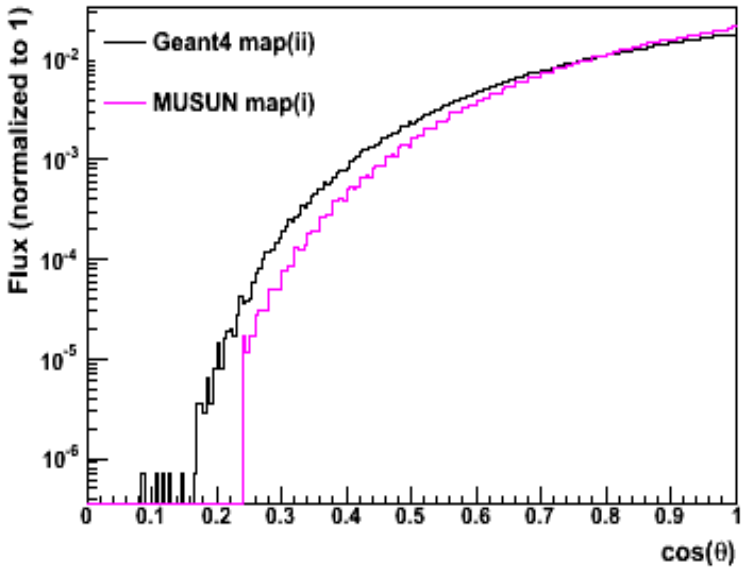
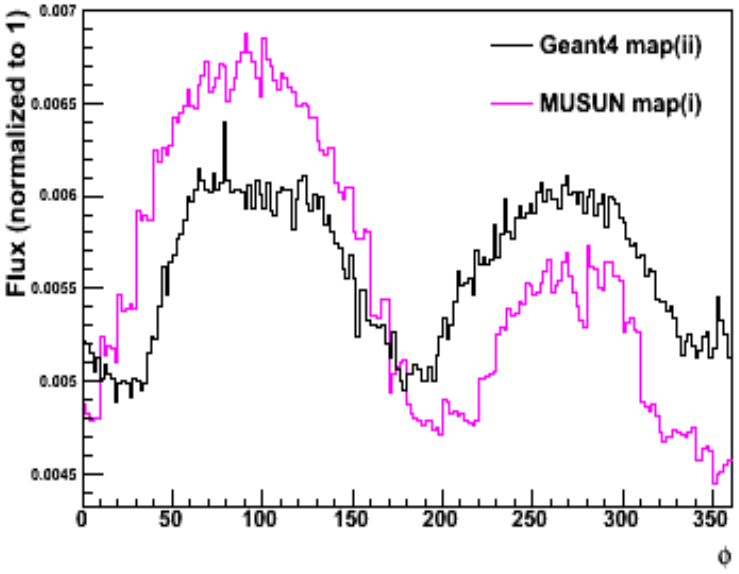
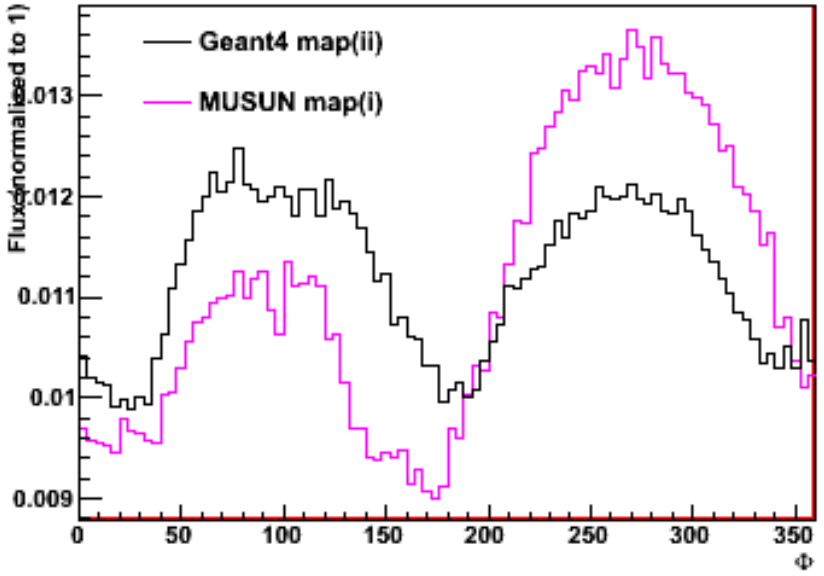


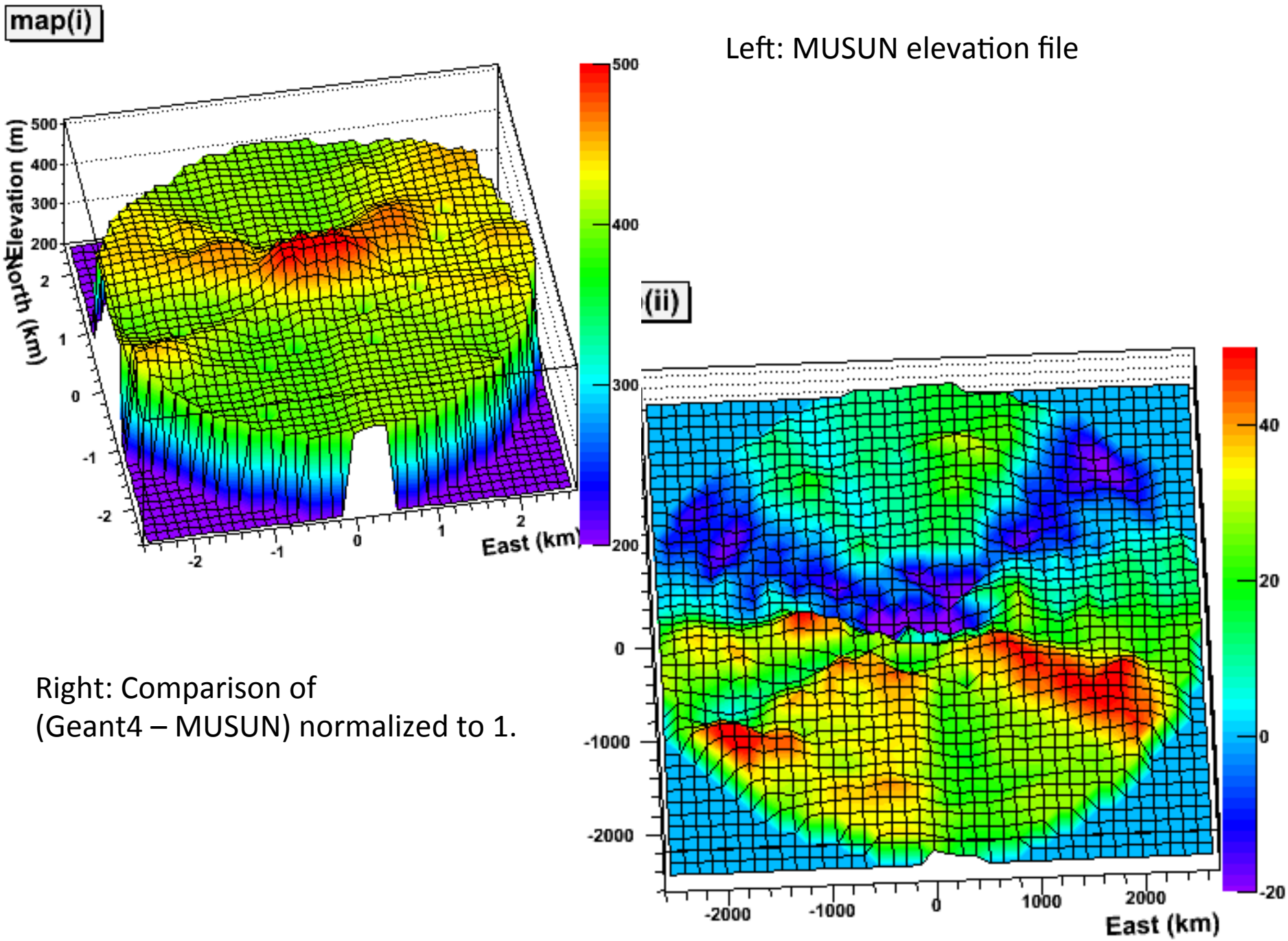


Chao's comparison of MUSUN and Geant4. Chao is using a coordinate system where phi starts at east (0) and goes counterclockwise (so north is at 90). This is the system that Vitaly used for Homestake. But he also used my comment that north flux is higher than south to start the Soudan MUSUN at 180 – if he does NOT make that assumption, then he gets the one to the right.

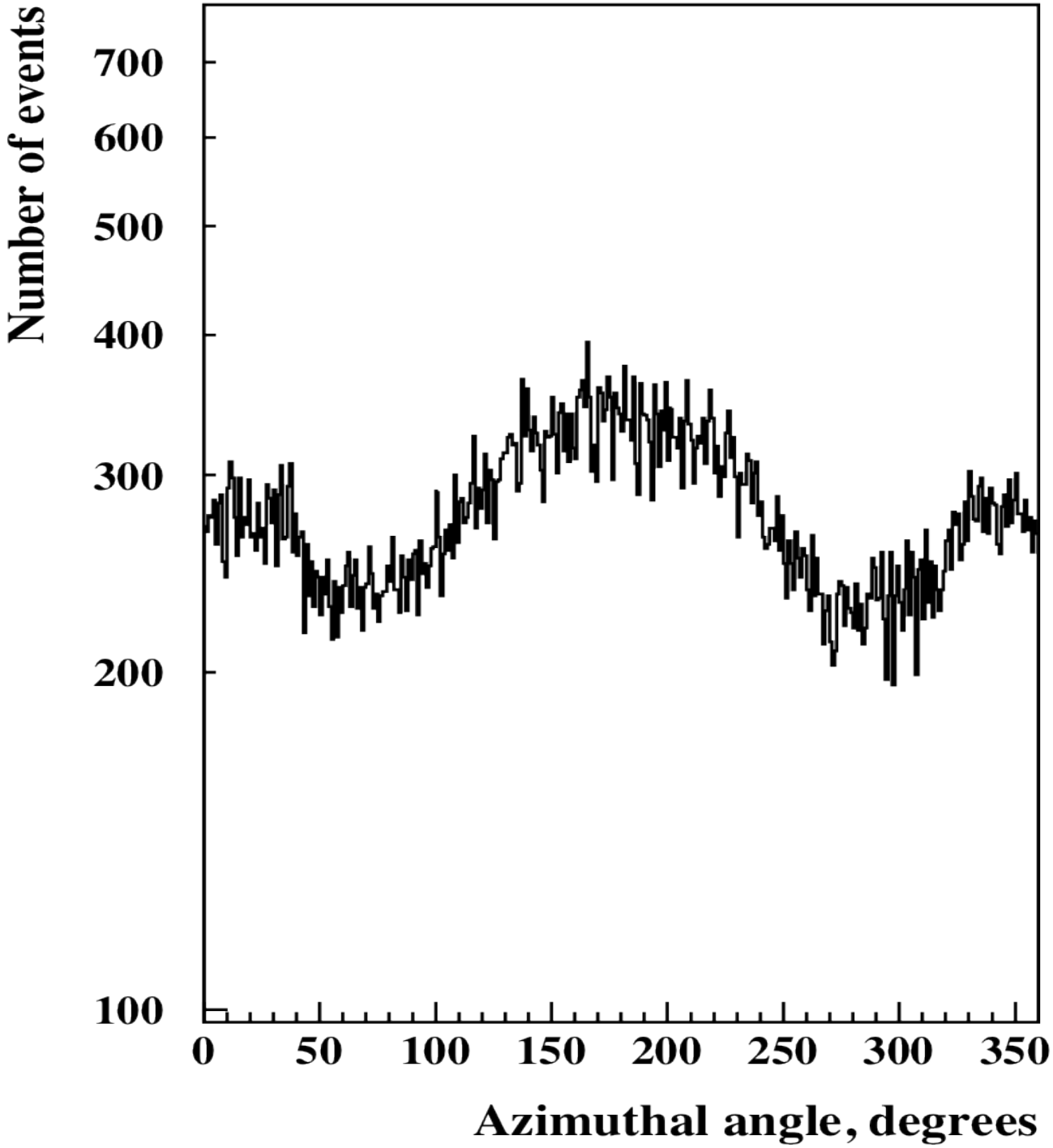


These are normalized to 1 – but we should do absolute flux.

Left: MUSUN elevation file



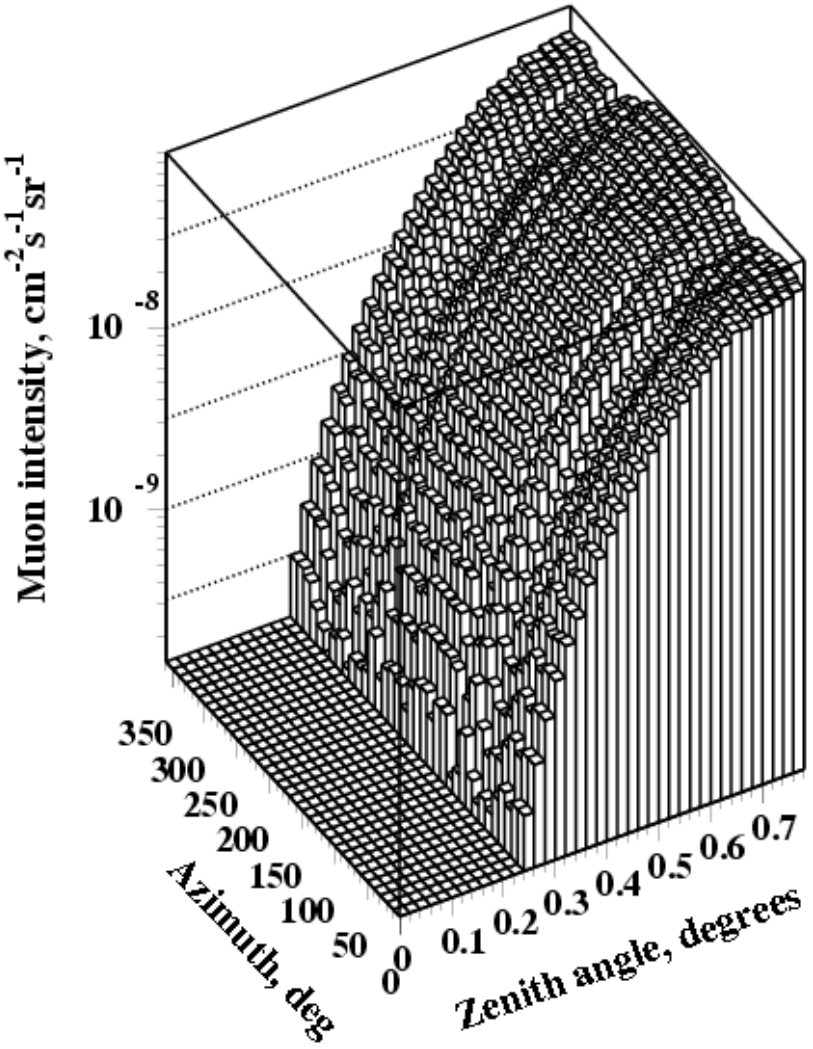
Right: Comparison of
(Geant4 – MUSUN) normalized to 1.



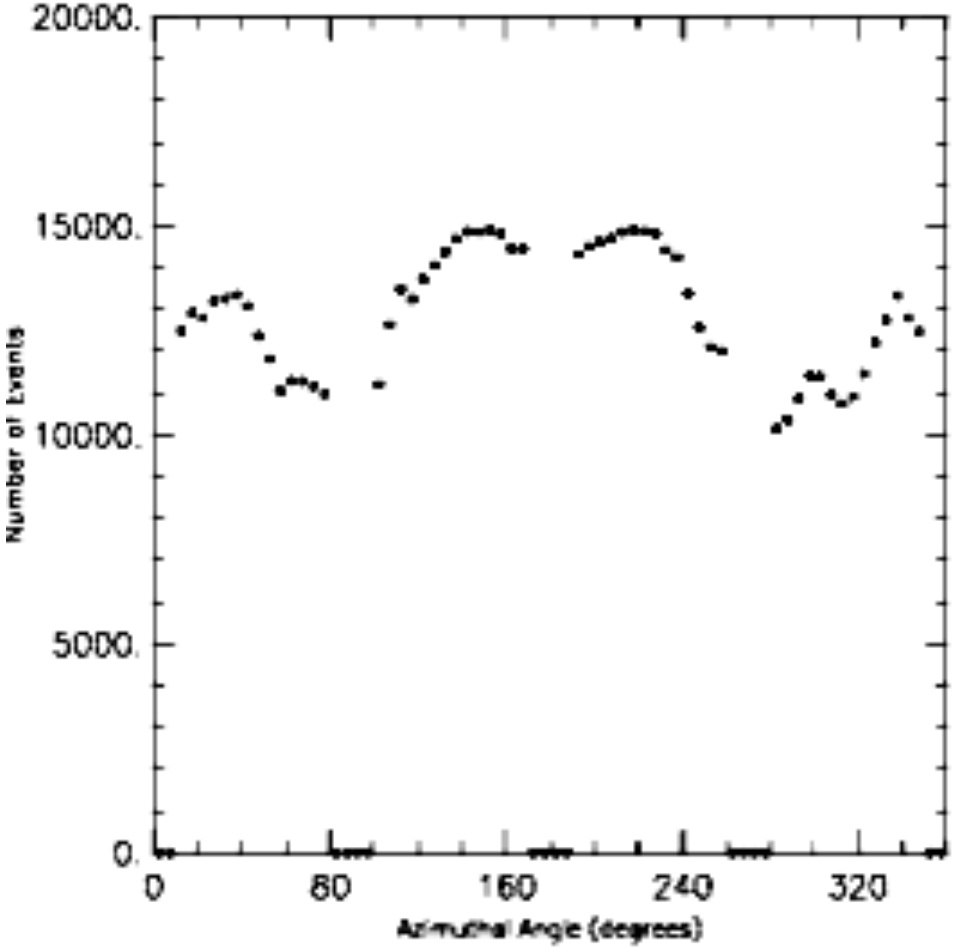
Original file from Vitaly

With north at 0
West at 90

Note that south is higher and West is slightly higher.



Early MUSUN plot from the slant paths I send to Vitaly



Actual angular distribution from Soudan-2 experiment with gaps in coverage clearly seen. Note south is higher than north.

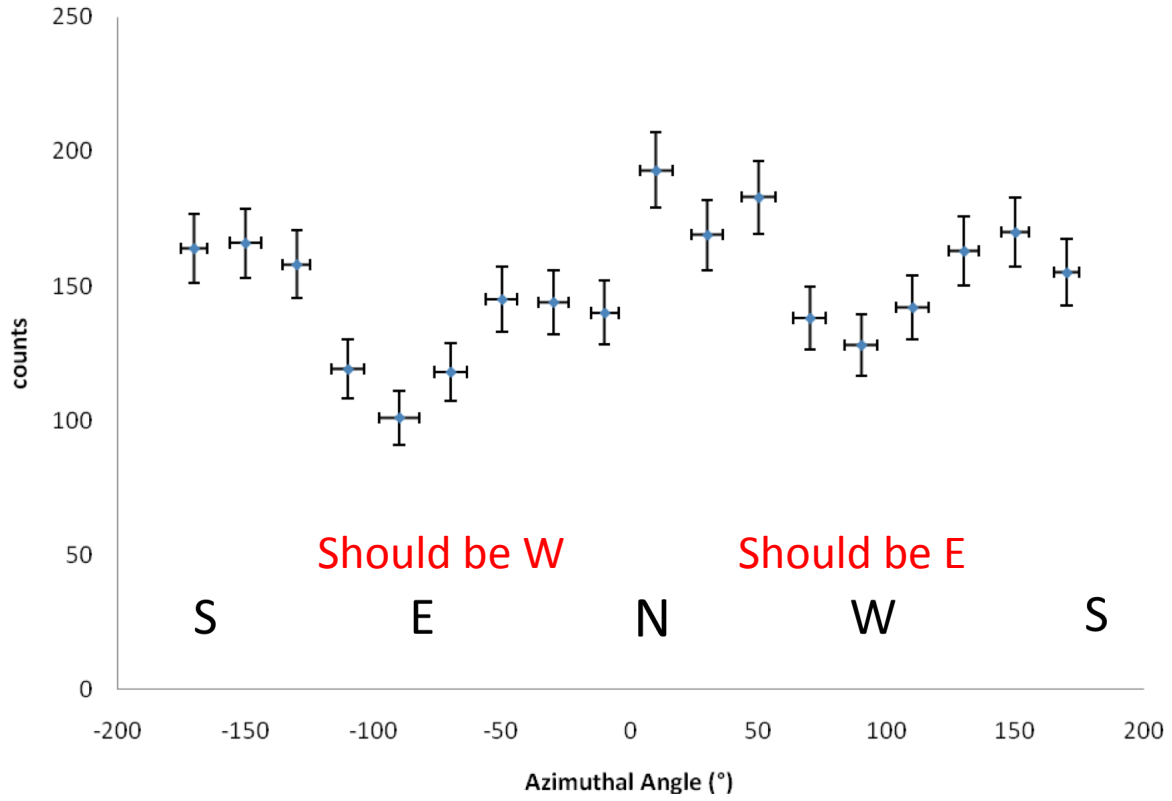
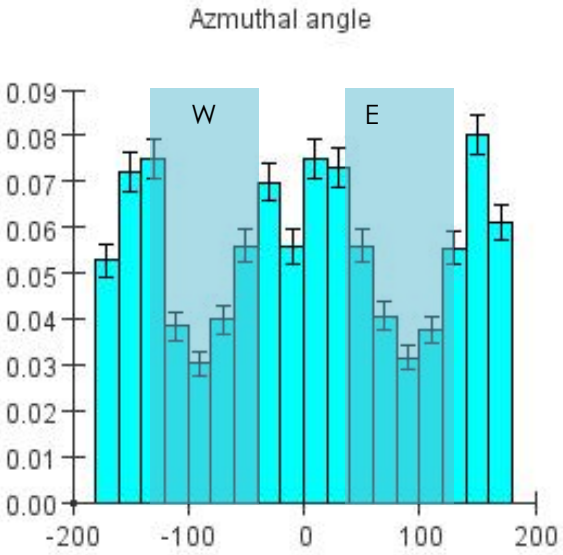
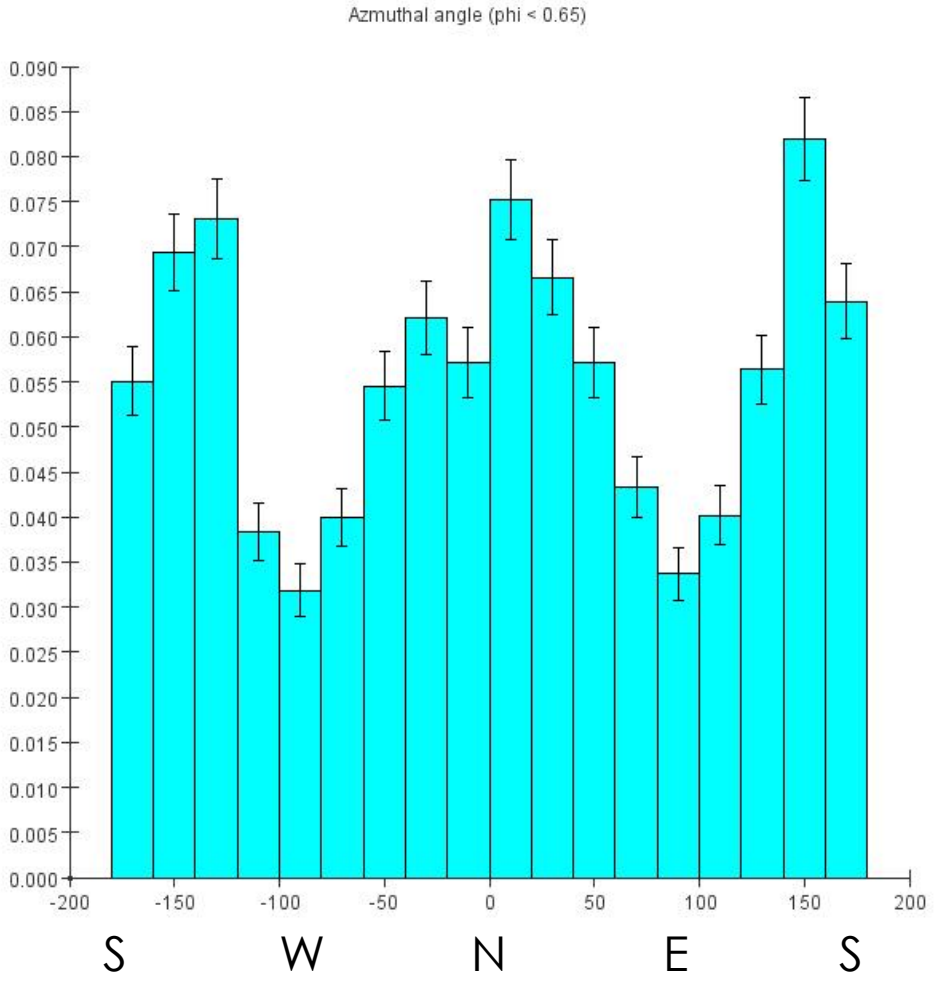


Figure 16. This is the plot of azimuthal angle as measured in the ceiling with zenith angle less than 0.50 radians. This plot contains a total of 2696 data points. The cardinal directions are marked.

Here is the figure in the veto paper and labeled WRONG.
North is zero, but he actually has clockwise positive and counter clockwise negative.
So what says W on this should be E and visa versa. We will correct this in veto paper.
North is higher than South here in actual data.

And here is a plot from an APS talk.
Where the S looks higher.
And E and W are correctly labeled.





This is an early plot – the binning is a little narrower. This is just a picture without text… so it may not be useful.