

# VK PEM meeting

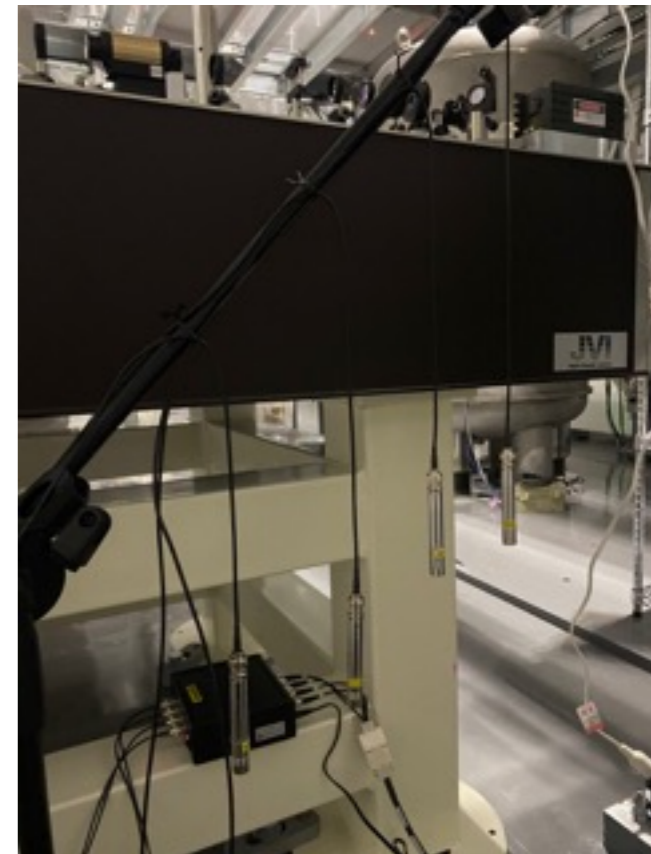
2021-03-26

Takaaki Yokozawa

# Status of KAGRA

- VIS upgrade is ongoing
- IMC commissioning is ongoing
- KAGRA schedule
  - Mar-May : Input optics commissioning with suspension commissioning
  - May-June : IX, EX alignment with beam
  - June-Aug : Finalize the IX and EX commissioning and X arm cavity
  - End of this year : Close all chambers (???)
- PEM activities
  - Four magnetometer (Signal check : Next week)
  - Four infrasound microphone (Preliminary result today)
  - New cabling
    - Toward O4

# 1. Four infrasound microphones



- Four infrasound microphone  
- 3/19 18:00 ~ 3/21 9:00

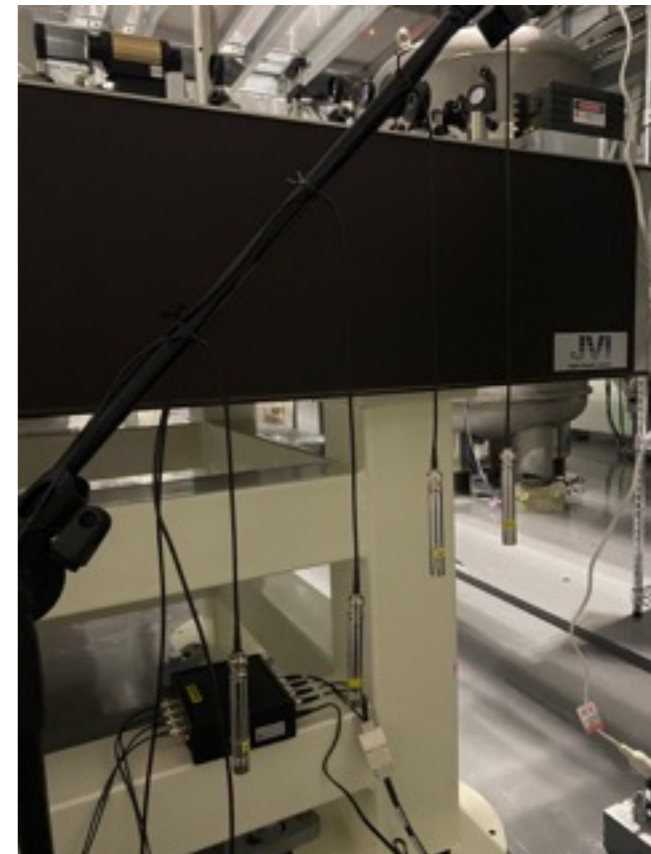


0.1 - 0.3 Hz

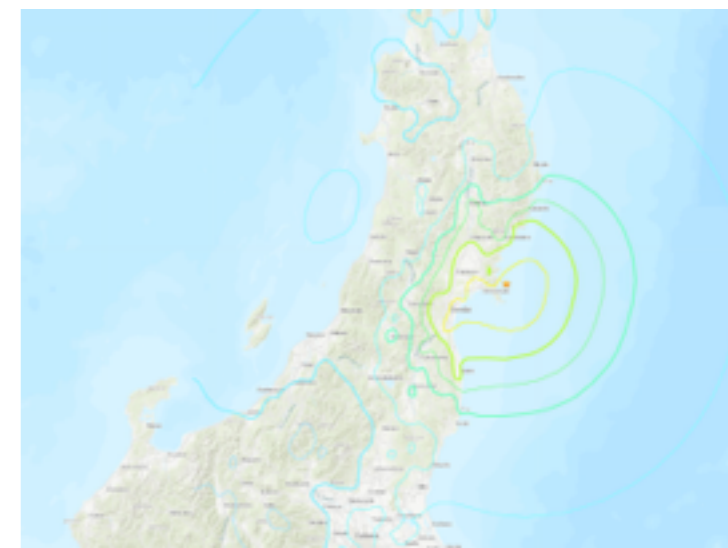
0.3 - 1.0 Hz

1.0 - 3.0 Hz

# 1. Four infrasound microphones

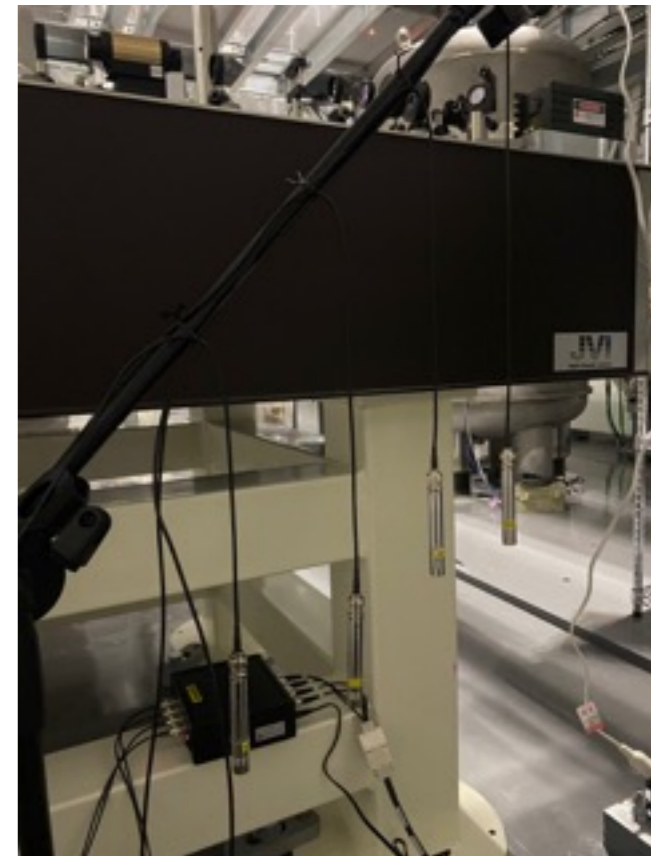


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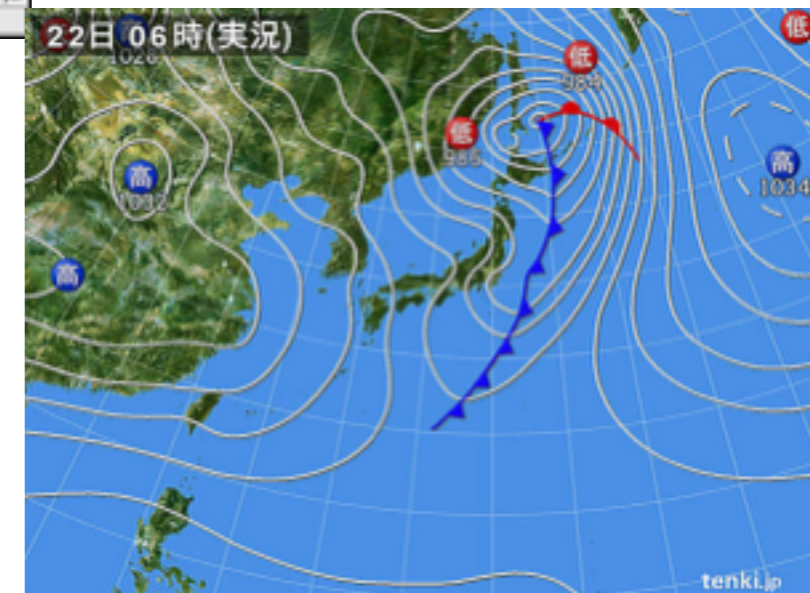


Ishinomaki earthquake  
magnitude 7.0

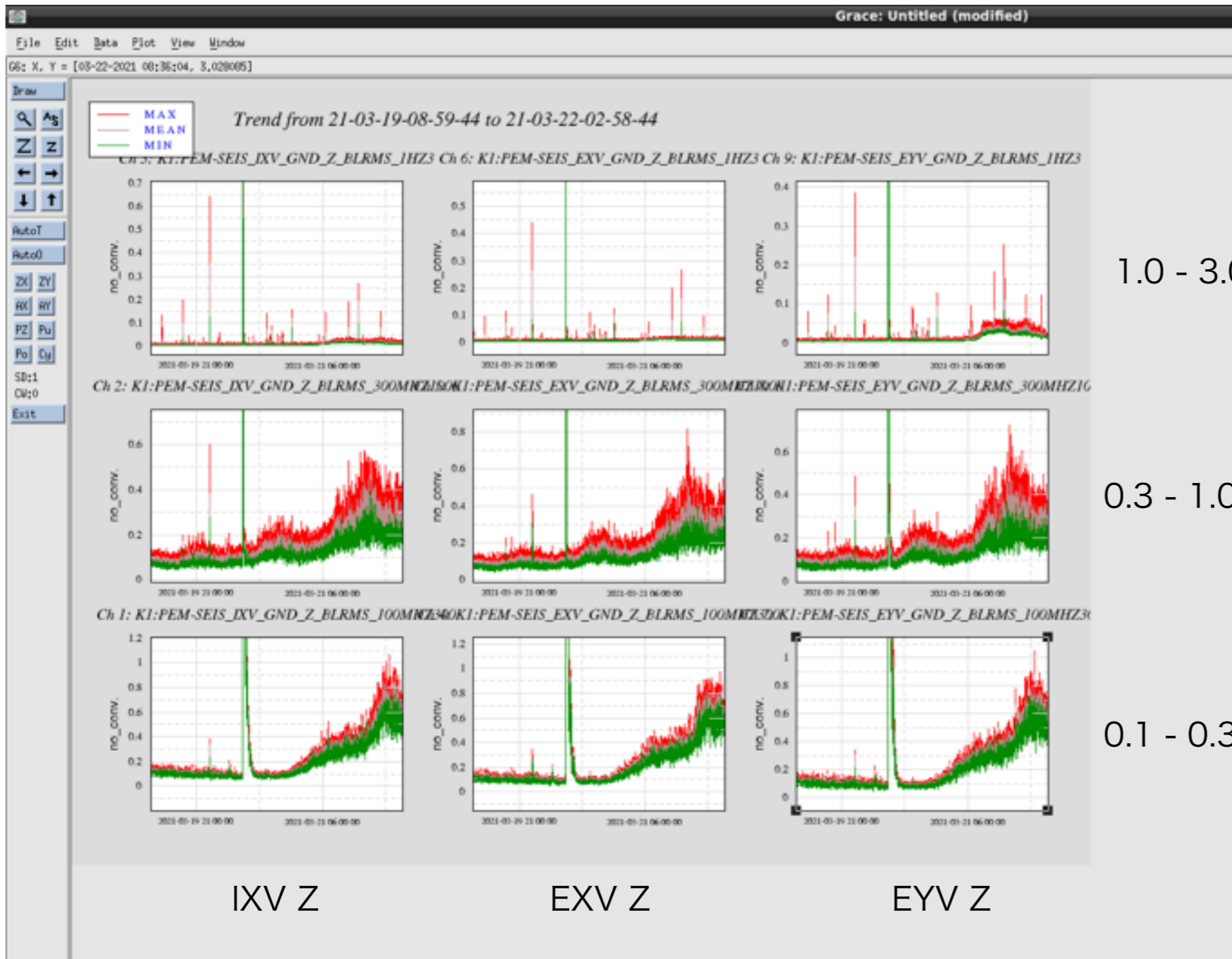
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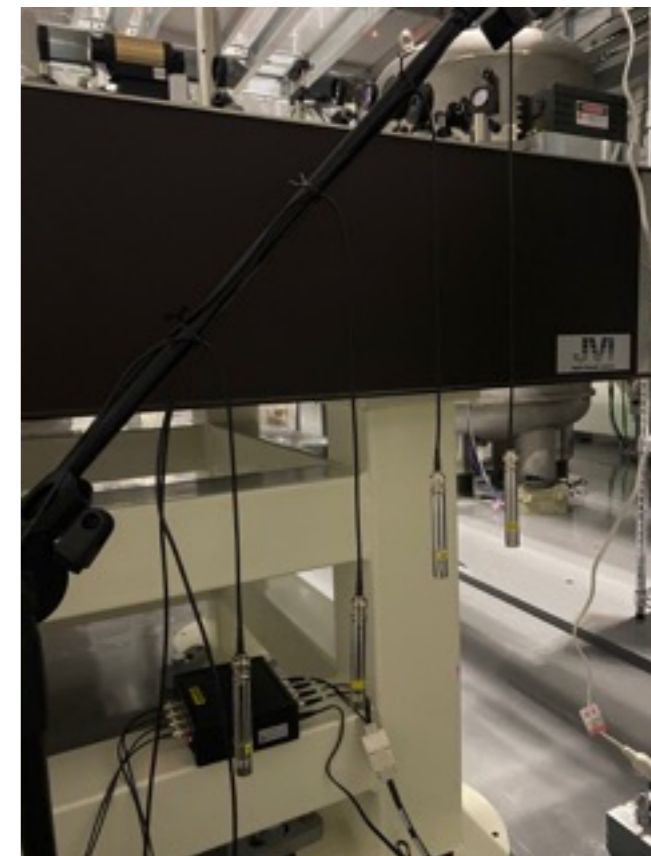
# 1. Four infrasound microphones



1.0 - 3.0 Hz

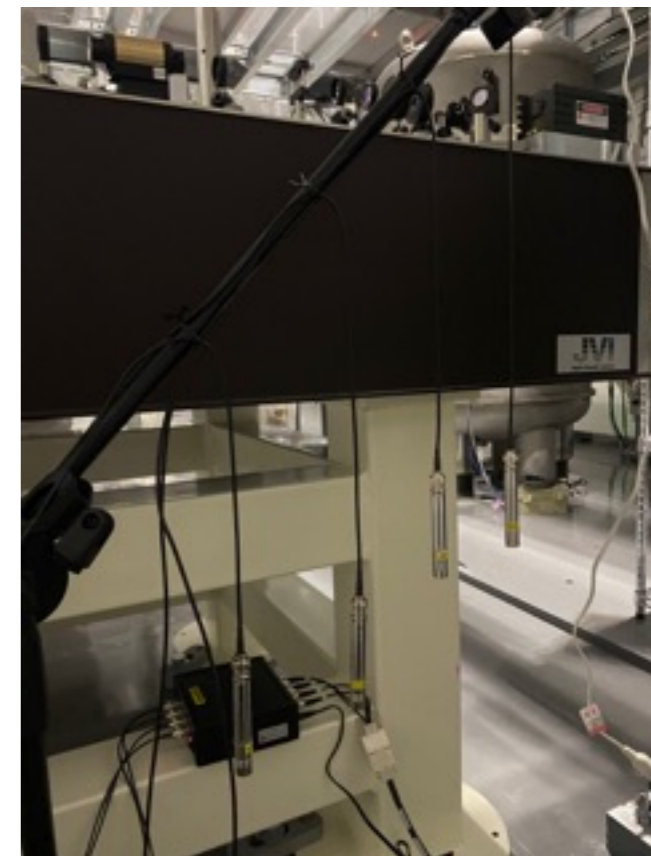
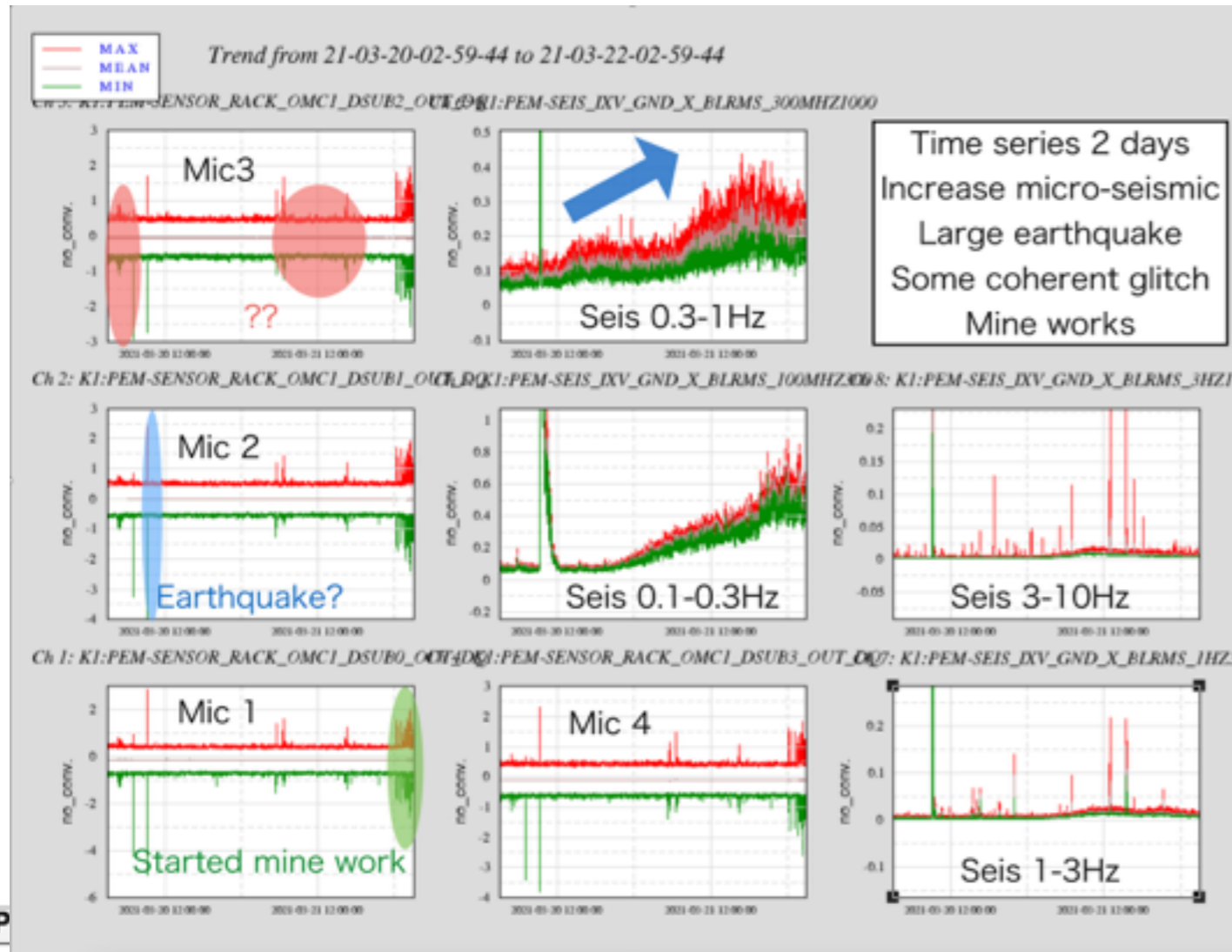
0.3 - 1.0 Hz

0.1 - 0.3 Hz

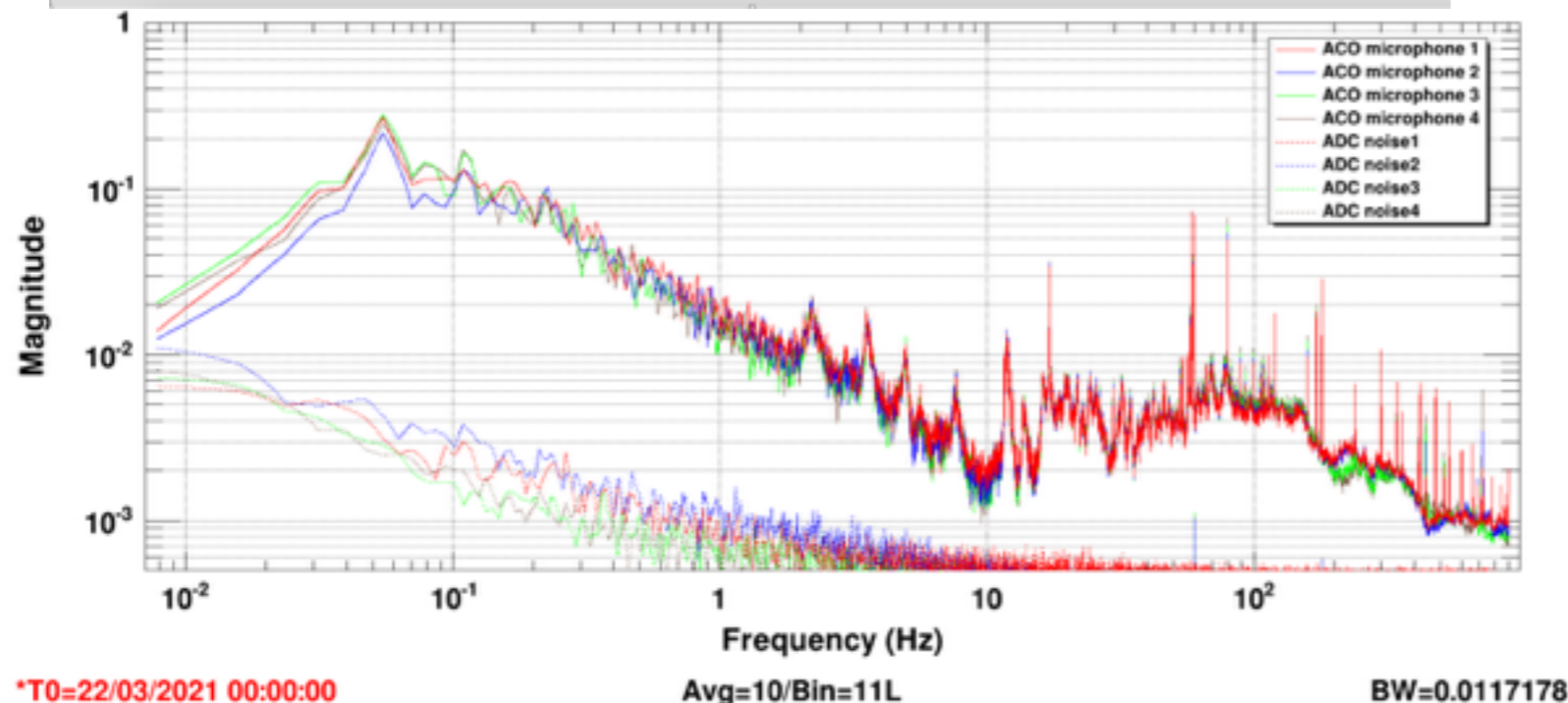


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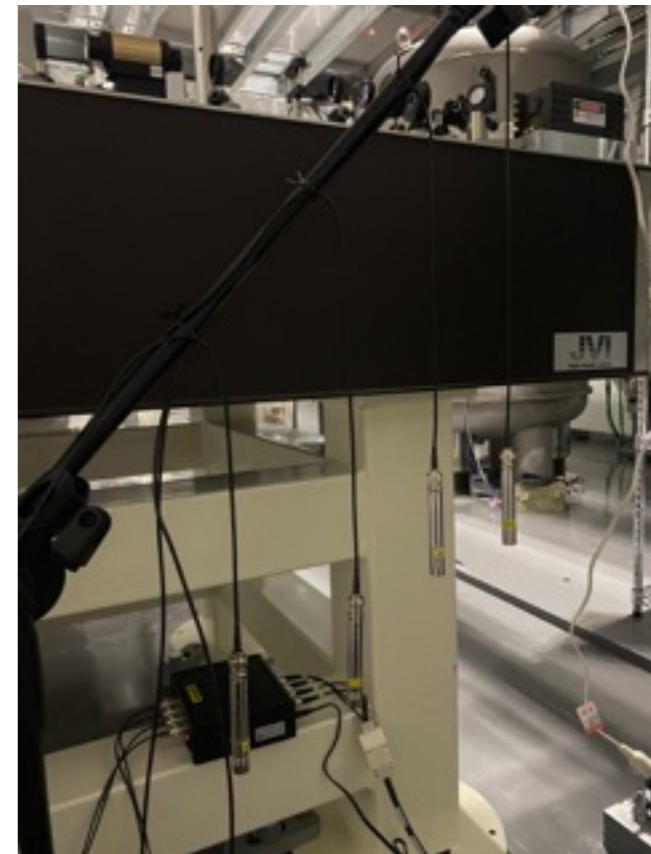
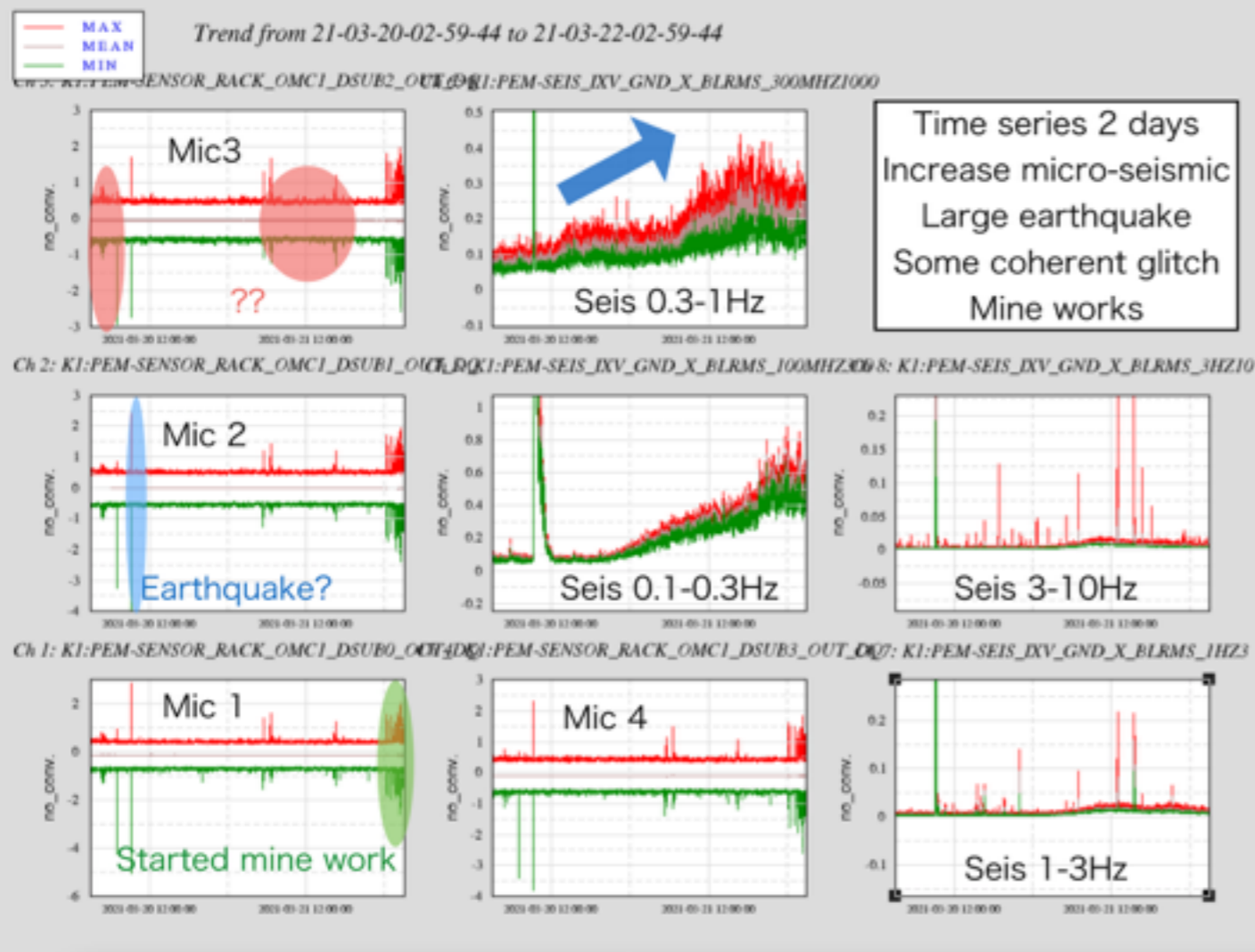


- Four infrasound microphone
- 3/19 18:00 ~ 3/21 9:00

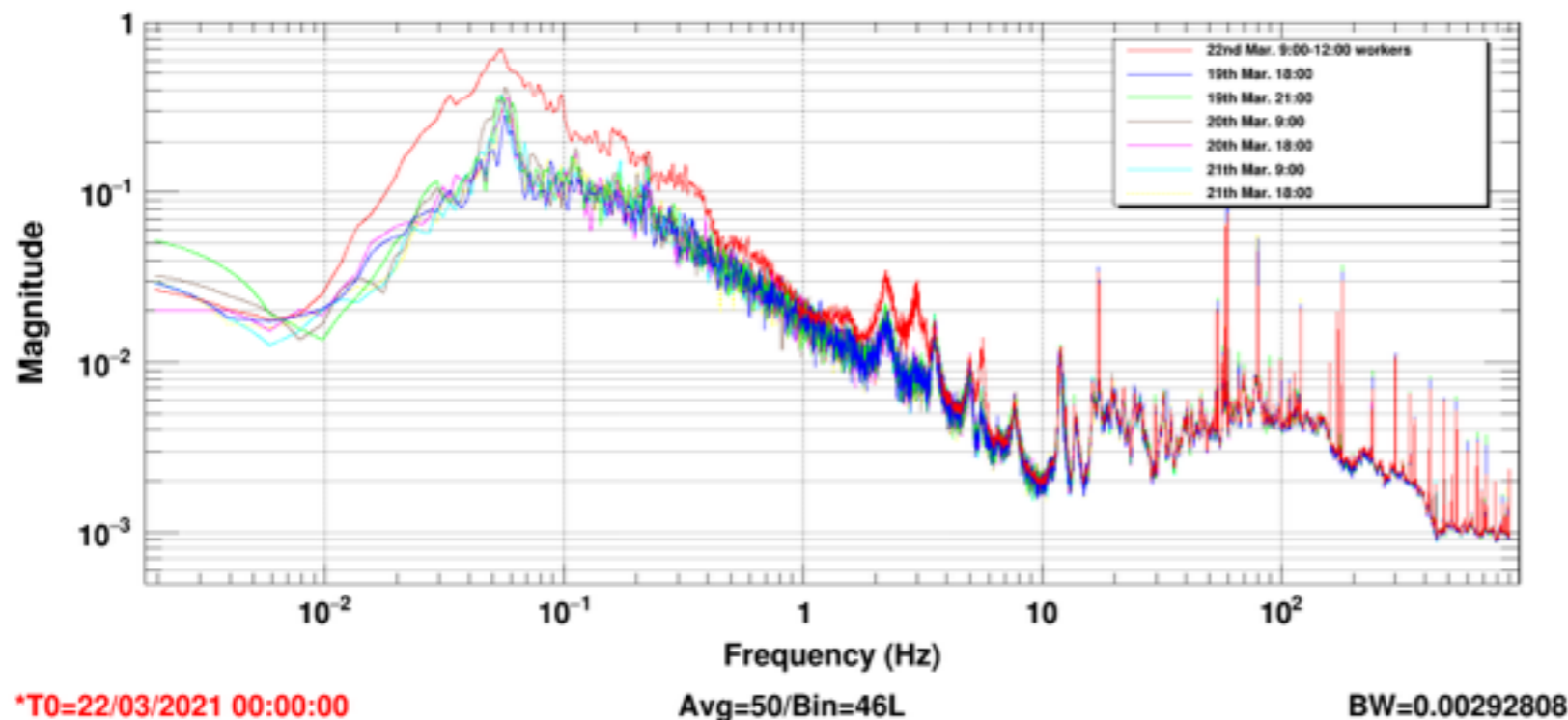


- Some glitch near the earthquake
  - Next page
- some unknown glitches
- After starting mine work (Monday morning), the RMS increased.
  - Next page
- Check four microphone data
  - No significant change
  - But, mysterious spectrum

# 1. Four infrasound microphones

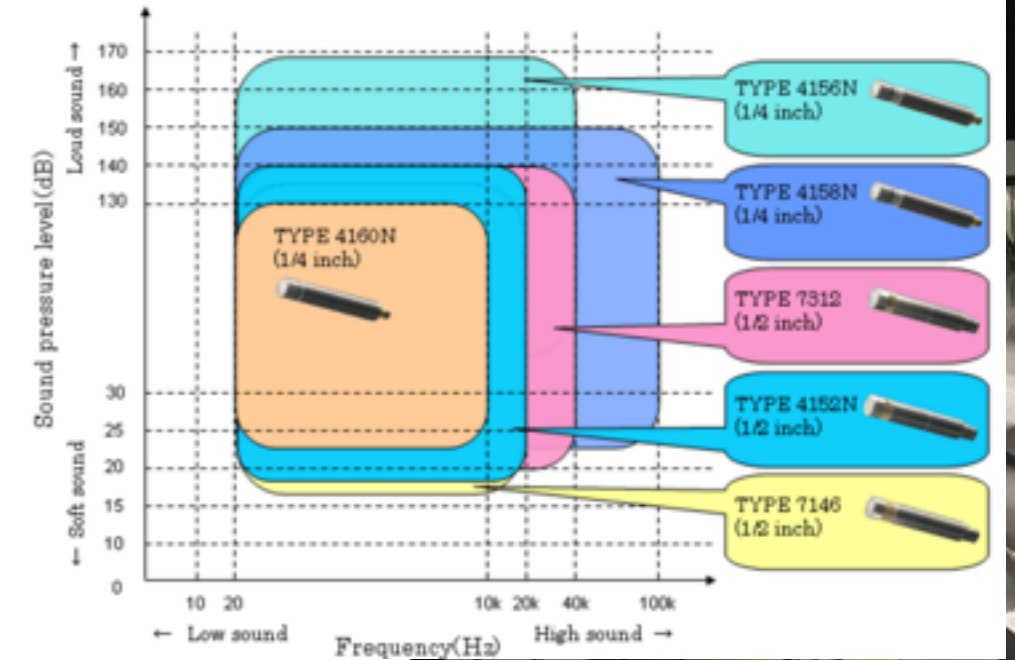
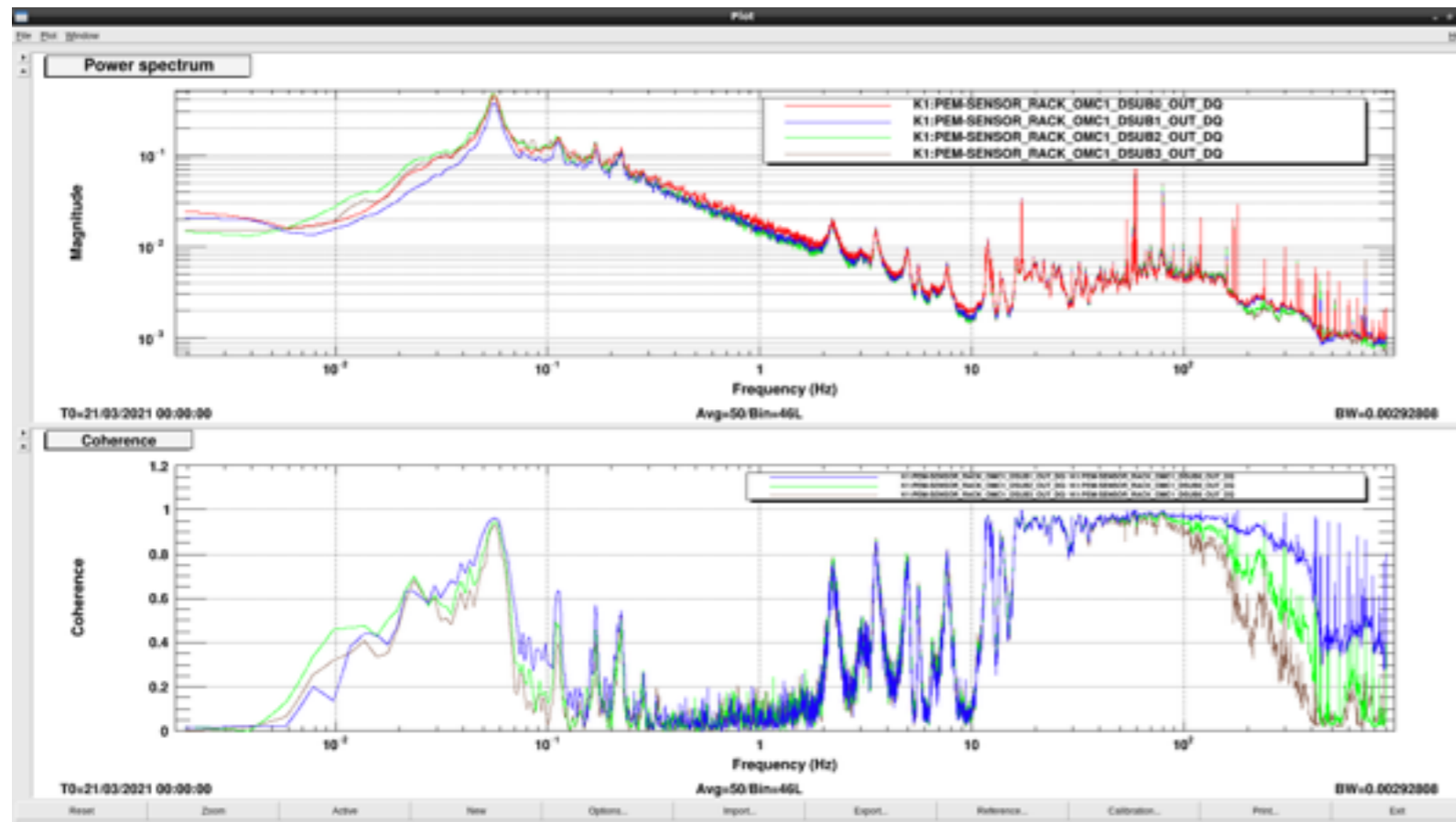


- Four infrasound microphone
- 3/19 18:00 ~ 3/21 9:00

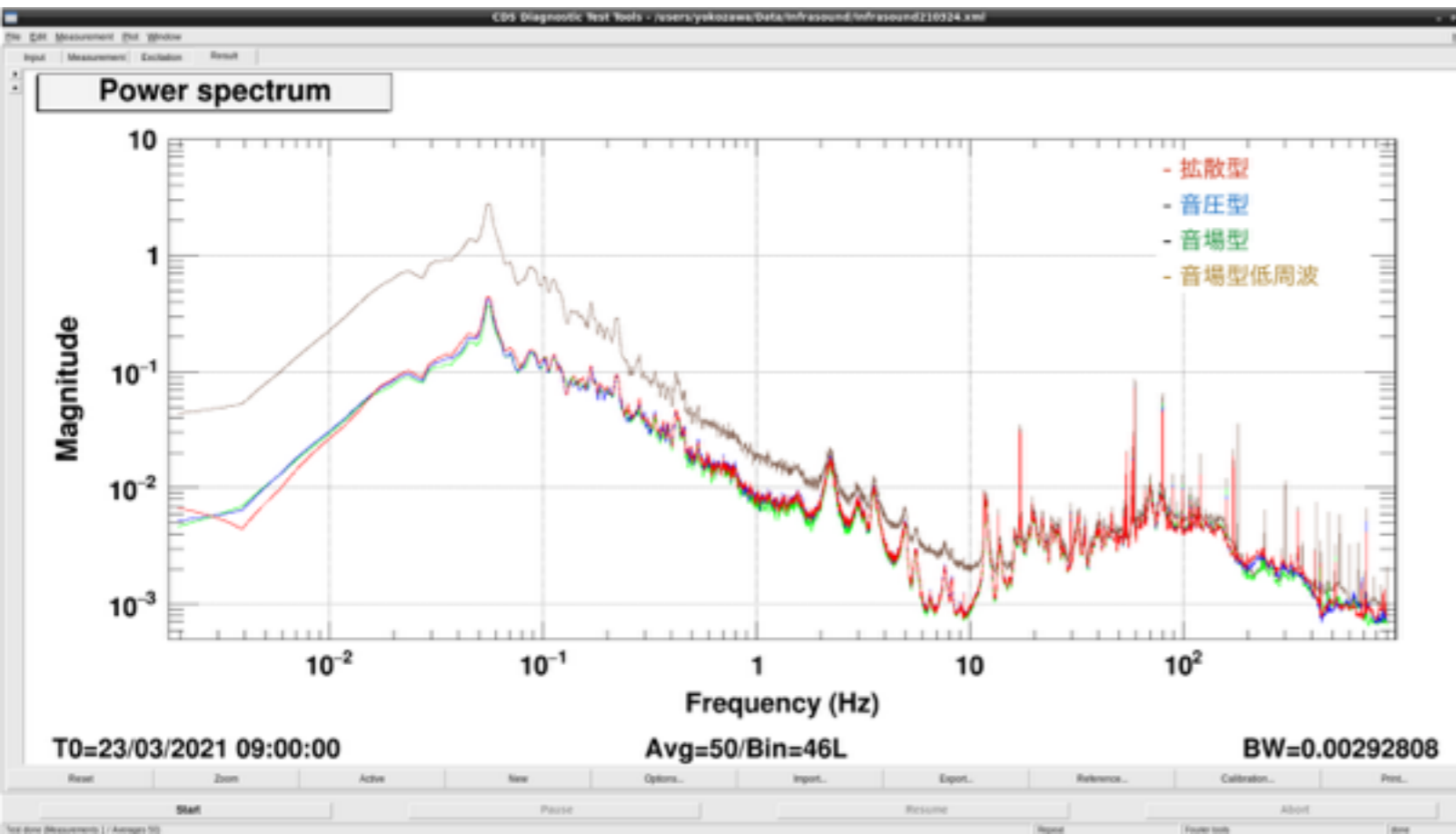


- No significant time variation of spectrum during weekend
- Several peaks appeared after starting the mine work

# 1. Four infrasound microphones

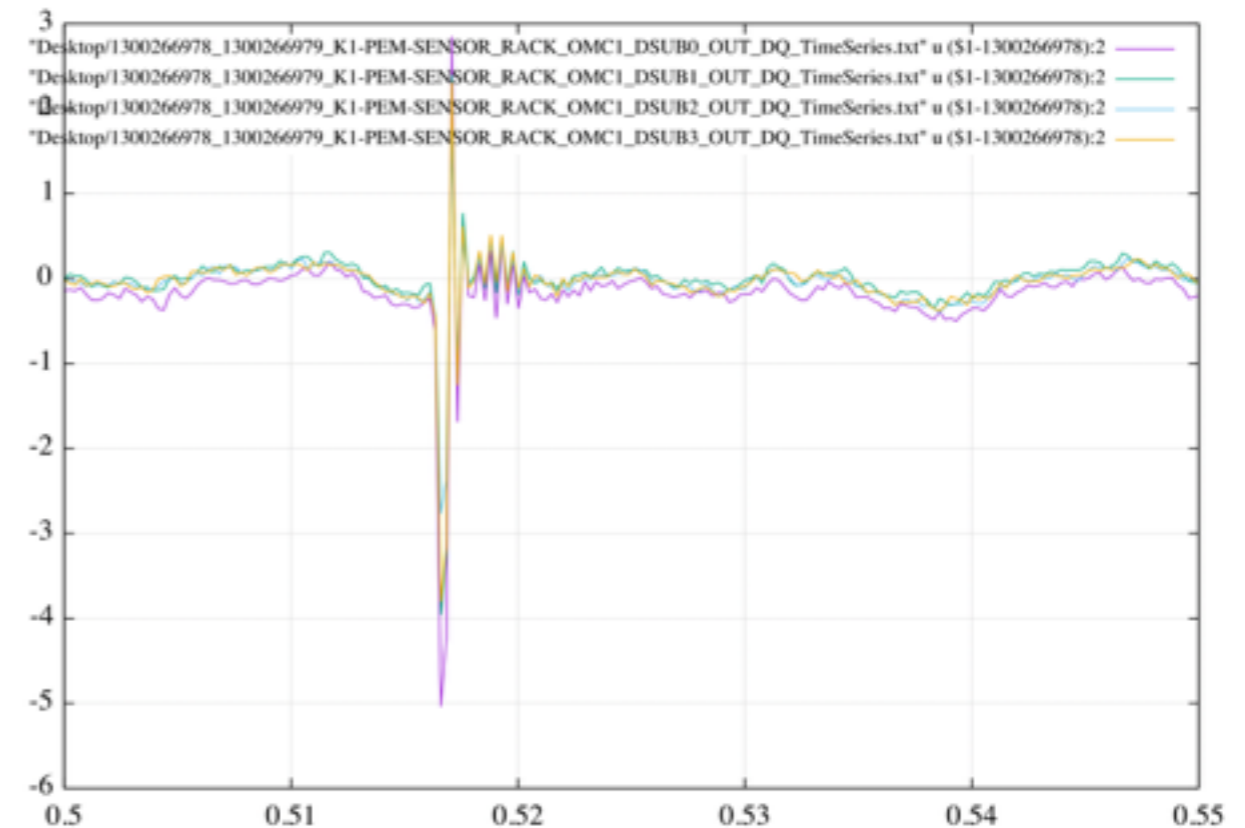
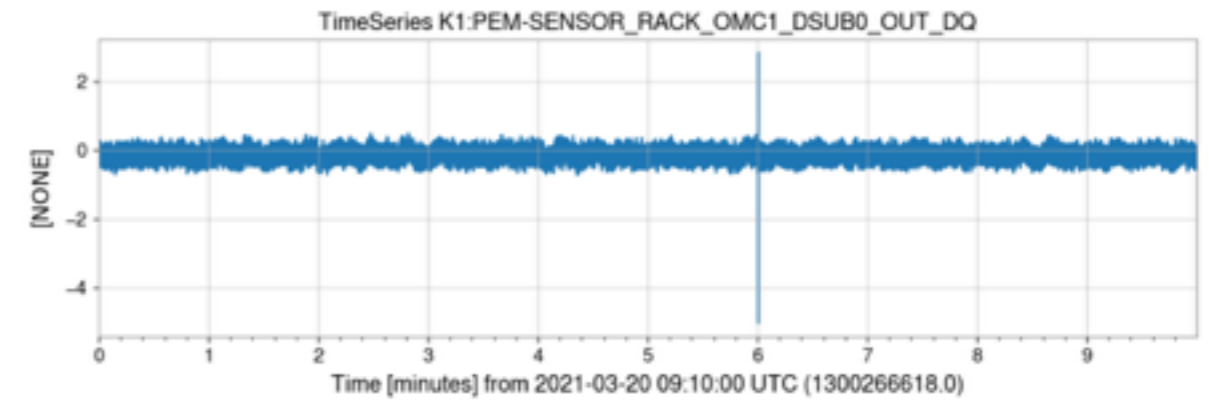
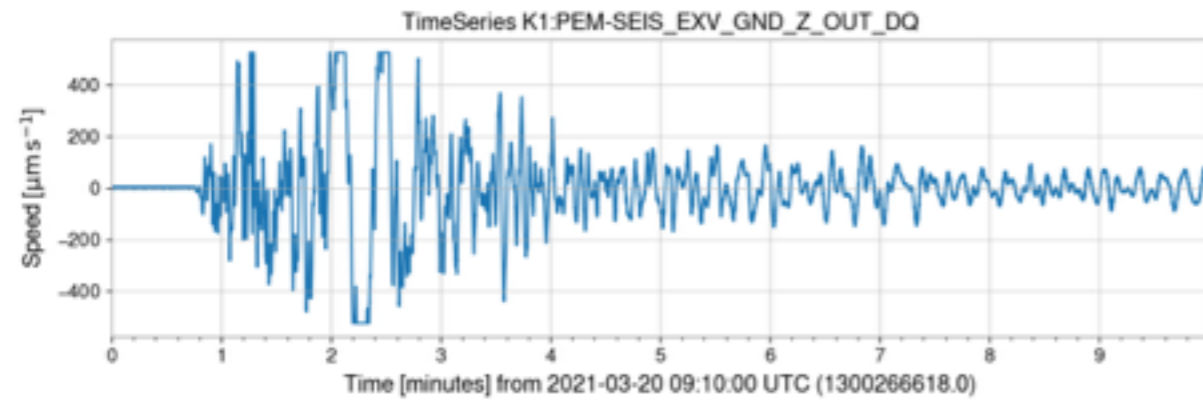
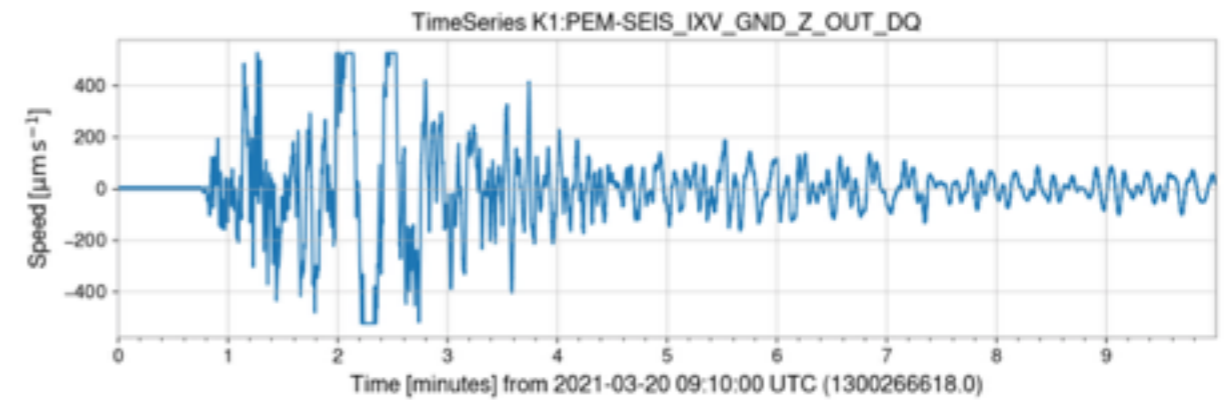
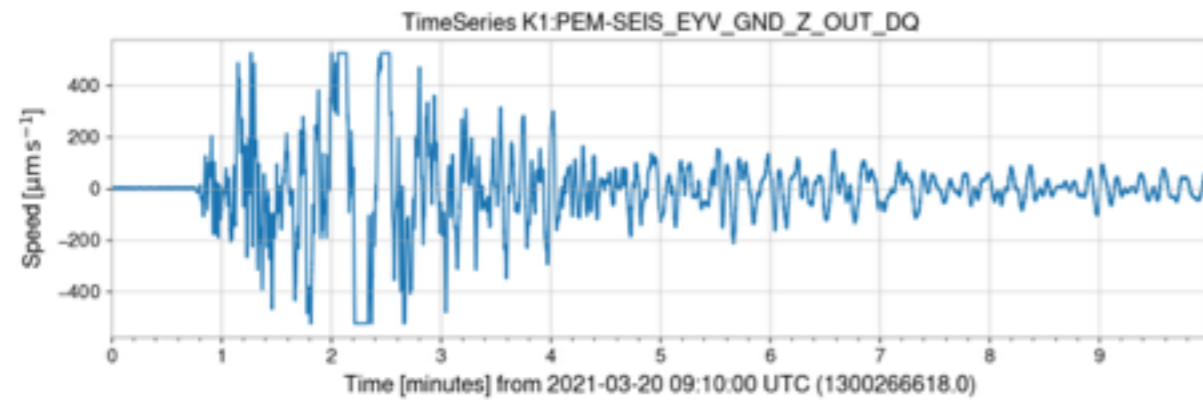


- Four infrasound microphone
- 3/19 18:00 ~ 3/21 9:00
- Compared with other microphones
- Sensitive above 20Hz

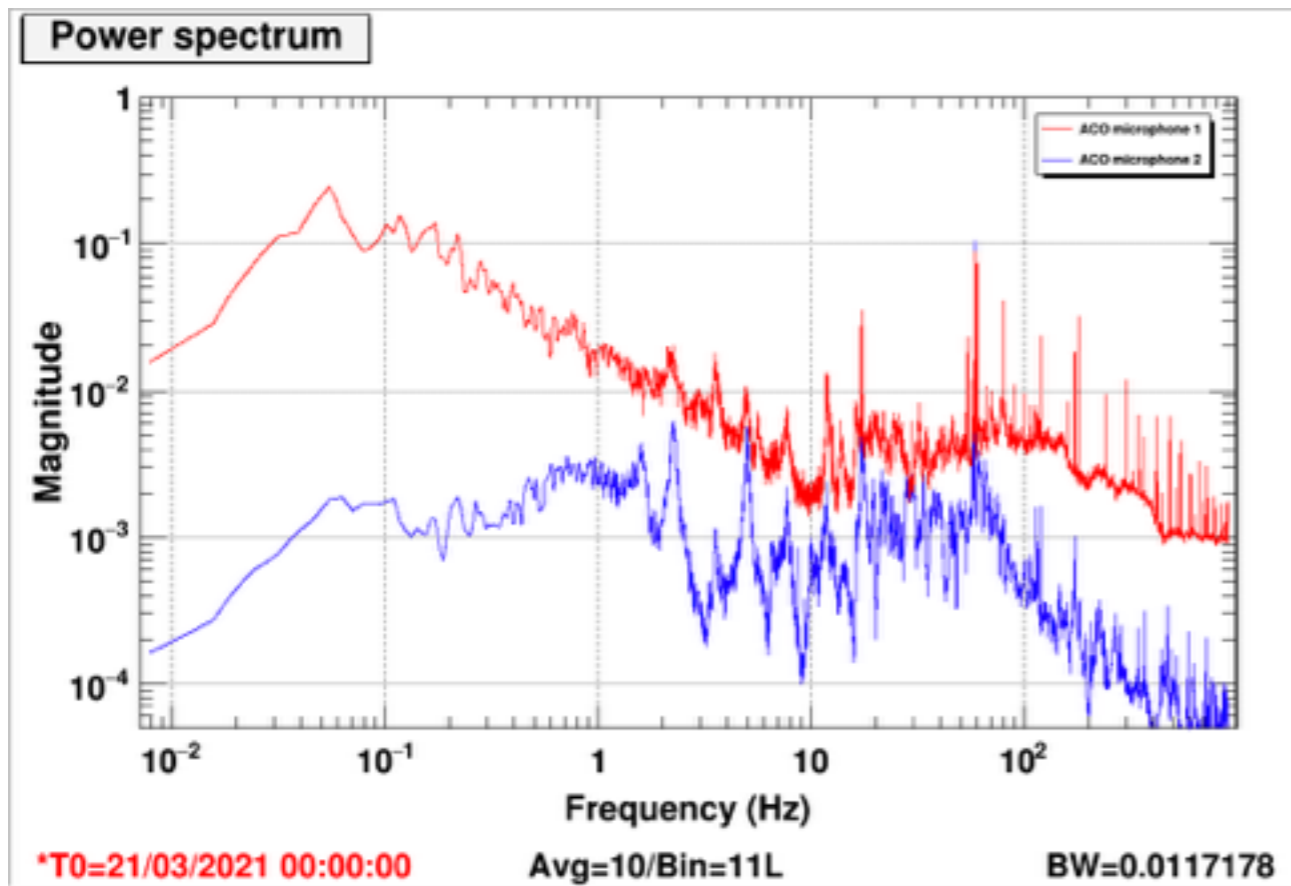


- No coherence below 10Hz, some noise??
- Different shape of spectrum compared with other microphone
- Searching the reason now

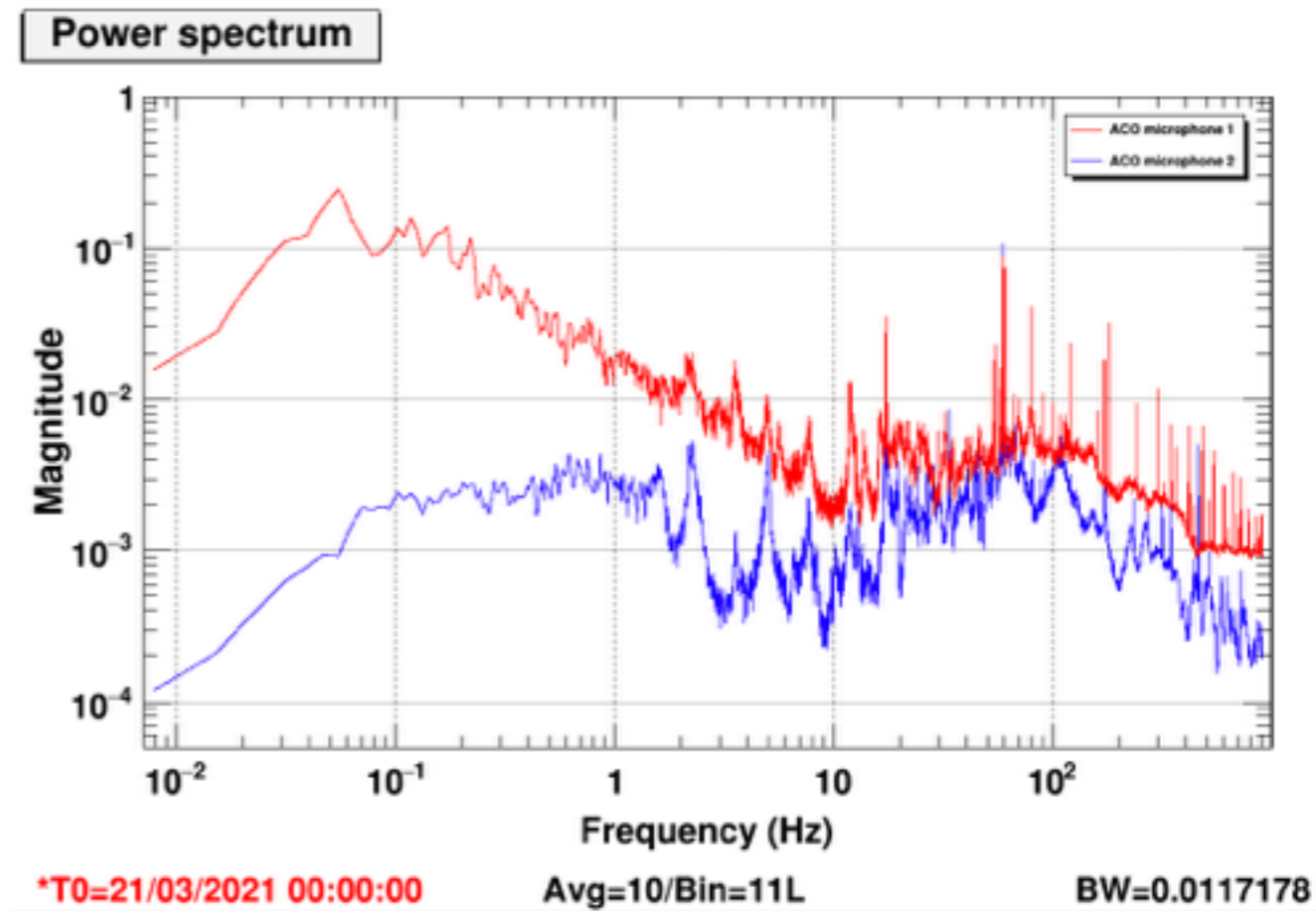
# 1. Four infrasound microphones



## 2. Others



- Red : This microphone 2021/3/22
- Blue : POS microphone 2020/1/1
  - Turned on the FFU



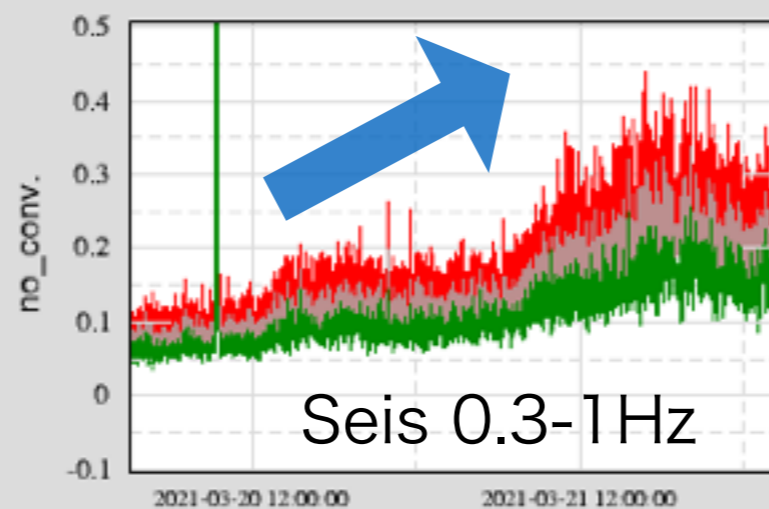
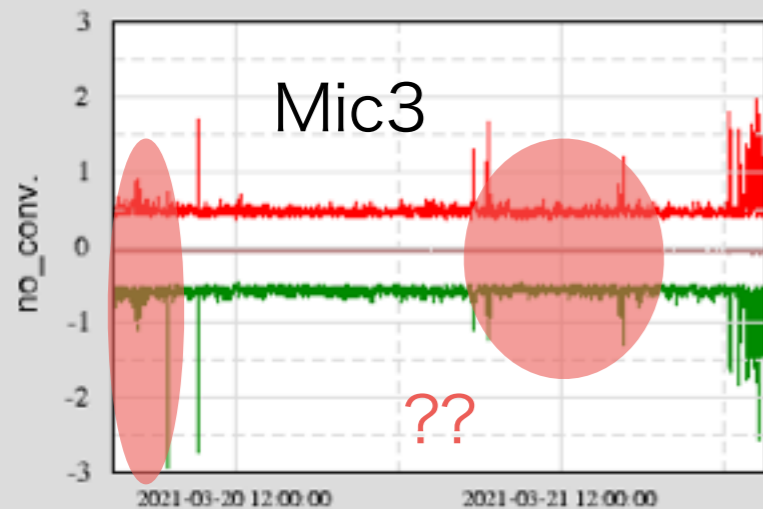
- Red : This microphone 2021/3/22
- Blue : POS microphone 2020/4/12
  - During O3GK
  - Turned off the FFU





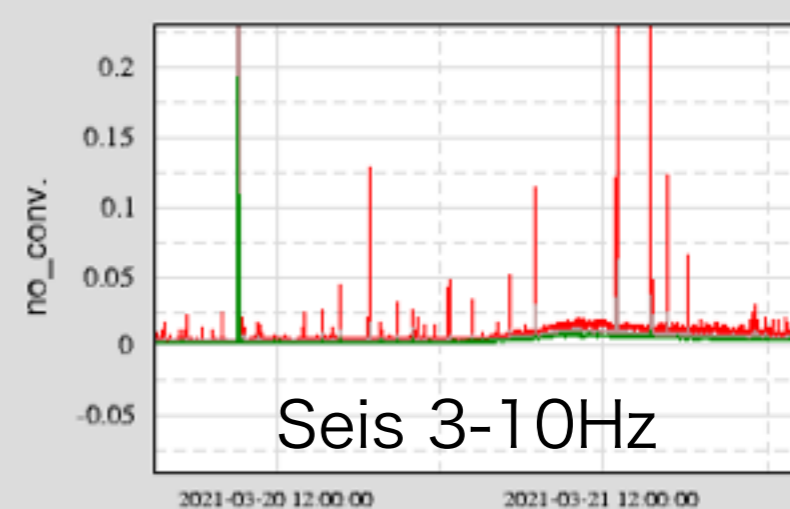
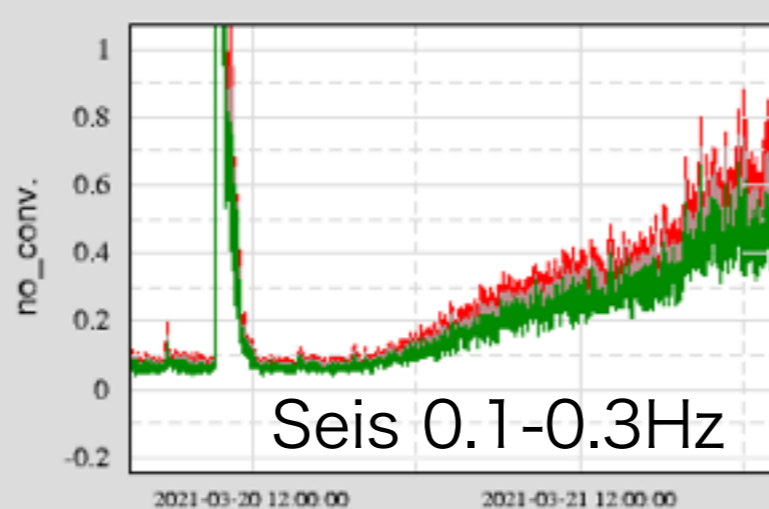
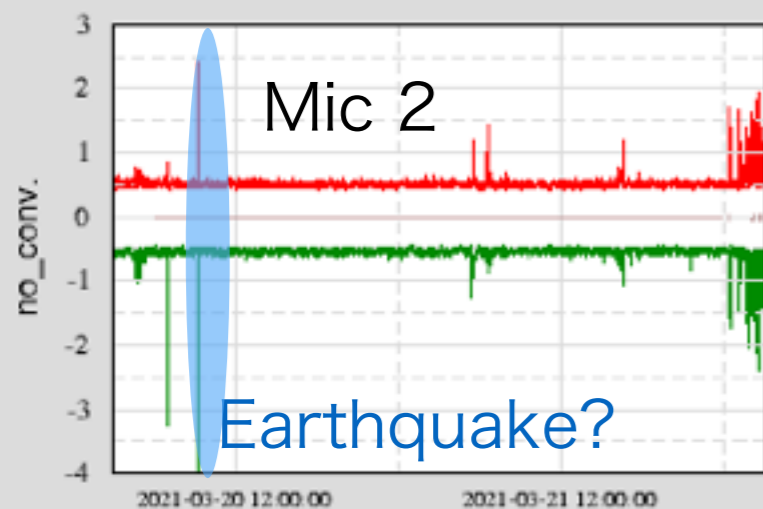
Trend from 21-03-20-02-59-44 to 21-03-22-02-59-44

Ch 3: K1:PEM-SENSOR\_RACK\_OMC1\_DSUB2\_OUT\_001:PEM-SEIS\_IXV\_GND\_X\_BLRMS\_300MHZ1000

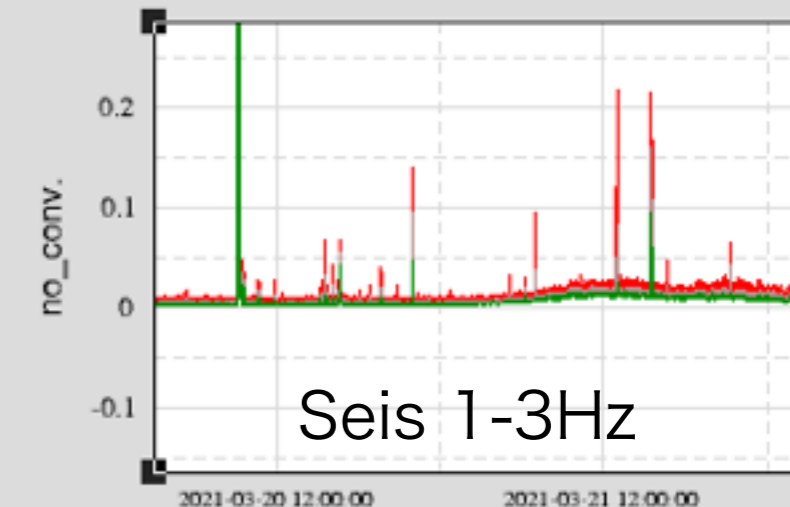
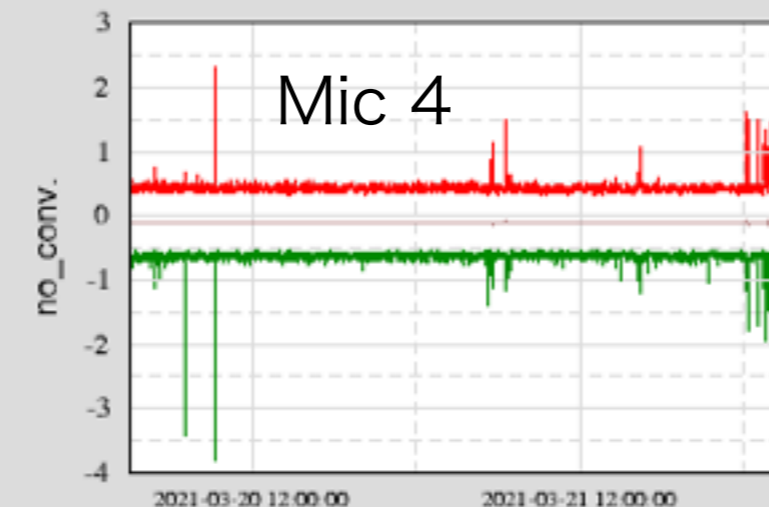
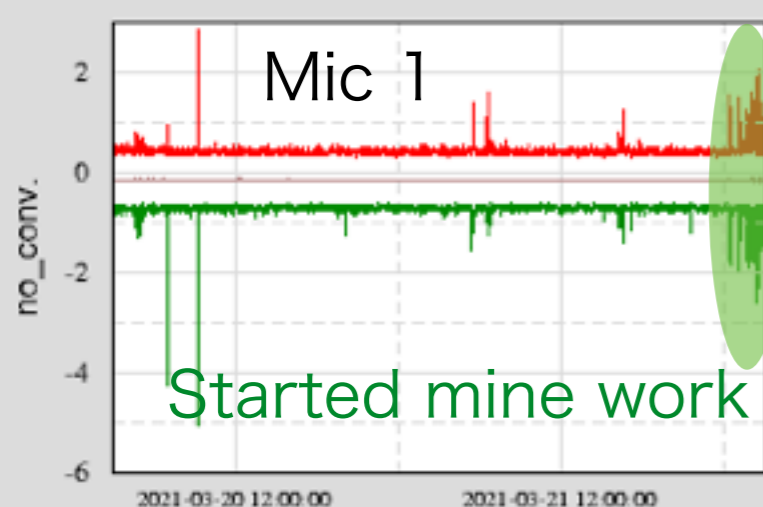


Time series 2 days  
Increase micro-seismic  
Large earthquake  
Some coherent glitch  
Mine works

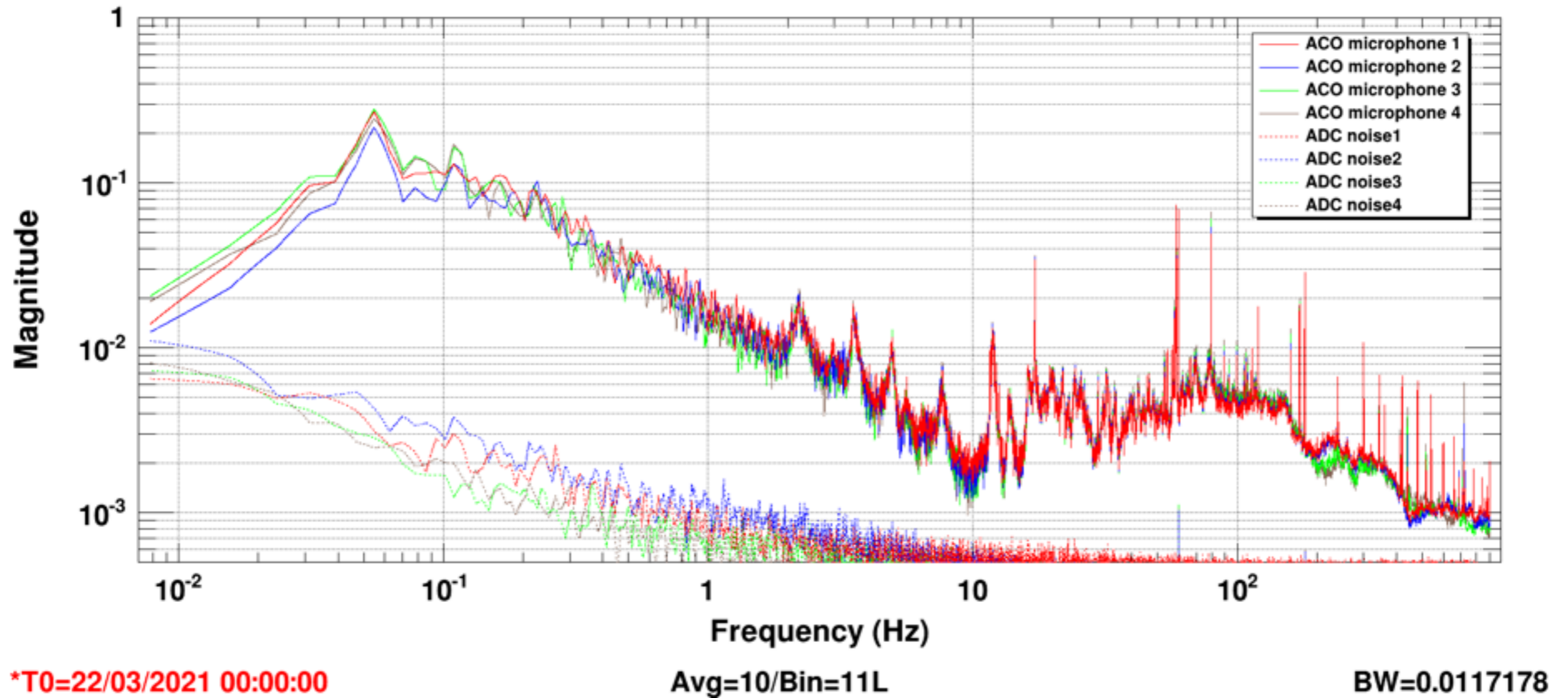
Ch 2: K1:PEM-SENSOR\_RACK\_OMC1\_DSUB1\_OUT\_002:PEM-SEIS\_IXV\_GND\_X\_BLRMS\_100MHZ3000 Ch 8: K1:PEM-SEIS\_IXV\_GND\_X\_BLRMS\_3HZ10

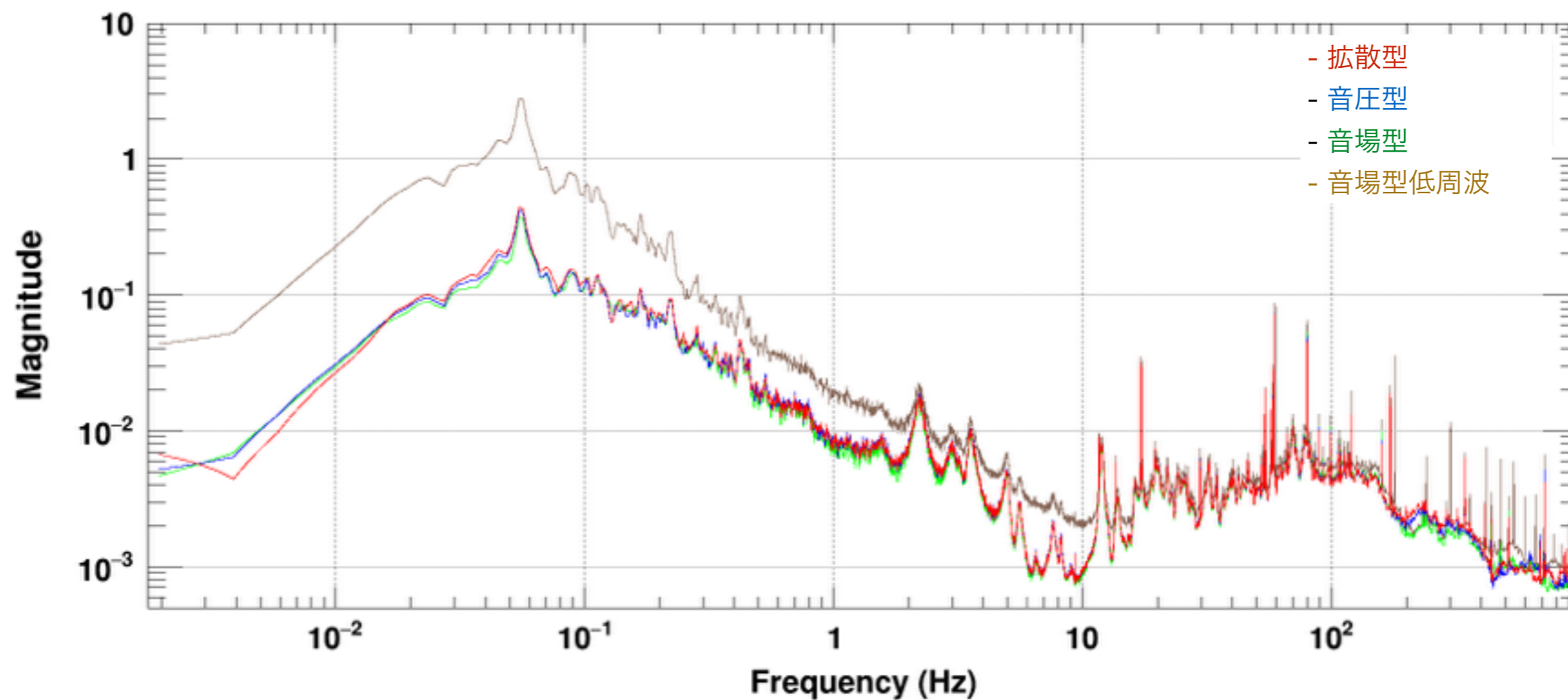


Ch 1: K1:PEM-SENSOR\_RACK\_OMC1\_DSUB0\_OUT\_004:PEM-SENSOR\_RACK\_OMC1\_DSUB3\_OUT\_007: K1:PEM-SEIS\_IXV\_GND\_X\_BLRMS\_1HZ3



## Power spectrum



**Power spectrum**

T0=23/03/2021 09:00:00

Avg=50/Bin=46L

BW=0.00292808

Reset

Zoom

Active

New

Options...

Import...

Export...

Reference...

Calibration...

Print...

Start

Pause

Resume

Abort

Text done (Measurements 1 / Averages 50)

Repeat

Fourier tools

done

