TOF DAs and PREPROCESSOR STATUS

TOF DAs

- Three **DAQ-DA**s implemented, deployed, validated, and tested:
  - **TOFda**
  - **TOFnoiseda**
  - **TOFpulserda**
- One "sort of" **DCS-DA** implemented, deployed, and tested.

TOF DAQ-DAs - I

- **TOFda**
  - Ready and validated in DAQ since April 2007
  - Meant to run during **PHYSICS** runs
  - Meant to run on monitoring machines at the end of run
  - Meant to collect raw data from both TOF and T0

    → 2D histogram (TH2S)

    → Both Run-Level and cumulative histogram stored in FXS

    from which to compute calibration parameters
  - Ran during the Feb cosmic exercise...
  - ...but with no reliable calibration data
  - Reading from DAQ Configuration DB may be added

TOF DAQ-DAs - II

- **TOFnoiseda**
  - Ready and validated in DAQ since December 2007
  - Meant to run during **NOISE** runs
  - Meant to run on LDCs
  - Meant to collect raw data from TOF (12 DDL per LDC)

    → 1D histogram (TH1F)

    → output histogram stored in FXS

    to find TOF noisy channels
  - Tested during the Feb cosmic exercise...
  - ...but not really used: no NOISE runs were taken

TOF DAQ-DAs - III

- **TOFpulserda**
  - Ready and validated in DAQ since December 2007
  - Meant to run during **PULSER** runs
  - Meant to run on LDCs
  - Meant to collect raw data from TOF (12 DDL per LDC)

    → 1D histogram (TH1S)

    → output histogram stored in FXS

    to find TOF dead channels
  - Tested during the Feb cosmic exercise...
  - ...but not really used: no PULSER runs were taken

TOF DCS-DA

- More than a DA, it is a process that copies the TOF Front End Electronics (FEE) configuration in the DCS FXS → **TofFeeMap**
  - Ready since end of March 2008
  - Meant to run during **PHYSICS/NOISE/PULSER** runs
  - Meant to provide a snapshot of the TOF configuration
  - Not tested during the Feb cosmic exercise...
  - ...but tested within the DCS infrascture, and validated by the SHUTTLE

TOF DCS DPs

- Considerable **reduction** of the number of retrieved DP (well, considerable is probably not the proper way of saying....): from 10512 to 360 – only high voltages kept.

- Still missing: implementation in reconstruction of the use of the information coming out of these → DPs processing output still kept in Reference folder; to be moved to **OCDB**.

TOF Preprocessor Members – I

- AliTOFPreprocessor main functions:
  - AliTOFPreprocessor::ProcessDCSDataPoints():
    - processing of DCS DPs;
    - called only in PHYSICS runs;
  - AliTOFPreprocessor::ProcessOnlineDelays():
    - processing of the TOFda output → TOF channel delays
    - called only in PHYSICS runs;
    - validity = [0, AliCDBRunRange::Infinity()]
  - AliTOFPreprocessor::ProcessNoiseData():
    - processing of the TOFnoiseda output → TOF noisy channels map
    - called only in NOISE runs;
    - updating existing OCDB entry;
    - validity = [0, AliCDBRunRange::Infinity()]

TOF Preprocessor Members – II

- AliTOFPreprocessor::ProcessPulserData():
  - processing of the TOFpulserda output → TOF dead channels map
  - called only in PULSER runs;
  - updating existing OCDB entry;
  - validity = [current run, AliCDB::Infinity]
- AliTOFPreprocessor::ProcessFEEData():
  - processing of the TofFeeMap (from DCS FXS);
  - called every run:
    - PHYSICS runs: preventing computation of delay for channels that are off
    - PULSER/NOISE runs: preventing updating of channels that are off
  - updating existing OCDB entry;
  - validity = [0, AliCDBRunRange::Infinity()]

TOF Online Calibration - Reconstruction

- Calibration constants calculated during PHYSICS runs, then applied in reconstruction till Offline Calibration takes over (see C. Zampolli's talk at Oct 2007 Offline Week)
- Waiting for offline calibration, TOF **reconstruction** always look for four OCDB objects (AliTOFClusterFinder::CalibrateRecPoints()):
  - FEE status (AliTOFChannelOnlineStatus)
  - Pulser status (AliTOFChannelOnlineStatus)
  - Noise status (AliTOFChannelOnlineStatus)
  - Channel Delay (AliTOFChannelOnline)

TOF Online Calibration – Planned Redesign

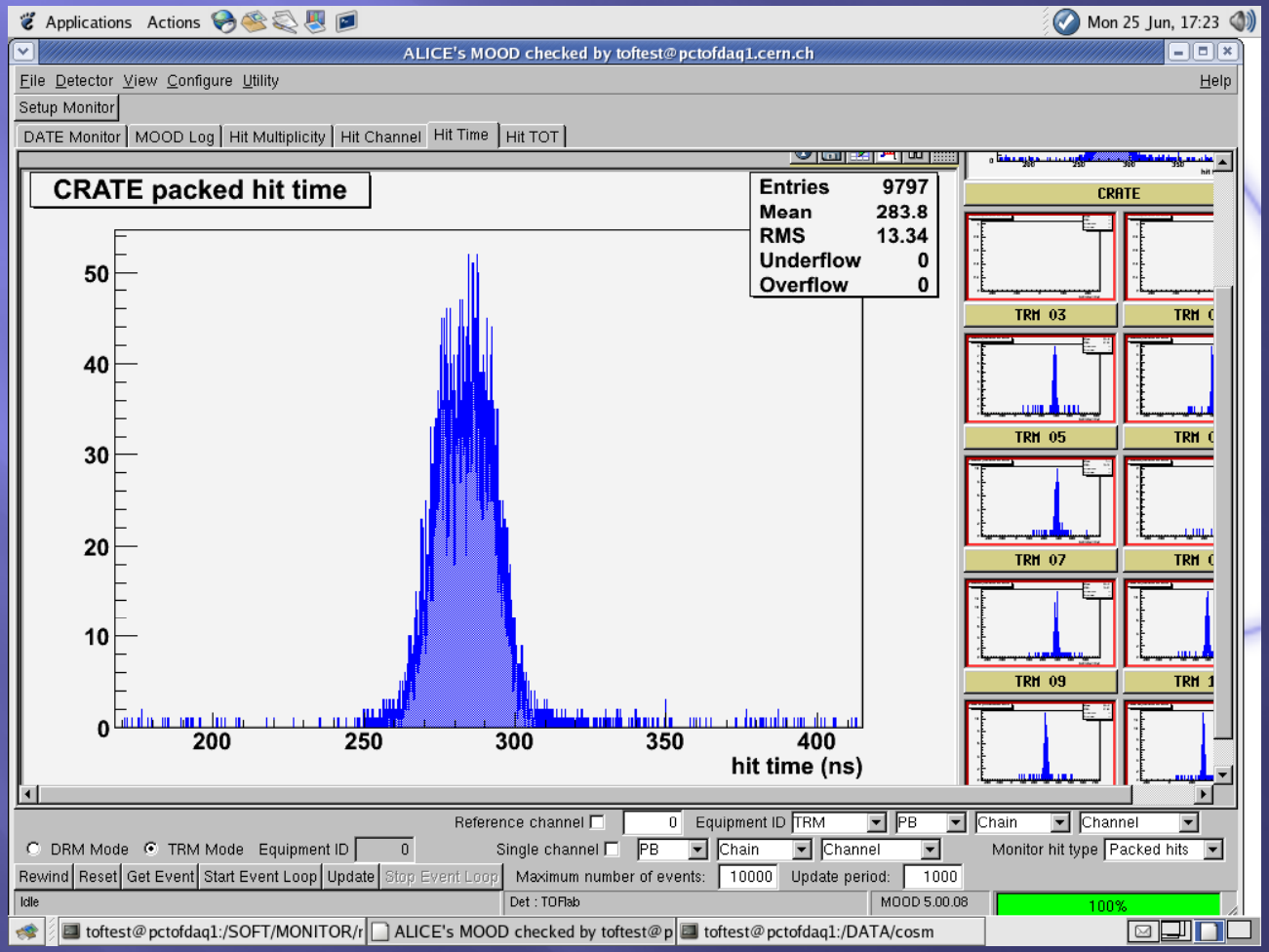
- **Merge** into one single char the three status (FEE, Noise, Pulser), thanks to the access to the OCDB from the Shuttle;
- Change the internal structure of the calibration status object being, for historical reason a TObjArray containing AliTOFChannelOnlineStatus, with a char member each → should become an **object (inheriting from TObject) containing an array of chars**
  - *Loss of backward compatibility,* But still TOF calibration objects from cosmics do not have any sense (no reasonable TOFs)
  - *Overload avoided.*

TOF Offline Calibration

- On-the-Flight offline calibration splitted into ***two steps***:
  - **TTask** (post-reconstruction process, running over ***ESDs***):
    - Filling a tree:
      - one entry/TOF channel;
      - Each entry being a 1D array with the necessary information to perform calibration: ***measured time of flight, time over threshold, expected times***;
    - Running at the EOR;
    - Writing the tree into AliEn (as reference data) → don't need CDB access
  - **Job/Macro**:
    - Chaining the trees so far created over many runs
    - Running the calibration process
    - Writing the calibration parameters on the CDB

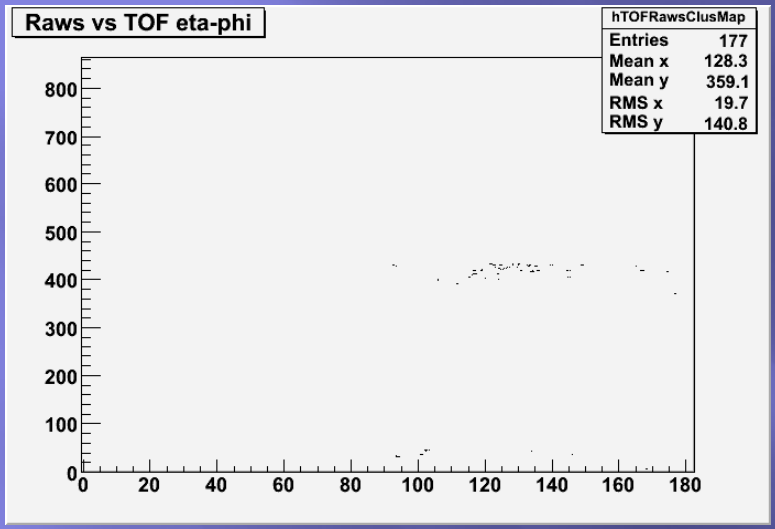
TOF Monitoring

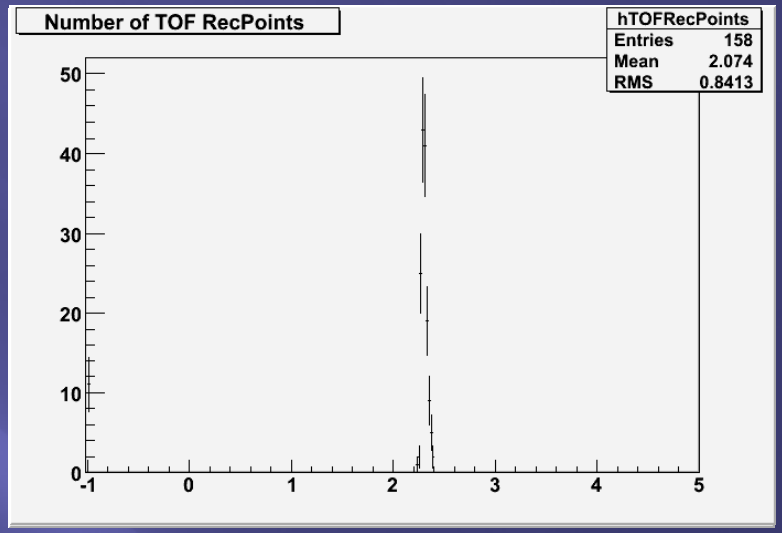
- Monitoring performed both with **MOOD** and **AMORE** (R. Preghenella).

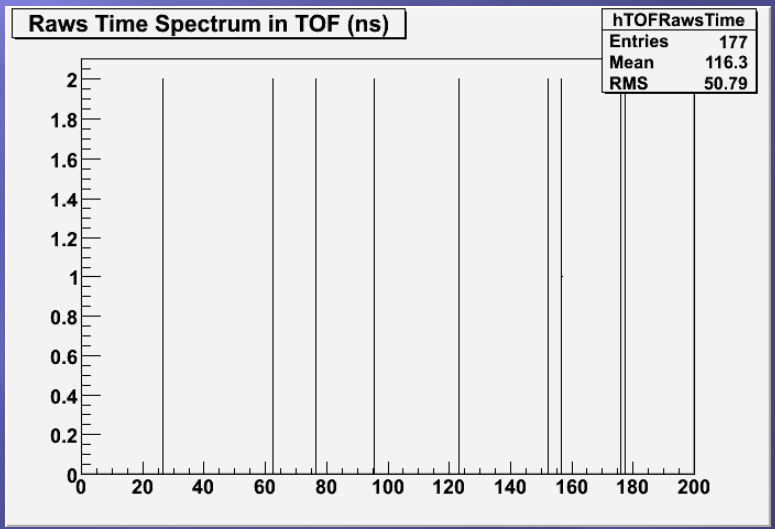


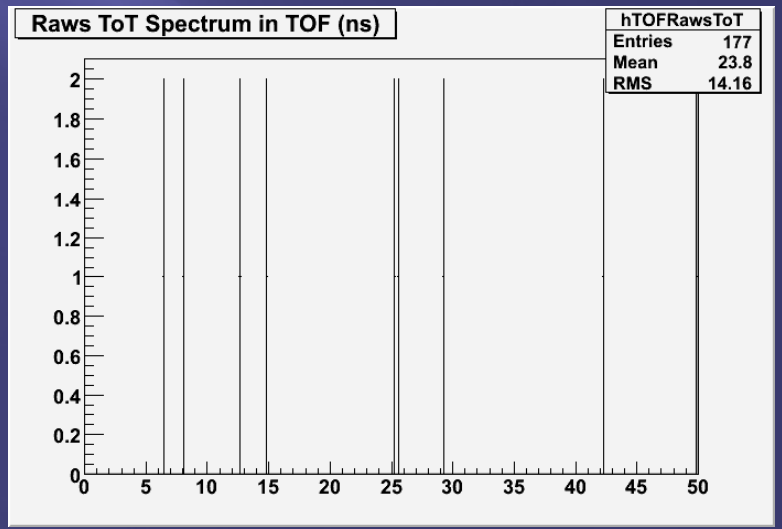
MOOD snapshot

TOF QA histograms









TOF Online QA

- Uses AMORE, integrated with the AliRoot TOF QA classes;
- December problems with publication of “big” histogram solved;
- Reference data not need so far, even if some check may be added when real data will come;

TOF Preprocessor & FDR – Conclusions

- TOF Preprocessor ran successfully during the Feb/March '08 exercise;
- Since data were not reliable for calibration, computing of delays was skipped:
  - Dedicate flag introduced
    - Artificial
    - To be removed for real data taking
  - If a "cosmic" beam type will be introduced in the DAQ logbook, then everything will be fine.
- Integration with DAQ & DCS system fully achieved
- Still some redisign is needed in view of the next data taking