

# Some Tools for the AMS Tests <sup>1</sup>

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Available at:

[http://ams.cern.ch/AMS/vitali/ams02\\_anatool\\_2010a.pdf](http://ams.cern.ch/AMS/vitali/ams02_anatool_2010a.pdf)

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<sup>1</sup>Revised August 1st, 2010



## AMS Data Flow

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- Original HRDL Data

`pcposc0.cern.ch:/Data/FRAMES`

- Online Available Deframed Data produced by A. Lebedev

`pcposc0.cern.ch:/Data/BLOCKS/`

- Offline Available Deframed Data produced by V. Choutko (from BLOCKS) : [QueryForm](#) Featured one file one run structure.

- Online Available DST aka Data Summary Tapes, Reconstructed Data or Root Files

`pcamsdt0.cern.ch:/dat0/pcposc0_Data/BLOCKS/ROOT*`

Featured same file structure as Original Data, but usually contains 5 to 10 % of events only. Mounted on

`ams.cern.ch:/pcamsdt0_dat0/pcposc0_Data/BLOCKS/ROOT*`

## AMS Data Flow

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- Offline Available DST by DataProduction: [QueryForm](#).
- Copy of Original HRDL Data  
`ams@pcamsf2.cern.ch:/s0dat0/FRAMES`
- Copy of Original HRDL Data on LTO-3/4 Cartridges

## Data Summary Files (DST) Format

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- Based On [ROOT](#) package developed at CERN;
- DST are written in compress mode using standard gzip compressor;
- Each event is represented by [Tree](#) Object
- Each event contains Header and arrays (Vectors) of reconstructed objects, such as “Particle”, ”Track”, ”Cluster” etc;
- The extensive set of automated documentation is available at <http://ams.cern.ch/AMS/Analysis/hpl3itp1/root02/AMSRoot/> or [.../root02/latex/refman.pdf](http://ams.cern.ch/AMS/Analysis/hpl3itp1/root02/AMSRoot/.../root02/latex/refman.pdf).
- AMS Root User Guide with complete analysis examples is available at <http://ams.cern.ch/AMS/Reports/Analysis/Notes/amsroot.pdf>

## Analysis Tools: Event Display

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Main Features: AMS Objects Browser, Zoom, AutoScan, Plug-gable Selection Function

To Start:

```
[amslocal@pcamsdt0 display]$ pwd
```

```
/home/amslocal/offline/display
```

```
amsed/amsedc static/dynamic with loadable selection functi  
event display
```

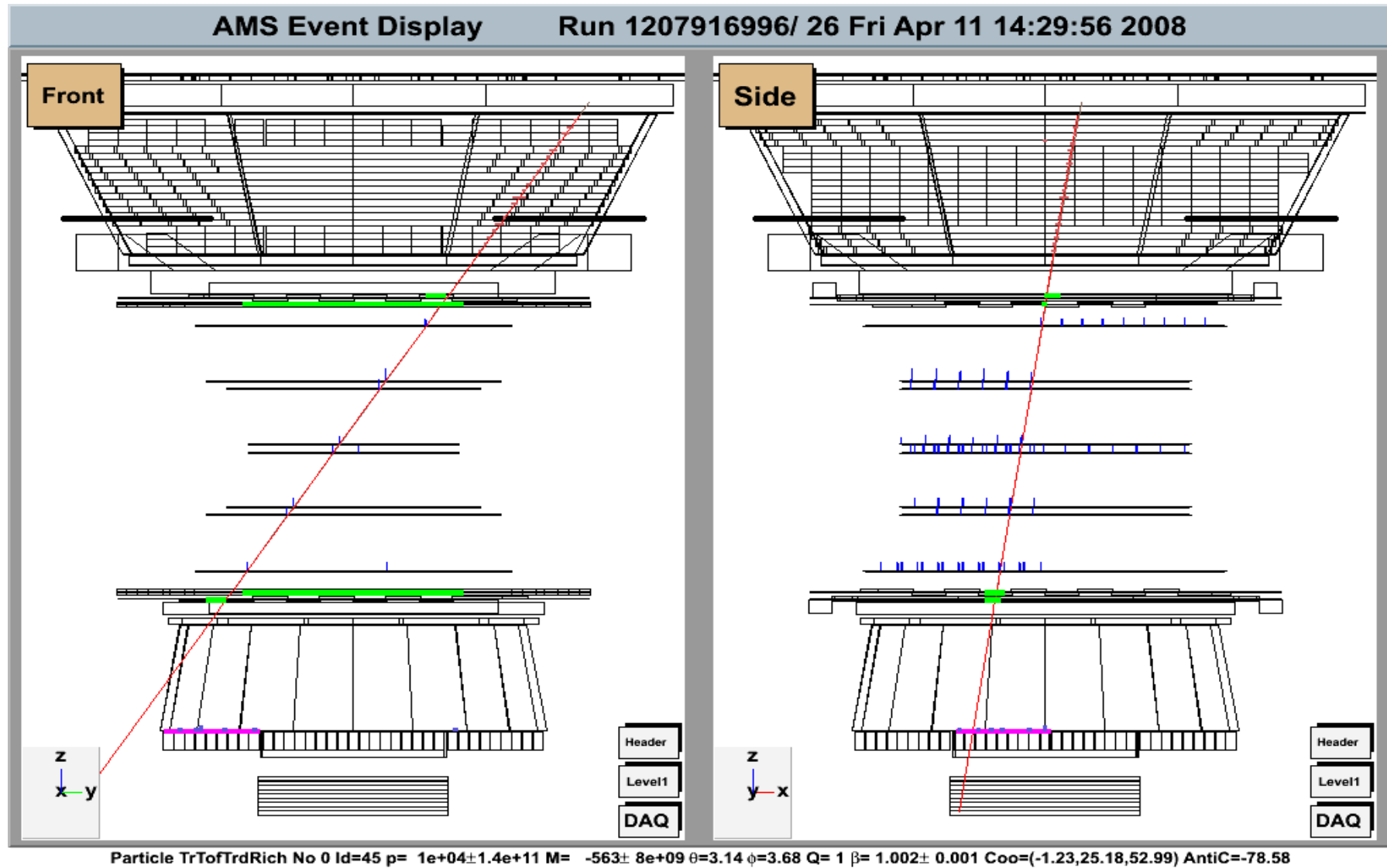
```
for developent see pcamsf2.cern.ch:/Offline/vdev/display
```

Examp1s of Usage:

```
./amsedc '/dat0/pcposc0_Data/BLOCKS/ROOT-A/0153/*.root'
```

```
./amsedc /dat0/pcposc0_Data/BLOCKS/ROOT-A/0153/001.root
```

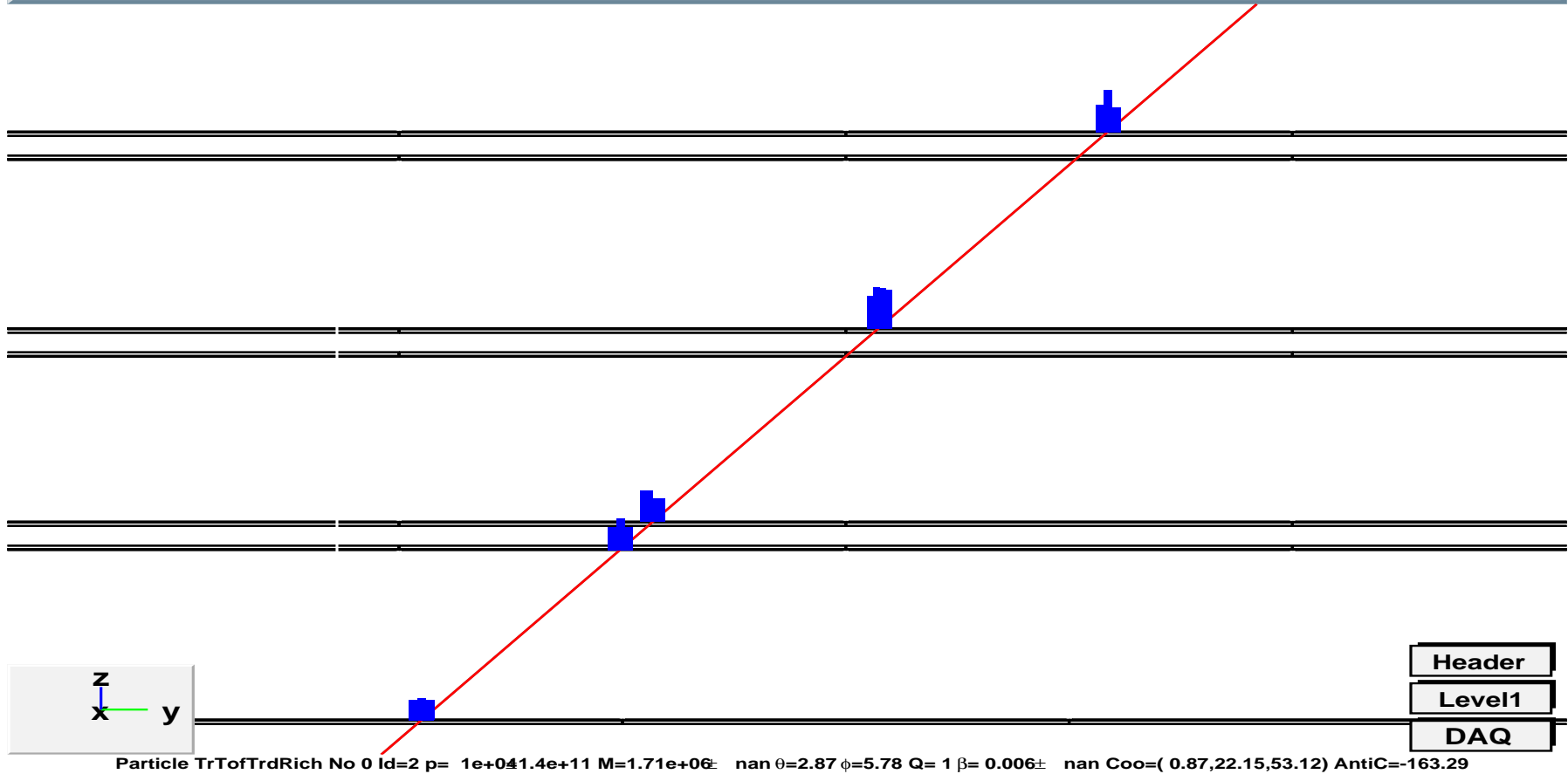
# Analysis Tools: Event Display



# Analysis Tools: Event Display

AMS Event Display

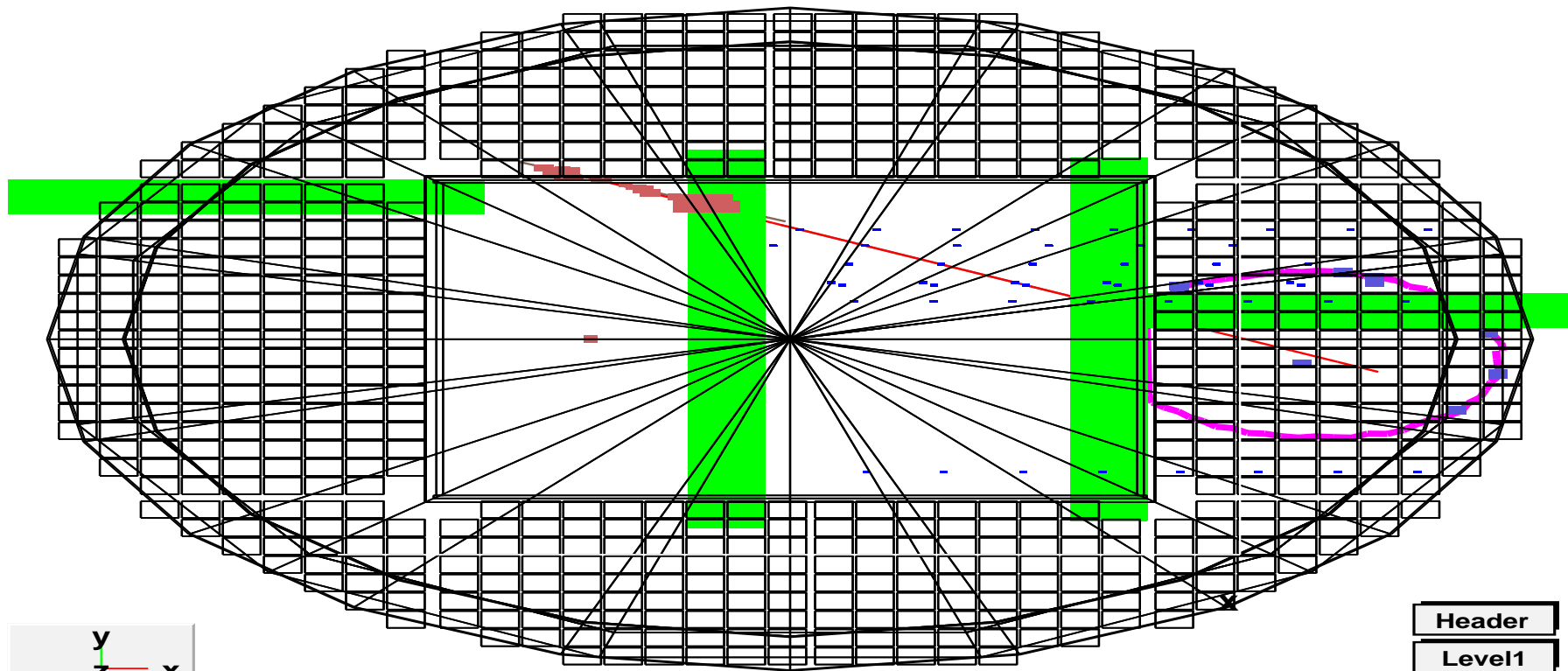
Run 1207839579/ 3 Thu Apr 10 16:59:39 2008



# Analysis Tools: Event Display

AMS Event Display

Run 1207839579/ 3 Thu Apr 10 16:59:39 2008



Particle TrTofTrdRich No 0 Id=2 p= 1e+04 1.4e+11 M=1.71e+06 nan  $\theta=2.87$   $\phi=5.78$  Q= 1  $\beta= 0.006\pm$  nan Coo=( 0.87,22.15,53.12) AntiC=-163.29

Header

Level1

DAQ

## Analysis Tools: Offline Monitor

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Features: Fills/Shows Various Histograms for Different Subdetectors in Real Time

To Start:

```
[amslocal@pcamsdt0 online]$ pwd
```

```
/home/amslocal/offline/online
```

```
[ams@pcgsc10 online]$ cat 00readme.txt
```

```
offmon/offmonc static/dynamic with loadable selection func  
offline monitor
```

```
for developent see pcamsf2.cern.ch:/Offline/vdev/online
```

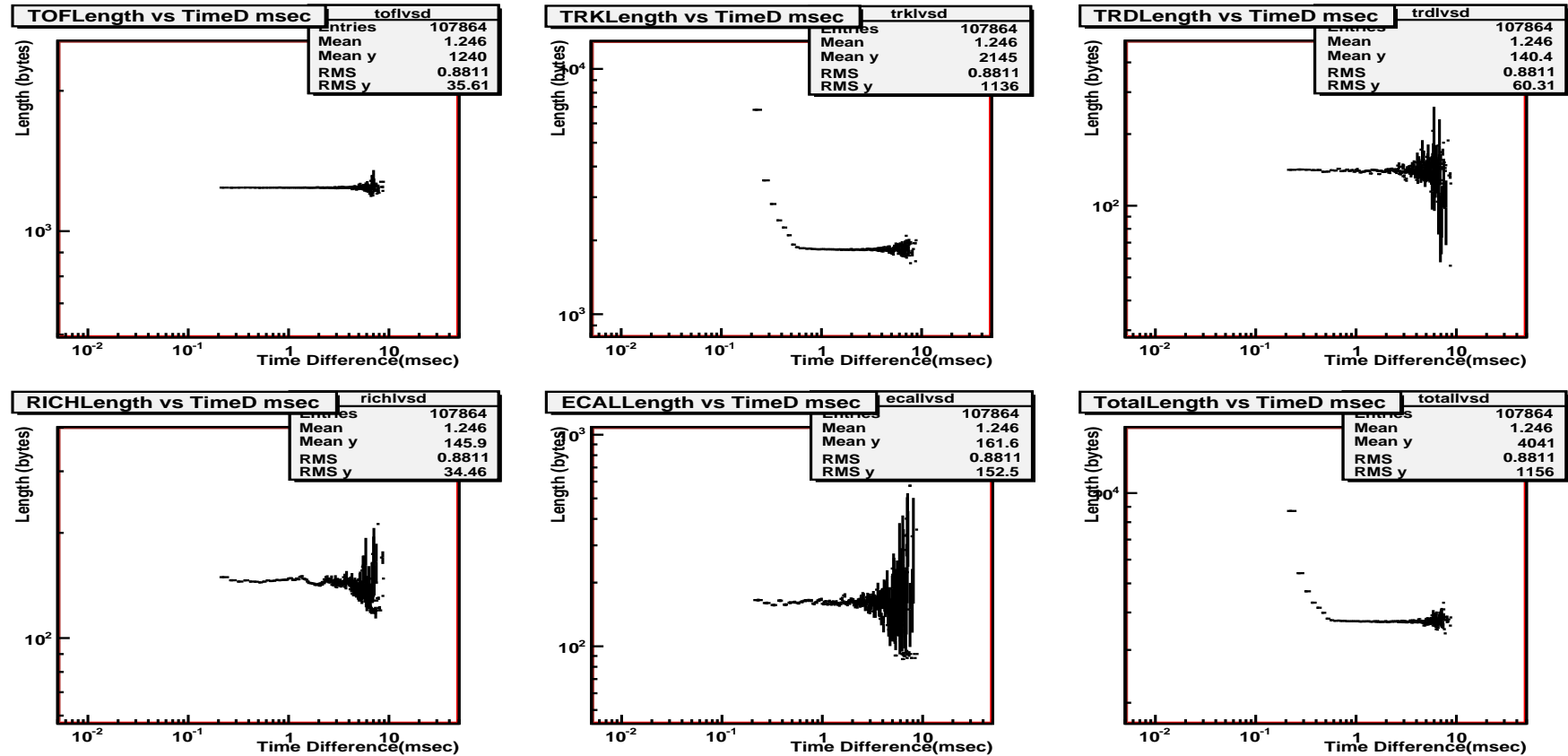
Examples of Usage:

```
./offmon '/dat0/pcposc0_Data/BLOCKS/ROOT-A/0153/*.root'
```

```
./offmon /dat0/pcposc0_Data/BLOCKS/ROOT-A/0153/001.root
```

# Analysis Tools: Offline Monitor

## Alpha Magnetic Spectrometer Online Display & General.Set\_1



Run 1212479283 EventsProcessed 107864 / 107864 / 635992 Tue Jun 3 10:01:14 2008

## Other Analysis Tools

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- Root Based Histogram ans Cut Manager  
<http://ams.cern.ch/AMS/Reports/Analysis/Notes/HistoMan.pdf>;
- Hbook-like root histogramming package ans Cut Manager  
[http://ams.cern.ch/AMS/vitali/ams02\\_hm.pdf](http://ams.cern.ch/AMS/vitali/ams02_hm.pdf)
- Fast Browser/Visualization tools [ams\\_inspect](#) and [JScan](#);
- [Tracking](#) and [Unfold](#) libraries

## Offline Available Data

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Data Access is provided by:

- Locally via NFS
- Files Catalogs accessible via web interface  
<http://pcamss0.cern.ch/perl/rc.o.cgi?queryDB04=Form>

# Offline Available Data

http://pcamss0.cern.ch/cgi-bin/mon/rc.o.cgi?queryDB04=Form

Shop Products Training

Mozilla Firefox Start Page Search

Continue

**Datasets (Data Production)**

data2007  
ANYDATA

Continued

**Find Job : (eg 805306383 or From-To)**

JobID :  Cite : Any

**Find Run : (eg 1073741826 or From-To)**

RunID :

MC  
Data

**Find DST(s) : (eg 1073741826 or From-To)**

RunID : [PutRunNumbers](#)

MC  
Data

**Find DataFile(s) : (eg 1073741826 or From-To)**

RunID : [PutRunNumbers](#)

# Offline Available Data

Search - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://pcamss0.cern.ch/cgi-bin/mon/rc.o.cgi?QPPer=-1&QPart=Any&QPartD=data2010&queryDB04=ContinueD

Fedora Project - Start Page AMS Computing Search

[AMS](#) [Computing](#) [production](#)

## AMS-02 Data Database Query Form

This is an interface to the AMS Production Remote/Client Database.  
All comments (to [vitali.choutko@cern.ch](mailto:vitali.choutko@cern.ch)) appreciated.

- Catalogues are updated nightly.

Datasets	data2010
Template	beam test aug 2010 permanent magnet v5 pass 1
Job Parameters	Trigger Build Number <input type="text" value="0"/>

Output :  Full Listing  Only run numbers;  Only file names;  Summary  ROOT Analysis Filename

ROOT Files @CERN

Access Mode  NFS  NFSONLY  via WebServer  rfi0 CASTOR (Note : files are copied to CASTOR weekly, access via HTTP is slow)

Files Available on Remote Cites (Note : no access from CERN, ask cite's Rep for details):

Cite :  Lyon

Return to [MC02 Query Form](#)

## Offline Software Status

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- TRD OnBoardCalibration OK, Reconstruction OK
- Tracker OnBoardCalibration OK, Reconstruction OK
- TOF/Anti OnBoardCalibration OK, Reconstruction OK
- RICH OnBoardCalibration OK, Reconstruction OK
- ECAL OnBoardCalibration OK, Reconstruction OK
- Offline Slow Control Database Development In Progress

Mean CPU time per cosmic muon event @ X5482 proc = 0.09 sec.