

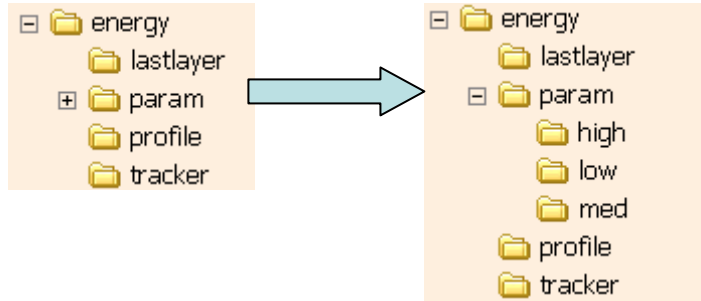
Classification, etc. status at UW

- Implement “nested trees”
- Generate “boosted” trees for all of the Atwood categories
- Background rejection status

"Nested" Trees

- Objectives:
 - define a CT model that is consistent with current sources
 - Insightful Miner (IM) (via Bill and Tracy)
 - Using the *classify* package (only TB so far)
 - Riccardo Rando's "forests"
 - Generalize (and minimize) the "glue" code: it must
 - Provide connection between the named variables and values found in the ROOT tree
 - Decide which trees to evaluate
 - Create and fill output tuple variables
- The role of the filter (see last week)
 - Preselection cuts for a train/evaluation to simplify the actual tree
 - Implemented as a simple tree with one path.
 - New idea: use it to select the sample to train/evaluate as well
 - Riccardo splits up the data into 8 energy bins
 - Bill (and TB) split up the parametric energy into 3 bins
- New feature: evaluate multiple trees, assumed to have exclusive filters, return the first giving a non-zero value.

Apply to the energy CT



- The *param* estimator is unique in that it covers all energies. (See my plot last week, and following)
- With this feature, since the *number* of trees is now data-driven, it is easy to replace a single tree with multiple trees.
- Implement simply by including a file in the param folder, named *nested.txt*
 - lines are relative paths to new CT folders

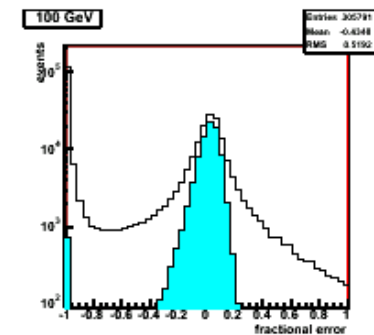
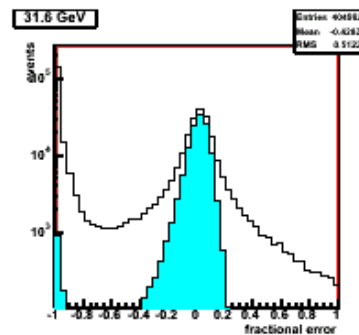
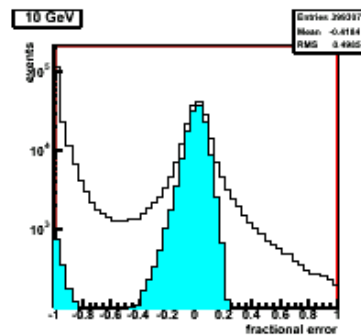
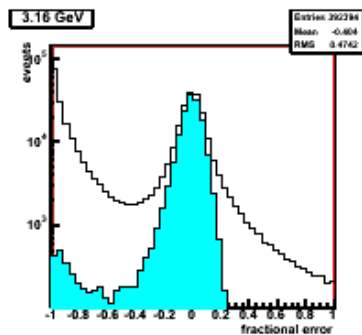
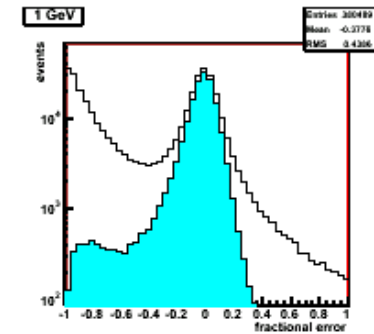
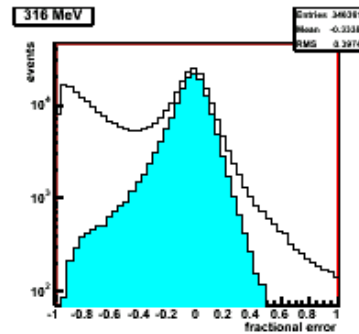
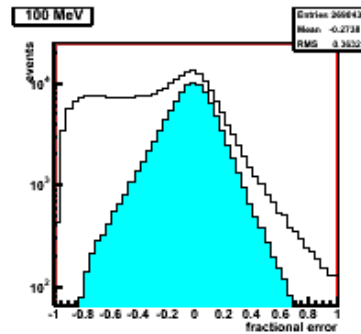
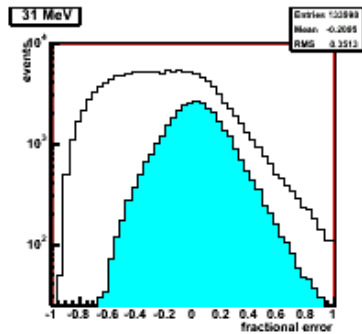
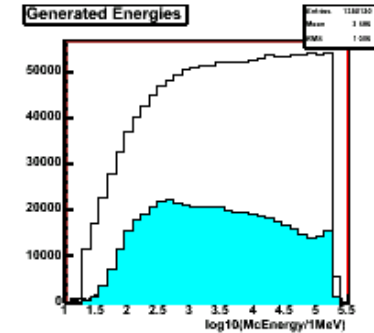
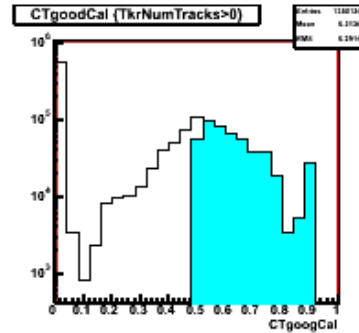
the nested trees for energy-param
low
med
high

UW Energy resolution: (param only, three trees)

Dispersion study

f:/glast/data/root_files/allGamma-GR-v7r2-merit-TKR-prune_new.root

cyan: CTgoodCal>0.50



How about XML?

The current CT descriptions use the file system to define the structure.

Tracy is a big advocate of XML (and so am I!)

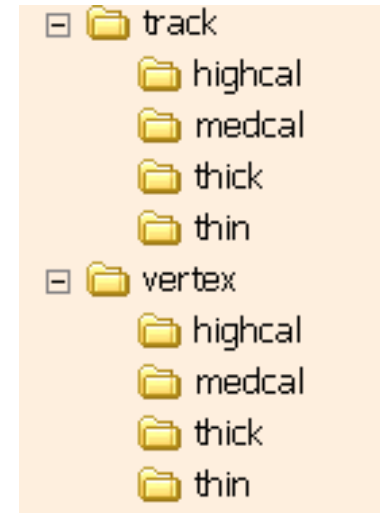
It would be easy to convert this to a single XML file that reproduces the same structure.

Only needs a simple tool to expand/contract

UW background rejection status

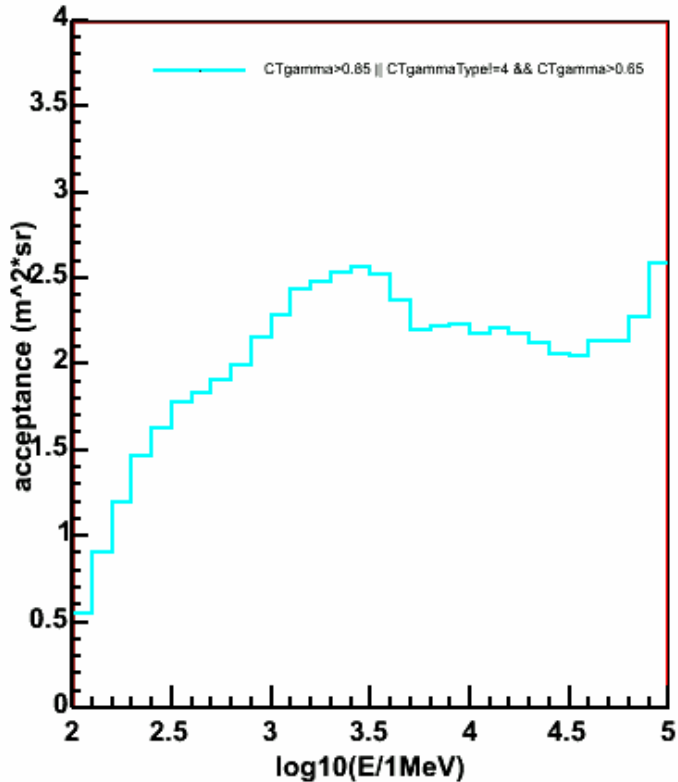
Reminder:

- We currently mimic the UCSC structure, and **only** this is supported in Gleam. (Supporting Padova would require that UCSC adopt filters that also select the subset.)
- 8 different branches:
 - Vertex or Track better for PSF?
 - highcal: High energy (>3.5 GeV)
 - medcal: Medium energy (>350 MeV)
 - thick: Low energy, thick converter section
 - thin: Low energy, thin section
- Each event is examined, and the appropriate CT evaluated.
 - *CTgamma* is set to the value from that node.
 - *CTgammaType* is set to 0-7.



UW background rejection

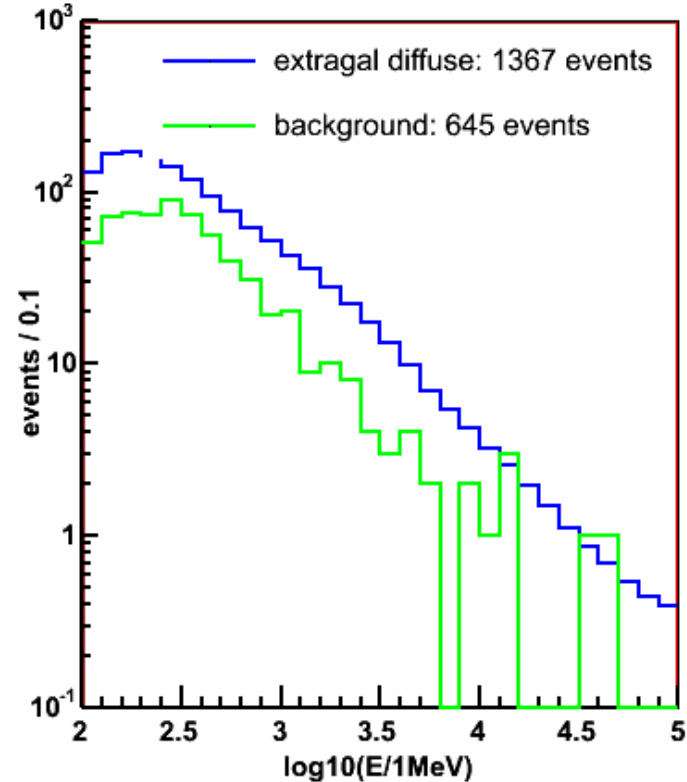
acceptance



Acceptance for the given CTgamma and CTgammaType cut

(Note that the on-axis effective area is very close to dividing by 0.8π : The “SRD” minimum is $2 \text{ m}^2 \text{ sr}$)

0.1 day



Spectra for 8640 sec (0.1 day): expected extra-galactic diffuse (EGRET “standard”) and measured background)