Go To: AndreyPozdnyakovLogBook11

10-Jan-2011

nano search and replace : Alt+r

```
ispell -d american paper.tex
```

dNdEta

- No need to use PVs withBS (comment from Andrea)
- ToDo: Errors propagation
- remove events with >1 PV

09-Jan-2011

dNdEta TODO

- plots here:: http://andrey.web.cern.ch/andrey/work/dndeta/jan_09/
- The cut on nLayers with measuremetns>=6 does make a difference. It changes the shape of the final answer.
    - On the ptError/pt plots, those bumps are gone because of numLayers>=6 cut.
    - On the plot of numLayers, ptErr/pt <0.1 cut is also applied

- The plots of Ndof for PV is on the bottom of the page.
- Fits of d0 and dz of tracks give somewhat controversial results:

Initially, before fitting:

param	d0	dz
Prime fraction	0.939 +/- 0.001	0.954 +/- 0.001
Second fraction	0.061 +/- 0.000	0.046 +/- 0.000

After fitting:

param	d0	dz
Prime fraction	0.933 +/- 0.001	0.958 +/- 0.001
Second fraction	0.067 +/- 0.000	0.042 +/- 0.000

- So, the fitting doesn't really improve anything (it's already a good

agreement in data/MC).

- The controversial thing is that fraction of primes vs non-primaries

are different when using d0 or dz for it's estimate. 93% to 96%, therefore the error could be assigned.

See also plots q01-q04

- PV z1-z2 fitting
    - Given new distribution, the formula 4 in the Note needs to be changed to:

frac = int_[-0.5, 0.5](fit) - int_[-0.5, 0.5](hist) / int[-10,10](hist)

frac = 0.40 +/- 0.05

* Now, in new MC and rereco we have the following fractions of events with >=2 PVs (eps):

- ♦ MC, eps = 0.065-0.085, depending on the tune. It is 0.085 for Z2
  ♦ For data run 132599, eps = 0.097.
  ♦ The difference between Data and Z2 = 0.097-0.085 = 0.012. i.e. 1.2%

Which is consistent with pileup (?)

- The correction f_MV = 0.40*0.012 = 0.004 +/- error. We should only

correct for the pile-up part, not for the fakes part. (That's what I think Didier pointing out)

- for 900GeV run eps = 0.073 and for MC eps = 0.009)
- All numbers are after PV filter applied.
- see plots q05-q06

- Events, table 2 produced *Need to say in the table that the fractions are taken with respect to the total (comment from Didier)

- Other comments.
  ♦ For the table of uncertainties it should be stated that those errors are the individual effects to the final result after propagation
  ♦ From the PAS the left plots on figure 5 needs to be removed. They are not needed and confusing. Plots on figure 1 are enough. Right plots on figure 5 maybe also not needed. They where there to show fM0 correction.
  ♦ But now it is negligible (0.001 as highest, I sent numbers yesterday) So maybe we only need to say that in words. (following discussion with Didier)

08-Jan-2011

dNdEta TODO

- Produce results with ndof>0, z<24, d<2
- Check old MC vs new MC
- remove events with >1 PV
- plot nTracksPV1 and PV2, ndof and d0
- Study effect of numlayers and pterror/pt
- Obtain new f_MV correction - fit
- Change to PVwithBS and repeat

06-Jan-2011

Command line DBS search, example:

```
dbsql "find site,dataset where dataset like *DiPion*RECO*"
```

dNdEta

- dndeta_jan06.pdf: document

05-Jan-2011

Lumi

- Email from Michael:

```
Hi Andrey,

I confirmed my speculation that you are losing
events due to your selection of the PV with the
best reduced chi-squared.   Here is an example:

XX--------- Event 55894630 ----- LS 681 ---------------XX
 nRecoTracks:   7
 nGoodVertices: 1
 L1 bit:        -1
 time: 1273359965
--vertex collection--
 1  good? 1  z,rho: -3.02243, 0.09826  NDOF= 98.07379  nTr= 51
chisq= 69.06721  chisq/NDOF= 0.70424
 2  good? 0  z,rho: 3.66537, 0.09699  NDOF= 3.94125  nTr= 2
chisq= 1.82897  chisq/NDOF= 0.46406
--good tracks--  MS version
 1  dz= 0.00308        dxy= -0.00517   OK? 1
 2  dz= -0.00397       dxy= -0.00156   OK? 1
 3  dz= 0.00284        dxy= -0.00387   OK? 1
 4  dz= 0.02380        dxy= -0.00662   OK? 1
 5  dz= 0.04848        dxy= 0.01672    OK? 1
 6  dz= 0.22976        dxy= 0.13336    OK? 1
 7  dz= -0.02565       dxy= 0.00960    OK? 1
 8  dz= -0.61894       dxy= 0.84605    OK? 0
 9  dz= -15.83611      dxy= -17.21055  OK? 0
 *** number of good tracks = 7
--good tracks--  AP version
 1  dz= -6.68518       dxy= -0.00425   OK? 0
 2  dz= -6.69157       dxy= -0.00034   OK? 0
 3  dz= -6.68542       dxy= -0.00474   OK? 0
 4  dz= -6.66375       dxy= -0.00685   OK? 0
 5  dz= -6.63977       dxy= 0.01578    OK? 0
 6  dz= -6.45846       dxy= 0.13278    OK? 0
 7  dz= -6.71361       dxy= 0.01008    OK? 0
 8  dz= -7.30644       dxy= 0.84677    OK? 0
 9  dz= -22.52365      dxy= -17.21180  OK? 0
 *** number of good tracks = 0

There are two PV, one with 51 tracks, and one
with 2 tracks.  You take the one with 2 tracks.
As a result, none of the 7 good tracks is
selected and you lose the event.  There are
several examples like this one.

Important:  in your code you do not check isValid
for the vertex.  For many cases in which you lose
an event that I retain, isValid is false.

In other events, you lose tracks but you do not
lose the event.  Thus your multiplicity distribution
will differ from mine, even for events that we
both select.  Attached is a plot of the difference
in the number of selected tracks.

(Note there is one event in which you have 2 tracks
and I have one.  It turns out that you have 2 tracks
coming from in invalid vertex, and I have a different
single track coming from a valid one.)
```

```
It turns out that the requirement of the lowest
chisq/ndof strongly biases the selection toward
vertices with fewer tracks.  The second attached
plot shows the bias.  The larger histogram is the
number of tracks for all PV without any cuts. The
smaller shows the number of tracks for those
vertices you select when there is a choice (ie,
when there is more than one PV).

It looks like this effect accounts for a 1.2%
difference in yield, but I am not sure of this
number because I released the trigger requirement
in order to have more events to work with.

My conclusion is that choosing one and only one
vertex on the basis of chisq/ndof is a mistake
for this topic, and I'm not sure I can derive a
correction for it.  We could modify your code so
that it makes the same requirements as mine, but
then Radek would have to run the jobs, including
the MC.  The alternative is that I develop code
to unfold the multiplicity distribution myself.
It is not hard and your code provides an example.

Suggestions?

regards,
Michael
```

Isotracks

- Updates the code (propagator used from Calibration package)
- Run on single particles. castor -> NTUPLES

dNdEta

- dxy and dz of a track are calculated correctly. except for the case of vertex ndof = 0

- Need to change the M-binning. No cuts on dz and dxy for those tracks.
- PV filter: ndof >0, z<35, d0<20

04-Jan-2011

noPV problem needs to be solved - multiplicity bin failure.

dNdEta

- Run Fall10 D6T MC
- Run Sept14 ReReco data
- PV problem

```
Warning, warning.   N prim vert:1
PV ndof: 0  z: 0.0580763   d0: 0.0963888
M: 0  1  first track pt: 0.49728   eta: -0.34736
numLay: 8 dz: -0.143579  d0: 0.158339
```

03-Jan-2011

dNdEta

- PV filter changes (independantly)
  - z from 15 to 24 - big efect
  - ndof from 4 to 3 - no effect
  - d0 from 2 to 6 - no effect
- d0 and dz for data/mc ratio changes a lot with eta of the tracks.

Lumi

- HLT_ZeroBias prescaling is 10*59 = 590

15-Dec-2010

dNdEta

- PV filter is different for diff MC tunes - need to apply it separetely
- dz depends on eta a lot - changed the cut form 0.2 to 0.6
- ptError/pt changed to 0.04
- New eta regions and dR, dPt cuts

region	dR_cut	dPt_cut
\eta\<0.8	0.03	0.05
0.8<\eta\<1.6	0.04	0.06
1.6\eta\<2.4	0.05	0.07

02-Dec-2010

Tagged UserCode/AndreyPozdnyakov with **V00-08-01** dndeta (not MC) frozen for PAS.

26-Oct-2010

To set rights on a nw01 machine:

```
chown andrey.zh andrey/
```

20-Oct-2010

http://cmslxr.fnal.gov/lxr/source/HLTrigger/Configuration/python/HLT_FULL_cff.py#21301

14-Oct-2010

- Isotracks lumi for range 146428_147757:

```
|
 Delivered LS | Delivered (/0jb) | Selected LS | Recorded (/0jb) |
---------------------------------------------------------------------
|        13852 |      7656365.955 |       10573 |     6465466.658 |
```

12-Oct-2010

- Pile-up estimate (on LumiCulc page)

http://home.fnal.gov/~cplager/log/1007/log.html#100729_Idea_for_Pileup_Estimation

Isotracks

- Setting up

```
cmsrel CMSSW_3_8_5
cd CMSSW_3_8_5/src/
cmsenv

kserver_init
cvs co UserCode/AndreyPozdnyakov
scram b

cd UserCode/AndreyPozdnyakov/isotracks/
```

- Test if it runs localy:

```
cmsRun myisotracks_cfg.py
```

- Send to crab
  - ♦ Create a json file with runs you want to cover.
  - ♦ Edit crab.cfg script

03-Oct-2010

- Updated CMS/PedestalInstructions
- Processed pedestal jobs for runs 144089-147084. Updated conditions in offline tag

02-Oct-2010

- Loading Channel Quality conditions: CMS/HcalChQualityTutorial - tutorial

04-Sep-2010

CADI for dN/dEta

30-Aug2010

DOE reviw

- agenda

Luminosity record from the processed isotracks

sample	delivered	recorded, 1/nb
v16	- no records -	
v17	9.2	4.9

v18	90.5	63.8
v19	114.3	100.6
v20	195.5	155.9
v20_2	374.6	331.6
v20_3	523.4	379.0
v20_4	1023.7	783.0
v20_5	647.2	608.6

27-Aug-2010

Lumi overview for v20_run3 - prompt_142928_143328

```
| 143320 |          183 |       26062.469 |             [1-171] |      24112.801 |
=== Total :
| Delivered LS | Delivered (/µb) | Selected LS | Recorded(/µb) |
-----------------------------------------------------------------
|         9021 |       523379.942 |        5937 |     379035.742 |
```

09-Aug-2010

- CMS.SWGuideGenParticleFromSim
- Code on LXR GenPlusSimParticleProducer.cc

05-Aug-2010

CMS.SWGuideTrackMCTruth

17-Jul-2010

Using CMS.LumiCalc

- cvs co -t tag RecoLuminosity/LumiDB
- get overview on delivered, recorded and total luminosity option -r for a specific run

```
lumiCalc.py -c frontier://LumiProd/CMS_LUMI_PROD -r 132440 overview
```

- option -i for selected run and lumi sections from .json file

```
lumiCalc.py -c frontier://LumiProd/CMS_LUMI_PROD -i file.json overview --nowarning
```

For example, in isotracks_data_v15_glite_139021_140331 initial json file gives

```
| Delivered LS | Delivered (/µb) | Selected LS | Recorded(/µb) |
-----------------------------------------------------------------
|         7873 |        65085.893 |        5152 |      50808.516 |
```

When processed, after crab -report:

```
| Delivered LS | Delivered (/µb) | Selected LS | Recorded(/µb) |
-----------------------------------------------------------------
|         7873 |        65085.893 |        5062 |      50808.348 |
```

13-Jul-2010

hltL1sIsoTrack8E29 trigger list:

L1SeedsLogicalExpression = cms.string("L1_SingleJet20U OR L1_SingleJet30U OR L1_SingleJet40U OR L1_SingleJet50U OR L1_SingleJet60U OR L1_SingleTauJet10U OR L1_SingleTauJet20U OR L1_SingleTauJet30U OR L1_SingleTauJet50U"),

12-Jul-2010

- MCElectronAnalyzer.cc
- dNdEta at NWU page -

06-Jul-2010

RunSummary

02-Jul-2010

dataset = /MinimumBias/Run2010A-PromptReco-v4/RECO

- isotracks_data_v13 - 4 jobs (not many files at FNAL)
- isotracks_data_v14_glite - all the data

23-Jun-2010

- dNdEta page
- Trigger study gives 2% trigger efficiency for HLT_L1_BscMinBiasOR_BptxPlusORMinus

21-Jun-2010

- Trigger browser
- CMS.L1TechnicalTriggerBits
- CMS.SWGuideL1TriggerFAQ
- CMS.Data2010HLTMenus
- trigger rates

18-Jun-2010

Updated isotraks ntuples. Added:

- HLT trigger status (same as in MPI)
- isRealData
- primaryVtx
- x, y of a Track (in addition to z) and normalizedChi2
- beamSpot: x,y,z
- removed: HTime[] - no need

08-Jun-2010

- Plot pt (lowest pt track passing the selection)
- trig_eff = N_sel(w/tigger bits)/N_sel - zeroBias trigger.

- CMS.Collisions2010Analysis

Lumi with tracks

- CMS.LuminosityMeasurmentsWithTracks - 7 TeV
- CMS.LuminosityMeasurmentsWithTracks09 - 900 GeV

03-Jun-2010

Main.MPIAnalysis

01-Jun-2010

LHC fills to be processed at 7 data:

- 1005 (the first one). Runs: 132440, 132442
- 1104 (nice long fill with peak lumi of 6E28). Runs: 135521, 135523, 135525, 135528, 135534, 135535, 135537, 135538
- 1107 (similar to 1104): 135573, 135575

(proposed by Beate Heinemann)

- 1058 (bx = 1 and 1786) Runs: 133874, 133875, 133876, 133877, 133881, 133885
- 1089 (bx = 1) - VdM scans. Run: 135149

25-May-2010

- 900 GeV luminosities: CMS.LumiWiki_CurrentLumi

18-May-2010

Strange:

15		L1_SingleJet6U	374	16.04
16		L1_SingleJet10U	2787	119.56

12-May-2010

- hitPattern class reference

11-May-2010

- Changed json_script (for isotracks)
- Changes:

Show the code Hide the code

```
#selectlumi="process.source.lumisToProcess = cms.untracked.VLuminosityBlockRange(\n"
selectlumi=""
ranges = []
runs_to_print = selected_dcs.keys()
runs_to_print.sort()
for run in runs_to_print:
   blocks = selected_dcs[run]
   blocks.sort()
   prevblock = [-2,-2]
   for lsrange in blocks:
       if lsrange[0] == prevblock[1]+1:
           print "Run  ",run,"- This lumi starts at ", lsrange[0], " previous ended at ", prevblo
           prevblock[1] = lsrange[1]
           ranges[-1] =  "%s \t %d \t %d  \n" % (run, prevblock[0], prevblock[1])
       else:
           ranges.append("%s \t %d \t %d  \n" % (run, lsrange[0], lsrange[1]))
           prevblock = lsrange
selectlumi += "".join(ranges)
#selectlumi += ")"

out_file = open('json_list.json','w')
out_file.write(selectlumi)
out_file.close()
```

03-May-2010

RNworkinggroup

- LHCb.AbsoluteLuminosityMeasurementWithVanDerMeerMethod

*particle codes

28-Apr-2010

```
> All experiments should
> a) compare the acceptances using true charged primary particles
> of the different generators (Pythia6/Perugia0 and Phojet) for
> sqrt(s)=0.9, 2.36 and 7 TeV
> b) produce the acceptance corrected rate of events with at least
> one track (in Hz) for a given LHC fill as function of UTC time.
> This should be corrected for the tracking and trigger efficiency.
> The correction for the trigger efficiency should be quoted,
> particularly if it is model-dependent (assessed by comparing
> pythia6 and phojet).
> c) produce a corresponding instantaneous luminosity number using
> the above correction factors for an agreed on LHC fill as function
> of UTC time. For this we need to also agree on the cross sections.
> d) when we have all these numbers a systematic uncertainty on the
> difference
> between the luminosities of ATLAS, CMS and ALICE can be determined.
>
> Details:
> - suggest to start this comparison now based on fills
>  -- 911: 4x4 fill at 0.9 TeV
>  -- 919: 16x16 fill at 0.9 TeV (not possible for ALICE as solenoid
> was off)
>  -- 923: 4x4 fill at 2.36 TeV
> - suggest to use the phojet cross sections as benchmark for c)
which
>  are 40 mb (ND), 10.5 mb (SD) and 3.5 mb (DD)
> - This method does not scale to high luminosity and could be
changed
> then to a
```

```
>  higher pT threshold or by counting the number of tracks
>  rather than the number of events with a track. The method could
> also be
>  modified to require at least N tracks with N>1.
>
```

27-Apr-2010

Time issues

- http://www.unixtimestamp.com/index.php
- http://dan.drydog.com/unixdatetime.html
- Is time in RR stored as GVA not UTC?

26-Apr-2010

- CMS.PromptFeedbackGroup
- LuminosityMeasurments - on NWU twiki

20-Apr-2010

- CMS.RunInfo

- HCAL timing problems: hypernews

14-Apr-2010

- CMS.DQMRunRegistry

```
ssh -L 8080:pccmsdqm04:80 andrey@lxplus5.cern.ch
```

- http://localhost:8080/runregistry/

- Runs which could be affected by screing up the Gains_express tag:
  - 133172 (Wed, 15:53:00) - 432,441 events (several BAD systems),
  - 133161 (Wed, 11:15:00) - 5,622,977 events (several BAD systems)
  - Thu runs: 133239,133241,133242, 133248,133250,133257 (B-field OFF)

13-Apr-2010

Luminosity measurements

- LuminosityMeasurments - on NWU twiki
- MC Minbias cross section = 71.26 mb

- CMS.Collisions2010Recipes
- CMS.LumiWiki2010Data
- CMS.Collisions2010Analysis

09-Apr-2010

How to extract the cross section from MC sample.

```
 #include "SimDataFormats/GeneratorProducts/interface/GenRunInfoProduct.h"
 edm::Handle <GenRunInfoProduct >  gi;
iEvent.getRun().getByType(gi);
```

More info: GenRunInfoProduct.h

06-Apr-2010

link	description
v1_run132440	Old cone sizes and cuts, 10cm Ecal cone
v2_run132440_no_neutral_iso/	Same, no neutral isolation cut
v3_run132440	same, removed the positive-cut on RecHit energy
v4_run132440	changed to 9cm cone in Ecal
v5_run132440	agreed cuts and cones
v6	agreed cuts, all runs
v7	60cm searching cone

04-Apr-2010

Crab 27x

```
source /uscmst1/prod/grid/gLite_SL5_CRAB_27x.csh
source /uscmst1/prod/grid/CRAB_2_7_1/crab.csh
```

30-Mar-2010

7TeV Data!

- Isotracks - data vs MC

25-Mar-2010

- Area in JetSpecific - wrong dPhi?

24-Mar-2010

How to run my isoTracks code

- prepared a twiki page at NWU
- run on MC 7TeV sample: /MinBias/Summer09-START3X_V25_preproduction-v2/GEN-SIM-RECO
- http://home.fnal.gov/~andreypz/isotracks/early_data_7TeV/

16-Mar-2010

10-Mar-2010

- Single pions50

run	events	eta	seed
10	500K	5.2	default
25	50K	5.2	123452222
55	1M	2.4	123451111
77	1M	2.5	123451111
99	1M	1.8	123455353

- New ReReco with CMSSW_3_5_2
  - /MinimumBias/BeamCommissioning09-Mar3rdReReco_v2/RECO 794 20890008
  - HN 423
- Invalidate_a_dataset_in_DBS

```
DBSInvalidateDataset.py --DBSURL=
```

08-Mar-2010

C 8 MAPTA

- genSinglePions - crab_0_100308_161822 - generate 50,000 more pions with the same Tier-name - see what happend when publish them. Seed=2222, run=25
- pfCorrs - crab_0_100308_174306 run HcalIsoTrkAnalyzer code (rootFile.root) over new 352 generated single pions. - Finished: too few tracks!
- pfCorrs/with336Producer

04-Mar-2010

- Single pions with 352 were generated

```
datasetpath  = /SinglePions_50GeV_Rel352_v3/andrey-SinglePions_50GeV_Rel352_v3-791ecbb28bc75b5af6
```

26-Feb-2010

- Hcal Phi asymmetry plots: http://home.fnal.gov/~andreypz/phi_asymmetry/ and 1010feb26
- CMS.FirstCollisionsAnalysis

22-Feb-2010

http://home.fnal.gov/~andreypz/neutrals/

20-Feb-2010

- crab_0_100220_14041 - run of BeamCommissioning09-Dec19thReReco_336p3_v2
  - lumi, bunchcross, numLayers2>7

19-Feb-2010

Loading and dumping Gains

- Dumped gains
- CMS.HcalGainsTags2010

Data vs MC Stats

- Add lines:

```
h->Draw("sames");
gPad->Update();
TPaveStats *st = (TPaveStats*)h->FindObject("stats");
st->SetX1NDC(newx1); //new x start position
st->SetX2NDC(newx2); //new x end position
```

- TPaveStats ROOT page

18-Feb-2010

- /MinimumBias/BeamCommissioning09-Feb9ReReco_v2/RECO, crab_0_100218_204611, sotracks_data_v19

```
%MSG-w Missing Dictionary:  AfterFile 18-Feb-2010 20:49:06 CST pre-events
Could not find a Reflex dictionary for class 'reco::EcalHaloData'.  This class was registered as
 1) was a Reflex dictionary created for the class,
 2) if so was the package with the dictionary linked with all plugins that use that class,
 3) the file is from an old release and this data type has been removed from the present release.
%MSG
```

- /MinimumBias/BeamCommissioning09-Jan23ReReco-v1/RECO, crab_0_100218_204425, isotracks_data_v18
- /MinBias900GeV/Summer09-MC_31X_V3-v1/GEN-SIM-RECO crab_0_100218_183015 running, will be isotracks_MC900v16.root

? process.prefer("GlobalTag") fails to process.hltLevel1GTSeed (trigger bits).

17-Feb-2010

summary

cut	Data	MC
0.	110080 (100%)	1906312 (100%)
1. track qual & numLayers.	87856 (79%)	1570583 (82%)
2. maxPNearBy.	67570 (76%)	1160555 (73%)
3. neutral_iso:	53883 (79%)	971518 (83%)
4. hit distance	16408 (30%)	301749 (31%)
5. mipcut	12003 (73%)	222421 (73%)

11-Feb-2010

- Run again isotracks on data

- const CaloSubdetectorGeometry* gHcal = geo->getSubdetectorGeometry(DetId::Hcal,HcalBarrel);
- process.p = cms.Path(process.hltLevel1GTSeed*process.isotracks)

10-Feb-2010

- Calling **gHB->getClosestCell(gPointHcal)** is enough to get All Hcal subdetector!

05-Feb-2010

- Problems found when using **gHF->getClosestCell(gPointHcal)**. Need to use **gHF->CaloSubdetectorGeometry::getClosestCell(gPointHcal)** instead.
- crab jobs for PFcorrs:
  - crab_0_100207_210316 - 26.2 cm cone
  - crab_0_100207_210542 - 30 cm cone

27-Jan-2010

- Made **MyIsotracks** based on SandboxValidIsoTrkCalib. CVS: UserCode.AndreyPozdnyakov/
- Updates to the code:
  - Calculate maxPNear, sumPNear, Using 40cm cone at ECAL surfuce
  - Calculated eECAL09cm and eECAL40cm
  - numLayers and trkQual (high purity)
  - clean up the code
- Submitted Crab jobs with fixed analyzer
  - MC minbias: **/MinBias/Summer09-STARTUP3X_V8P_900GeV-v1/GEN-SIM-RECO**
  - Rereco data: **/MinimumBias/BeamCommissioning09-Jan23ReReco-v1/RECO**

26-Jan-2010

Jim's presentation - isotracks in data

His cuts:

```
No highPurity tracks with p > 2GeV &&
No tracks crossing > 4 layers with p > 2GeV
in isolation 40.0 cm at Ecal surface.
```

- For the highPurity requirement:

```
 reco::TrackBase::TrackQuality trackQuality_=
   reco::TrackBase::qualityByName("highPurity");

   reco::Track* pTrack;
   bool trkQual  = pTrack->quality(trackQuality_);
```

- For the number of layers crossed:

```
   const reco::HitPattern& hitp = pTrack->hitPattern();
   int nLayersCrossed = hitp.trackerLayersWithMeasurement();
```

19-Jan-2010

http://home.fnal.gov/~andreypz/validation/dataVSmc/

15-Jan-2010

Run Numbers

- CMS.FirstCollisionsCounts
- 900 GeV collisions
  - 123596, ~~123615~~, 123732, 123815, 123818, 123906, 123908, ~~123970~~, ~~123976~~, ~~123977~~, ~~123978~~, ~~123985~~, ~~123987~~, 124009, 124020, 124022, 124023, 124024, 124025, 124027, 124030, 124230
- 2360 GeV collisions
  - 124120, 124275

	Runs # table for 900 GeV sample:	
	run number	**N isotracks**
1	123596	19,643
2	123732	12,017
3	123815	2,980
4	123818	6,109
5	123906	1,684
6	123908	1,300
7	124009	16,577
8	124020	22,576
9	124022	37,952
10	124023	23,933
11	124024	24,422
12	124025	2,739
13	124027	7,935
14	124030	13,262
15	124230	47,244
	Total:	240,373

	Runs # table for 2,360 GeV sample	
	run number	**N isotracks**
1	124120	10,193
2	124275	52,850
	Total:	63,043

Number of isotracks here - without Mip cut and quality selections. After applying that cut and track quallity cuts the number of isotracks (for 900 GeV sample) reduced to ~ 4,350 (factor of 44 reduction).

- Steve's presentation on December 15.

13-Jan-2010

- Run new code (with trigger bits) on new data (re-reconstructed, see below)

Reprocessed data and MC with new code.

ReReco samples from December collisions:

- **/MinimumBias/BeamCommissioning09-Dec19thReReco_336p3_v2/RECO**
- GlobalTag: **GR09_R_V5::All**
- https://hypernews.cern.ch/HyperNews/CMS/get/dataopsrequests/98.html

Triggers.

- tracker group twiki

```
process.load('L1TriggerConfig.L1GtConfigProducers.L1GtTriggerMaskTechTrigConfig_cff')
from HLTrigger.HLTfilters.hltLevel1GTSeed_cfi import hltLevel1GTSeed
process.bit40 = hltLevel1GTSeed.clone(L1TechTriggerSeeding = cms.bool(True),
L1SeedsLogicalExpression = cms.string('40 AND NOT (36 OR 37 OR 38 OR 39)'))
```

- From Steve:

```
process.hltBeamHalo = cms.EDFilter("HLTHighLevel",
   TriggerResultsTag = cms.InputTag("TriggerResults","","HLT"),
#     HLTPaths = cms.vstring('HLT_SplashBSC'), # provide list of HLT paths (or patterns) you want
   HLTPaths = cms.vstring('HLT_MinBiasBSC'),
   eventSetupPathsKey = cms.string(''),
   andOr = cms.bool(True),
   throw = cms.bool(False)
)
```

06-Jan-2010

- WriteToHcalDB

05-Jan-2010

ECAL energy in a cone (for tracks)

- Developed a new function **ecalEnergyInCone(const GlobalPoint center, double radius, const EcalRecHitCollection ecalCol)** which is supposed to calculate the ecal energy in a given cone.

Inner and outer ecal energy?

Input parameters used in AlCaIsoTracksProducer

- ECALRingOuterRadius = cms.double(35.0),
- ECALRingInnerRadius = cms.double(15.0),
- ECALClusterRadius = cms.double(9.0),

04-Jan-2010

reco::Photon variables

energy	energy (which one?)
et	et
e5x5	5x5 energy
r19	ratio of Emax/E(3x3)
r9	ratio of E(3x3)/ESC
hadronicOverEm	
ecalRecHitSumEtConeDR04	
hcalTowerSumEtConeDR04	
trkSumPtSolidConeDR04	

- See photon reference manual (which is not compleate btw)

samples

- **/MinimumBias/BeamCommissioning09-StreamHcalCalIsoTrk-Dec19thReReco_341_v1/ALCARECO**
- global tag GR09_R_34X_V2
- Number of events: 2180385

Magnetic field

- The sequence **Configuration.StandardSequences.MagneticField_cff** is actually the same as **MagneticField_38T_cff**
- See **Configuration/StandardSequences/python/MagneticField_cff.py**

28-Dec-2009

- Implemented Hot.hit finding in PF calc. code an track projection. Need testings
- Made a simple Photon analyzer

27-Dec-2009

- The bug-fix (track projection) did not resolve the problem with low-pt response for isotracks.
- See data900v2 (temp), compare with Steve's output, MC900 plots

21-Dec-2009

Suggestion from Steve

The way to find track projection to Hcal:

```
const CaloSubdetectorGeometry* gHE = geo->getSubdetectorGeometry(DetId::Hcal,HcalEndcap);
             const GlobalPoint tempPoint(newx, newy, newz);
             const DetId tempId = gHE->getClosestCell(tempPoint);
```

@ 900GeV

- datasetpath = **/MinimumBias/BeamCommissioning09-PromptReco-v2/RECO**
- runselection = 123596, ~~123615~~, 123732, ~~123734~~, 123818, ~~123985~~, 124009, 124020, 124022, 124023, 124024, 124025, 124027, 124030, 124230, 124275
- process.GlobalTag.globaltag = **'GR09_P_V6::All'**

Change the code?:

- edm::Service fs;
- Lumi_n=iEvent.luminosityBlock();

Steve's configs: http://devildog.web.cern.ch/devildog/anastass

16-Dec-2009

Updated PFcalculation code. New tag is **V00-01-19**

Updated SandboxValidIsoTrkCalib.cc: Load respCorrs through ESSource. Remove "takeallhits". New tag **V00-01-20**

30-Nov-2009

CMS.PFCalculation

26-Nov-2009

New PFcalculation code

- Assosiates MC particle with Ecal and Hcal usink TrackDetector Assosiator tool
- Uses cone in cm around entranse point.
  - Radius = 30cm at Hcal (HB, HE and HF all the same)
  - Radius = 10cm at Ecal (collect ecal energy)
- Mip cut: E_ecal < 1.0

Response corrections26.3 vs new PF corrections:

26-Nov-2009

- Rewrote HcalPFCalculation code.

Consider only single pions MC events. Using TrackDetector Assosiator tools.

- Run isotracks code over first collisions dataset:

/MinimumBias/BeamCommissioning09-rereco_FIRSTCOLL_v1/RECO Still running.

16-Nov-2009

MinBias 900 GeV sample

NWU twiki

Run my validator jobs on the sample:

datasetpath = /MinBias900GeV/Summer09-MC_31X_V3-v1/GEN-SIM-RECO

Events:

Total	After IsoProducer	Applaing all isolation and MiP cuts	number of muons (by Andy)
10,700,000	545,402	113,482	2,000

A few plots to show on NWU meeting:

track energy destribution

number of rechits in cone

iEta

iPhi

Response (aftet calibration)

Response vs eTrack

Response vsiEta

Time in central (hottest) hit Time in HBarrel Time in HEndcup

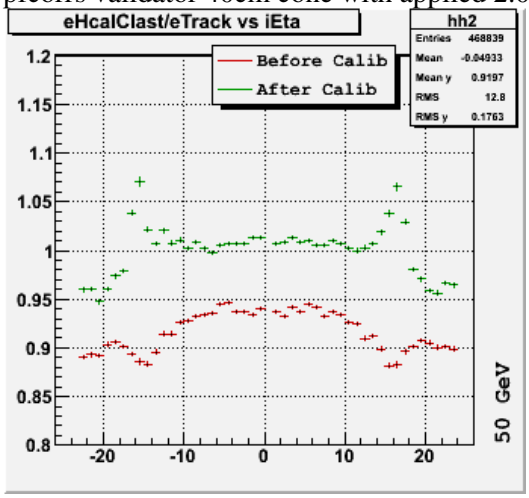
13-Nov-2009

https://twiki.cern.ch/twiki/bin/view/CMS/JetMETReconstructionRewrite

PF corrs

Moved to: http://home.fnal.gov/~andreypz/validation/pfcorrs/

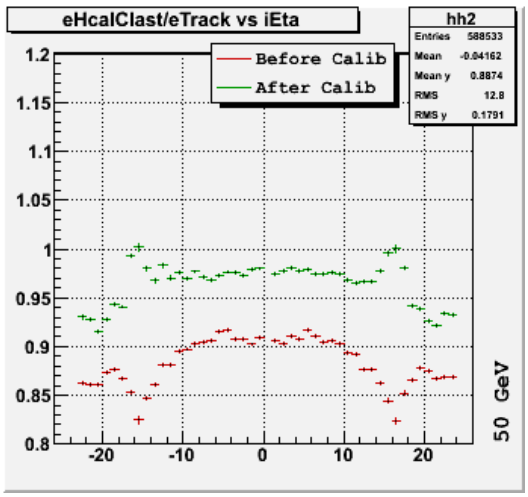
- pfcorrs validator 40cm cone with applied 2.00_mc corrections:



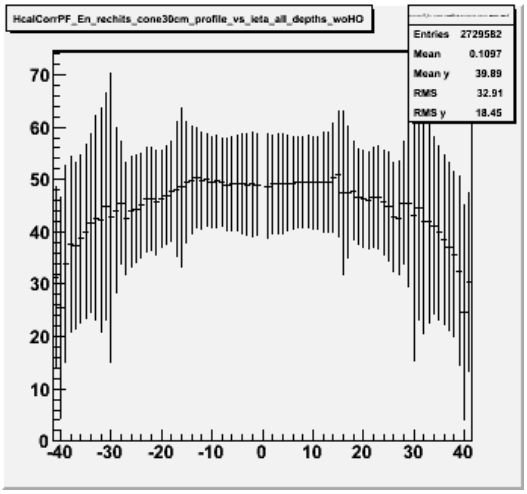
CMS.HcalConditionsObjects

10-Nov-2009

- response plot using HcalPFCorrs_v2.00_mc as response corrections. Cone R=26cm



* pfcorrs validator 30cm cone with applied HcalPFCorrs_v2.00_mc corrections:



08-Nov-2009

Web globaltags

PF corrs for MC_31X-V5

- tagname: HcalPFCorrs_v2.00_mc | frontier://FrontierProd
- objectname: HcalPFCorrs
- recordname: HcalPFCorrsRcd
- tagid: 57
- pfn: frontier://FrontierProd/CMS_COND_31X_HCAL
- labelname:

- tagname: HcalRespCorrs_v1.02_mc | frontier://FrontierProd
- objectname: HcalRespCorrs
- recordname: HcalRespCorrsRcd
- tagid: 54
- pfn: frontier://FrontierProd/CMS_COND_31X_HCAL
- labelname:

Dump Hcal Conditions;

```
import FWCore.ParameterSet.Config as cms

process = cms.Process("DUMP")

process.load("CondCore.DBCommon.CondDBSetup_cfi")

## specify which conditions you would like to dump to a text file in the "dump" vstring
process.prod = cms.EDFilter("HcalDumpConditions",
    dump = cms.untracked.vstring(
        'Pedestals'
#        ,'PedestalWidths'
#        ,'Gains'
#        ,'QIEData'
#        ,'ElectronicsMap'
#        ,'ChannelQuality'
#        ,'GainWidths'
        'RespCorrs',
```

```
        'PFCorrs'
#        ,'TimeCorrs'
#        ,'LUTCorrs'
#        ,'L1TriggerObjects'
#        ,'ZSThresholds'
                                ),
    outFilePrefix = cms.untracked.string('DumpCond')
)

## specify for which run you would like to get the conditions in the "firstRun"
process.source = cms.Source("EmptySource",
    numberEventsInRun = cms.untracked.uint32(1),
    firstRun = cms.untracked.uint32(1)
)


process.es_pool = cms.ESSource("PoolDBESSource",
     process.CondDBSetup,
     timetype = cms.string('runnumber'),
     connect = cms.string('frontier://FrontierProd/CMS_COND_31X_HCAL'),
     authenticationMethod = cms.untracked.uint32(0),
     toGet = cms.VPSet(
        cms.PSet(
            record = cms.string('HcalRespCorrsRcd'),
            tag = cms.string('HcalRespCorrs_v1.02_mc')
        ),

        cms.PSet(
            record = cms.string('HcalPFCorrsRcd'),
            tag = cms.string('HcalPFCorrs_v2.00_mc')
        ),

#        cms.PSet(
#            record = cms.string('HcalPedestalsRcd'),
#            tag = cms.string('hcal_pedestals_fC_v6_mc')
#        ),
#        cms.PSet(
#            record = cms.string('HcalPedestalWidthsRcd'),
#            tag = cms.string('hcal_widths_fC_v6_mc')
#        ),
#        cms.PSet(
#            record = cms.string('HcalGainsRcd'),
#            tag = cms.string('hcal_gains_v3.01_physics_mc')
#        ),
#        cms.PSet(
#            record = cms.string('HcalQIEDataRcd'),
#            tag = cms.string('qie_normalmode_v6.01')
#        ),
#        cms.PSet(
#            record = cms.string('HcalChannelQualityRcd'),
#            tag = cms.string('hcal_channelStatus_trivial_mc')
#        ),
#        cms.PSet(
#            record = cms.string('HcalL1TriggerObjectsRcd'),
#            tag = cms.string('hcal_L1TriggerObject_trivial_mc')
#        ),
#        cms.PSet(
#            record = cms.string('HcalElectronicsMapRcd'),
#            tag = cms.string('official_emap_v7.00')
#        )
)
)

process.es_hardcode = cms.ESSource("HcalHardcodeCalibrations",
     toGet = cms.untracked.vstring(
        'GainWidths',
         'ZSThresholds'
```

```
                )
 )

process.maxEvents = cms.untracked.PSet(
    input = cms.untracked.int32(1)
)
process.p = cms.Path(process.prod)
```

05-Nov-2009

Todo list for iso tracks (more plots)

- iEta occupancy (energy deposited in iEta)
- 16 - three depths (2depth in HB, 1depth in HE)
- Plot Min energy in tower. See thresoulds?
- Energy in ecal for 16 region. 22x and 31x
- check Hcal without mipcut

(moved to ToDoList)

04-Nov-2009

- Replaced Gains in GlobalTag
- Produced 500,000 single pion events (ALCARECO). Located at FNAL:

/SinglePion_50GeV_314alcareco/andrey-SinglePion_50GeV_314alcareco-efbd64ed34c6356cc9b738c715f3dcfb/U

- Run my validation analyzer, got same dip at iPhi=67 for iEta=-21/-22.

Questions:

- How do I verify that **es_prefer** function works in CMSSW and indeed replaced constants were used?

03-Nov-2009

To replace the Gains in GlobalTag with a file, do the following:

```
process.es_ascii2 = cms.ESSource("HcalTextCalibrations",
   input = cms.VPSet(
                  cms.PSet(
                  object = cms.string('Gains'),
                   file = cms.FileInPath('Calibration/HcalCalibAlgos/data/mygains.txt')
                 ),
      )
)
process.es_prefer = cms.ESPrefer('HcalTextCalibrations','es_ascii2')
```

Same should work for other Hcal conditions.

- Need to be updated: CMS.HcalMixESSources

commands for copy-paste:

At FNAL:

```
kinit -n -f andreypz@FNAL.GOV
#or:
kinit -A -f andreypz@FNAL.GOV

ssh -Y andreypz@cmslpc.fnal.gov
source /uscmst1/prod/sw/cms/cshrc uaf
source /uscmst1/prod/grid/CRAB/crab.csh

ls /pnfs/cms/WAX/11/store/user/andrey/
```

CVS

```
kserver_init
#or:
cmscvsroot CMSSW
cvs login
# password: 98passwd
```

At CERN:

```
source /afs/cern.ch/cms/LCG/LCG-2/UI/cms_ui_env.csh
source /afs/cern.ch/cms/ccs/wm/scripts/Crab/crab.csh
voms-proxy-init -voms cms
```

-- AndreyPozdnyakov - 03-Nov-2009

This topic: Sandbox > AndreyPozdnyakovLogBook
Topic revision: r191 - 2012-11-04 - AndreyPozdnyakov