Hands on session

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- EtaGen (Edwin Son)

- Web-based tools (Hayama)

- Daily Summary Page (Hayama)

- Command line tools (Hayama)

Objective of session

This session is not only for learning but also developing.

- To know what kind of detchar tools we have

- To learn how to use them

- User interface is un-matured, and potentially it contains many bugs. To find bugs and report them are very helpful.

- Hope to increase developers.

DetChar system

Web based system

http://157.82.231.187/~chino/

- DailySummaryPage

- Web-Based Tools

HasKAL

- Tools for detector diagnostics, data quality study, noise hunting

- wrapper of KAGALI, LAL

- Language
  - Haskell
  - C
  - Python
  - (ROOT)

HasKAL

https://github.com/gw-analysis/detector-characterization

- attic : place to test, develop codes,

- HasKAL : main

  - exe-src : source codes of command line tools

  - src/HasKAL: collection of modules

- Constant
- DataBaseUtils
- DetectorUtils
- ExternalUtils
- FrameUtils
- GUI_Utils
- IOUtils
- LineRemoval
- Mathutils
- Misc
- MonitorUtils
- PSO
- PlotUtils
- SearchUtils
- SignalProcessingutils
- SimulationUtils
- SpectrumUtils
- StatisticsUtils
- Timeutils
- WaveUtils
- WebUtils

Quick look tools

- Channel related
    - existChannel
      Usage: existChannel channel gps
    - existChannelNow
      Usage: existChannelNow channel
    - showChannels
      Usage: showChannels [OPTION...] file or showChannels gps
    - showChannelandSamplingRate
      Usage : showChannelandSamplingRate [-f] gps[file]
    - showCurrentChannels
      Usage : showCurrentChannels

- GPS related
  - localtime2gps
    Usage: localtime2gps DATE [ST]

    DATE:: yyyy-mm-dd HH:MM:SS

    yyyy mm dd HH MM SS

    ST:: JST, UTC ..
  - gps2localtime
    Usage: gps2localtime GPS [ST]

    ST:: JST, UTC ...
  - getCurrentGPS
    Usage : getCurrentGPS
  - ShowGPSInfo
    Usage: showGPSInfo frameFileName

- Data retrieval
  - frame2stdout
    Usage: frame2stdout ch framefile

  - removeSpace

  - kagraDailyDataFind
    Usage: kagraDailyDataFind day(yyyy-mm-dd) localtime(JST,UTC,etc)

  - kagraDataPoint

    Usage: kagraDataPoint gpsstrt chname

  - showKagraData
    Usage: showKagraData [-r(--resampleonly)] chname downsamplefactor gps duration

  - showKagraSpectrum
    Usage: showKagraSpectrum channel gps duration dtFFT

- Quick analysis
  - filter
    Usage: filter ch fs f_cutt type[High, Low] stdin
  - resampler
    Usage: resampler ch P/Q fs stdin
  - plotter
    Usage: plotter ch fs t0 stdin
  - plottimeseries
    Usage: plottimeseries [-r P/Q] [-o outputFile] [-i inputData] [-X] [-p figfile] stdin
  - plotHistgram
    Usage: plotHistgram title min max #bin stdin
  - plotspectrum
    Usage: plotspectrum [-X] [-p figFile] ch fs t0 dt stdin
  - plotSpectrogram
    Usage: plotSpectrogram [-X] [-p figFile] ch fs t0 dt ot stdin

- Running Monitors
  - runBruco
    Usage: Bruco yyyy mm dd hh min ss duration[s] fftsec[s] mainch ch.lst
  - runCoherenceMon
    Usage: CoherenceMon yyyy mm dd hh mm ss duration fftsec ch1 ch2
  - runRMSMon
    Usage: RMSMon yyyy mm dd hh mm ss duration fftsec channel f1low f1high f2low f2high f3low f3high
  - runRangeMonNSNS
    Usage: runRangeMonNSNS yyyy mm dd hh mm ss chunk[s] duration [s] channel
  - runRangeMonBHBH
    Usage: runRangeMonNSNS yyyy mm dd hh mm ss chunk[s] duration [s] channel
  - runRayleighMon

    Usage: runRayleighMon fs dtfft df ID onecolumnAsciiFile
  - runRayleighMonDat

    Usage: runRayleighMon fs dtfft df ID datfile(one-column)
  - runRayleighMonSTDIN
    Usage: runRayleighMon fs dtfft df stdin
  - runSensMon
    Usage: SensMon yyyy mm dd hr min sec dur fftsec ch
  - runSensMonDat
    Usage: SensMon fs dur fftsec ID ColumnAsciiFile
  - runSensMonSTDIN
    Usage: SensMon fs dur fftsec ID stdin

- runStudentRayleighMon
  Usage: SRMon yyyy mm dd hh mm ss duration[s] chunklen[s] fftsec[s] dt[s] df[Hz] channel

- runLineTrackMon
  Usage: LT yyyy mm dd hh mm ss duration nframe fcenter channel

- plot2DGlitchParameters
  Usage: plot2GlitchParameters [-l localtime] gps

- plotGlitchEvent
  Usage: plotGlitchEvent [-l] startGPS[2010-11-11 00:00:00 JST] stopGPS[2010-11-11 00:00:00 JST] SNRlow SNRhigh flow fhigh

Important Channels

- For iKAGRA

http://gwwiki.icrr.u-tokyo.ac.jp/JGWwiki/KAGRA/Observation/iKAGRA/ChannelList

- K1:LSC-MICH_CTRL_CAL_OUT_DQ
  Online-calibrated GW signal in nm.