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TileCosmicsAnalysisPre2009

This page intends to collect all information important for reconstruction and analysis of Tile data in cosmic runs.

Useful links:

- Tile cosmic analysis up to M3
- Tile cosmic guide from LArg
- Tile Muon Fitter
- Combined reconstruction page
- LArg cosmic muon amalysis page

Reconstruction in Athena

All the ntuples with useful data are normally reconstructed and stored on CASTOR immediately after data taking. But if you want to run reconstruction yourself or to play with event display, follow the instructions given at TileStandaloneReconstruction page. For Atlas.Atlantis reconstruction details see https://twiki.cern.ch/twiki/bin/view/Sandbox/CosmicPulseShapeDisplayAtlas.Atlantis?template=viewprint

Tile Cal timing corrections

Tile Cal timing corrections are currently not in the calibration database but are available for different run ranges as data files, which have to be copied to the reconstruction directory by hand. A list of valid timing corrections can be found here. The corresponding Tile2007.tdlas and Tile2007.tclas files can be found in the respective subdirectories here:

```
/afs/cern.ch/user/n/ngollub/public/timing
```

In addition the TileConditions package needs to be told to use calibration files with the "Tile2007" prefix in the reconstruction. This is done by adding the following two lines at the end of the RecExCommission_topOptions.py:

```
from TileConditions.TileConditionsConf import TileInfoLoader
TileInfoLoader.CalibFilePrefix = "Tile2007"
```

(The default in RecExCommission jobOptions is to use calibration files with the prefix "TileMobi", but no such files exist and thus defaults are loaded.) In order to verify which files are really loaded during running, one could also add

```
TileInfoLoader.OutputLevel = DEBUG
```

Looking for "Tile2007" in the log file should result in a lot of WARNINGs for non-existing Tile2007.* files, but the files Tile2007.tclas, Tile2007.tdlas and Tile2007.tcfib should be found and loaded. The WARNINGs about the non-existence of the other files can be safely ignored.

Tile Cal bad-channels masking tool

The Class *TileInfo* in *TileConditions* provides a method to access the status of a channel (in general or per ADC): *GetChannelStatus*. This method will be used by HLT, EF-monitoring and offline reconstruction (performance for the L2 has to checked). It reads currently an asci- list of bad channels: *Tile2007.bch*, which will later (for M6) be replaced by the new database.

- How to run the reconstruction using the bad-channel masking:
  - setup run-time environment for AtlaPoint1,13.0.30,3
  - run standard RecExCommission jobOptions
  - if you are using non-standard jobOptions, make sure that you have line lines like this:

```
from TileRecUtils.TileRecUtilsConf import TileCellBuilder
theTileCellBuilder=TileCellBuilder()
theTileCellBuilder.maskBadChannels = True
```

Masking of bad channels for Atlas.TileMuonFitter is controlled by TileRecUtils/TileMuonFitter_jobOptions.py and by default it's OFF for simulated data and ON for real data

M5 news and runs

Partitions:

Since EBA is beeing refurbished and LBC is not accessible at the moment, the partitions included into M5 will be: **LBA, LBC bottom and EBC**

Known problems:

- No cosmics expected from LBA03+LBA64 (off), EBC42 (no data), EBC32+EBC08 (no HV)
- Maybe no cosmics from LBA51 (flaky HV regulation), EBC24, EBC57 (problems in LV for HV system)
- Allowed to switch on LBA/LBC 53-60 only during daytime (smoke alarm two weeks ago)
- No major problems in adders for L1 cosmic trigger
- bad channels are supposed to be masked in L2, HLT, offline reco
- For more information see Atlas.TileOnline status display

Calo-only runs between M4 and M5

Reprocessing

There sevaral cosmics runs reconstructed with Automatic Run Reco which can be found on CASTOR in /castor/cern.ch/user/t/tilebeam/commissioning The following runs are available right now:

```
23377, 23380, 23381, 24604, 24605, 24606, 24607, 24609, 24848, 24849, 24866, 24872, 24874, 25335
```

For every run there are several versions of ntuples, each version is idicated by a digit just before "aan" like tiletb_23380_Phys.0.aan.root, tiletb_23380_Phys.1.aan.root, ...

- Version 0 is the reconstruction without time correction and without bad channel masking
- Version 1 is the reconstruction with laser time correction applied and with bad channel masking
- Version 2 the same as version 1 but with new noise RMS for all channels

Runs in M4

- General run list from M4 week
- LArg cosmic runs list

Fast offline cosmics feedback

We have set-up a working forectory on lxplus, where we collect macros for a fast analysis of ntuples produced for M5 cosmic runs: /afs/cern.ch/user/t/tilebeam/scratch0/Cosmics/

Contact

- tile performance mailing list: hn-atlas-tile-performance@cernNOSPAMPLEASE.ch

Feedback, suggestions

- LF: Most of the algorithms producing AthenaAwareNTuple are dumping all variables in Collection Tree, without using any subfolder. Can algorithms specify a subfolder to store their variables? e.g. CollectionTree/MuonFit/...
- LF: Calorimeter variables are using suffix to differentiate between different calorimeters, but not prefix. Therefore, Tile variables are not grouped together in root browser, but they are mixed with other calorimeters variables. Is it possible to have a hierarchical structure? Detector_Object_Variable: Tile_Cell_Eta

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Major updates:
-- UllaBlumenscheinNew - 22 Oct 2007

%RESPONSIBLE% Main.unknown
%REVIEW% **Never reviewed**

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Topic revision: r10 - 2009-05-29 - JoseManeira