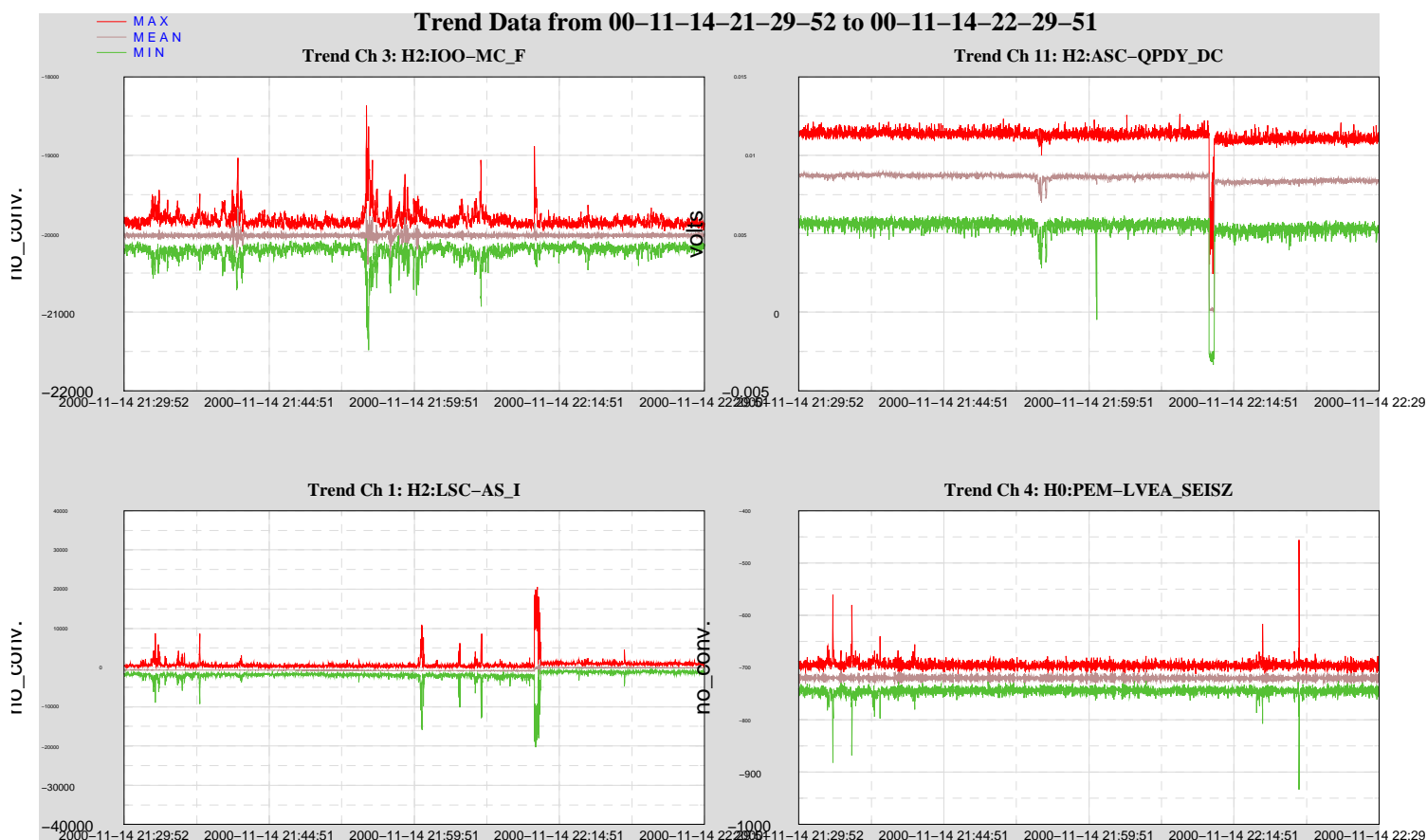


MC/IOO Transients in E2 – A first look

R. Frey, Oregon

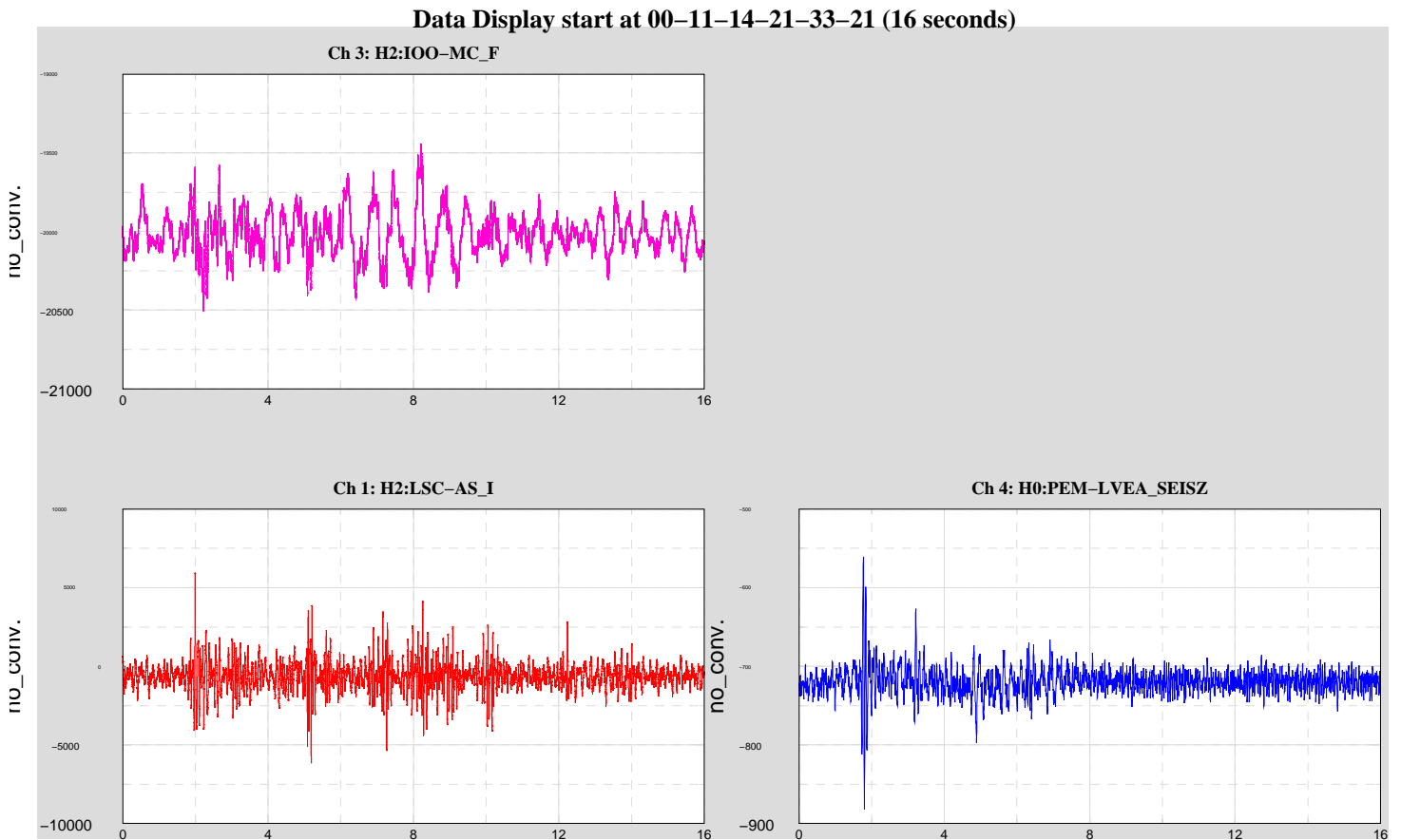
- Plots made with dv in \sim real time at LHO
- Goal is to characterize some general transient behaviors to study in more detail offline.

One hour of Trend data in one-arm (Y) mode:



- Much of the noise observed in AS_I is correlated with local ground motion
- How much of it isn't ? What are its characteristics ?
- In plot above, zoom in on:
 - (a) Clear seismic period: first 5 minutes
 - (b) Apparent non-seismic period: about 37 minutes from start

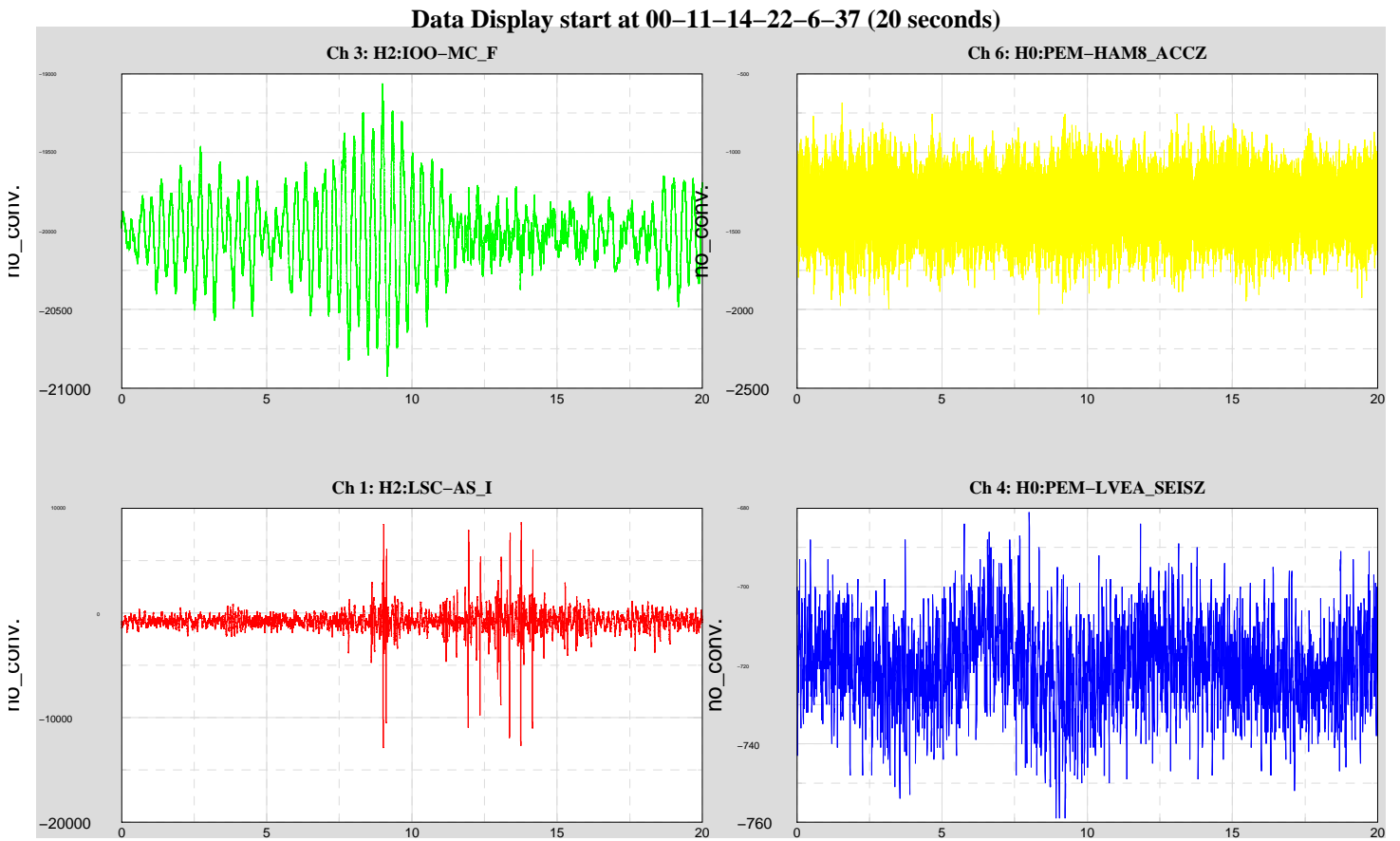
(a) AS_I and MC_F transient induced by ground motion:



- The SEISZ transient is ≈ 12 Hz
- followed 0.2 s later in AS_I and MC_F
 - also at 10–15 Hz
 - lasting for 10–20 s
 - with a ~ 1.5 Hz envelope
 - large amplitude 6 s after initial impulse

- R. Schofield and D. Chin were able to induce similar seismic transients by stomping around the Lab, driving over “Otto’s bump”, etc.
(RS, personal communication)

(b) AS_I and MC_F transient **not** clearly related to ground motion:



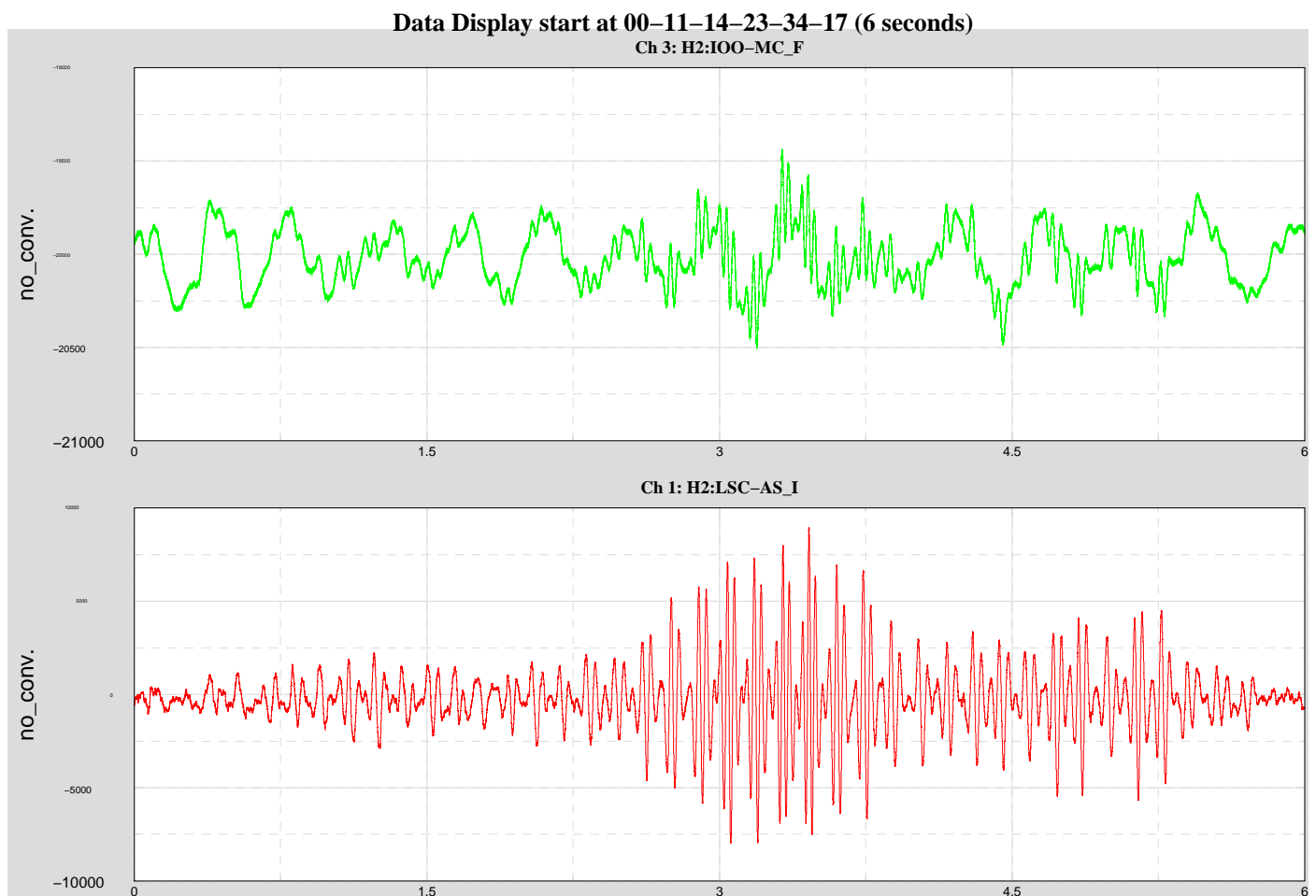
- MC_F oscillation is 3 Hz
- Time of Max. MC_F amplitude \leftrightarrow AS_I transient onset
- AS_I transients: a few \sim 10 Hz wiggles

Another interesting (?) AS_I and MC_F transient

See Trend Plots on Next Page...

- Large AS_I and MC_F transient
- No obvious corresponding mechanical motion signal
 - a decrease in noise (?) on HAM8-ACCZ
- A coincident cusp in the PSL-ISS error signal
 - Look for similar events with DMT ?

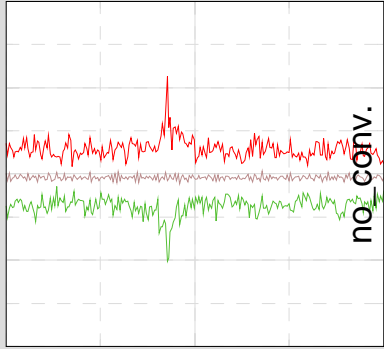
Expanded view of the MC_F and AS_I time series:



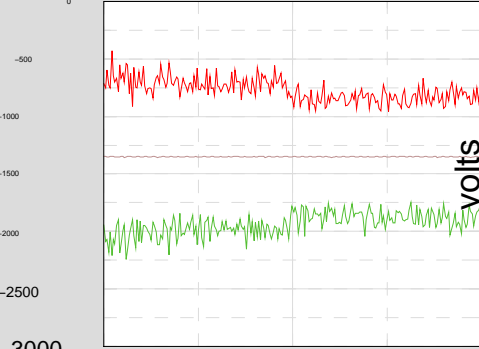
Trend Data from 00-11-14-23-32-38 to 00-11-14-23-36-37

MAX
MEAN
MIN

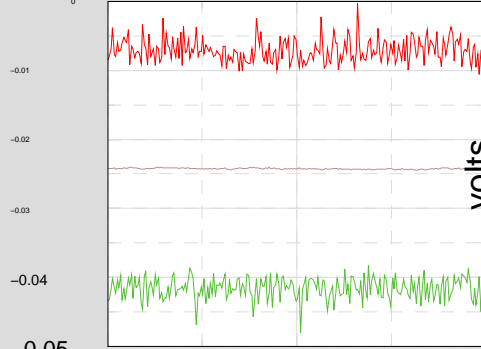
Trend Ch 3: H2:IOO-MC_F



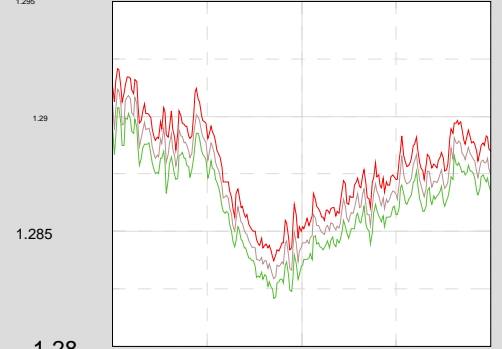
Trend Ch 6: H0:PEM-HAM8_ACCZ



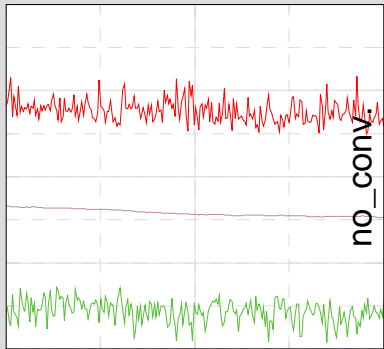
Trend Ch 10: H0:PEM-BSC4_ACCY



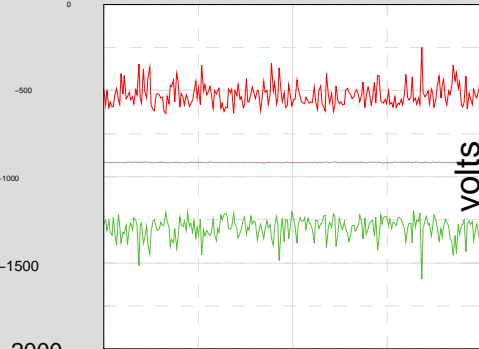
Trend Ch 14: H2:PSL-ISS_ISERR_F



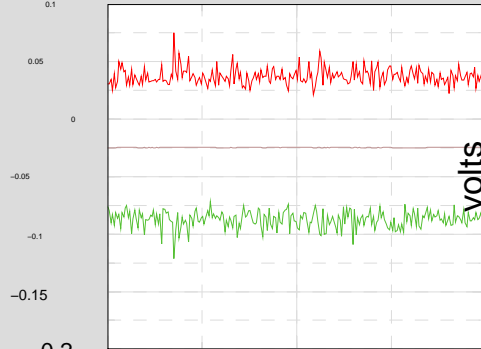
Trend Ch 2: H2:PSL-PMC_ERR_F



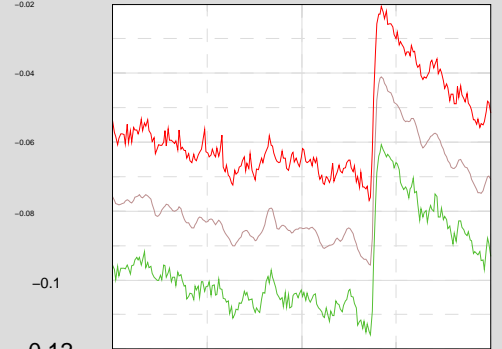
Trend Ch 5: H0:PEM-PSL2_ACCZ



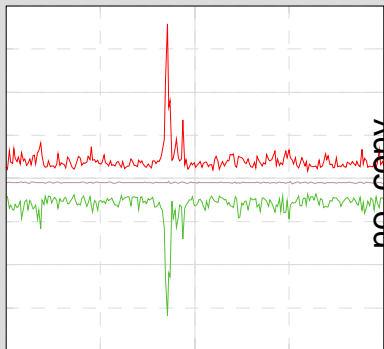
Trend Ch 9: H0:PEM-BSC4_ACCX



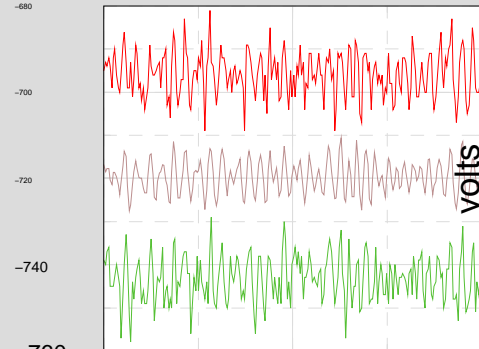
Trend Ch 13: H2:PSL-FSS_MIXERM_F



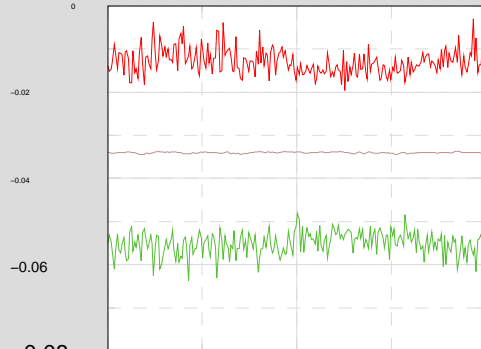
Trend Ch 1: H2:LSC-AS_I



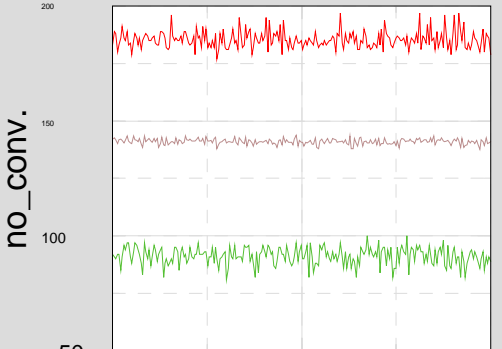
Trend Ch 4: H0:PEM-LVEA_SEISZ



Trend Ch 8: H0:PEM-BSC4_ACCZ



Trend Ch 11: H2:ASC-QPDY_DC



Trend Ch 7: H0:PEM-LVEA_SEISZ

Trend Ch 12: H2:PSL-FSS_MIXERM_F

Trend Ch 15: H2:PSL-ISS_ISERR_F

Trend Ch 16: H2:ASC-QPDY_DC

