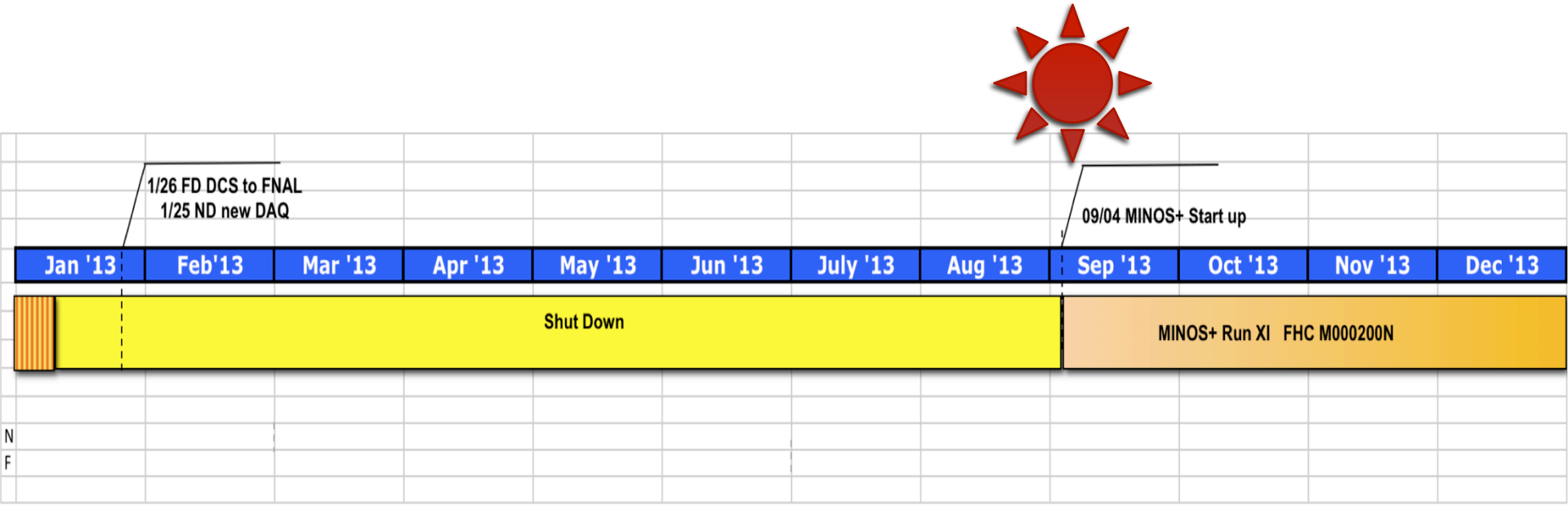
Computing (Offline) Group report

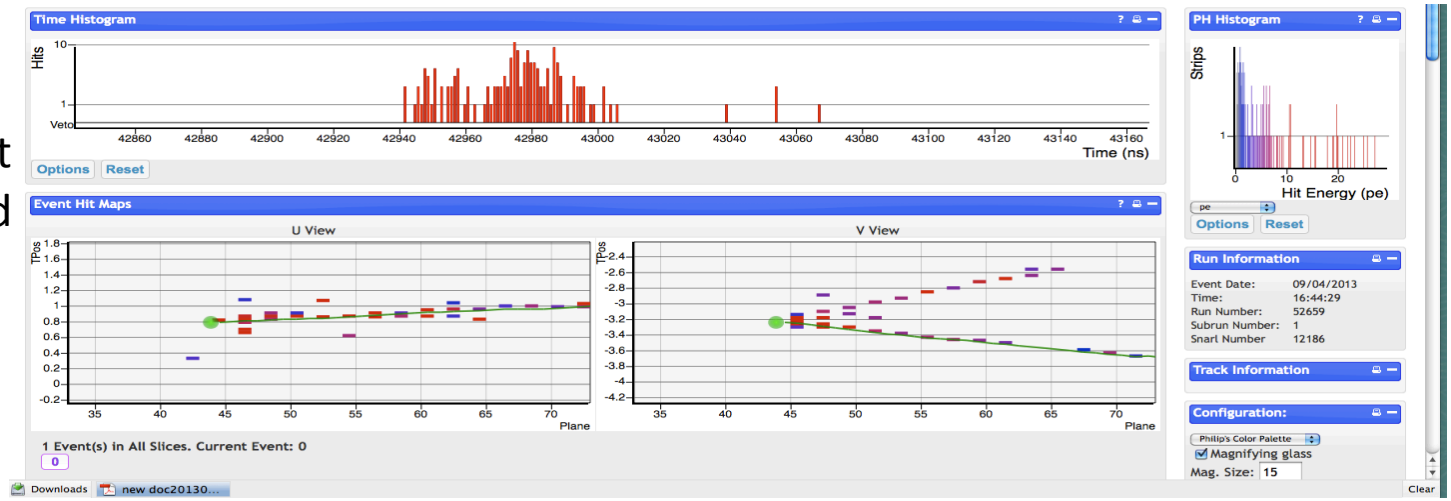
Rashid Mehdiyev

UT Austin

Significant event



First event that was found In FD.



Another significant event

NEW RECONSTRUCTION VERSION!

American Elm Tree

(Not related to “Nightmare on Elm Street”)

Another significant event

NEW RECONSTRUCTION VERSION!

American Elm Tree

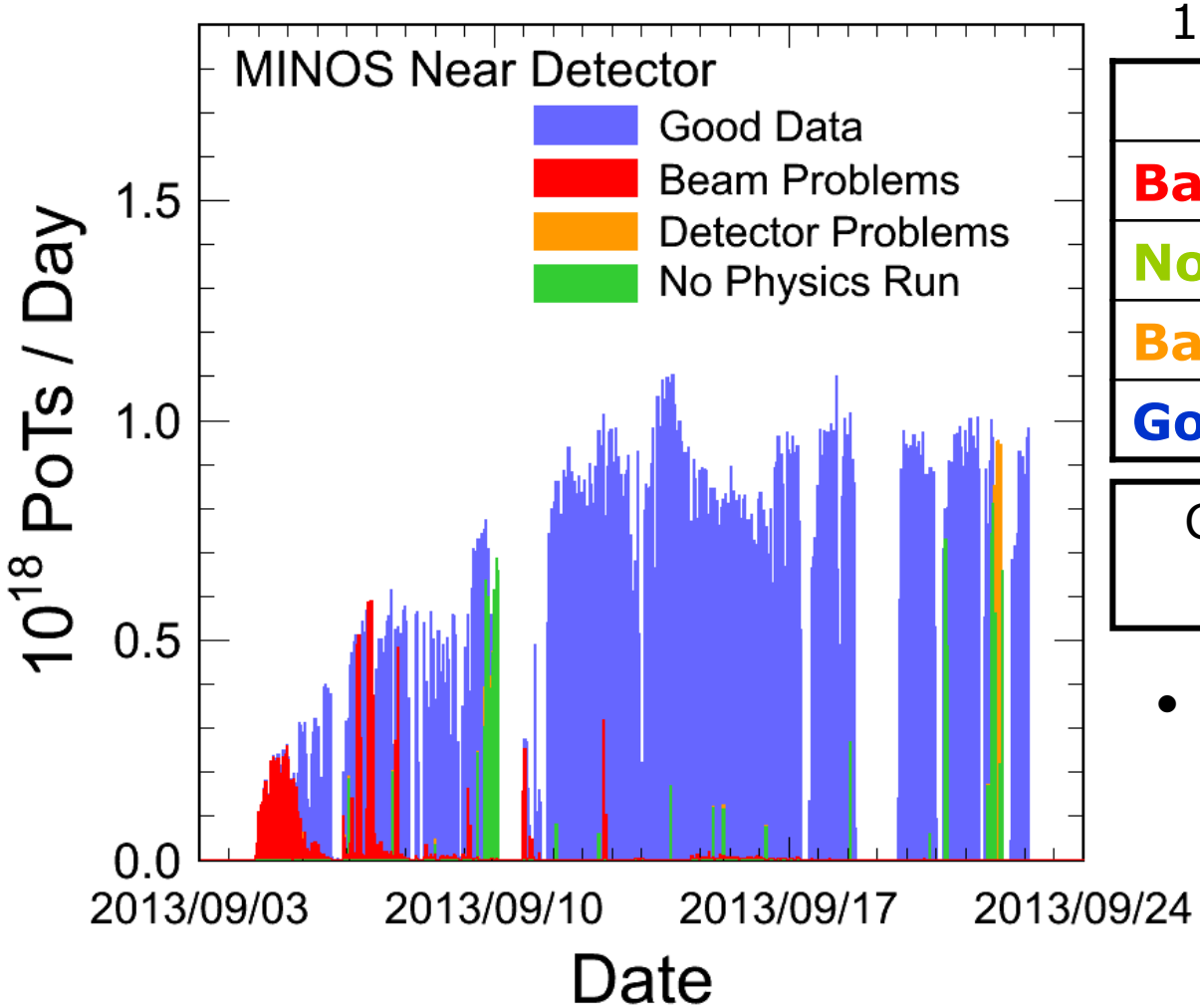
New keep-up stream – Elm0
AKA

Regular Offline tasks/issues

- DQ software status for ND/FD - Andy B. - DocDb 10120
- IF dB and DataLogger (mbeam files) - Robert - DocDb 10134
- Beam/device monitoring (NuMiMon/JAS) - M.Vittone
- Hot/warm/cold channels warning system - Andy P. - DocDb 10147
- Batch processing - every day checks
- Software builds/issues - when required
- DST production and DQM checks - Adam, Ashley (Doc 10129)
- Online monitoring (OEM)
- MC framework and simulation tasks
- Infrastructure and general computing - Art - DocDb 10127

Regular meetings: weekly on Thursday at 10 AM!
Agenda on DocDB as well.

Near Detector



10.36×10^{18} POT delivered

	$\times 10^{18}$ PoT
Bad Beam	**0.49**
No Run	**0.44**
Bad Detector	**0.13**
Good Data	**9.31**

Good Data / Good Beam
9.31 / 9.87 = 94%

- **Lots of good data…**
  - Main loss occurred on night of 9th September, when DAQ was crashing after every subrun!

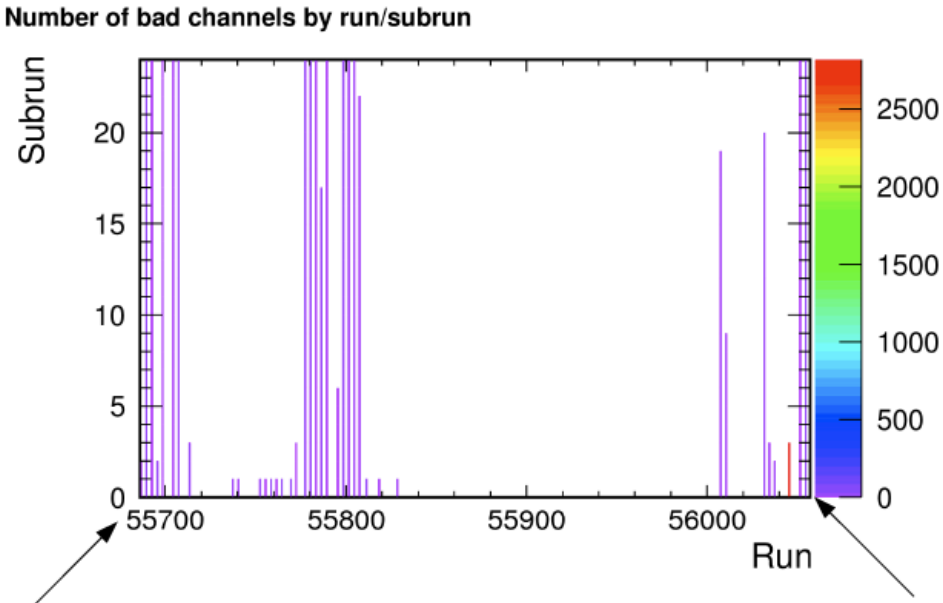
Status

- Bad channel finder is run automatically on a daily basis. Running smoothly since last meeting, and since the beam came back
- Daily summary email is sent
- Bad channels also summarised on the control room webpage:

Yesterday:
http://nusoft.fnal.gov/minos/validation/badchannels/near/dailyBadChannelList.html

Archive:
http://nusoft.fnal.gov/minos/validation/badchannels/near/archiveBadChannels.html

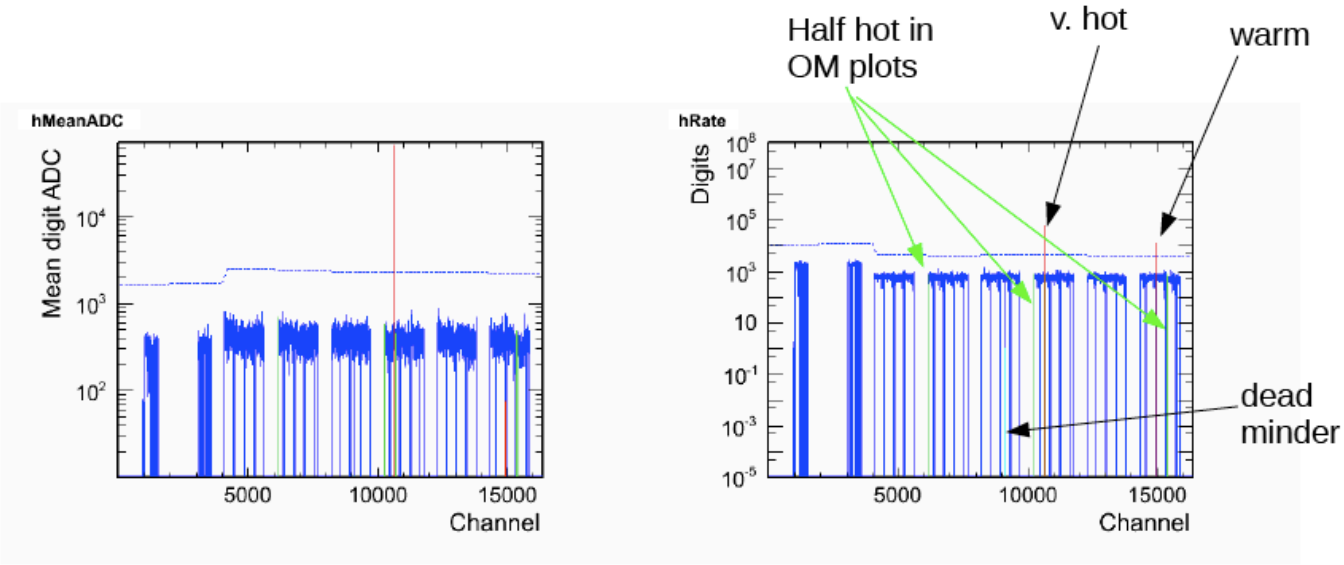
DQ Monitoring – Andy Perch



Start of new beam
Run 55686

- Bad channel finder running non-stop.

- Provides a great help to DAQ team by sending an automated email message (to a lot of people… ;))
- Channel are being fixed typically within a few days of being identified (assuming there are spares). System is set and working!



Andy Perch

Online DSTs in work!

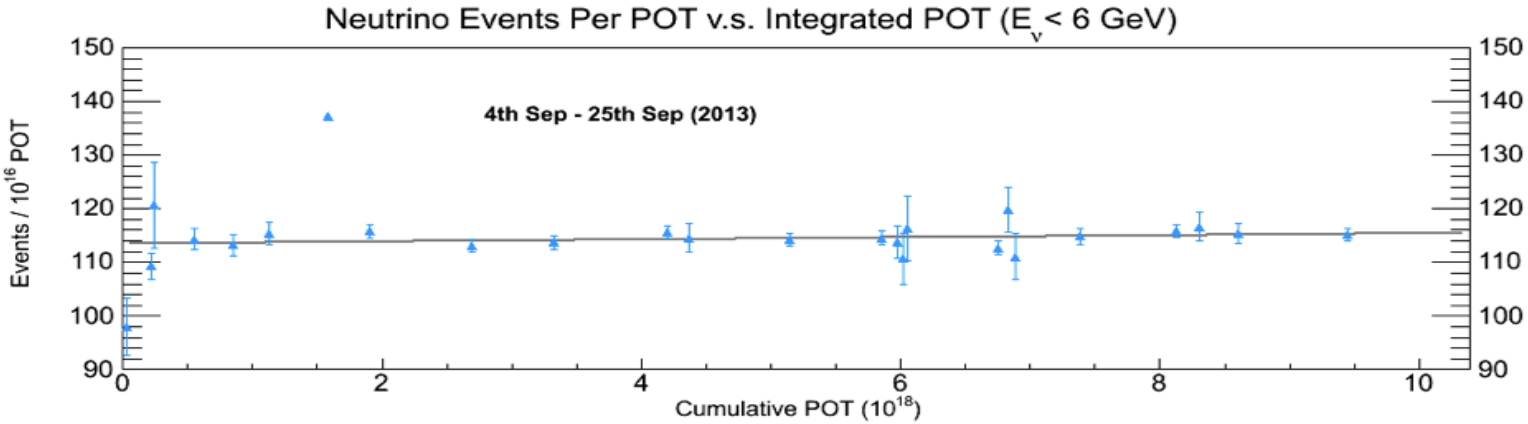
MANCHESTER 1824

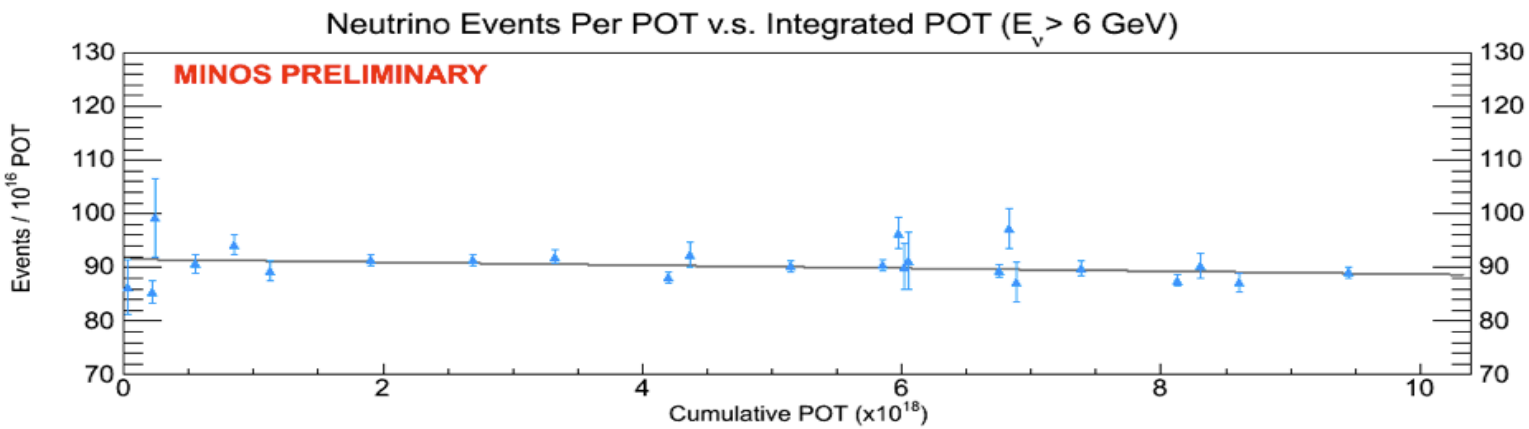
The University of Manchester

Real data from the ND!

NB: All plots in this talk were created using the selector CC1070Std

From Ashley T.



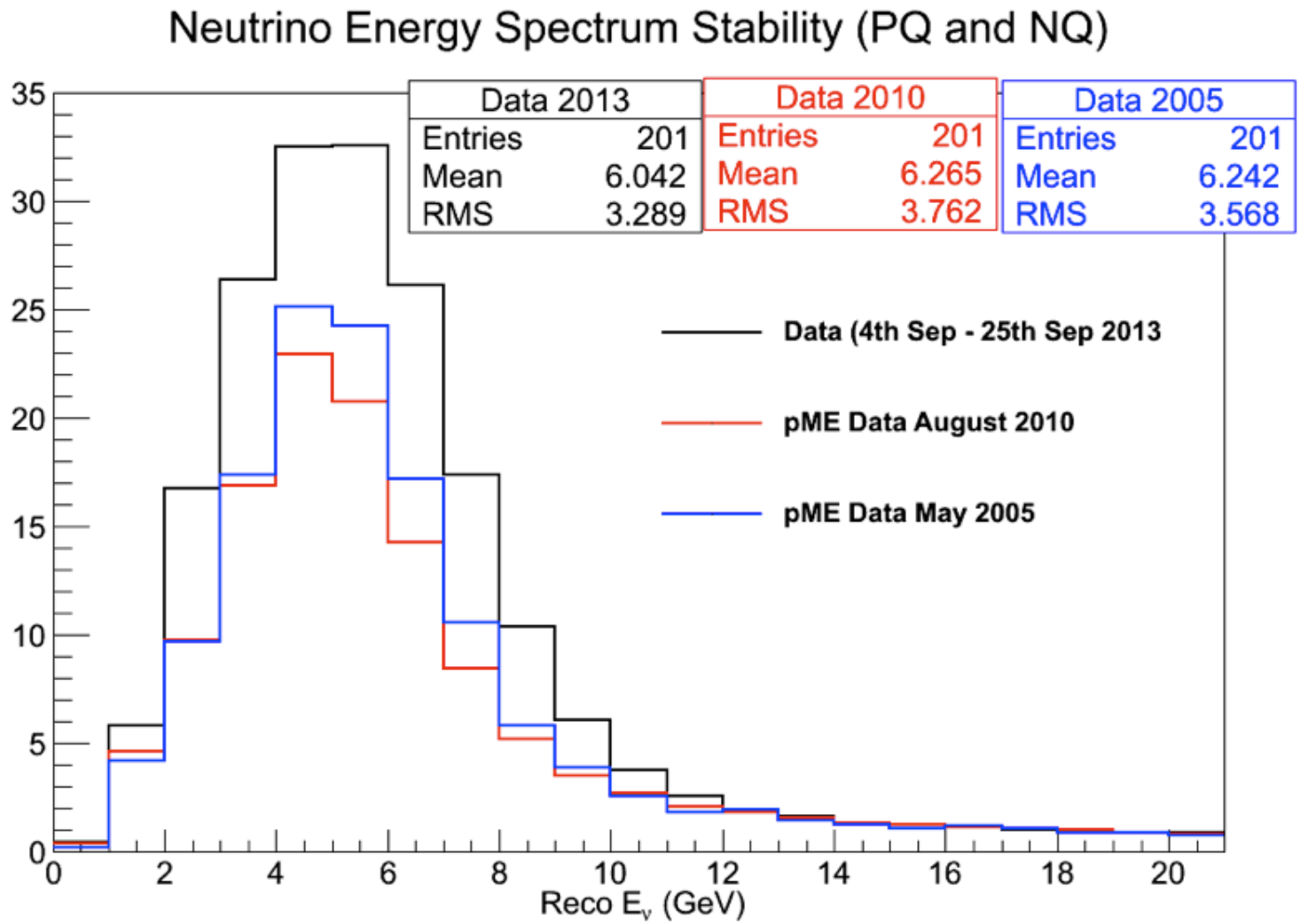


2

Ashley Timmons

Should be put on DCM online page to assure people look at them often and let us know if…

Historical Comparison

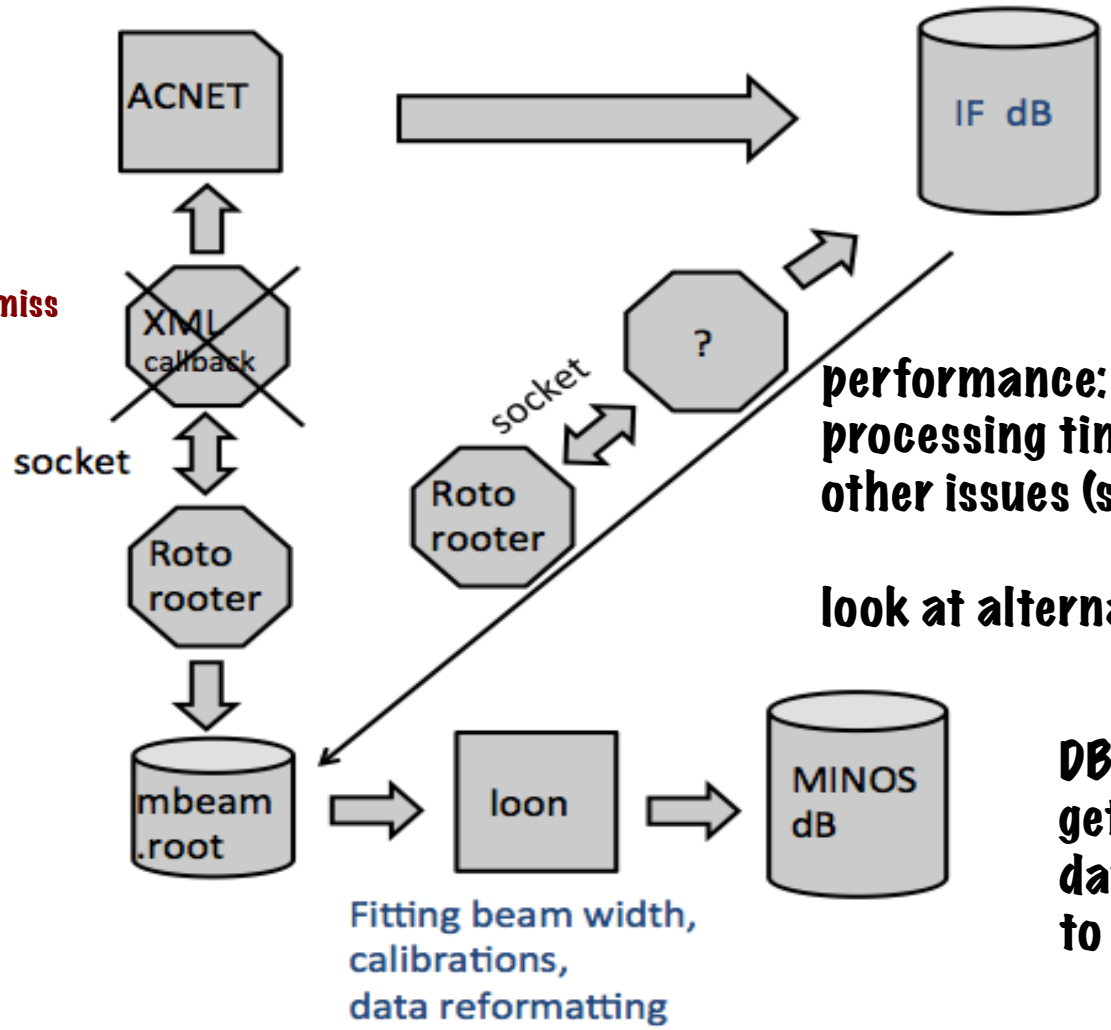


May 2005 are run1 L100200N DSTs
August 2010 are LE100200N DSTs

Getting rid of XML-RPC

XML-RPC Callback System

clunky, prone to miss spills waiting for timeout on one device, network issues, too many independent accessors



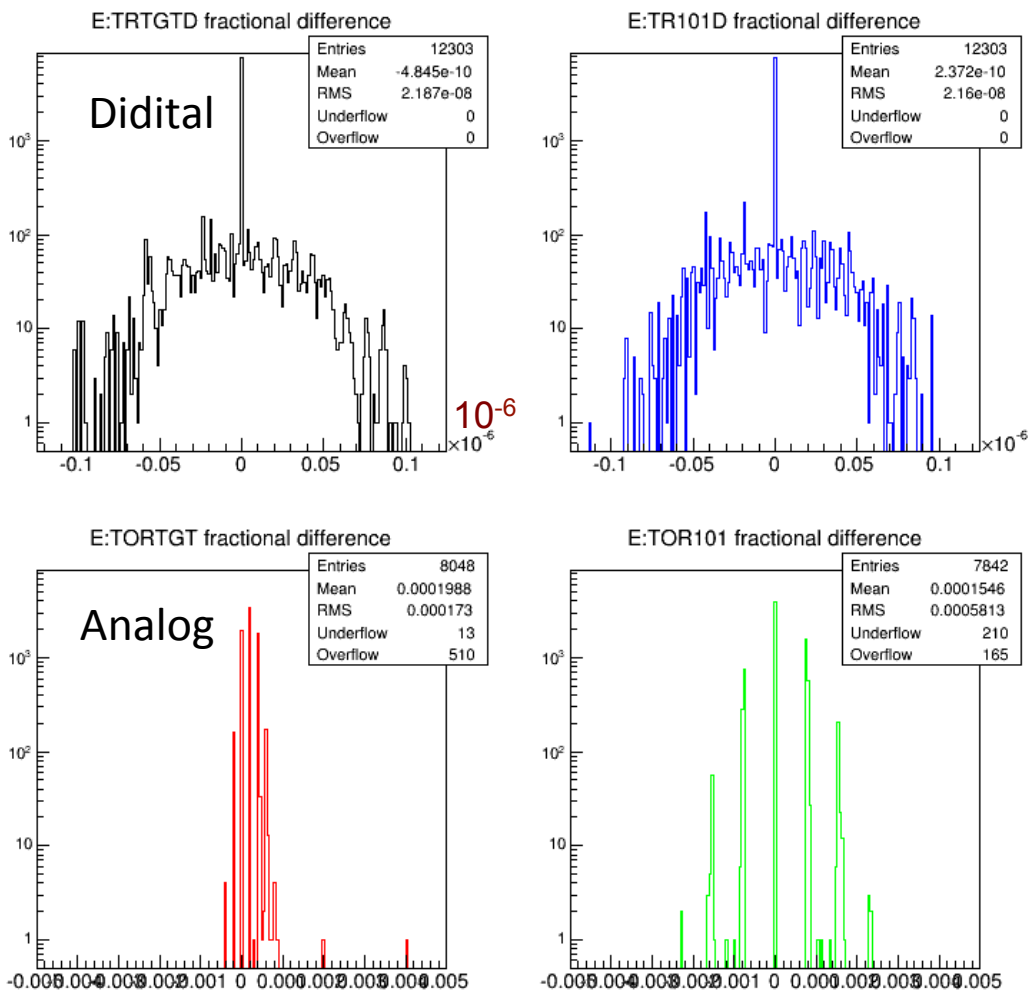
performance:
processing time 1.3 hr for 8 hr data
other issues (split spill info)

look at alternative early 2013-08

DB group suggests getting the same data that they use to fill their db

Based on
R.Hatcher's scheme

Beam data validation

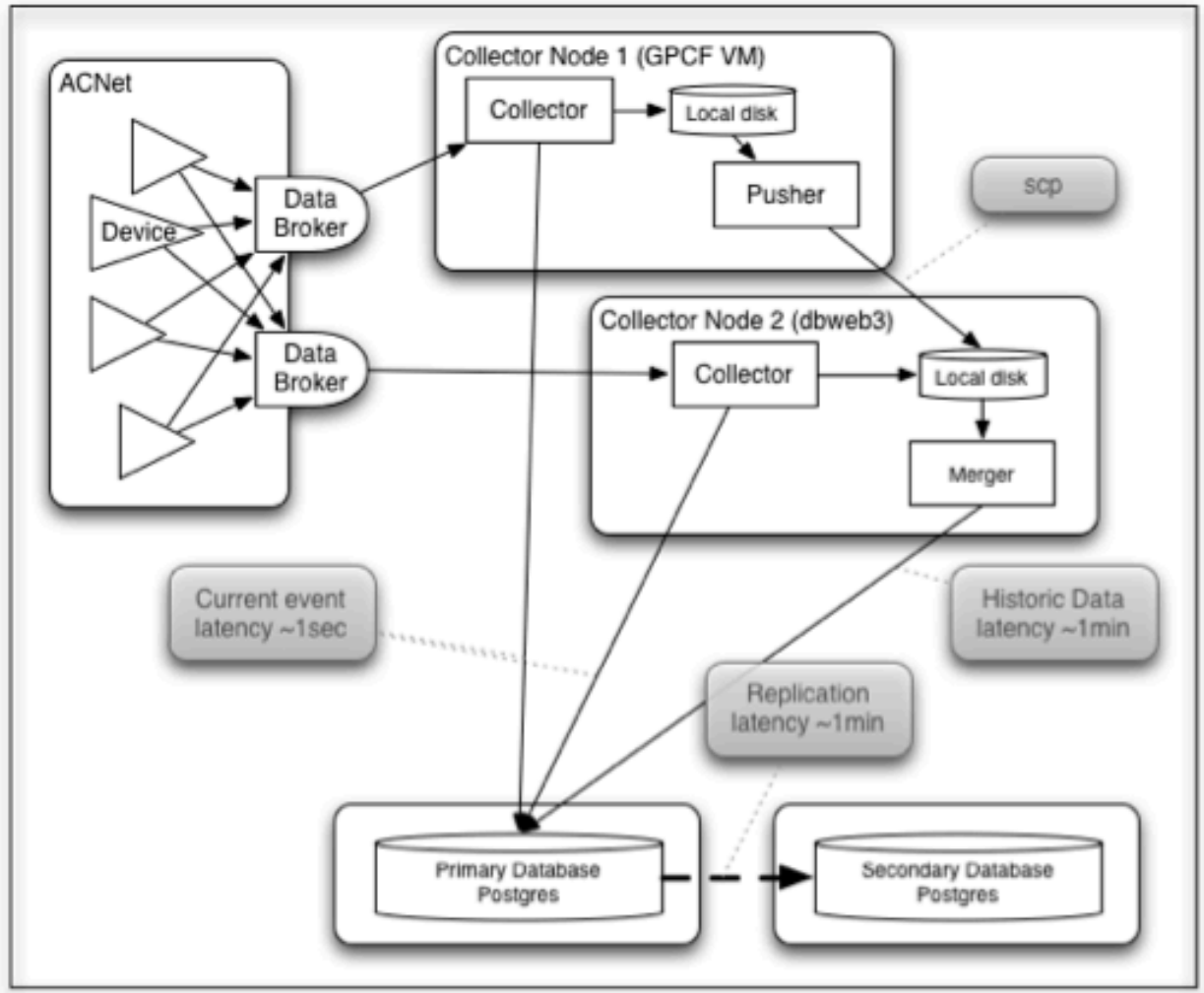


Joseph and Michele (with Roberts "little" help) compared MINOS beam files and IF DB data for the times when both system were on.

Emphasis was made on toroid devices, as most critical.

Robert Hatcher

IFBeamDB Collector System



- collectors on two independent nodes at separate locations
- two sets of devices "bundles"
  - NuMI_Physics
  - NuMI_Monitoring
- each goes into two databases:
  - real time
  - "historic"
- access via bundle checks both
- real time db
  - ~1sec latency
  - 1 hr data retention
  - access individual devices
- historic db
  - few minute latency (typical)
    - may be up to 24 hr
  - indefinite/1month retention
    - Physics/Monitoring
  - access via "bundle"

A number of DocDb notes were created by Robert to document the process in details.

Batch news

Since Ely meetings:

- Focus was on a data taking start up.
- Lots of work has been done to assure a smooth "after-shutdown" data processing.
- Adam is fully comfortable now with the charge
- Streamlining some of the regular db updates
- Elm0 is a keep-up standard now.
- Online dsts are being produced for quick assessment of data.
- dogwood6 is temporarily kept running for MINERvA. - for how long??

NuMiMon Margherita Vittone(CD)

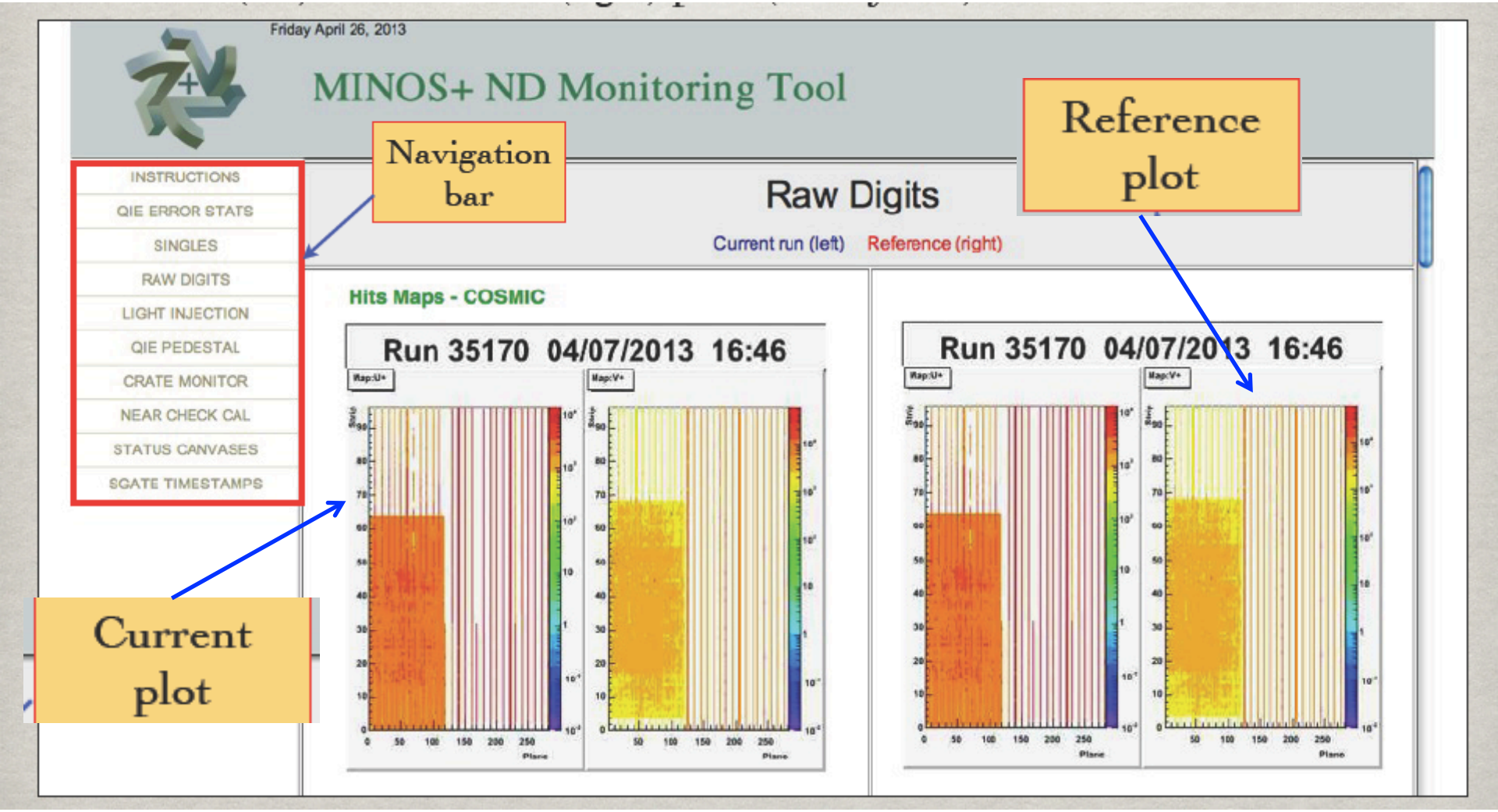
http://dbweb4.fnal.gov:8080/ifbeam/numimon/Display

Able to read out “historical” data: allow to make beam profile and target plots using old data. Useful tool for special investigations.

Supported by SCD and serves several IF experiments.

Abandoning JAS for good. At present JAS runs for occasional cross-checks.

New OEM



Tried to create a module to generate the monitoring plots. Cesar needed a hand, and it might be that Andy Perch could give one. That would be great.

Simulation Plan - Generator

- Goal: move to C++ framework w/ GENIE
  - R-2_8_0 recently tagged/released
  - brings better geometry
- Interface to GENIE
  - "solved problem" in mathematician's sense
  - re-use/steal code from ART-based "nusoft"
    - adapt to MINOS framework (NOvA CAF structures)
  - need to store sufficient info that one can regenerate GENIE event record structure in order to do reweighting
    - Robert understands the work needed to be done
    - needs actual time to implement it
    - ~1.5 months w/ minimal interruptions!
    - Validation required; initially w/ FarDet

17

Simulation Plan - Overlays

- Goal: move to C++ framework
  - João Coelho has resurrected Kregg Arms' code
  - what exists seems to work
  - develop/validate independent of the src of single evts
    - development of "Hops" doesn't block this
- Moving forward – it is happening!
  - read parameters from DB
    - values should be stored as [det | rock] events/POT
  - ability to sample intensity profile within an run
    - output file has spills of varying intensity
  - record spill-by-spill the intensity
    - use same data structure that the "data" uses
  - Above eliminates the need for MCInfo
    - has been the cause of numerous [μ]DST problems

Batch news

- Focus was on a data taking start up.
- Lot of work has been done to assure a smooth "after-shutdown" processing.
- Elm0 is a keep-up standard now.
- dogwood6 is temporarily kept for MINERvA.
- Producing online DSTs regularly.

Data validation

- Reco Test bed framework used heavily for all kind of validation of Elm. RM produced all validation sets including Dogwood5 and Elm.
- This includes ND/FD (beam, cosmics. Data/MC) jobs submission (limited statistics) aimed at reconstruction validation
- Reco and Calibration groups worked hard to evaluate the performance of the new reco framework. This process is ongoing and will be hopefully progressing in near future.

Infrastructure Art Kreymer

EXECUTIVE SUMMARY

- Young Minos issues:
  - Plan deployment of our share of 4.5 PB (raw) Dcache
  - Please start using jobsub, not minos_jobsub, for move to new grid servers
  - All quiet on the Bluearc front. Still shifting files out of app and to data2.
- Need to move to SLF6 – test on minos-slf6
  - NFS 4.1 access to Bluearc
  - Access to 2K + grid nodes
- Deploying CVMFS for access to OSG (including CMS & D0)
- Retired all old AFS data areas, small remnant code/e875 and data/minos
- Minerva testing elm now, still using dogwood6 today
- Minos-beamdata is retired, using IFBEAM database
- setup minos – available from /grid/fermiapp/products/public
  - For easy selection of experiment (minos, nova, ...)

MINOS+ Offline and Manpower

Responsibility	MINOS+ Group members	Comments
Software Librarian	Fermilab?	? Vacant !
Simulation	Josh D. , RM, Caltech	
Batch Submissions	Adam S., Joseph K.	
MC support	Robert H, Joao C.	
Data Handling	Art K., RM	
DQ assessments	AAA: Andy B., Andy P., Ashley T.	
Online monitoring	Cesar C.	
NumiMon	Margherita V.	Not MINOS+ person
DST Production	Alex R. (temporary)	New person?
Db Support	Fermilab?	Vacant !
MC Coordination	???	Vacant !
Offline coordination	RM	

MINOS+ MC

- Time to change over to "hops" ?

- Matrix of code elements
- {gminos, EvtKin} swim ν through geometry
- {neugen, genie} cross-sections & kinematics
- {gminos, PTSim} final state particle propagation

vegetable	ν swim	xsec/kine	propagation
daikon	gminos	neugen	gminos
eggplant	gminos (daikon)	neugen (daikon)	$PTSim_0$
fava	gminos	genie	gminos
garlic	gminos (fava)	genie (fava)	$PTSim_1$
hops	EvtKin (w/ genie)	genie	$PTSim_2$