# Some Tools for the AMS Tests [1]

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CERN, April 17, 2008

Available at:
http://ams.cern.ch/AMS/vitali/ams02_anatool_2010a.pdf

[1] Revised August 1st, 2010

# Outline

- AMS Data Flow
- Data Summary Files
  - Format
  - Documentation
  - Access
- Analysis Tools
- Offline Available Data

# AMS Data Flow

- 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

- 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

- 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.
- AMS Root User Guide with complete analysis examples is available at http://ams.cern.ch/AMS/Reports/Analysis/Notes/amsroot.pdf

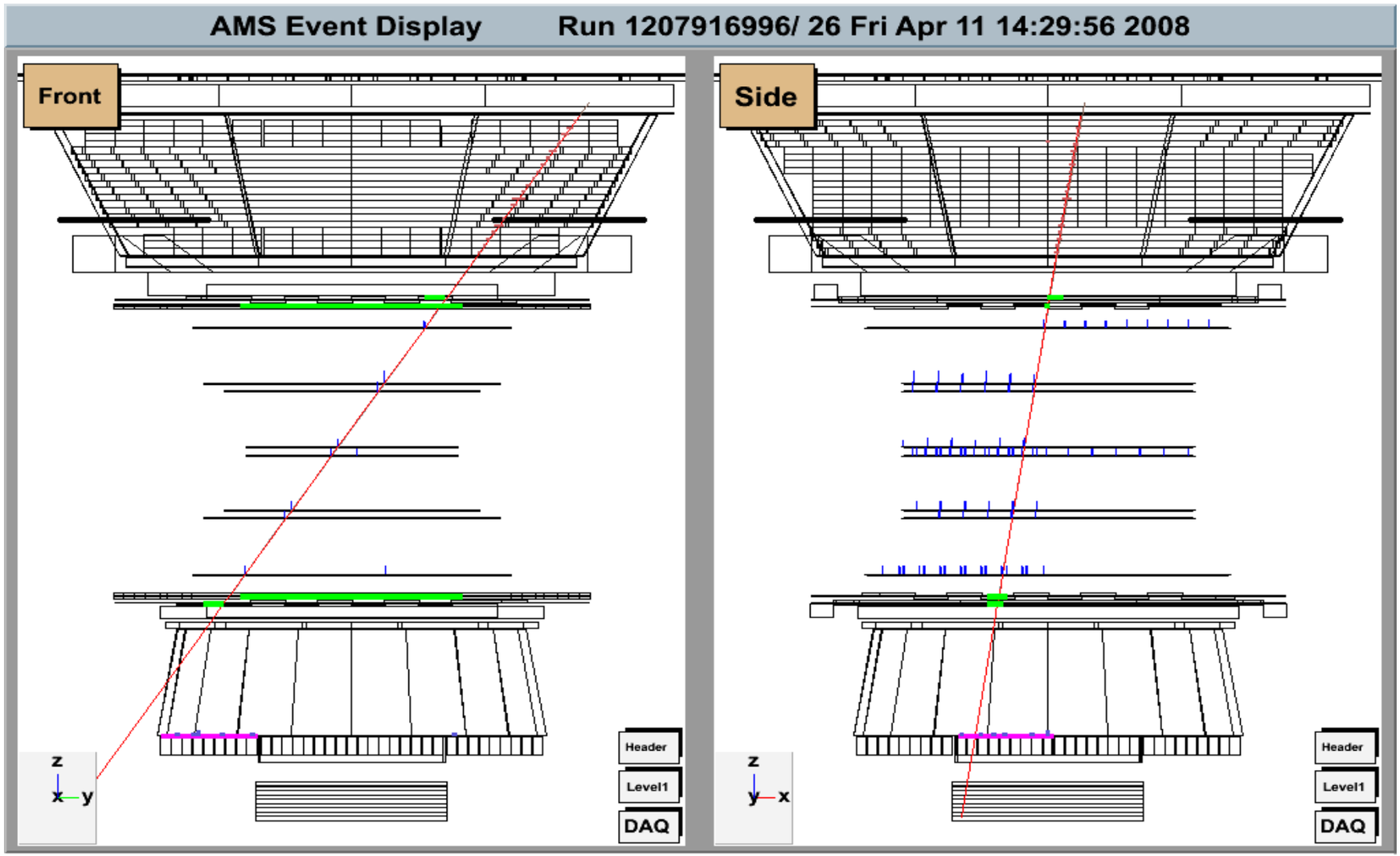
# Analysis Tools: Event Display

Main Features: AMS Objects Browser, Zoom, AutoScan, Pluggable Selection Function

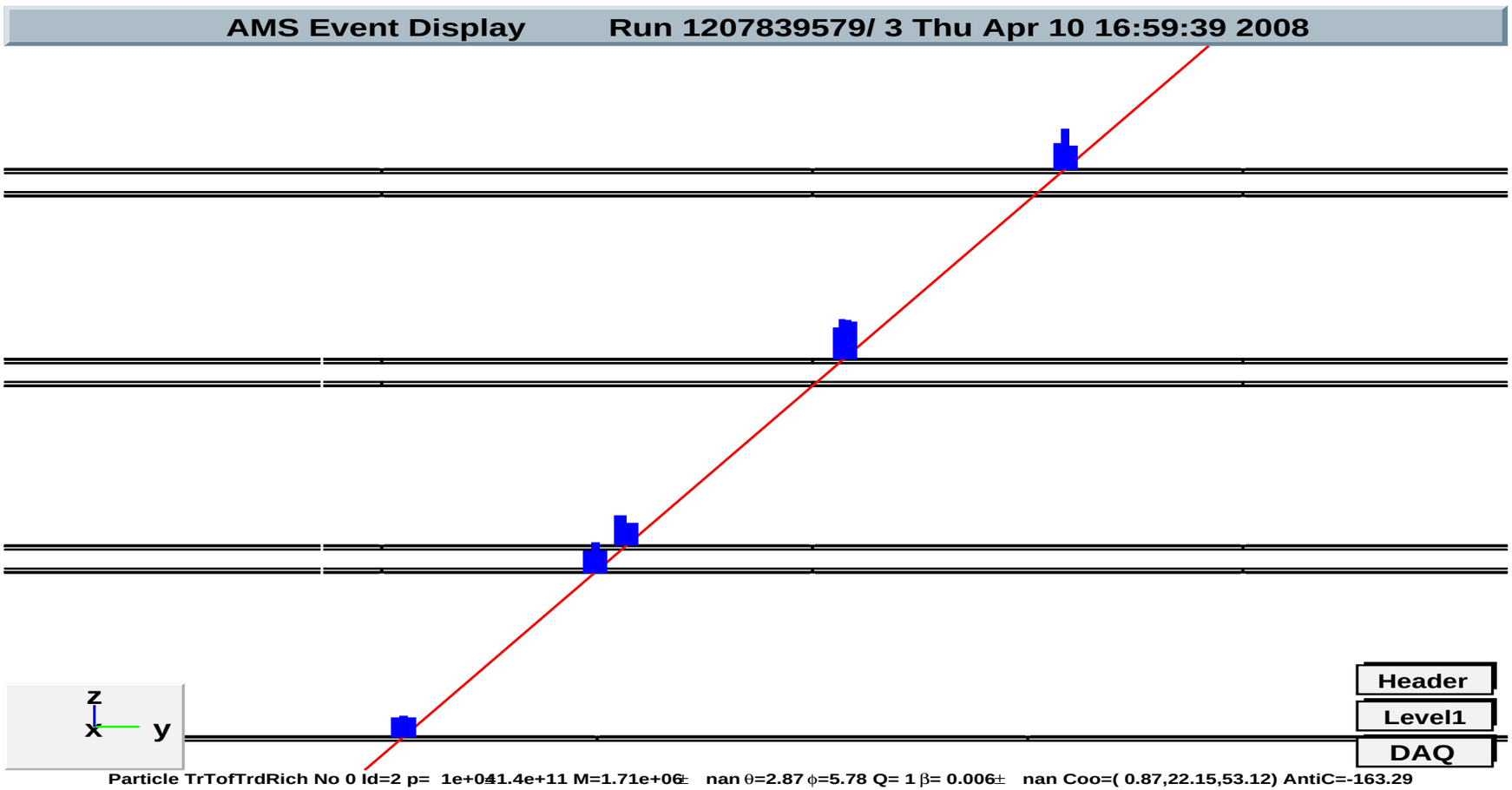
To Start:

```
[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
Exampls of Usage:
./amsedc '/dat0/pcposc0_Data/BLOCKS/ROOT-A/0153/*.root'
./amsedc /dat0/pcposc0_Data/BLOCKS/ROOT-A/0153/001.root
```

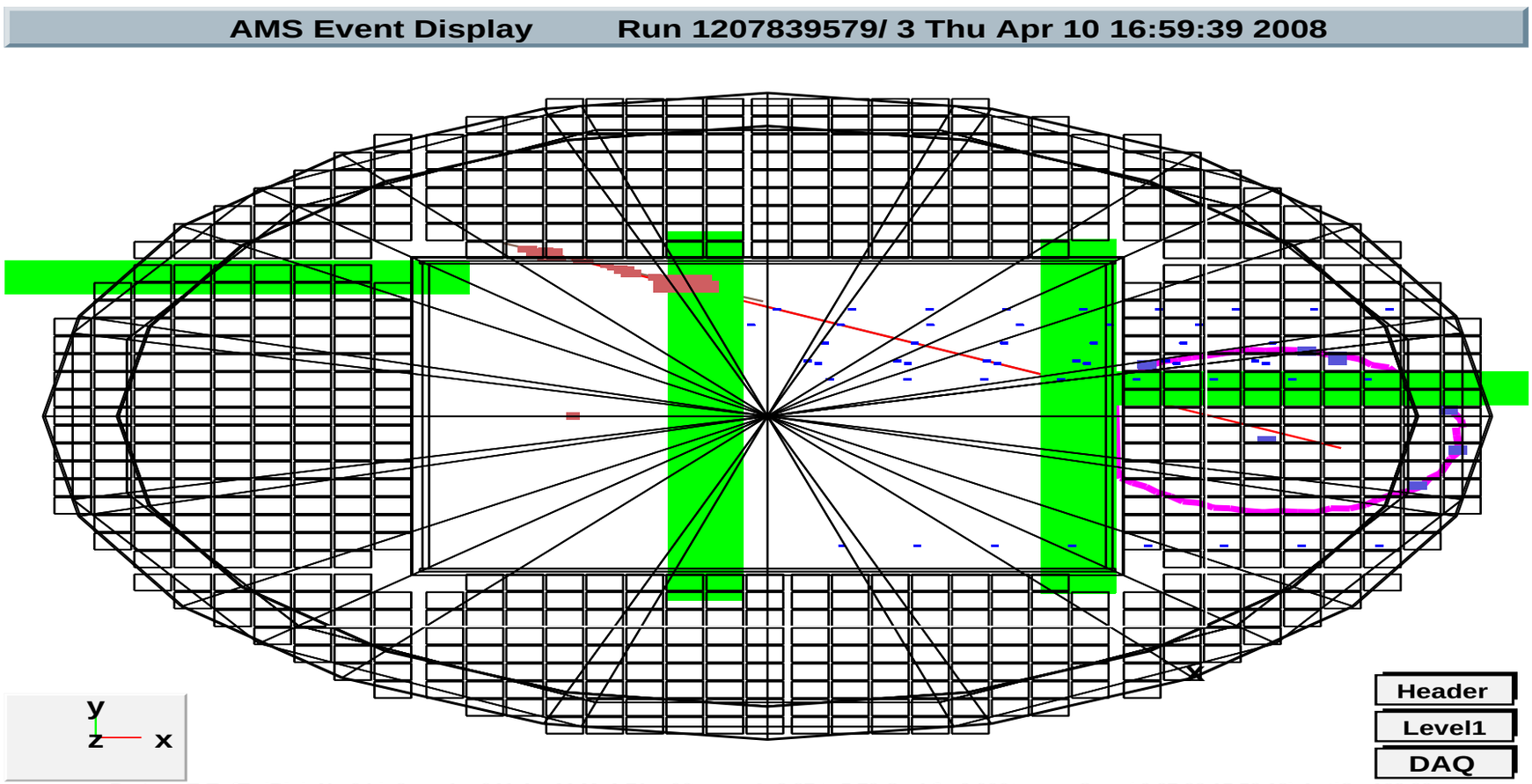
# Analysis Tools: Event Display



# Analysis Tools: Event Display



# Analysis Tools: Event Display



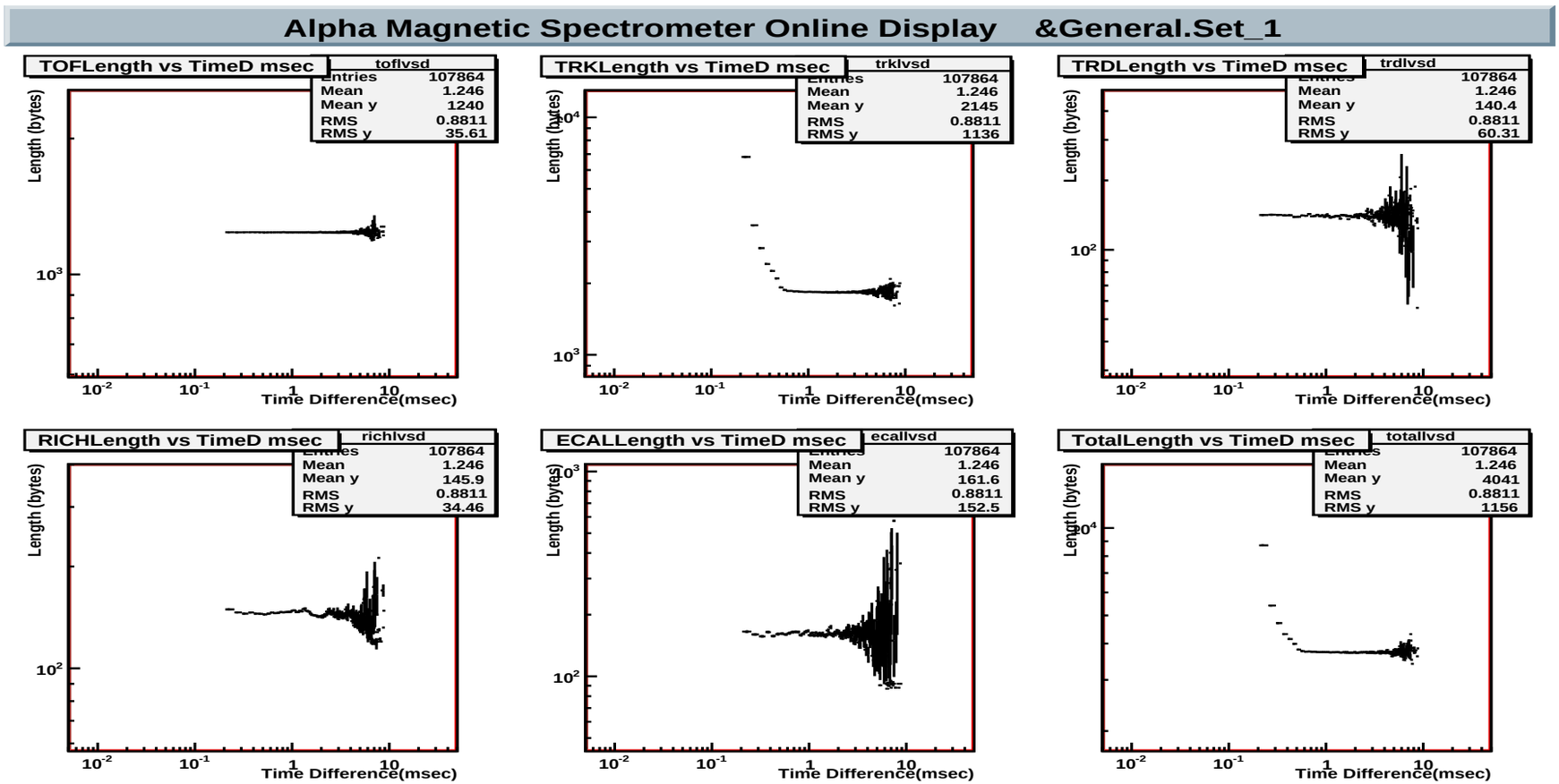
# Analysis Tools: Offline Monitor

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



# Other Analysis Tools

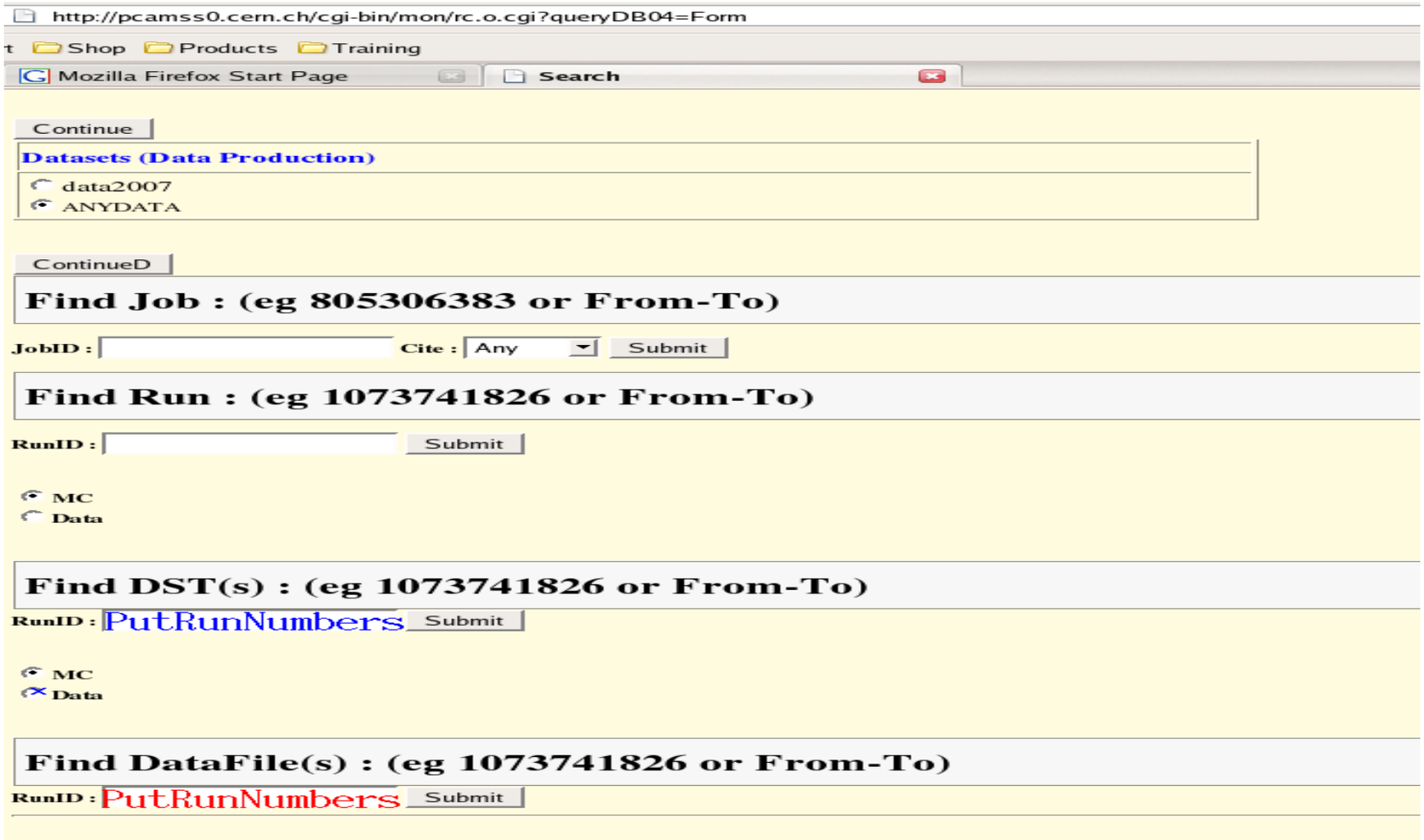
- Root Based Histogram ans Cut Manager http://ams.cern.ch/AMS/Reports/Analysis/Notes/HistoMan.pdf;
- Hbook-like root histogramming package ans Cut Manager http://ams.cern.ch/AMS/vitali/ams02_hm.pdf
- Fast Browser/Visualization tools ams_inspect and JScan;
- Tracking and Unfold libraries

# Offline Available Data

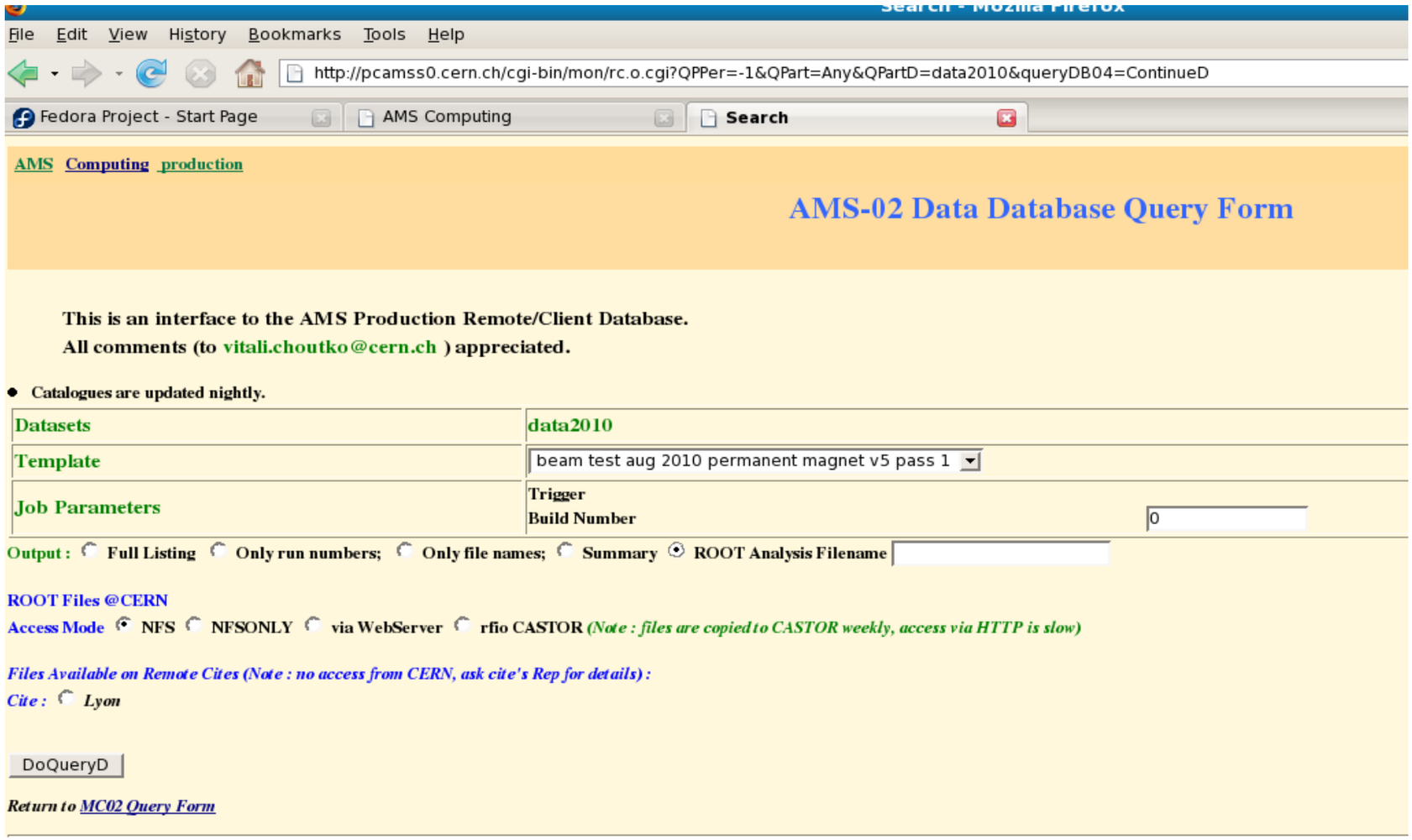
Data Access is provided by:

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

# Offline Available Data



# Offline Available Data



# Offline Software Status

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

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