





KAGRA status

Virgo-KAGRA PEM meeting

2020/10/23

Takaaki Yokozawa

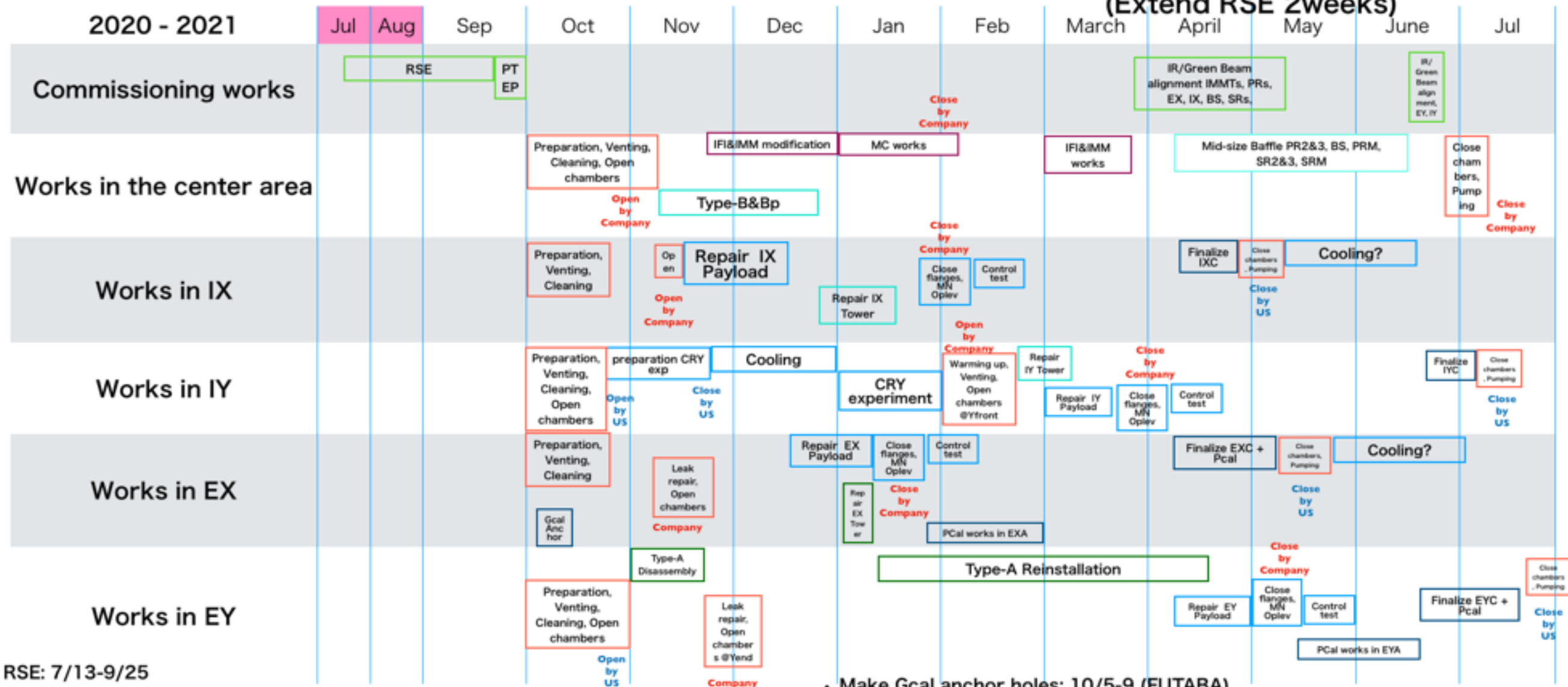
Contents of this meeting

- KAGRA detector status & Update of the KAGRA PEM from last meeting (Yokozawa)
- the ongoing infrastructure mitigation works for AdV+ (Federico)
- Welcome Kamiel and external magnetometers (Kamiel)  [pdf](#)
- Overview paper(Yokozawa)  [arXiv2009.09305](#)
- Acoustic injection paper(Washimi)
- PEM measurement during blackout(Washimi)  [JGW-G2012143 \(slide1\)](#)
- Project of the KAGRA newtonian noise measurements
 - Theory
 - Seismometer analysis(Francesca)
 - Water fluid (Washimi+)  [JGW-G2012143 \(slide2\)](#)
 - Infrasound (Washimi)
 - TOBA(?)

KAGRA schedule

based on kagra O4 schedule 200822

(Extend RSE 2weeks)



- RSE: 7/13-9/25
- PTEP measurements: 9/26-30
- Preparation of open chambers: 10/1
- Preparation in clean booth: 10/1-9
- Warming up CRY-Ducts: 10/2-6
- Install air cooler in Yend: 9/23-25???
- Replace SUS plates on the floor in the PR booth: 10/7-9
- Venting all: 10/7-12

- Make Gcal anchor holes: 10/5-9 (FUTABA)
- Start operation of FFU: 10/1
- Power stop for maintenance: 10/14 (Preparation: 10/13, Recovery: 10/15)
- Cleaning by company: 10/19-23
- DGS update: 10/19-30
- Open chambers in center: 10/26-11/6
- FUTABA works (IYC duct->IX open -> EX leak -> EY leak -> EX open->EY open)

2

- We started the refurbishment work from this month

RSE tasks

- DRMI locked more the 30min with 3f signals
- Remaining tasks were CARM, DARM control with IR and transient to 1f
- Because of the schedule of the blackout(14th Oct.) and opening chamber (next week), we postponed the interferometer commissioning to next year

IR trans X

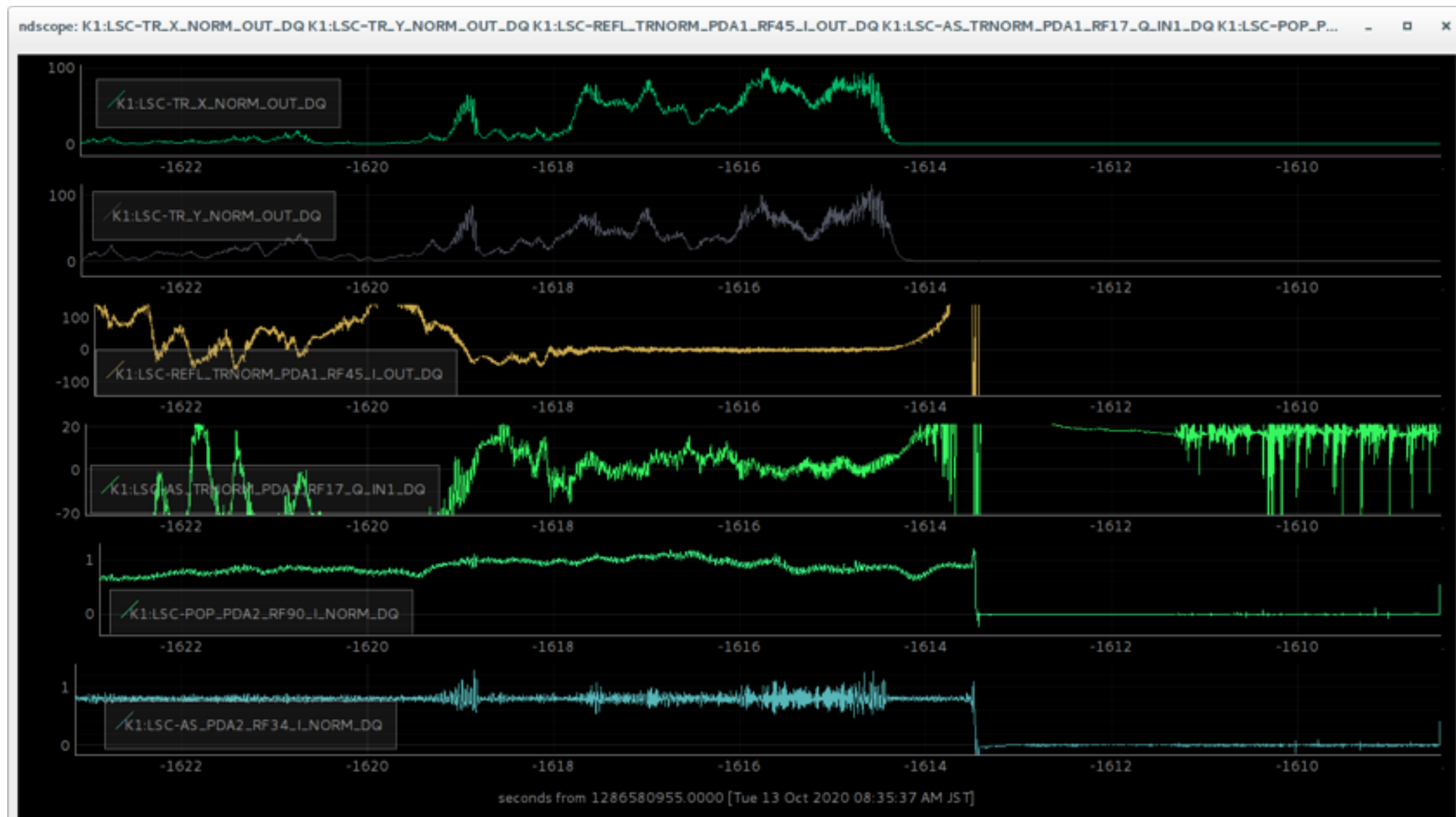
IR trans Y

CARM err.

DARM err.

PRCL mon.

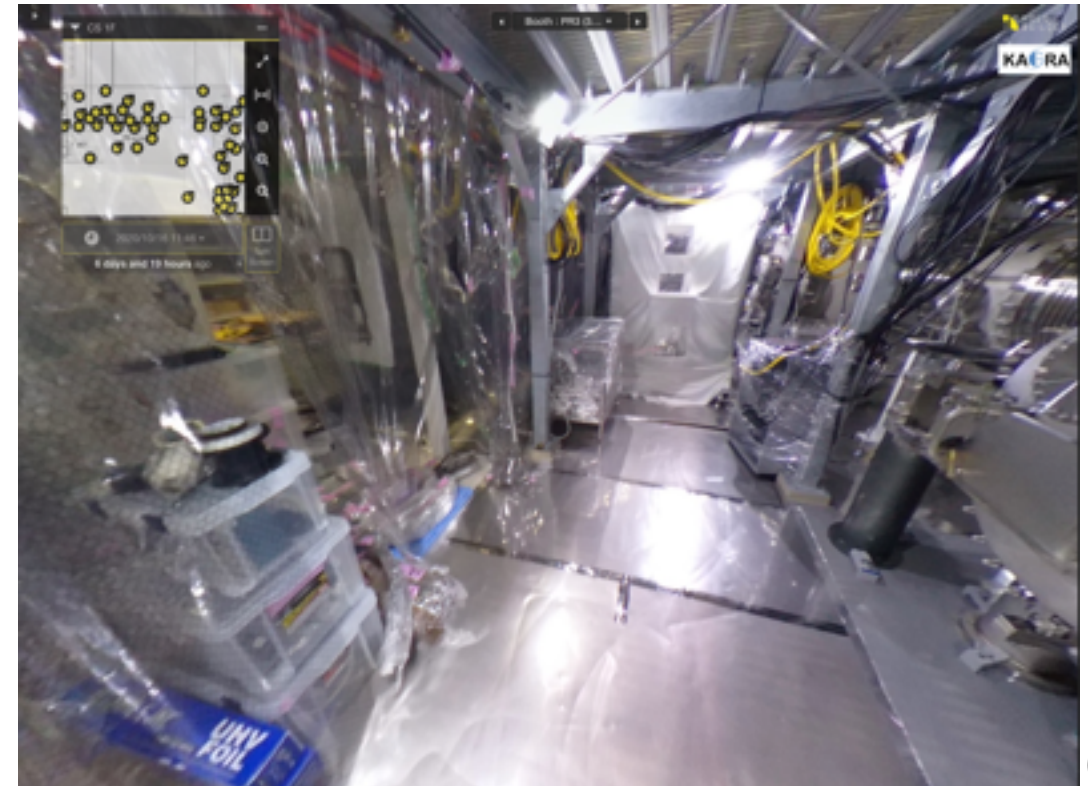
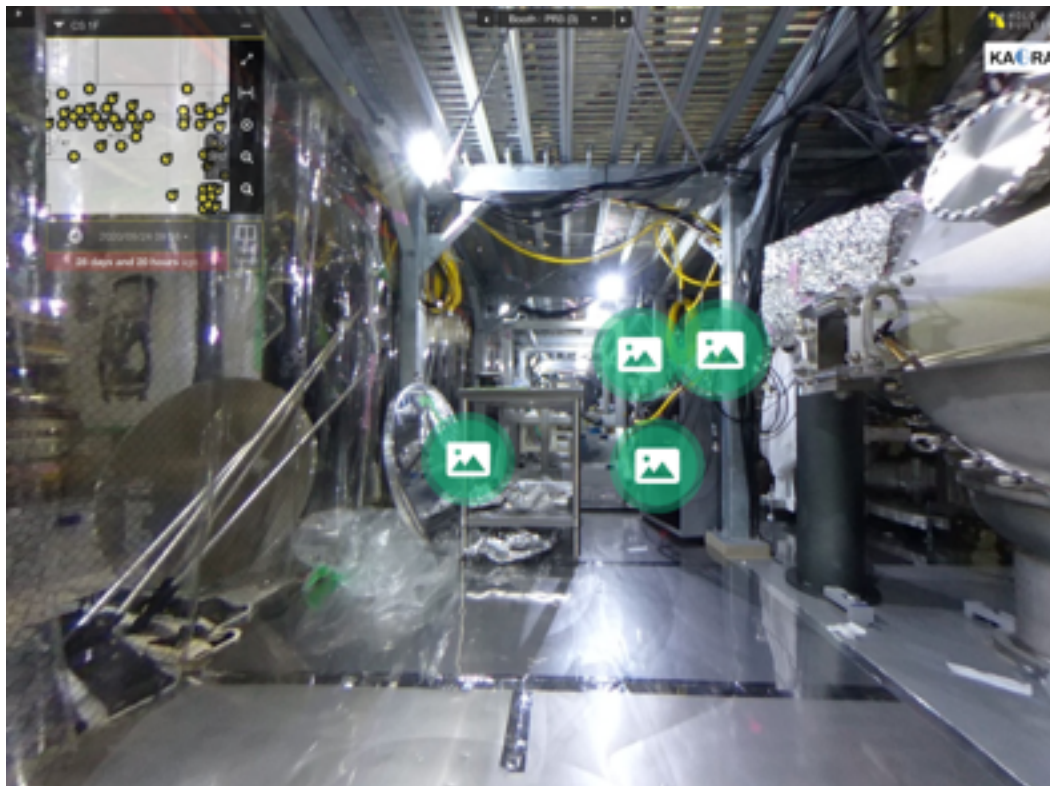
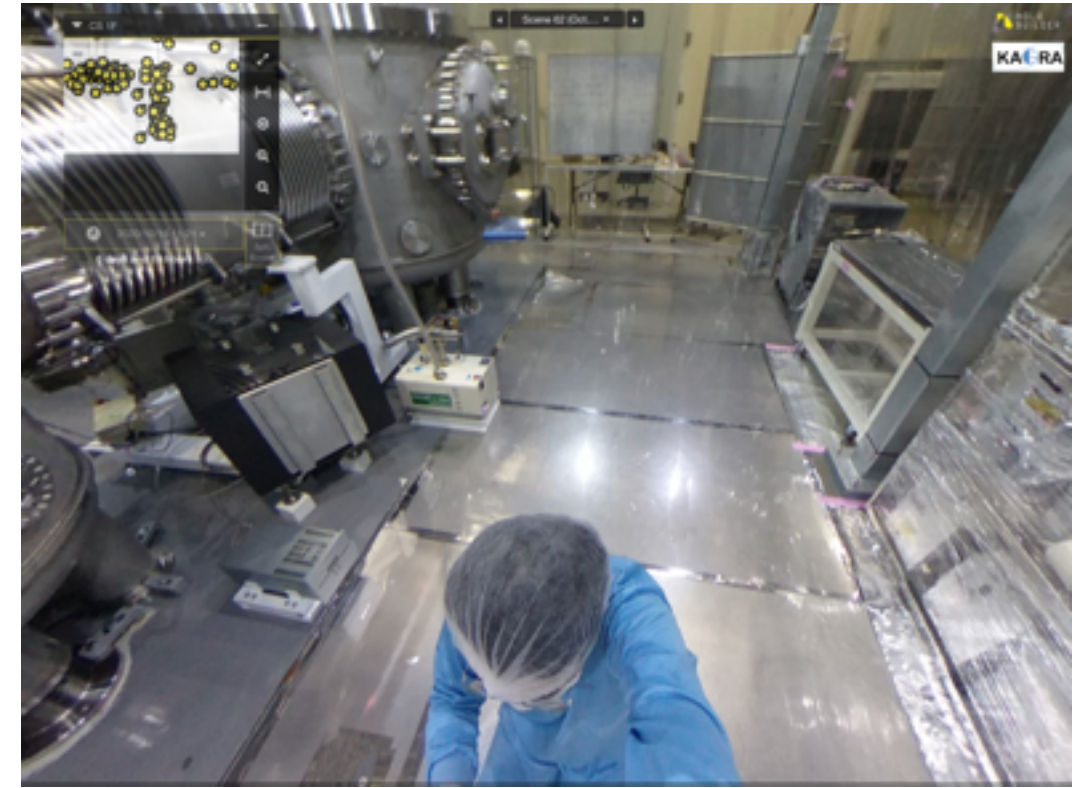
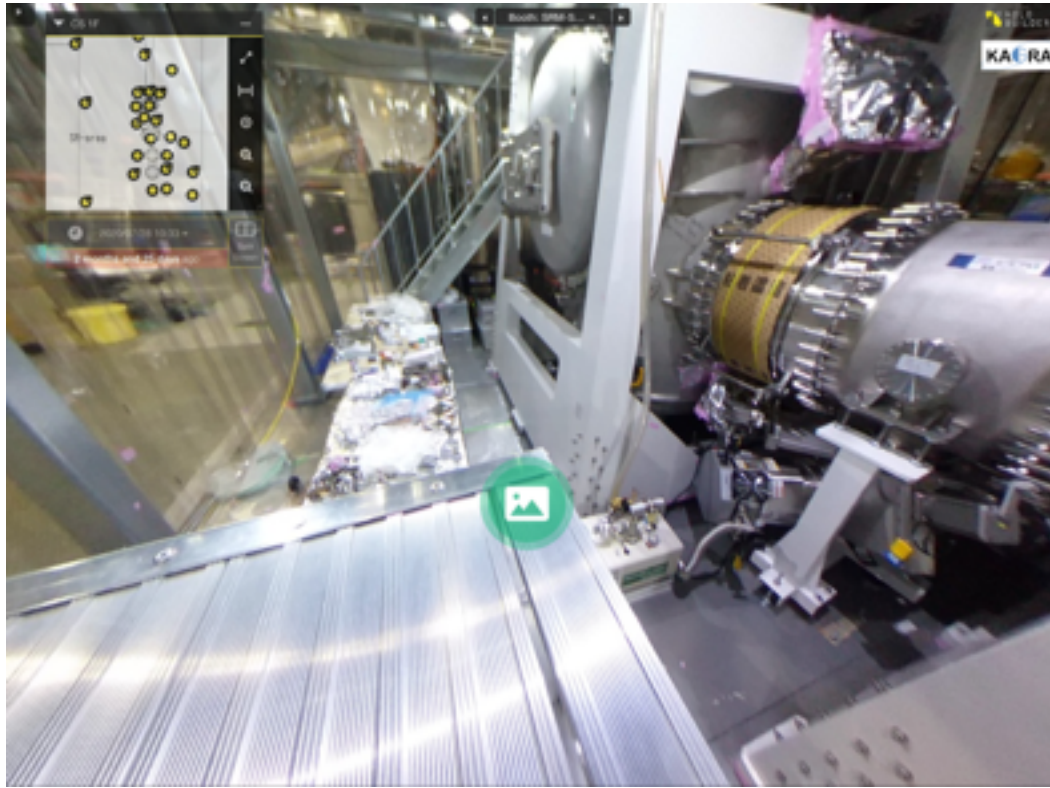
SRCL mon.



Blackout 14th Oct.

- The detail will be explain by Washimi-san

Cleaning



IYC experiment

- Purpose
 - Establish the cooling procedure
 - Performance check of new moving mass system(alignment)
 - Vibration analysis of IYC
- Schedule
 - Oct. - Nov. Preparation
 - Dec. Cooling down
 - Jan. Experiment
- Help the characterization using PEMs

Paper submission

- PTEP02 : Noise budget O3GK : Analysis is ongoing
- PTEP03 : Overview of CAL, DET, PEM, GIF submitted
 - arXiv2009.09305
- Acoustic injection paper : 1st draft
 - Explained by Washimi-san later
- ICA for E-run/O3GK : Analysis is ongoing
- Portable PEMs : Writing

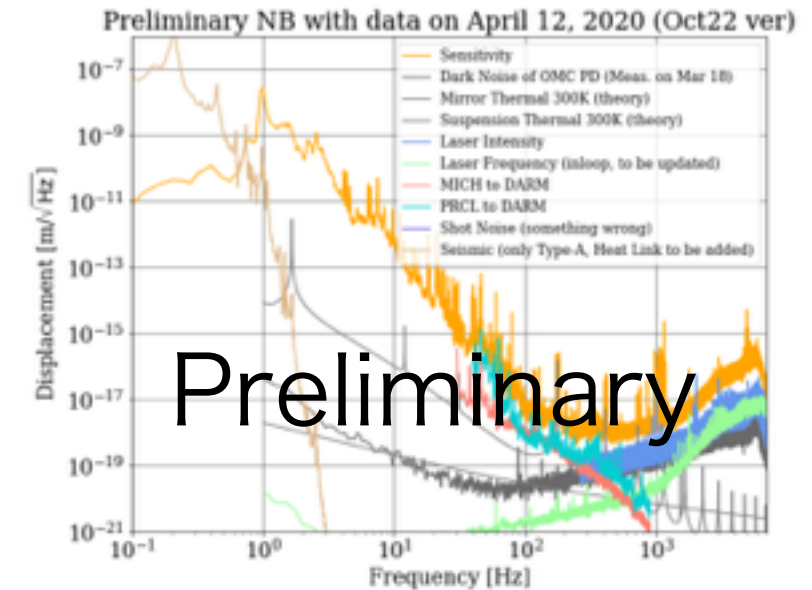
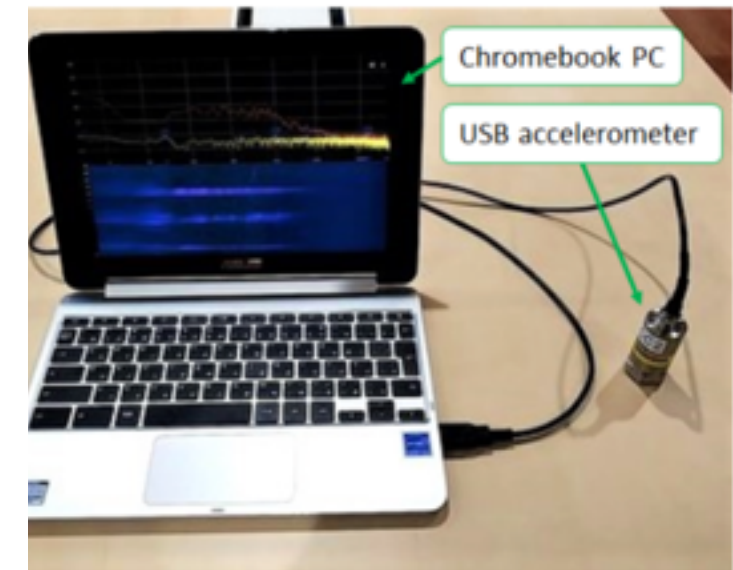
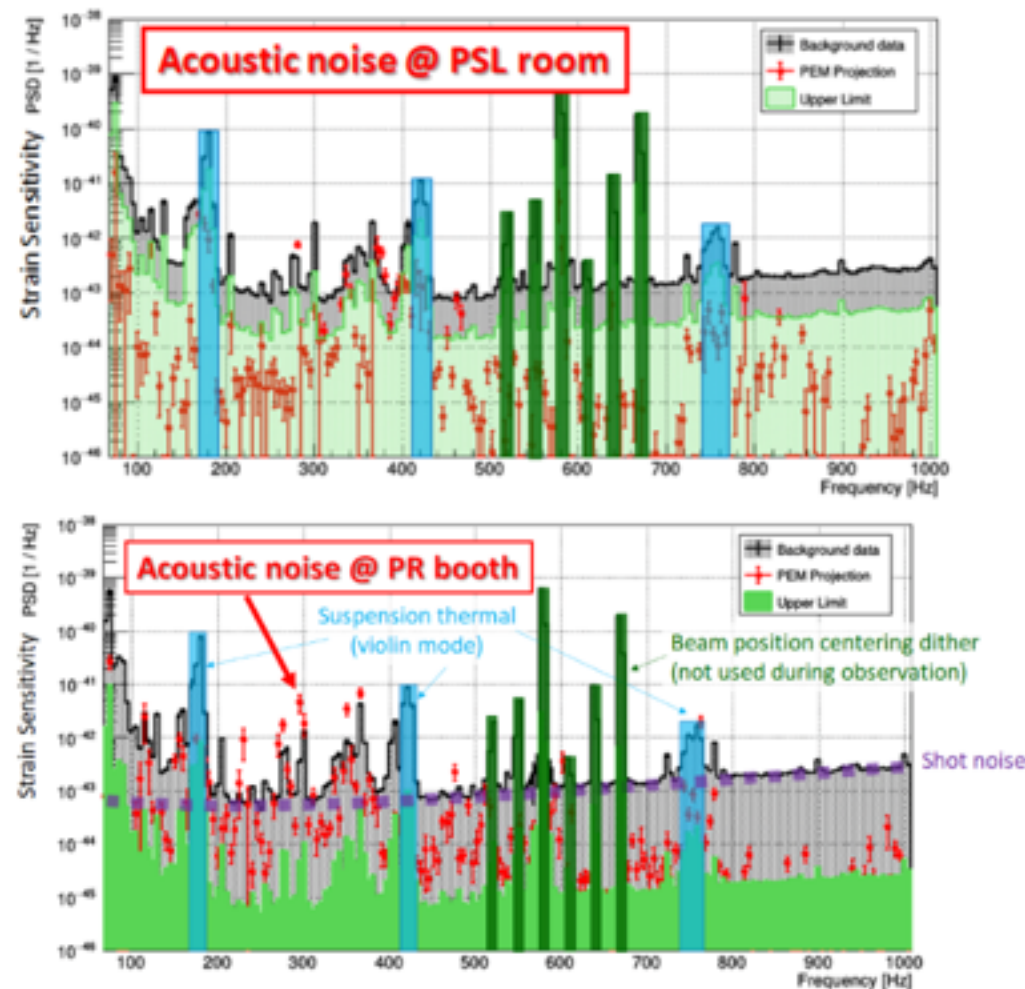


Table 2 Summary of the KAGRA PEM sensors installed for the O3GK ob

Sensor type	Product name	Operating frequency	Nu
Seismometer 1	Trillimu120Q	10 mHz - 150 Hz	
Seismometer 2	Trillium compact	10 mHz - 150 Hz	
Accelerometer 1	TEAC 710	20 mHz - 200 Hz	
Accelerometer 2	TEAC 706	3 Hz - 14 kHz	
Accelerometer 3	PCB M601A02	17 mHz - 10 kHz	
Accelerometer 4	KISTLER 8640A5	0.5 Hz - 3 kHz	
Microphone 1	B&K 4188-A-021	20 Hz - 12.5 kHz	
Microphone 2	ACO microphones	20(1) Hz - 20 kHz	
Microphone 3	Audio-technica AT-VD6	60 Hz - 15 kHz	
Magnetometer	Bartington Mag-13MCL100	DC - 3 kHz	
Voltmeter	KAGRA DAC (directly)	DC - 16 kHz	
Thermometer	T&D RTR-507SL	5 min sampling	
Weather station	Davis Vantage Pro2 #6152JP	1 min sampling	
Lightning sensor	Blitzortung System Blue	(triggered time)	



PEM updates

- Set the magnetometer at the outside of the mine
 - We will discuss in this meeting
- Set trillium compact(small seismometer) somewhere
 - Welcome the idea of position
- Preparing for the portable PEMs
 - We bought the BNC power driver
- Preparing the injection items for both end station
 - They were in only center area.

Next step

- Clean the PEMs cabling and setting
 - Remove the BNC type cabling
 - Shorten the cable length
 - New PEM configuration from O3GK
 - (Reminder) KAGRA PEM map for O3GK
- Clean up KAGRA ground
- Check the water fluid