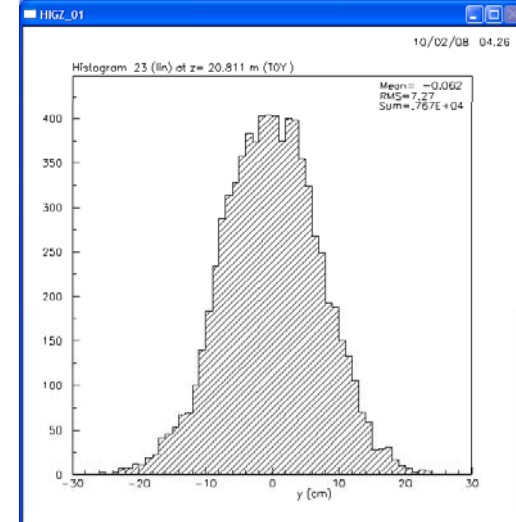
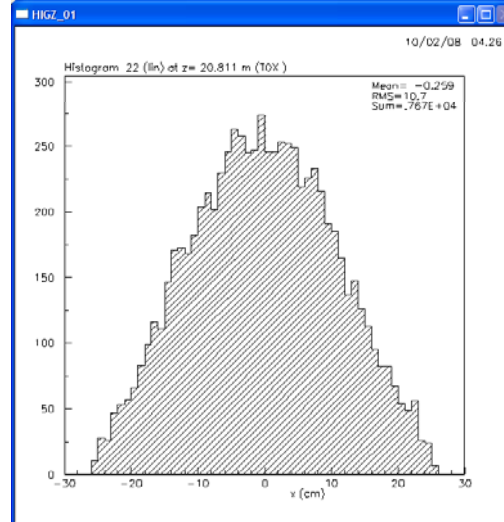
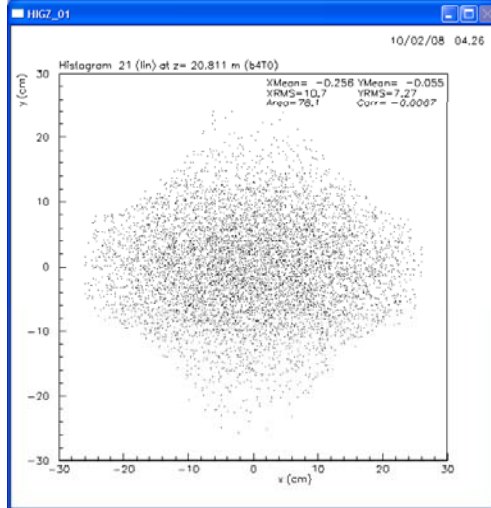


B1&B2 only. H-alignment.

Simulations of what expect to observe if aligning beam with just B1&B2 (no quads).
For various detector resolutions: Ideal, FNAL, Interim beam monitor.

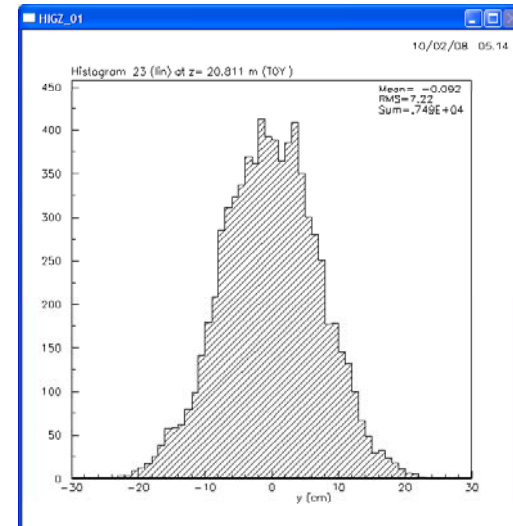
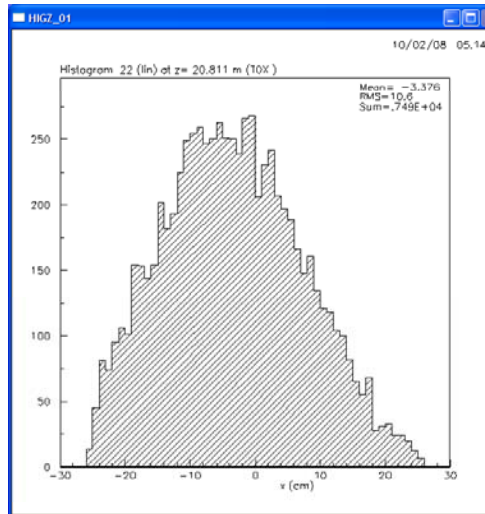
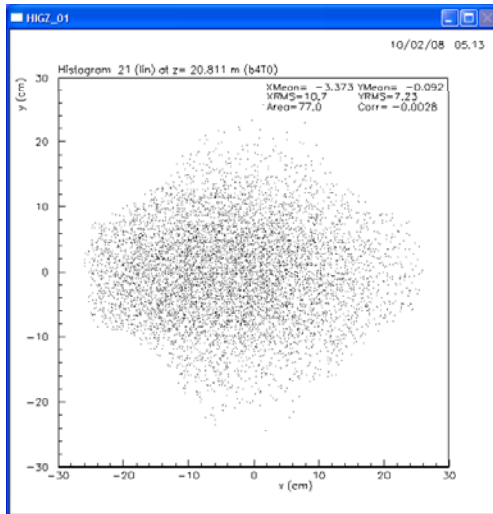
B1&B2 only. H-alignment.

Histograms just > Q6.
True beam (ideal detector).
Really observe peak structure!
 $\langle x \rangle \sim 0$. Stats ~7500hits



B1&B2 only. H-alignment

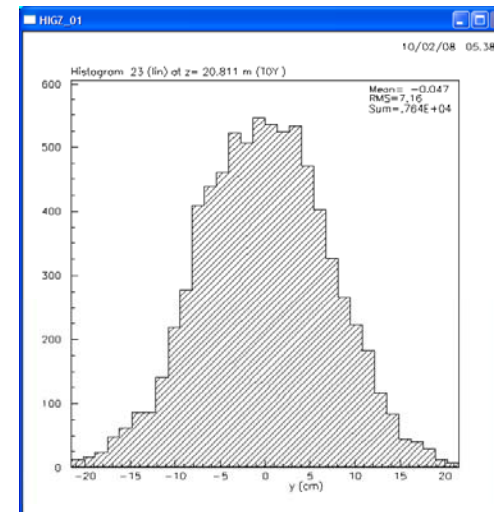
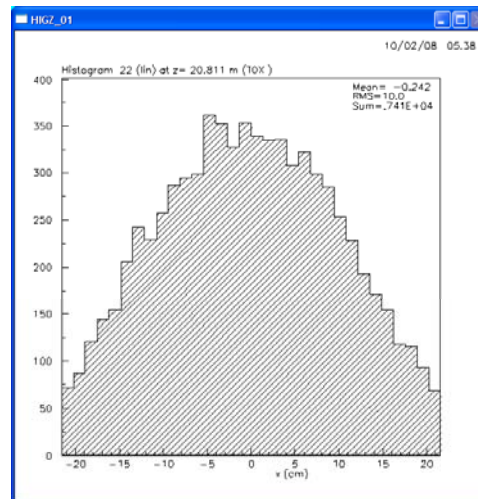
Histograms just > Q6.
True beam (ideal detector).
B2 reduced from 0.7205 -> 0.7073. ie. ~2% too low.
So really do see peak also swinging around.
 $\langle x \rangle \sim -3\text{cm}$. Stats ~7500 hits



B1&B2 only. H-alignment

Histograms just > Q6

Approx discretisation of FNAL monitor.
Using its <average resolution>~1.35cm &
extent = 43.2cm. <x>~0. Stats~7500hits



B1&B2 only. H-alignment

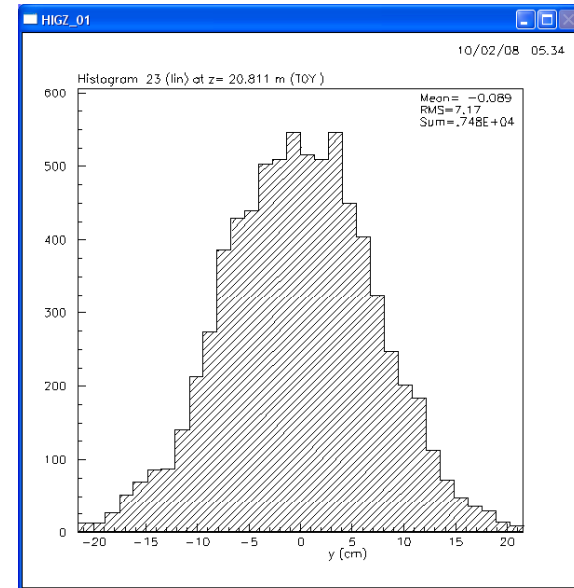
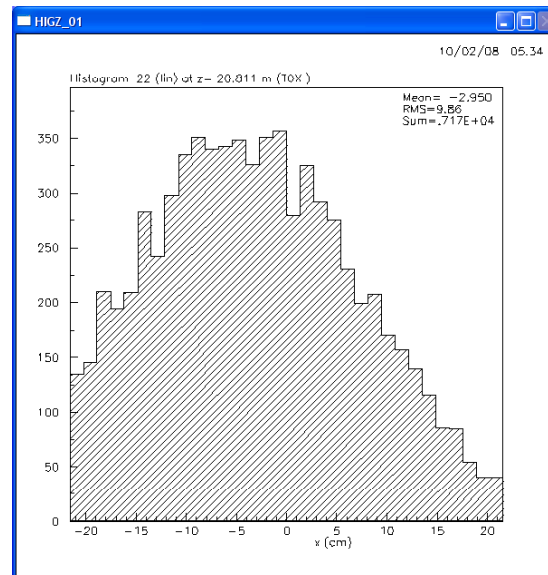
Histograms just > Q6.

Approx discretisation of FNAL monitor. Using its <average resolution> $\sim 1.35\text{cm}$ & extent = 43.2cm . $\langle x \rangle \sim 0$. Stats ~ 7500 hits

B2 reduced from $0.7205 \rightarrow 0.7073$. ie. $\sim 2\%$ too low.

So really do see peak also swinging around.

$\langle x \rangle \sim -3\text{cm}$. Stats ~ 7500 hits

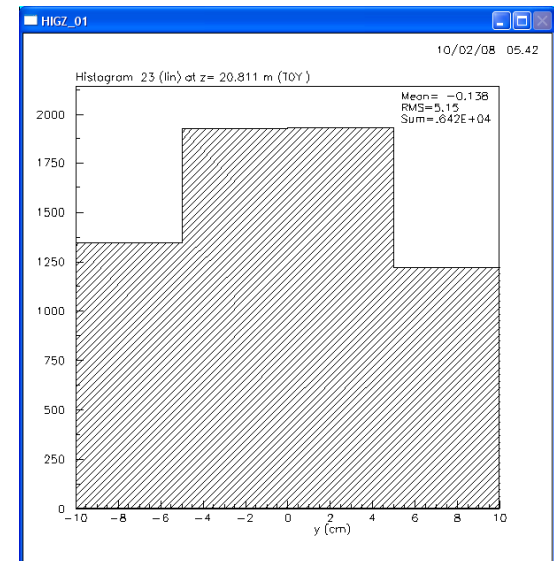
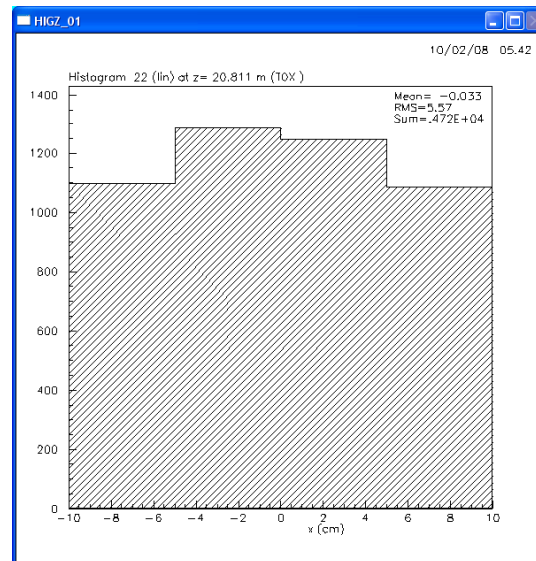


B1&B2 only. H-alignment

Histograms just > Q6

Now IC interim beam monitor detector. –
20x20cm & 5x5cm tiles.

Beam is centred. $\langle x \rangle \sim 0$ Stats ~5000



B1&B2 only. H-alignment

Histograms just > Q6.

Now IC interim beam monitor detector. – 20x20cm & 5x5cm tiles.

Beam is centred. $\langle x \rangle \sim 0$ Stats ~5000

B2 field reduced 7.20->7.07 ie ~2% too low.
Seems that beam visibly off centre just.

So, maybe even for interim beam monitor, we can do rudimentary horizontal beam alignment with B1 & B2 only.

Otherwise do it with quads on (ie skip B1,B2 only phase).
Otherwise use a pseudo slit etc.

