Status of `hec_adc`

Marseille
October 21th 1999

Current Version

- The current version of `hec_adc` is 3.8
- It has the status of prerelease. It will be finalised when we have a stable digital filtering weight and calibration treatment for 1999 data.

New Monitoring

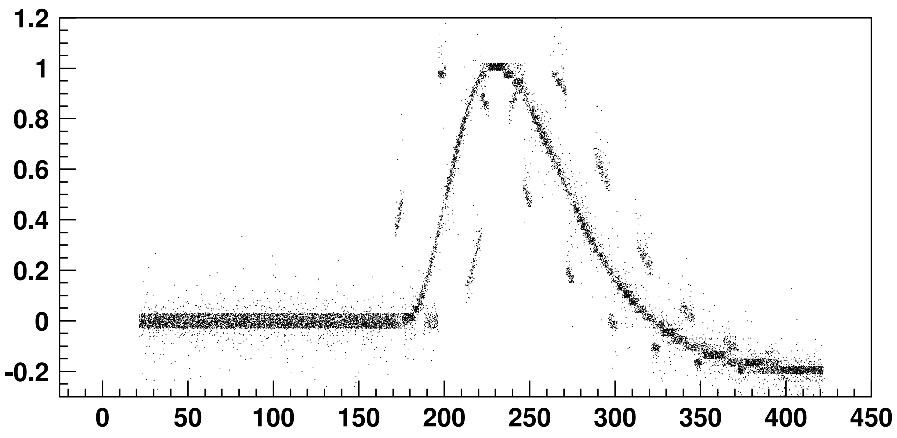
A greatly improved monitoring package was first used this summer.

- The user interface is now PAW, with selection buttons.
- No need for histogram numbers anymore.
- Much easier to maintain.

TDC Wrap-Around Problem

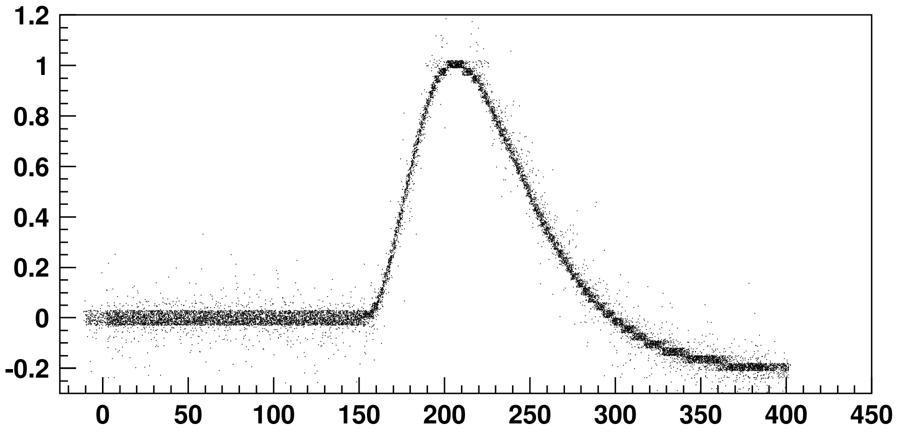
- TDC timing and behaviour much better understood.
- See the note HEC-083.
- TDC wrap-around problem solved in `hec_adc`.
  New TDC treatment:
  - Event treatment depends on the trigger type.
  - New wrap-around-constant (wac) related triggers:
    `trig_wac_c`, `trig_wac_epi` and `trig_wac_mu`.
    (see `\inc\hec_trig.inc` and `\src\hec_trig_evt.f`).

1999/10/15 12.26



sig vs t (ns, raw) : ic = 33 : trig = c or epi : run = 8895

Before
wac correction
Events from triggers
`trig_wac_c` or
`trig_wac_epi`



sig vs t (ns, hec_adc) : ic = 33 : trig = c or epi : run = 8895

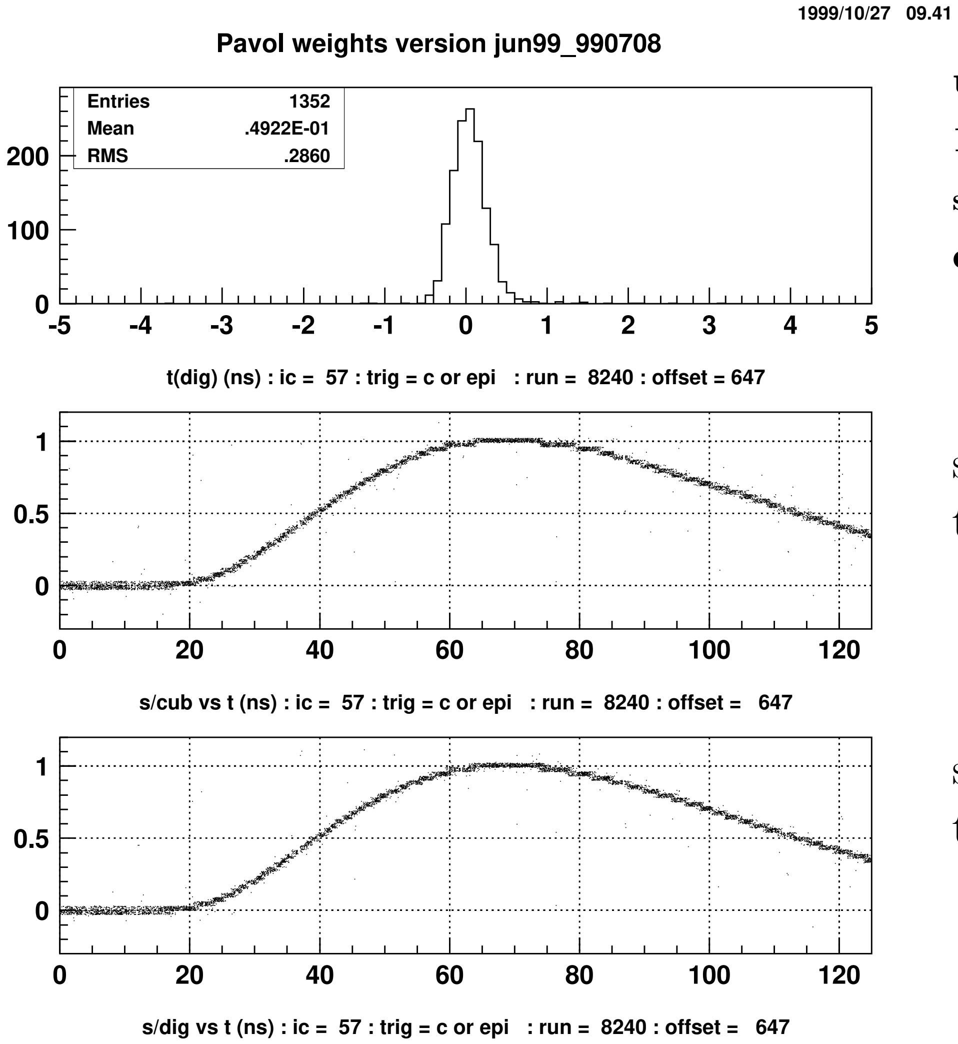
After
wac correction

Digital Filtering Weights

- In principle, to make digital filtering weights one needs:
  - special calibration data
  - a knowledge of the *shape* of beam test data pulses, but NO absolute timing information.
- *After that*, weights can be synchronized to beam test data:
  - `tdc_ns` now $\in$ $[0, 25]$ns. (see `\src\hec_tdc_ini.f` and `\src\hec_tdc_evt.f`).
  - using one global tdc offset, tuned for a given cell.
  - using time shifts for each cells, or each depth (not yet implemented).

Pavol's Digital Filtering Weights

- `dig_weights_*_jun99_990708.dat` for June 1999 data



use run 8240
100 GeV e^+
synchronised on
cell 57

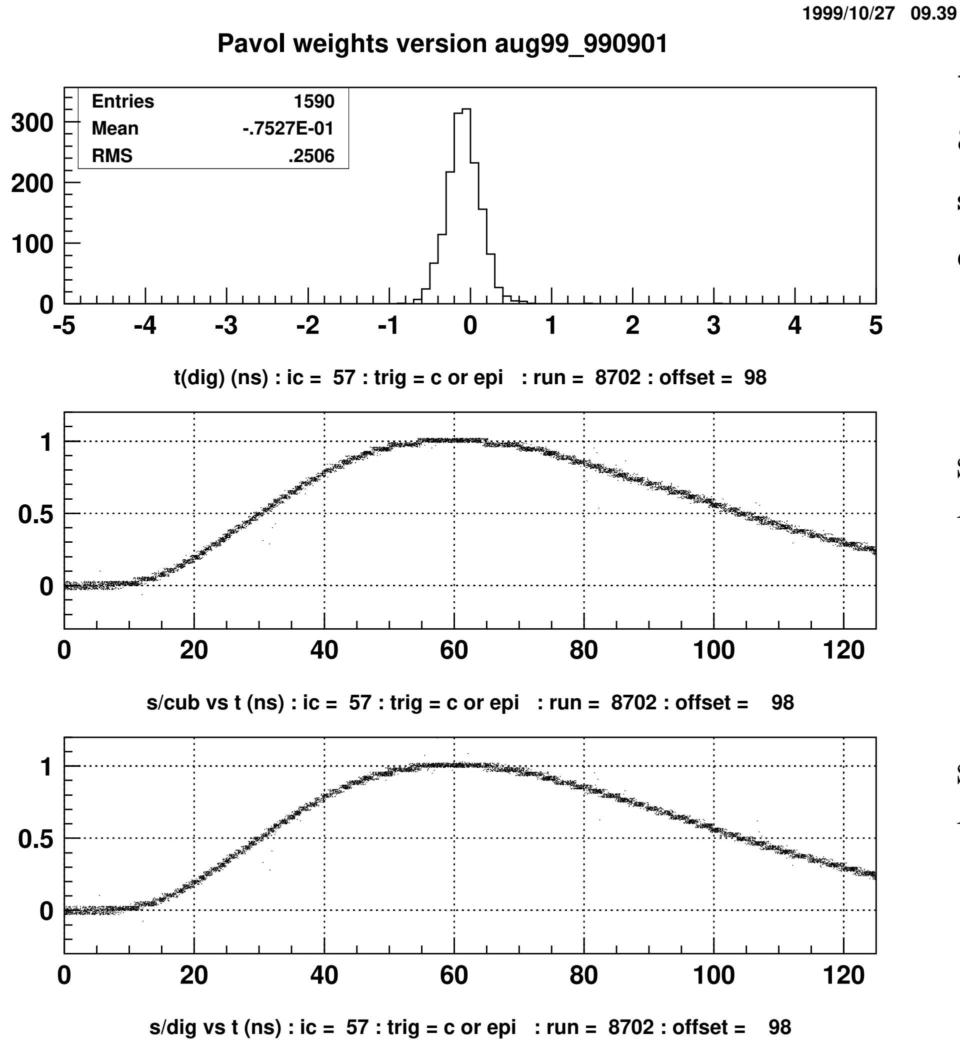
signal normalised to **cubic fit max**

signal normalised to **filtering max**

This is the actual part of the pulse used by the digital filtering package

Pavol's Digital Filtering Weights

- `dig_weights_*_aug99_990901.dat` for August 1999 data



use run 8702

80 GeV e$^+$

synchronised on

cell 57

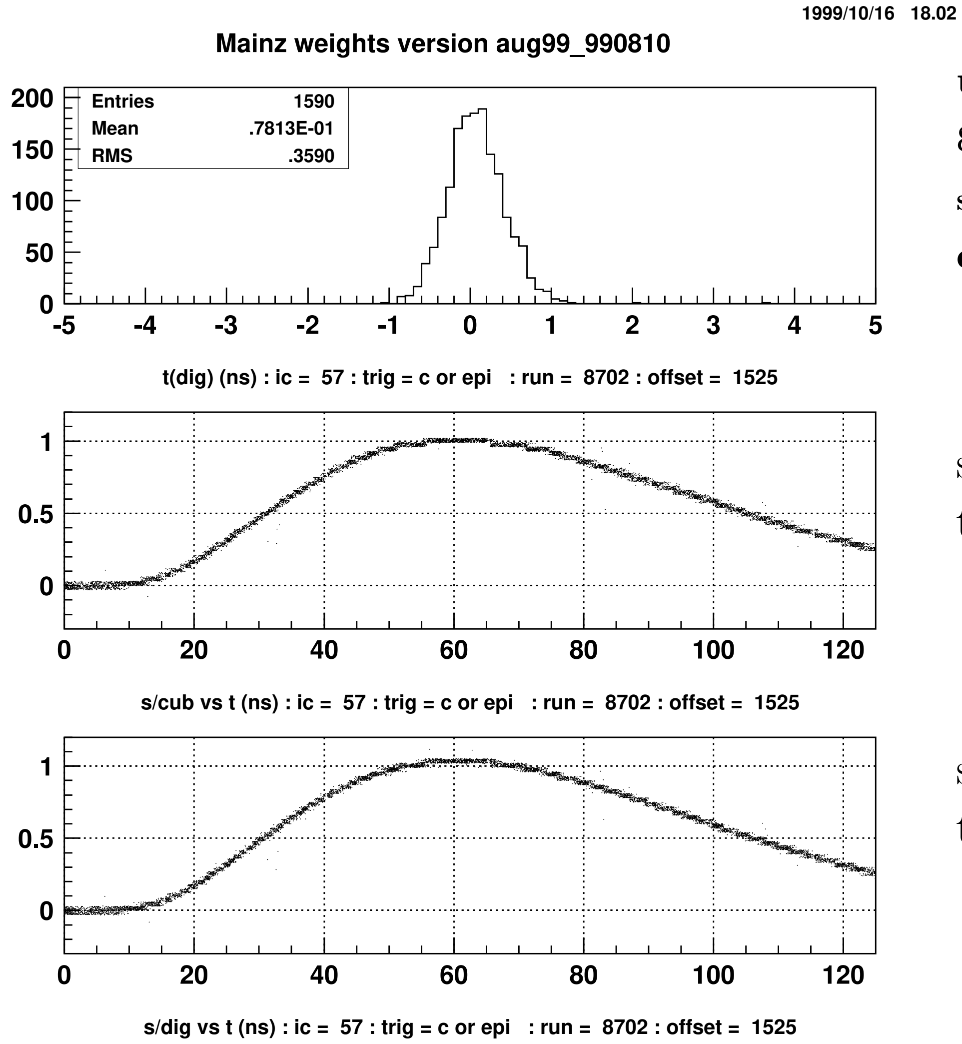
signal normalised to **cubic fit max**

signal normalised to **filtering max**

This is the actual part of the pulse used by the digital filtering package

Mainz's Digital Filtering Weights

- `dig_weights_*_aug99_990810.dat` for August 1999 data



use run 8702

80 GeV e^+

synchronised on

cell 57

signal normalised to **cubic fit max**

signal normalised to **filtering max**

This is the actual part of the pulse used by the digital filtering package

Timing Considerations

- There is a 1ns timing problem remaining for the last runs in August 1999, discovered looking at 193 GeV e^+ data.
  - Cannot be attributed to the wac treatment
  - May not have visible effect on analysis...
- There are timing differences between cells, even in the same depth
  - e.g. run 8895, cell 33, time = 1.5 ns
  - Need to investigate further?

HPSS Data Storage

- We have successfully used HPSS
- Only one copy of each run file was initially done due to the old version of HPUX on atlhp-h6
- A second copy has now been made
- It looks like we will be able to secure two copies of each run file in the future, even with the old HPUX

Still to be done

- for version 3.8:
  - Futher timing corrections? For each depth? For each cell?
  - Look at the effect of calibration (ADC to nA)
- for next version:
  - Update the monitoring package.
  - Unpack the time-of-day event and run information.
  - Treat the slow control block.
  - Improve the “bad cells” treatment.
  - Improve the Linux *.make files