

Homestake Atmospheric ν Flux

John LoSecco

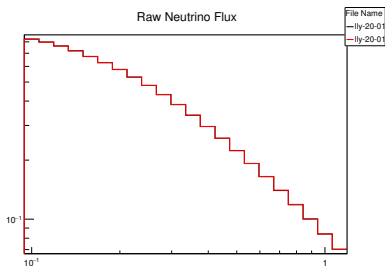
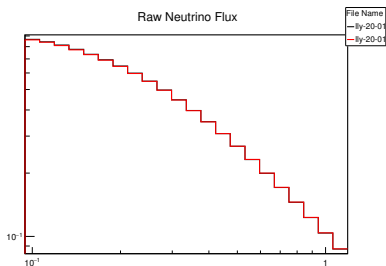
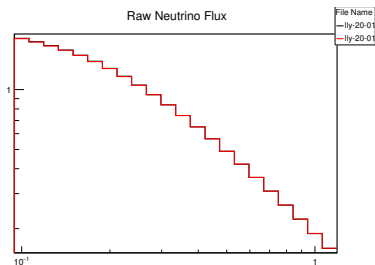
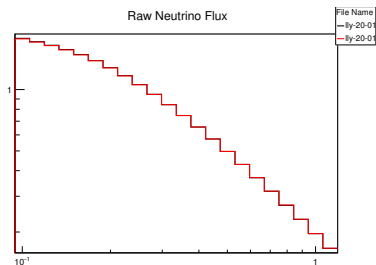
University of Notre Dame

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Honda 2014 Flux

- ▶ Made for many locations
- ▶ Asked for Homestake mine
- ▶ No mountain
- ▶ From 100 MeV to 10 TeV

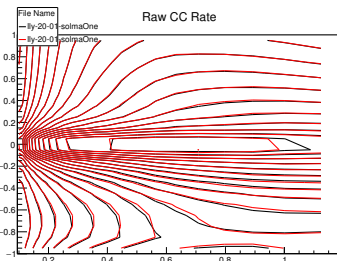
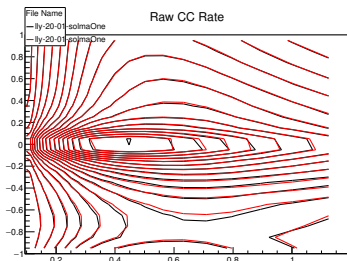
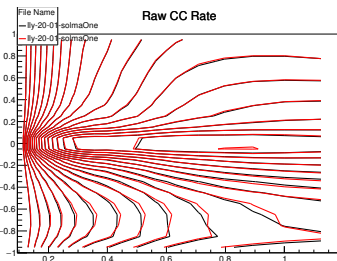
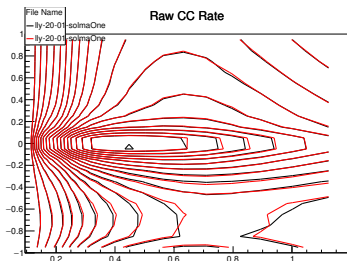
Compare to Sudbury – Unoscillated spectrum



Black is SNO and Red in Homestake: ν_μ $\bar{\nu}_\mu$ ν_e $\bar{\nu}_e$

Loglog plot barely distinguishable

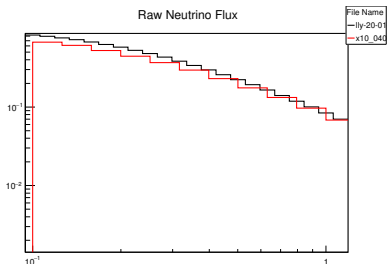
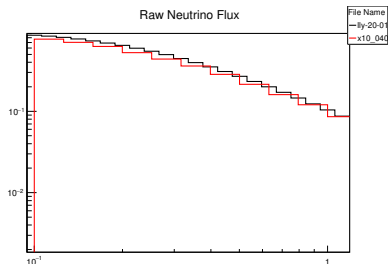
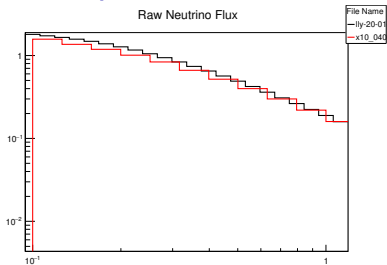
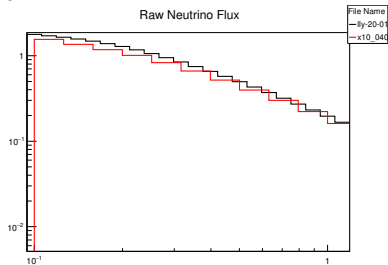
Compare to Sudbury – Energy and Zenith – CC Events



Black is SNO and Red is Homestake: $\nu_\mu \bar{\nu}_\mu \nu_e \bar{\nu}_e$

Contour plot of CC event rates barely distinguishable

Compare to Soudan – Unoscillated spectrum

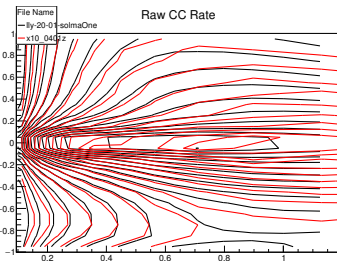
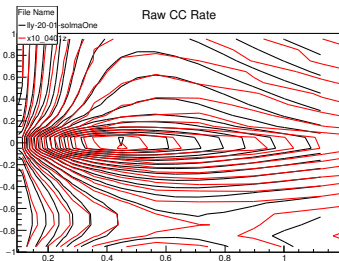
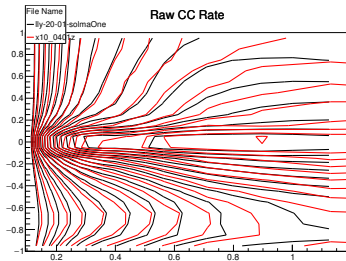
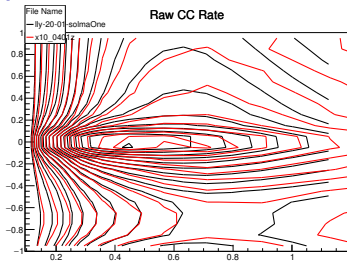


Red is Soudan (Gaisser) and Black is Homestake (Honda): ν_μ $\bar{\nu}_\mu$

ν_e $\bar{\nu}_e$

Loglog plot

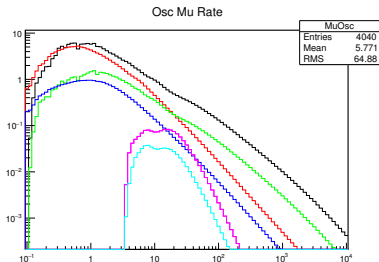
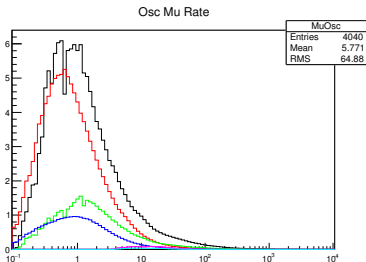
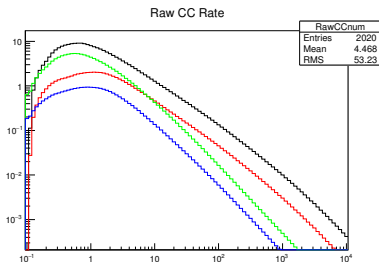
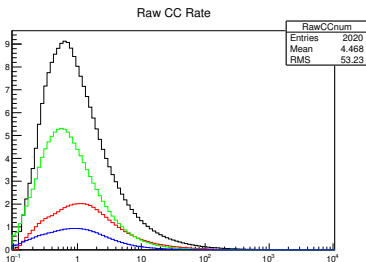
Compare to Soudan – Energy and Zenith – CC Events



Red is Soudan (Gaiser) and Black is Homestake (Honda): ν_μ $\bar{\nu}_\mu$ ν_e $\bar{\nu}_e$

Contour plot of CC event rates barely distinguishable

Event rates (Sol Max)



Top unoscillated, Bottom oscillated Linear scale on left and log on right. From top down ν_μ ν_e $\bar{\nu}_\mu$ $\bar{\nu}_e$ ν_T $\bar{\nu}_T$

Shared in DocDB

- ▶ Honda estimate of the atmospheric flux at Homestake DocDB-1037
- ▶ Topographical map of Homestake DocDB-1038