

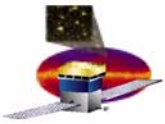
# CAL tests, calibrations, & studies in I&T

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This presentation – list of things I've done and am doing.

## To help with AFEE tests:

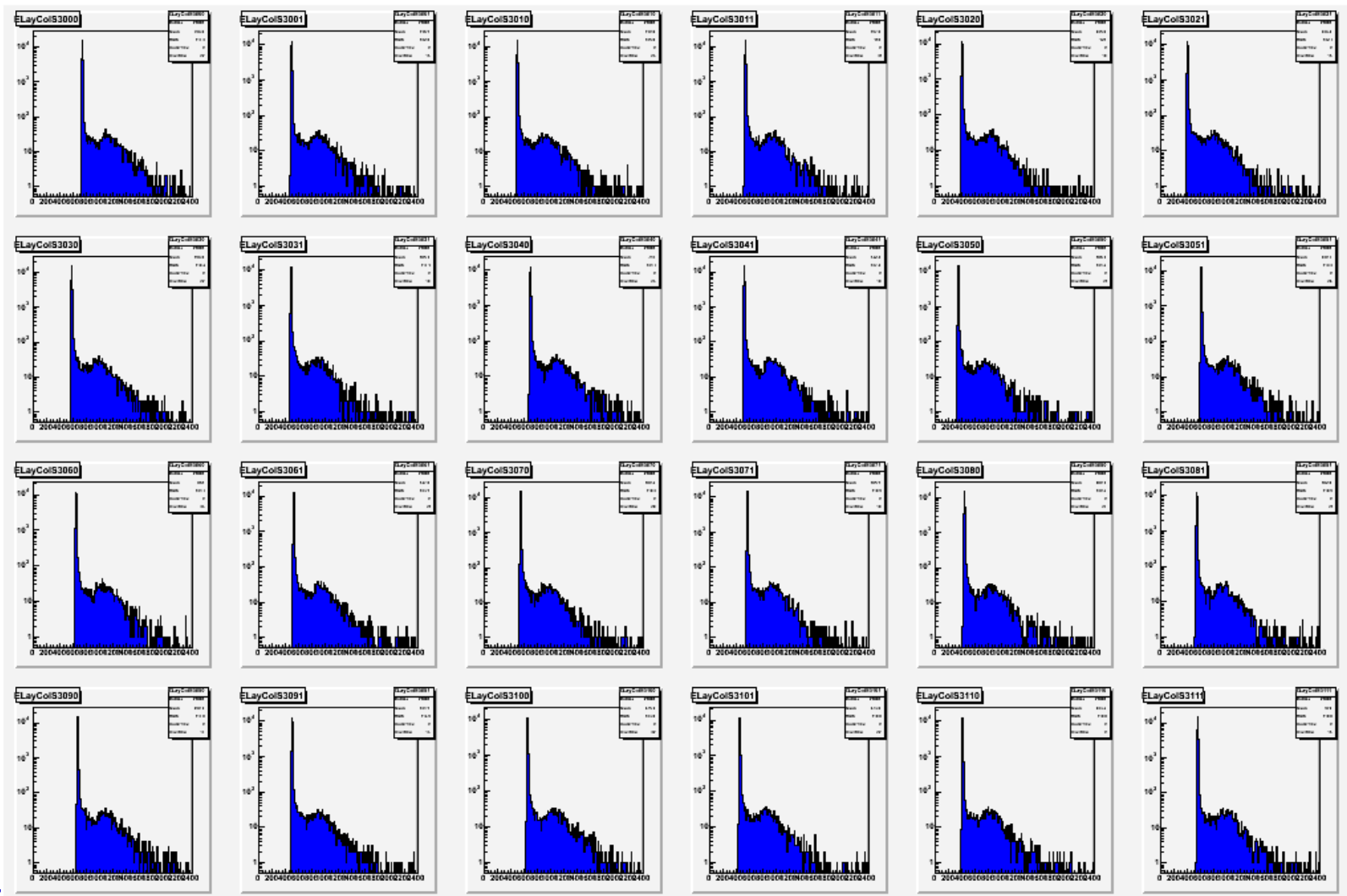
- Worked through the reports on the FM101 CPT DVD that Eric brought from NRL to the collaboration meeting, looking at the outputs various ways.
- Eric will send more CPT DVD's in near future, for review.
- Eric asked for tools/ideas to help trending studies of the CPT outputs – haven't done much yet, but not forgotten.

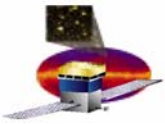


# First West Coast Flight Muons

2 x calf\_mu\_optical on the DVD, from .ced output file.

Did Sasha's ced2root → digi file → RootTreeAnalysis → plots.





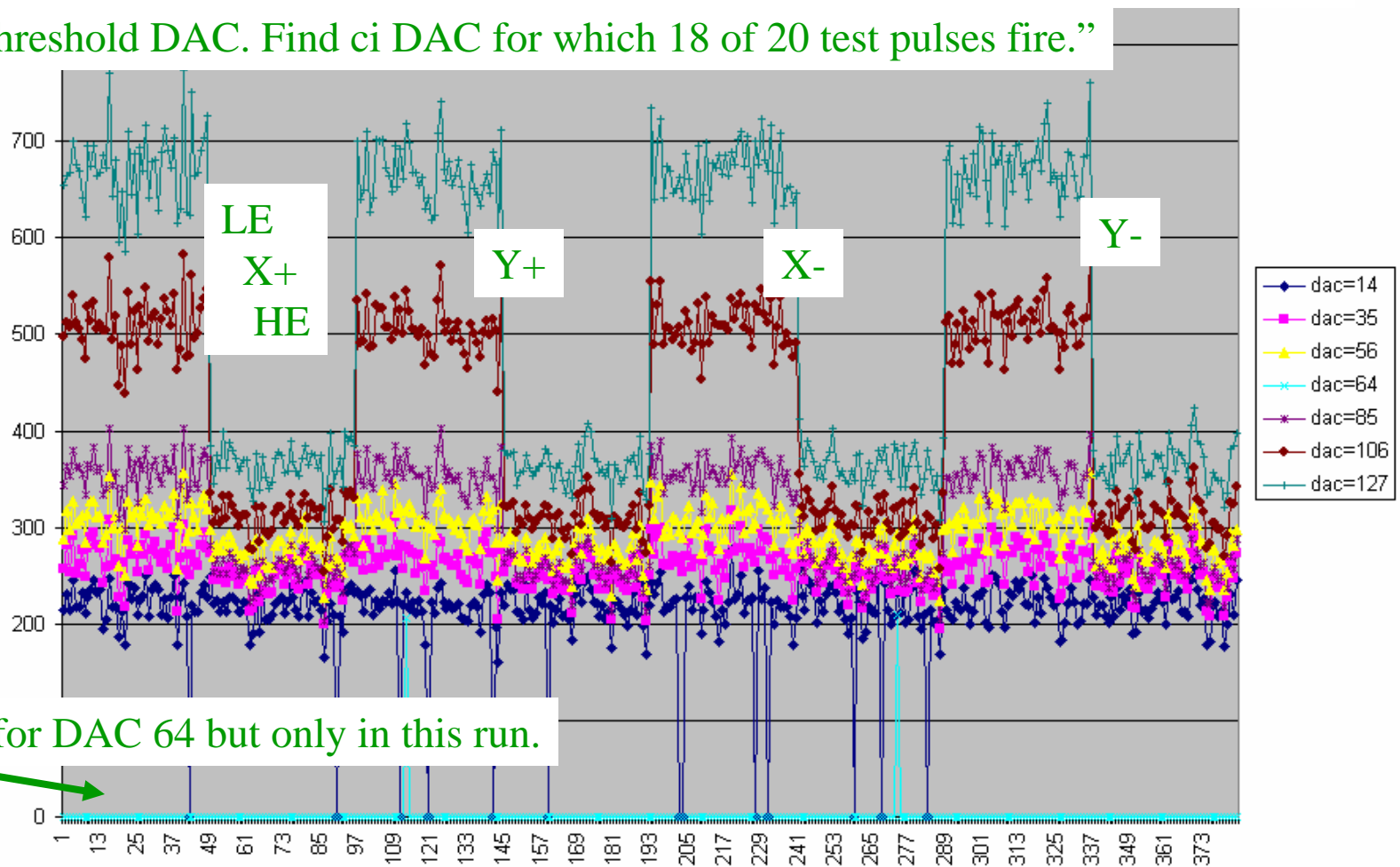
# Exploring possible tools...

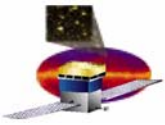
The various dac lac fhe ci etc tests give .csv output files.

Excel gives some plots *very* easily (perhaps the NRL gang has scripts?)

040919192018\_FM101\_calf\_trg\_p03.csv

“Fix trigger threshold DAC. Find ci DAC for which 18 of 20 test pulses fire.”





## Database housekeeping

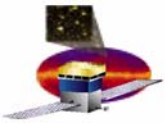
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**To manage CAL calibration constants in Joanne's data base:**

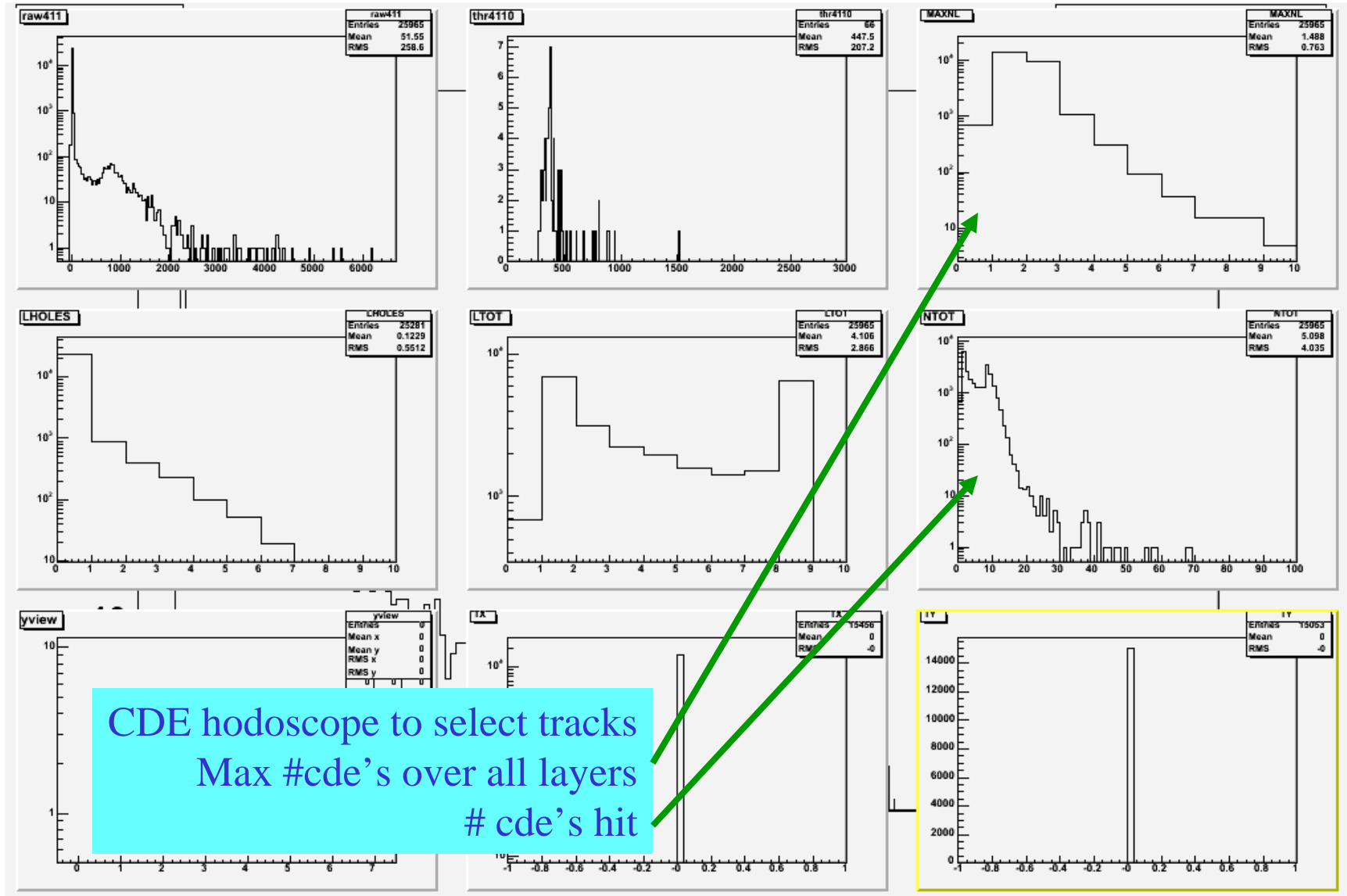
Ran runMuonCalibChain on old EM1 files and also the FM101 digit files from the DVD (50k muons but bad angles so low stats).

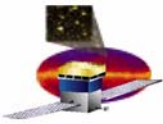
Thus, generate the .xml outputs. Large shift in pedestal values from the CAL EM to FM101 made it necessary to change histogram definitions in muonCalib, with Sasha's guidance.

Ready for new calibGenCAL when it comes.



# muonCalib innards





# rdbGui

Put EM and FM101 constants into the calib\_user database, using rdbGui (with Anders' help)  
Putting 4 files in by hand is okay, will ask Joanne how to mechanize.

Database: calib\_user (calibrator@centaurusa.slac.st) Copy

instrument = LAT

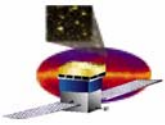
Columns:

- ser\_no
- instrument
- calib\_type
- flavor
- data\_fmt
- data\_ident
- vstart
- vend
- proc\_level
- completion
- locale
- input\_desc
- notes
- fmt\_version
- update\_time
- enter\_time
- prod\_start
- prod\_end
- input\_start
- input\_end
- creator
- uid
- data\_size

	calib type	flavor	data ident	locale	input desc
2	test_Gen	vanilla	\$(CALIBUTILROOT)/xml/test/gen1_2.xml	orbit	No real input
3	Test_Gen	vanilla	\$(CALIBUTILROOT)/xml/test/gen1_3.xml	orbit	No real input
4	Test_Gen	vanilla	\$(CALIBUTILROOT)/xml/test/gen1_4.xml	orbit	No real input
5	Test_Gen	vanilla	\$(CALIBUTILROOT)/xml/test/gen1_5.xml	orbit	No real input
6	TKR_HotChan	vanilla	\$(CALIBUTILROOT)/xml/test/testHot2.xml	orbit	
7	TKR_HotChan	chocolate	\$(CALIBUTILROOT)/xml/test/testHotChocolate.xml	orbit	
8	TKR_HotChan	vanilla	\$(CALIBUTILROOT)/xml/test/testHot.xml	orbit	
9	TKR_DeadChan	vanilla	\$(CALIBUTILROOT)/xml/test/testDead1.xml	orbit	
10	CAL_Ped	vanilla	\$(CALIBUTILROOT)/xml/test/testCalPed_v2.xml	orbit	
11	CAL_Ped	vanilla	\$(CALIBUTILROOT)/xml/test/testCalPed_v2n2.xml	orbit	
12	CAL_Ped	ideal	\$(CALIBUTILROOT)/xml/Cal/CalPed_LAT_ideal.xml	NRL	
13	CAL_ElecGain	ideal	\$(CALIBUTILROOT)/xml/Cal/CalGain_LAT_ideal.xml	NRL	
14	CAL_MuSlope	ideal	\$(CALIBUTILROOT)/xml/Cal/CalMuSlope_LAT_ideal.xml	NRL	
15	CAL_Ped	Dave	/nfs/slac/g/svac/dsmith/LateGreat/calibGenCAL/v2r3p4/xml/FM101/pedestals.xml	NRL	FM101 CPT
16	CAL_MuSlope	Dave	/nfs/slac/g/svac/dsmith/LateGreat/calibGenCAL/v2r3p4/xml/FM101/musiopes.xml	NRL	FM101 CPT
17	CAL_ElecGain	Dave	/nfs/slac/g/svac/dsmith/LateGreat/calibGenCAL/v2r3p4/xml/FM101/gains.xml	NRL	FM101 CPT
18	CAL_LightAsym	Dave		NRL	FM101 CPT

Query output Log

Dav Ready.



## DAQ @ SLAC

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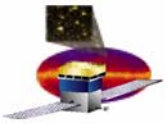
### **To prepare for SLAC CAL calibration constants :**

Ran CAL scripts on EM (with Larry Wai, John Canfield, Lester Miller).

Followed the outputs part way through the pipeline.

“Part way” because

- a) only .ced (not .ldf) outputs
- b) e.g. calf\_mu\_optical.py not yet available at SLAC, only ci
- c) Pipeline issues too
- d) Only marginal interest in EM CAL -- want FM and want TKR.



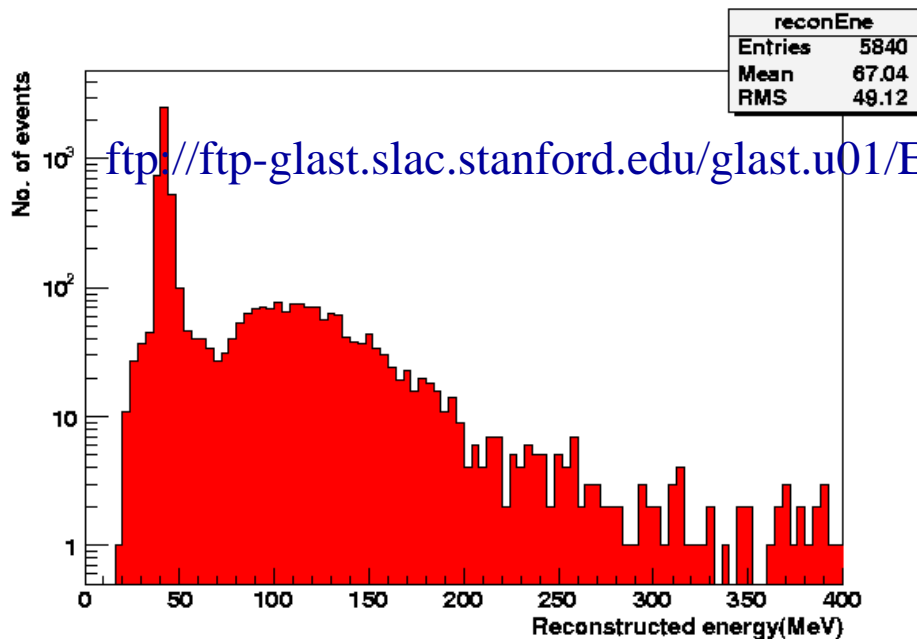
# PIPELINE @ SVAC

## Xin generates reports after the .ldf → digi conversion :

- reproduce calf\_mu\_optical type test plots? we don't have any yet.
- Have put in e.g.  $(P+M)/2$ . Eric & Sasha recommend e.g.  $\sqrt{P*M}$ .  
Dave sort of waiting... (for what?)

## Xin generates reports after the digi → recon conversion :

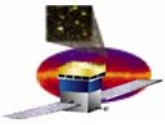
- Eduardo et al asked me to recommend summary plots... For example, some output of muonCalib? Waiting for new version...



Excerpt from working draft of Xin's

<ftp://ftp-glast.slac.stanford.edu/glast.u01/EM2/rootData/139000041/report/html/index.html>



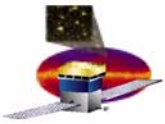


## About trending...

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### “Trending” in different contexts (Top down) :

1. Xin’s trending tool currently intended for “Official Accepted Calibrations only”, i.e. “calib” not “calib\_user” and no flavors.  
(see his talk at September SVAC workshop)
2. Larry-, Dave-, NRL-like people need fast comparisons of myriad calibration.xml bundles (for example, to judge if worthy of becoming Official Accepted, or to study environmental drift).
  - Exploring tools (Root? Hippodraw?) Do you CAL old-timers already have stuff?
3. Already mentioned need for AFEE CPT output trending
  - A different or related set of tools?



## Miscellaneous

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### Else:

- recon, using "my" database constants
- Eduardo asked me about calib precision, stats, data volumes...
- Will new calibGenCAL use digi only or also online output?
- Fred-display is useful – coordinating with Eric Nuss.
- Fred & Sylvain off to NRL for 6 weeks (we swap know-how)
- TKR extrapolation on back-burner but not forgotten – real TKR still a little ways off, and MC thoroughly addressed by Benoit.
- Neil J. says, “help define acceptance tests” – don’t know just what that means yet.
- Natural deadline for some of above:  
    I&T readiness review before Thanksgiving