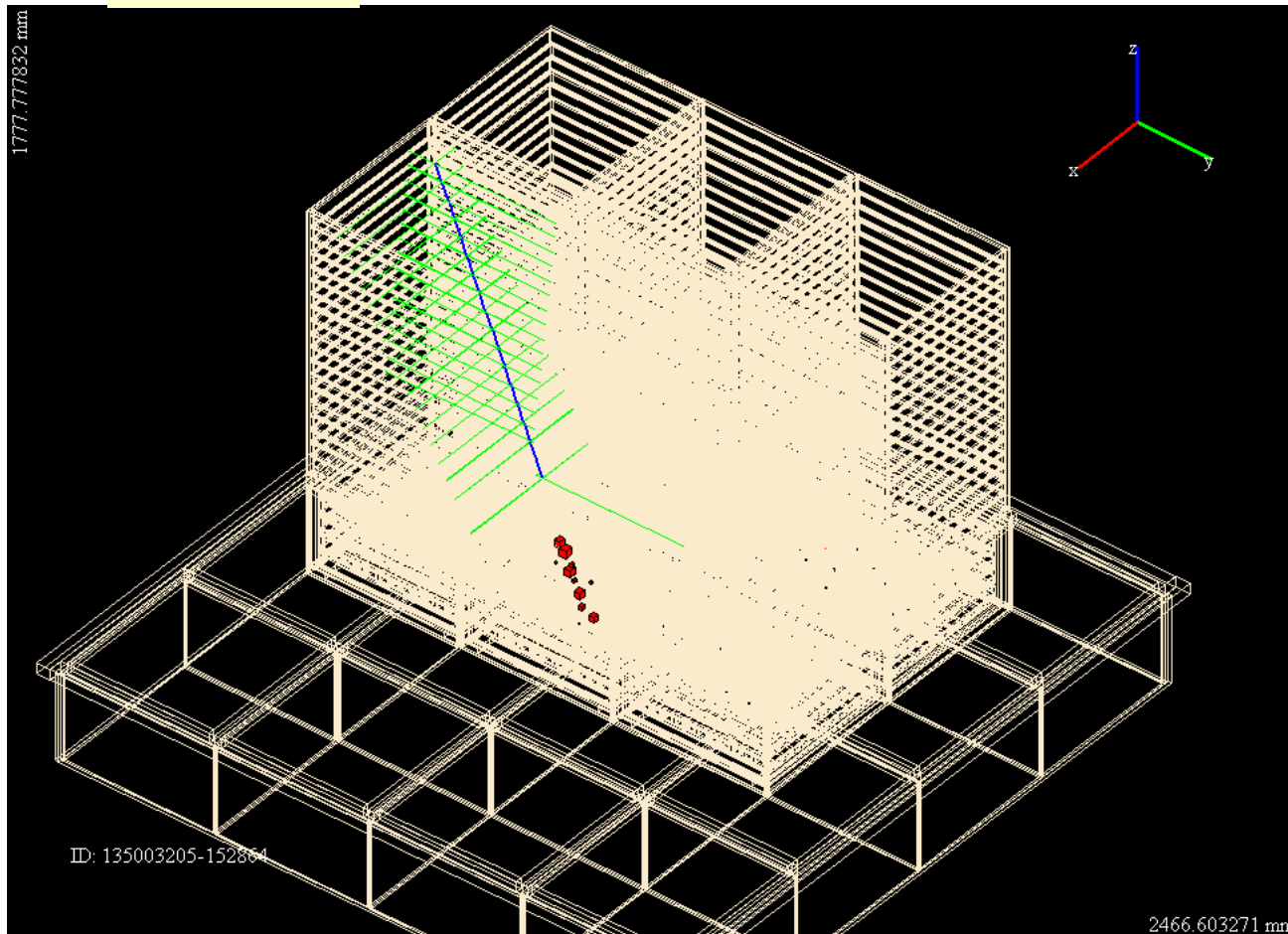# Overview of Data Taking

From the ROYAL Anders

aka the "Don't Shoot the Messenger" talk

Anders W. Borgland
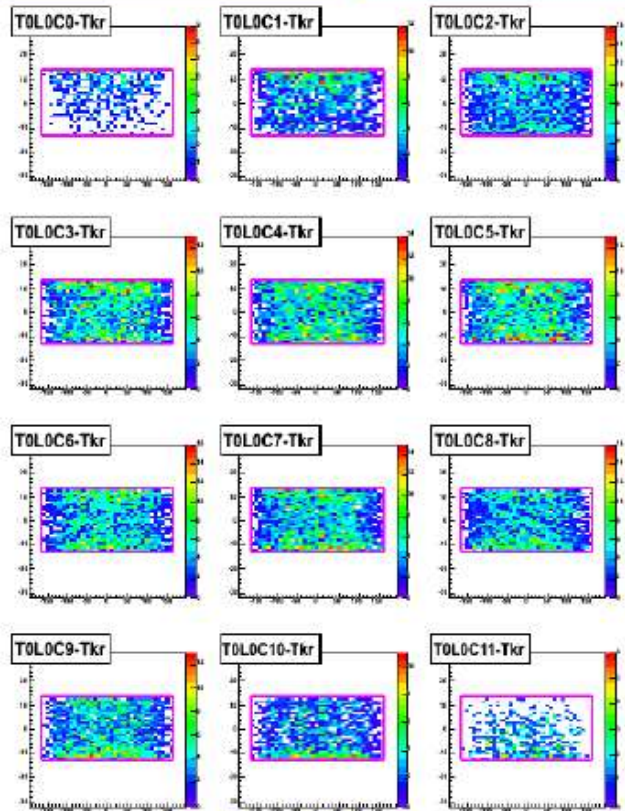
Science Verification, Analysis and Calibrations

Vive la France – 14 Julliet !
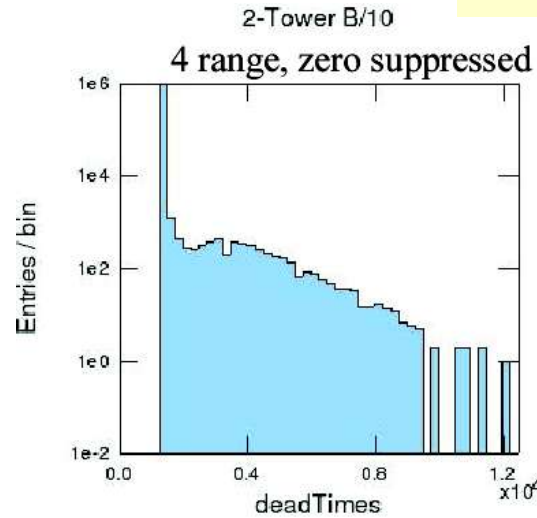
et les Etats-Unis aussi…

From Eric

From Warren

Crystal imaging with Tkr: | **Tkr-All: Nhits per bin**

1mm*10mm

2-Tower B/10
4 range, zero suppressed

Minimum deadtime = 1308
Consistent with prediction and
observed minimum event
separation of 1309

2-Tower B/13
4 range, unsuppressed
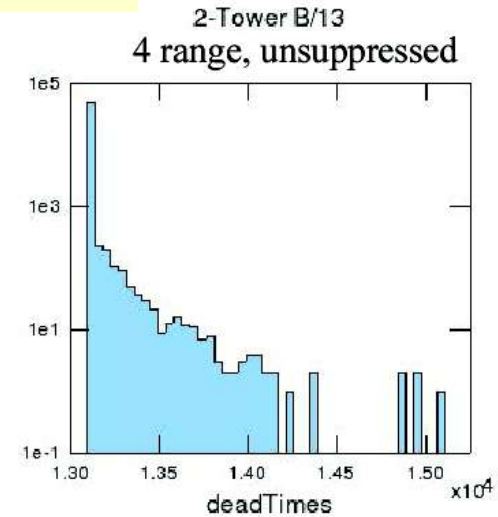
Minimum deadtime = 13128
Consistent with observed
minimum event separation of
13129

We are doing fine !

From Martin

- Up to now 6 towers have been timed in.
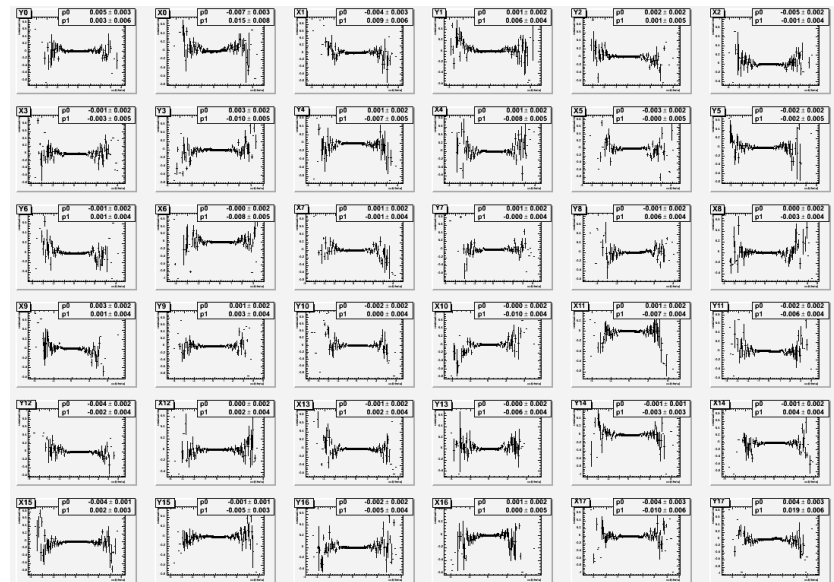- The results are very consistent so far:

Tower	0	1	4	5	8	9
TREQ CAL	0	0	0	0	0	0
TREQ TKR	3	3	3	3	3	4
TREQ EXT	13	13	13	13	13	14

EXT = Muon Telescope

From Zach

From Nico

Fraction of ToT **saturations:**
- **0.21 % all events**
- **0.05 % muons**
- **0.31 % showers**
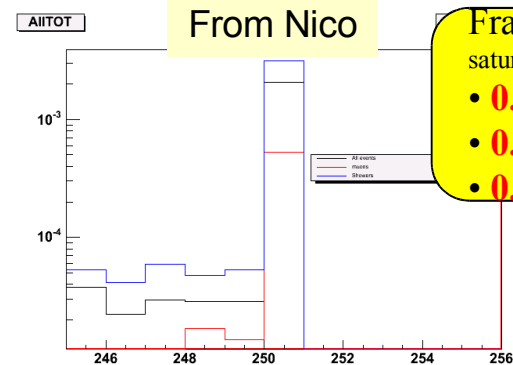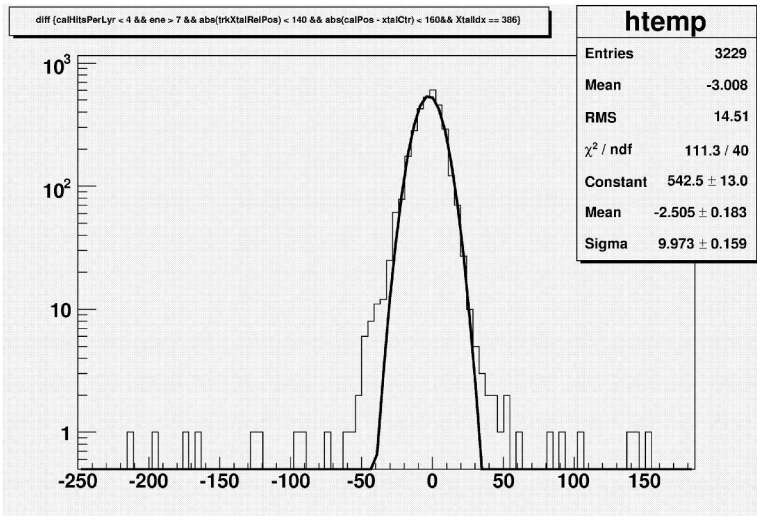
From Pisa (Michael et al)

Really fine !

From Hiro

From Monica

Charge Scale

chargeScale	
Entries	5170
Mean	0.9669
RMS	0.1406
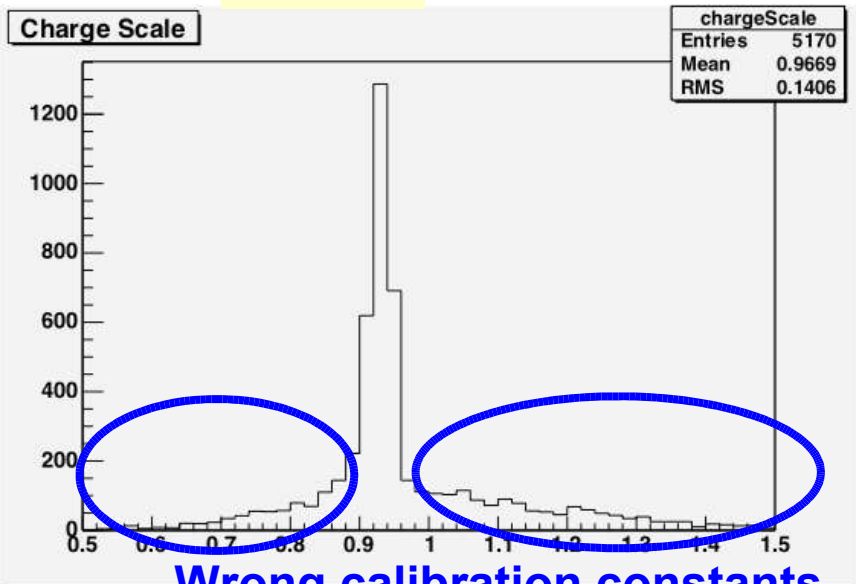
Wrong calibration constants applied for some towers

Tower in Pos#8

Tower in Pos#9

Data/Sim ratio for x-layers, #8

From Mizuno

Data/Sim ratio for x-layers, #9

E. do Couto e Silva

4/7

From Dan Flath…

What next?

3-in-a-row TKR Trigger

From Dario
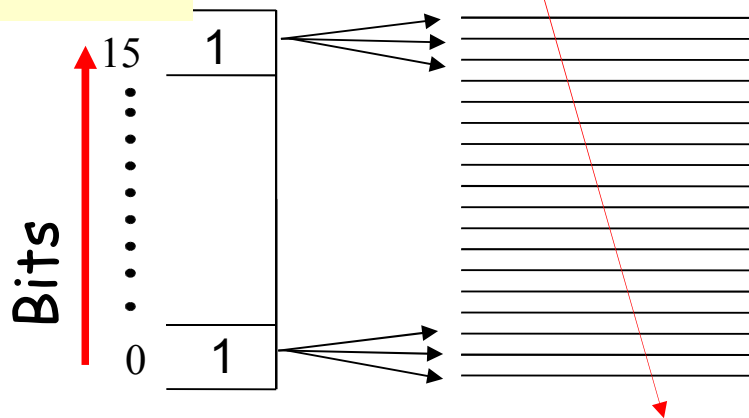
Muons usually produce trigger requests for all of the 16 allowed combinations of 3-in-a-row

There is no way to know which of the 16 3-in-a-row is responsible for the trigger

- **we want to find topology to maximize timing effects in TKR distributions**
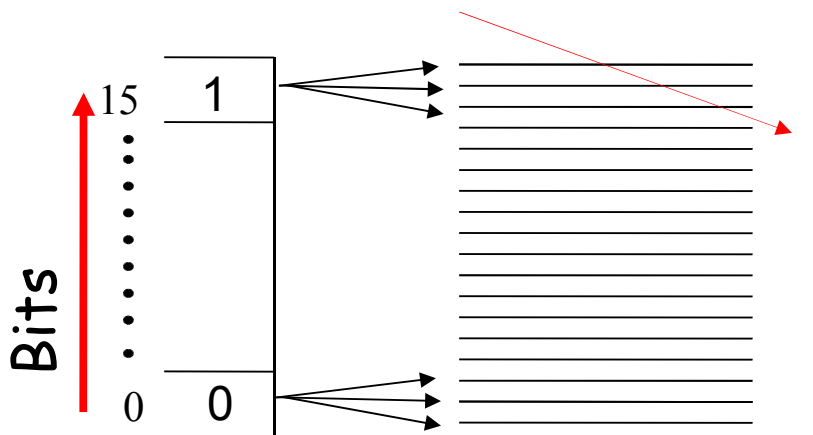
Trigger on top only
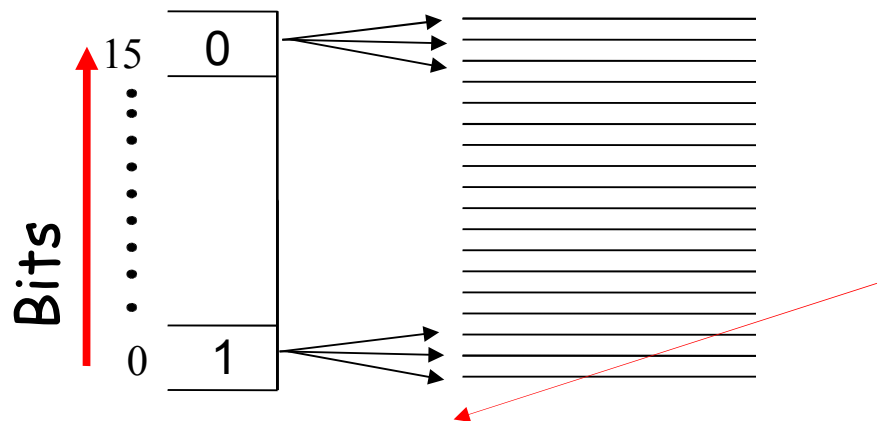
Trigger on bottom only

CAL trending/monitoring

From Dave
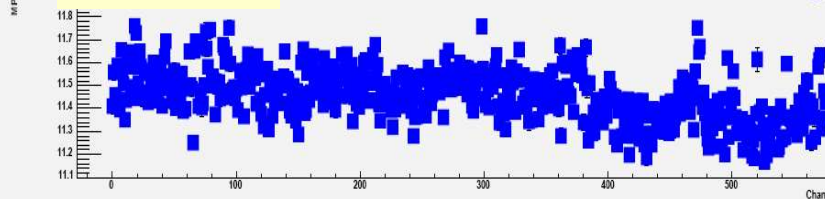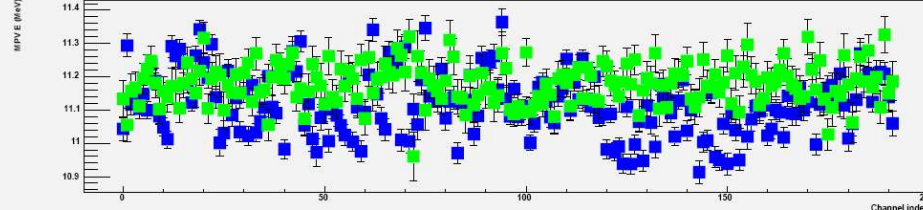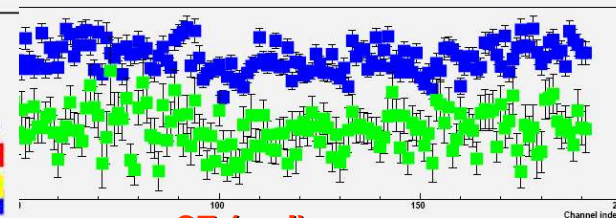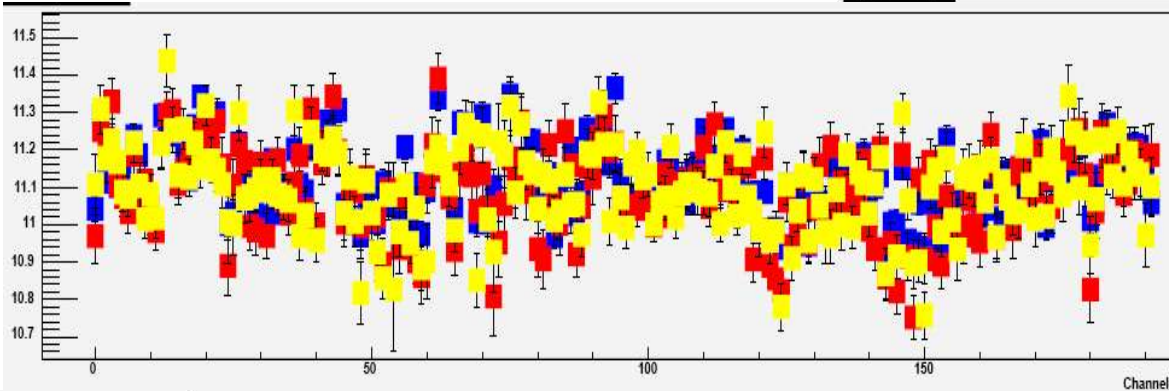
27 (red)
29 (yellow)
28 volts (B/2, blue)
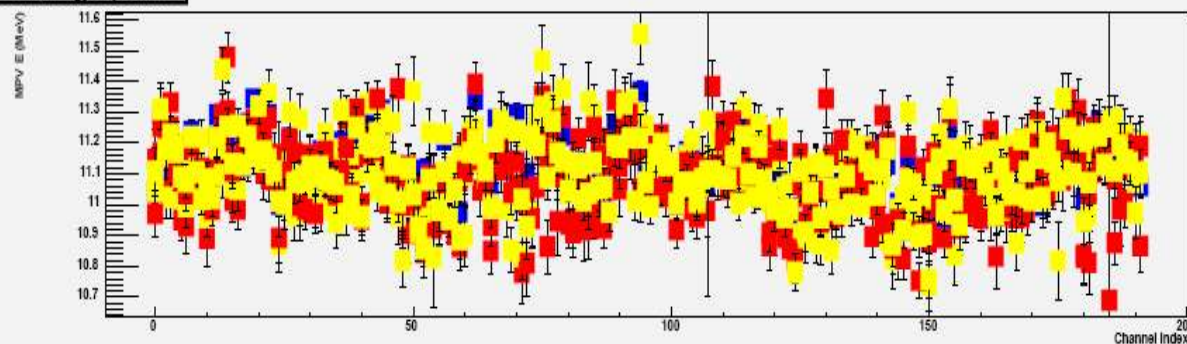
Hi rate (20 kHz, red),
Big events (yellow)
B/2 (blue)

PDU Voltage

From Stefano and Claudia

cluster good

h9006	
Entries	36
Mean	16.39
RMS	10.29
Underflow	0
Overflow	0
Integral	2.202e+05

- **Base**
- **Min**
- **Max**
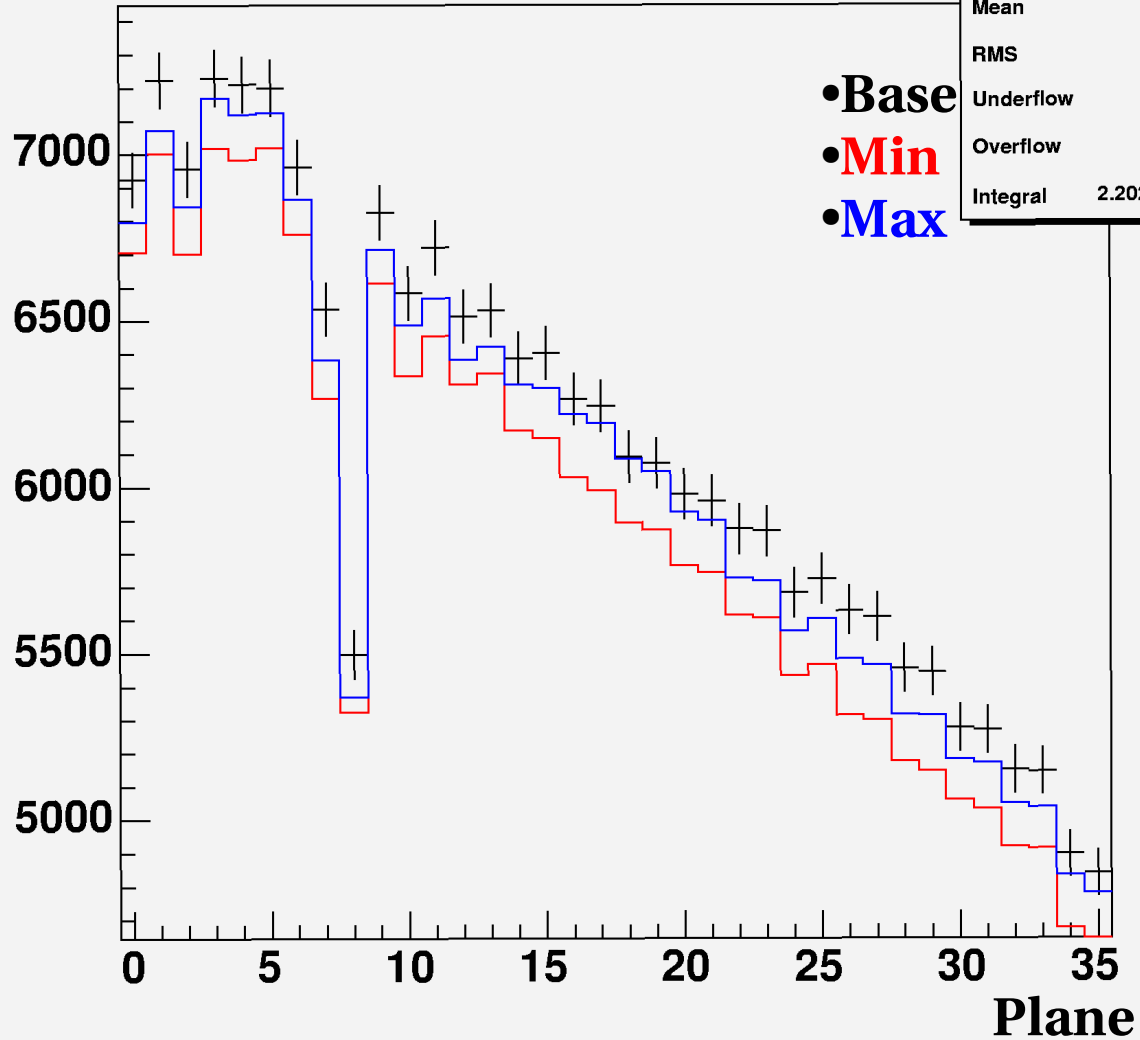
Top   Plane = 35
Bottom Plane = 0

Plane

Muon φ distribution

From Francesco
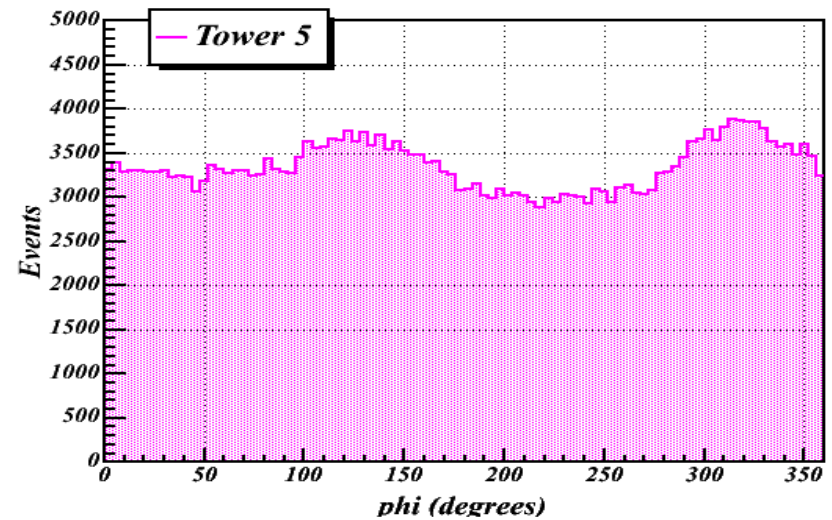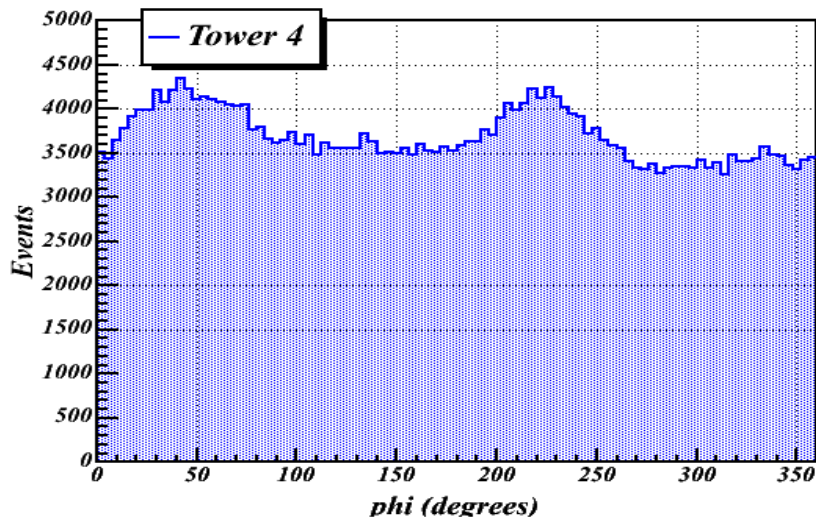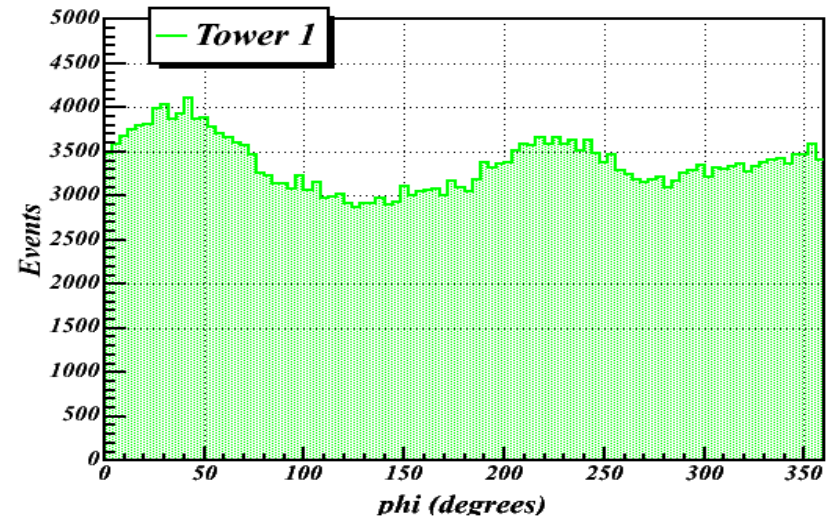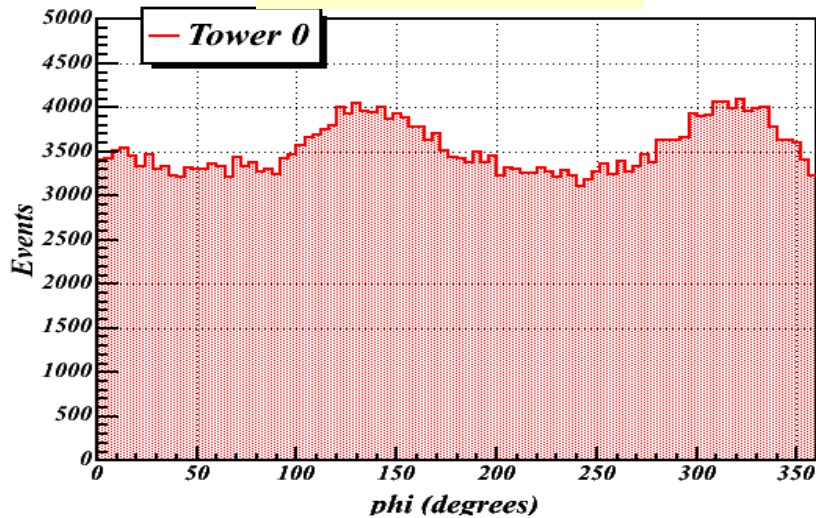
Example of Analysis linked to STR

From Luis

➢How many times does every xtal go over threshold when the total energy in the CAL is less than 10 Mev?

Baseline

Xtals in Tower 0

A few xtals are picking up noise during the high rate runs

20 KHz run

CalXtal

Xtals in Tower 0

* See Eric/Sasha's presentation about shaped readout noise

What should we do for Aug 29 Workshop? (1)

- **Study MC generated with ACD + 8 towers**
  - **Anders will start that on Monday**
    - **Dario and Monica will help with initial checks before we release it to the group**
  - **Need to get familiar with ACD variables**
  - **Start thinking how we will set up tests using ROIs to do analysis that we could not do so far**

- Present a list of distributions that capture geometrical dependencies since we can not spend too much time when the full LAT is assembled to learn all that
  - **Francesco Loparco presented some good ones**
    - **They will change as we add more towers**

- Show trending results for calibrations (function of time and per tower)
  - **Would like to have a comprehensive presentation from both TKR and CAL**

- Alignment
  - **Tracy kindly accepted the role to coordinate the effort to produce inter and intra-tower results using TKRrecon in its native framework**
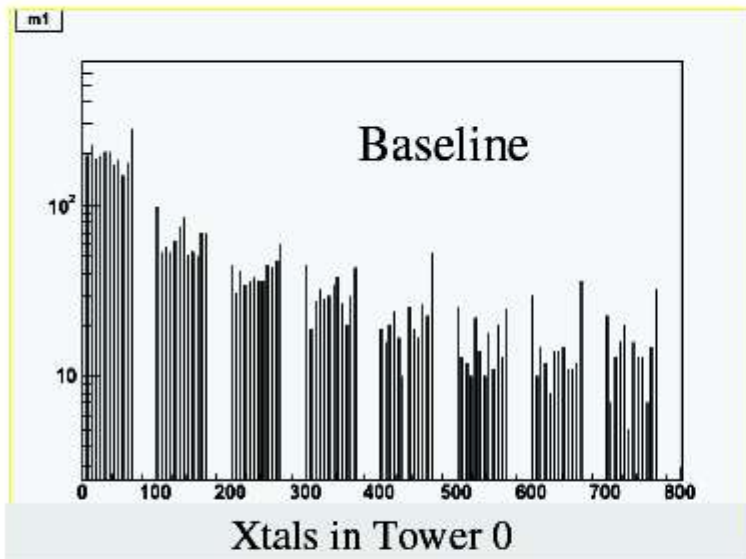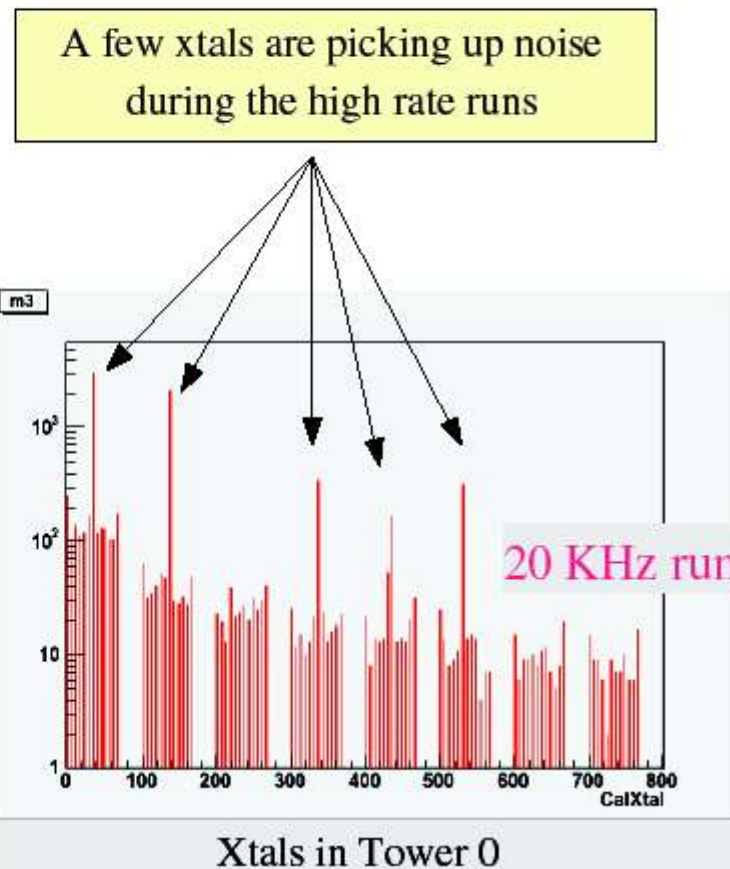   - **Probably this task will be for those with more expertise with SAS recon and usage of G4 propagator**

- We presented results comparing data using different PDU voltages
  - **How do we know they were set correctly?**
  - **Need to empower users to look at housekeeping data**
    - **Only SVAC group does that right now**

What should we do for Aug 29 Workshop? (2)

- **Data Analysis from Special test Requests**
  - **Most likely 8 towers without ACD**
    - **Eduardo will lead the effort and has already started discussions with Hiro, Eric and Su Dong based on inputs from presentations in this meeting**
    - **As data becomes available we will post it in the IA list and discuss its quality on Friday meetings**

- **Propose a list of data taking configurations for the full LAT based on what we have learned so far**
  - **List should contain**
    - **Hardware configuration we want to test**
    - **Trigger settings**
    - **Number of events**

  - **Eduardo will send a message to science working group coordinators to request a list of instrumental effects they are worried about at the 1 and 10% level for on-orbit effects**
    - **We will iterate and see what is relevant for GND tests from the point of view functionality and performance**
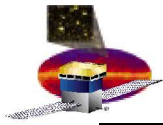
Let's write a little...

- **Analysis Memo (in LAT Docs)**
  - **Crucial for documenting our effort**
  - **Essential for sharpening the thought process**
  - **It is a Live document**
    - **Should take a day to write**
      - » **Can keep updating it**
      - » **Benoit had a good example from GSI studies**
    - **Goal of the data analysis**
    - **State run ID's**
    - **Trigger conditions**
    - **Hardware configuration**
    - **Analysis cuts**
    - **Assumptions behind analysis cuts**
    - **Does not need to be perfect !!!**
      - » **It is not a journal publication**

- **Overall IA effort results due Dec 2005**
  - **Eduardo and Nico will work on a draft**
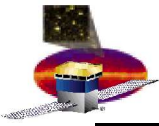
We already miss you Dave

Thanks for putting up with us for an entire year !!!!!!!!!!!

Thank you Eric
for the cartoon!