

This page is to allow users (as well as core software developers) to exchange hints/tips which they think others analysing data might find useful. Developers are welcome to add to these pages, but are encouraged not to change the content from analysers without checking with the contributor first.

Run lists

- 2011: W-HCAL
- 2010: W-HCAL
- 2009
- 2008
- 2007
- 2006
- How to use the e-log information

Centrally produced runs

Follow this link.

Important analysis-related tasks

This is the evolving list of critical jobs which need to be carried out, each related to publishing a particular paper. Please look at the list to see where you can help!

Runs for Nov. 2009 reprocessing tests

These are a small number of ~20-30 "typical" runs which allow technical checks that all steps necessary for reprocessing can be performed by the people who will be responsible, and that the analysers can carry out rapid quality checks of the reprocessed data. The list of such runs (required per subsystem and per year) is maintained here.

Getting Started - Basic Information

- There are many ILC software packages at the ILCSOFT portal [ILCSOFT portal](#). Look at [lcinstall](#) as a useful tool for installing them.
- CALICE-specific ones can be found from the CALICE Software pages
- AHCAL-specific ones can be found from the [flcWiki](#) pages

Sharing results/ideas

- **Analysis Meetings** (approximately) bi-weekly, organised by telephone/web, details of the presentations can be found on Indico; or older meetings on CDS

This is the forum for discussing analysis results and software developments.

- The **CALICE-SW mailing list** is used for discussion of analysis/software: how to join and view the archive of previous postings.

Example Analysis Job

Useful Marlin processors for analysis

These may be useful as is, or may be useful starting points for your own work.

- Naive ECAL digitisation processor (DRW) SimpleEcalDigi.cc ; SimpleEcalDigi.h ; snippet of steering file
 - ◆ Average noise (default 0.12 MIP) applied to all cells containing signal.
 - ◆ No noise contributions in empty cells.
 - ◆ No simulation of dead cells.
 - ◆ Can disable layers at the back of the calorimeter (for DESY'06) or lower slabs (DESY/CERN'06).
- Electron selection processor (DRW) ElectronSelection.cc ; ElectronSelection.h ; snippet of steering file
 - ◆ Uses ECAL information only.
 - ◆ Loose cut on visible energy.
 - ◆ Optional cuts on Cerenkov trigger (data only) and double shower removal.
 - ◆ Only essential input parameter is beam energy (not reliably included in event data yet).
 - ◆ Selected event flagged in bit 1 of EventParameter "EventClass"
- Hadron selection processor (DRW) HadronSelection.cc ; HadronSelection.h ; snippet of steering file
 - ◆ Simple cuts on ECAL, HCAL, TCMT energy to identify muons (flagged in bit 3 of EventParameter "EventClass")
 - ◆ Cut on total ECAL+HCAL energy against double beam particles
 - ◆ Cut on energy in first two layers to reduce upstream showering
 - ◆ Optionally demand or veto on Cerenkov trigger (data only)
 - ◆ Selected event flagged in bit 2 of EventParameter "EventClass"
- Simple trigger processor (DRW) TriggerSim.cc ; TriggerSim.h ; snippet of steering file
 - ◆ Sets trigger bits for MC events depending on hits in beam scintillators.
 - ◆ Only set up and tested for 2006 (CERN) and 2007 (CERN).
- Comparison of track and Calorimeter positions (DRW) TkProfile.cc ; TkProfile.h ; snippet of steering file
 - ◆ Fills profile histograms of shower positions in ECAL and HCAL and compares with extrapolated track.
 - ◆ Prints estimate of calorimeter displacements and of drift velocity corrections.
 - ◆ Also creates a small root file which may be checked.
- Notes on how to find out the composition of MC hits (DRW)
- Mip Finder processor (Philippe Doublet) MipFinder.cc ; MipFinder.h ; snippet of steering file
 - ◆ Looks for MIPs in a given layer range (developed for the Si-W ECAL).
 - ◆ Cuts are distance and angle between hits and/or straight clusters.
 - ◆ Output is a cluster of Calorimeter Hits.
- Interaction Finder processor (Philippe Doublet) InteractionFinder.cc ; InteractionFinder.h ; snippet of steering file
 - ◆ Finds the first interaction layer (developed for the Si-W ECAL).
 - ◆ Can distinguish events with peaked layers and Fireball events.
 - ◆ Parameters are written on the Calorimeter Hit collection.
- Overlaying several CALICE events (Vasiliy Morgunov) Mixture.cc ; Mixture.h snippet of steering file
 - ◆ Uses input files prepared by CALICEOverlayPreparation.cc
 - ◆ Allows shifting of events in X-Y plane with coordinates given in the steering file
 - ◆ Allows the primary track to be cut off

Useful executables (based on Marlin) for analysis

* **ASCII to LCIO file:** small program used to convert an ASCII file (e.g. output from GEANT3) to an LCIO

file; uses some assumptions on the content of the ASCII file. Here is the program: CreateSimHits.cc and a small example input file: example.evt

Useful runs

A list of 2007 and 2008 runs that seem to be useful for HCAL and / or combined analysis is listed in the flcWiki. It contains pion and proton data taken at CERN and Fermilab with the Si-W ECAL, AHCAL and TCMT, as well as HCAL only runs.

ConfigurationChanges for 2007 data

Access to Data

- You need to obtain a grid certificate - for details, contact your local grid Certificate Authority)
- When you have a grid certificate, you then **need to request** membership of the CALICE VO ("virtual organisation").
 - ◆ Details of how to do this are at <http://grid.desy.de/certs/>
- To check the status of a particular grid site in detail, you could look at <http://gstat.gridops.org/gstat>.

Running Grid Jobs

- Your Marlin job needs to be bundled together for submission to the grid. Assume you will make a binary as on your local PC, upload this to the grid, and then submit your job with the XML steering file each time you want to run over a large number of files.
- Your shell script to run Marlin will need to download the files to be analysed to the grid machine ("Computing Element") where it happens to start running.
- Grid jobs can be submitted using a variety of tools, one convenient one is Ganga.

Monte Carlo Samples

If you need specific Monte Carlo samples generated for a particular study and think these would be useful for others, please add them to the "wish list" and email the responsible people to discuss your needs or propose it in the next analysis/software meeting.

Further information is available on the pages for centrally produced MC samples.

Mokka Tips

- How to get correct beam profile with Mokka/GEANT4 (Angela)

CALICE Internal Notes

The CALICE Internal Notes describe technical details of analyses which have been performed. They are explicitly for use only by members of the Collaboration and their results are not approved for presentation as results of the Collaboration.

This topic: CALICE > AnalysisTips

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