

# Some preliminary results of BCM1F scalers and status of the system

CMS DESY Group

25th January 2010

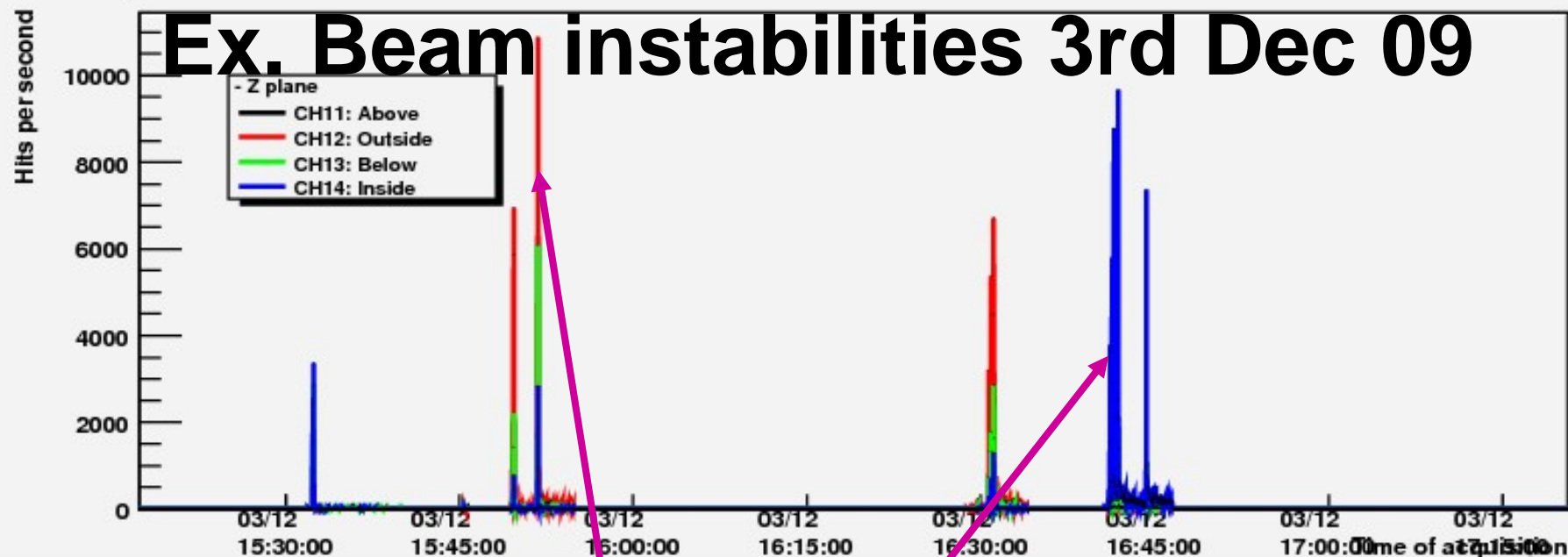
DESY Zeuthen Group

# Scalars data analysis observations

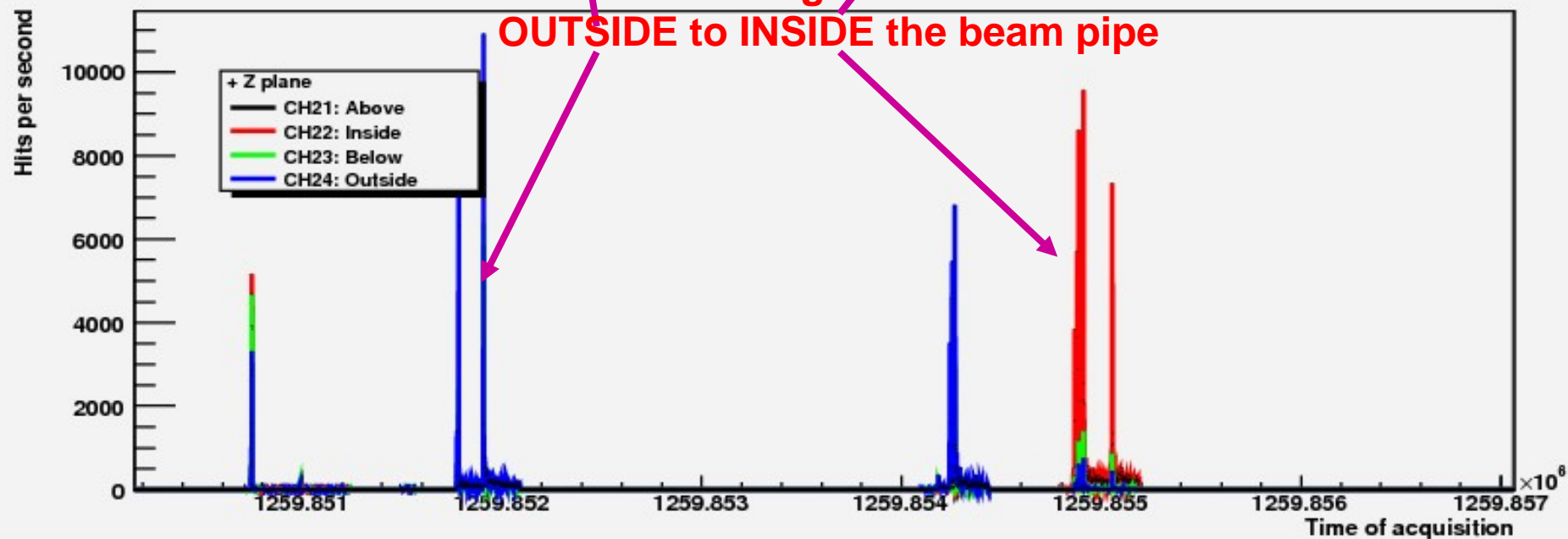
- Clear detection of beam and beam instabilities
  - Ex 23rd Nov and 3rd Dec
- Some not well understood signals (in diamond detectors and orbits)
- Data files corrupted with: missing UNIX time stamps, repeated time stamps, „incorrect“ time stamps (ex. Time stamps higher or lower than DAQ time)

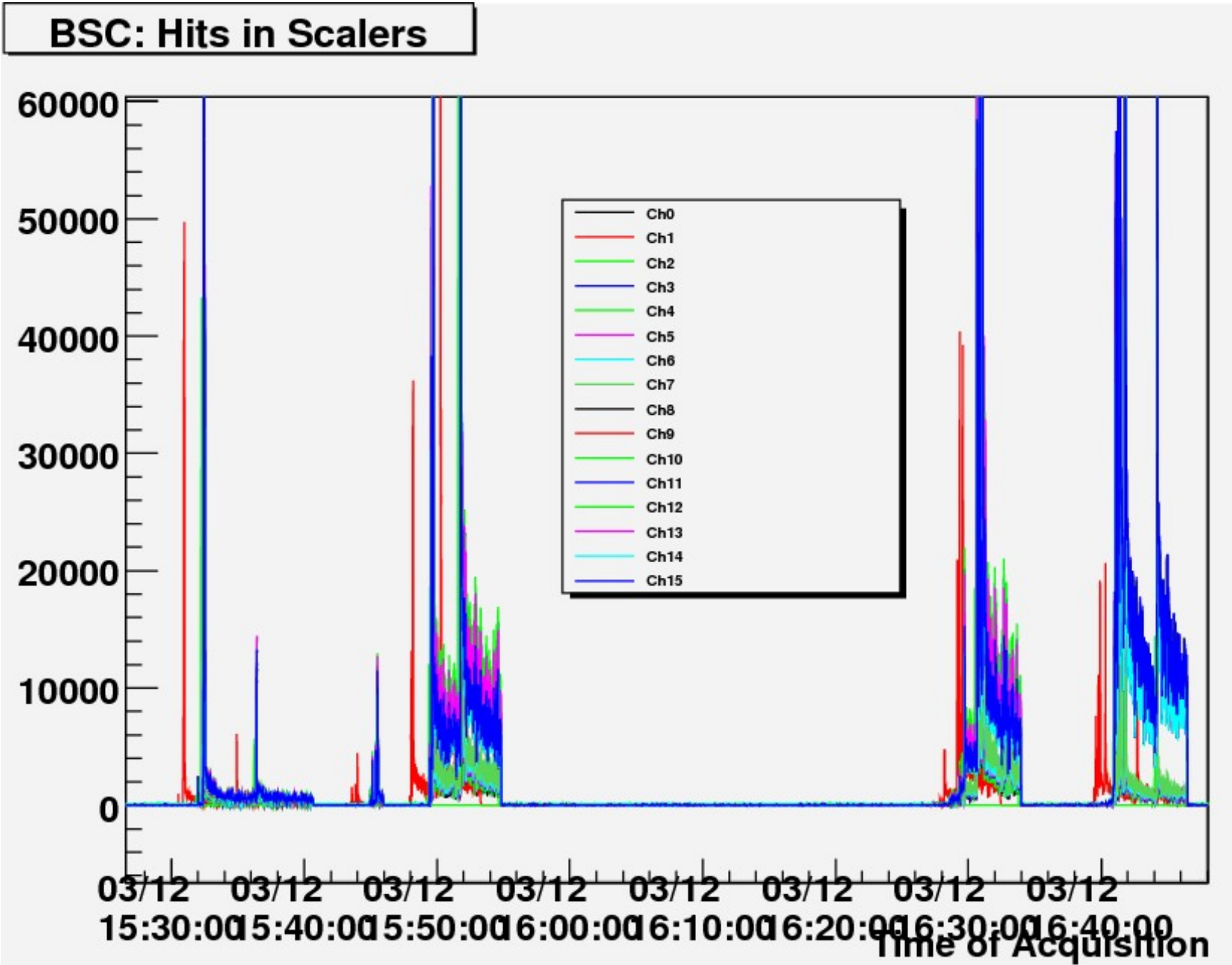
-Z plane

# Ex. Beam instabilities 3rd Dec 09



+Z plane



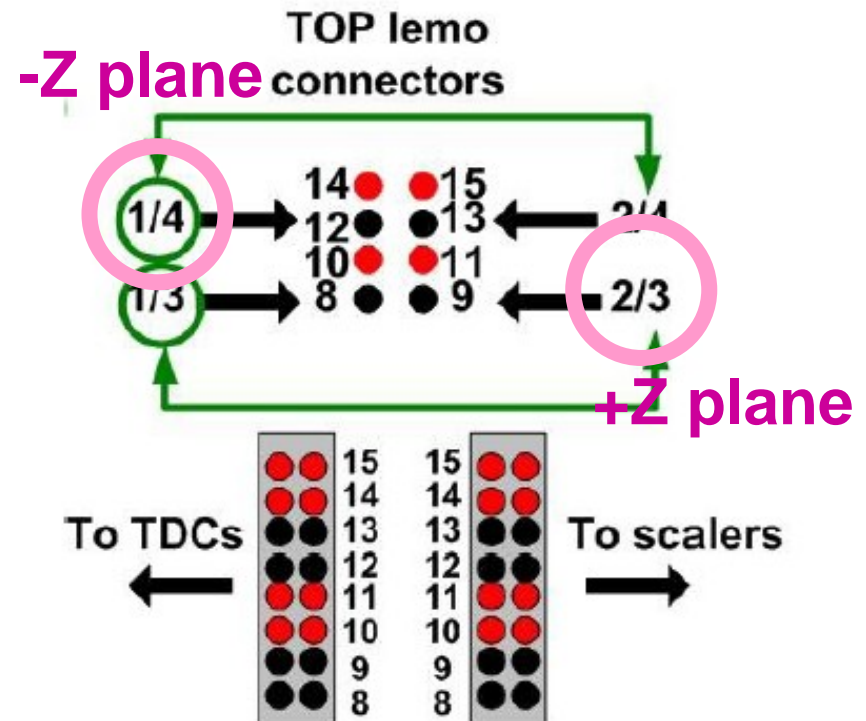


# Study of source of signals that give extra count rates in scalars and TDCs

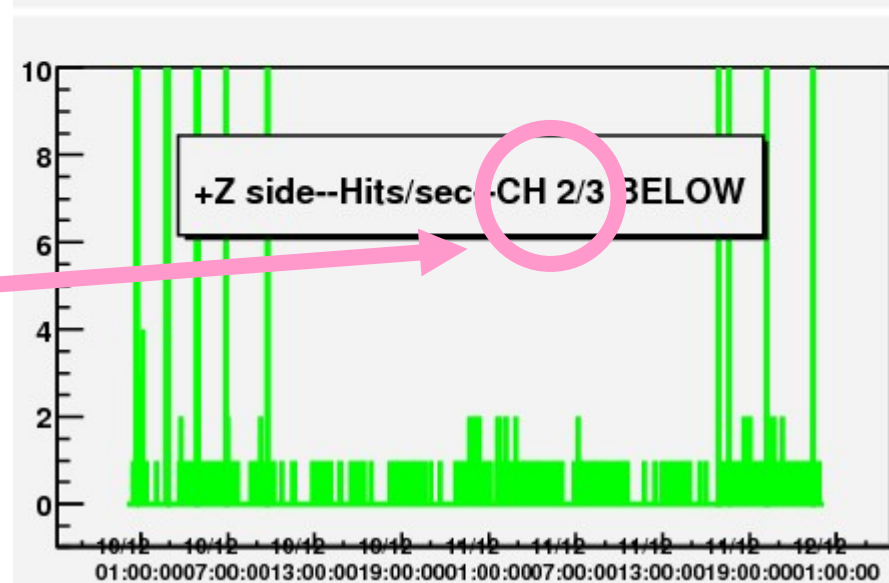
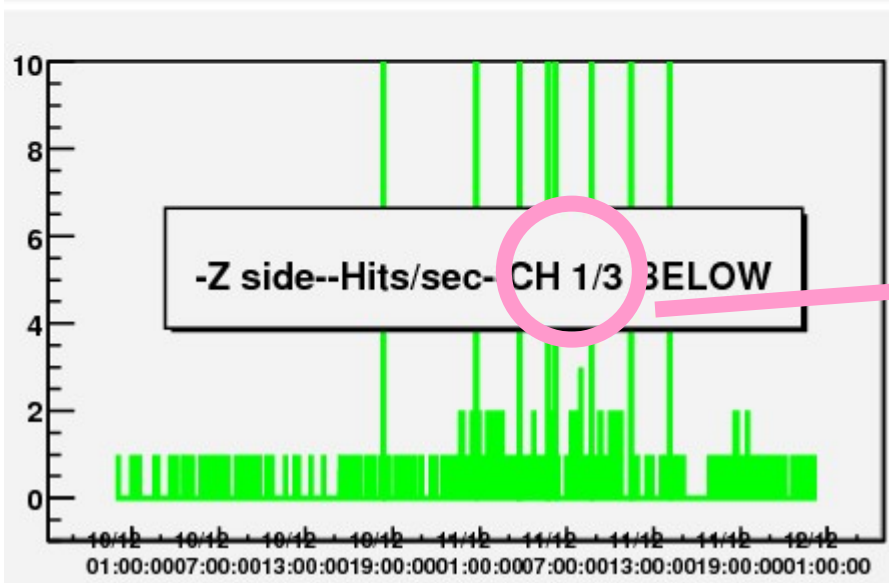
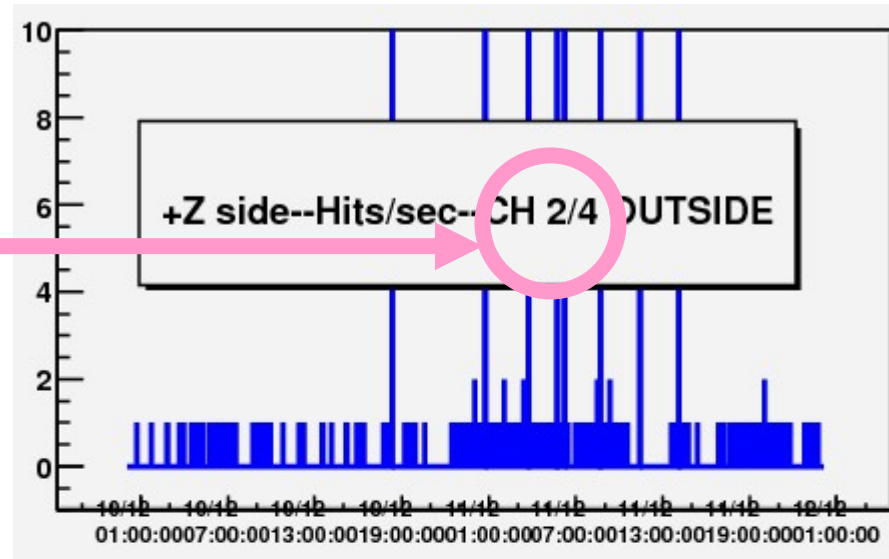
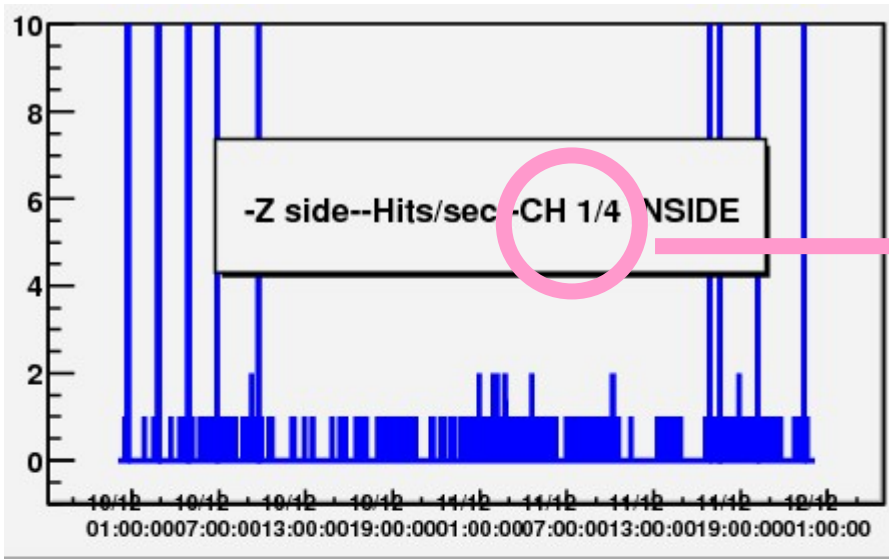
Analysis of data of TDCs and scalars shows 2 channels in +Z and -Z planes that give (from time to time) extra count rates at regular intervals.

In order to find out if pattern comes from discriminator (common source of TDCs and scalars) we swapped cables.

Swap of cables in discriminator

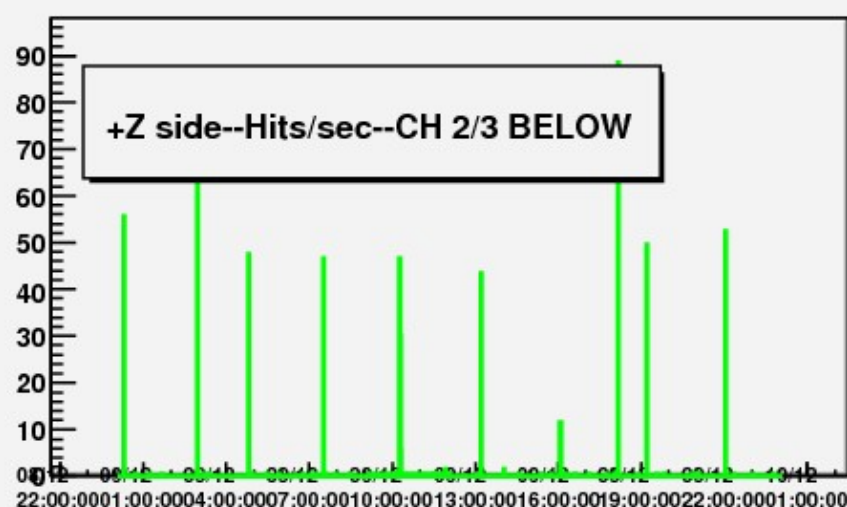
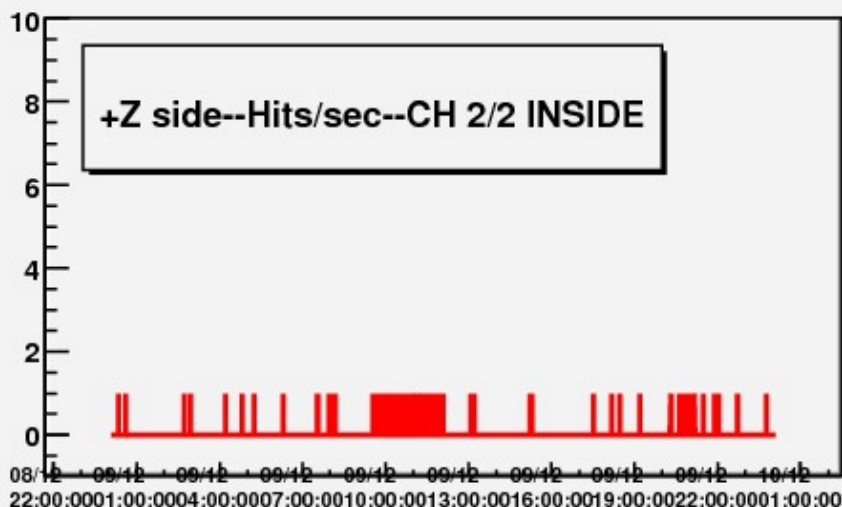
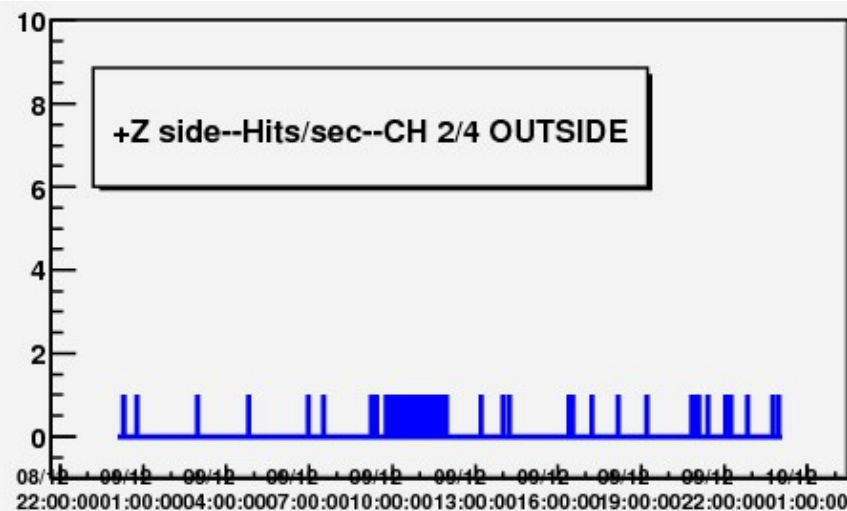
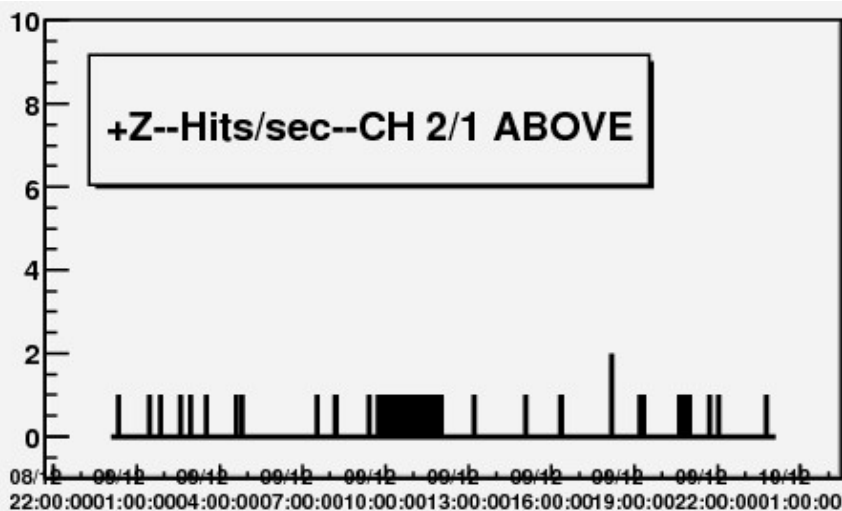


The „noisy“ channel in discriminator changes → The cable carries the „noisy“ signal

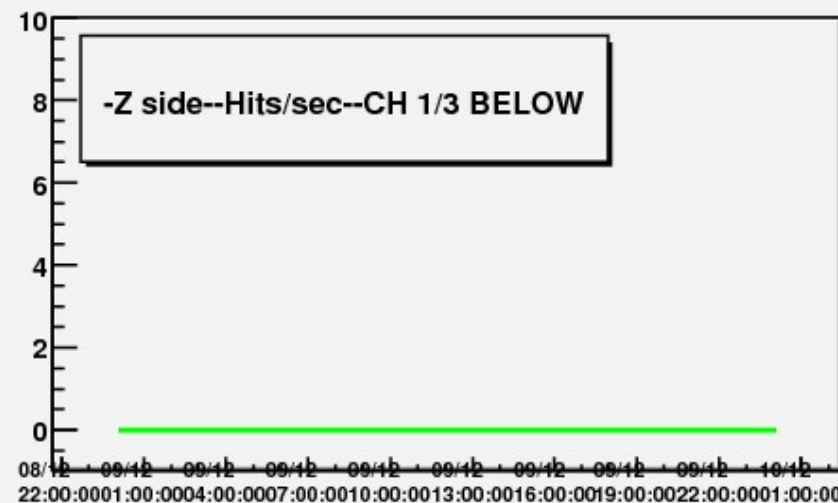
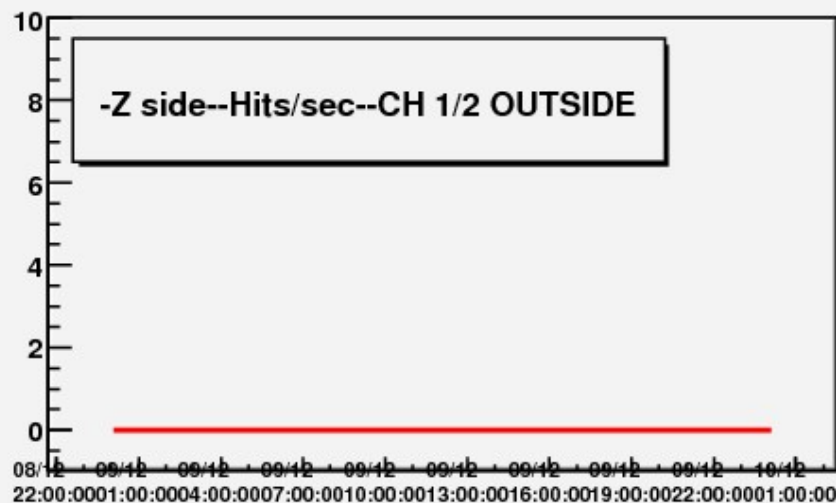
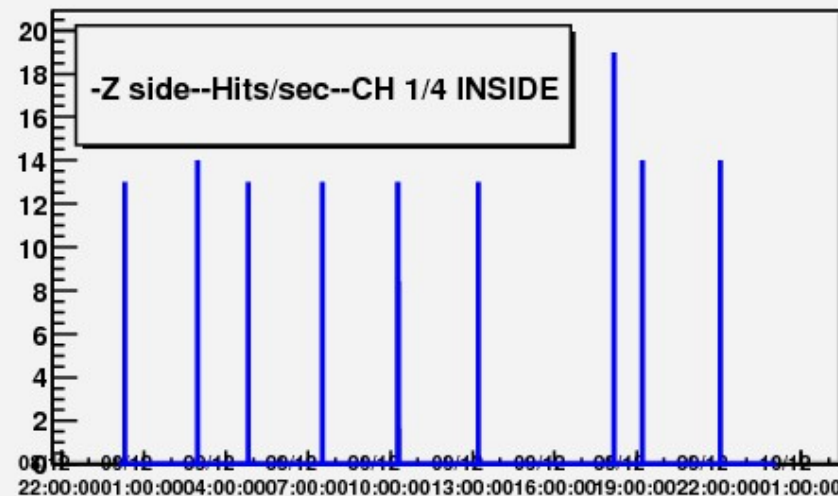
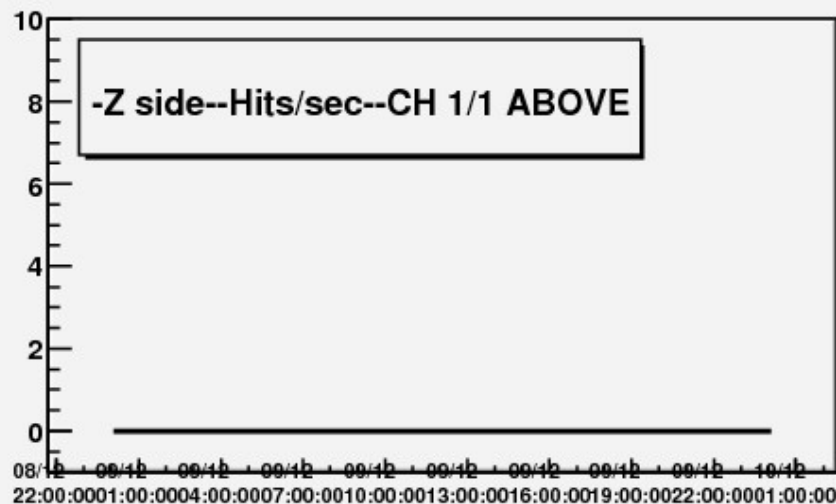


# But, what happens in the rest of channels??

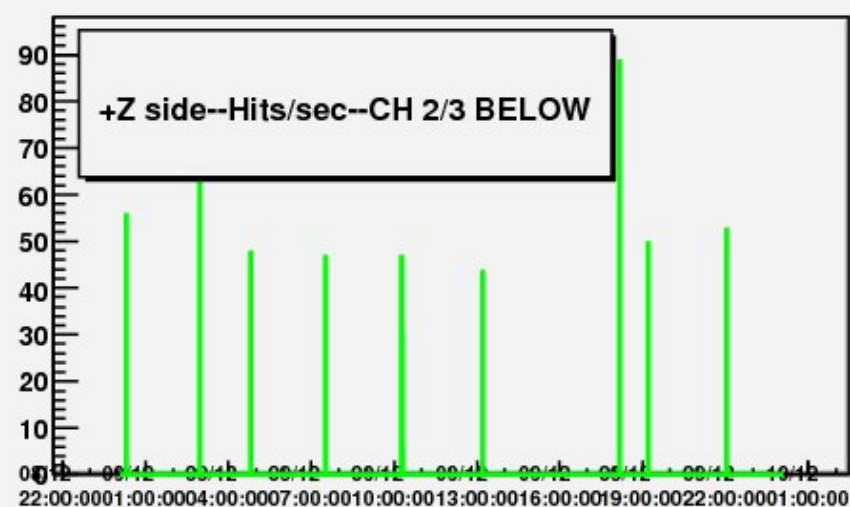
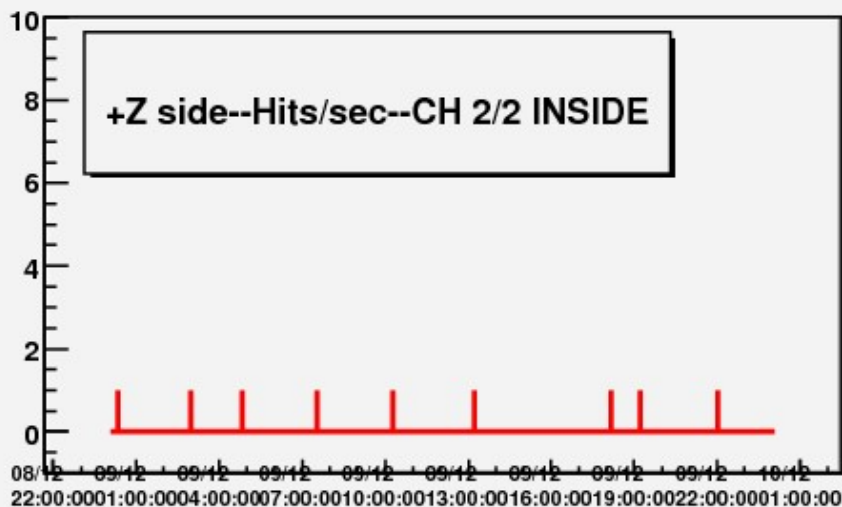
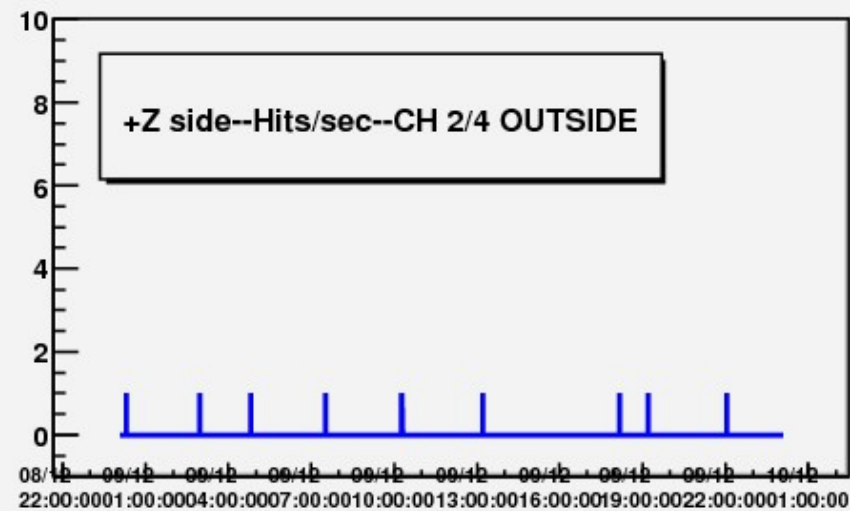
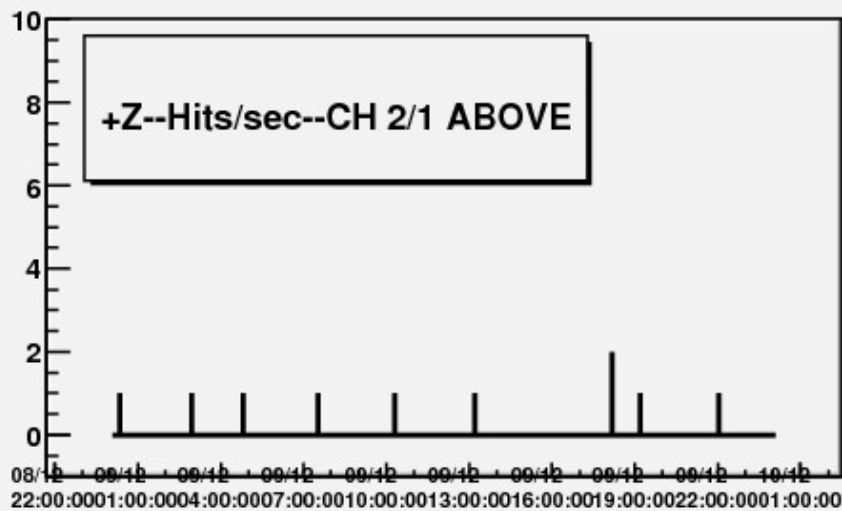
## Example: 8 dec 09: all data in +Z plane



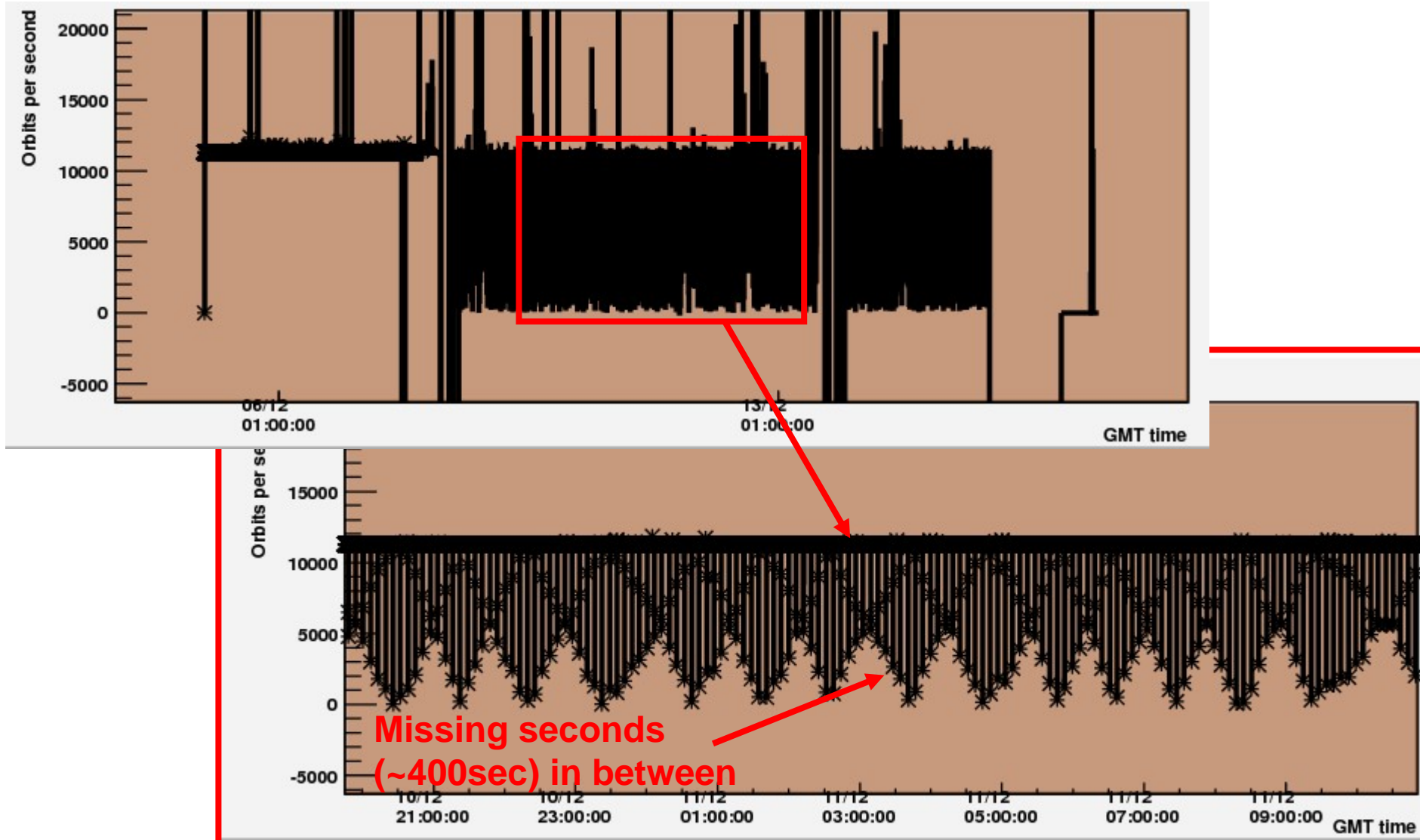
# -Z plane: no „crosstalk“ with other channels



# +Z plane: „crosstalk“ with other channels



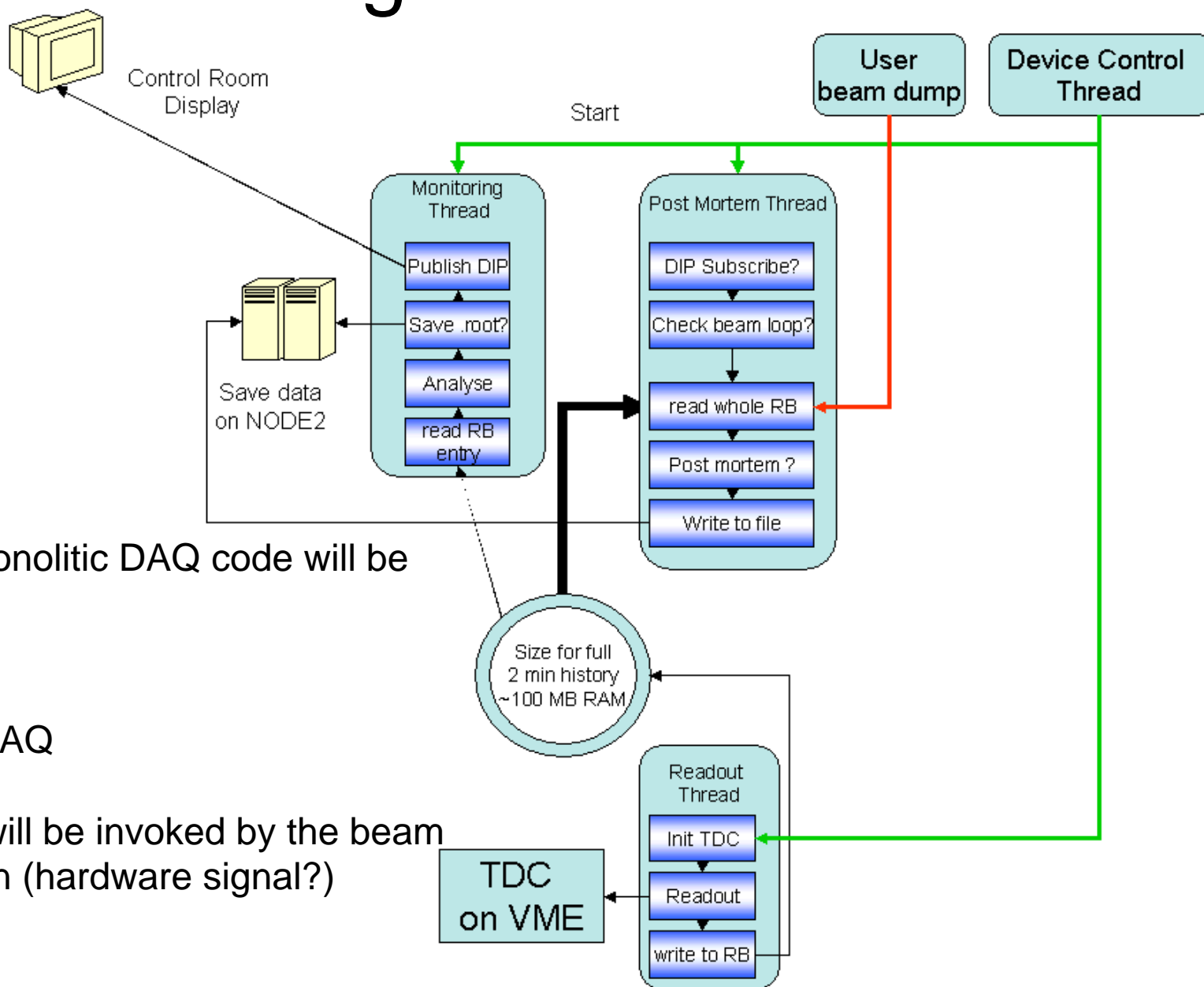
# Orbit triggers in the scalars



# Status of BCM1F

- VETO module was installed on 16th December. With LHC restart we will check if it's working properly.
- New cabling mapping in VME crate. BRM people will be informed about changes (document to be done)
- DESY Zeuthen is working in the implementation of a Ring Buffer in the DAQ for being exported to CERN. Main advantages: will supply the Post Mortem data after beam abort.

# Ring Buffer



The current monolithic DAQ code will be splitted in

- \* DAQ
  - \*data analysis
- to speed up DAQ

Post Mortem will be invoked by the beam dump condition (hardware signal?)