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Planning for the S4 Run

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LIGO Hanford Observatory
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LIGO-G040335-00-Z

Strawman Schedule

Hanford	Livingston
~September 15 Launch new DMT monitors 24/7	~September 15 Launch new DMT monitors 24/7
~October 9 Mini-Engineering Run	
~November 13-20 Engineering Run	[~November 20 Mini-Engineering Run] maybe…
	~Mid-December Engineering Run
~Early January **S4 Science Run**	**~Early January** **S4 Science Run**

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(Updating slide from Hannover meeting)

Looking ahead to ~~S3~~ S4 – DMT world

Old monitors:

- **Need to be resurrected and retuned – main purpose of mini-E-runs in ~~September~~ October/November**

  DMT authors expected to participate

- **Final tuning will likely be needed during ~~maxi-E-run~~ additional engineering runs**
- **Post-~~S3~~ S4 goal: identify key monitors / FOM's for commissioning and make robust against IFO changes**

New monitors:

- **Time is running short for completion!**
- **Some promises made after ~~S2~~ S3 in danger of breakage…**
- **Please bear down to get things ready**

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Looking ahead to S4 - Scimons

Making scimons more effective – discussions underway

- **Longer shift blocks with fewer different scimons**
  (more cost-effective for groups & better training;
  longer-term goal: more LSC students/postdocs at sites)
- **More focus on astrophysical figures of merit**
- **More focus on data quality flagging in the control room**
- **Groups should make requests for special consideration early – to avoid later use of scimon-swaps**

Looking ahead to S4 Analysis Feedback

- **First line of defense against astrophysically crappy data:**

  SenseMonitor & other monitors of "expected" sensitivities

- **Next line of defense:**

  DataQual, glitchmon, & other generic glitch finders

- **Next line of defense:**

  BurstMon (& other monitors of realistic astrophysical sensitivity)

- **Last line of defense**

  Quasi-online analysis jobs using actual inspiral template banks, burst ETG's, etc.

  → DASWG purview [volunteers welcome!

  see Patrick Brady]

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More on DMT issues

Glad to see new astrophysical FOM and other DMT monitors
→ THANKS!

But we need more monitors of known artifacts (see Fred's list)

Embarrassing that we STILL don't have an airplane monitor!

(effects first seen in E1(!) engineering run – April 2000)

Upcoming detector investigation camp will have sessions on DMT monitors, including how to write them, with template examples

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Fred Raab's list of artifacts seen at Hanford

Known Causes of Spurious Bursts

- Optical level laser AM burst
  - » Commonly due to diode aging
- Servo instability
  - » Commonly due to drifts in gain
- Saturate a coil driver
  - » Sum of fast and slow environmental factors
- Saturate a photodiode/mixer
  - » Might be obvious or not
- Clipping in a photodiode path
  - » introduces sensitivity to seismic or acoustic noise
- "Gimpy" cable
  - » often accompanied by level shift
- Dewar "pops"
- Dumb stuff
  - » Like touching up a picomotor
- Dust (faggedaboutit)

Can we do better monitoring these causes?

Most of these well suited to DMT monitoring

• Varying levels of difficulty in monitoring

• Mostly need people working on them!