



Introduction to Detector Characterization Sessions

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Introd. to Detect. Charact. Sessions - 2002.8.19

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General Comments

- Tremendous progress in last year, especially in last six months, on DMT monitor development
- **E8 VERY USEFUL** – Thanks to all participants!
- Finally have a respectable lineup of versatile monitors with visible, meaningful outputs – and approaching standardization, **but more work to do...**
- Scientific monitoring shifts need:
 - » More volunteers
 - » Better definition of duties, including what is shared with operators
- S1 detchar investigations to include evaluation / comparison of tools



How have we done on the March meeting gripe/wish list?

My gripes/wishes in March: -- present status in red

Need more effective feedback from DMT monitors:

- Many monitors lacking summary html page
-- Much better!
- Need more guidance on what is “normal”
— Still needs work
- Need global DMT status and alarm handler web page
-- Skeleton exists, needs work (S. Marka, J. Zweizig)
- Need online figure of merit for astrophysical sensitivity
- -- Got it! (P. Sutton, K. Schlaufman)
- Need integration of DMT-produced trends into Data Viewer
- -- Got it! (A. Ivanov, J. Zweizig & many authors)

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How have we done on the March meeting gripe/wish list?

Need more automation of mundane scimon tasks and additional interactive tools:

- Keeping track of “clean” locked segments
 - **Got it!** (D. Barker, D. Chin, G. Gonzalez, P. Shawhan, J. Zweizig)
- Producing/logging graphical output sometimes cumbersome
 - ???
- Need periodic storage & easy retrieval of reference spectra (similar to autoburt)
 - ??? (work in progress – Salish-Kootenai group)
- Need GUI-driven real-time time/frequency display
 - **Got it!** (P. Sutton)
- Need GUI-driven real-time band-limited RMS display
 - ???

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How have we done on the March meeting gripe/wish list?

Need feedback from on-site downstream analysis:

- Confirmation that LDAS pipeline (data & trigger flow) is working (& ability to fix simple problems?)
-- ???
- Trigger rates / sensitivities from burst / inspiral search engines to spot pathologies early
-- Working prototype for inspiral search (D. Brown)

Decent progress on the whole



Scientific Monitoring Shifts: Staffing

Short on expert scimons, even for 17-day summer runs

- What happens during S2?
(~46 days, schoolyear, xmas holidays)
- And during S3?
(multi-month continuous data taking)

What would help?

- Need trainees to become expert soon!
- Less voluntary system of shift allocation
-- Controversial, 1-year-old proposal stalled
- Staffing fewer shifts per day (Owl only? Day only?)

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Scientific Monitoring Shifts: **Duties**

The worksheets from E7 have been updated/expanded but not finalized

- Posted on S1 web page
- Experts: please check for accuracy / relevance
- Non-experts: please check for clarity

One complaint from E7: Too much tedious “busy work”

- Recent automation should help – see discussion above

Another complaint: Too little to do, time wasted

- No shortage of things to do or study!
- Intellectual challenges abound
- Join an investigation team! (see below)

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S1 Scientific Investigations (leaders, members)

Understanding the GW channel (& tool comparisons):

- Calibration stability (R.Adhikari, M.Landry, S.Marka)
- Violin modes (S.Klimenko, M.Diaz, N.Zotov)
- Spectral distortion (M.Diaz, K.Riles)
- Steady-state correlations (N.Christensen, A.Ottewill)
- Glitches (J.Giaime, E.Daw, N.Zotov)
- Bilinear couplings (S.Penn, E.D'Ambrosio, B.Bhawal)

Environmental investigations:

- Correlated inter-site transients (R.Schofield, R.Frey)
- Local environmental disturbance (R.Schofield, R.Rahkola)



S1 Scientific Investigations (leaders, members)

System verification:

- Timing precision (D.Sigg, S.Marka)
- Data quality (J.Zweizig, E.Daw, G.Gonzalez, K.Riles, D.Sigg)
- Data access (P.Shawhan)
- Data set reduction (I.Leonor)

More volunteers needed!



Tool evaluation & comparison

- We now have (finally!) a fairly comprehensive [suite of DMT monitors](#) and other tools with which to understand the data.
- Some tasks can be done by several monitors in slightly different ways
- Some monitors fairly well tuned to data; others provide nice framework with unrealized potential
- Scimons should look critically at what proves itself useful and feel free to update the procedures worksheets accordingly.
- Many investigation teams should report explicitly on which tools were found useful and how they could be improved



This meeting

Lots of activity – more than 15 detchar talks
(fewer than in March, thanks to S1 schedule disruption)

- DMT software – new or improved monitors / infrastructure
- Other software / resources development
- Detector performance & environment
- Detector simulation
- Feedback from upper limits groups
- New algorithms & methods from GEO colleagues

Looking forward to interesting reports!