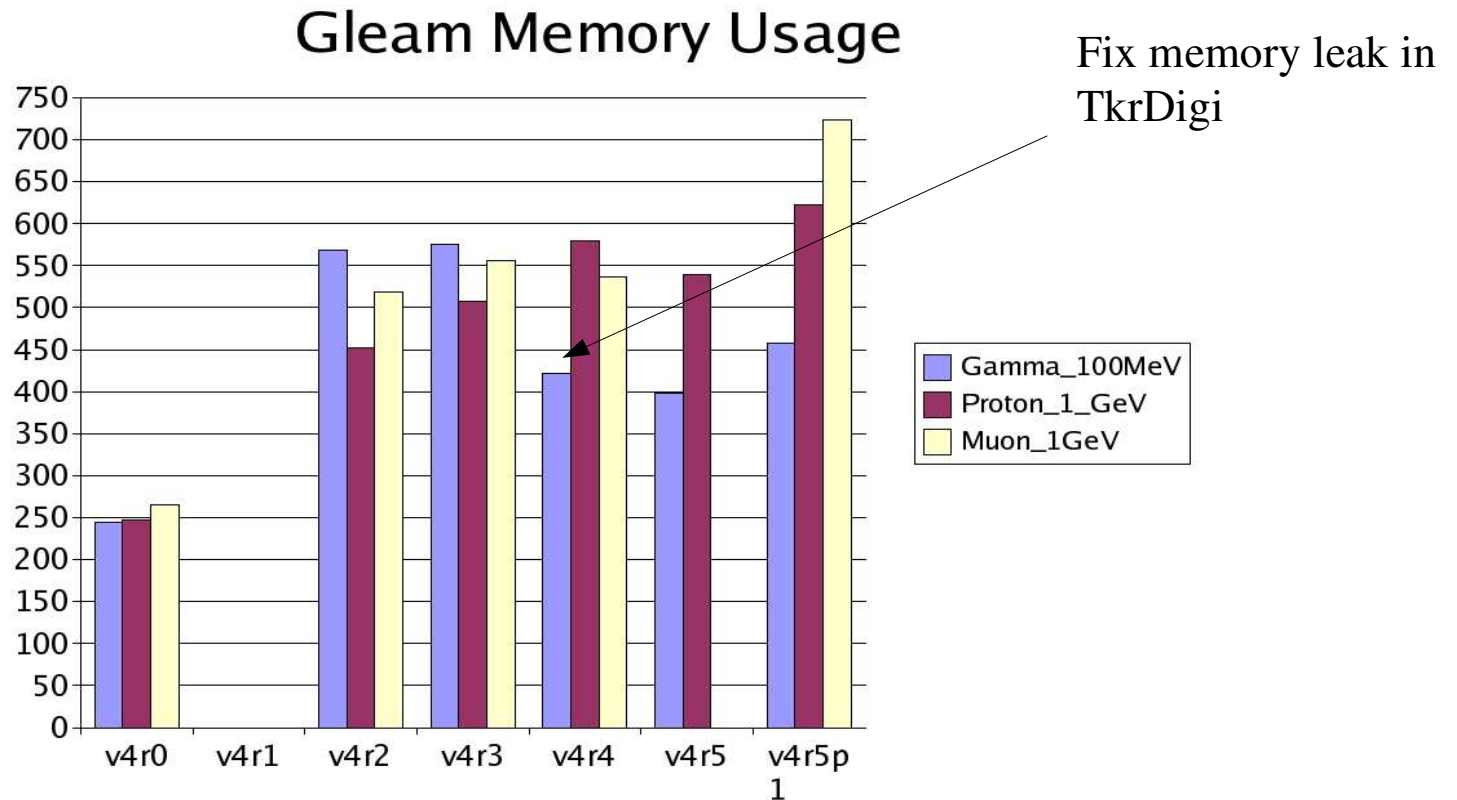


# System Tests

Run for GlastRelease v4r5 and v4r5p1. The memory leak looks like it is still there...



# Documentation/Reports

Version Test Information - Mozilla

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## GLAST *The Gamma Ray Large Area Space Telescope*

### Glean System Tests

Tests for package: **GlastRelease - v4r5**

Standard for these tests is: v4r4 [Histograms List](#) [v4r5 Release Summary](#) [Commentary](#)

Current threshold: 0.5 Change the threshold value  Submit Reset

System Test Name	CPU secs	Memory MB	Data Files	Metadata Values	Pass/Fail
<a href="#">VerticalGamma1GeV</a>	31627	244	<a href="#">Plot</a> <a href="#">Histos</a> <a href="#">Get Tuples</a>	MetaData	Pass --> 77 Fail --> 18
<a href="#">ACDDigi-Failed</a>	0	NA	<a href="#">Plot</a> <a href="#">Histos</a> <a href="#">Get Tuples</a>	MetaData	Pass --> 0 Fail --> 0
<a href="#">ACDTop-Failed</a>	0	NA	<a href="#">Plot</a> <a href="#">Histos</a> <a href="#">Get</a>	MetaData	Pass --> 0 Fail --> 0

Done

Link to a confluence page (courtesy of Richard and Karen)

# System Test Comments

GlastRelease v4r5 - Confluence - Mozilla

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## System Tests Reports

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### GlastRelease v4r5

Last changed on Oct 10, 2004 by [Julie McEnery](#)

Link to release summary  
[http://www.slac.stanford.edu/exp/glast/ground/software/RM/rh9\\_qcc32/GlastRelease/GlastRelease-v4r5/summary.htm](http://www.slac.stanford.edu/exp/glast/ground/software/RM/rh9_qcc32/GlastRelease/GlastRelease-v4r5/summary.htm)

#### Trigger (Oct 10, Julie)

Additional bits were added to the trigger word (IT->trigWord) to hold the GEM summary information. This resulted in changes in the TRGWORD distribution. However, this caused a problem with the merit tuple variable GltWord, which is identical to trigWord except that there was an assumption in AnalysisNtuple::GltValsTool that the variable should be less than 1024, so the routine set GltWord to zero if trigWord > 1024. The addition of the higher order bits made this assumption incorrect. This caused large changes in all the distributions which depend on a trigger cut using GltWord (i.e. all the distributions with names consisting of mixed upper and lower case letters).

#### TkrRecon Error Calculation (from Leon)

We just changed the default error calculation in TkrRecon from the old "standard" errors to the new slope-dependent errors. These are supposed to better model the actual errors, and are in general smaller than the standard ones, so whenever this makes it to GlastRelease, you'll see the chisquared go up in the system tests (and the track "quality" go down). I don't think the other variables will change very much, if at all.

#### Zero Suppression threshold. (Oct 10, Julie)

The code/parameters used to correct for the effect of the zero suppression threshold in the cal in CalValsTool is tuned for a threshold of 1 MeV. The value used in the simulation is 2 MeV, so there is a mismatch, between the simulation and reconstruction. This results in an underestimate of the reconstructed energy (particularly for low energy events).

0 comments

#### Page Operations

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#### Incoming Links: (more)

- [GlastRelease Reports](#)

#### Hot Referrers: (more)

- [www-glast.slac.stanford.edu/s... \(7\)](http://www-glast.slac.stanford.edu/s...)

#### External References:

- [www.slac.stanford.edu/exp/gla...](http://www.slac.stanford.edu/exp/gla...)

Done

What's this?

# Other small pieces of progress...

Several new tests added to the EngineeringModel package, the jobOptions for these tests are controlled by I&T.

The Release Manager now automatically creates the config files for the system tests (thanks to Navid). A workaround for the sporadic DB connection failures with redhat 9 was found (which uncovered a bug that took yet more time to find and fix...). We are now ready to automate the systests.

We have started to document the contents of the histograms:

<http://confluence.slac.stanford.edu/display/SYSTESTREP/GlastRelease+Histogram+Definitions>

Comments and suggestions are very welcome.

Received some code from Michael Kuss to check for event reproducibility. This will shortly be implemented as a system test.

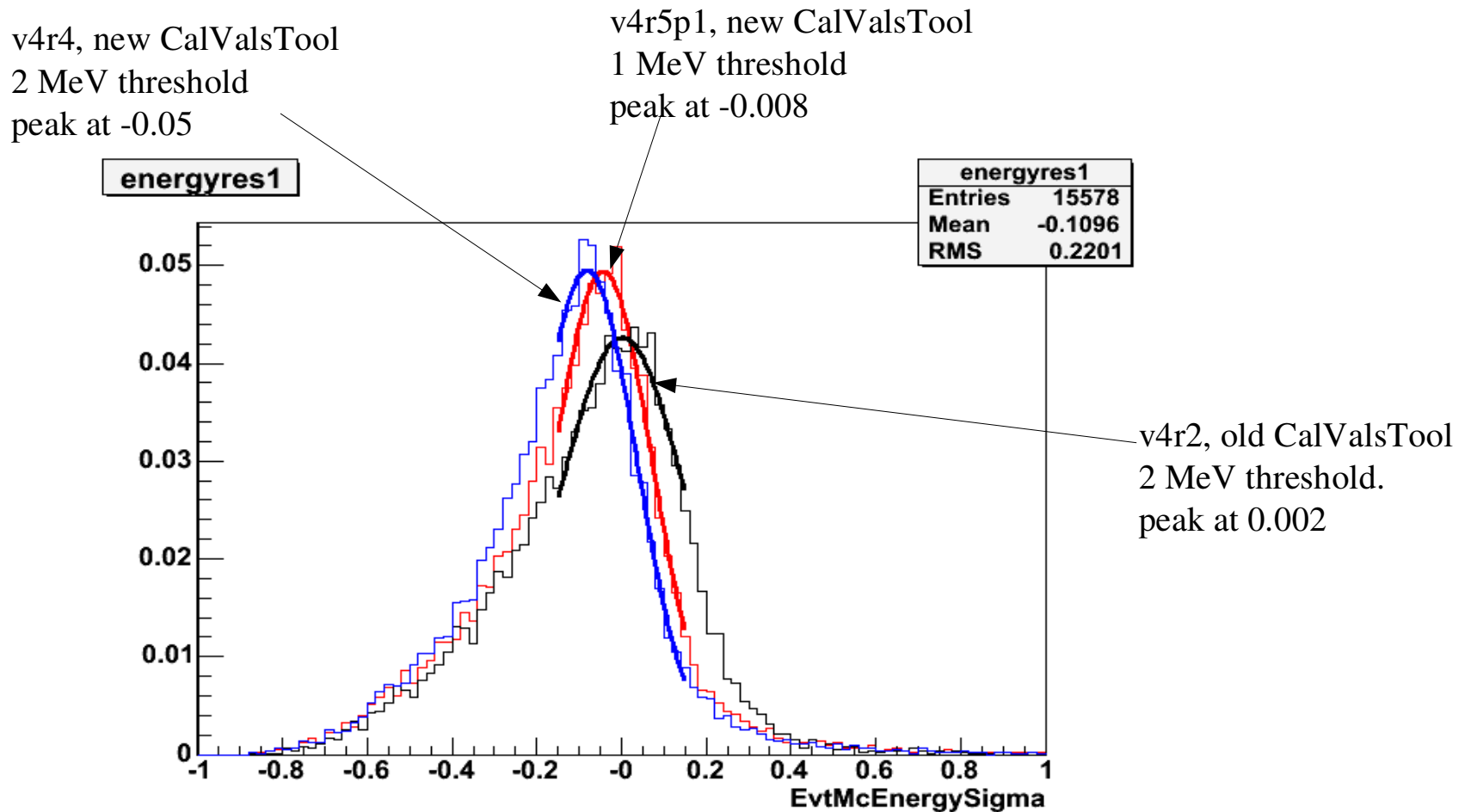
# GlastRelease v4r5 and v4r5p1

There were two fairly major issues with v4r5.

- 1) Some higher order bits were added to the trigger word, this caused problems because in AnalysisNtuple GltWord was set to zero if  $\text{trigWord} > 1024$ .
- 2) There was a mismatch between assumed Cal zero suppression thresholds for CalValsTool, which was tuned for 1 MeV, and the digitisation which was set at 2 MeV.

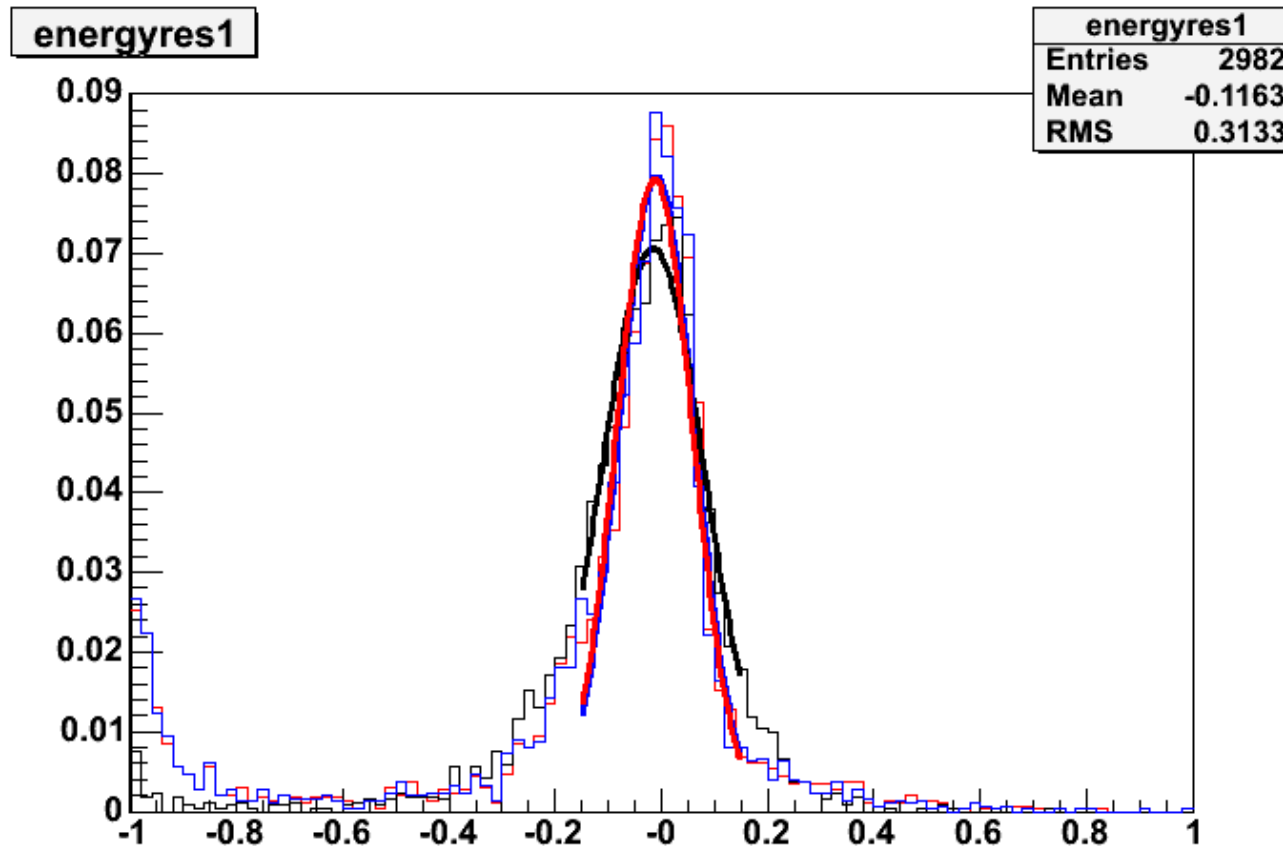
Both of these issues were fixed for v4r5p1. The zero suppression threshold for the Cal digitisation was reduced to 1 MeV.

# Energy Resolution – 100 MeV Vertical Gammas



- Normalized distributions of EvtMcEnergySigma after DC1 cuts have been applied.
- Fit a Gaussian between -0.1 and 0.1 to find the peak of each distribution.
- New CalValsTool seems to provide better energy resolution, even with a change to a 1 MeV threshold the distribution may not peak at quite the right energy.

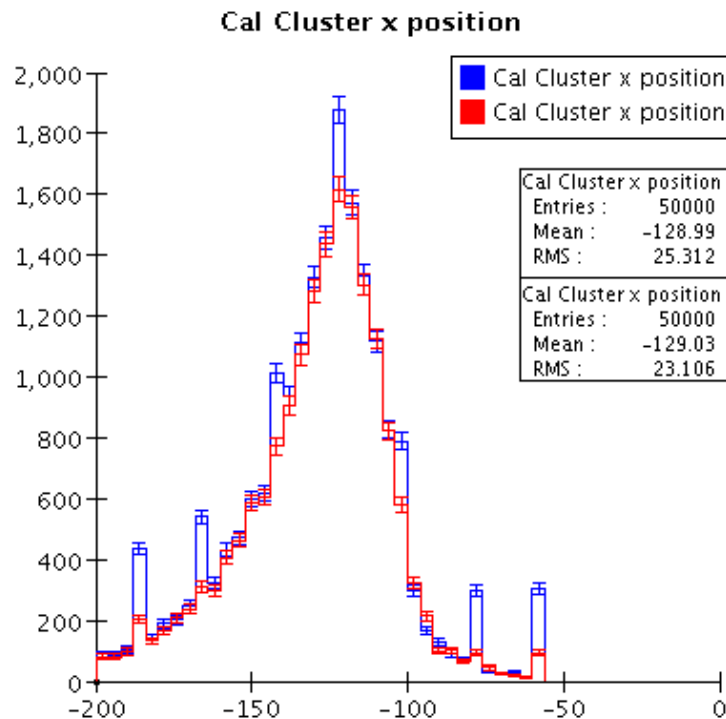
# Energy Resolution – 10 GeV Vertical Gammas



- The zero suppression threshold (and the correction for it) is not so important at higher energies.
- This is about as much as the systests can tell about the effect of the change in threshold, as there are not enough statistics in the AllGamma run to really allow one to explore lower energies and a range of inclination angles.

# CalDigi Distributions

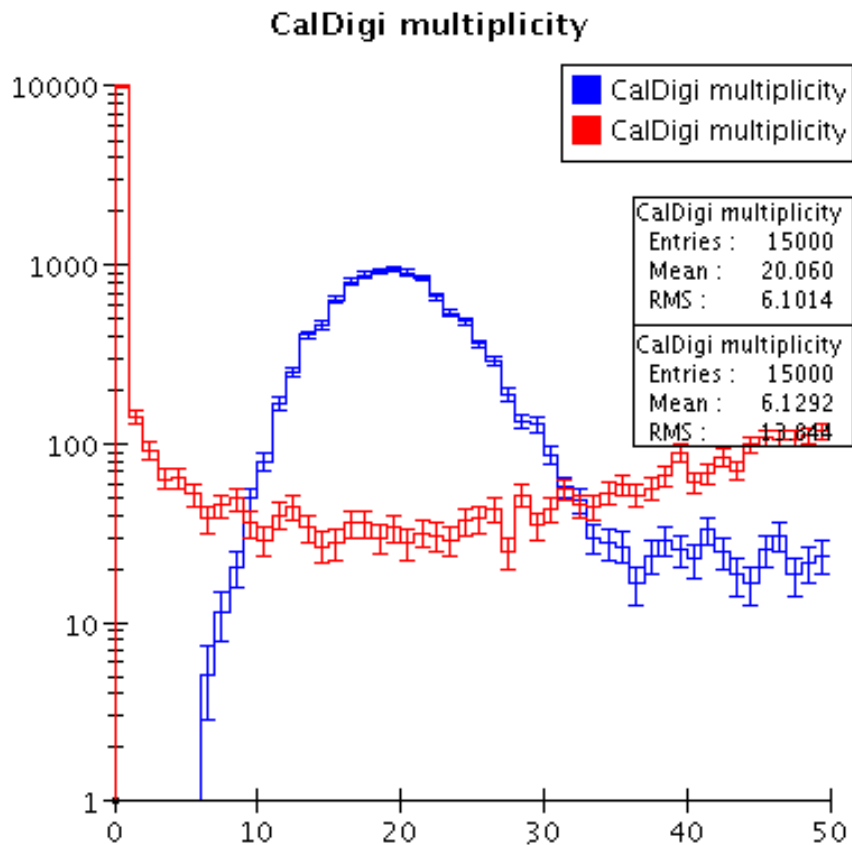
Almost all of the CalDigi distributions inv4r5p1 are different from the standard (v4r4) due to the change in zero suppression threshold.



This is the Cal Cluster Z position for vertical 1 GeV gammas. (the systests plot is mis-labeled). What are the peaks caused by? and why do they become more pronounced for the 1 MeV threshold (in blue)?



# More CalDigi Distributions



This is the number of hit xtals for the 2 MeV threshold (red) and the 1 MeV threshold. (lots more noise hits!).

# Some Issues

The system tests really should be run using optimised builds of the code. This would also allow the generation of larger AllGamma and BackGndAvg datasets with each systest run.

The release manager is not building optimised builds, the optimised version of the external libraries is not kept up to date. Which presumably reflects the fact that we have been mostly developing rather than using the code recently. With DC2 approaching, this will change...

Are we happy with the way things stand with energy reconstruction and supression threshold in v4r5p1? Many of the issues will be sorted out with the revamp to CalRecon, but what do we do in the meantime?