

Upgrade project of five auxiliary seismic stations in Japan and how the COVID-19 limitations and restrictions were overcome.

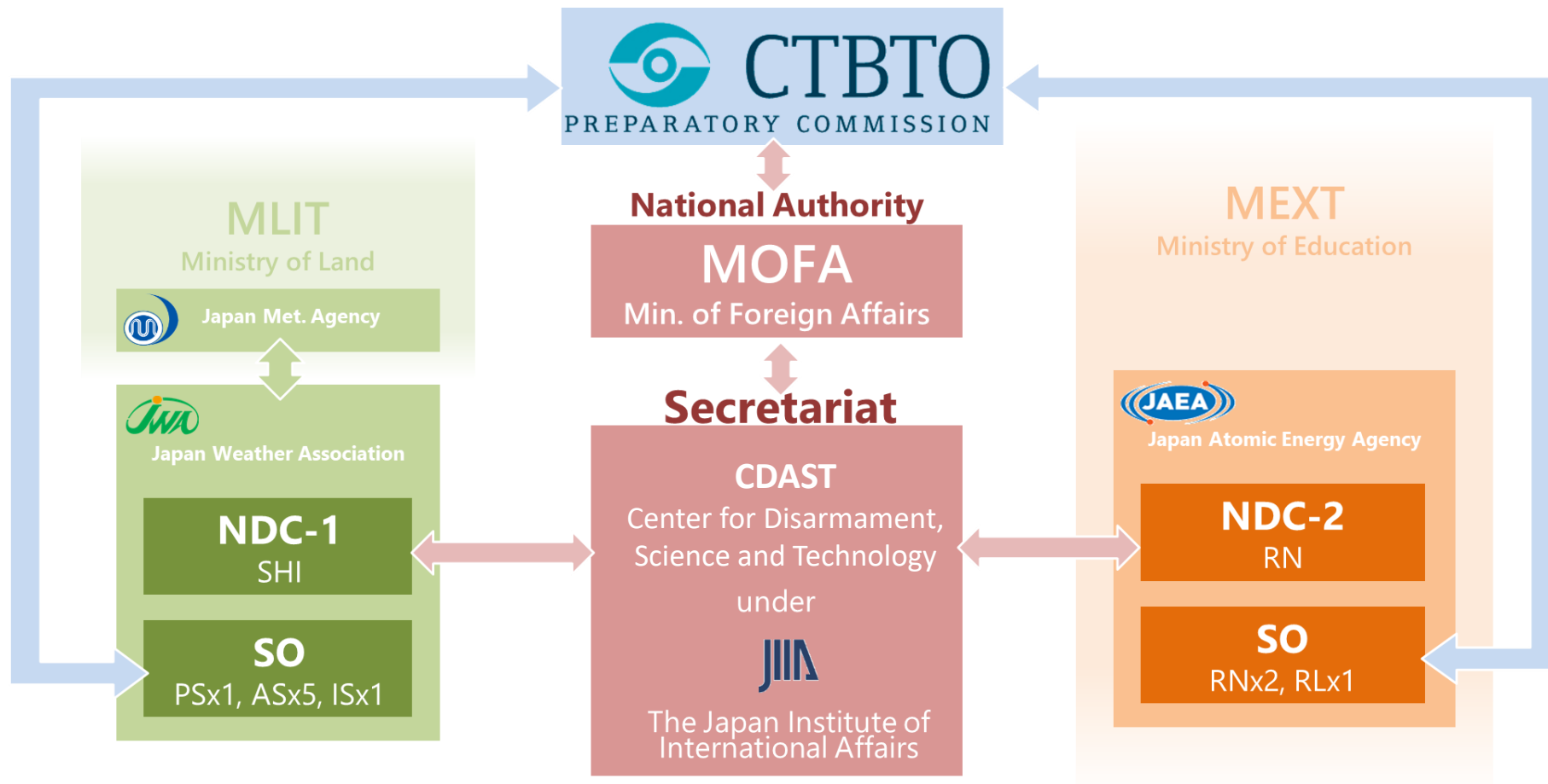
Decorative wavy lines in shades of green and orange are positioned behind the speaker's name and affiliation.

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Japan Weather Association (Japan NDC-1)

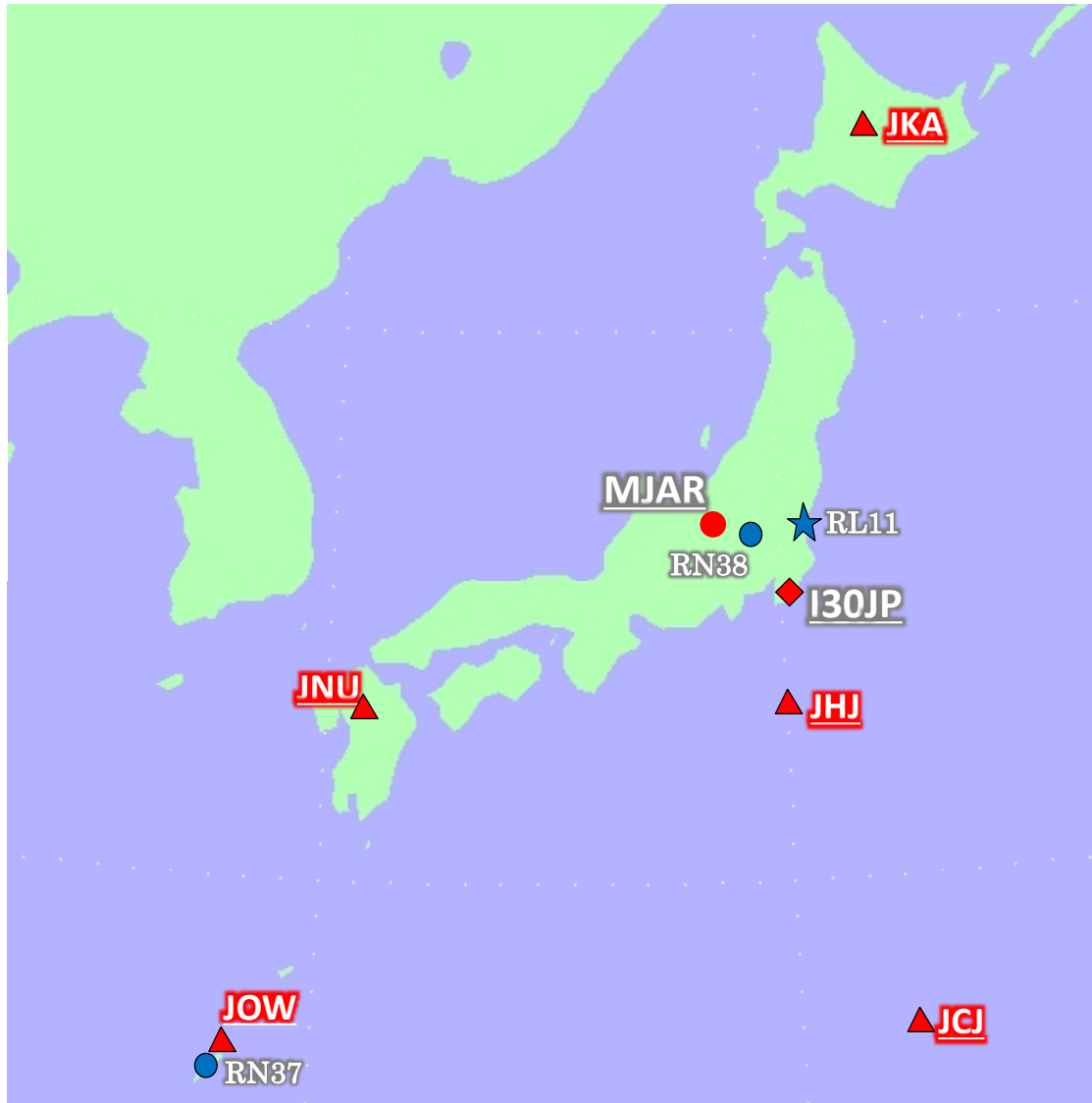
IMS Stations Operator of JNU, JOW, JHJ, JKA and JCJ

CTBT National Operation System in Japan



Japan Weather Association (JWA) is working as CTBT National Data Centre-1 (NDC-1) of Japan. JWA is in charge of analysis on waveform data, operation and maintenance of seismic and infrasound stations in Japan as Station Operator (SO).

IMS facilities in Japan



NDC-1

● Primary Seismic Station

MJAR (PS22) : Matsusiro

▲ Auxiliary Seismic Stations

JNU(AS51) : Ohita

JOW(AS52) : Kunigami

JHJ(AS53) : Hachijojima

JKA(AS54) : Kamikawa-asahi

JCI(AS55) : Chichijima

◆ Infrasound Station

I30JP(IS30) : Isumi

NDC-2

● Radionuclide Stations

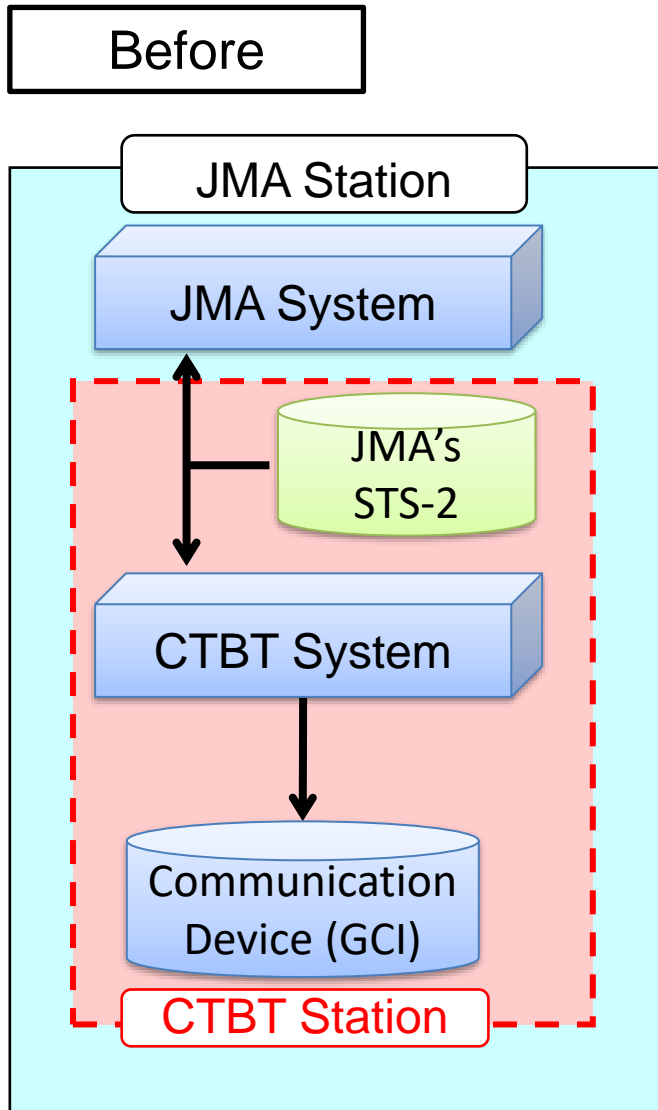
JPP37(RN37) : Okinawa

JPP38, JPX38(RN38) : Takasaki

★ Radionuclide Laboratory

JPL11(RL11) : Tokai

Previous System at Japanese AS stations



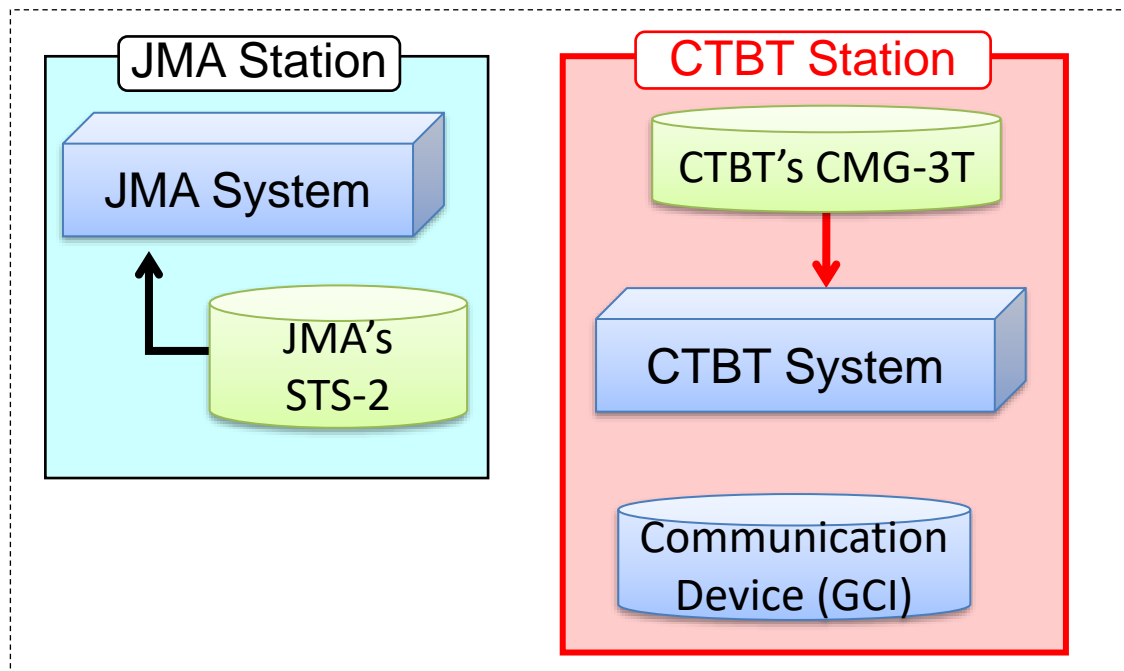
- AS stations used to branch the signals of the broadband sensors (STS-2) owned by the Japan Meteorological Agency (JMA) and were using these signals as IMS data.
- But it turned out that there are some difficulties in sensor calibration from the CTBT side equipment with technical surveys conducted several times in the past.



In order to carry out the calibration efficiently, it is necessary to prepare the CTBT unique sensors separately from the sensors of the JMA.

Current System at Japanese AS stations

After



- The new sensors for CTBT were installed near the existing observation sites
- Guralp CMG-3T, broadband sensor

JNU(AS51): Oita



JHJ(AS53): Hachijojima



3つの「密」を避けましょう！

- ①換気の悪い密閉空間
- ②多数が集まる密集場所
- ③間近で会話や発声をする密接場面



新型コロナウイルスへの対策として、クラスター(集団)の発生を防止することが重要です。日々の生活の中で3つの「密」を重ねないよう工夫しましょう。



首相官邸 厚生労働省 厚労省 コロナ 検索



Important notice for preventing COVID-19 outbreaks.

Avoid the “Three Cs”!

- 1. Closed spaces with poor ventilation.
- 2. Crowded places with many people nearby.
- 3. Close-contact settings such as close-range conversations.



One of the key measures against COVID-19 is to prevent occurrence of clusters. Keep these “Three Cs” from overlapping in daily life.



首相官邸 厚生労働省 MHLW COVID-19 検索

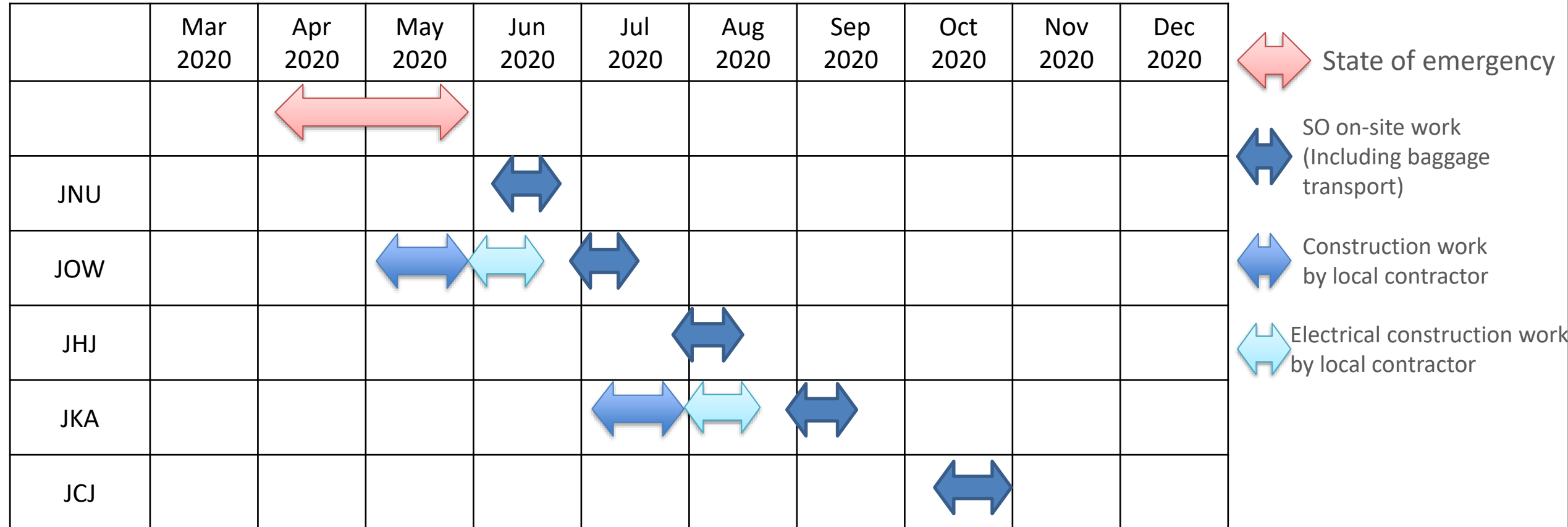


COVID-19 restriction



- **IMS staff couldn't come to Japan.**
 - We had a plan of 2 sites visiting together on April 2020.
- On-site work by NDC-1 staff was postponed.
 - Travel from our office, Tokyo was restricted.
 - We had to reschedule the travel plan.
- The state of emergency began in early April 2020 and lasted almost two months. It ended at the end of May 2020.
- Travel limitation at all time of 2020 due to reduced flights.

Actual upgrade schedule



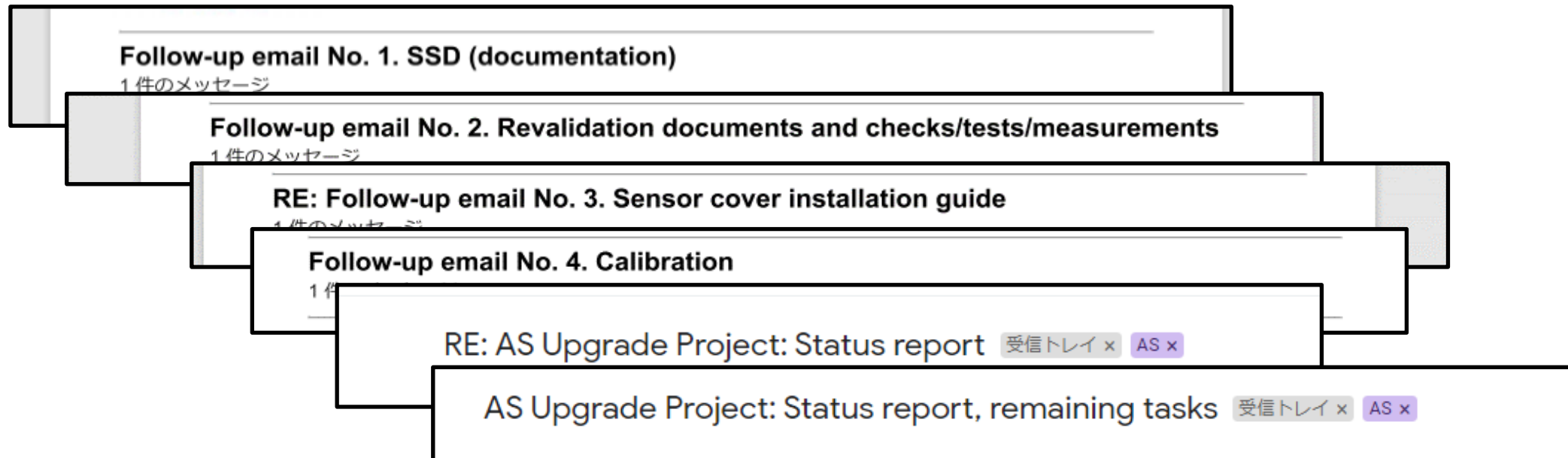
Some construction works have finished before Mar 2020.

- There were some difficult to adjust schedule with the influences of COVID-19.
- After the state of emergency, we promptly performed on-site work at one location per a month.

Coordination against COVID-19

- Close communication with IMS staff by email.

A part of email example



- A lot of remote support by IMS staff from Vienna, including during SO on-site working.

Coordination against COVID-19



Communication with IDC

- Use of IRS (PR, OR, CCN)
- Rescheduling of annual calibration.

There were many cars of the contractors at JKA during on-site work.

Communication with authorized people

- Local people understanding for our site visiting from Tokyo.
 - Usually, there are more COVID-19 infections in Tokyo than in other areas and we concerned local people feeling.
 - PCR test before going to JCI.
- Local sub-contractor cooperative work.
 - Flexible schedule adjustment and their speedy work.
- GCI sub-contractor's cooperation at JHJ and JKA.
 - Urgent arrangement of an engineer for our site visit.
- Japan Meteorological Agency (JMA)'s cooperation
 - We are sharing the site at some stations and sometime need their witness.

Concluding remarks



- NDC-1 performed Japanese AS upgrade last year.
- We have suffered from the COVID-19 restrictions at various phases but adapted the appropriate response.
- The good things about our process are close communication with PTS and nice contribution of local contractors.