



Brief Report
From Pcal Injection Data

Pil-Jong, Jung

Machine Learning Meeting, 11 January 2019

Configuration

✓ Datetime

JST 11:00~16:30 30 Dec 2018
UTS 02:00~06:30 30 Dec 2018
GPS 1230170418 1230186618

✓ EventTriggers

Omicron running
JST 11:00~12:00 30 Dec 2018
GPS 1230170418 1230174018

Acquired Channels
217 channels

✓ Selected Channels

All Channels = 97,763 Sampling rate \geq 2048Hz
and DQ_channels = 13,000
 > Except Timeseries data error > 217 channels

✓ Primary Channels

- K1:LSC-CARM_SERVO_SLOW_DAQ_OUT_DQ
(CARM(Lx+Ly/2) Length information)
- K1:AOS-TMSX_GR_PD_OUT_DQ
(TMSX green Transmitted light amount)
- K1:AOS-TMSX_IR_PD_OUT_DQ
(TMSX IR Transmitted light amount)

Results

✓ Basic plots > [KAGRA dropbox link](#)

- TimeSeries plots
- Amplitude Spectral Density plots
- Normalised Spectrogram plots
- Rayleigh-statistic Spectrum plots

✓ OmegaScan > [KAGRA dropbox link](#)

- Q-transformation plots

✓ Coherence plots > [KAGRA dropbox link](#)

- frequency-domain correlation plots
- Coherence Spectrum plots

✓ TriggerSNR plots > [KAGRA dropbox link](#)

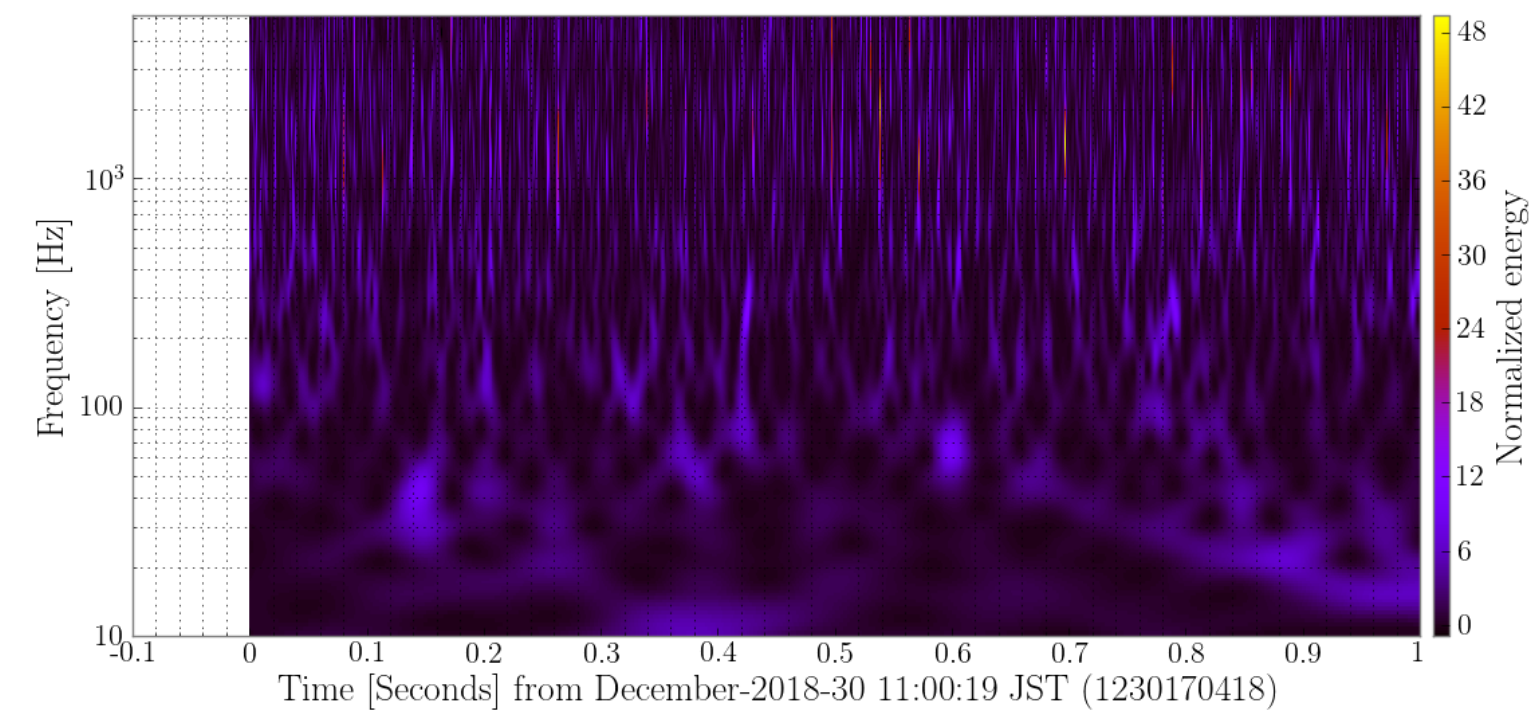
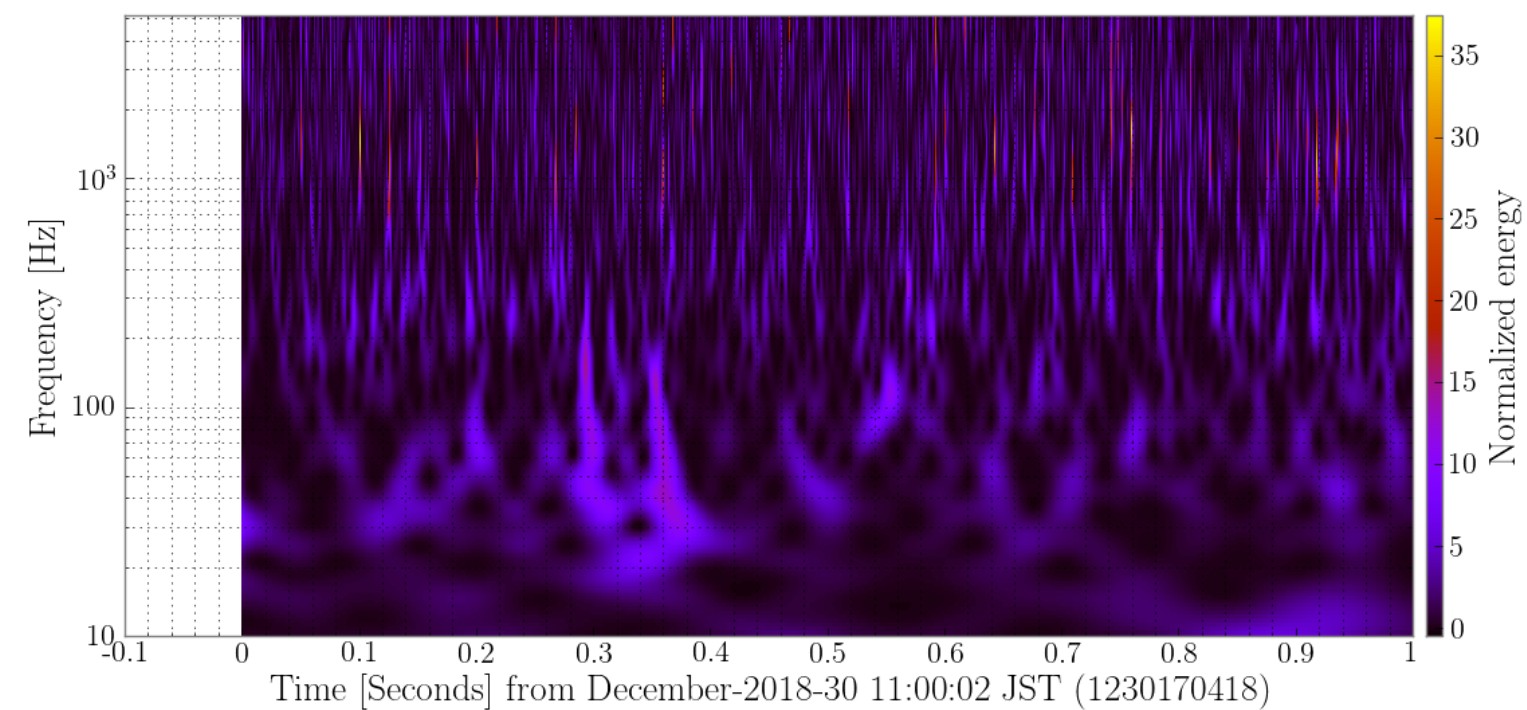
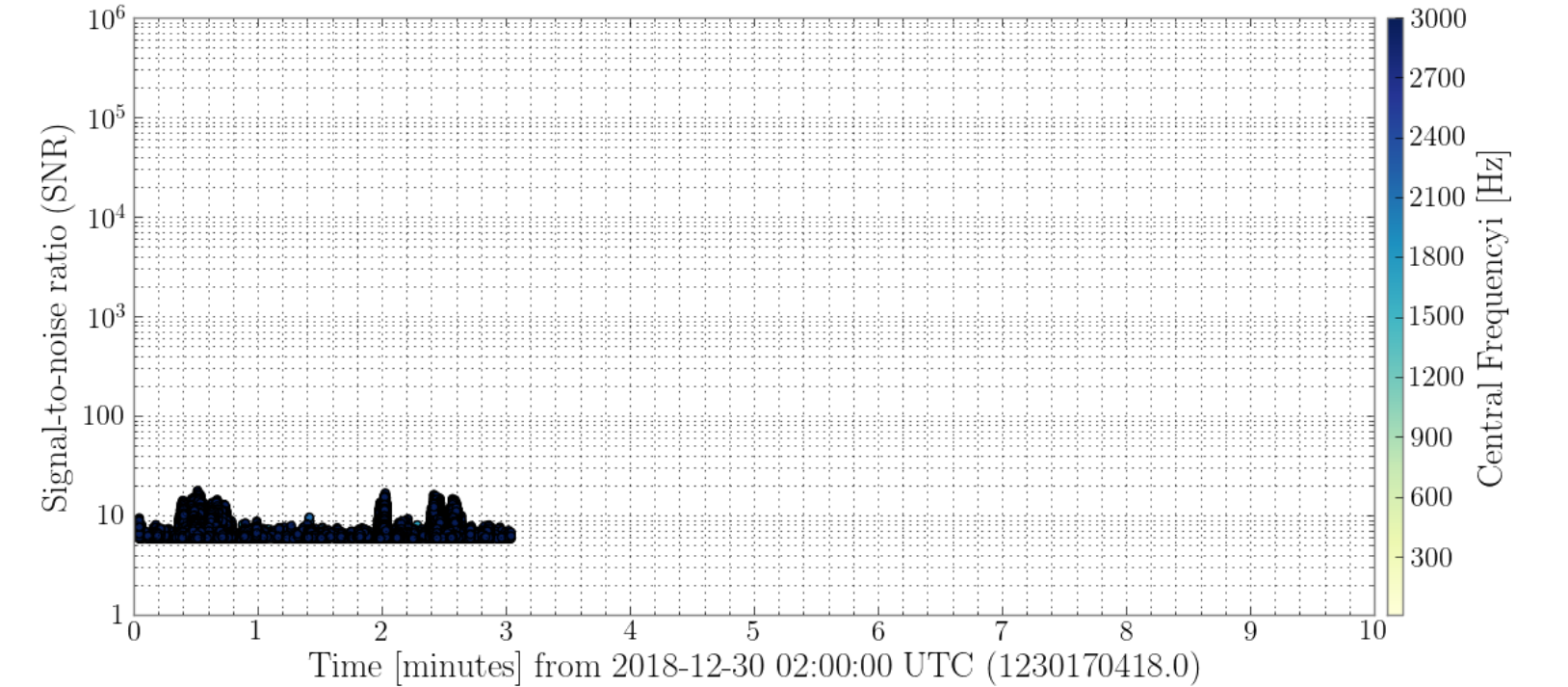
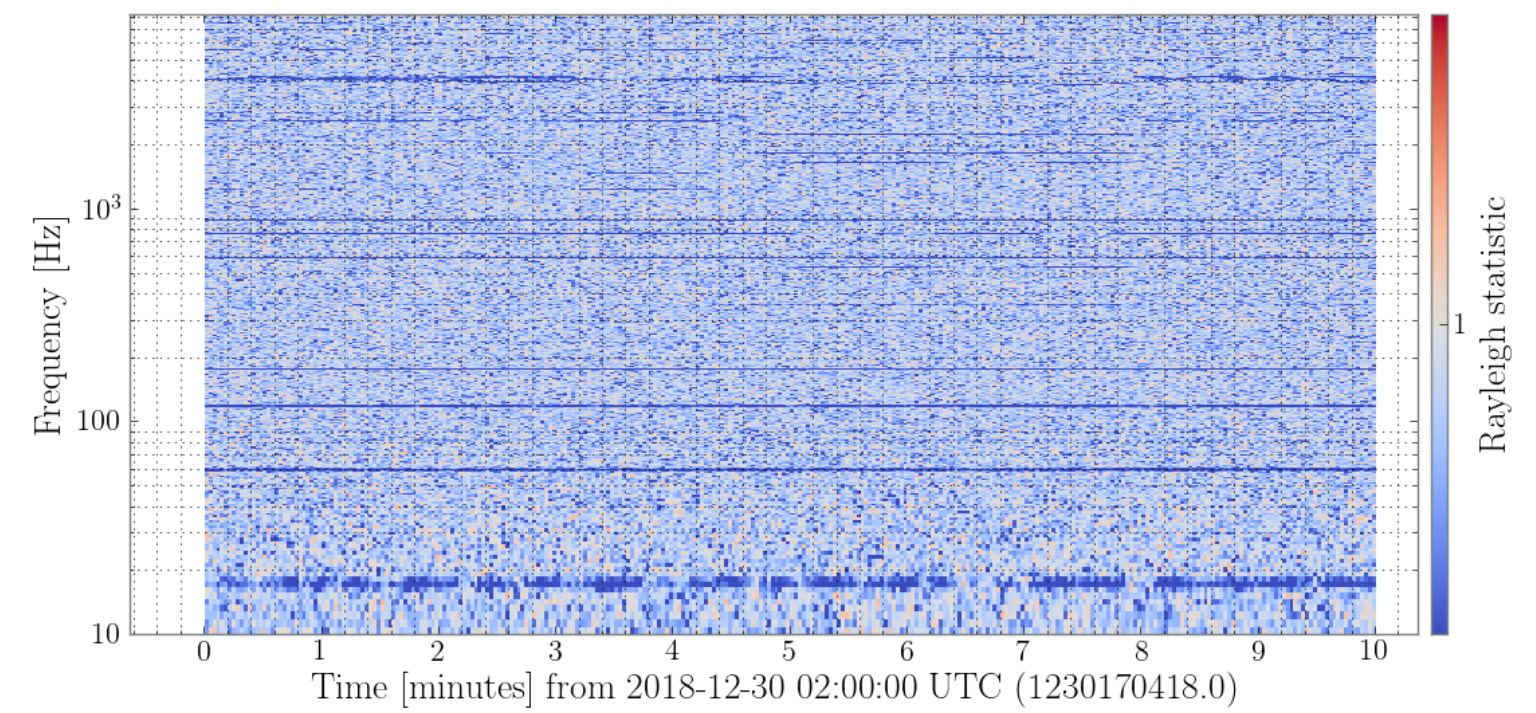
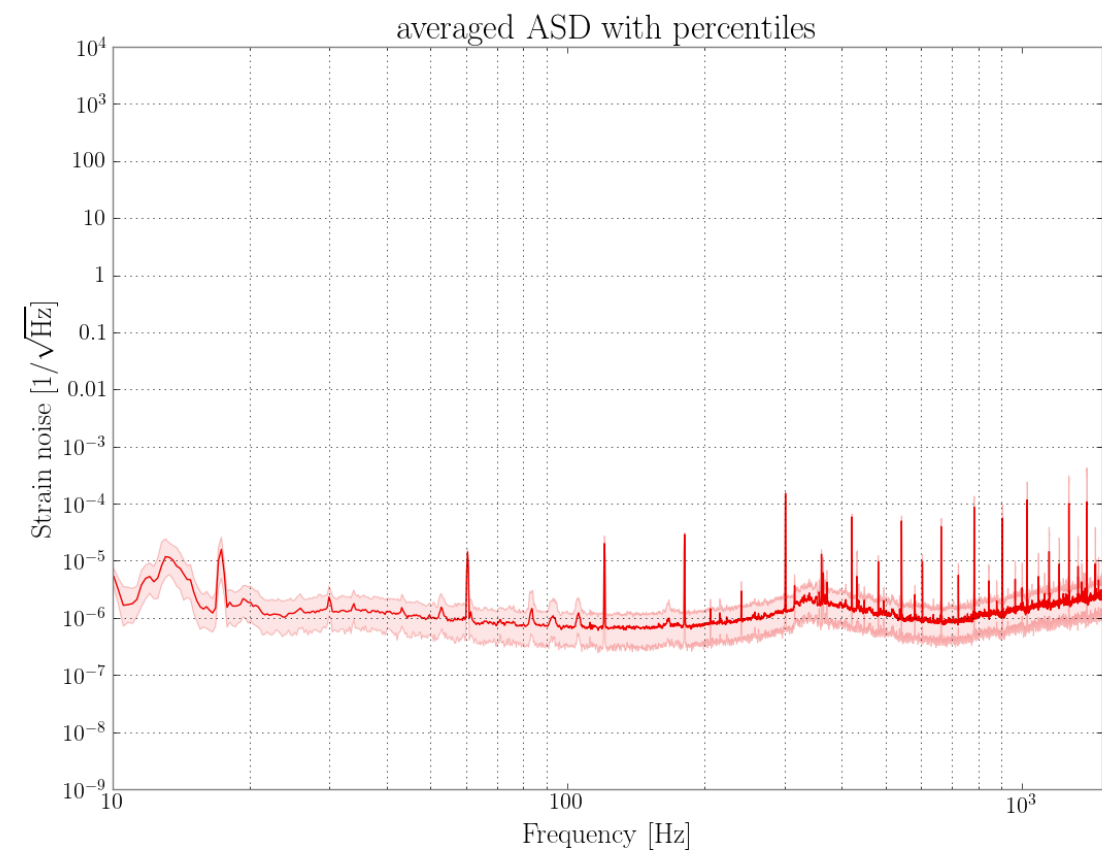
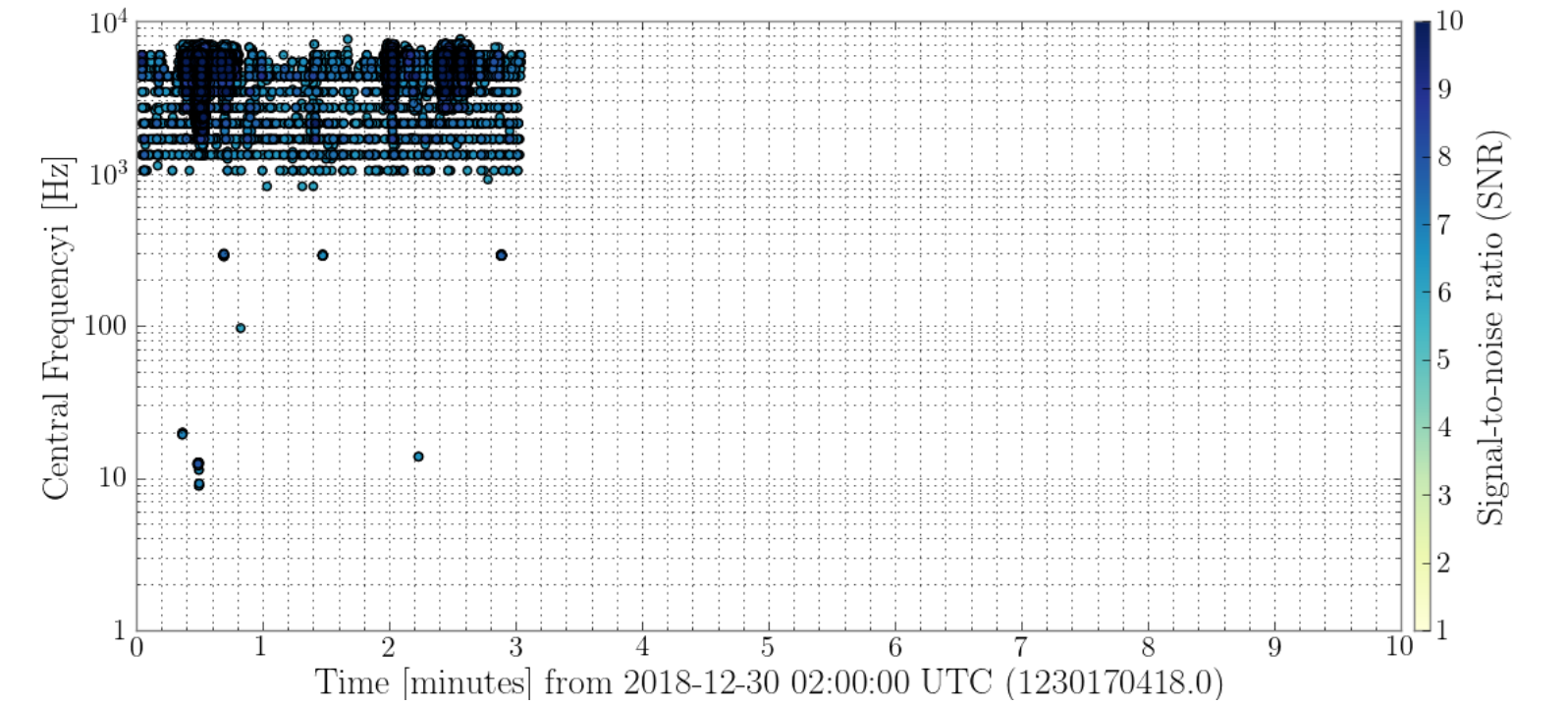
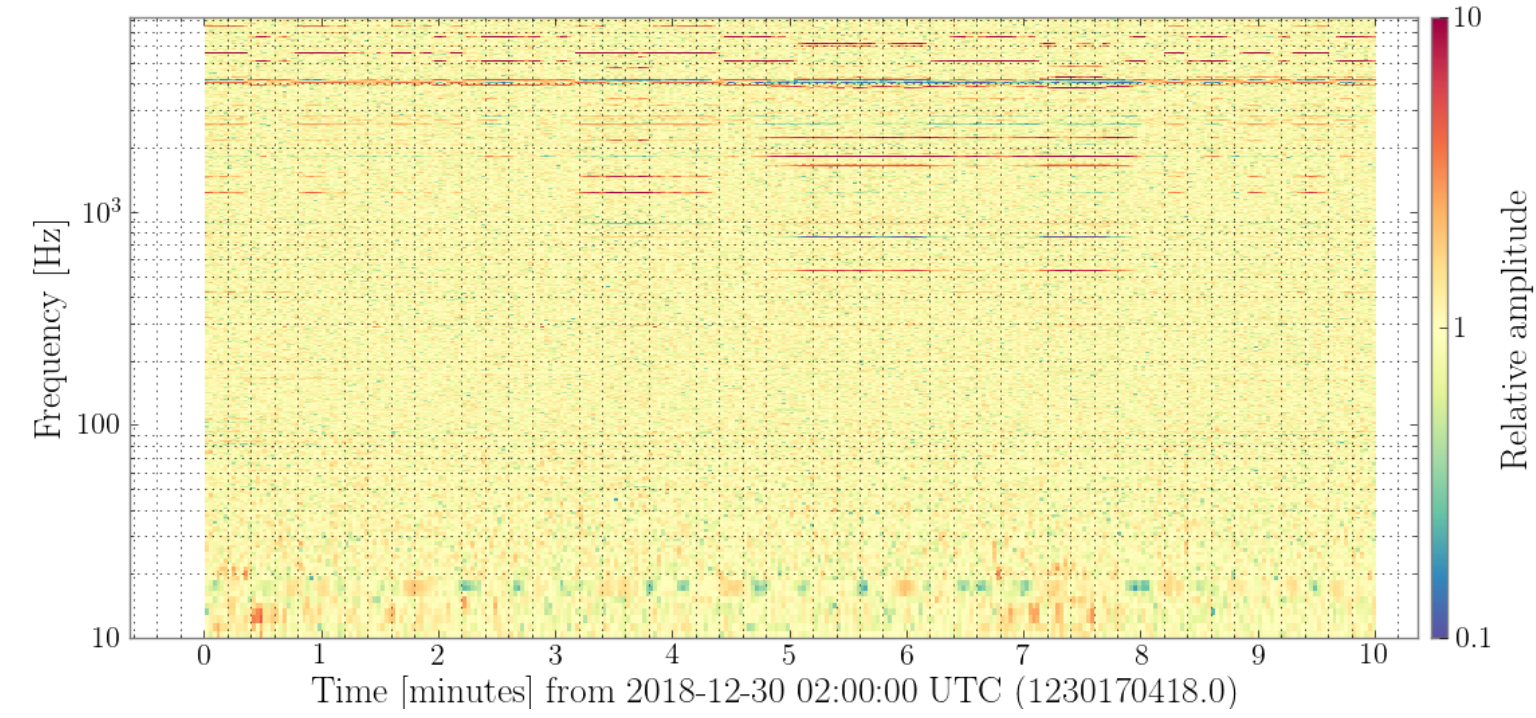
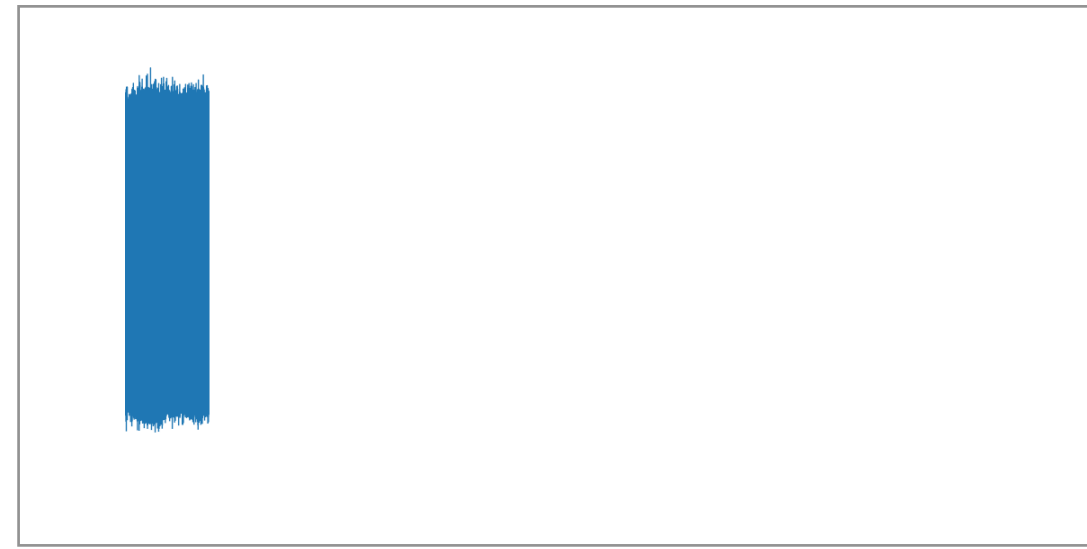
- time-frequency-domain plots
- time-SNR-domain plots

✓ h-veto and CAGMon

- TBD

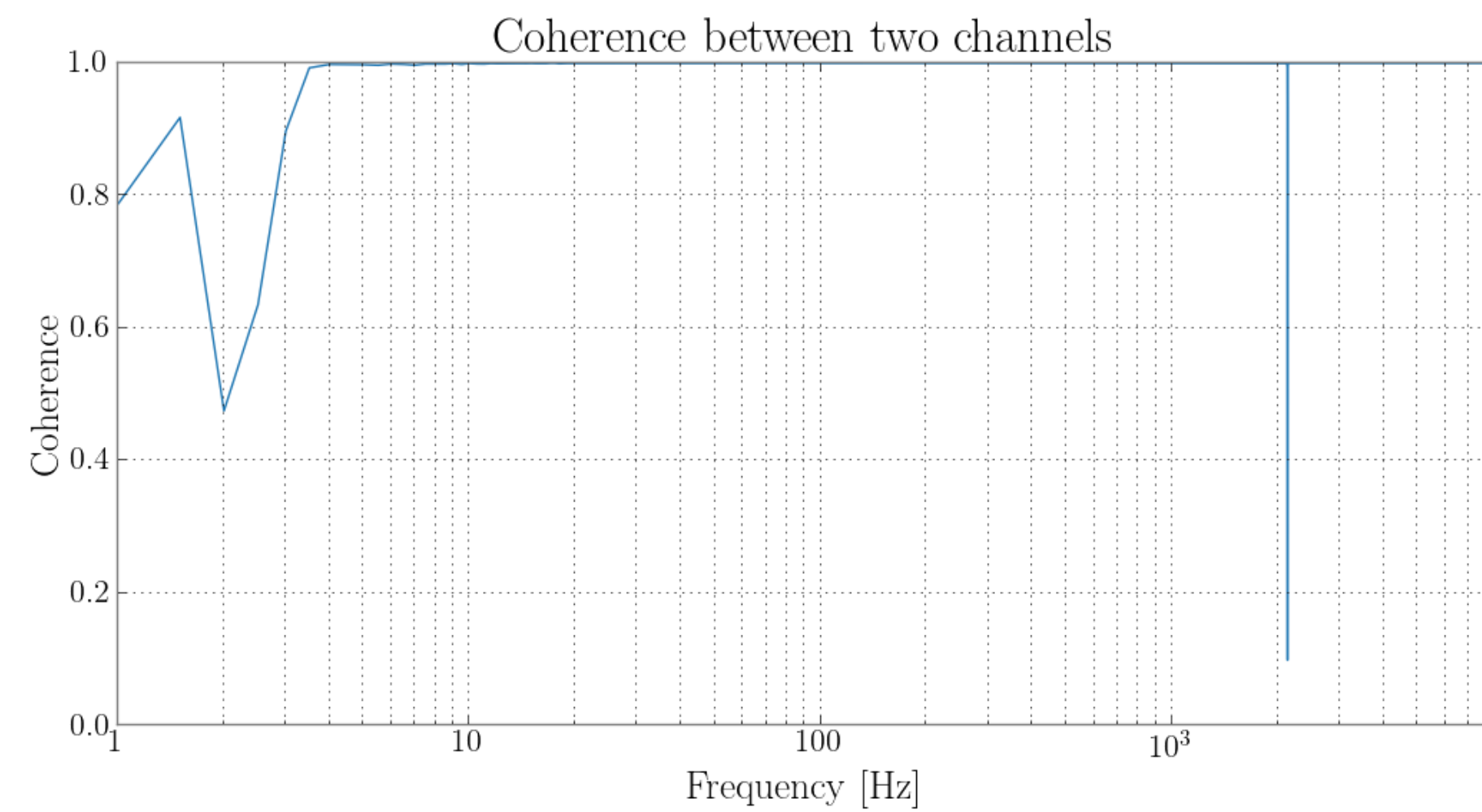
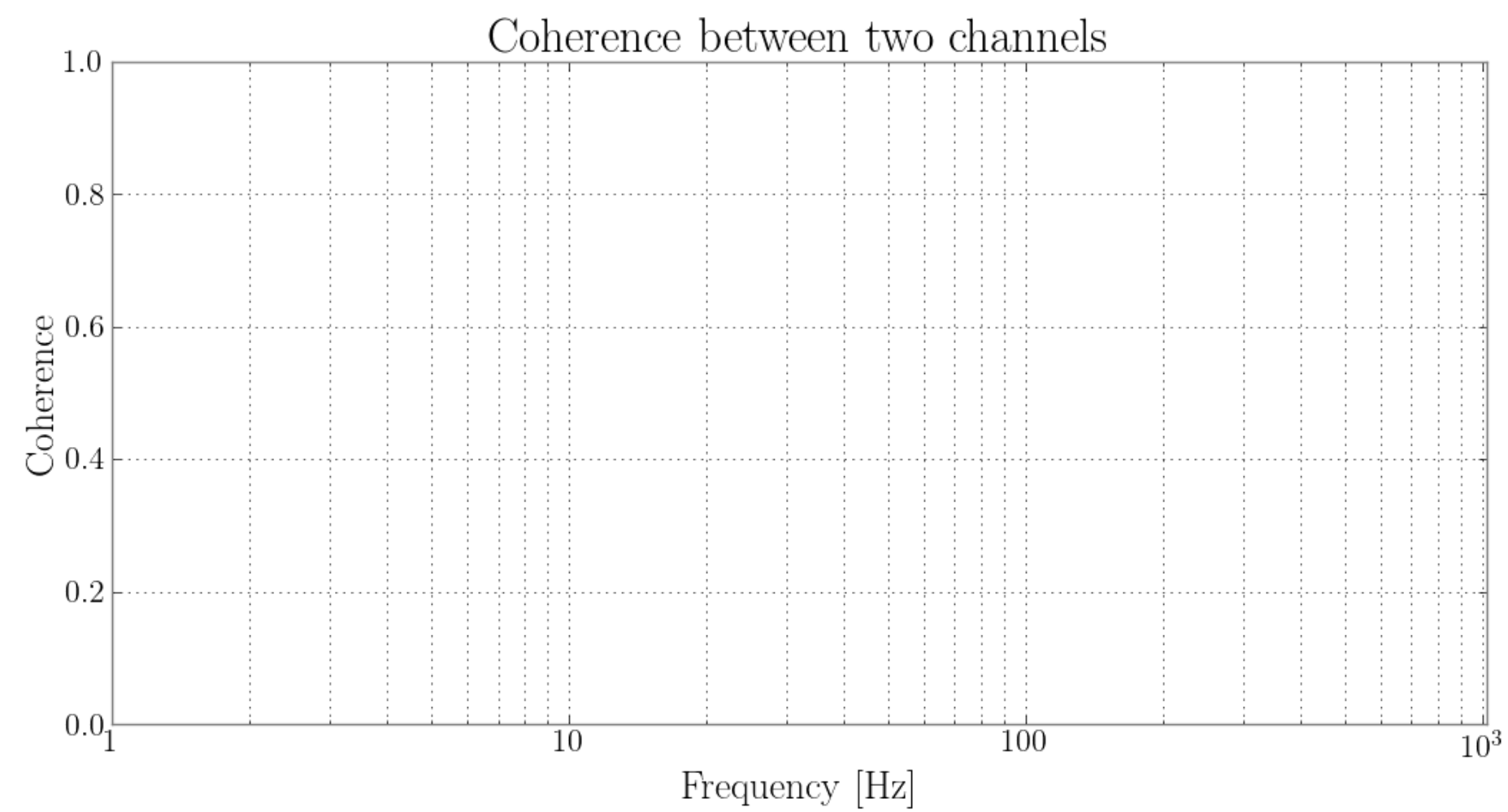
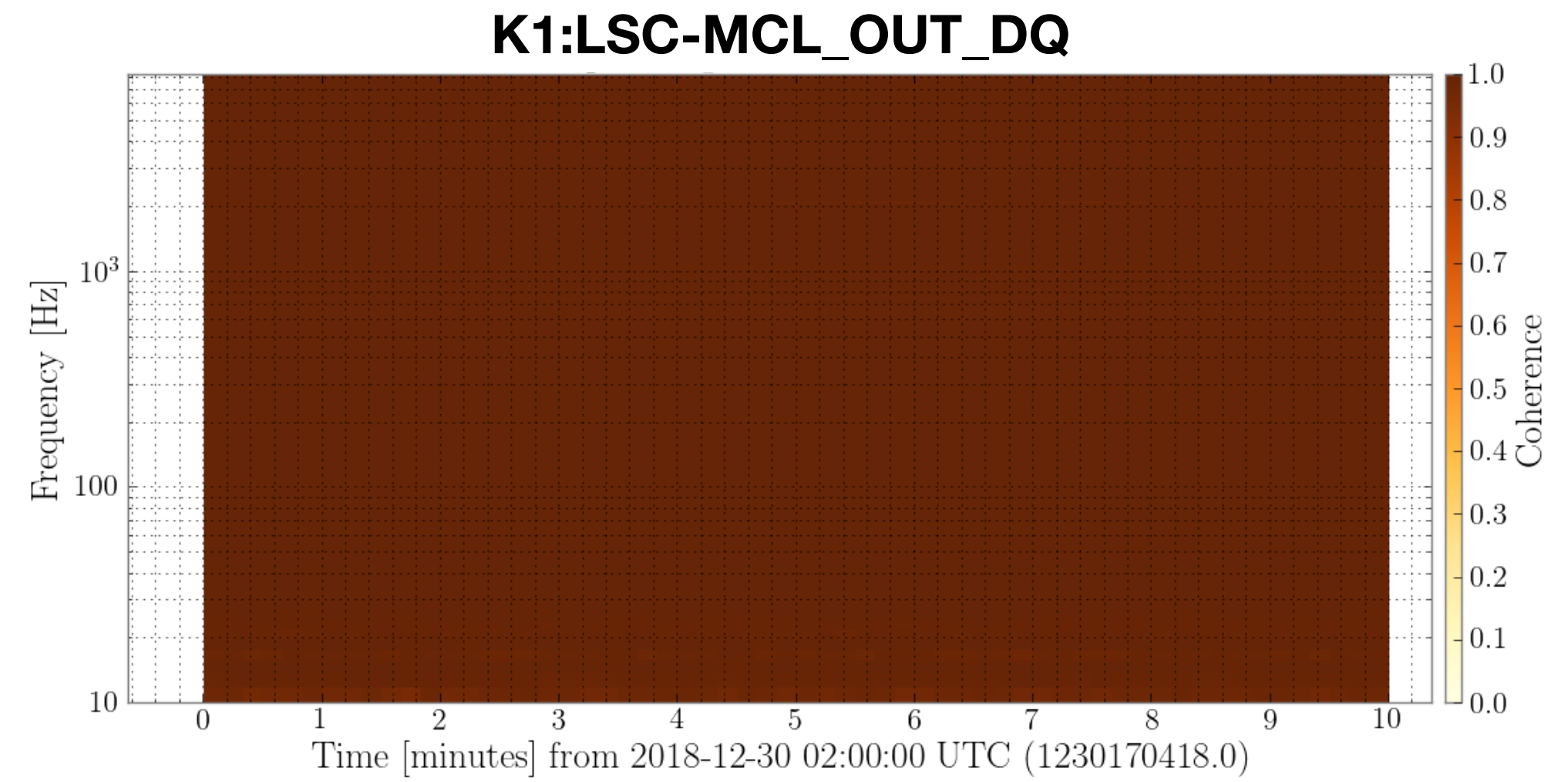
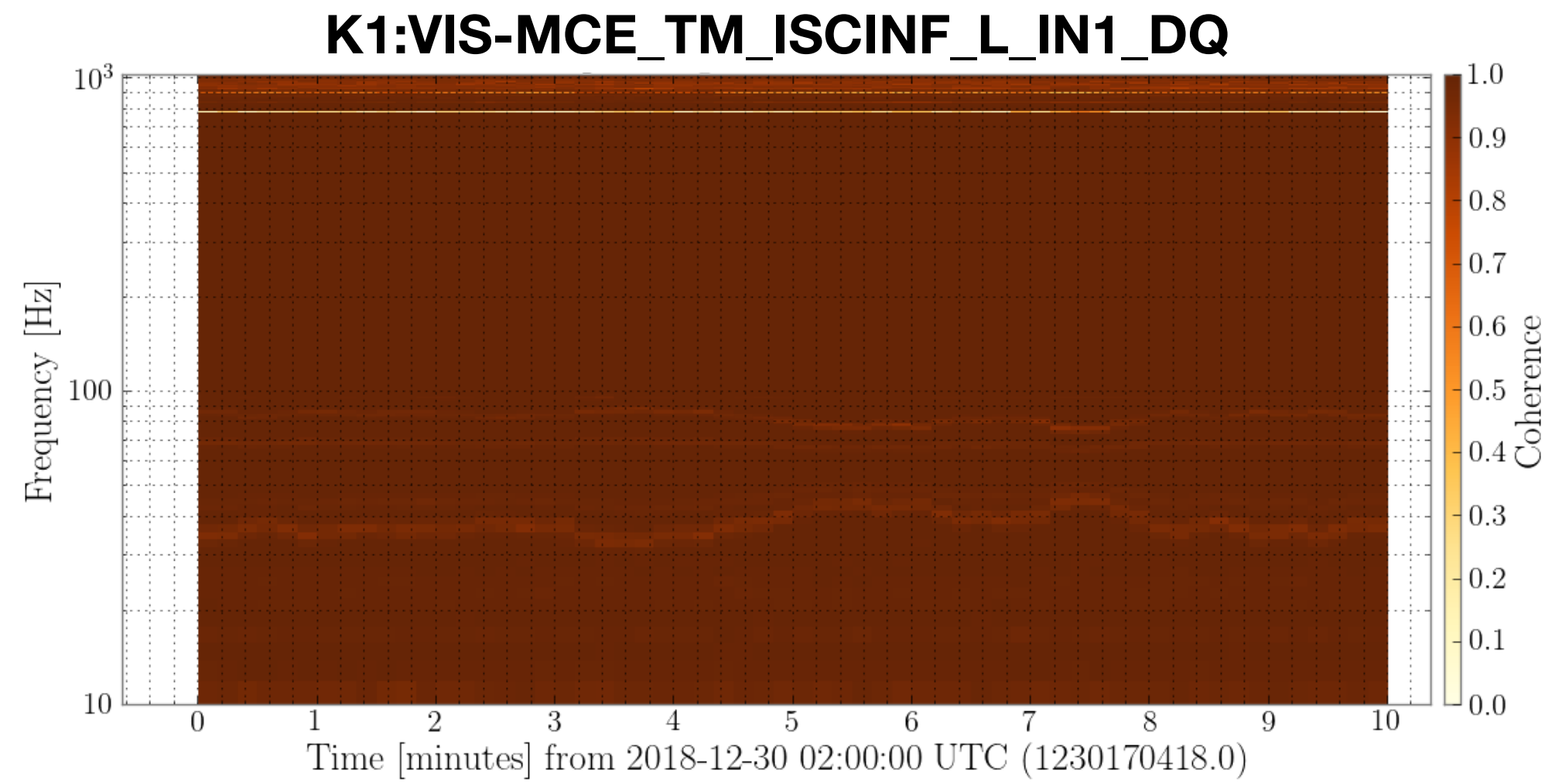


K1:LSC-CARM_SERVO_SLOW_DAQ_OUT_DQ (1230170418-600)





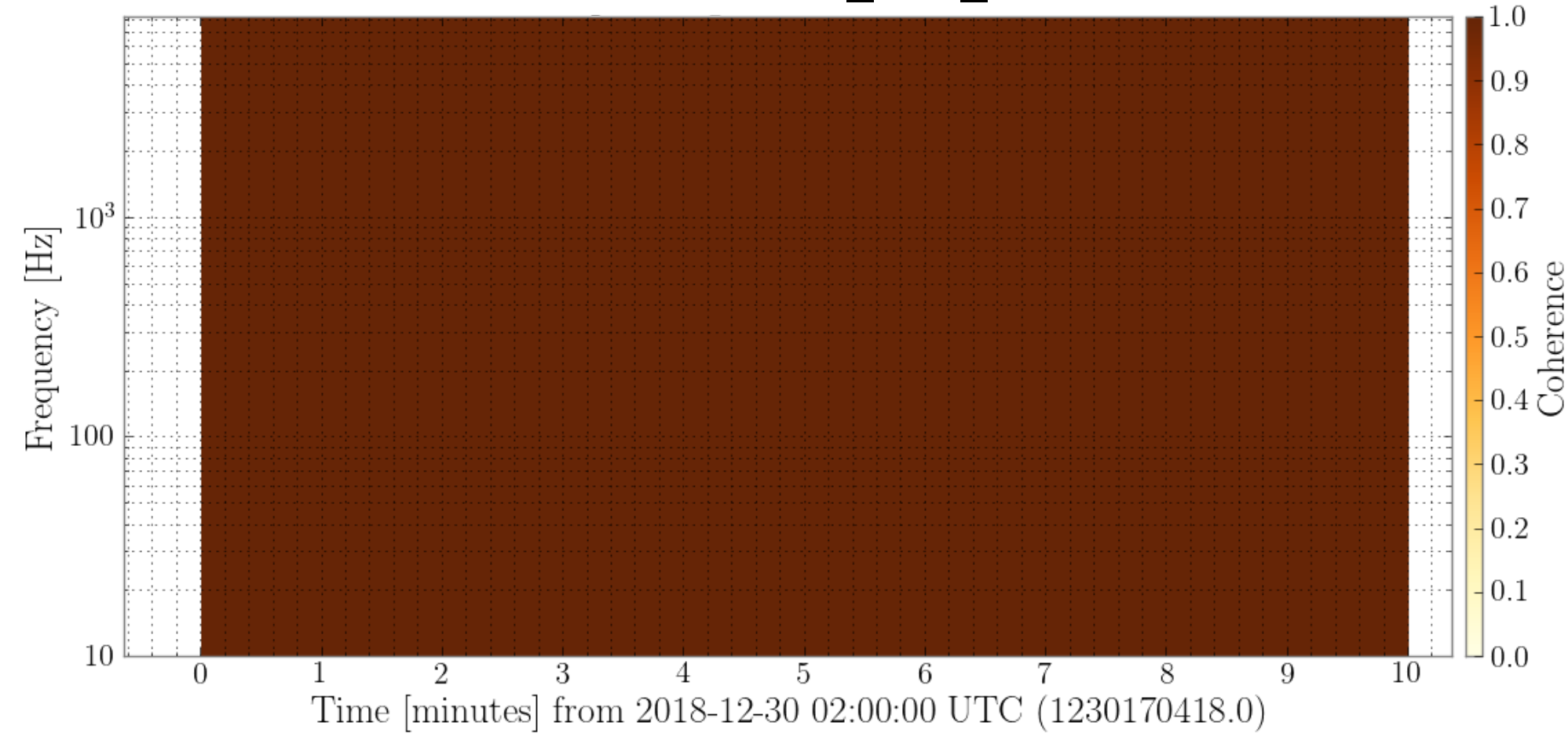
Coherence between K1:LSC-CARM_SERVO_SLOW_DAQ_OUT_DQ to some channel



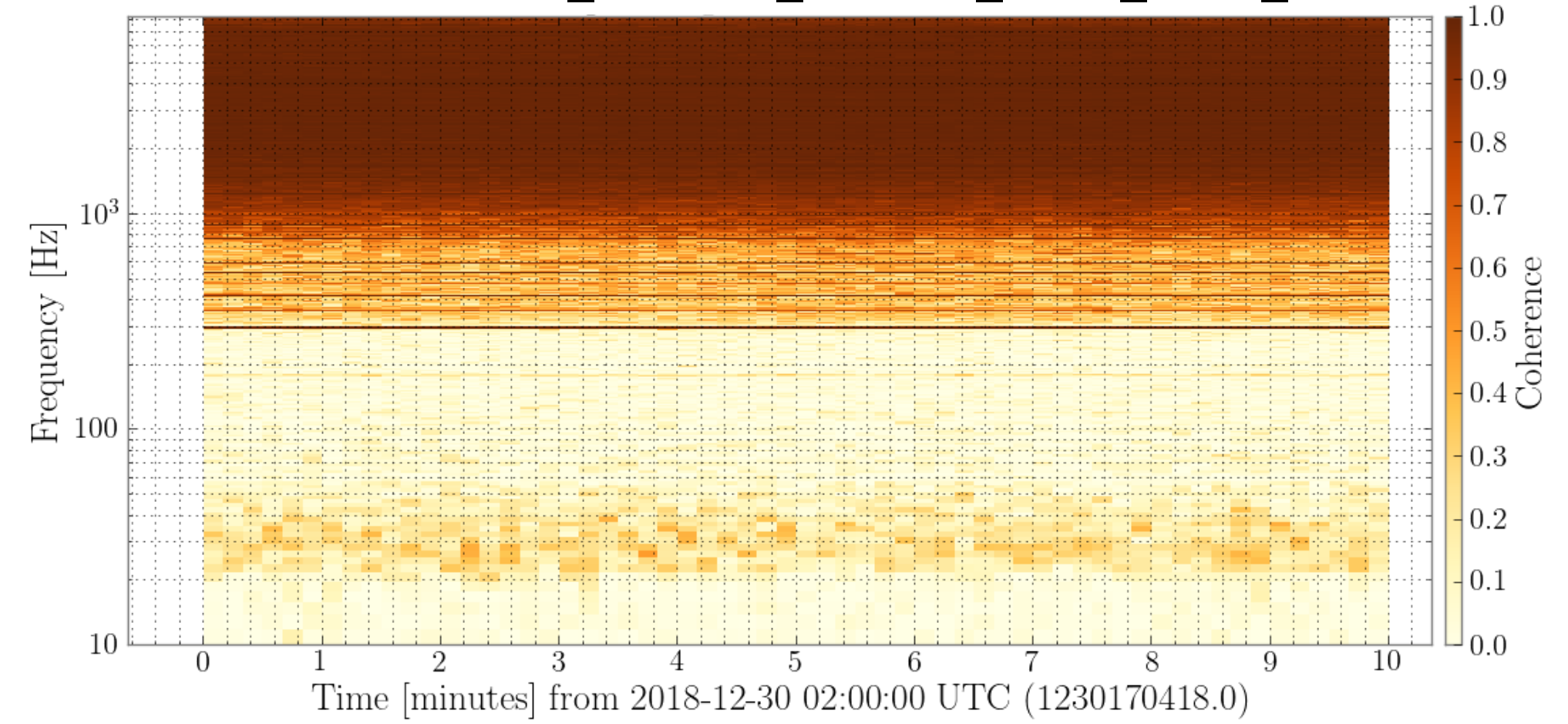


Coherence between K1:LSC-CARM_SERVO_SLOW_DAQ_OUT_DQ to some channel

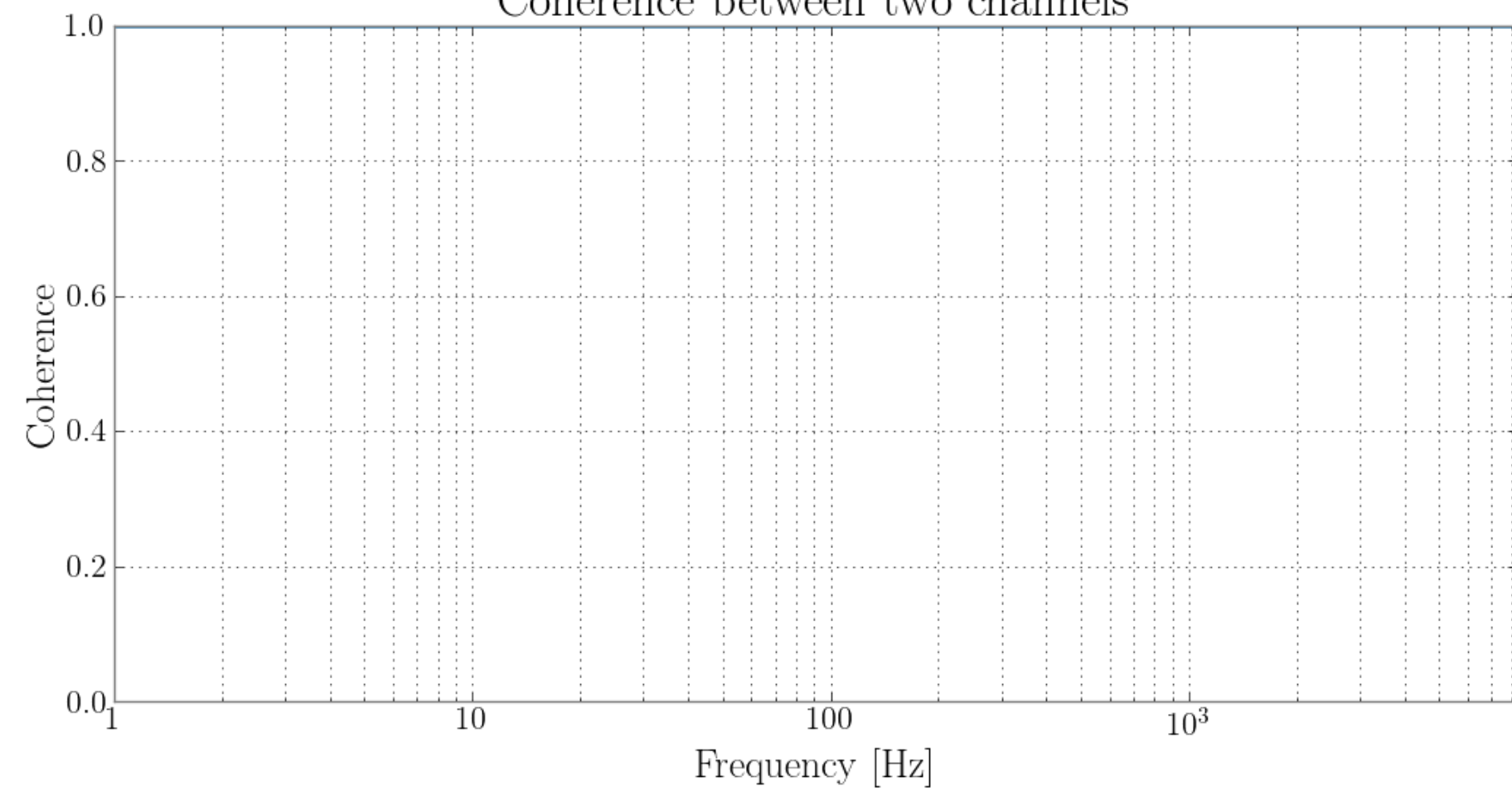
K1:LSC-MCL_IN1_DQ



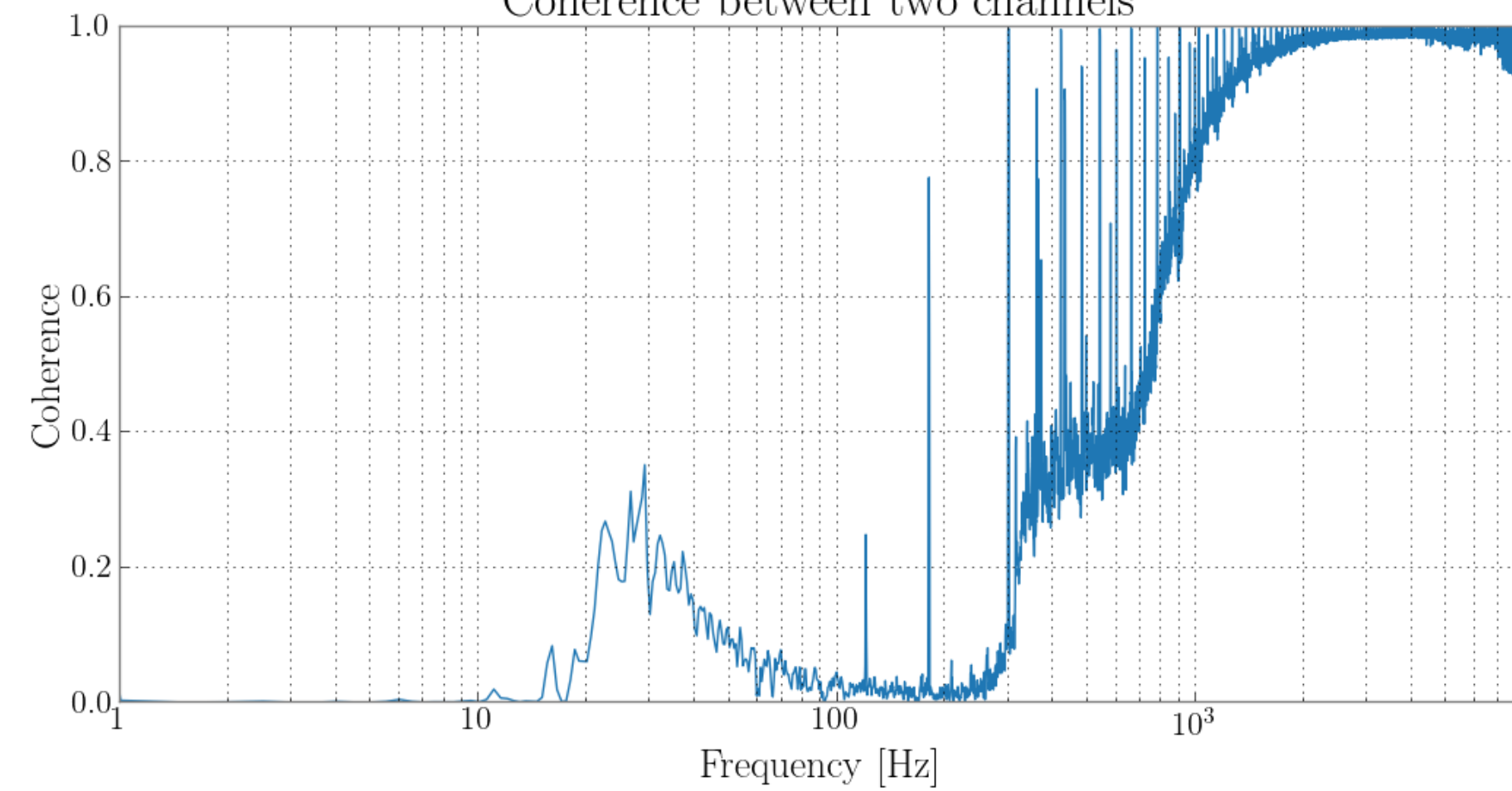
K1:LSC-CARM_SERVO_MIXER_DAQ_OUT_DQ



Coherence between two channels



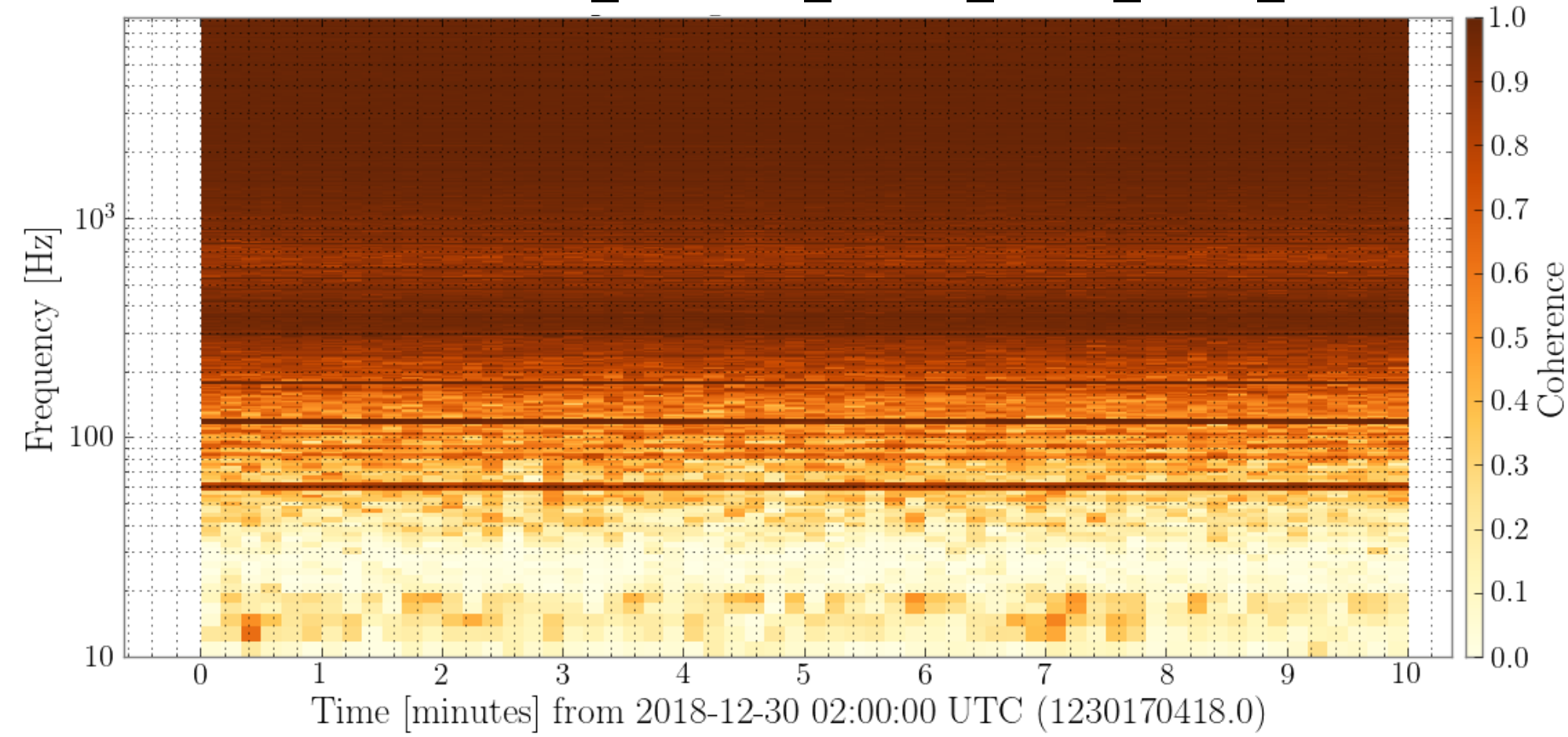
Coherence between two channels



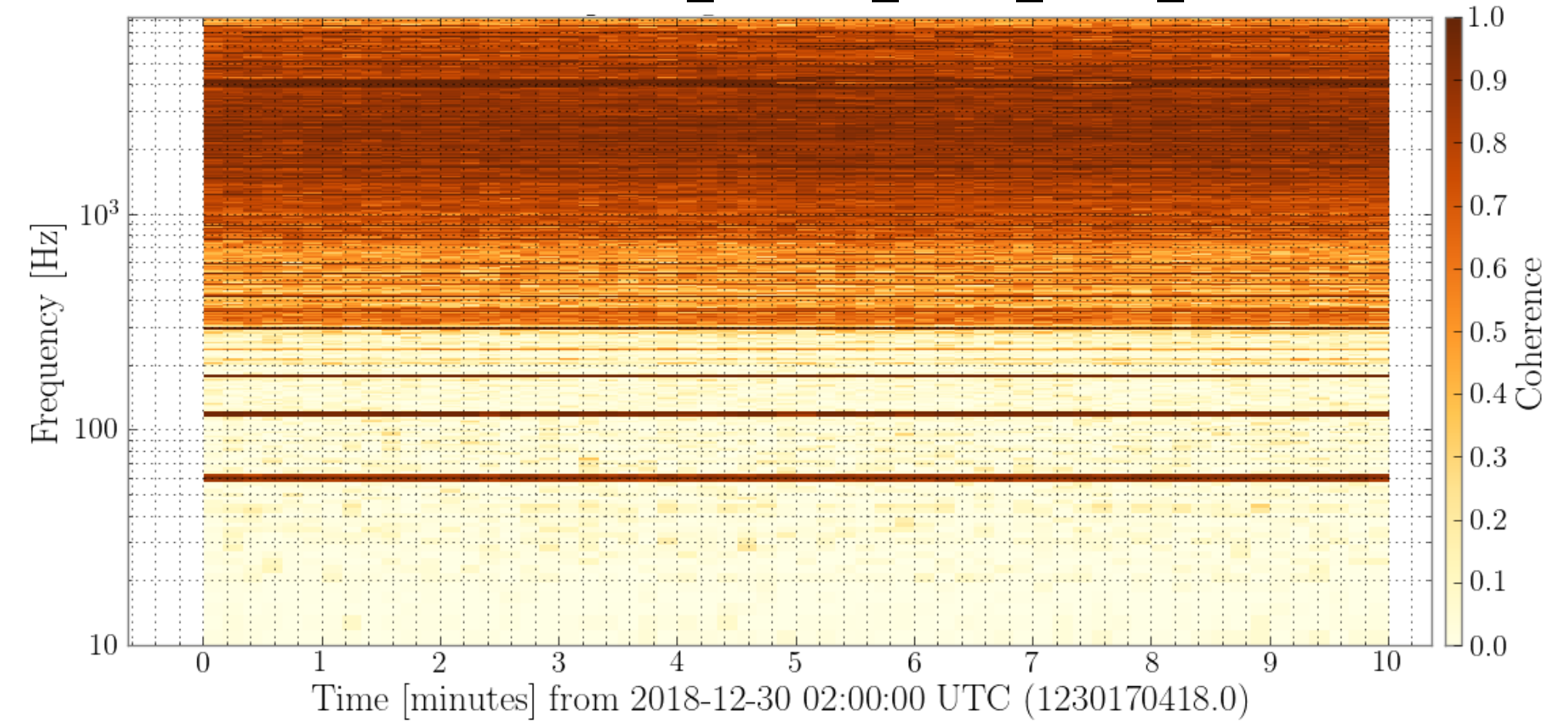


Coherence between K1:LSC-CARM_SERVO_SLOW_DAQ_OUT_DQ to some channel

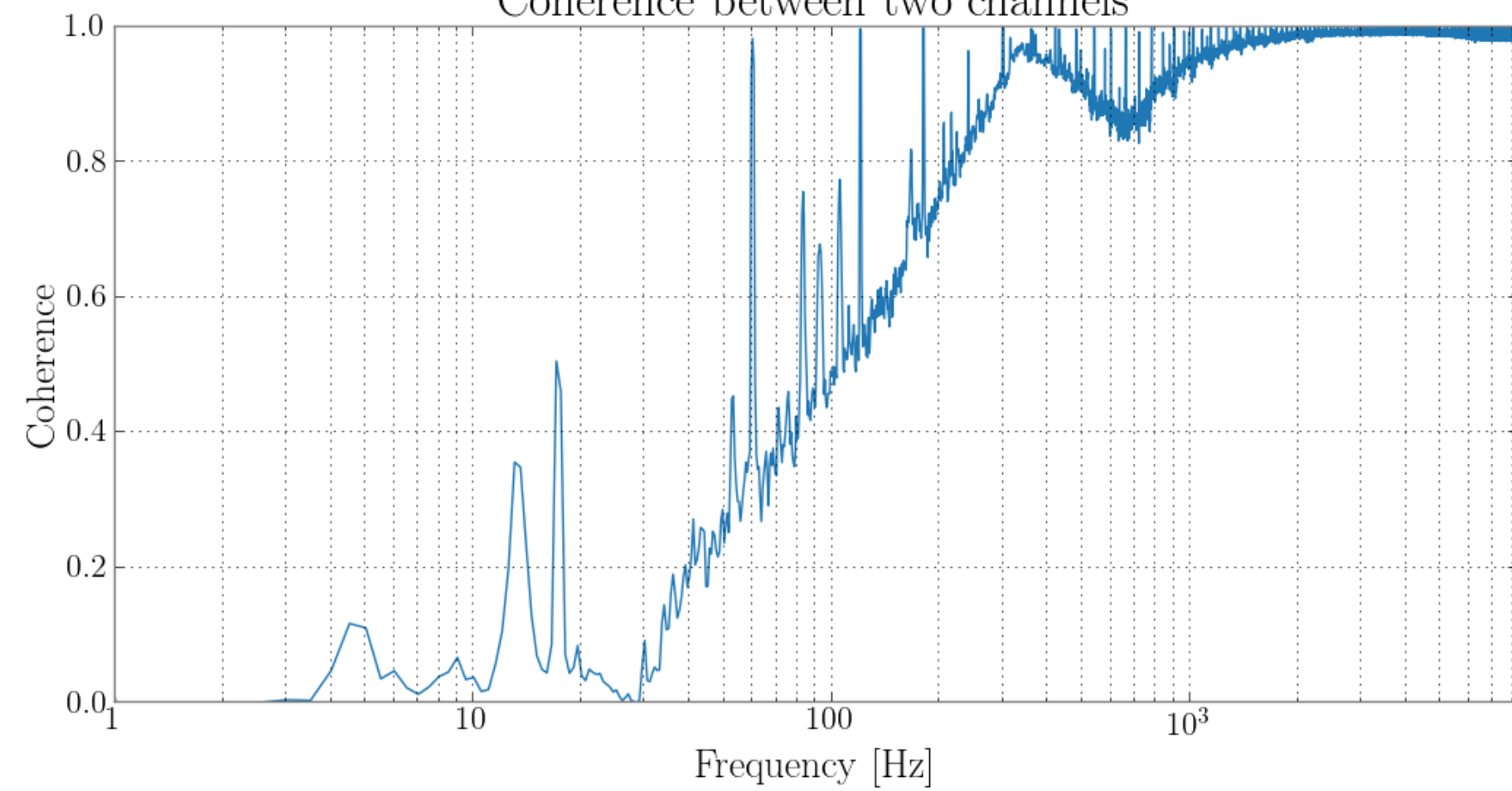
K1:LSC-CARM_SERVO_FAST_DAQ_OUT_DQ



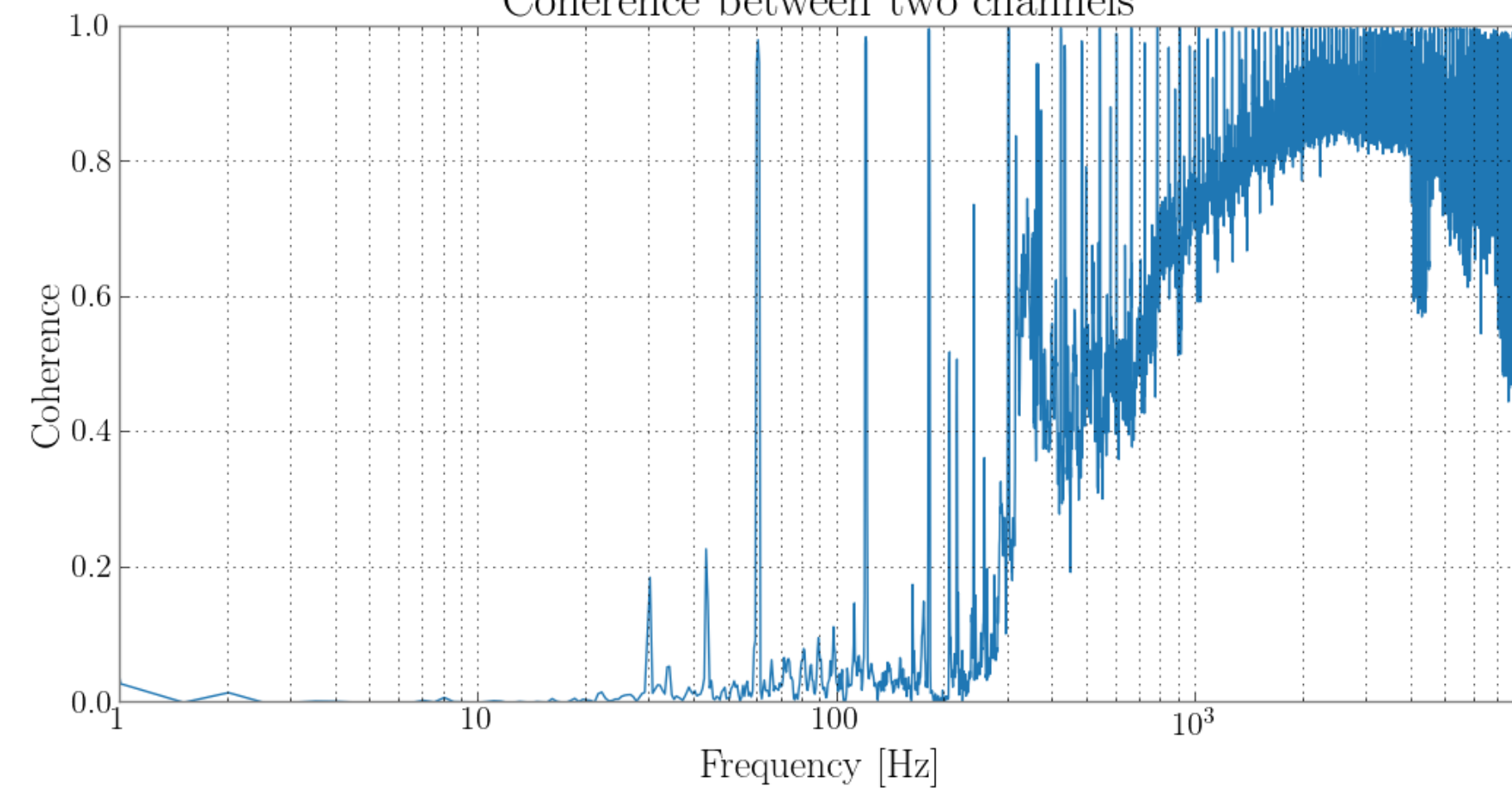
K1:IMC-SERVO_SLOW_DAQ_OUT_DQ



Coherence between two channels

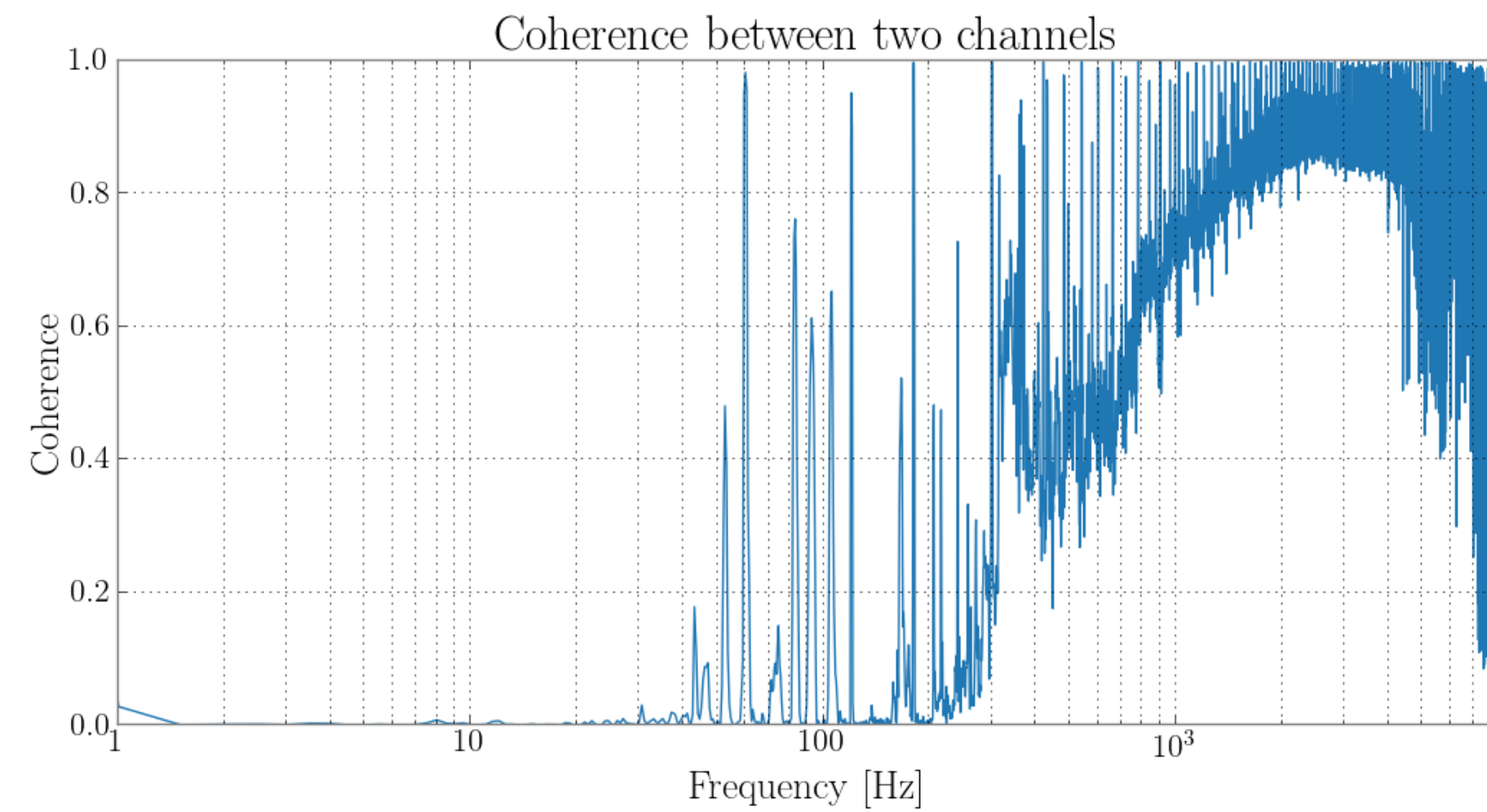
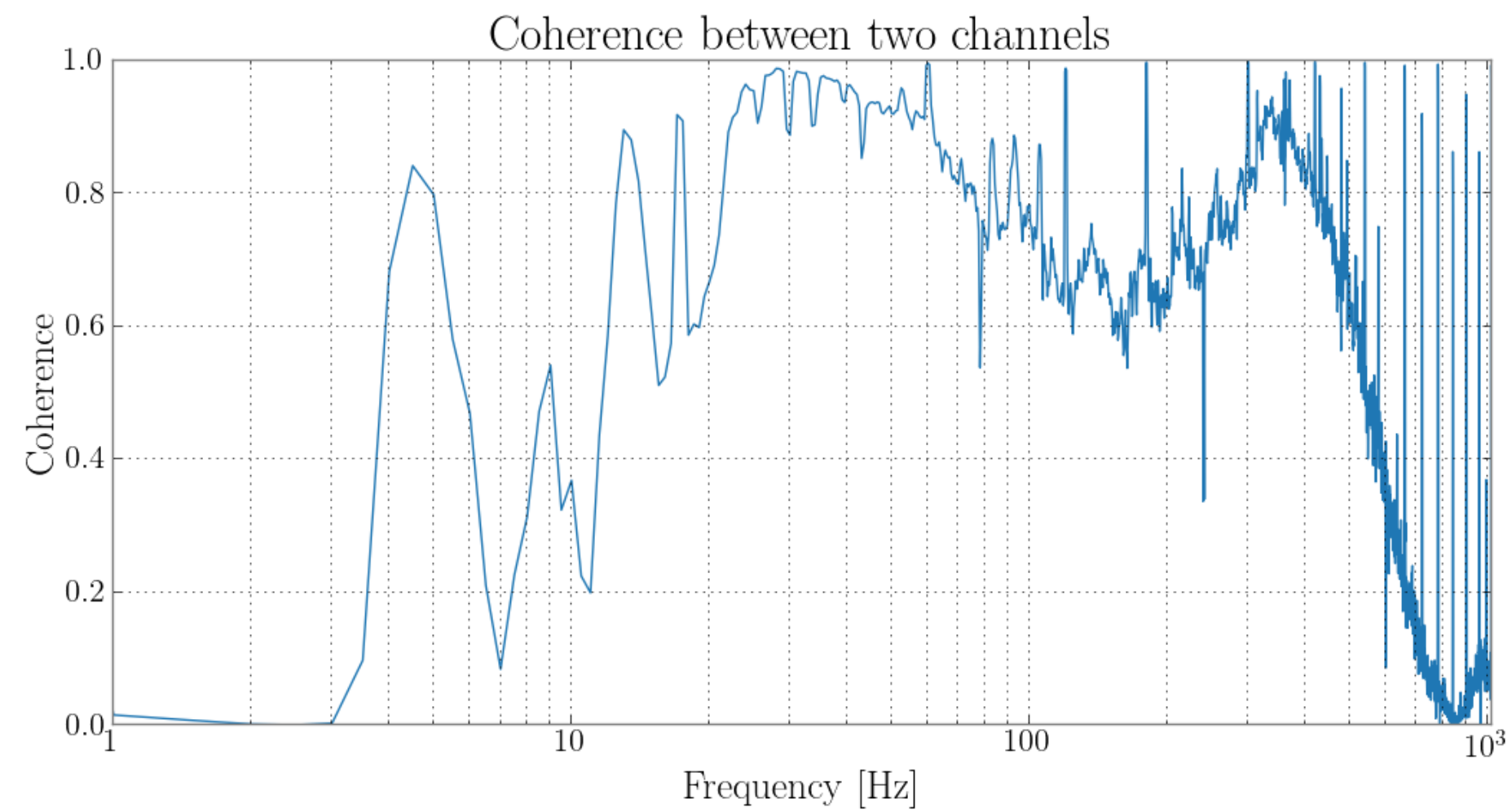
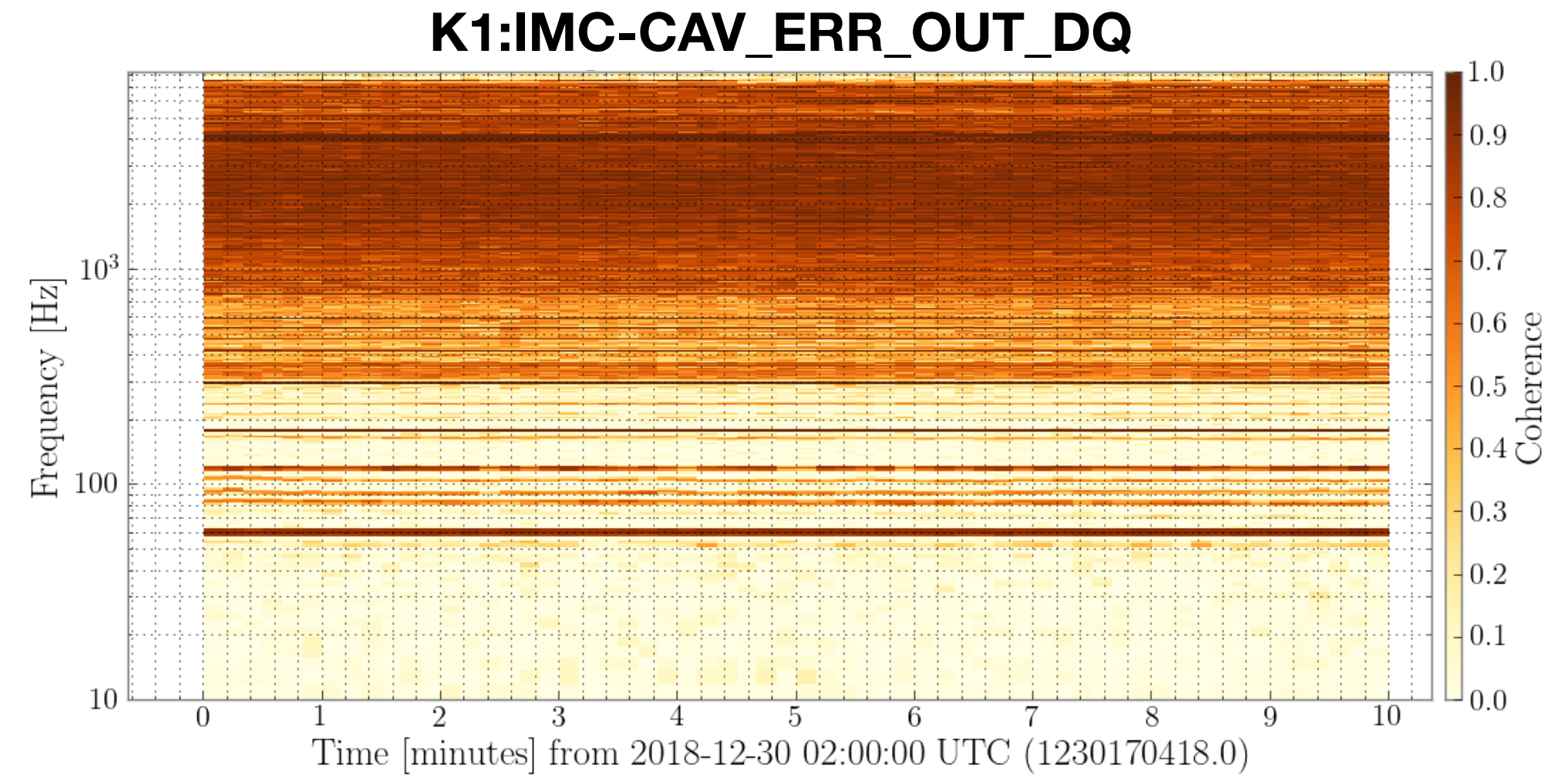
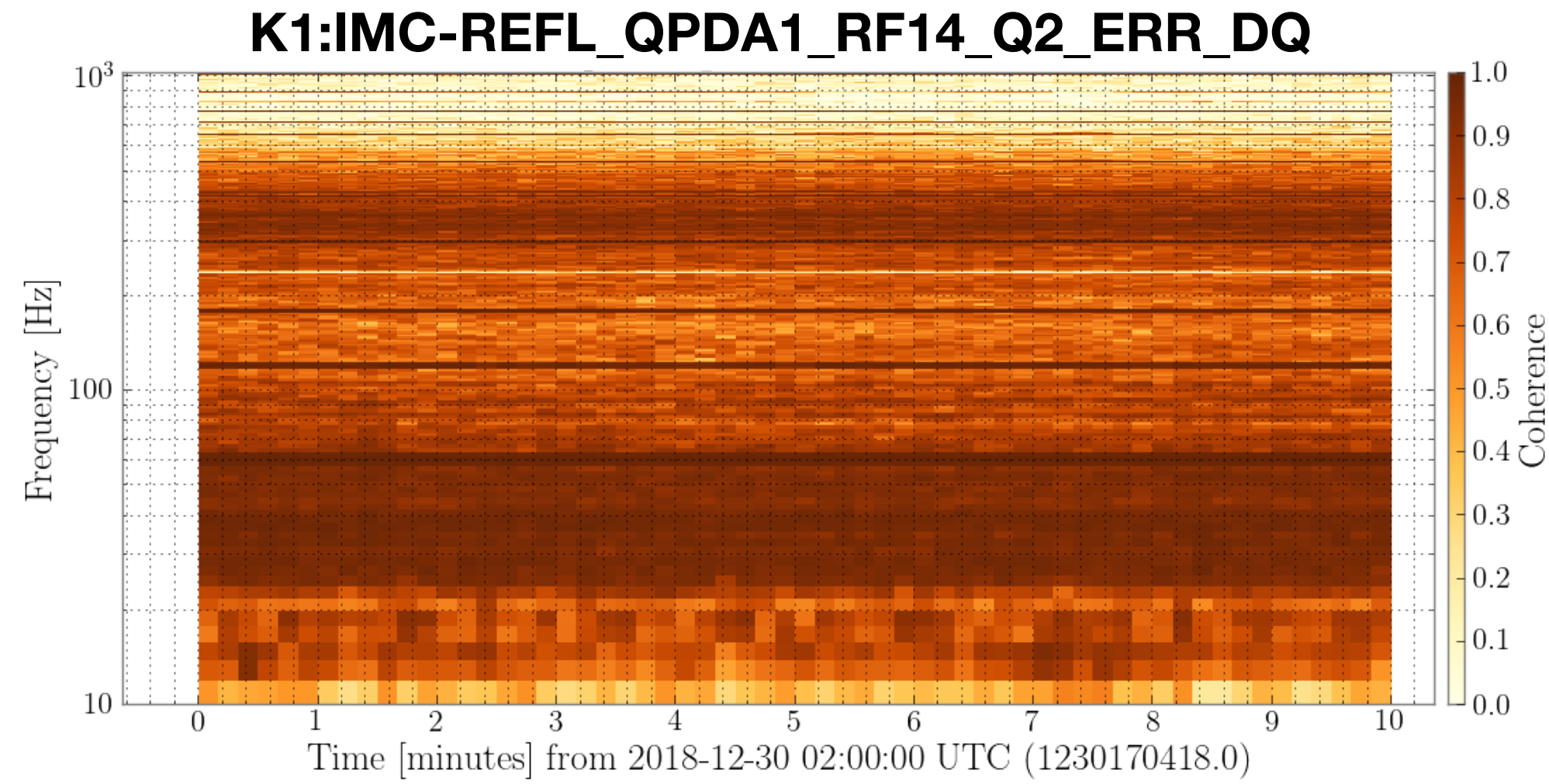


Coherence between two channels





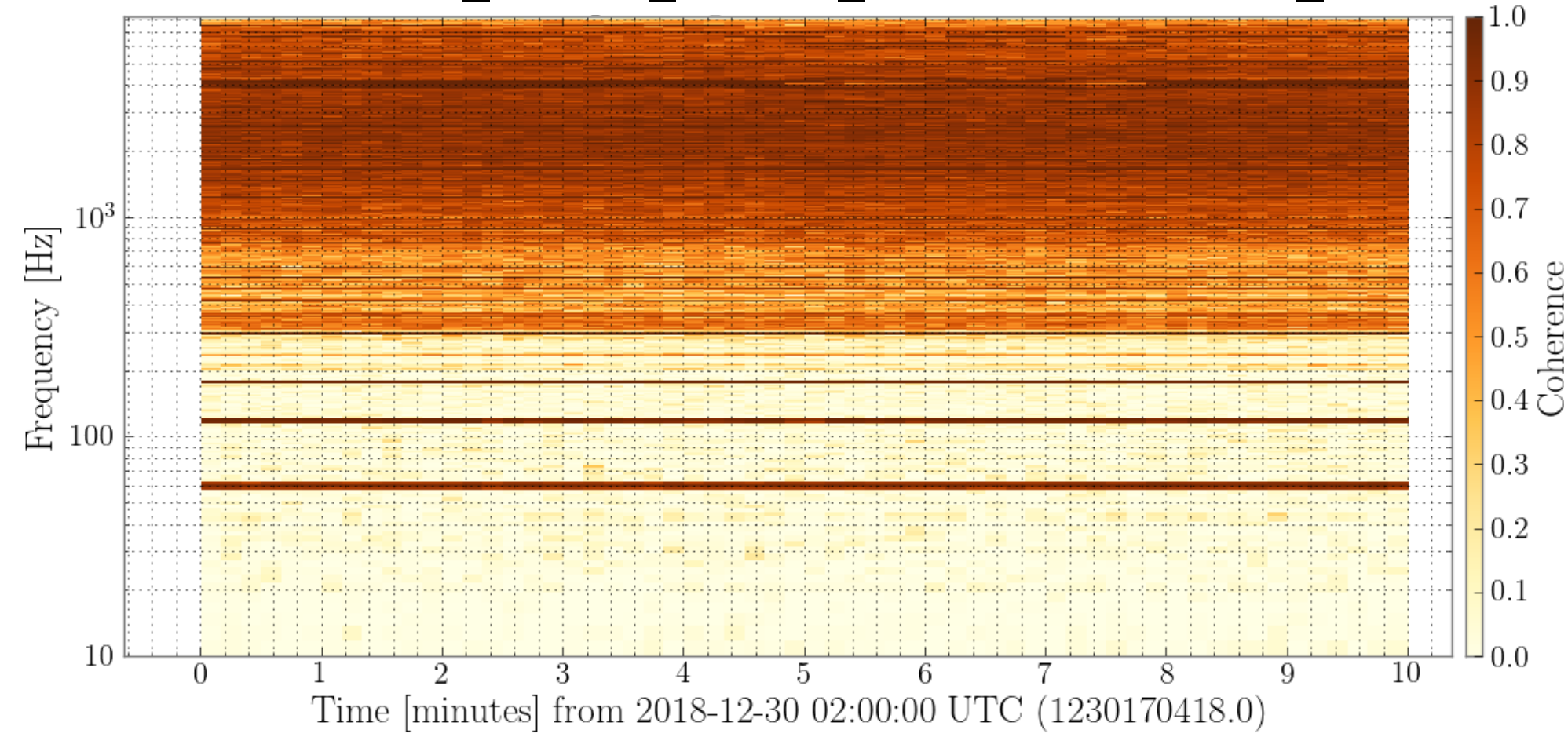
Coherence between K1:LSC-CARM_SERVO_SLOW_DAQ_OUT_DQ to some channel



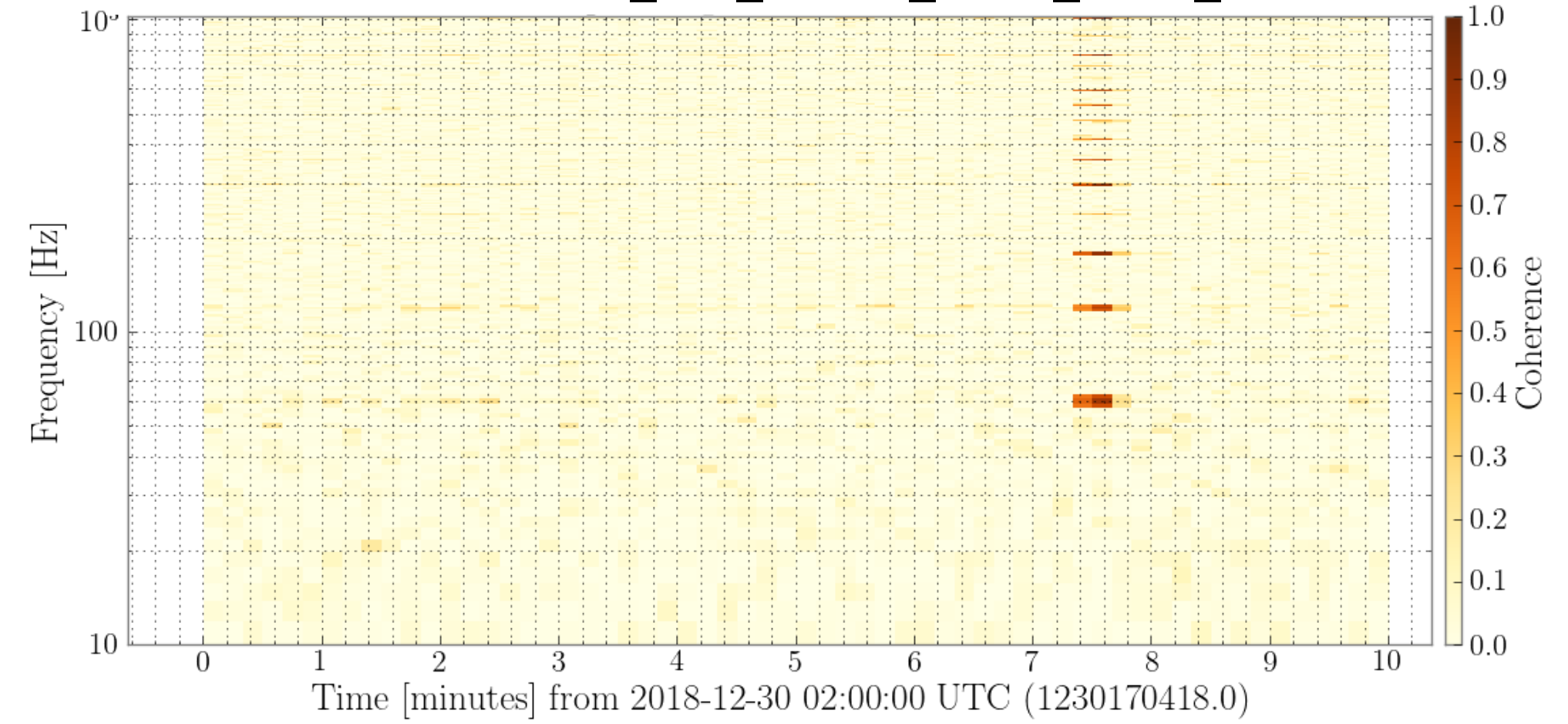


Coherence between K1:LSC-CARM_SERVO_SLOW_DAQ_OUT_DQ to some channel

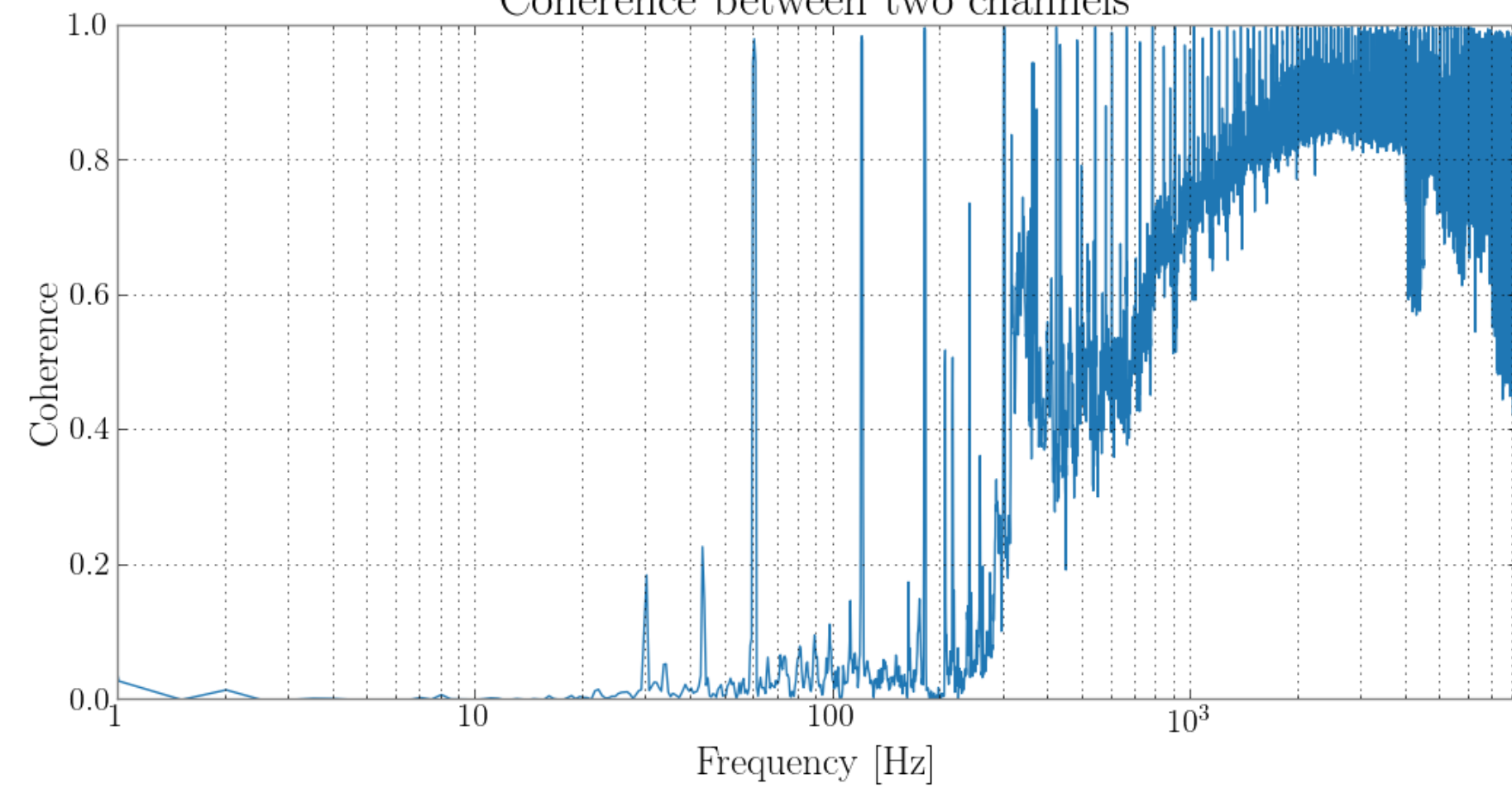
K1:CAL-CS_PROC_XARM_DISPLACEMENT_DQ



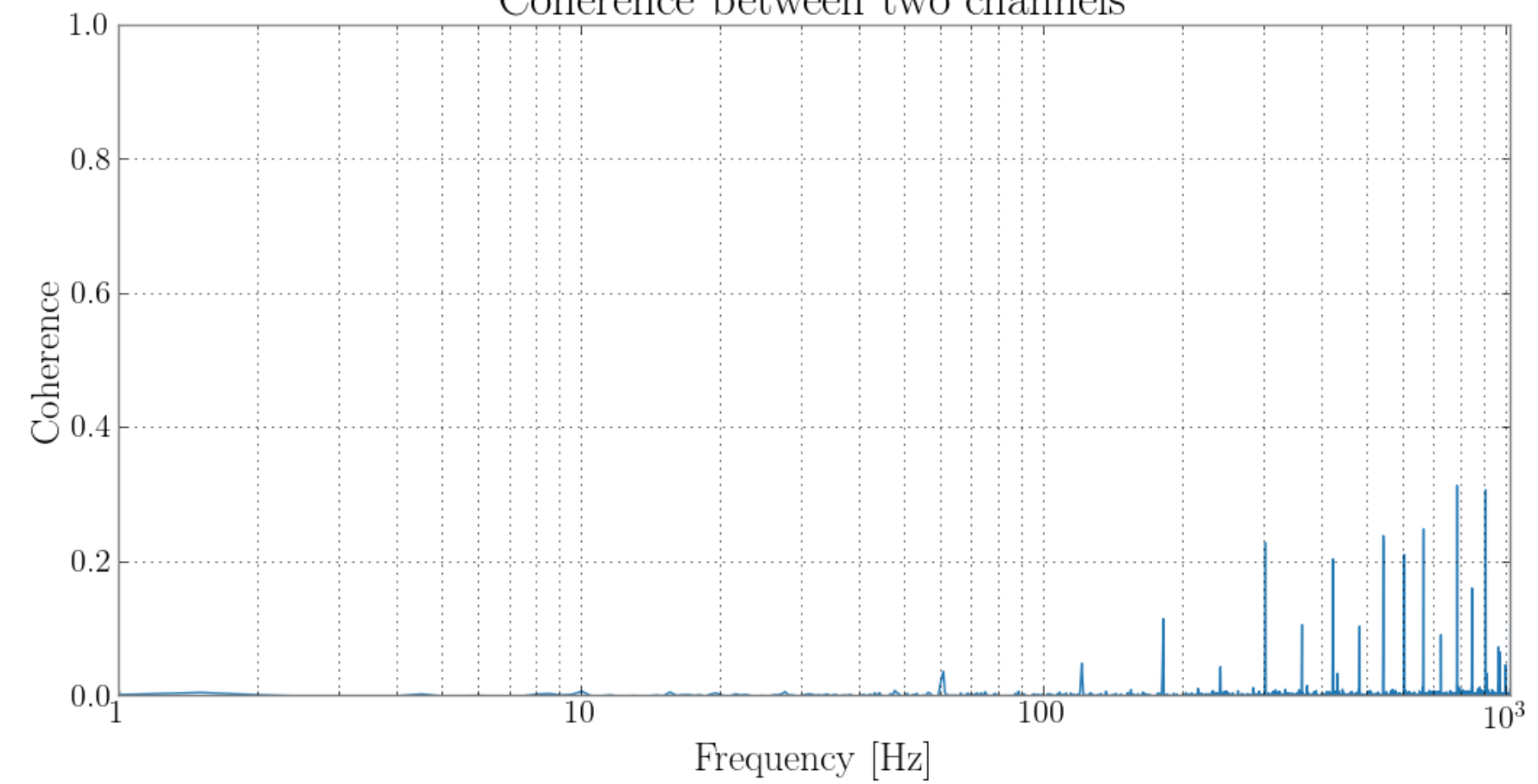
K1:AOS-TMSX_GR_QPD1_YAW_OUT_DQ



Coherence between two channels

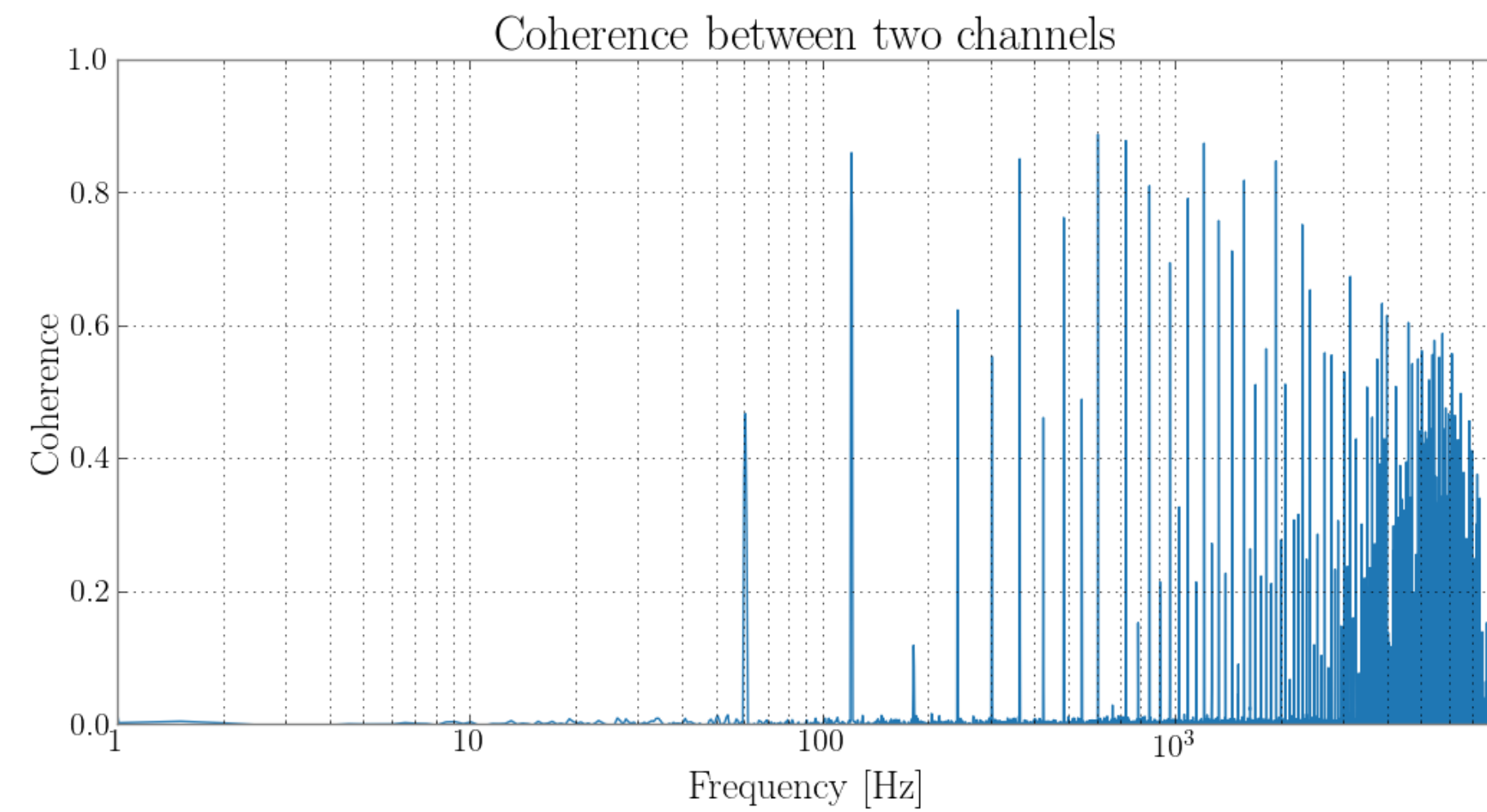
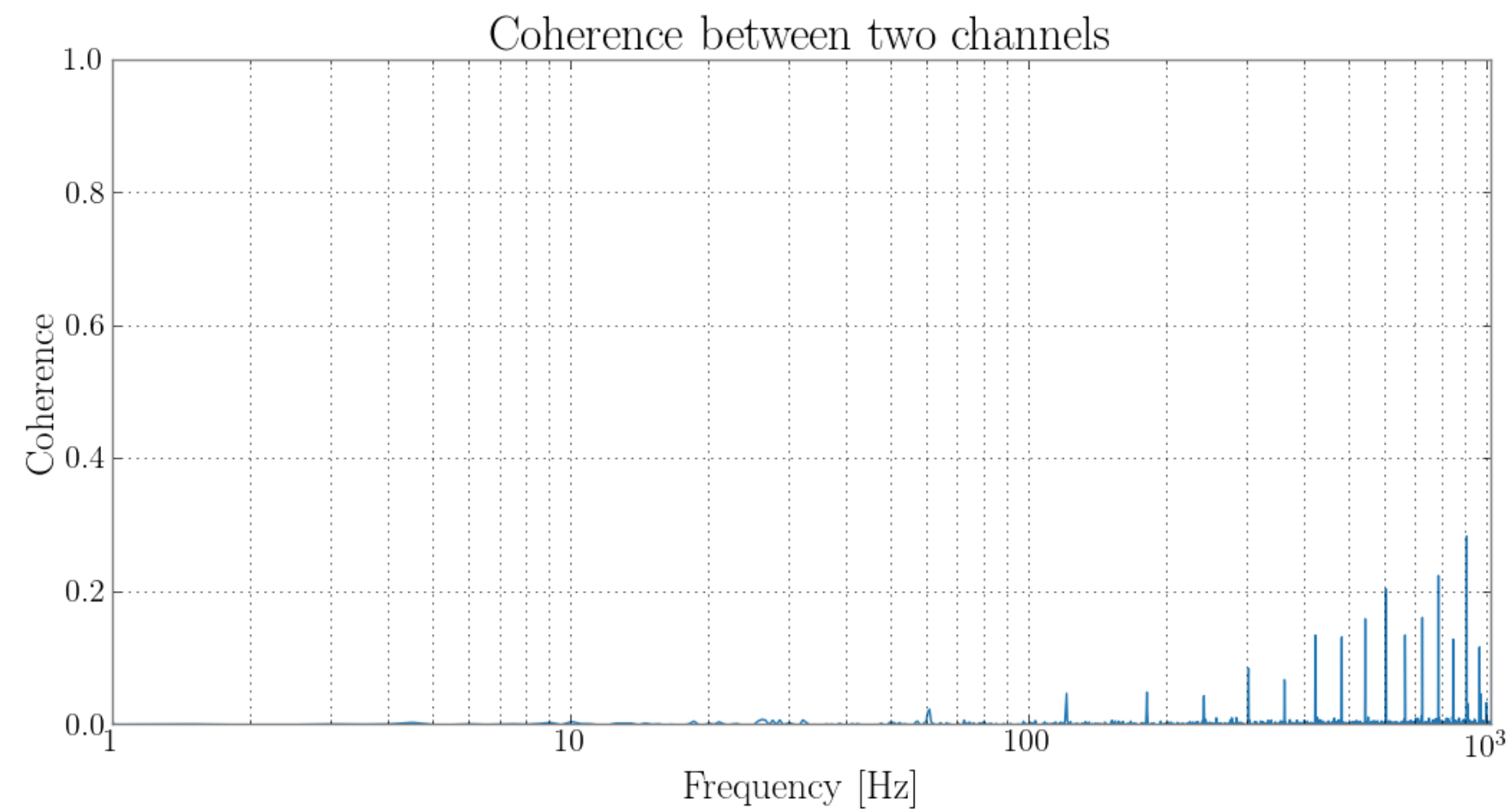
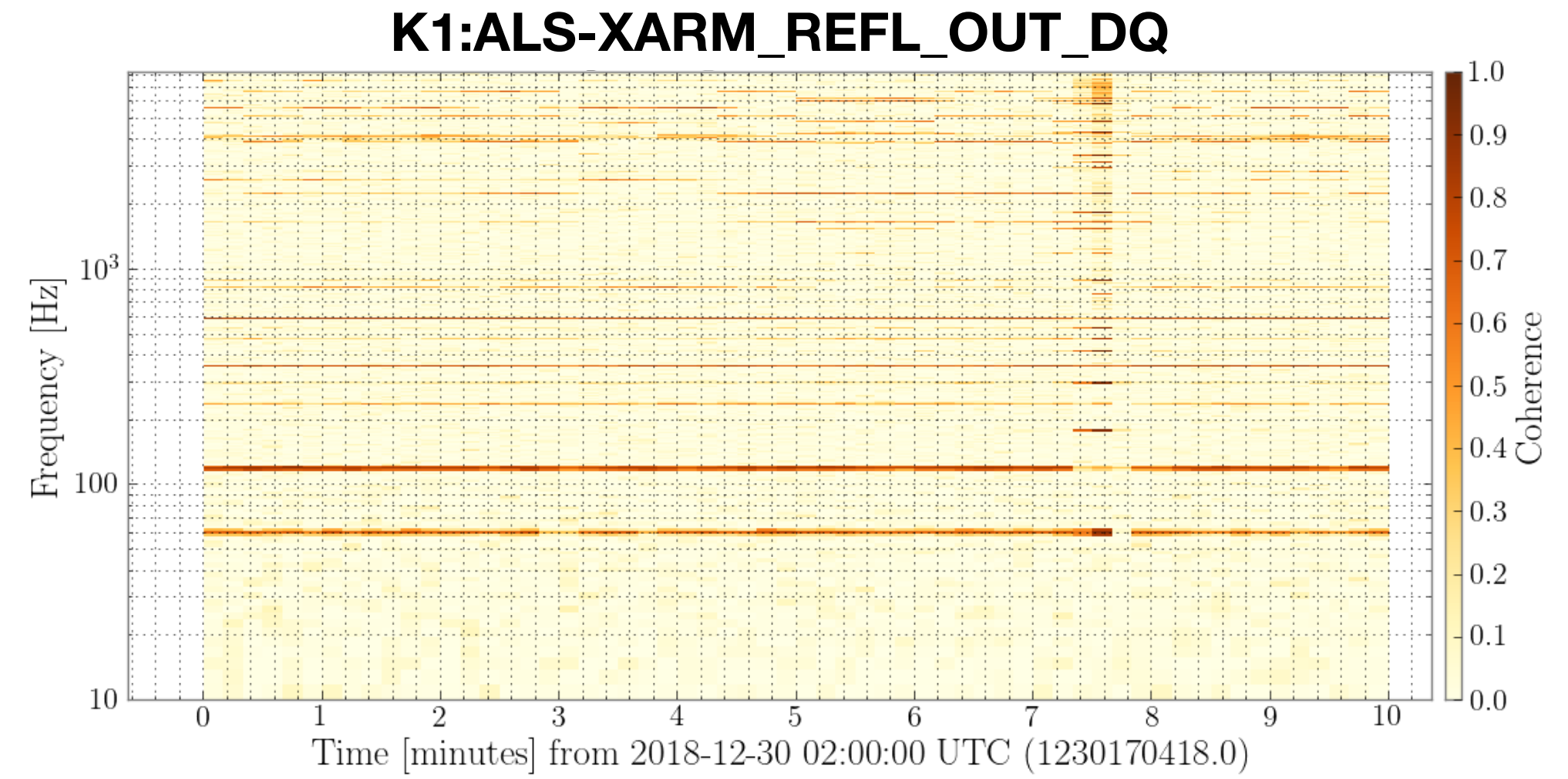
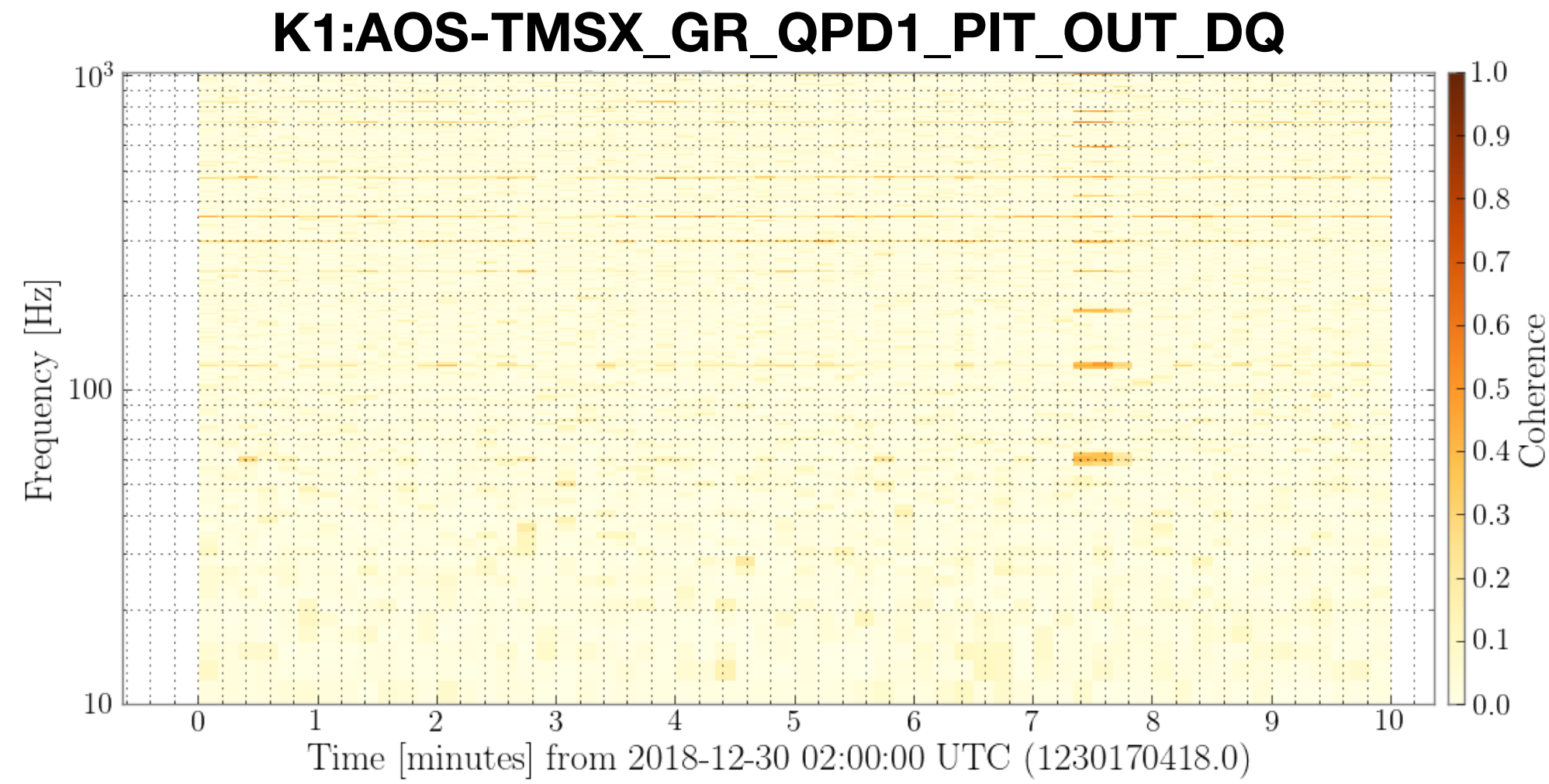


Coherence between two channels



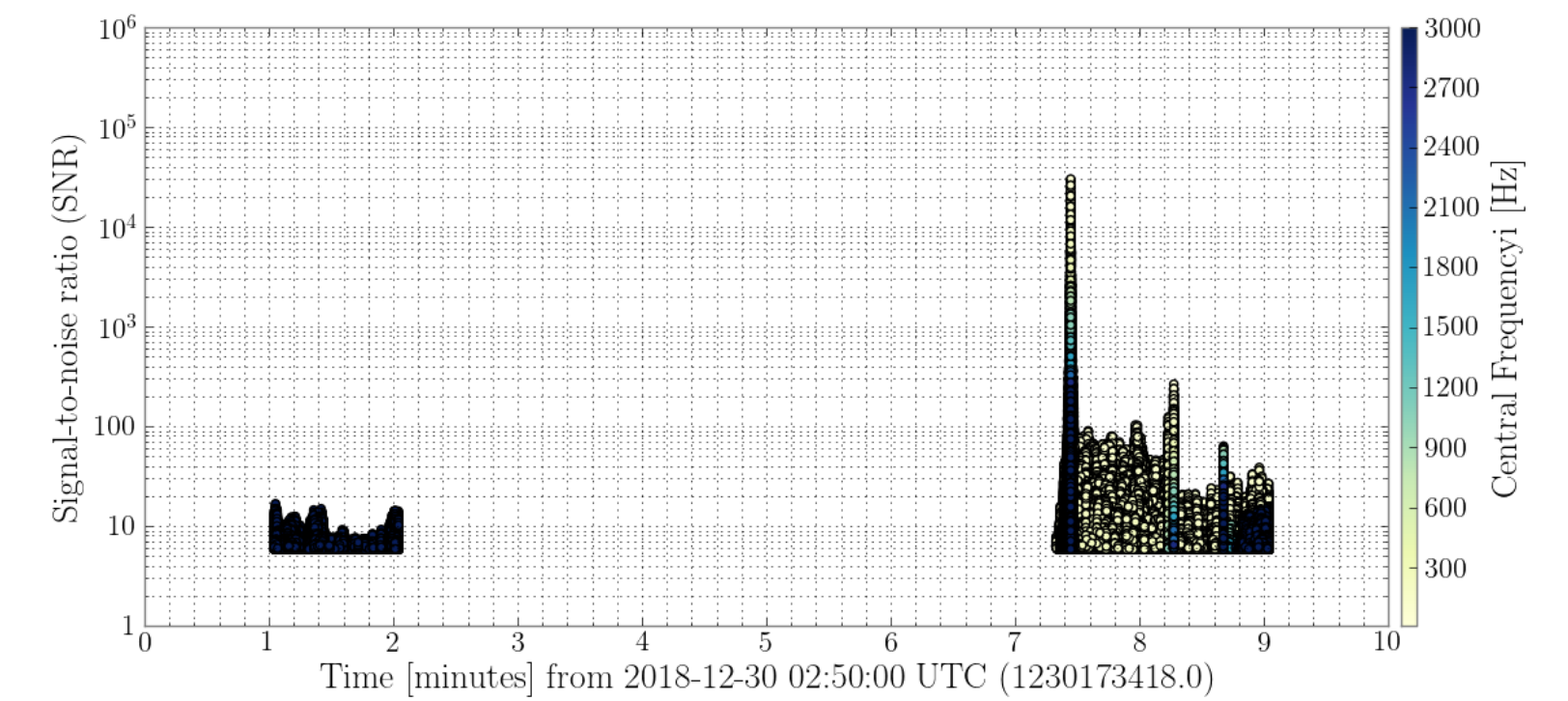
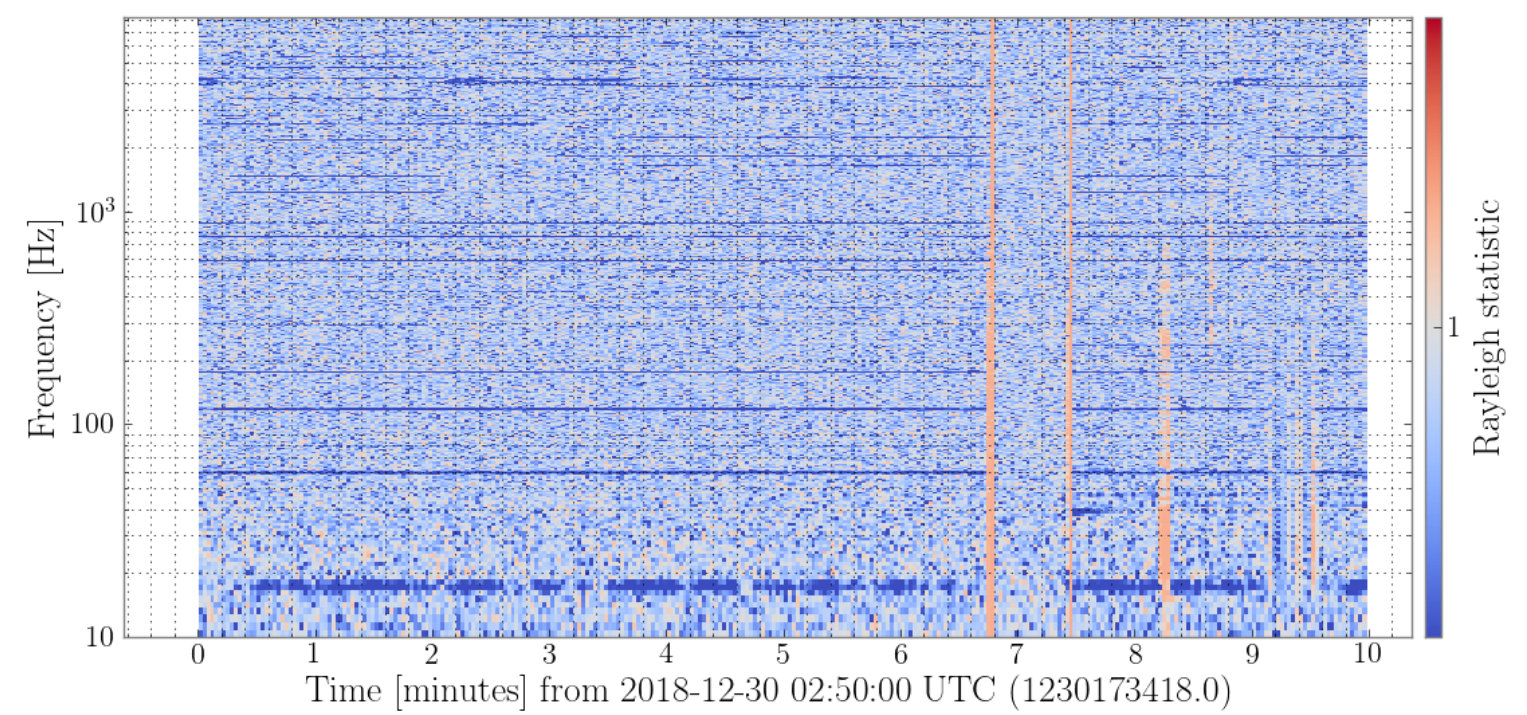
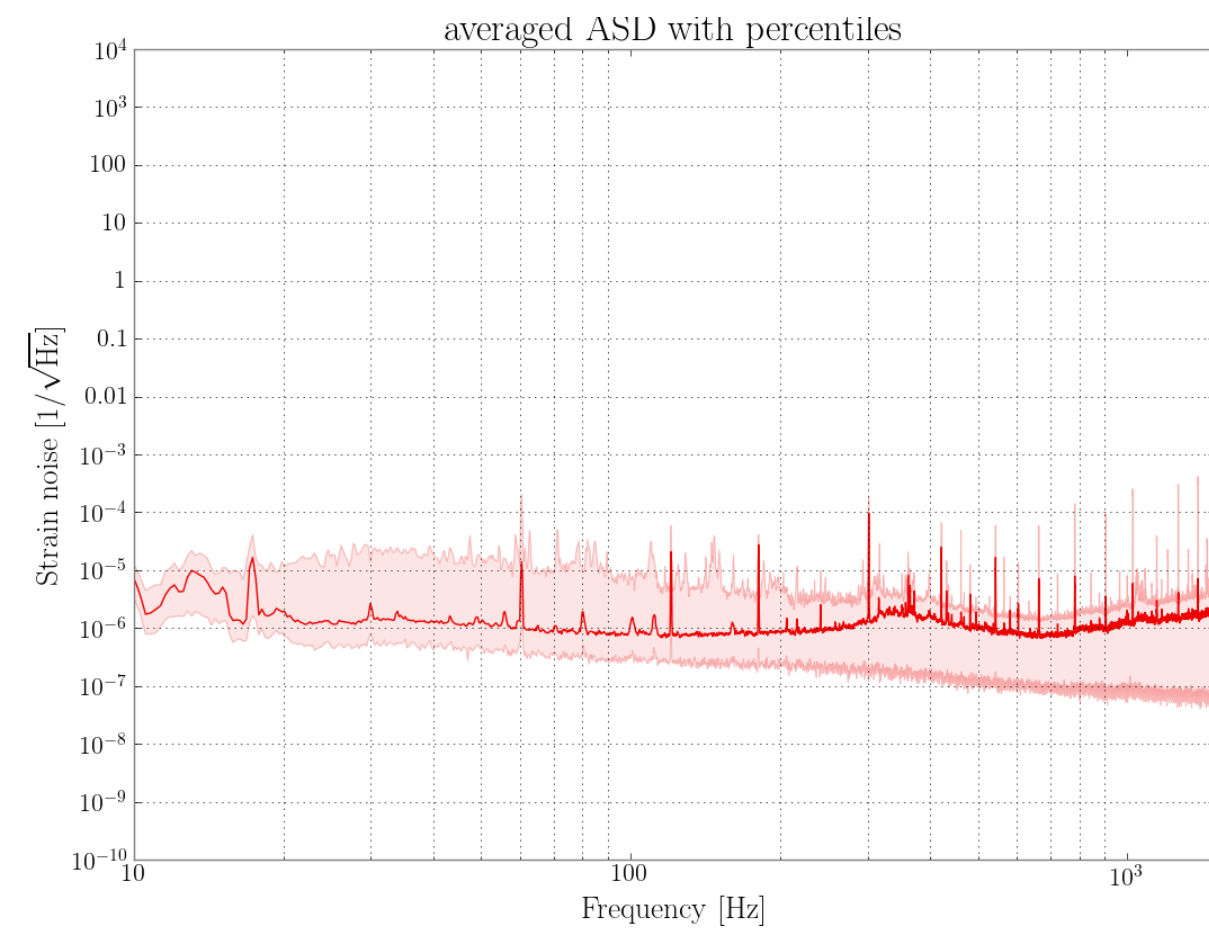
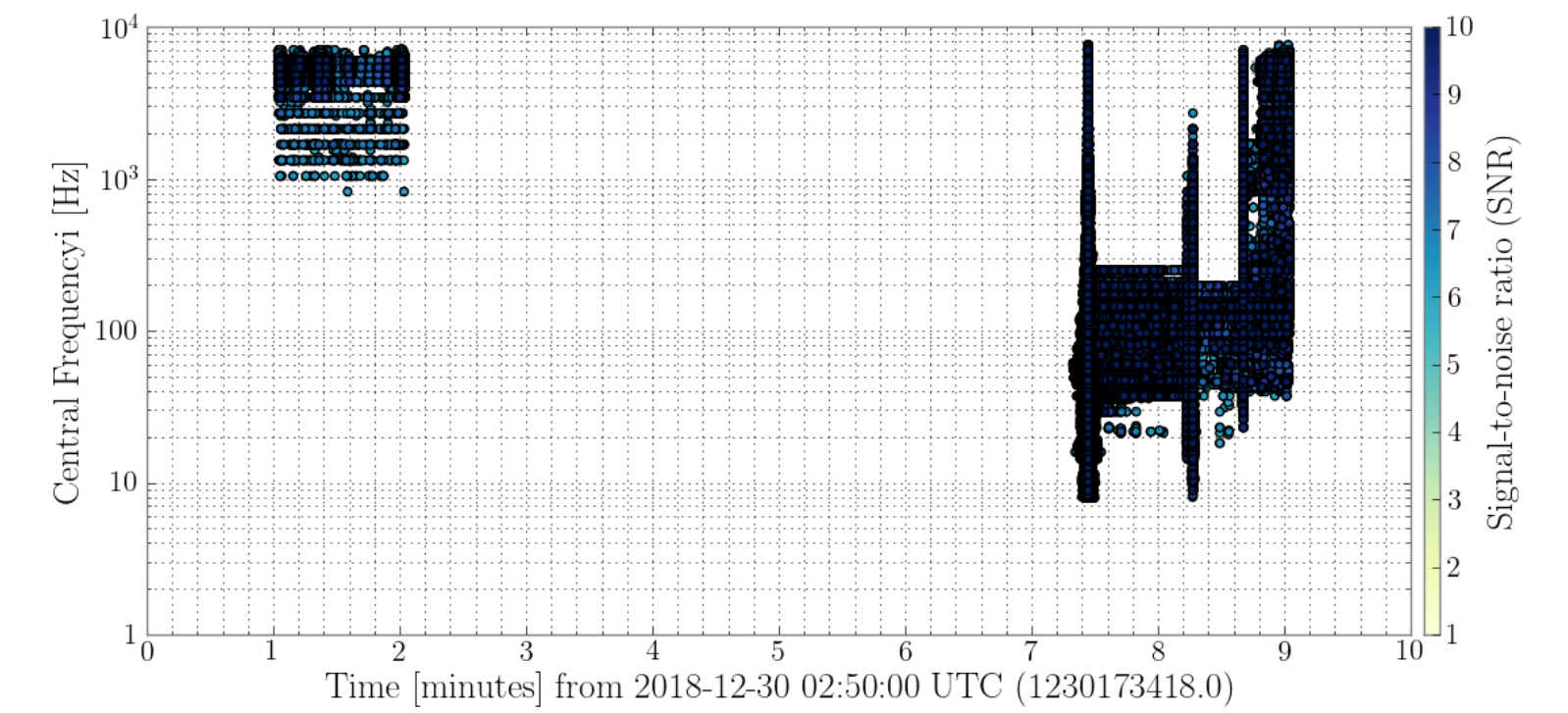
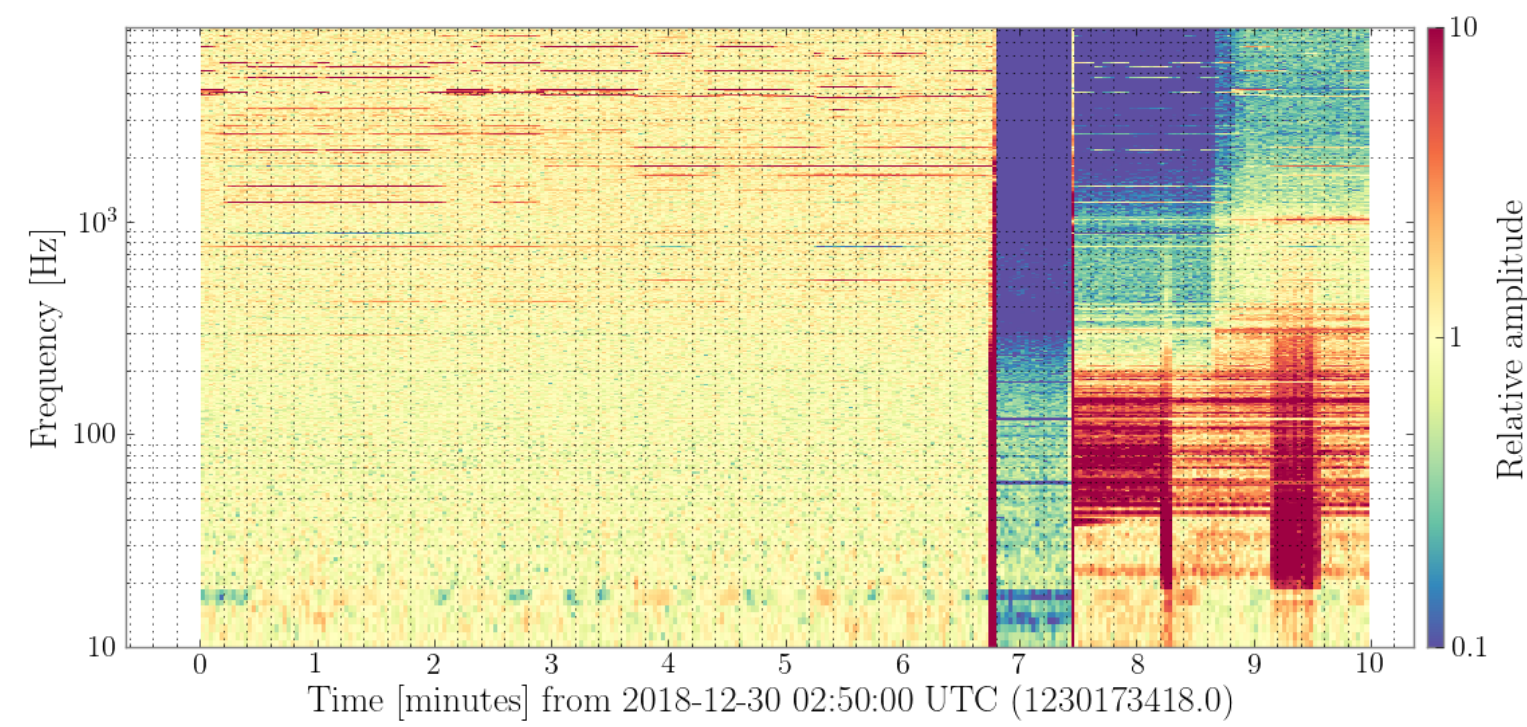
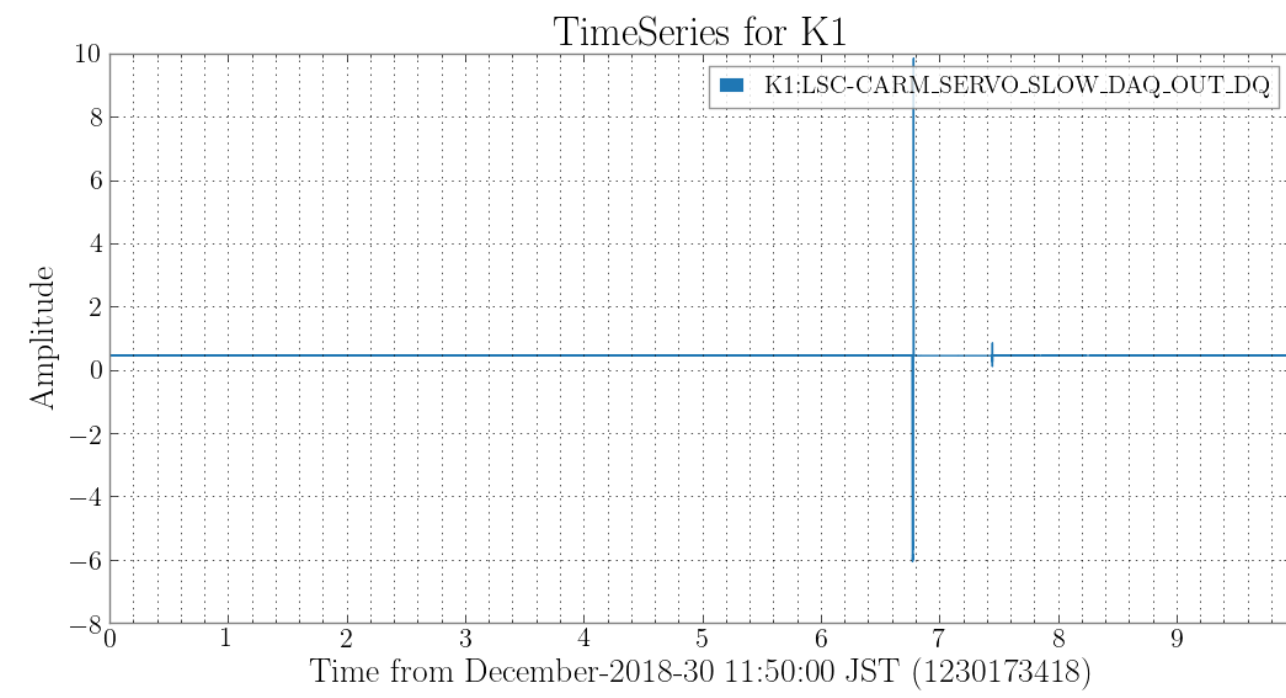


Coherence between K1:LSC-CARM_SERVO_SLOW_DAQ_OUT_DQ to some channel



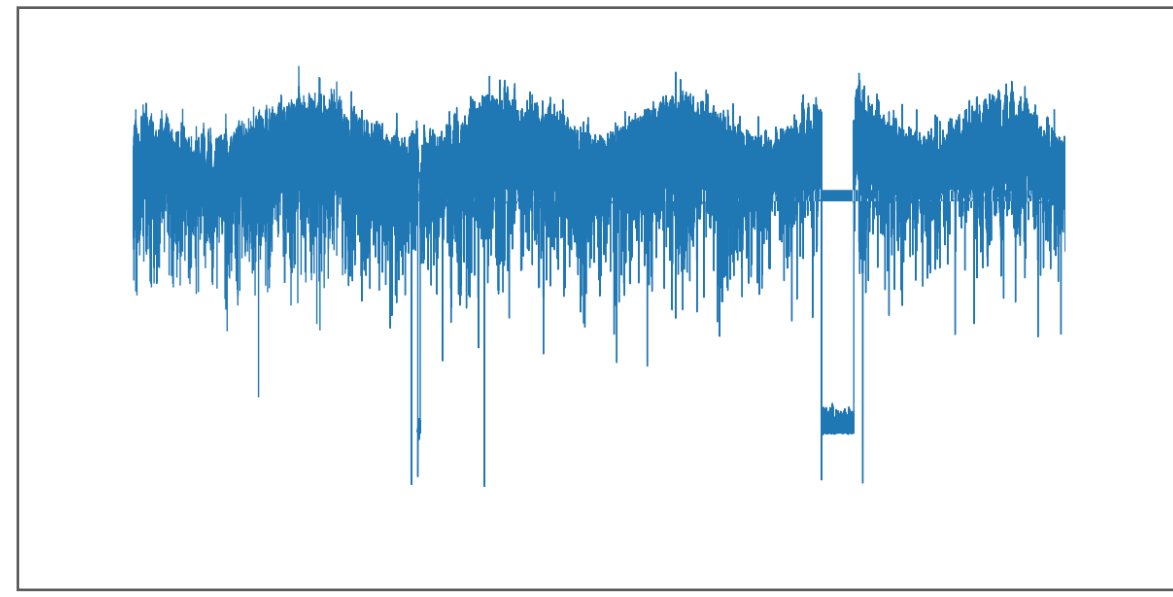


K1:LSC-CARM_SERVO_SLOW_DAQ_OUT_DQ (1230173418-600)

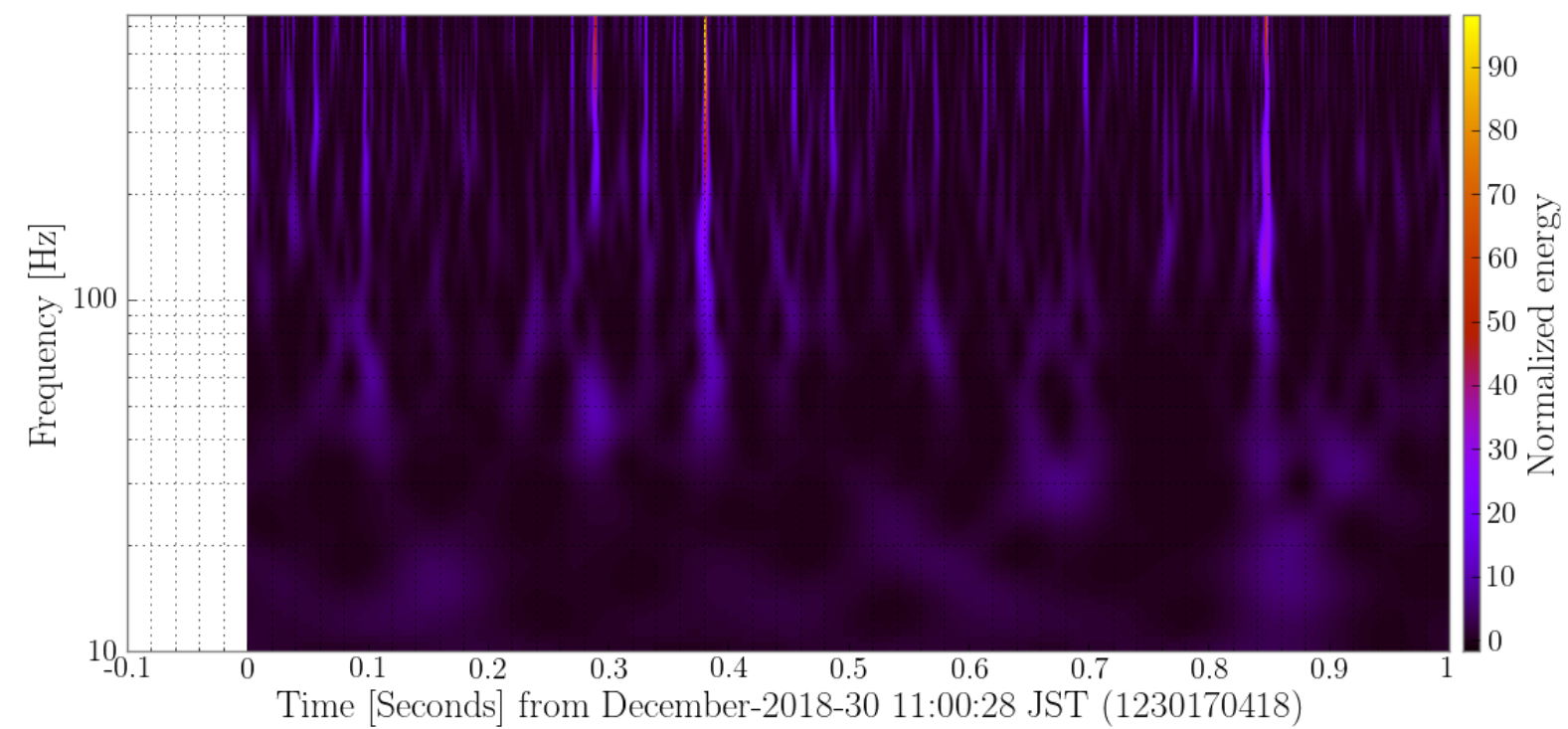
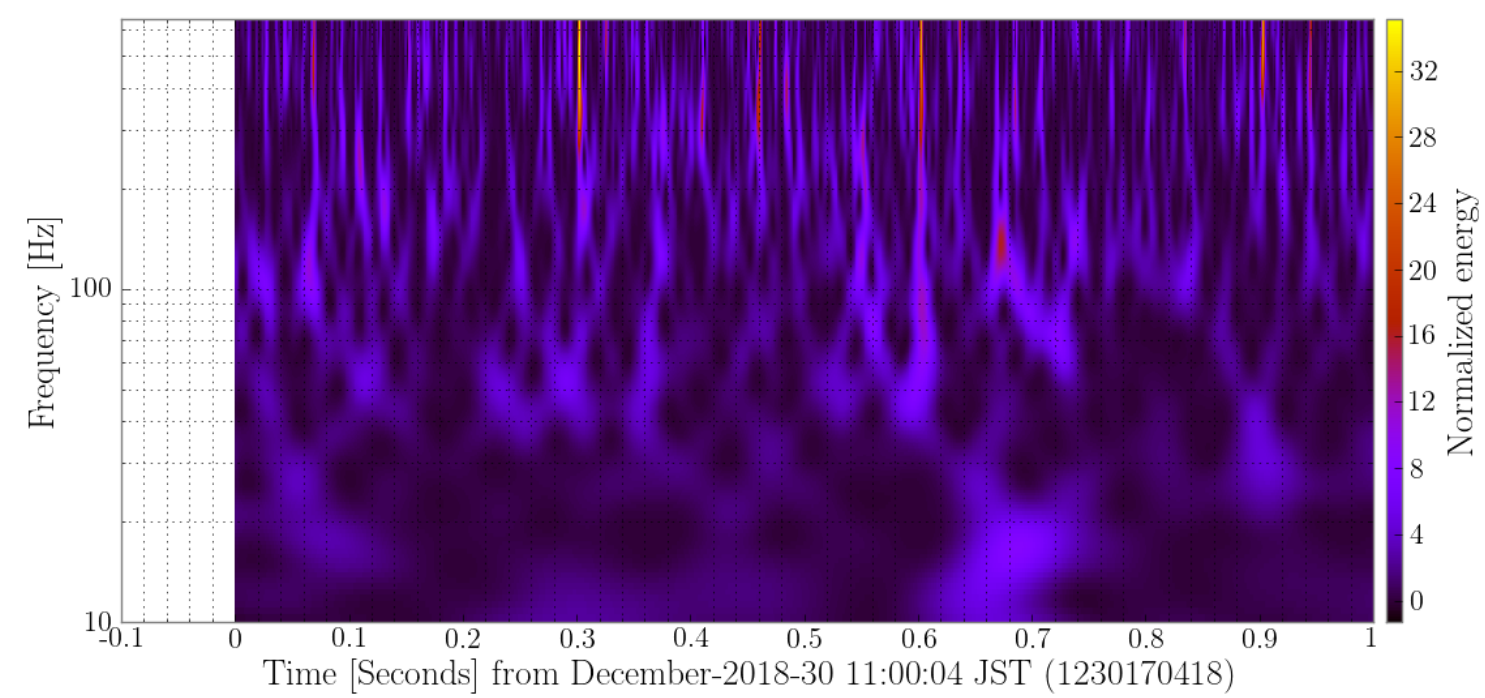
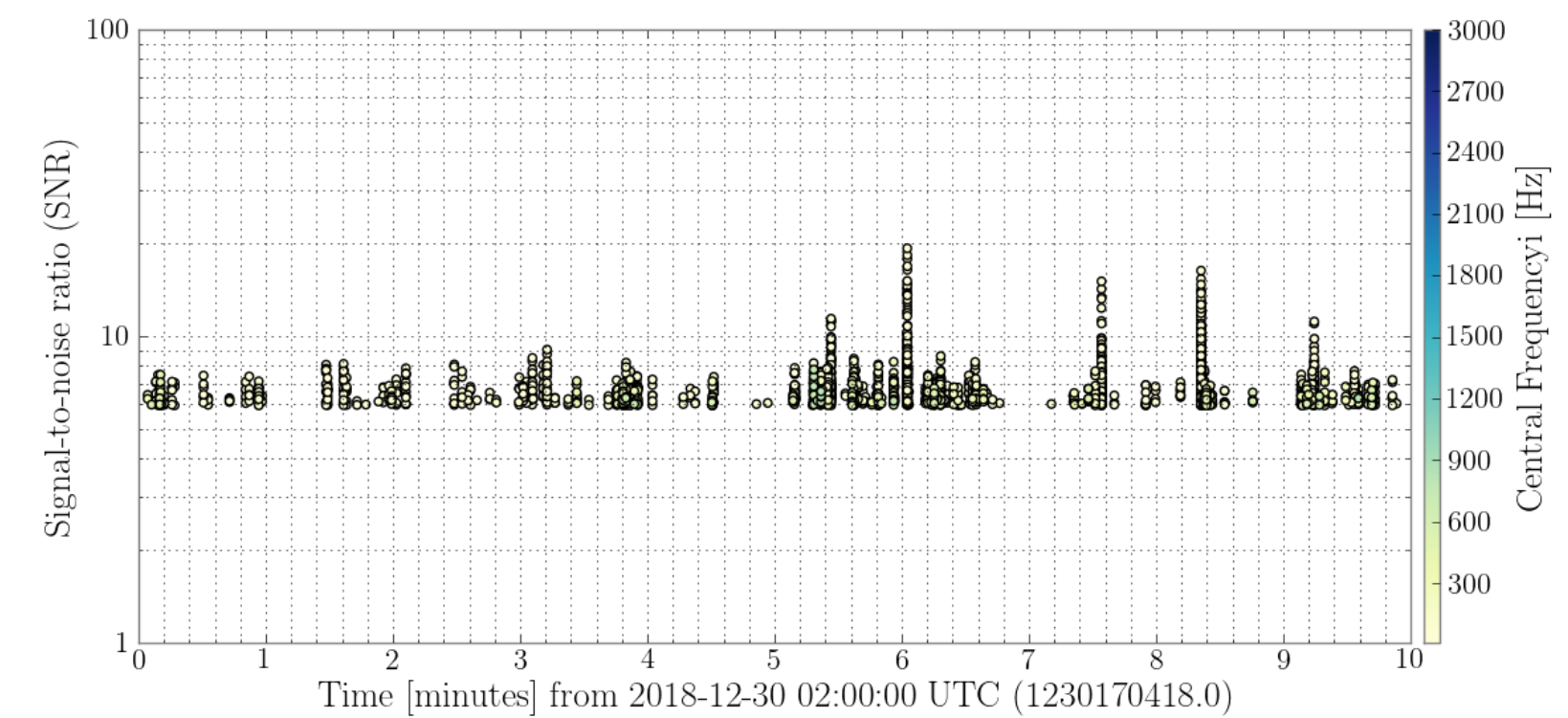
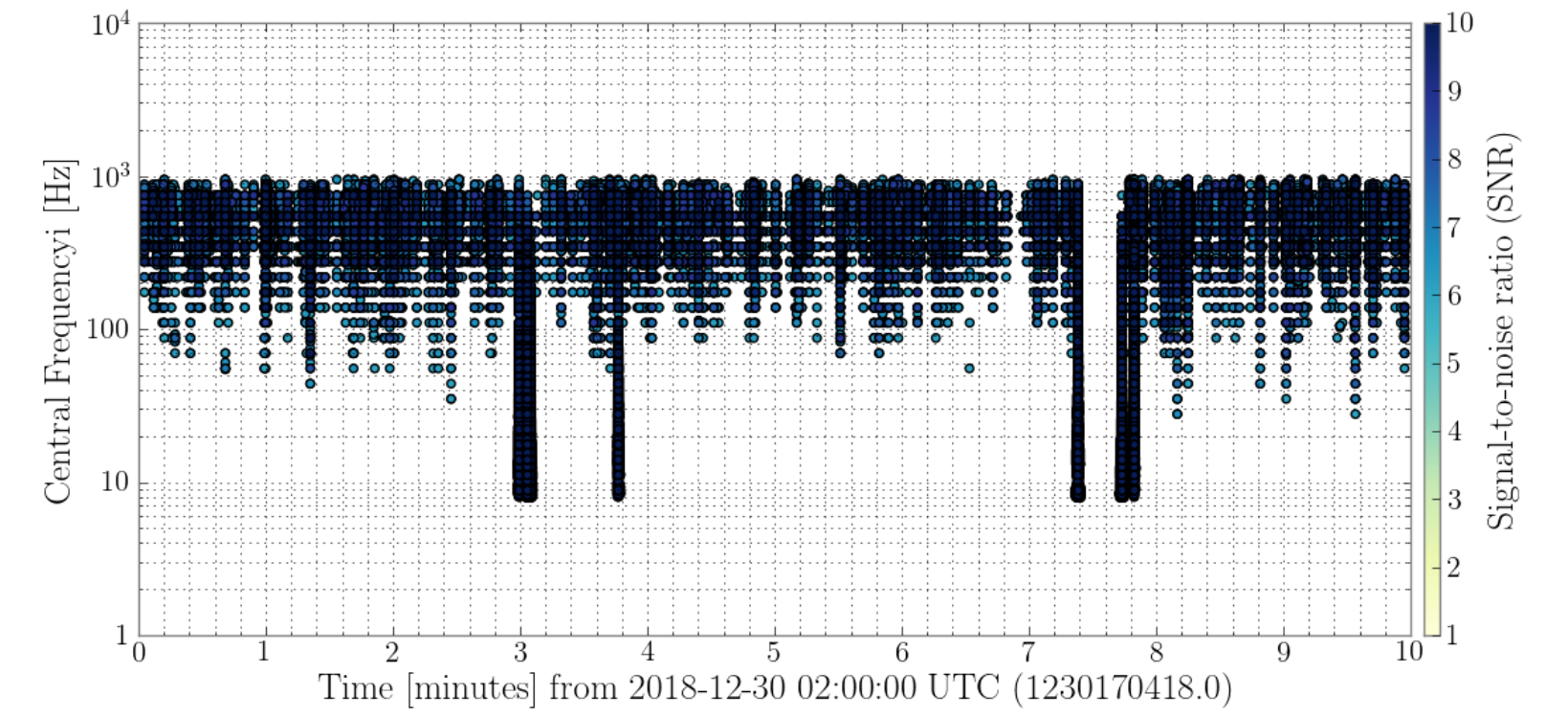
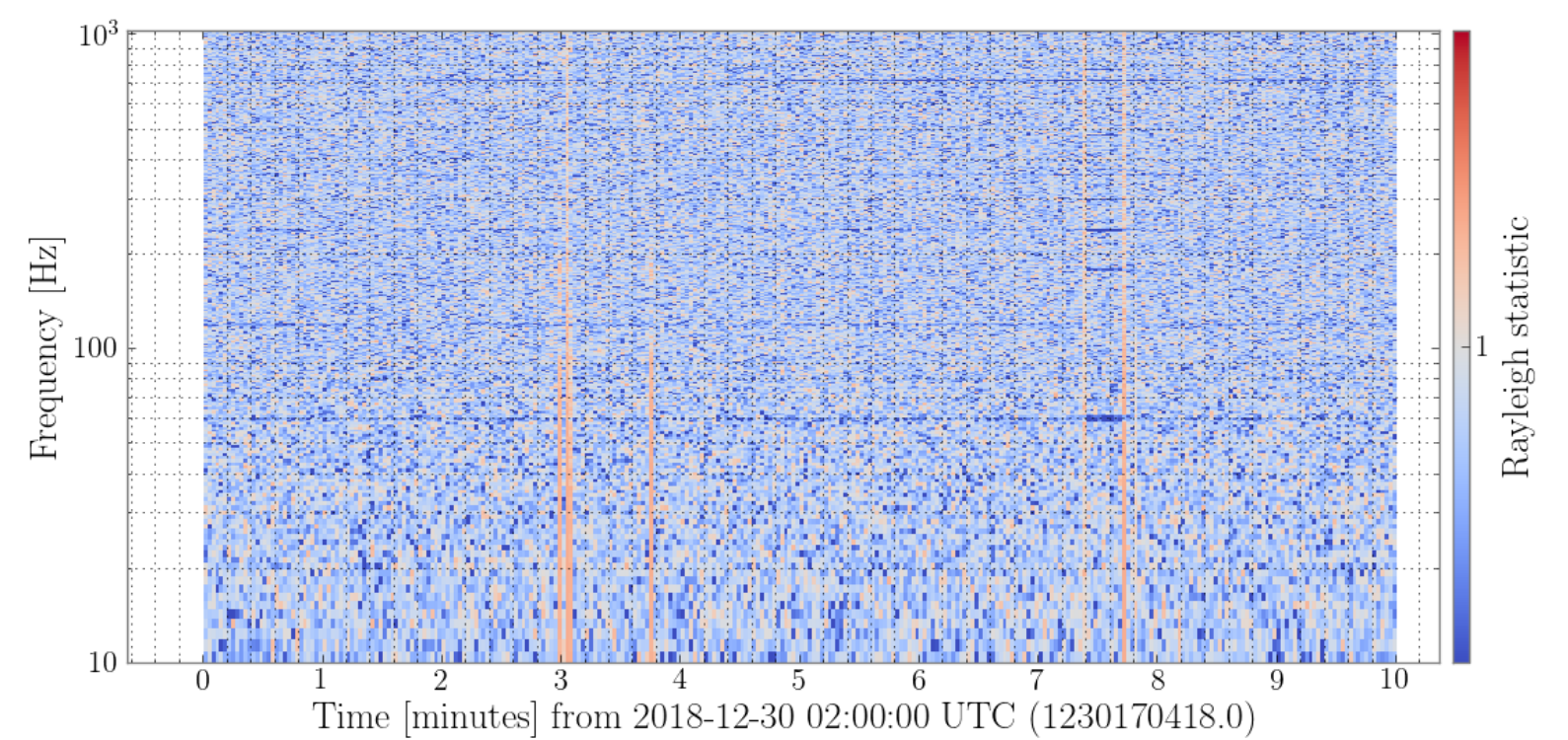
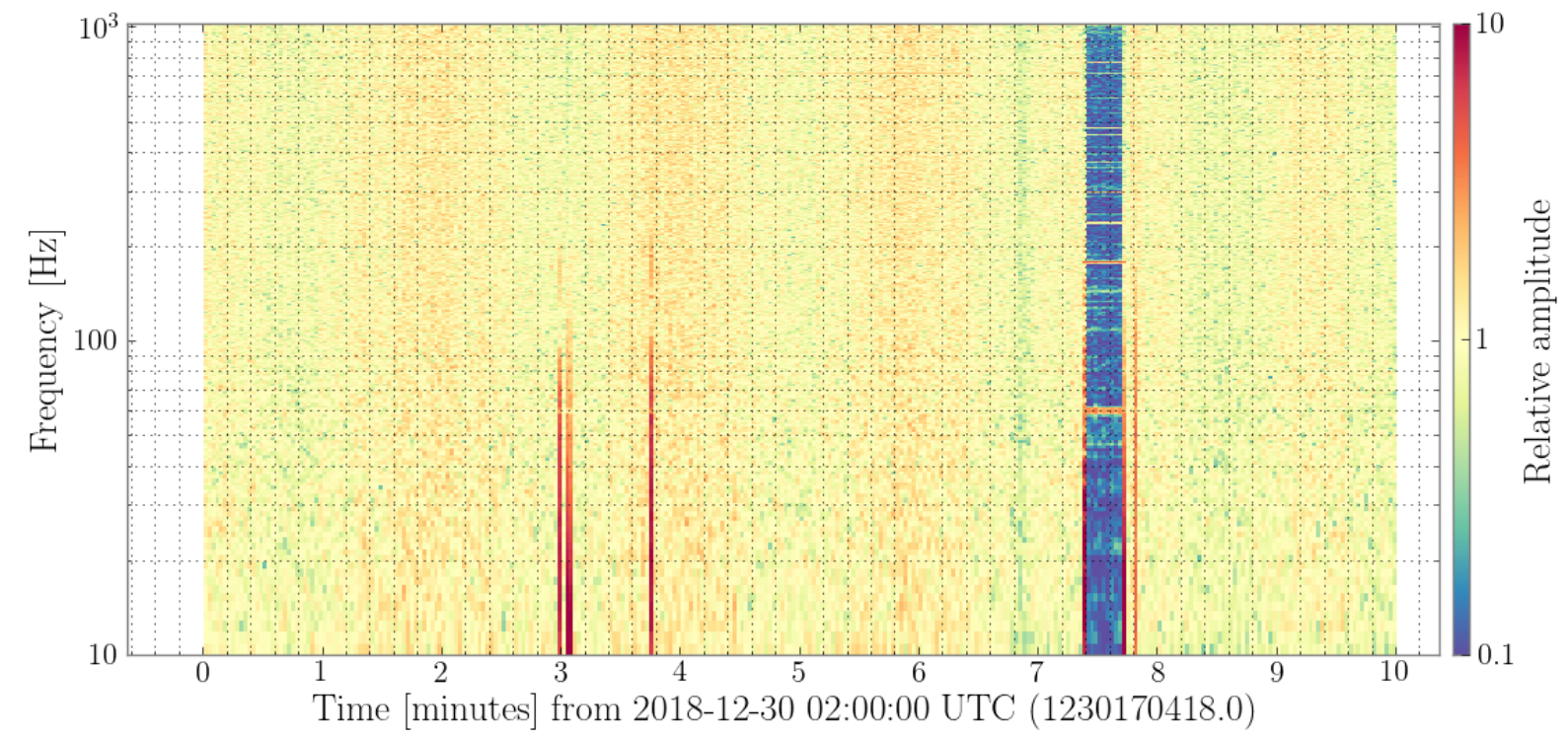
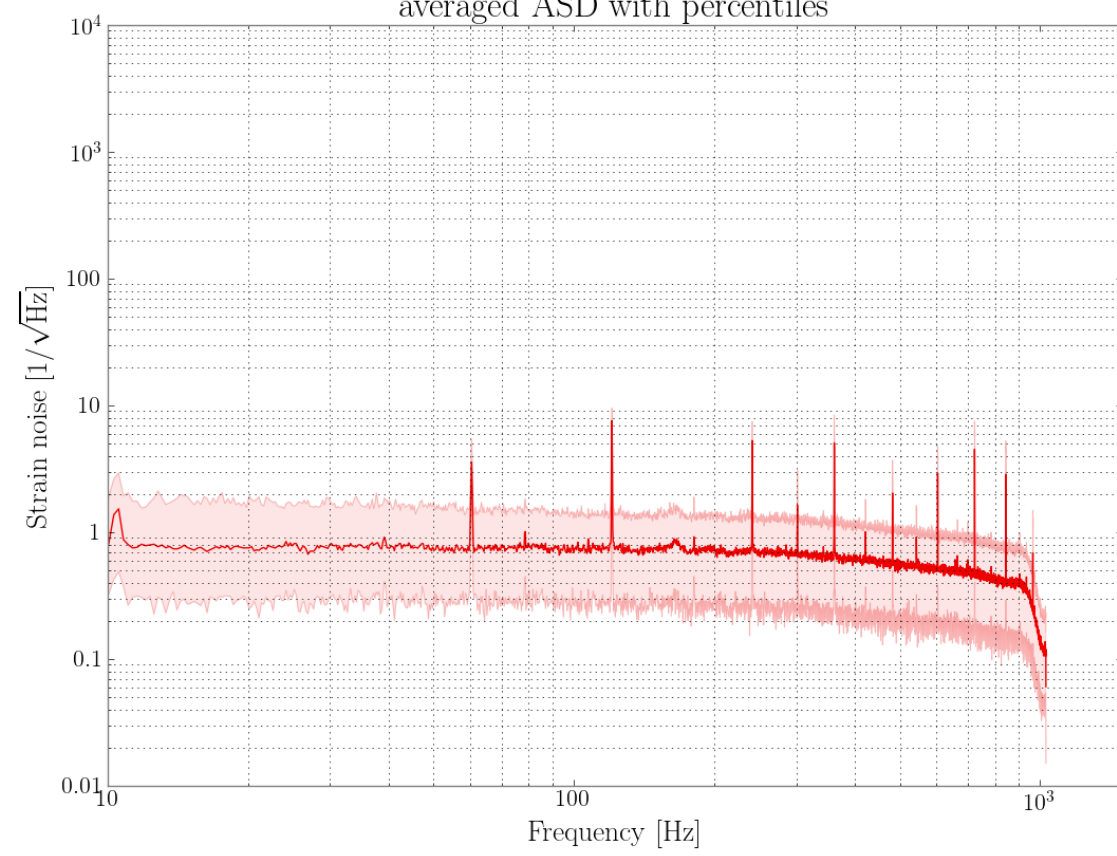




K1:AOS-TMSX_GR_PD_OUT_DQ (1230170418-600)

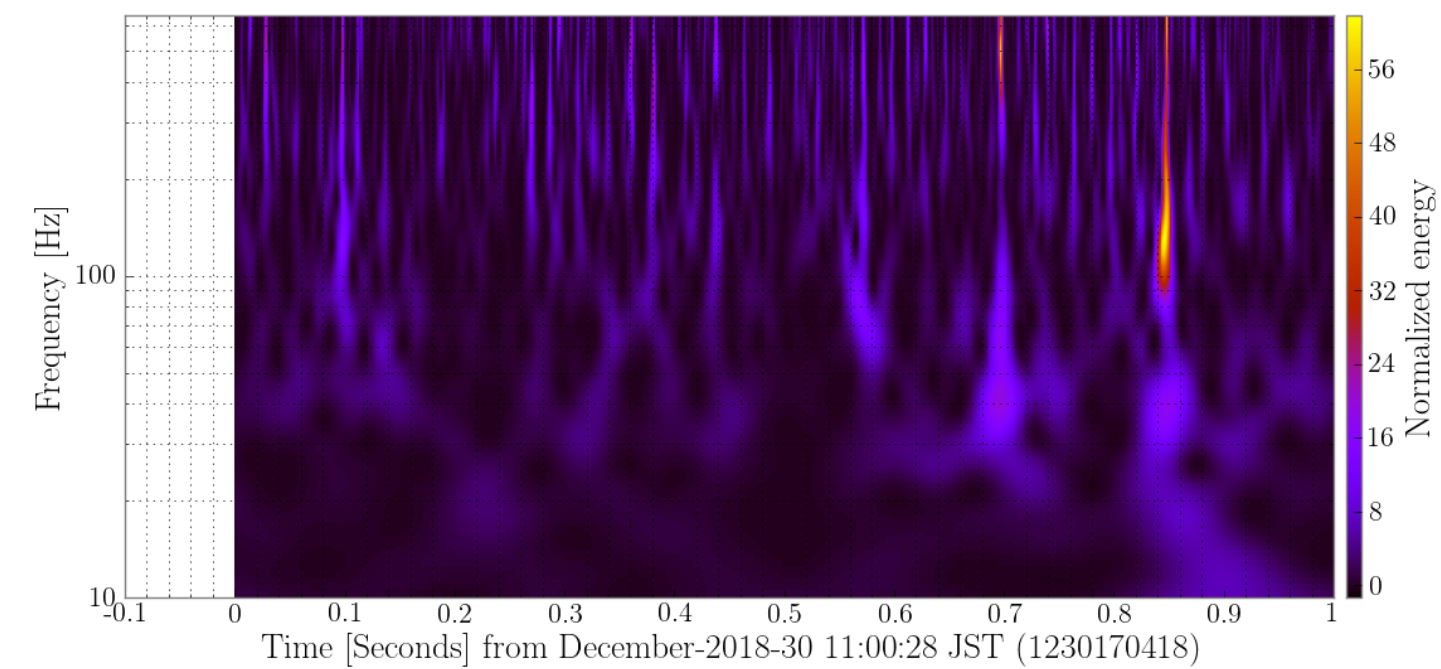
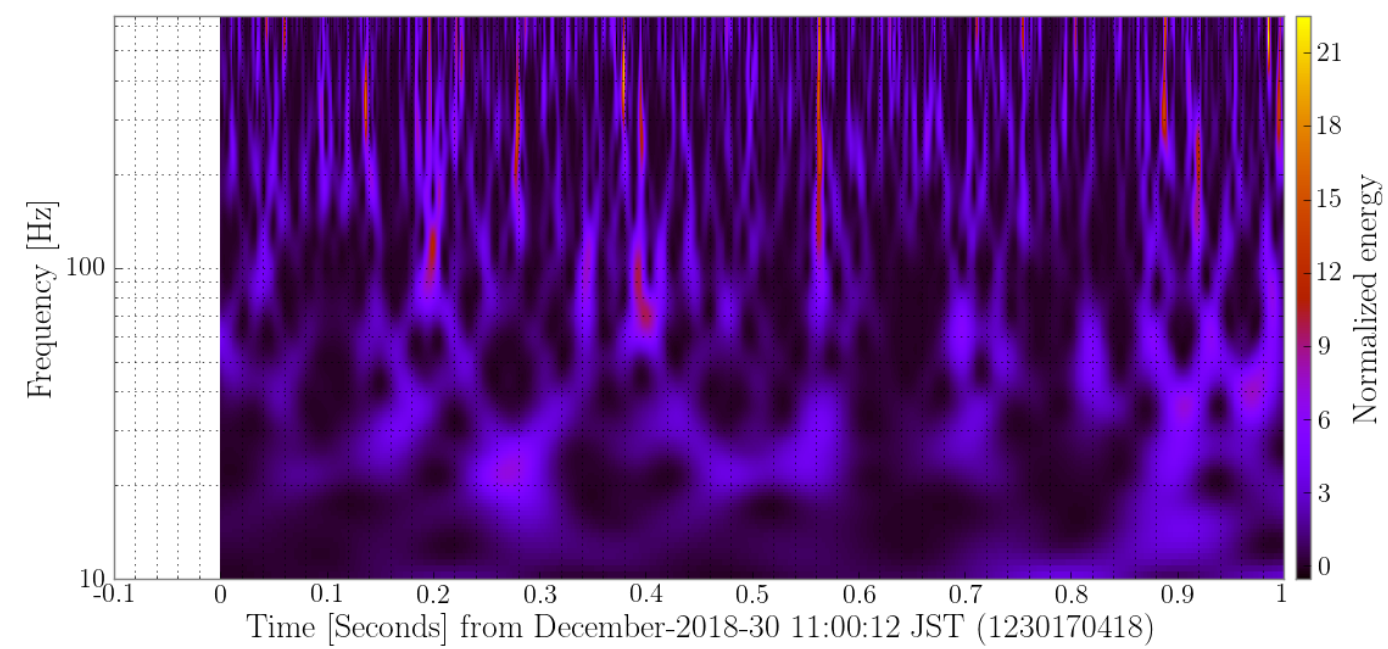
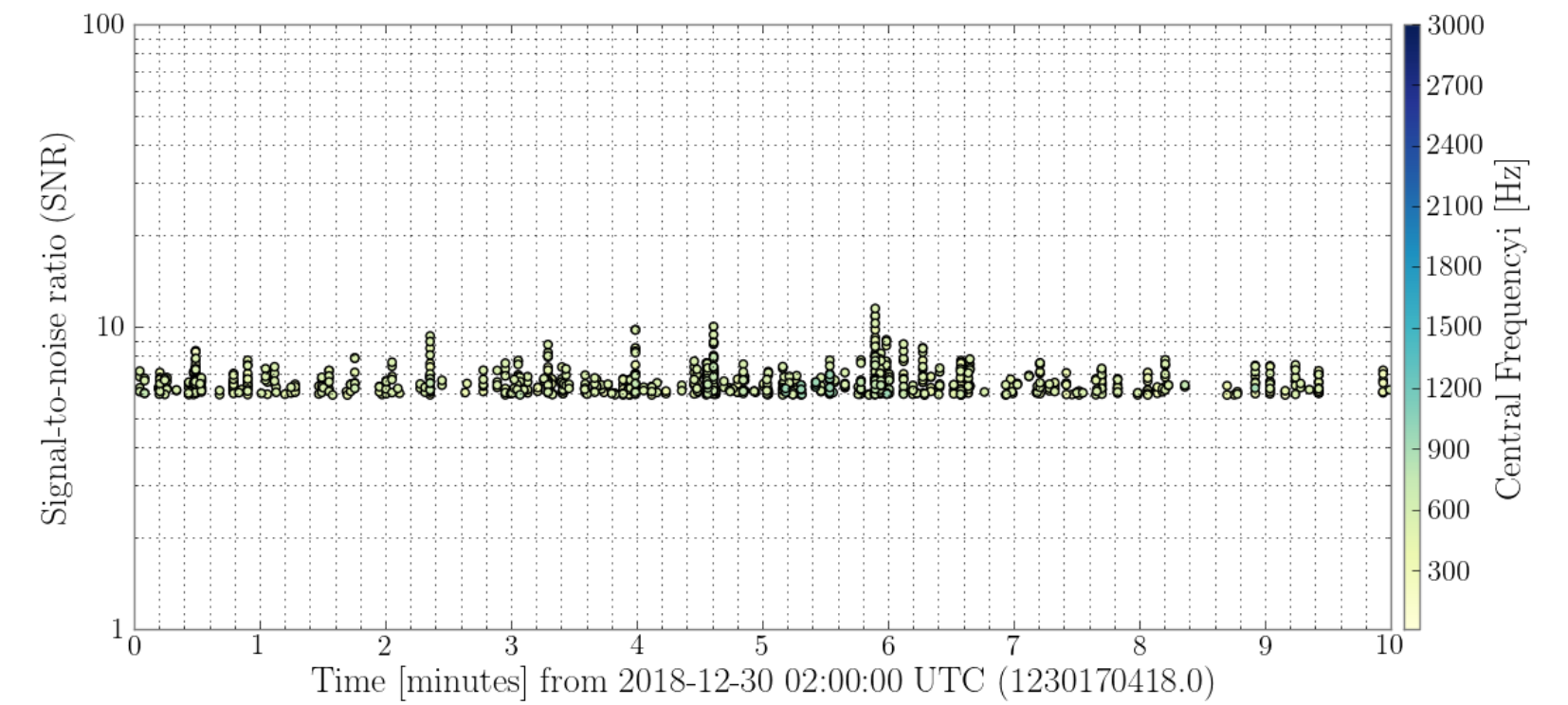
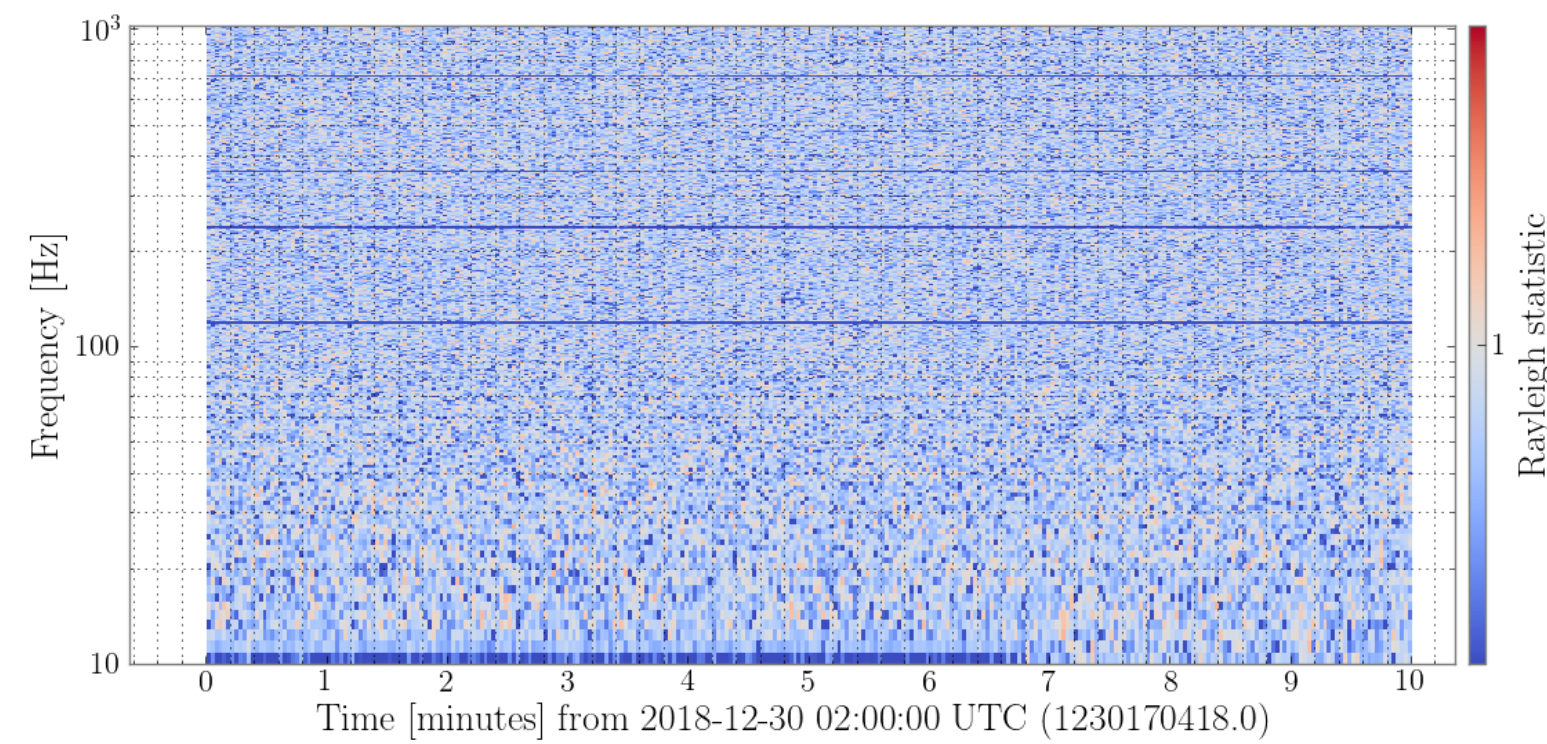
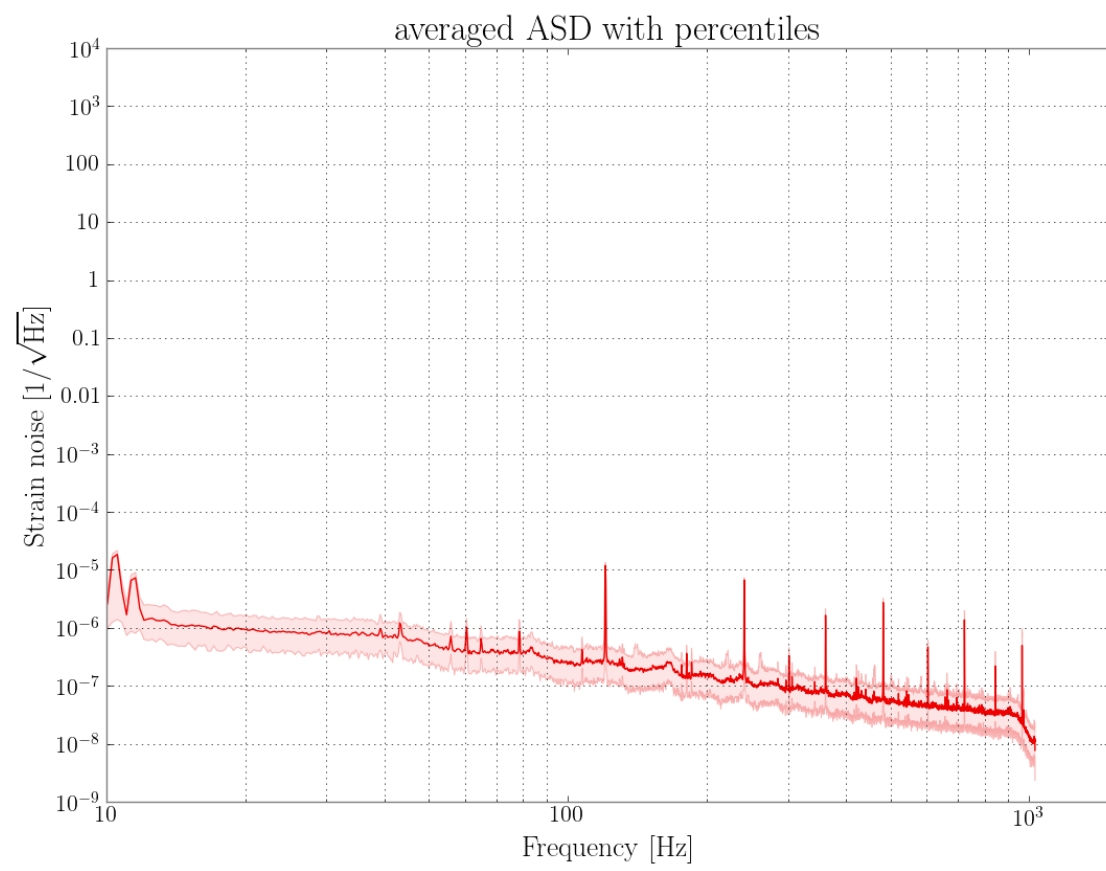
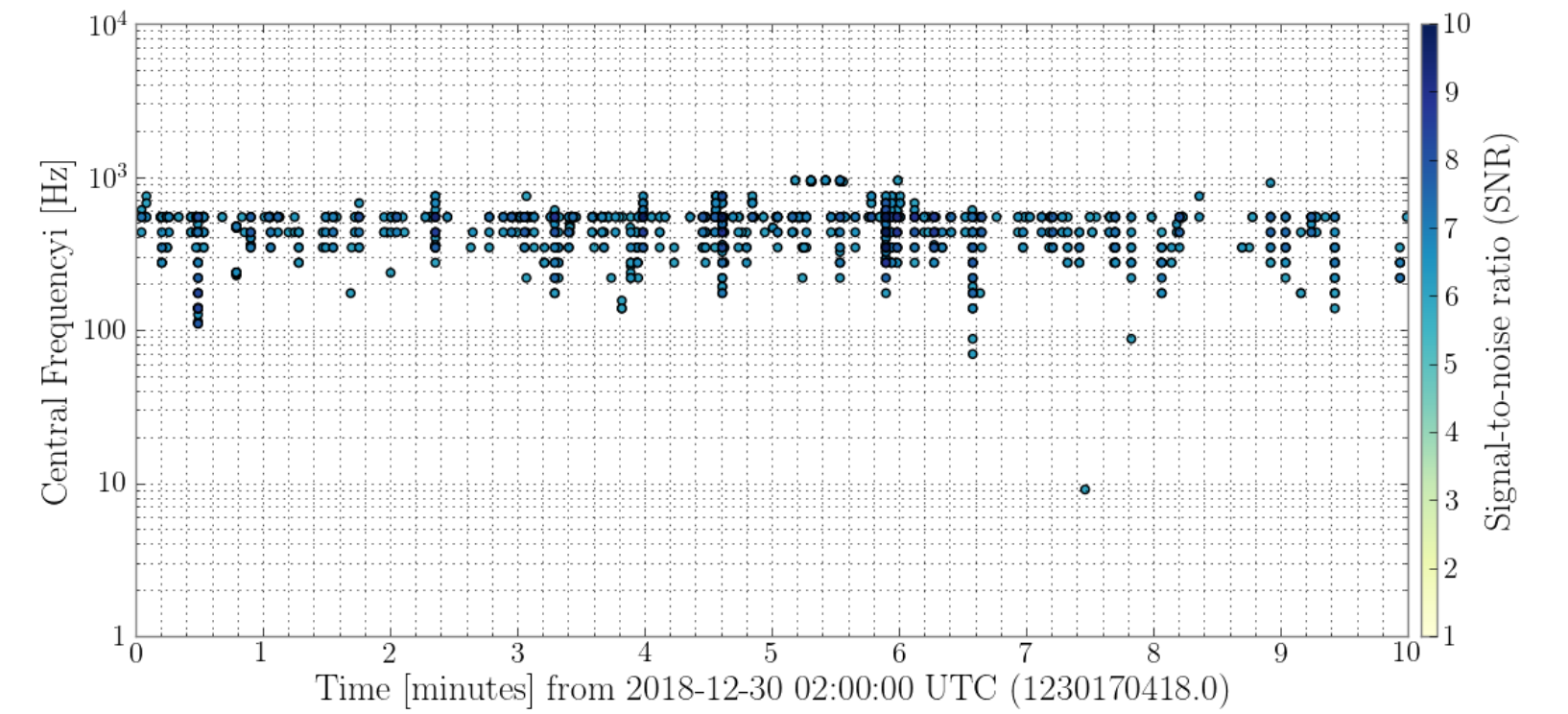
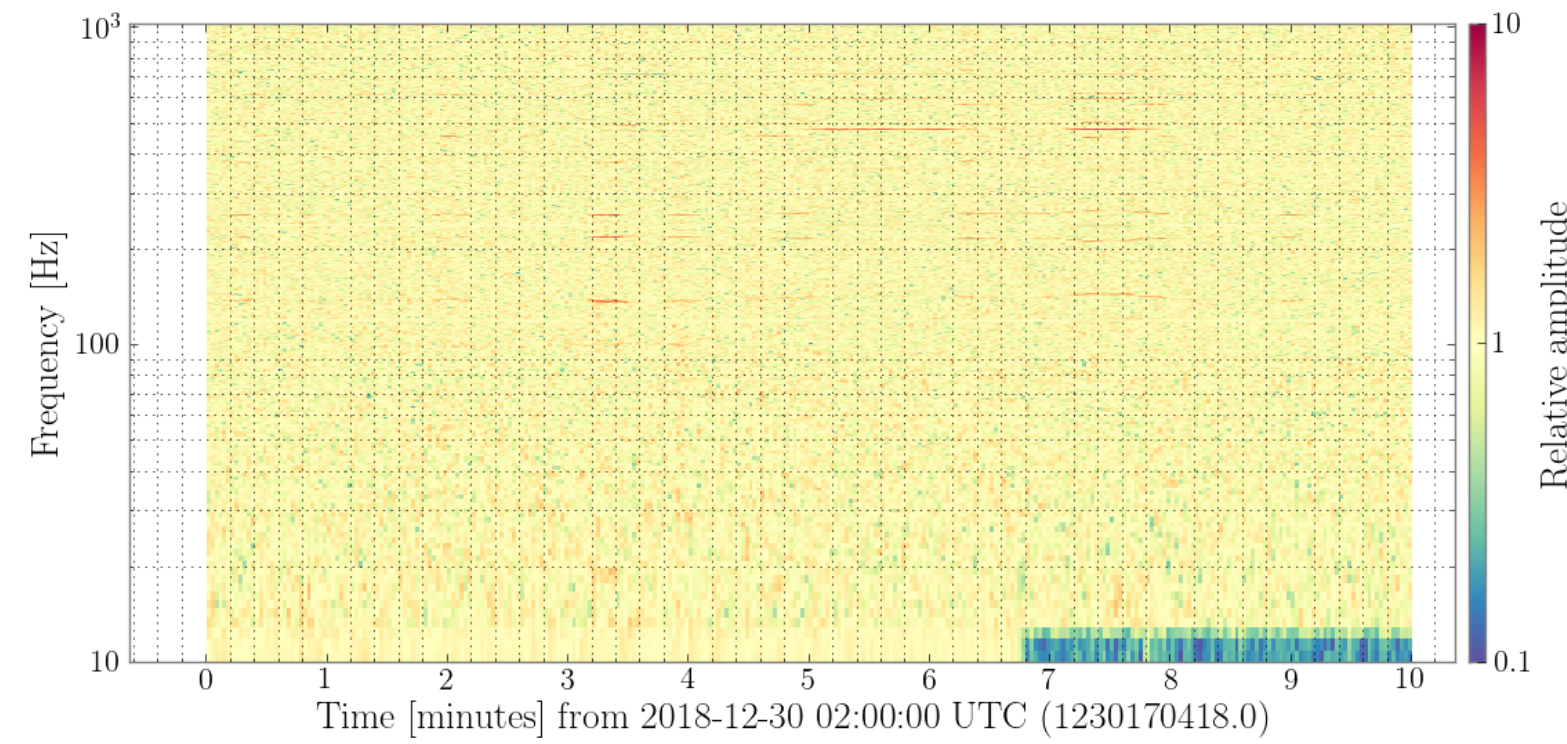
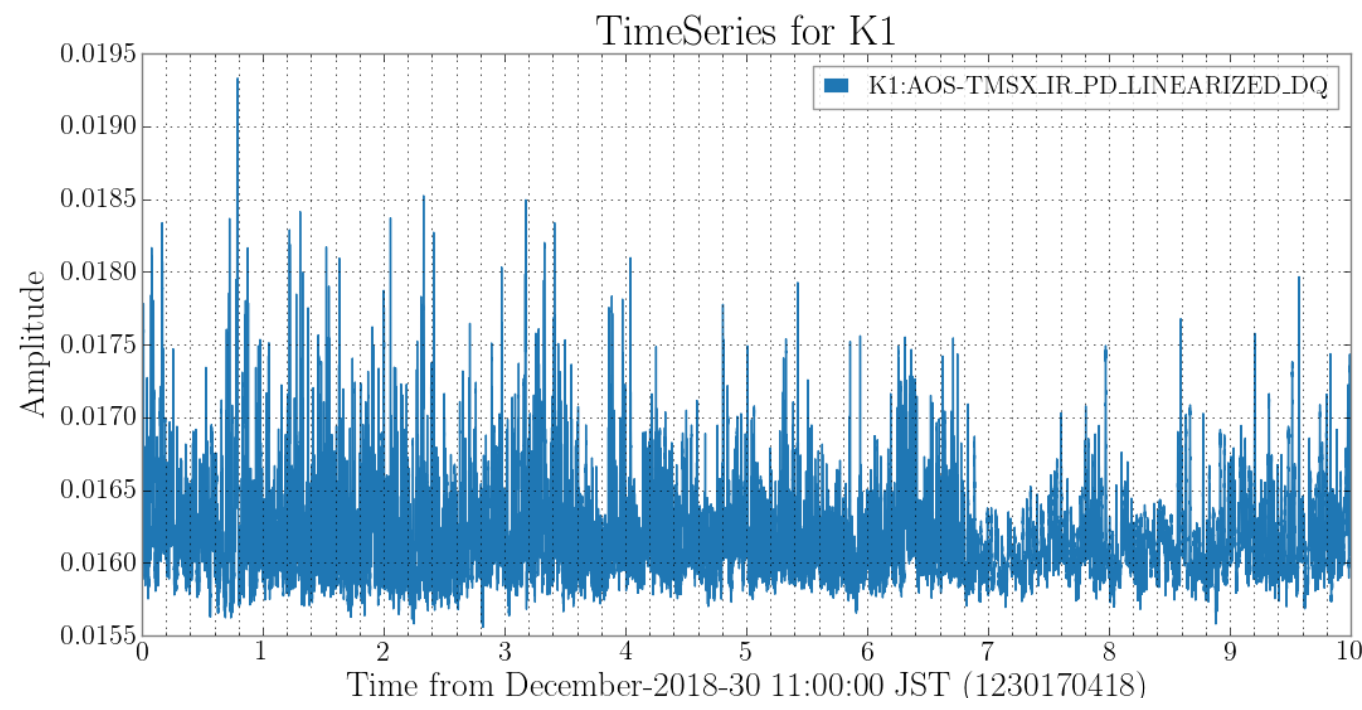


averaged ASD with percentiles





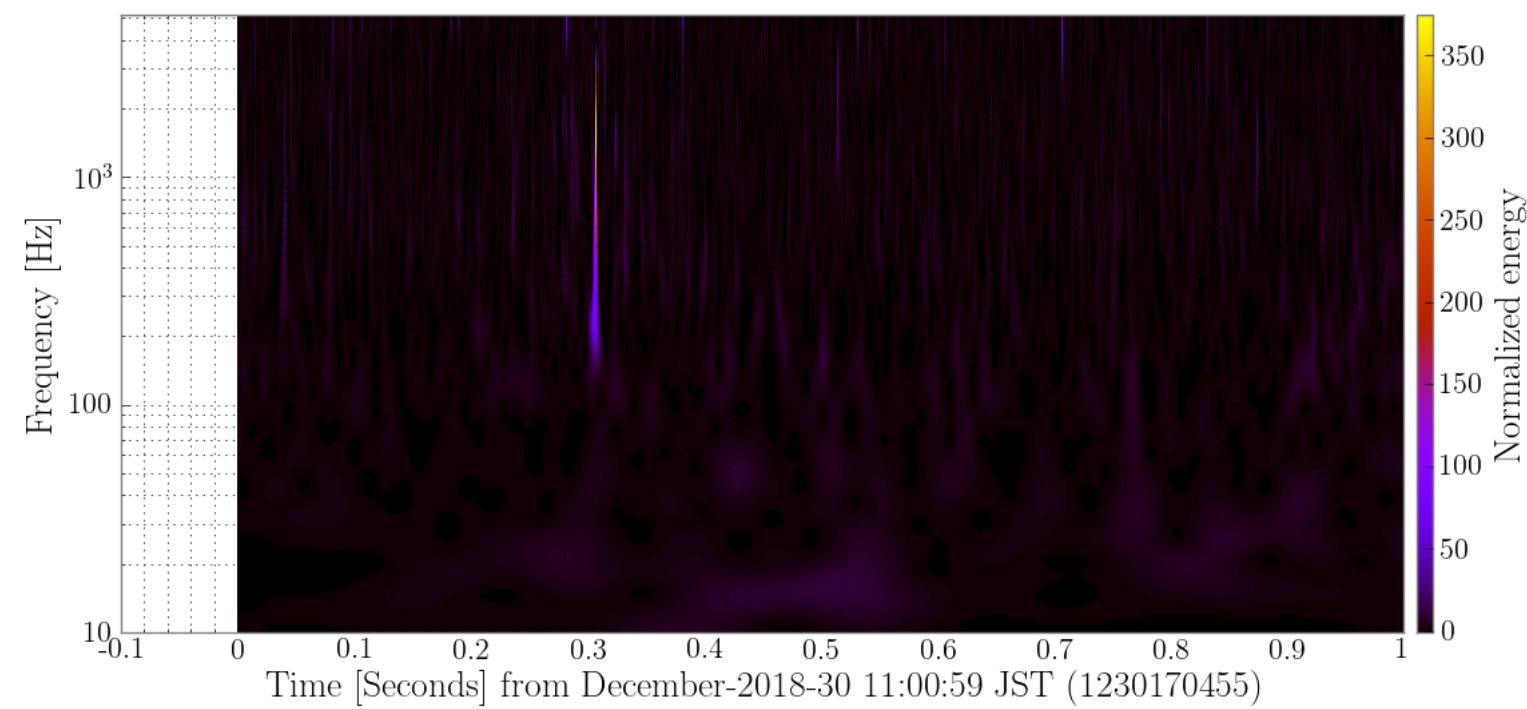
K1:AOS-TMSX_IR_PD_LINEARIZED_DQ (1230170418-600)



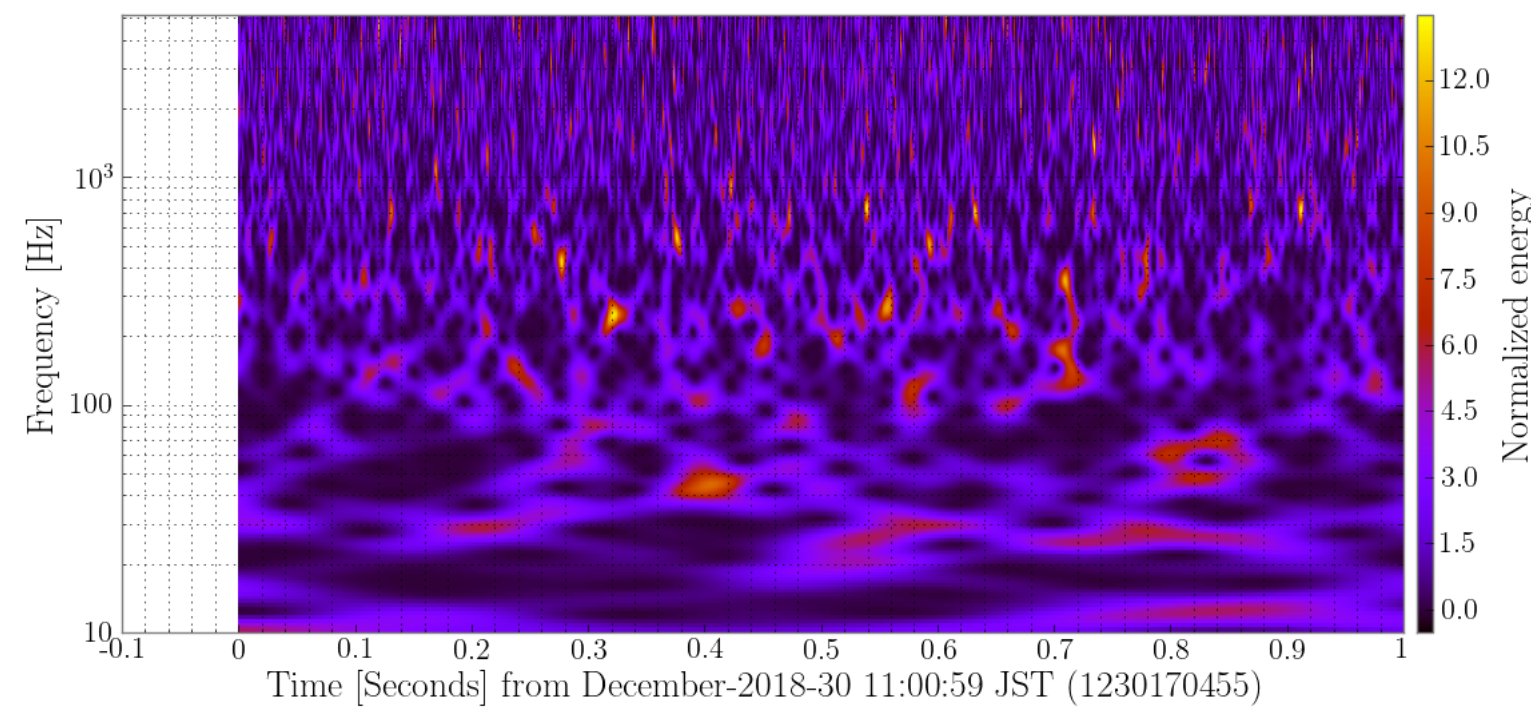


Omega Scan plots (1230170477-1)

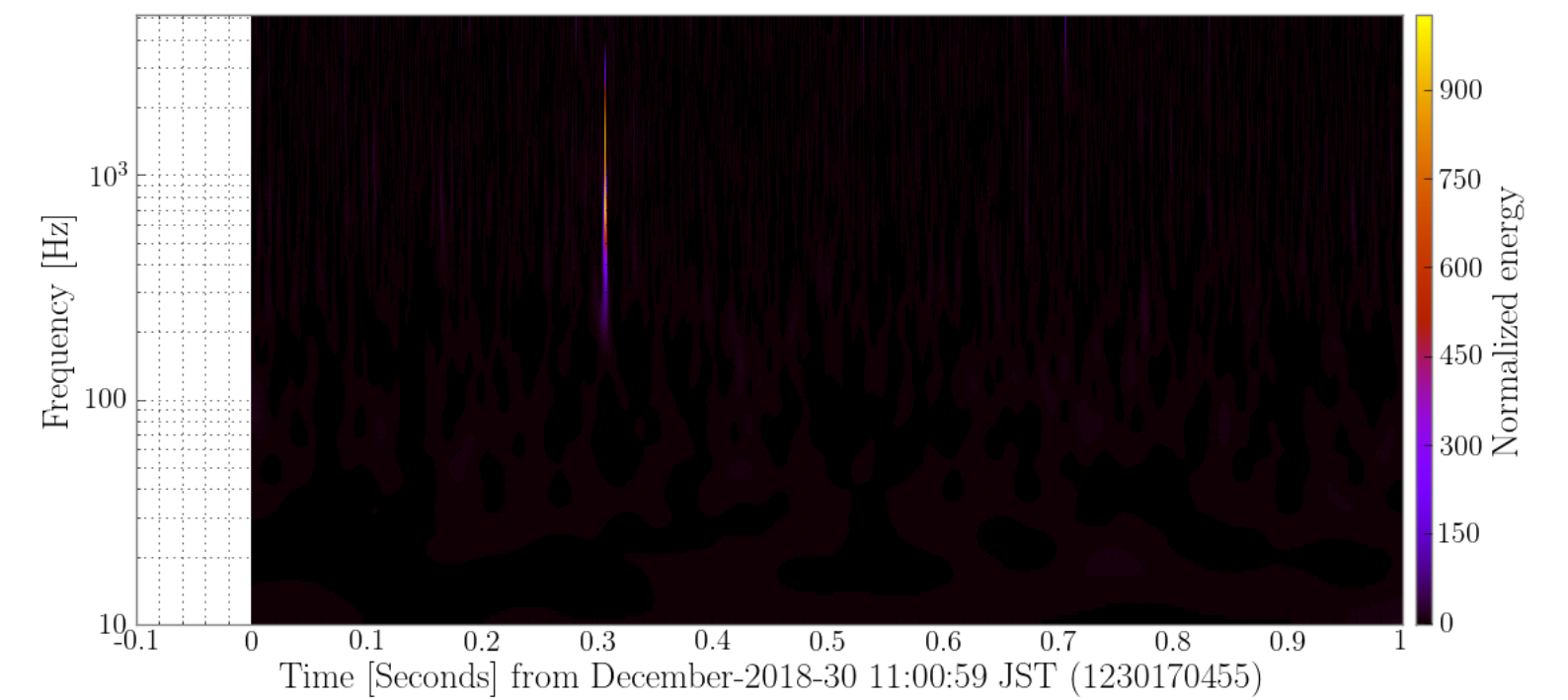
K1:ALS-PDHX_SLOW_DAQ_OUT_DQ



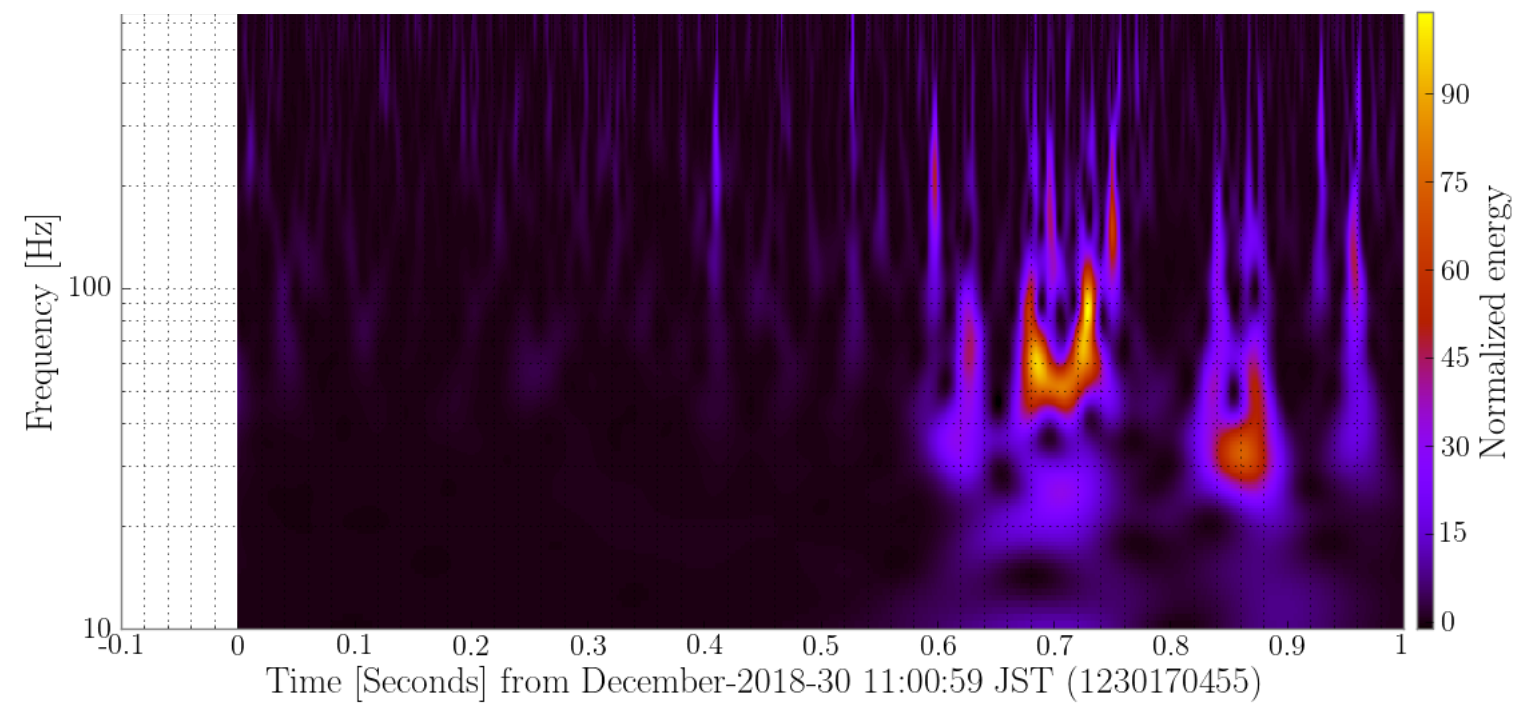
K1:ALS-X_PLL_SLOW_DAQ_OUT_DQ



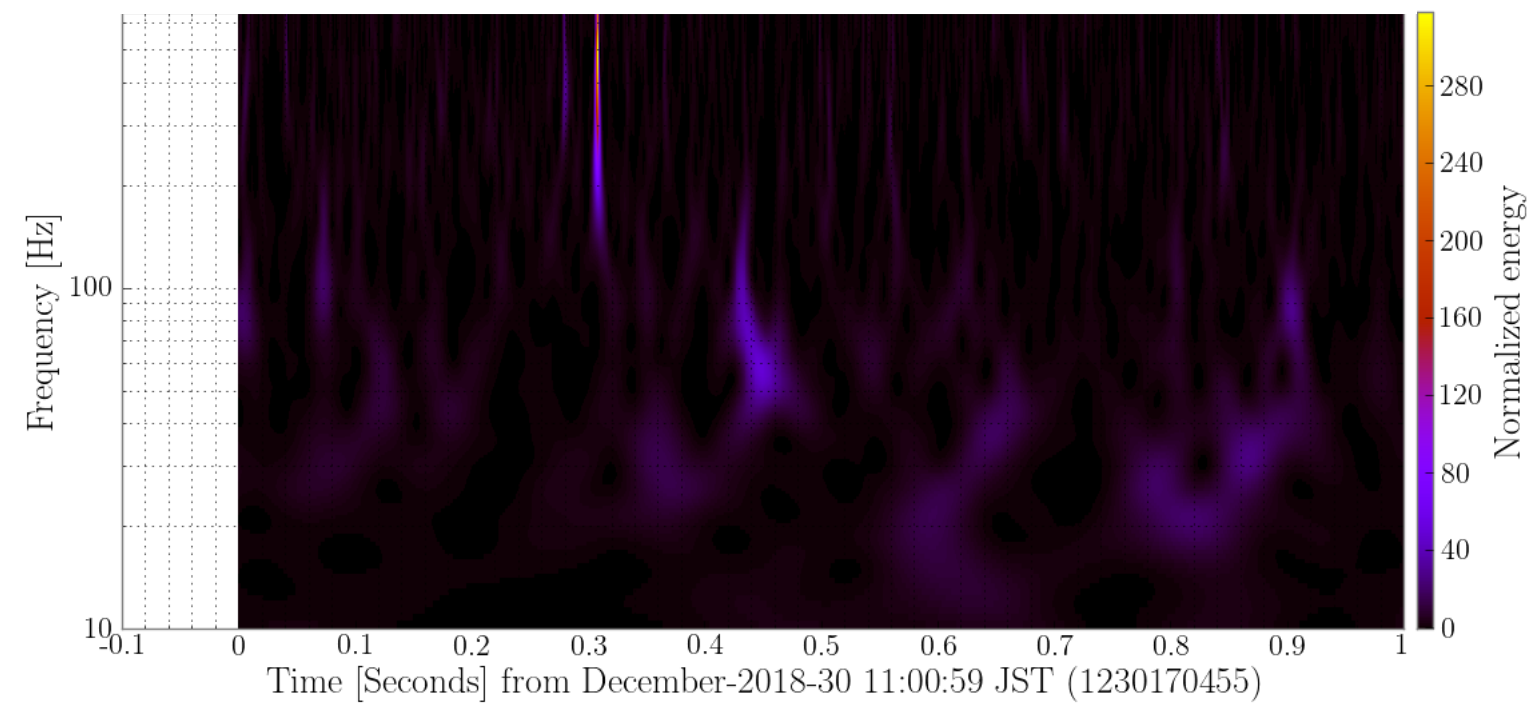
K1:ALS-YARM_ERR_OUT_DQ



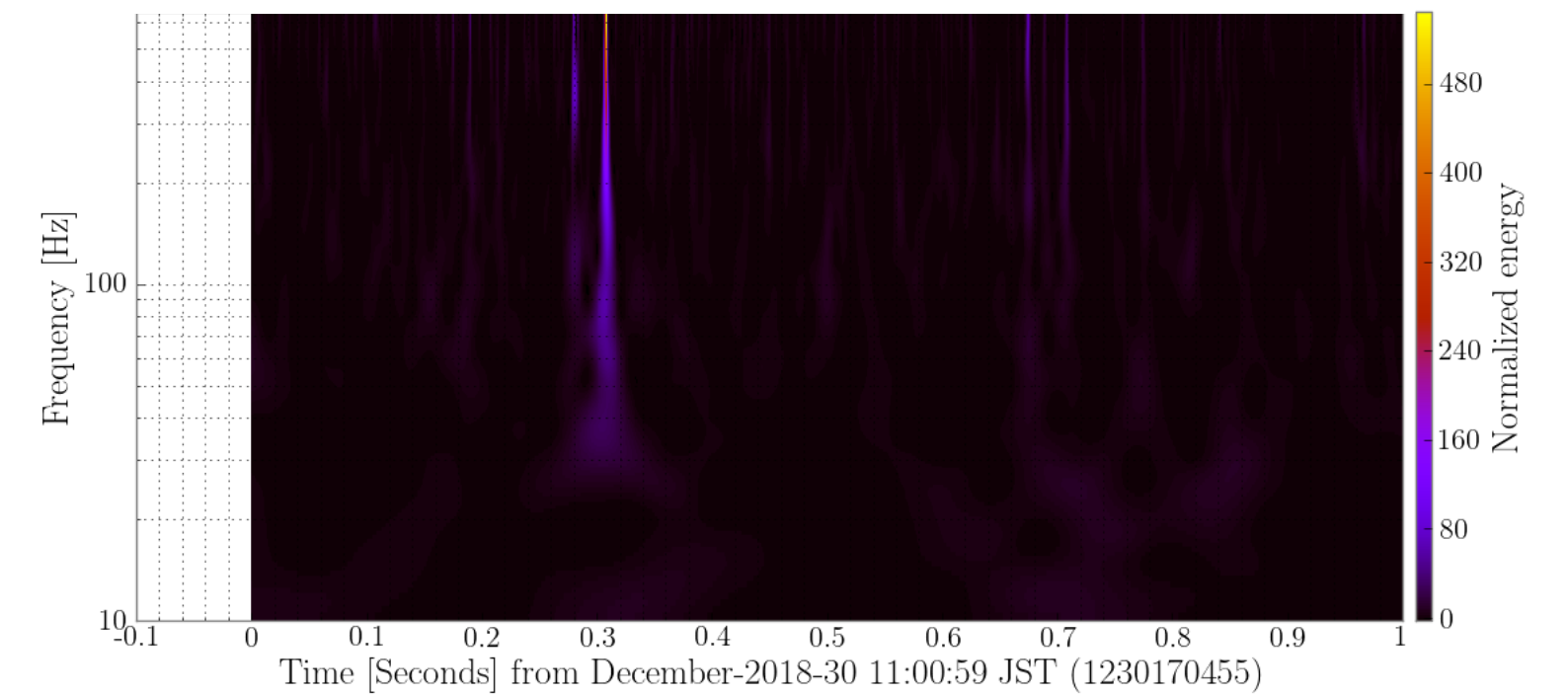
K1:AOS-IYA_NAB_OL_SEG3_IN1_DQ



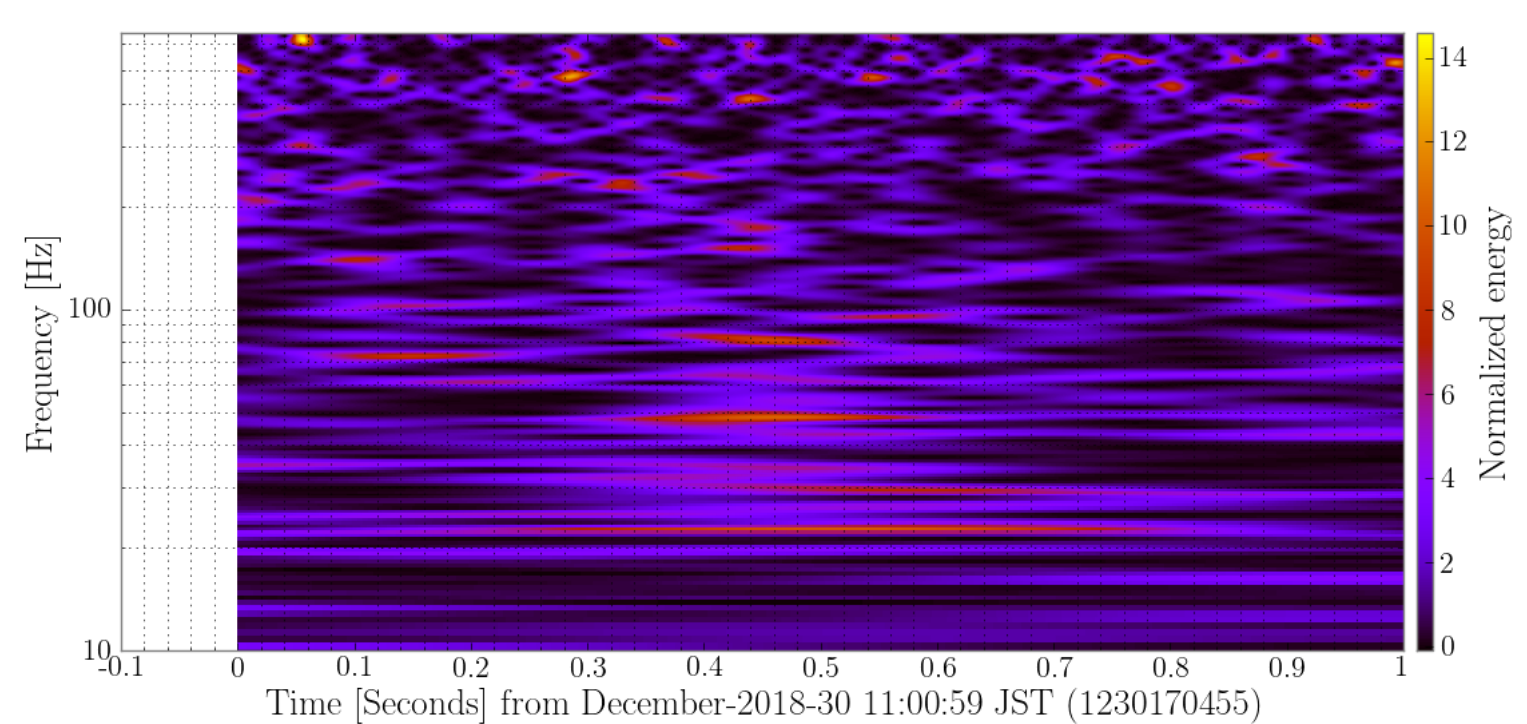
K1:AOS-TMSX_GR_QPD1_PIT_OUT_DQ



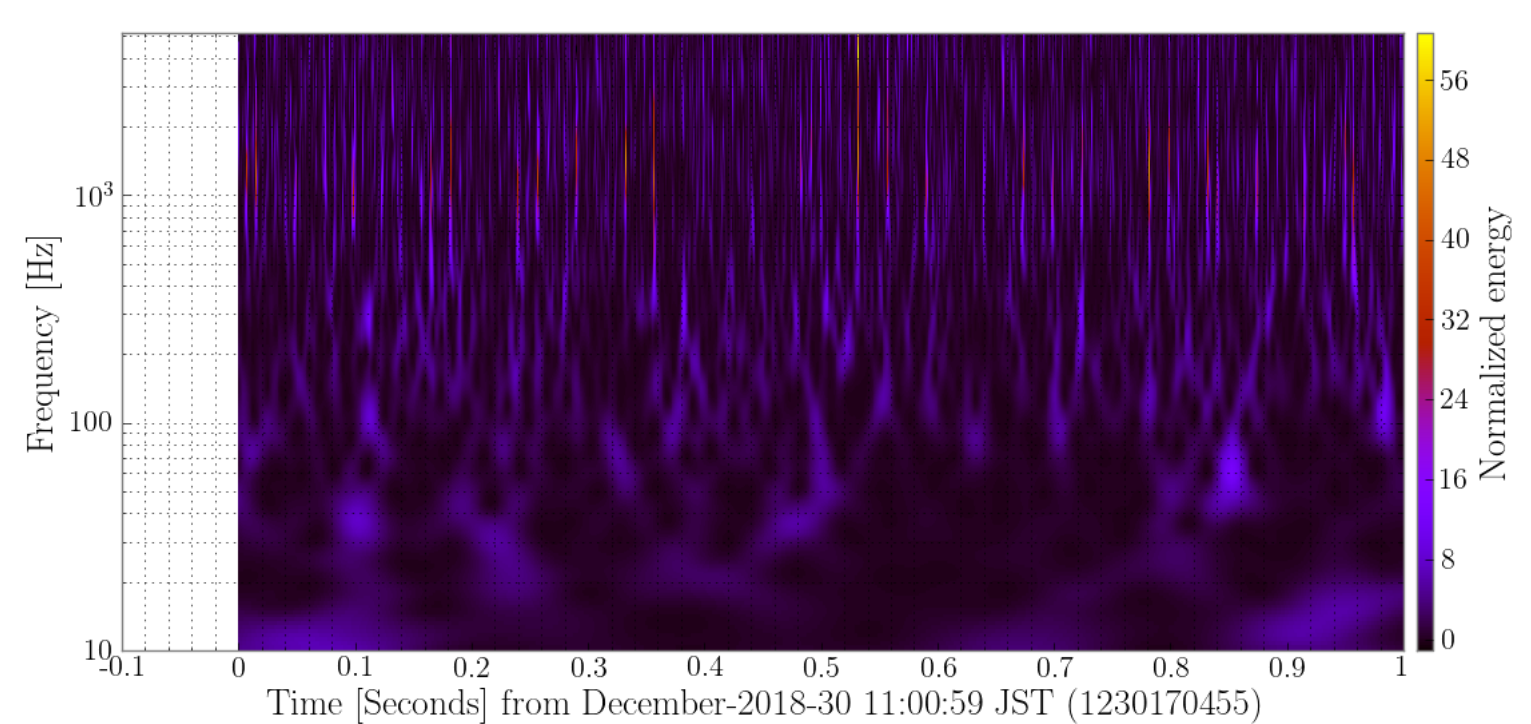
K1:AOS-TMSX_GR_QPD1_SEG1_IN1_DQ



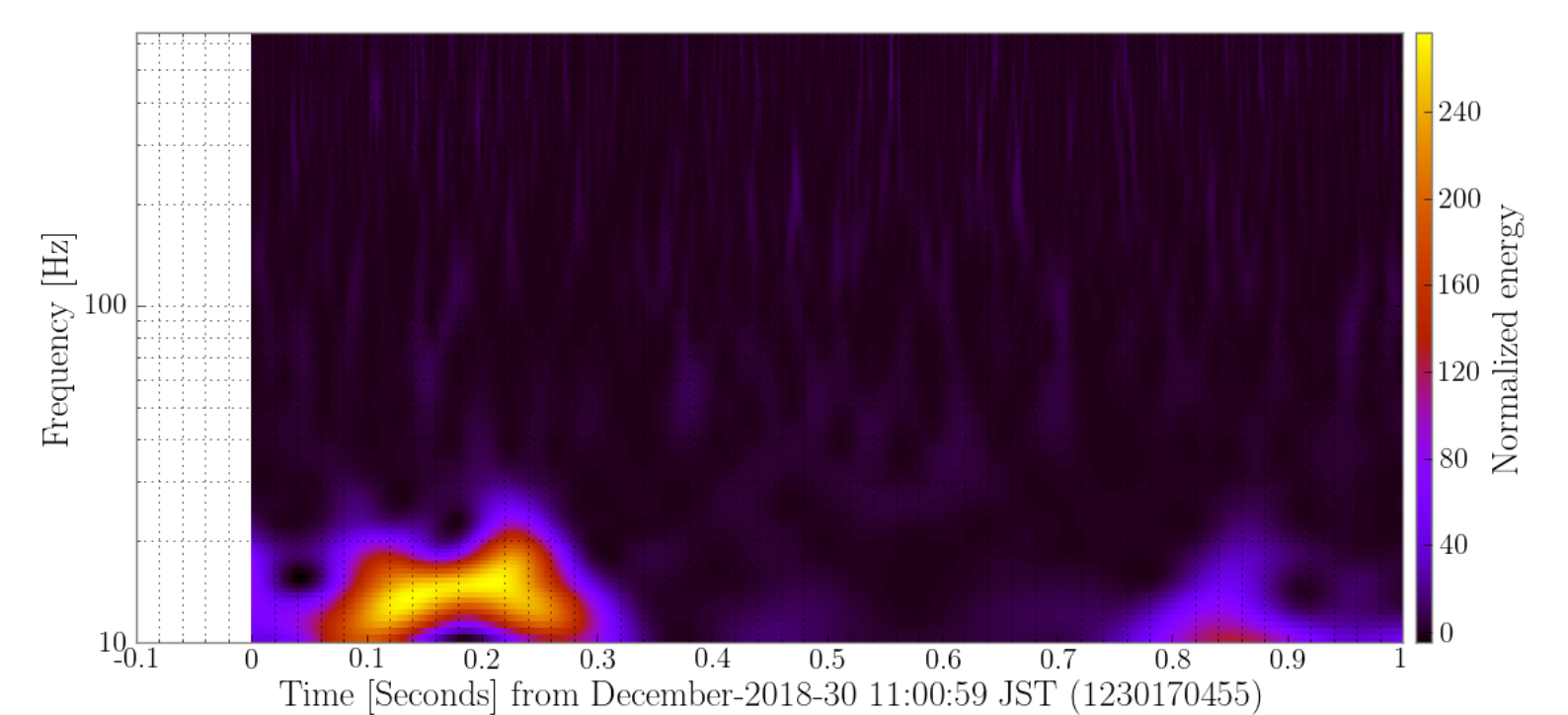
K1:AOS-TMSY_GR_QPD1_SEG1_IN1_DQ



K1:CAL-CS_PROC_XARM_DISPLACEMENT_DQ



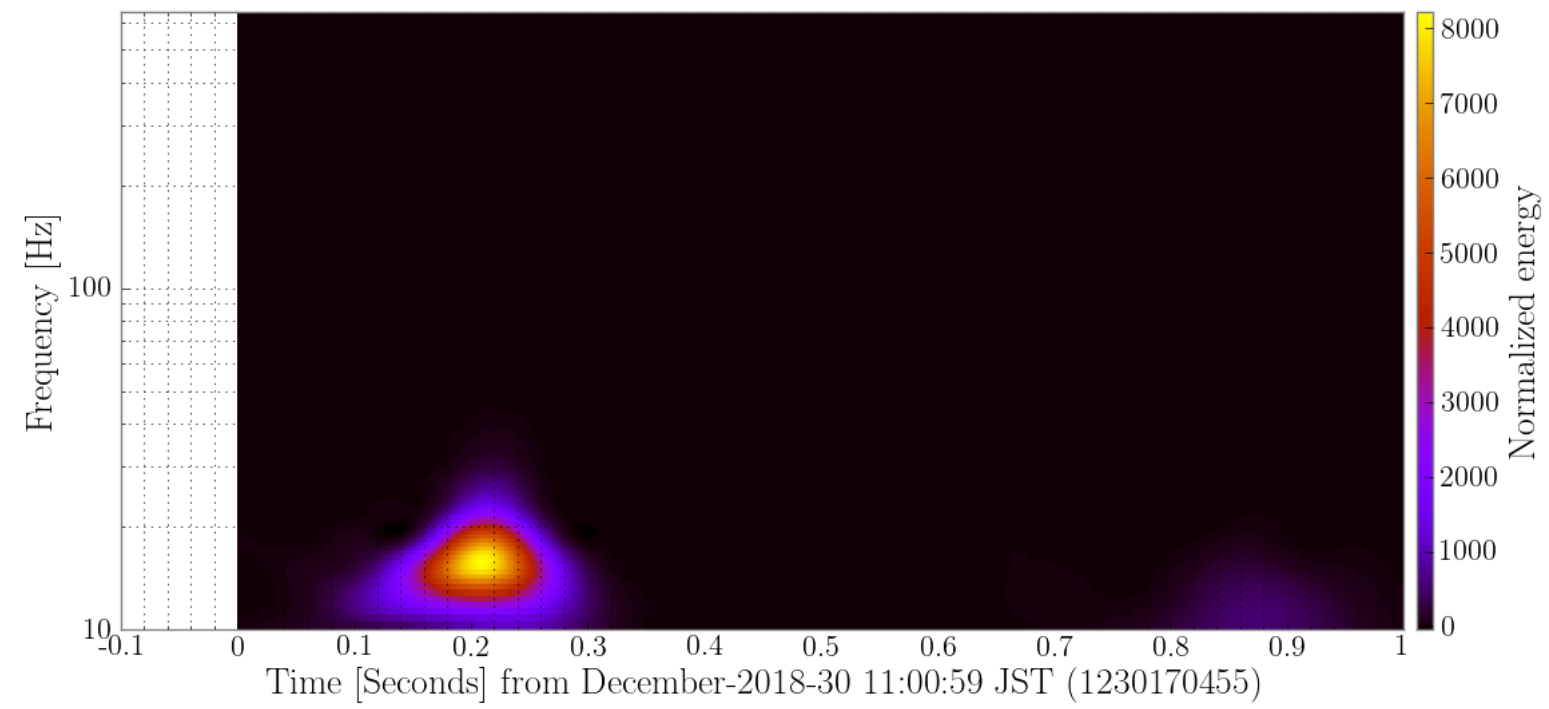
K1:IMC-MCE_TRANS_QPDA1_DC_PIT_OUT_DQ



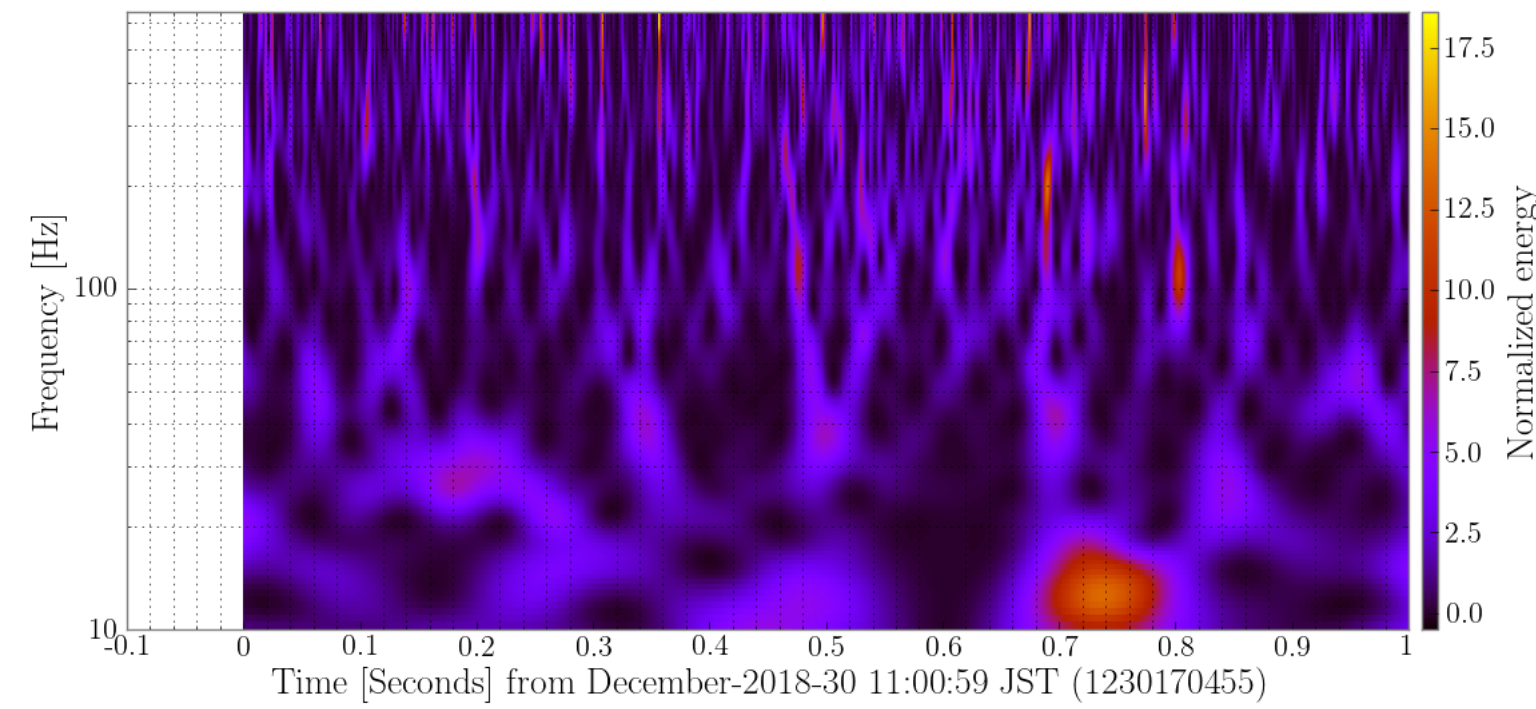


Omega Scan plots (1230170477-1)

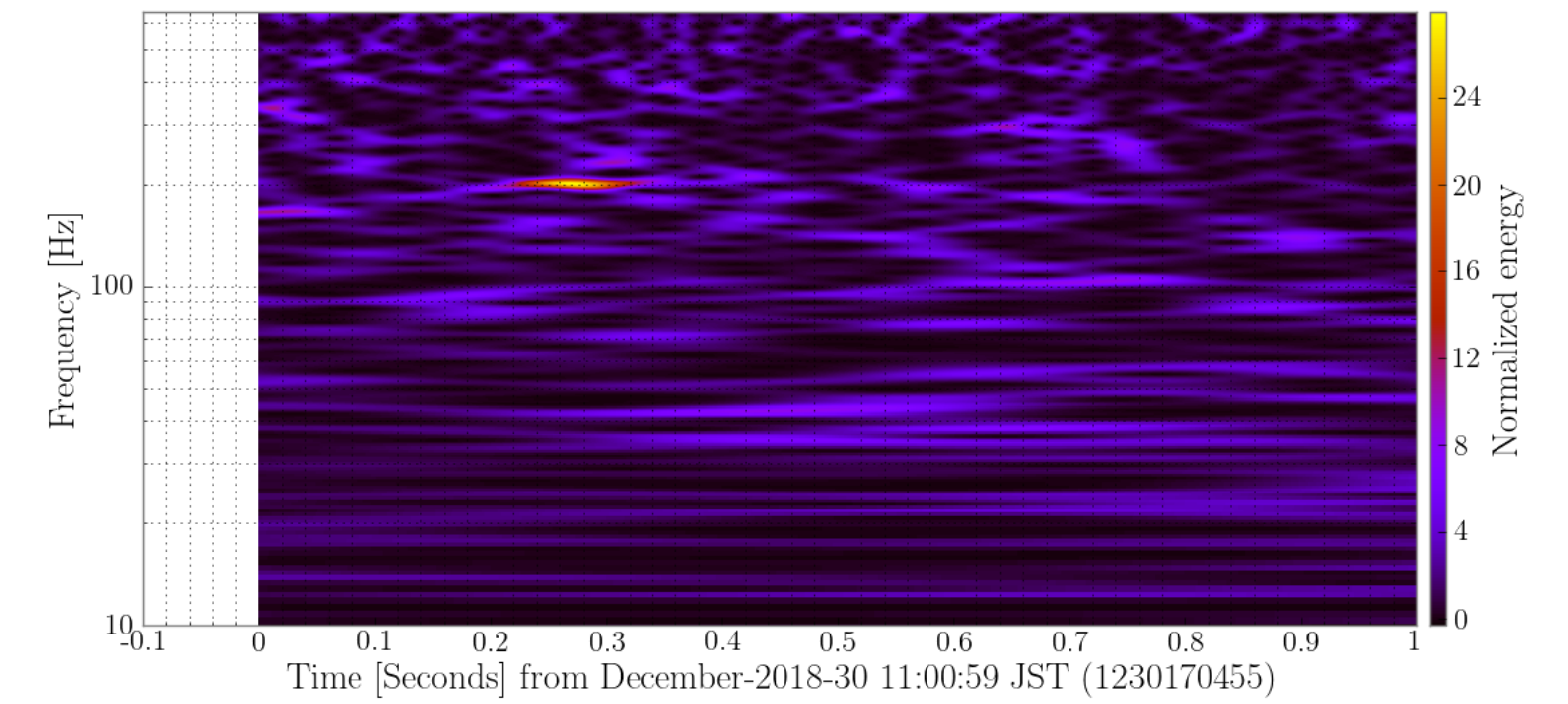
K1:IMC-MCE_TRANS_QPDA1_DC_YAW_OUT_DQ



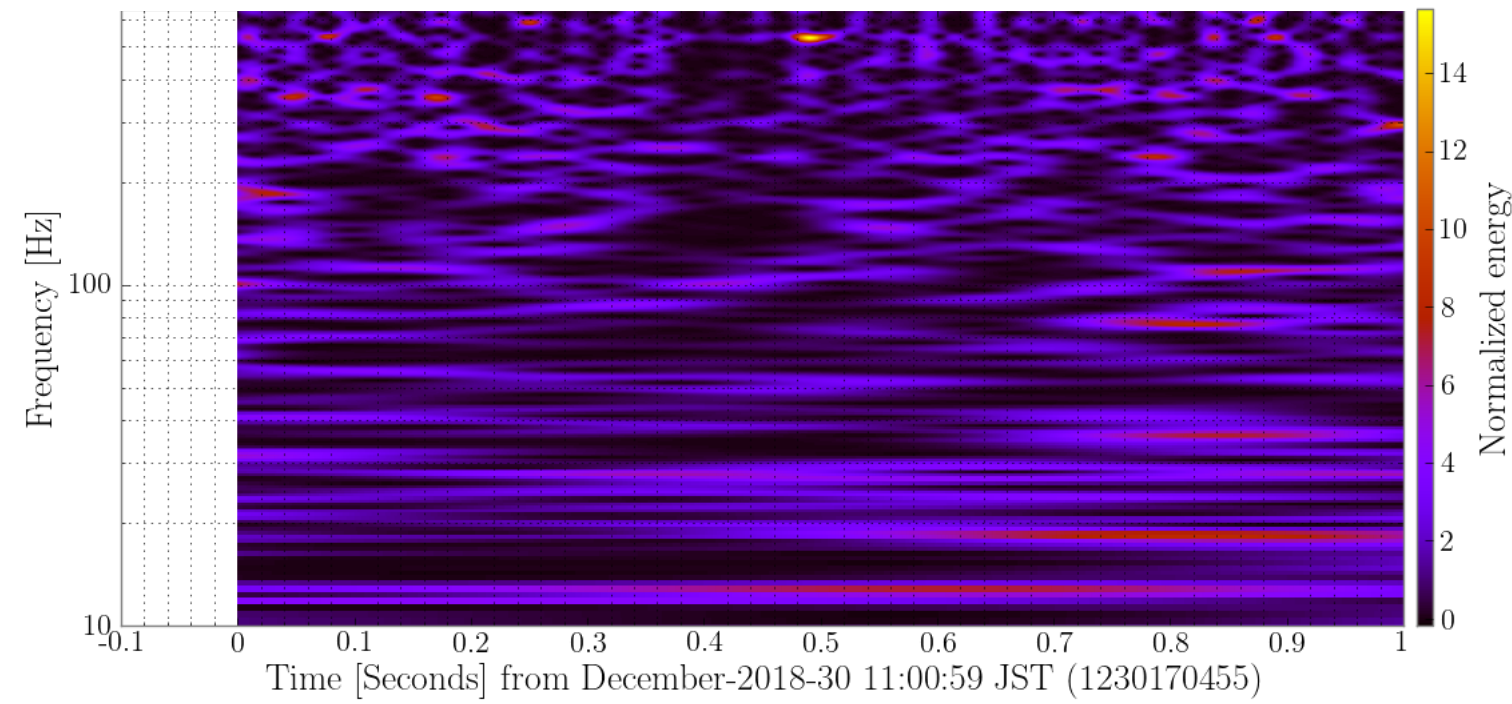
K1:IMC-REFL_QPDA1_DC_PIT_OUT_DQ



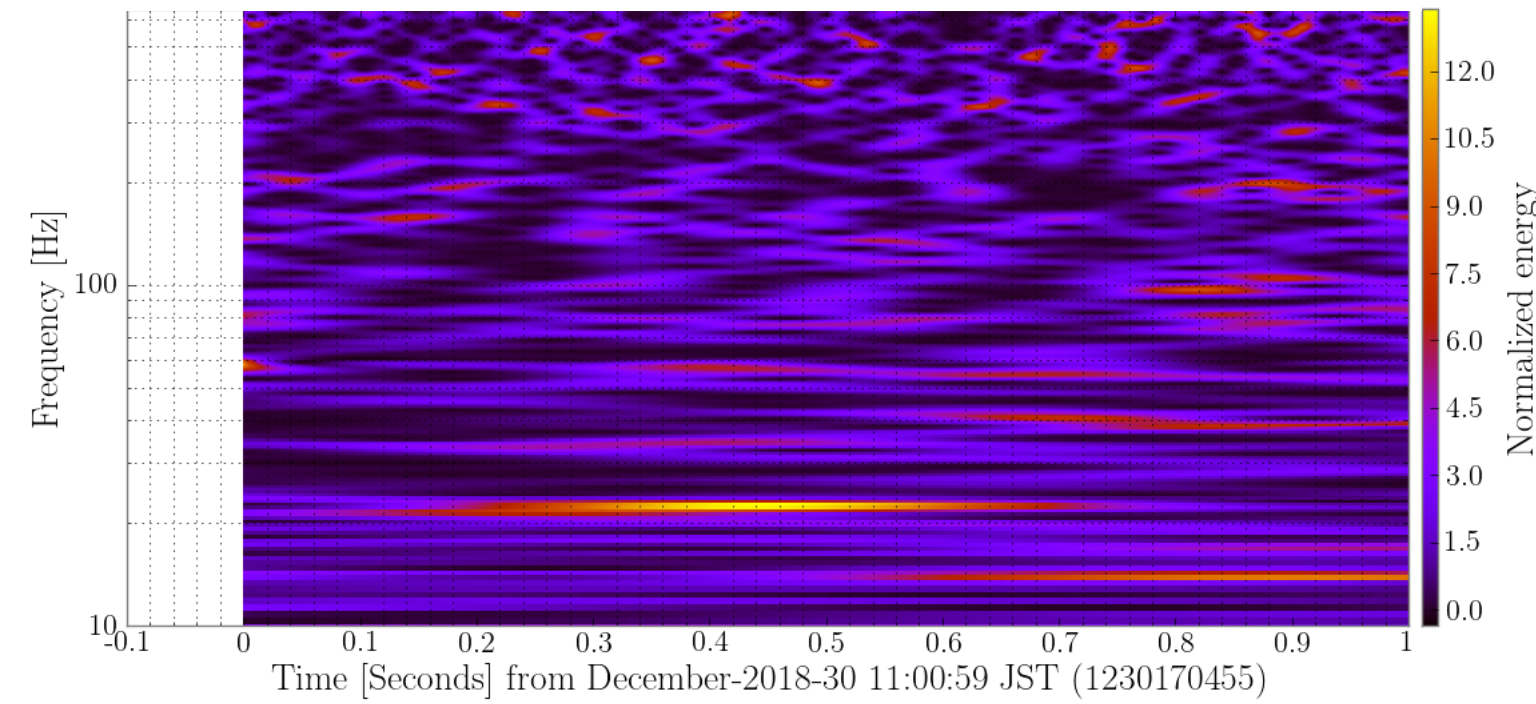
K1:PEM-IFI_MIC_REFL_OUT_DQ



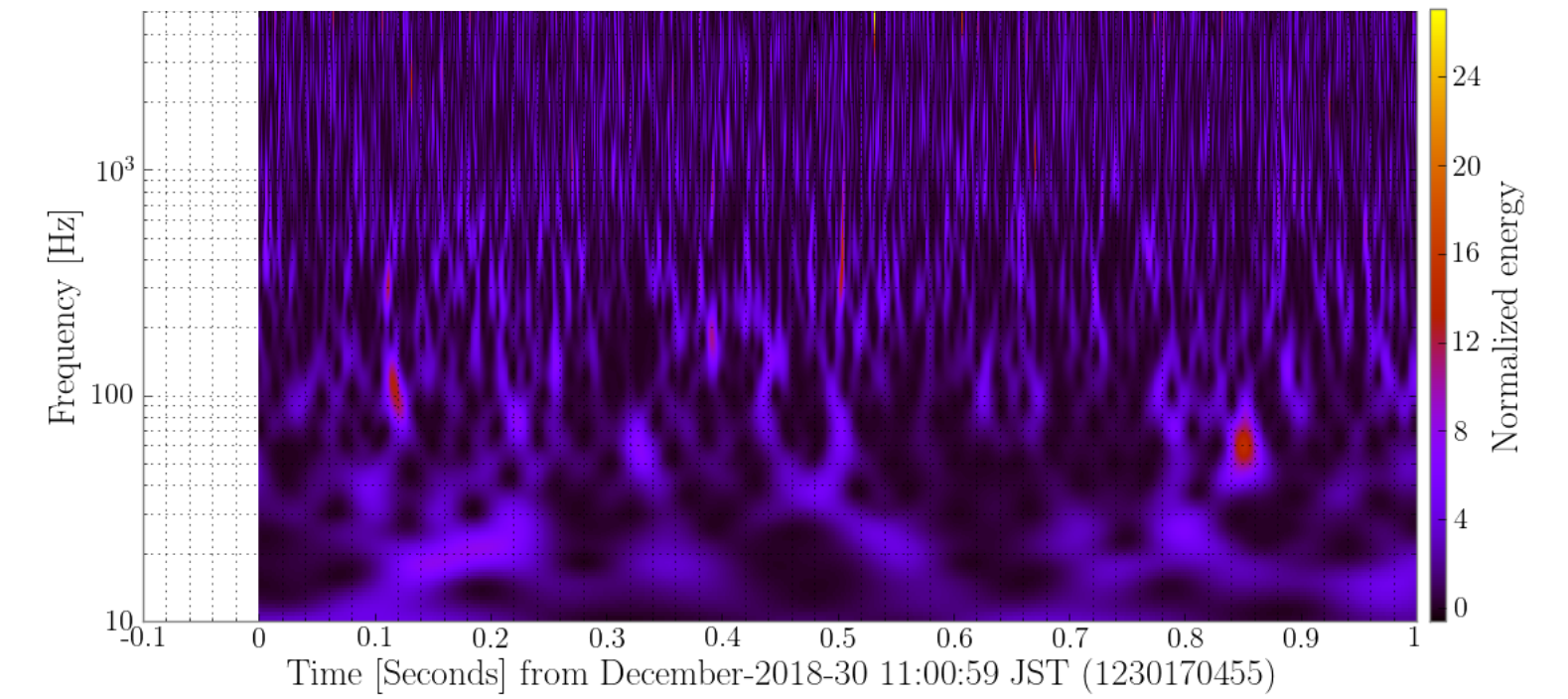
K1:PEM-IMC_ACC_REFL_TABLE_OUT_DQ



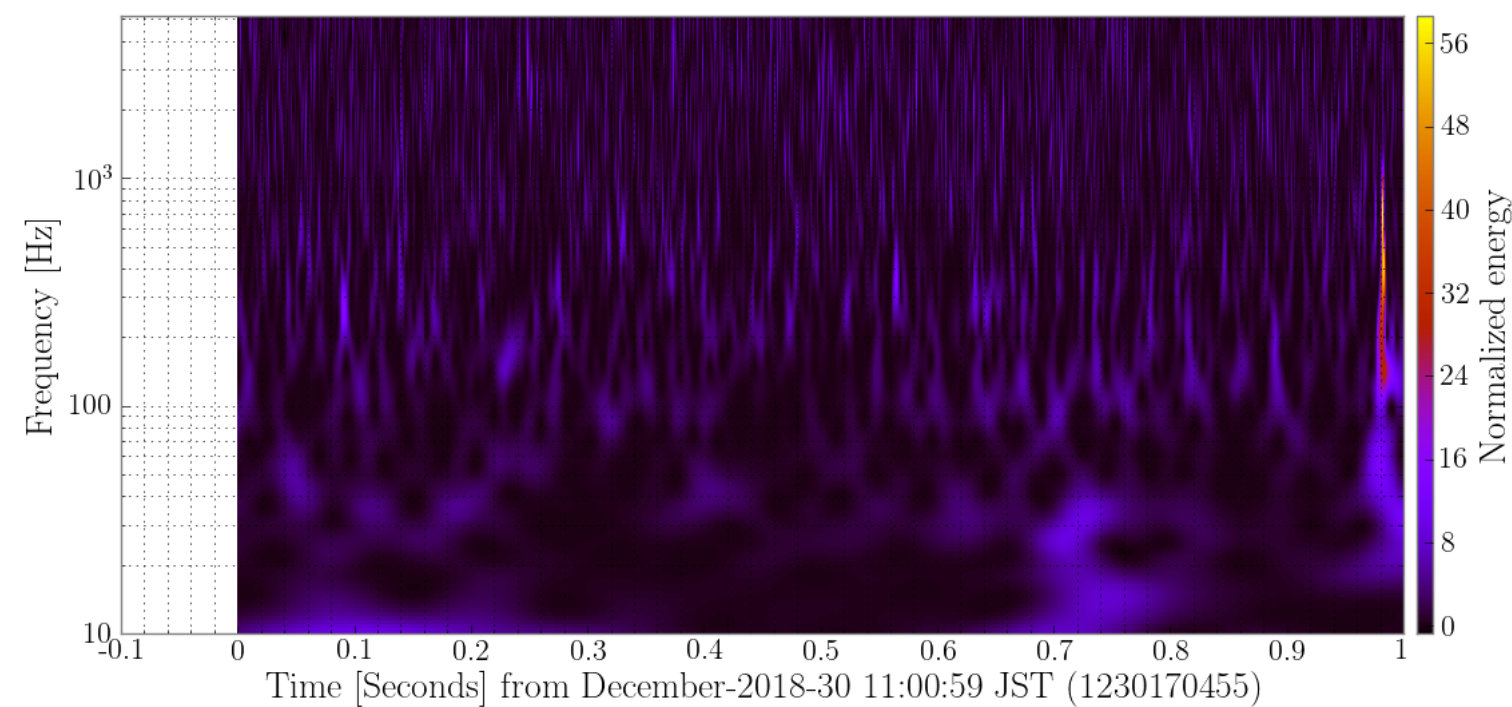
K1:PEM-OMC_ACC_TABLE_OUT_DQ



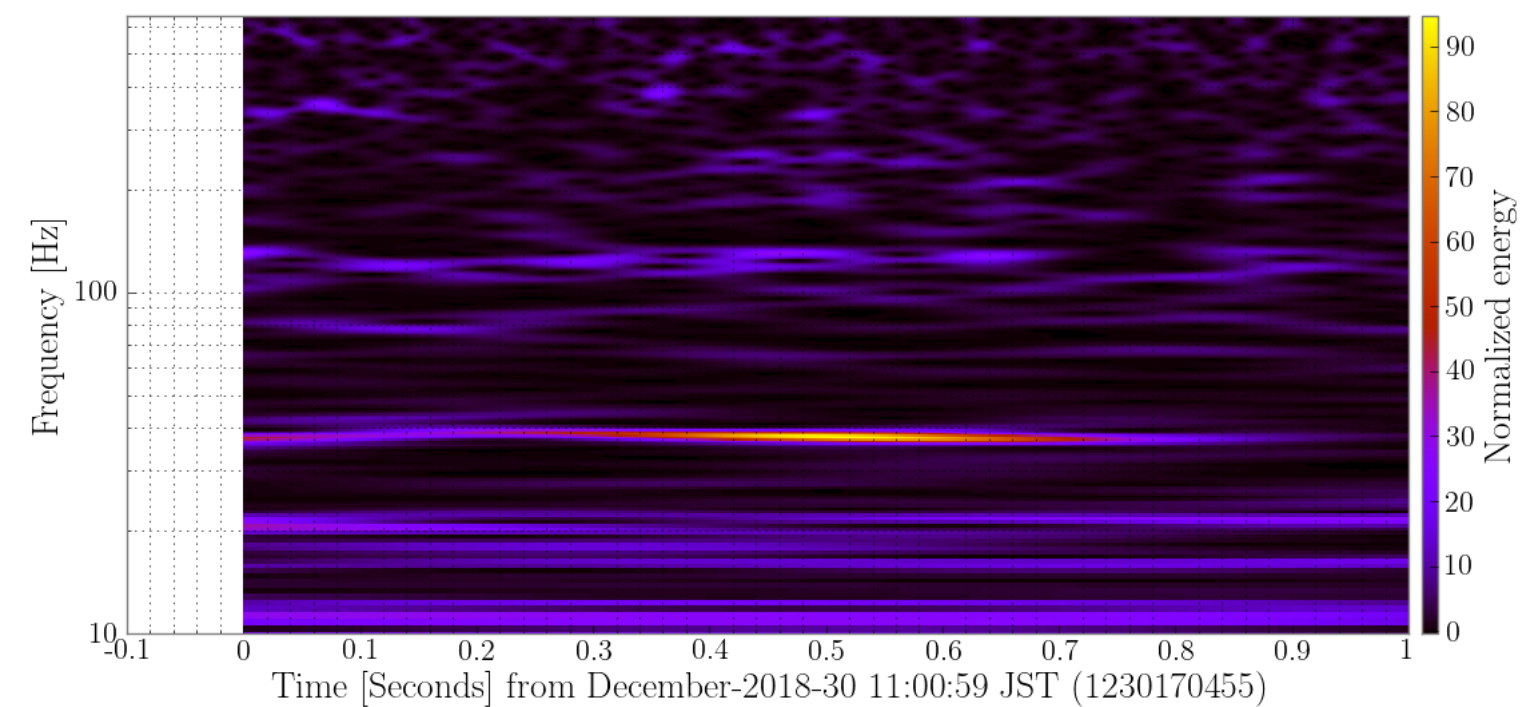
K1:PSL-PMC_FAST_MON_OUT_DQ



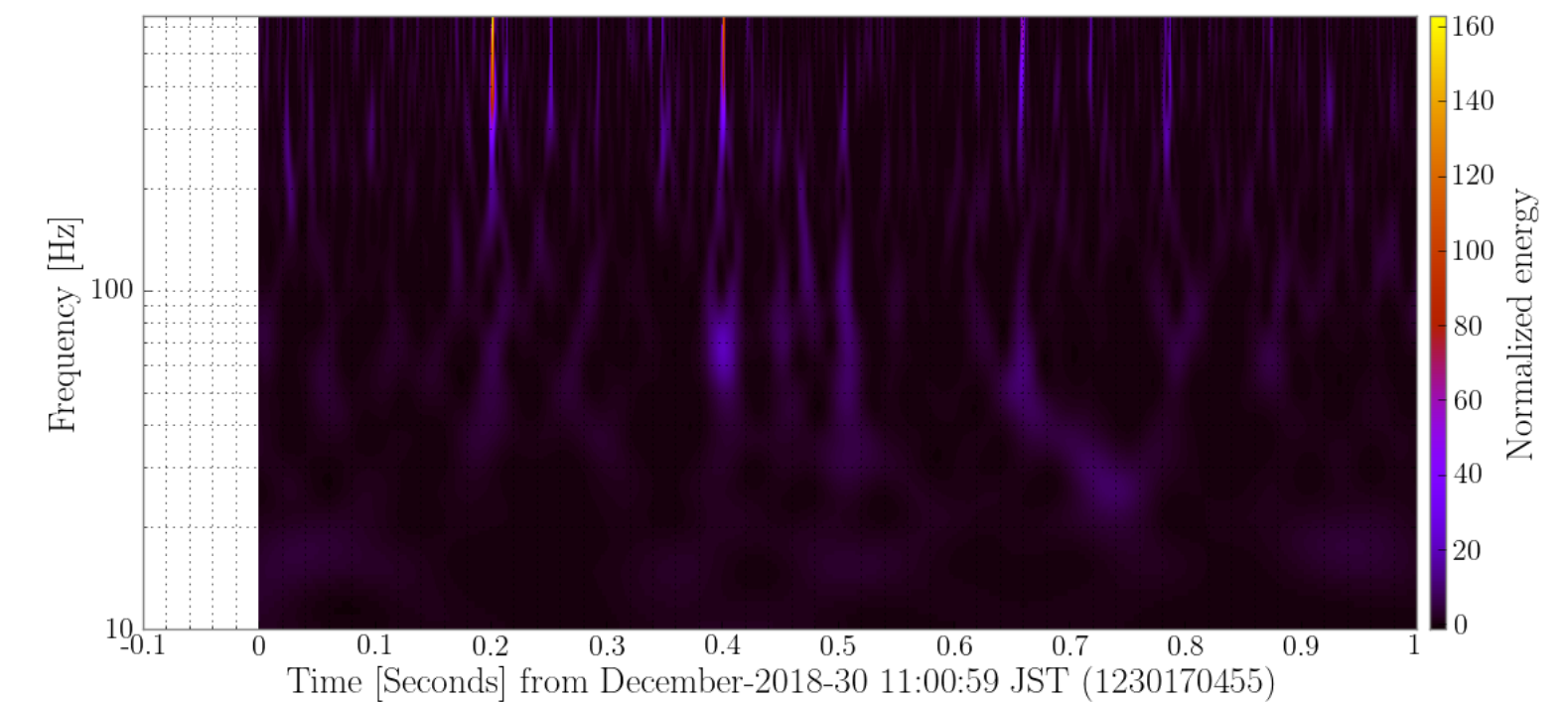
K1:PSL-REFCAV_TRANS_OUT_DQ



K1:VIS-BS_IP_BLEND_ACCL_IN1_DQ



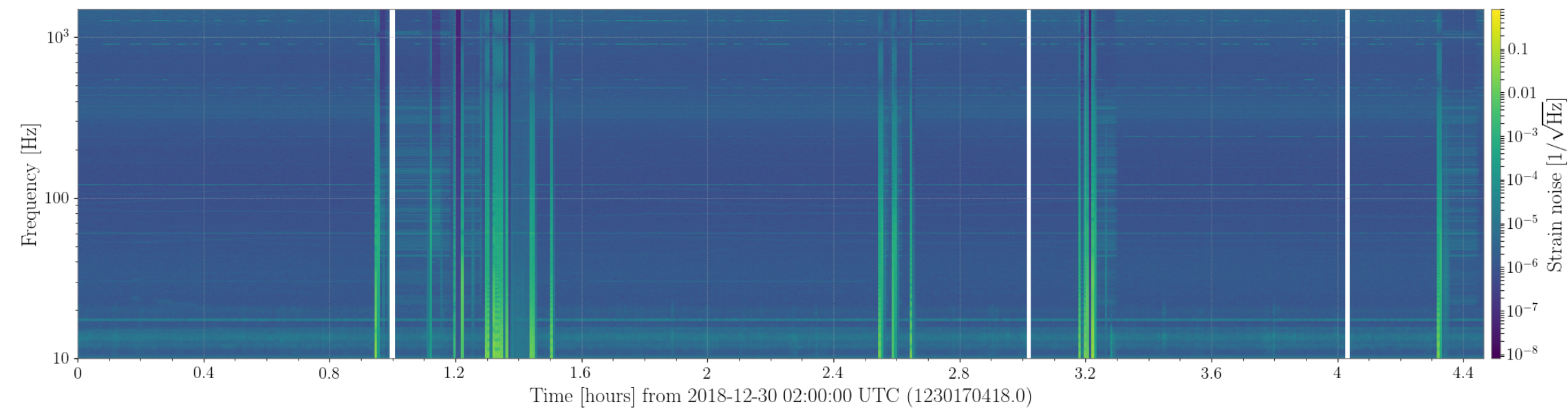
K1:VIS-BS_TM_OPLEV_YAW_DIAG_DQ



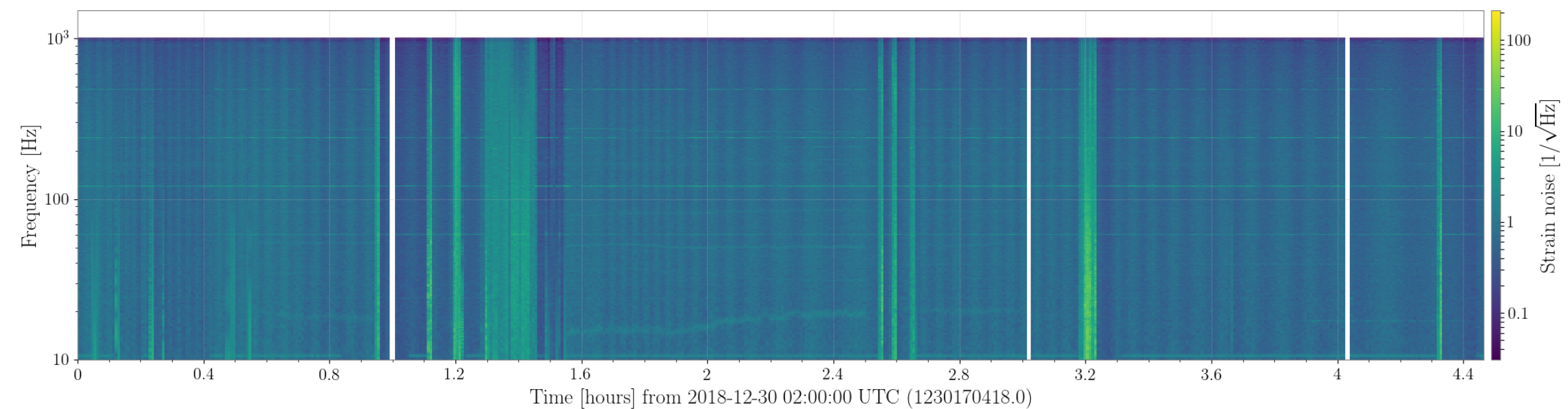


Comment

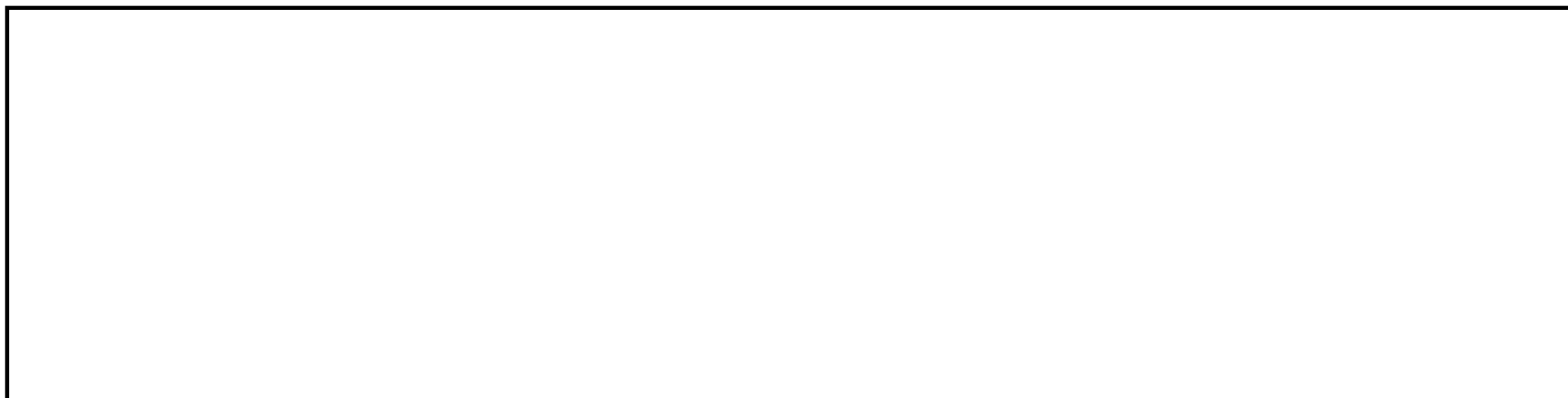
K1:LSC-CARM_SERVO_SLOW_DAQ_OUT_DQ



K1:AOS-TMSX_GR_PD_OUT_DQ



K1:AOS-TMSX_IR_PD_OUT_DQ



- A lot of channels that Timeseries data does not read usually found.
- the Data that lasts 1 to 6 hours for stably locked X-arm is required.
- Which channel can check the locking stability



Comment

- Correlation analysis using trigger data is needed additionally.
 - hveto : the flag trigger must be created from the injection segment information.
 - CAGMon : Now modifying code ...
- Glitch labeling based OmegaScan maybe be a long term task ...
- How about creating K1_Channel wiki-dictionary?

[> Google spreadsheet Link](#)

✓ Others

- KGWG DetChar group member invite to KAGRA
 - UNIST Student is negative
 - Dr. YoungMin Kim can make short-term time about 1–2 weeks, substitutionally
- How about the current status of KAGRA DetChar Group?
- What kind of DetChar tools for the summary page is Needed Now?