

# S1

## *Quick Summary*

**Mark Coles**

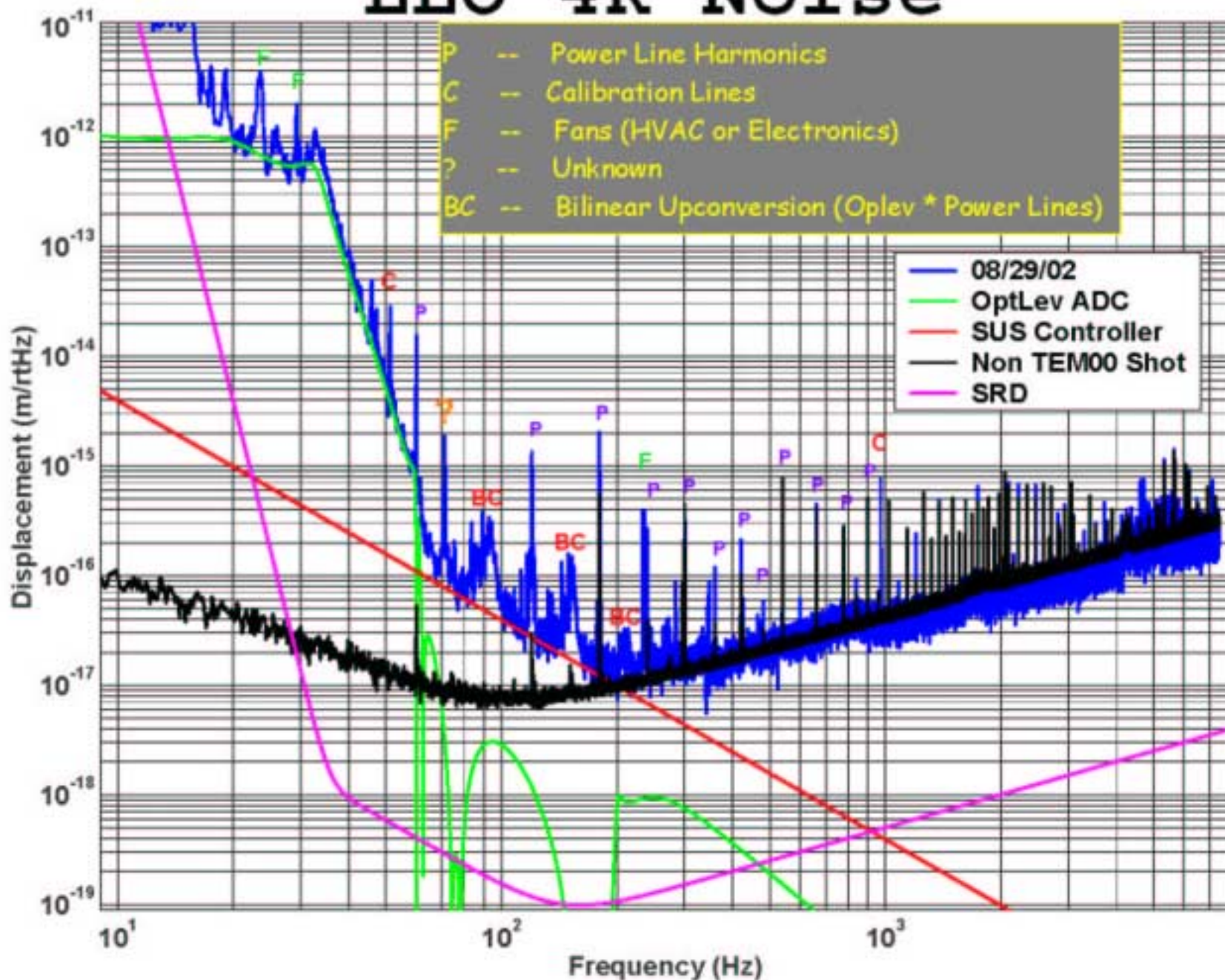
*Sept. 9, 2002*

# Features

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- **Good sensitivity when interferometer was locked**
- **Good noise stationarity**
- **Low glitch rate (about same as H1)**
- **Good hardware reliability**
- **Terrible seismic and micro-seismic environment**

# LLO 4K Noise



# Duty Cycle

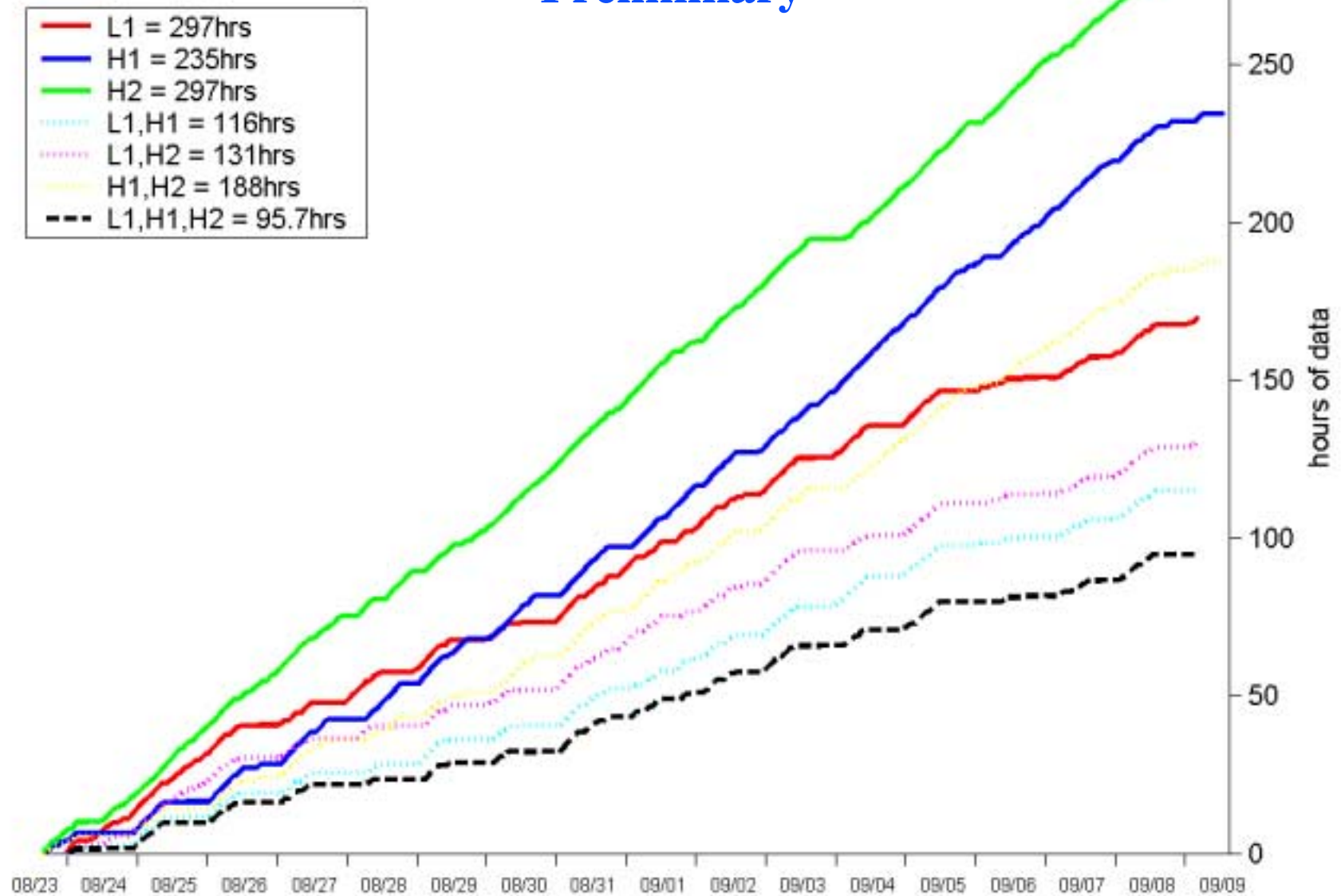
- **Worst case:**
  - » Logging during daylight 6:30 am – 7:30 pm
  - » Logging weekends and holidays
  - » Two trains per night with 2 hour loss
  - » Two calibrations at 5 hours each
  - » => *135 hours, 35% duty cycle*
- **What we got:**
  - » Logging 6:30 – 5:30, but no logging on Sundays
  - » Logging on Labor Day
  - » Very high microseismic motion – two simultaneous tropical storms in Gulf of Mexico
  - » More difficulty with obtaining and maintaining alignments than expected
  - » Periods of large amplitude low frequency angular motion
  - » => *169 hrs , 43%*
  - » Longest segment was 7.63 hrs

# S1 vs E7

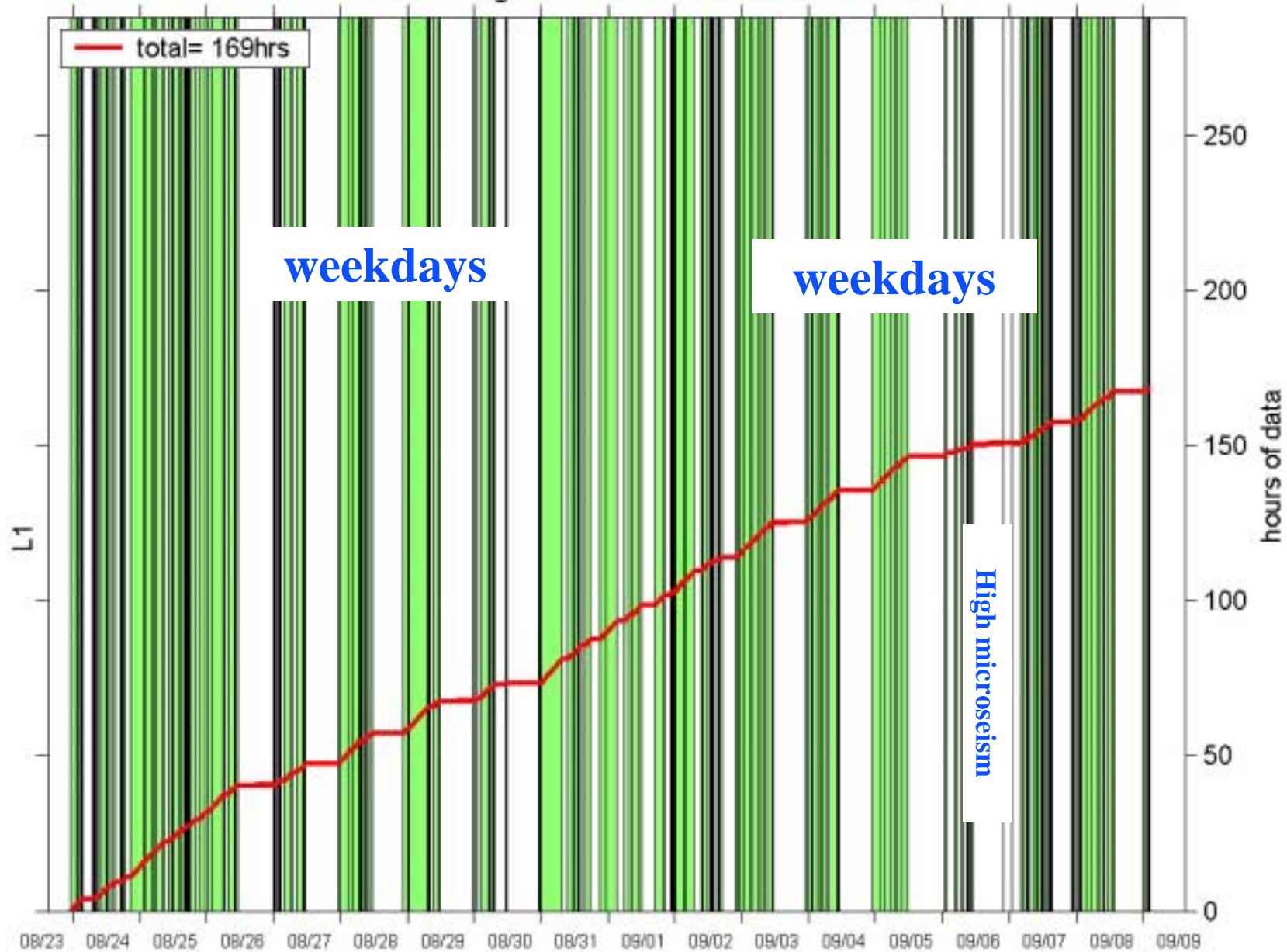
	LLO-4K	LHO-4K	LHO-2K	All three together
Total lock time (>300 sec)	169 hours	232 hours	288 hours	95 hours
Duty cycle	43%	59%	73%	24%
<b>E7 total lock time</b>	<b>284 hours</b>	<b>294 hours</b>	<b>214 hours</b>	<b>140 hours</b>
<b>E7 duty cycle</b>	<b>71%</b>	<b>72%</b>	<b>53%</b>	<b>35%</b>

S1 run: science segments from 714150013 to 715614971

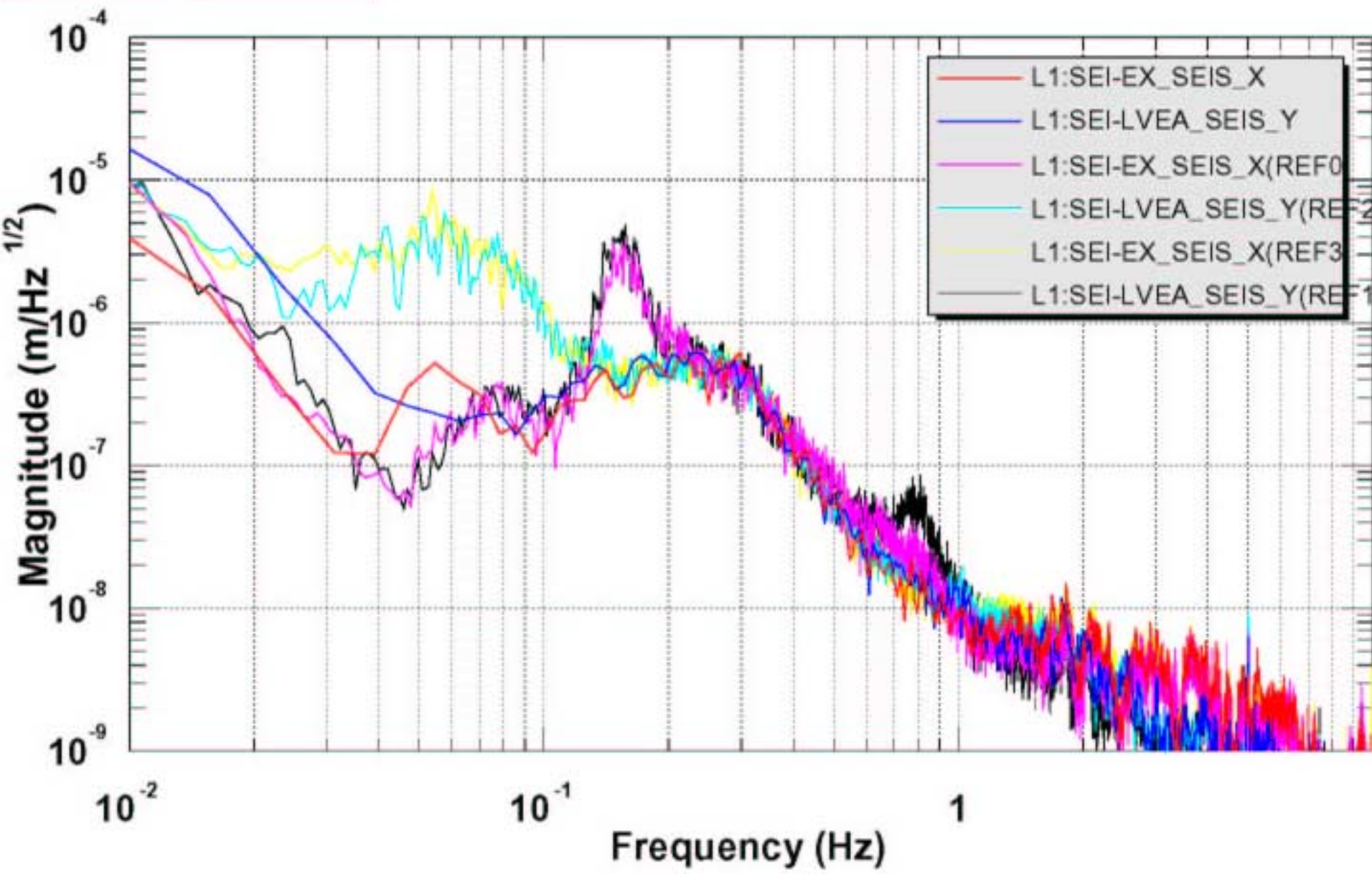
**Preliminary**



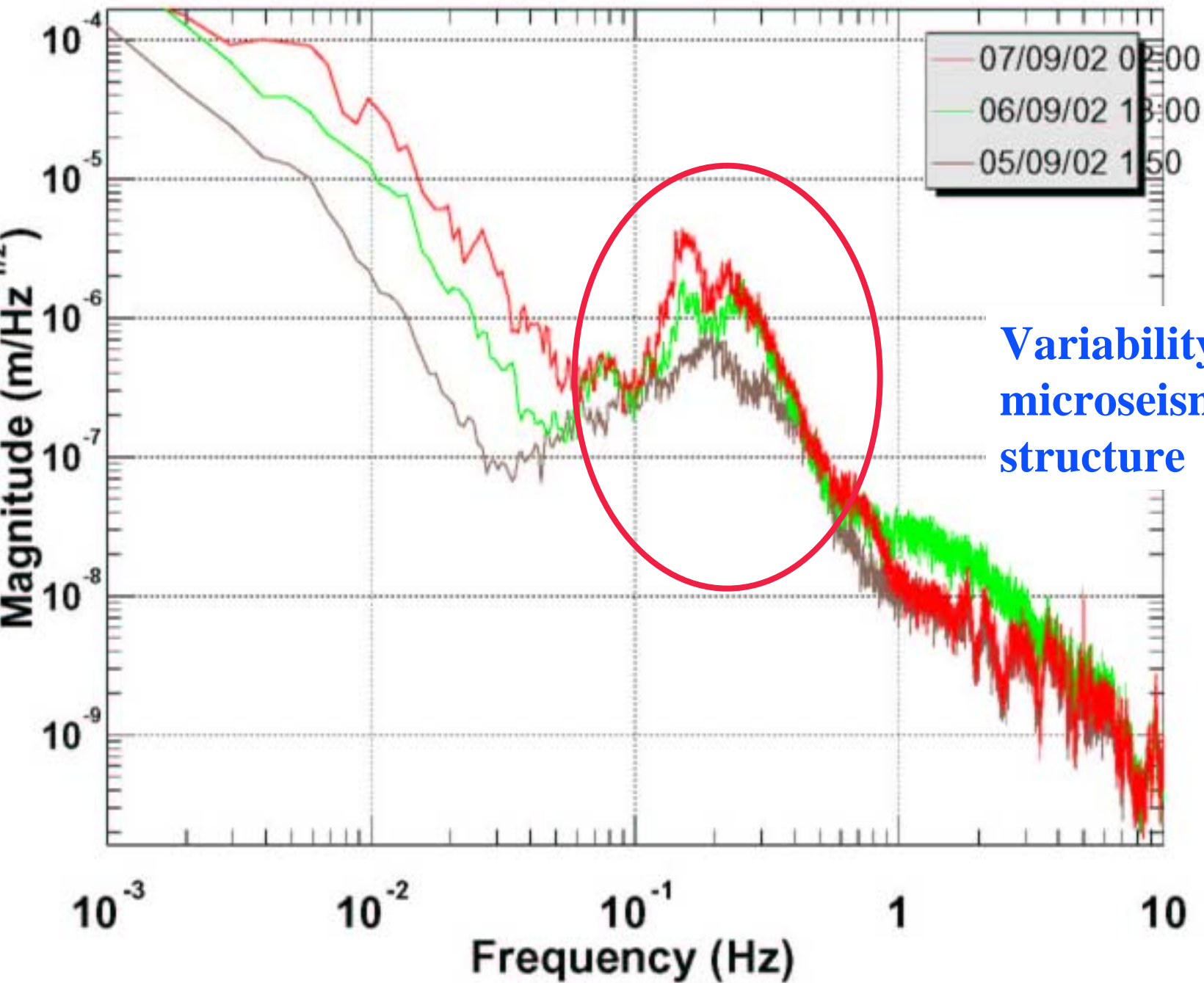
S1 run: science segments from 714150013 to 715574583



Power spectrum







**Variability in  
microseismic  
structure**

# **Lost time categories (in descending order of impact)**

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- **Logging and other man-made noise**
- **Much higher than anticipated microseismic motion (5X)**
- **even lower frequency ground motion**
- **Re-alignment**
- **Delays encountered recognizing and handling exceptional situations**