



# Status Report



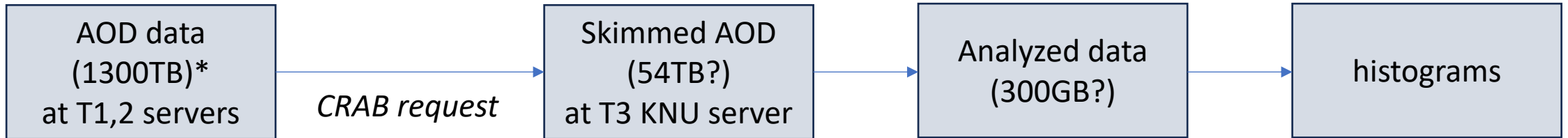
권우연

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github : <https://github.com/wooyeonkwon/work>



- Datasets => see backup slide
- Skim for Z to mumu reconstruction with CRAB
- keep 5(6) branches

\*AOD data size  $\approx 4.43\text{GB}/10000\text{events}$

$\text{run22G fb-1}/\text{events} = 3.2748 / 76689396 \approx 4.27\text{e-}4\text{fb-1} / 10000 \text{ events}$

$\text{total Run3 Muon data AOD size} \approx 4.43\text{GB} / 4.27\text{e-}4\text{fb-1} * 128.82\text{fb-1} \approx 1336\text{TB}$

```

outputCommands = cms.untracked.vstring(
    'drop *',
    'keep recoMuons_muons_*',
    'keep recoVertexs_offlinePrimaryVertices_*',
    'keep edmTriggerResults_TriggerResults_HLT',
    'keep edmEventAuxiliary_*_*_*',|
    'keep triggerTriggerEvent_hltTriggerSummaryAOD_*'
    # comment out, if real data
    , 'keep recoGenParticles_genParticles_*'
)
  
```

work/skim/conf.py

## Why are you doing skim now?

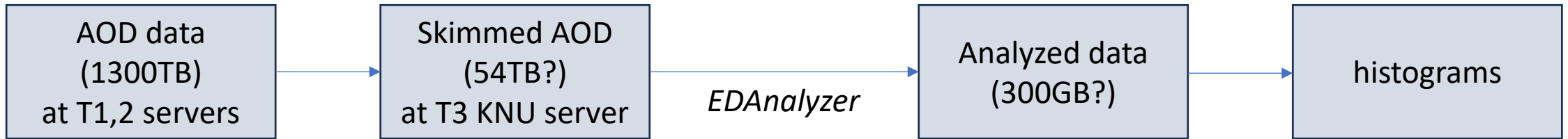
- Originally, with CRAB, only Z reconstruction was performed on the server, only the results were saved and sent T3\_KNU. Because grid computing was used, processing was fast, the amount of data to be transmitted and stored was small. However, If the code is once changed(especially when I see new property), I need to send CRAB request every times. It's quite annoying job.

## So, what's going on?

- Data of some seasons had done. but request for specific root file failed again and again(22E,22F,23C,23D, and all 24 data...)with error exitcode 8021,8028 and so on. Most of them are about 'file read' error and temporal error. Resubmitting may solve it.
- But there is quite annoying problem. I can't resubmit the job because CRAB doesn't recognize that error was occurred. I need to check what is zombie files manually(or find other solution)...
- I think MC has problem too...That one doesn't increase during 48hours...

```
CRAB project directory: /eos/home-w/wkwon/CMSSW_14_0_12/src/work/skim/crab_projects/crab_Run3Summer22EEDRPremix-124X_mcRun3
Task name: 241111_101610:wkwon_crab_Run3Summer22EEDRPremix-124X_mcRun3
Grid scheduler - Task Worker: N/A yet - crab-prod-tw01
Status on the CRAB server: TAPERECALL on command SUBMIT
Task URL to use for HELP: https://cmsweb.cern.ch/crabserver/ui/task/241111\_101610%3Awkwon\_crab\_Run3Summer22EEDRPremix-124X\_mcRun3
Dashboard monitoring URL: https://monit-grafana.cern.ch/d/cmsTMDetail/cms-task-monitoring-task-view?orgId=11&var-user=wkwon&var-task=241111\_101610%3Awkwon\_crab\_Run3Summer22EEDRPremix-124X\_mcRun3&from=1731316570000&to=now
Warning: Data recall from tape in progress: ok/all = 22312/22313 = 99%
Rucio rule details at https://cms-rucio-webui.cern.ch/rule?rule\_id=4bb6bf1db4ca4447906493cc9b6ffc93
Log file is /eos/home-w/wkwon/CMSSW_14_0_12/src/work/skim/crab_projects/crab_Run3Summer22EEDRPremix-124X_mcRun3/crab.log
```

github : <https://github.com/wooyeonkwon/work>



with EDAnalyzer

- Reconstruct Z->mumu process
- Save reconstructed Z mass and dz info
- Save recoMuon pt,eta,phi,iso,size info
- See details in work/Analysis/Analysis.cc

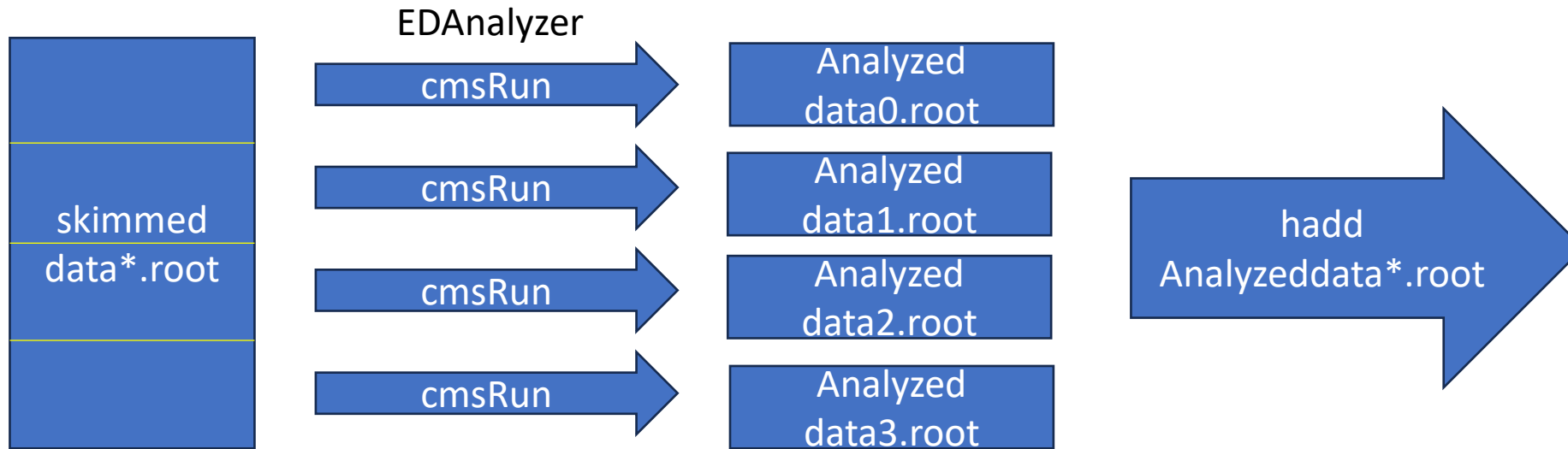
```

[wkwon@cms01 AnalysisResults]$ du ./Muon*/crab_MuonSkimming* --max-depth=0 --block-size=1G
142  ./Muon0/crab_MuonSkimming_Run2023B0
1917 ./Muon0/crab_MuonSkimming_Run2023C0
310  ./Muon0/crab_MuonSkimming_Run2023D0
30   ./Muon0/crab_MuonSkimming_Run2024B0
1519 ./Muon0/crab_MuonSkimming_Run2024C0
1802 ./Muon0/crab_MuonSkimming_Run2024D0
1195 ./Muon0/crab_MuonSkimming_Run2024E0
7369 ./Muon0/crab_MuonSkimming_Run2024F0
7010 ./Muon0/crab_MuonSkimming_Run2024G0
141  ./Muon1/crab_MuonSkimming_Run2023B1
1911 ./Muon1/crab_MuonSkimming_Run2023C
284  ./Muon1/crab_MuonSkimming_Run2023D1
30   ./Muon1/crab_MuonSkimming_Run2024B1
1519 ./Muon1/crab_MuonSkimming_Run2024C1
1802 ./Muon1/crab_MuonSkimming_Run2024D1
1068 ./Muon1/crab_MuonSkimming_Run2024E1
6909 ./Muon1/crab_MuonSkimming_Run2024F1
6393 ./Muon1/crab_MuonSkimming_Run2024G1
1384 ./Muon/crab_MuonSkimming_Run2022C
923  ./Muon/crab_MuonSkimming_Run2022D
1889 ./Muon/crab_MuonSkimming_Run2022E
7382 ./Muon/crab_MuonSkimming_Run2022F
1373 ./Muon/crab_MuonSkimming_Run2022G
  
```

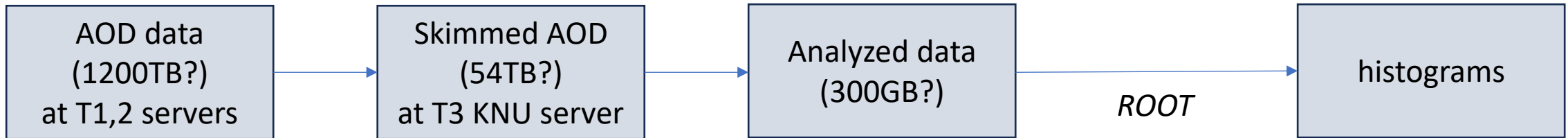
skimming not finished, thus it will increase more.

## *EDAnalyzer multithread problem(Solved?)*

- I still don't know why multithread job with EDAnalyzer is unstable. It causes randomly *segmentation violation* error. and its probability is too high to finish a job.
- So, I solved this problem with a trick. I made bash macro for splitting data files and cmsRun multiple time at the same time
- See details in `work/Analysis/forceMultiThread.sh` and `conf_FMT.py`

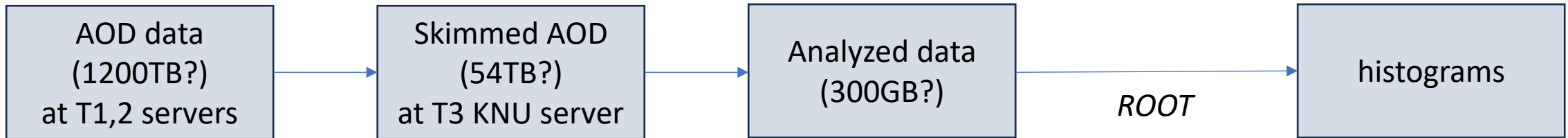


github : <https://github.com/wooyeonkwon/work>



- drawHistograms\_BasicInfo.C  
⇒ Just draw a histogram with leaf data in TTree File.
- drawHistograms\_cbf.C  
⇒ Draw a histogram and fit with crystal ball function
- drawDataMCHistograms.C  
⇒ Draw a Data/MC comparison histogram

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MC cross-section

I found the cross-section of the MC in XSDB. But this is for MINIAOD(AOD's daughter(?) file).

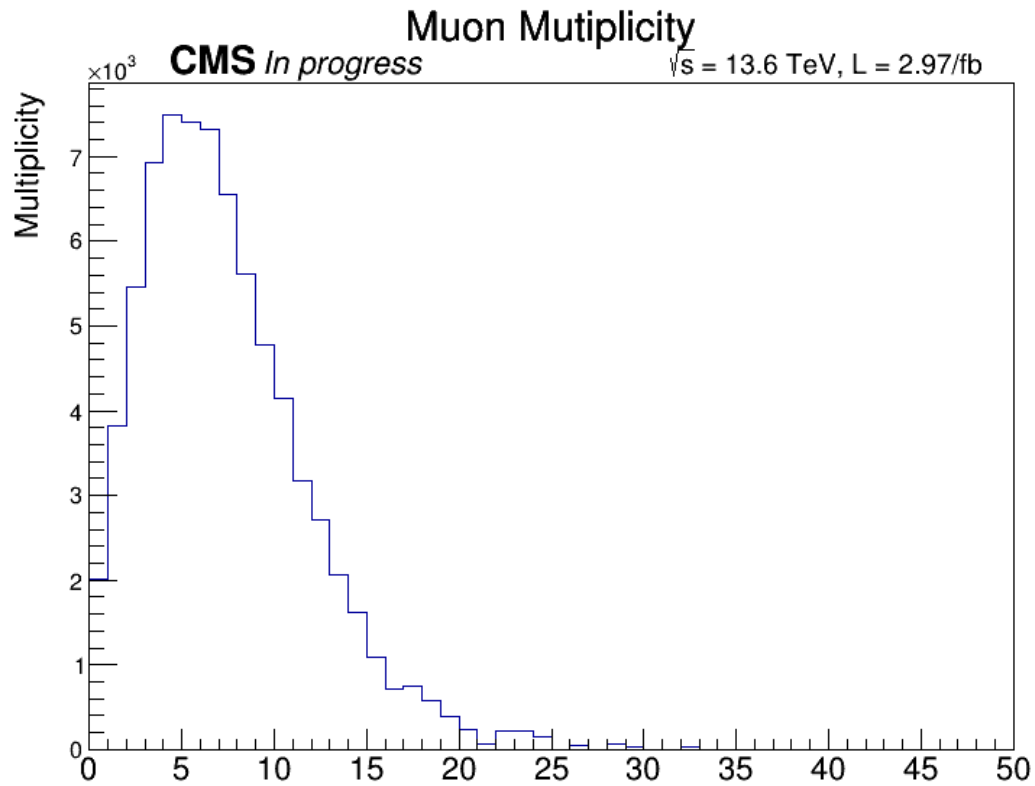
`/DYto2L-2Jets_MLL-50_TuneCP5_13p6TeV_amcatnloFXFX-pythia8/Run3Summer22EEMiniAODv3-124X_mcRun3_2022_realistic_postEE_v1-v4/MINIAODSIM`

cross-section:6688.0

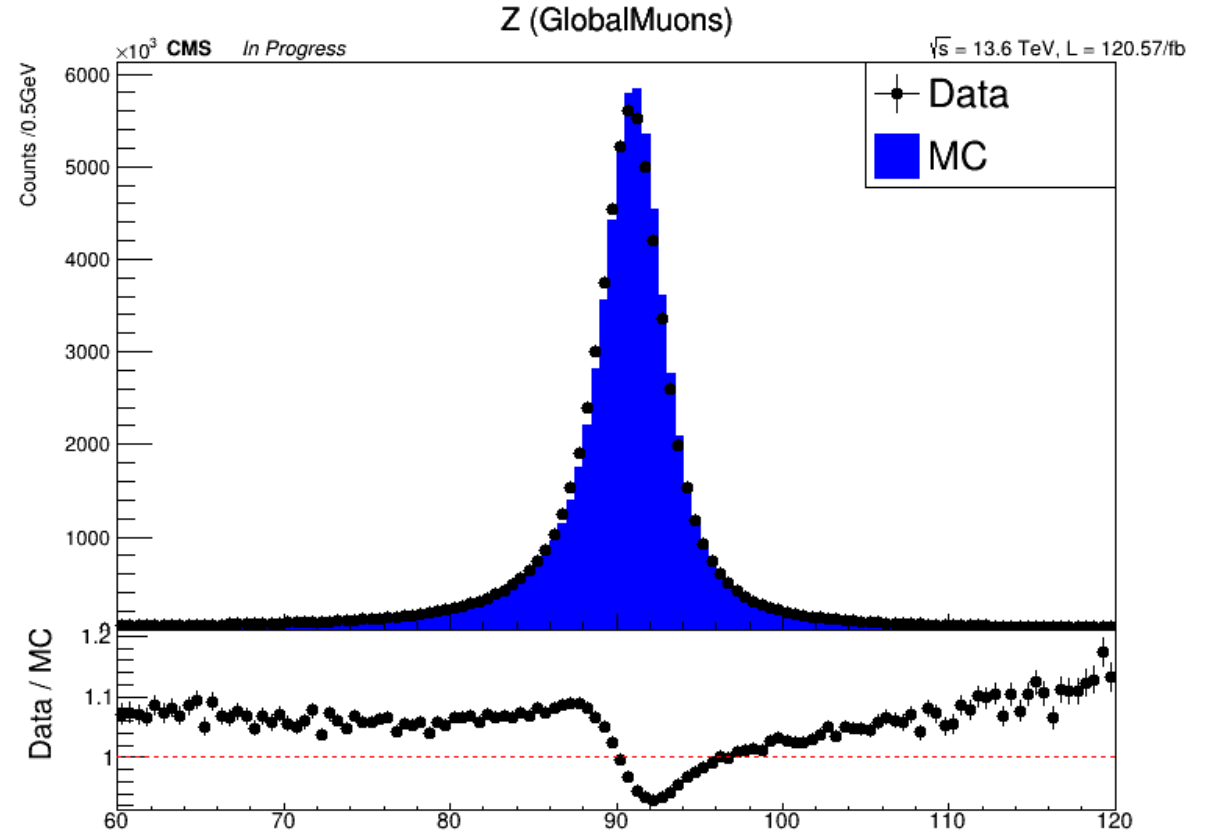
other way? : GenXSecAnalyzer=>only for MINIAODSIM? (it doesn't work for AODSIM)

<https://twiki.cern.ch/twiki/bin/viewauth/CMS/HowToGenXSecAnalyzer>

drawHistograms\_BasicInfo.C



drawDataMCHistograms.C



\*L is not changed properly. Don't trust it. Just sample for test.



- Skimmed AOD

`kcms-t2.knu.ac.kr:/pnfs/knu.ac.kr/data/cms/store/user/wkwon/AnalysisResults/Muon*/crab_MuonSkimming_Run202*/`

- Analyzed data

`http:/data1/users/dndus0107/public/`

=>Some files from other datasets will be added here in the future.

Backup

22C : Done

22D : Done

22E : failed in 7 root files (*resubmit error*)

22F : job 913,803 failed (*resubmit error*)

22G : Done

23B0/B1 :Done

23C0/C1:Done/job 286,280,285,302 failed

23D0/D1:Done/job 41,36,34,26,39,2,1-3,1-4,1-6,1-5,1-1,1-2 failed

24C0/C1:Done/job 286/280/285/302

24D0/D1:job 79,178,353,250,84,320,241,175,112,66 failed / 33% of job failed (*resubmit error*)

24E0/E1:job 170,122 failed (*resubmit error*) / 32% of job failed

24F0/F1:job1-1 failed / 37% of job failed

24G0/G1:19% of job failed (*resubmit error*) / 27% of job failed

8021 : FileReadError (May be a site error)

8028 : FileOpenError with fallback

50664 : Application terminated by wrapper because using too much Wall Clock time

60324 : Other stageout exception.

=> network error or storage error.

**these errors are (maybe...) temporal error**

**<https://twiki.cern.ch/twiki/bin/viewauth/CMSPublic/JobExitCodes>**

