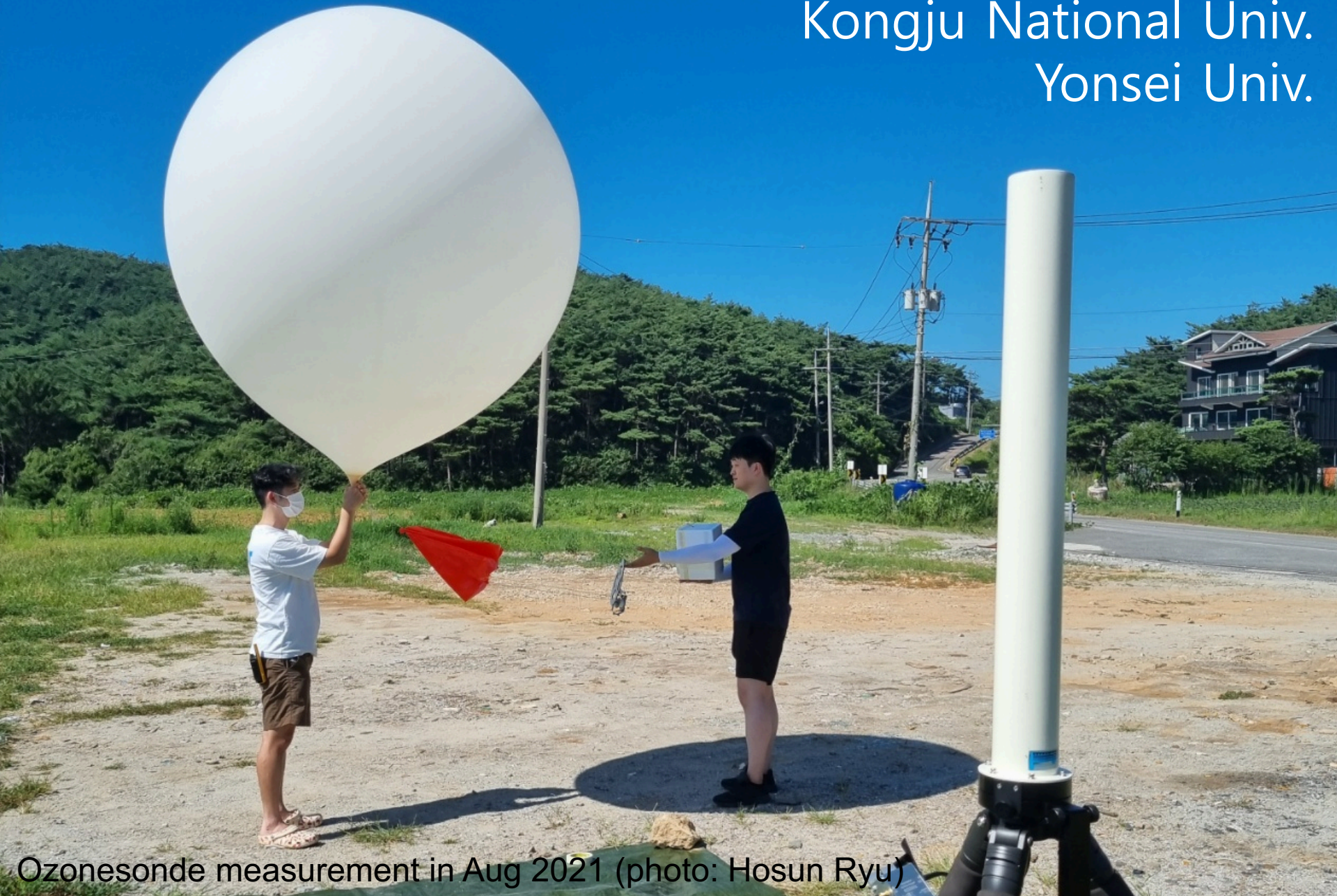# Ozonesonde observation team in Korea
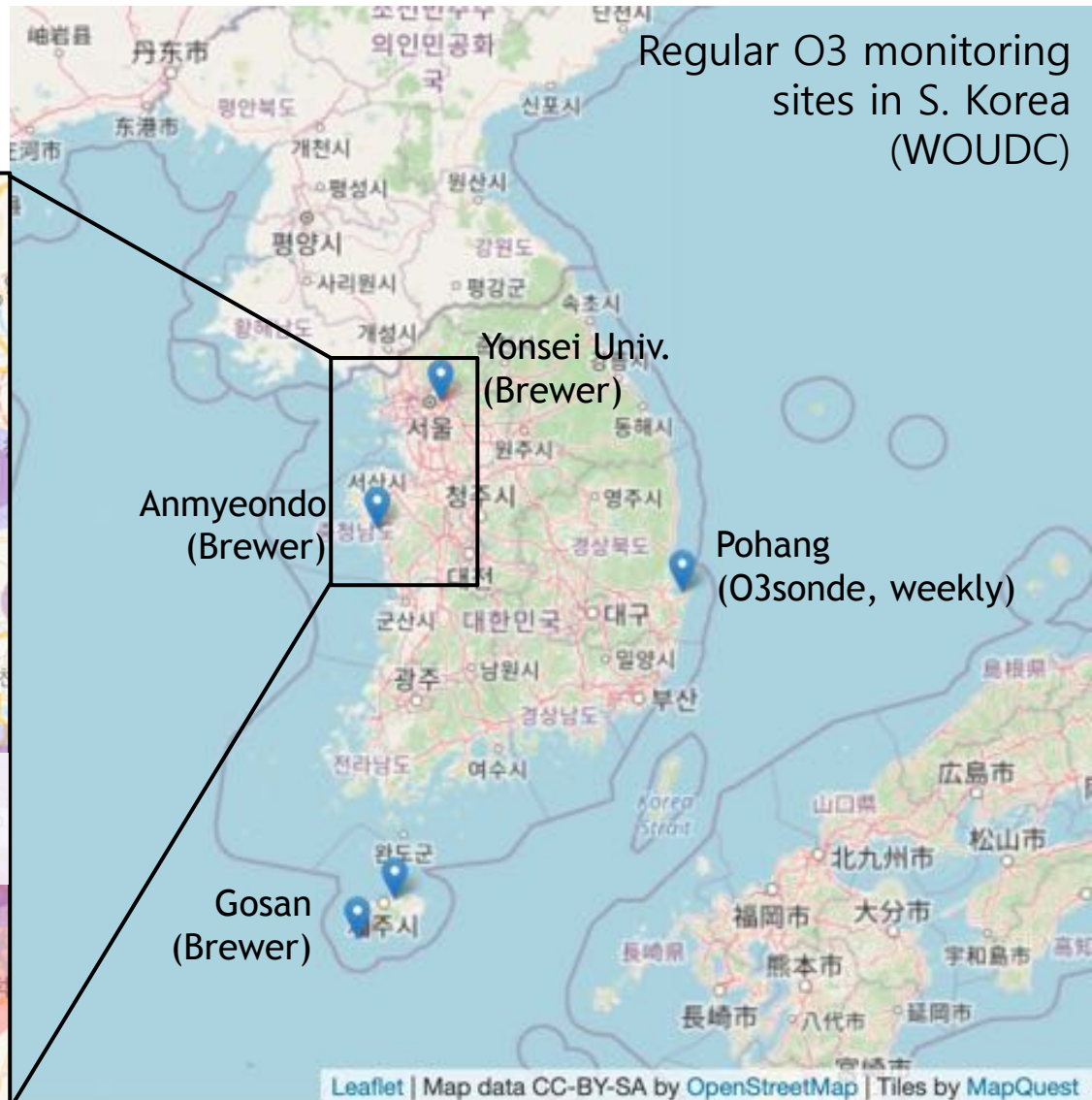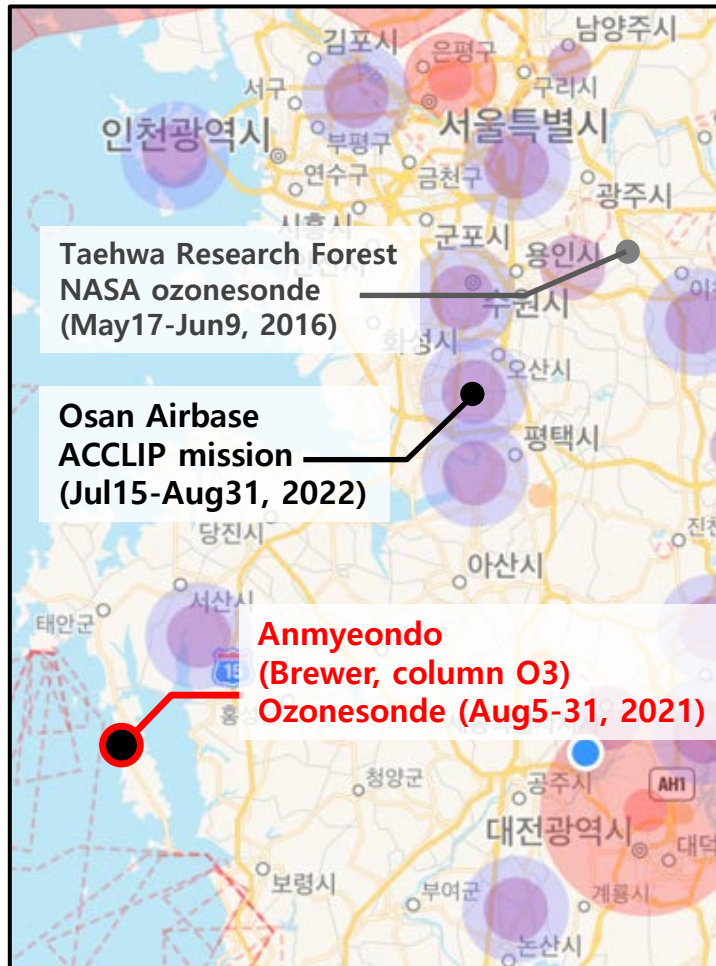## Kongju National Univ.
Yonsei Univ.

Ozonesonde measurement in Aug 2021 (photo: Hosun Ryu)

Location (Anmyeondo Station, 36.54°N, 126.33°E)

Airport and their Flight control area

Taehwa Research Forest
NASA ozonesonde
(May17-Jun9, 2016)

Osan Airbase
ACCLIP mission
(Jul15-Aug31, 2022)

Anmyeondo
(Brewer, column O3)
Ozonesonde (Aug5-31, 2021)

Regular O3 monitoring sites in S. Korea (WOUDC)

Yonsei Univ.
(Brewer)

Anmyeondo
(Brewer)

Pohang
(O3sonde, weekly)

Gosan
(Brewer)

Leaflet | Map data CC-BY-SA by OpenStreetMap | Tiles by MapQuest

Location (Anmyeondo Station, 36.54°N, 126.33°E)

Airport and their Flight control area

Taehwa Research Forest
NASA ozonesonde
(May17-Jun9, 2016)

**Osan Airbase
ACCLIP mission
(Jul15-Aug31, 2022)**

**Anmyeondo
(Brewer, column O3)
Ozonesonde (Aug5-31, 2021)
+ Planned Jul15-Aug31,2022)**

Anmyeondo GAW station (NIMS, KMA)
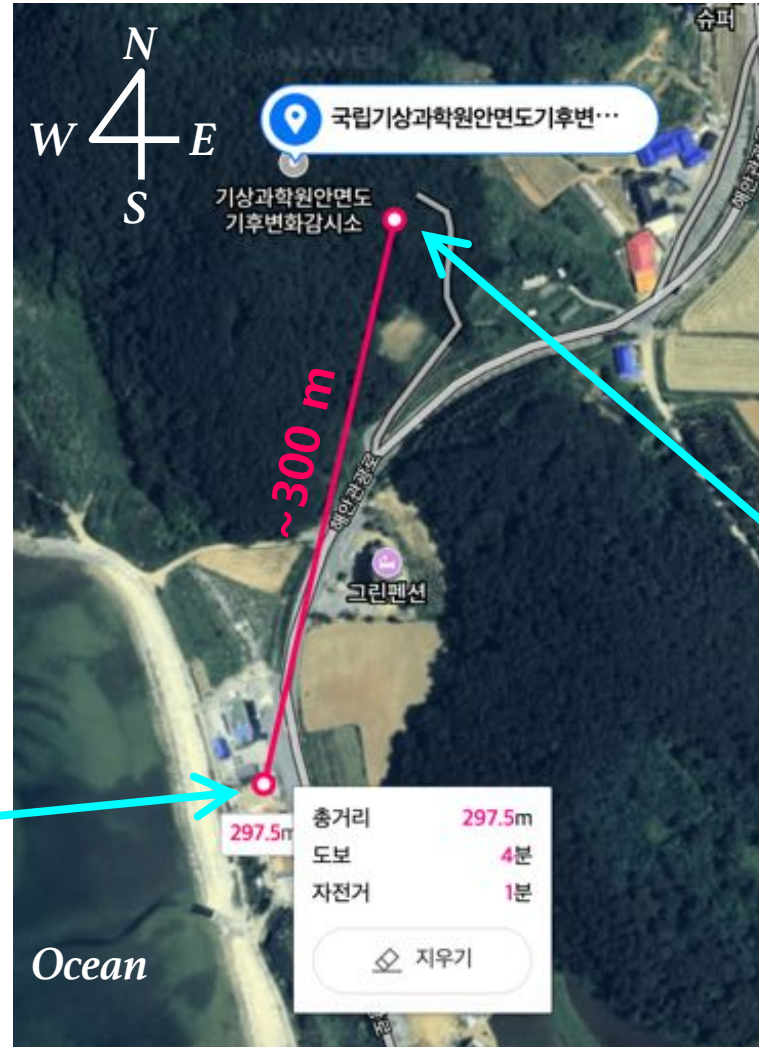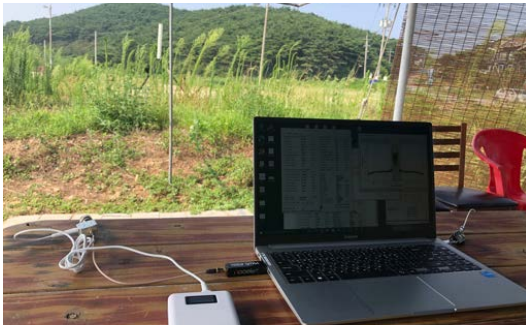

Balloon launch site
(300m southward)

To get
1. open space
2. ground data more

(but Antenna is installed
at the AMY station)

Location (Anmyeondo Station, 36.54°N, 126.33°E)

• <u>Site setup</u>

2. Balloon Launch
(backup ground stn.)

1. Ground station
(Antenna, Receiver)

Preparation

- <u>Meeting with NASA SHADOZ team</u>

Special thanks to
Drs. Anne Thompson, Ryan Stauffer, Debra Kollonige!

Knowledge support on ozonesonde research, sensor solution and software

Ground station & O3-test set from SHADOZ team

Preparation (Initial and Mid preparation)

- ## In-lab preparation

    Initial preparation: 10-14 days before launch
    Mid. preparation: 5-7 days before launch

    Mid preparation at the site (Bano lodge)
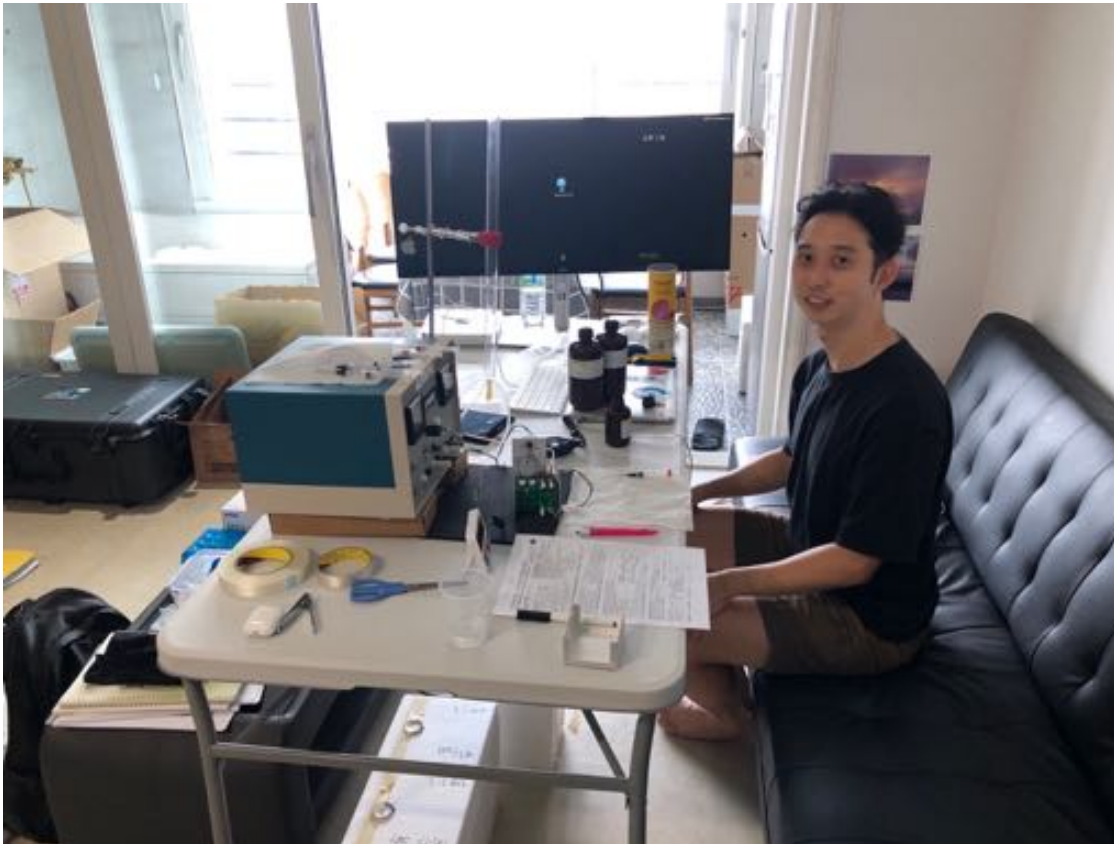
    Stored O3sonde sensors
    after initial/mid preparations
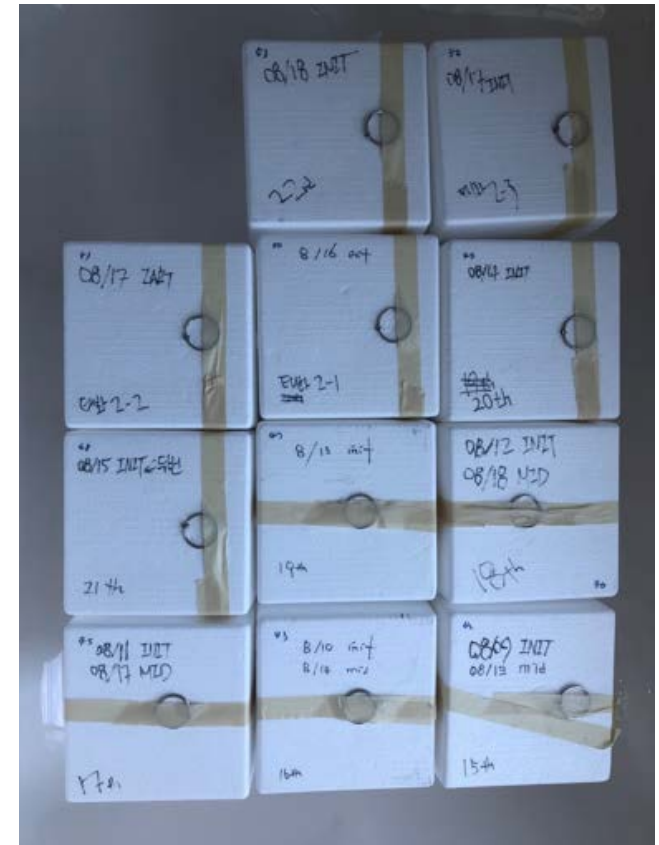
Preparation (final preparation and launch)

- <u>Day of flight</u>

  Daily Schedule (balloon launch at 2:30 pm, local time)

Weather briefing (11 AM)

Final procedure (1-2:20 PM)

Balloon preparation (2 PM)

Meta data fill in (2:20 PM)

Balloon Launch (2:30 PM)

Monitoring (2:30-5:30 PM)

Measurement overview

- <u>Brief summary</u>

  Initial success check
  25-sonde launches (23 success) at Anmyeondo (AMY)
  4-sonde launches (4 successes) at Taehwa research forest (THW)

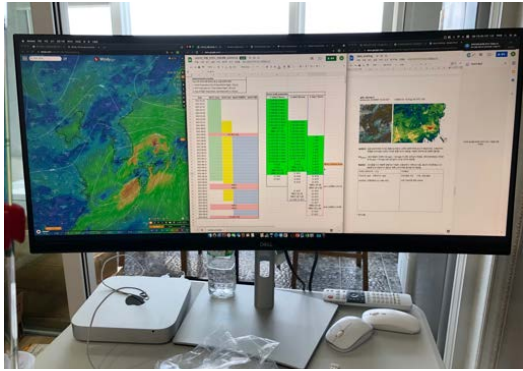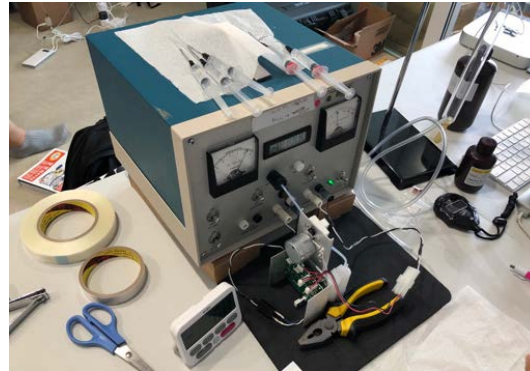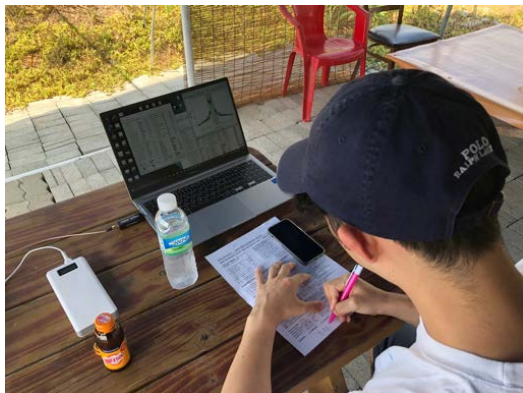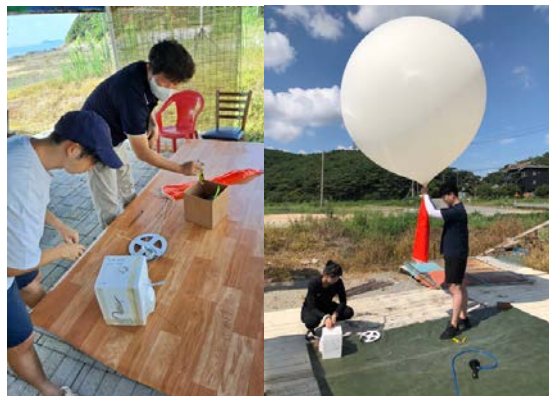| Thu 5	Fri 6	Sat 7	Sun 8	Mon 9	Tue 10	Wed 11	Thu 12	Fri 13	Sat 14	Sun 15	Mon 16	Tue 17	Wed 18	Thu 19	Fri 20	Sat 21
OK	OK	203	204	204	204	204	204	204	204	205	OK			OK	OK	OK
OK	OK	203	204	204	204	204	204	204	204	205	OK	OK	OK	OK	OK	OK
OK	OK	203	204	204	204	204	204	204	204	205	OK					
				203	203	(OK)										
				202	202	(OK)								202	202	202
				202	202	(OK)								202	202	202
				202	202	(OK)								202	202	202
				203	203	(OK)								205	205	205
OK	OK											205	205			
OK	OK			203	203	(OK)						204	204			move
AMY01	AMY02	AMY03	AMY04	AMY05	AMY06	AMY07	AMY08	AMY09	AMY10	AMY11	AMY12	AMY13	AMY14	AMY15	AMY16	AMY17/18
O	O	O	X, 3km	O	O	O	O	O	O	O	O	O	O, 2Peak	O, STE	O	AM(x), PM(O)

Sun 22	Mon 23	Tue 24	Wed 25	Thu 26	Fri 27	Sat 28	Sun 29	Mon 30	Tue 31
OK	OK	OK	OK				태화산	OK	OK
OK	OK	OK	OK	(OK)	(OK)	(OK)	(OK)	OK	OK
OK	OK	OK	OK					OK	OK
				205	205				
				202	202				
				202	202				
				202	202				
				205	205				
				204	204			204	204
태화산				204	204	move	태화산	204	204
THW1,2	Storm	AMY19	AMY20	AMY21	AMY22	AMY23	THW3,4	AMY24	AMY25
AM(O), PM(O)		O	O	O	O	O	AM(O), PM(O)		

Measurement overview

- <u>Brief summary</u> (caution! Preliminary, internal use only)

  Total column O3, comparison to satellite
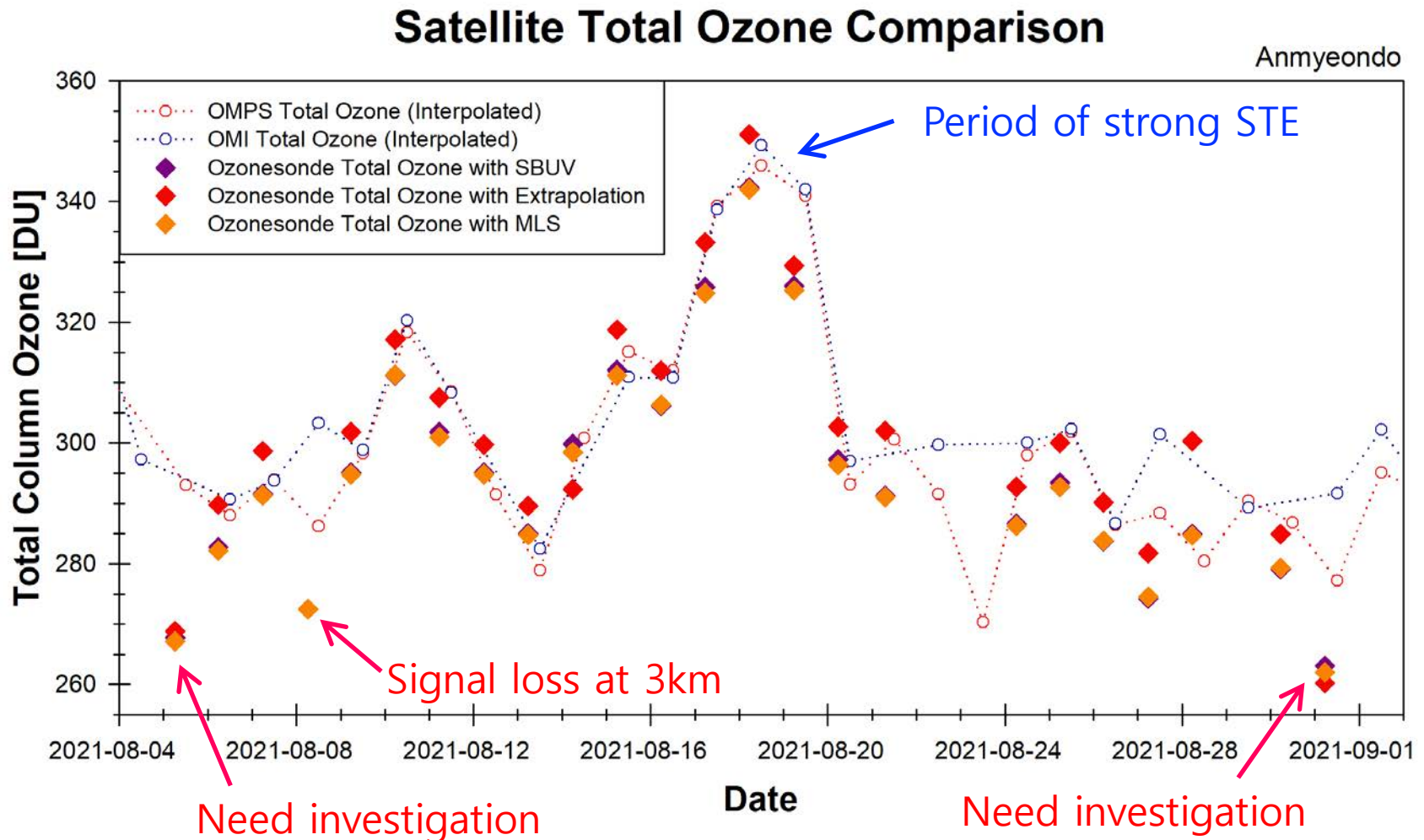
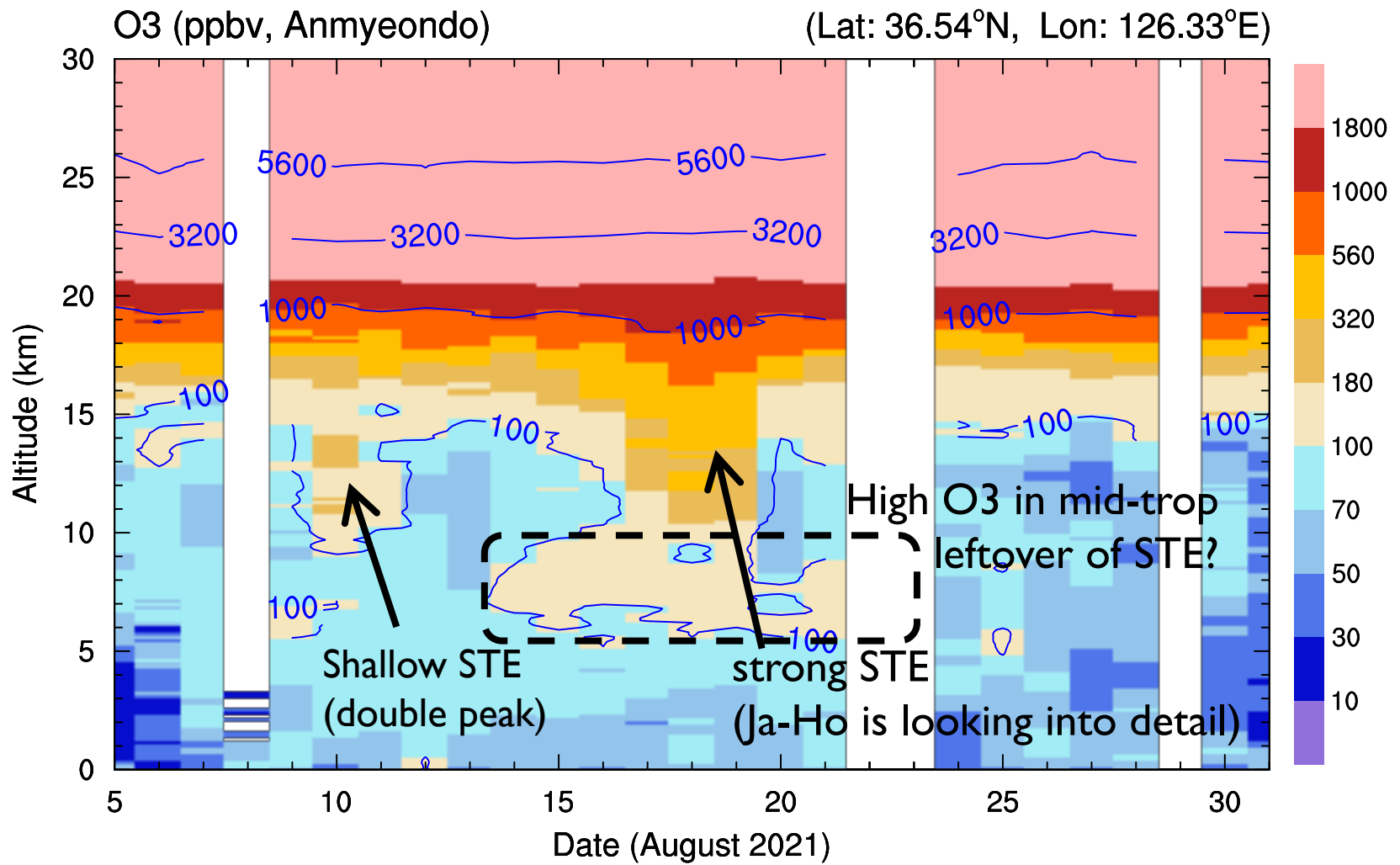Satellite Total Ozone Comparison

Measurement overview

- Brief summary (caution! Preliminary, internal use only)

Vertical structure (volume mixing ratio, ppmv)

O3 (ppbv, Anmyeondo)   (Lat: 36.54°N, Lon: 126.33°E)

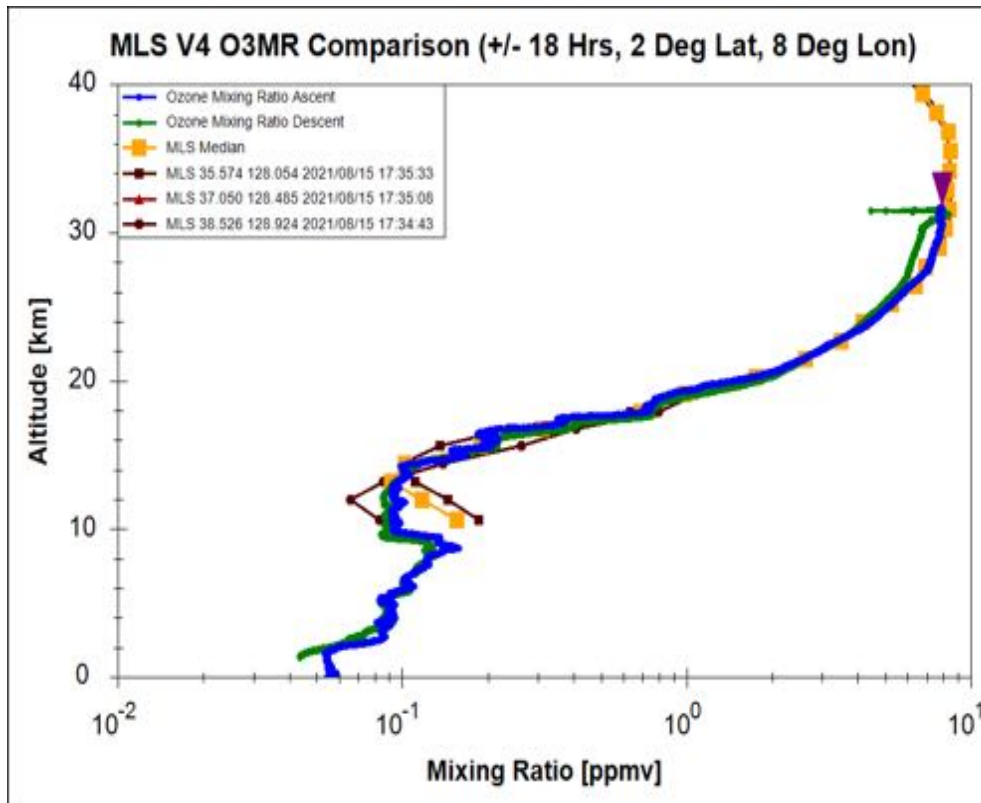# Measurement overview

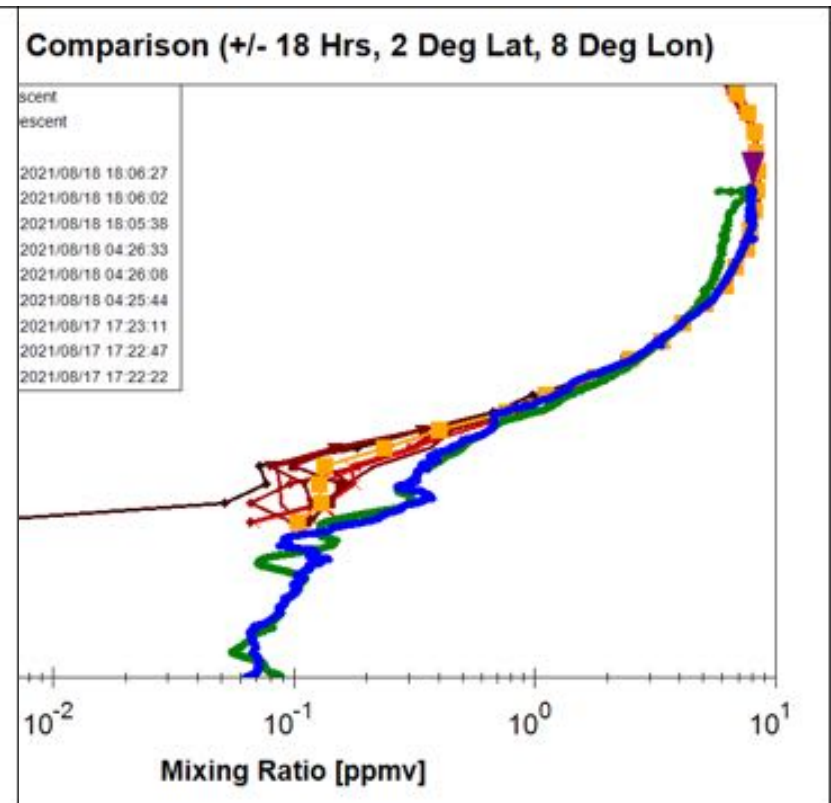- <u>Brief summary</u> (caution! Preliminary, internal use only)

  Vertical structure (volume mixing ratio, ppmv)

15 August 2021　　　　　　　　　　　**18 August 2021**

Thank you

Contact

- Joowan Kim (joowan.k@gmail.com)

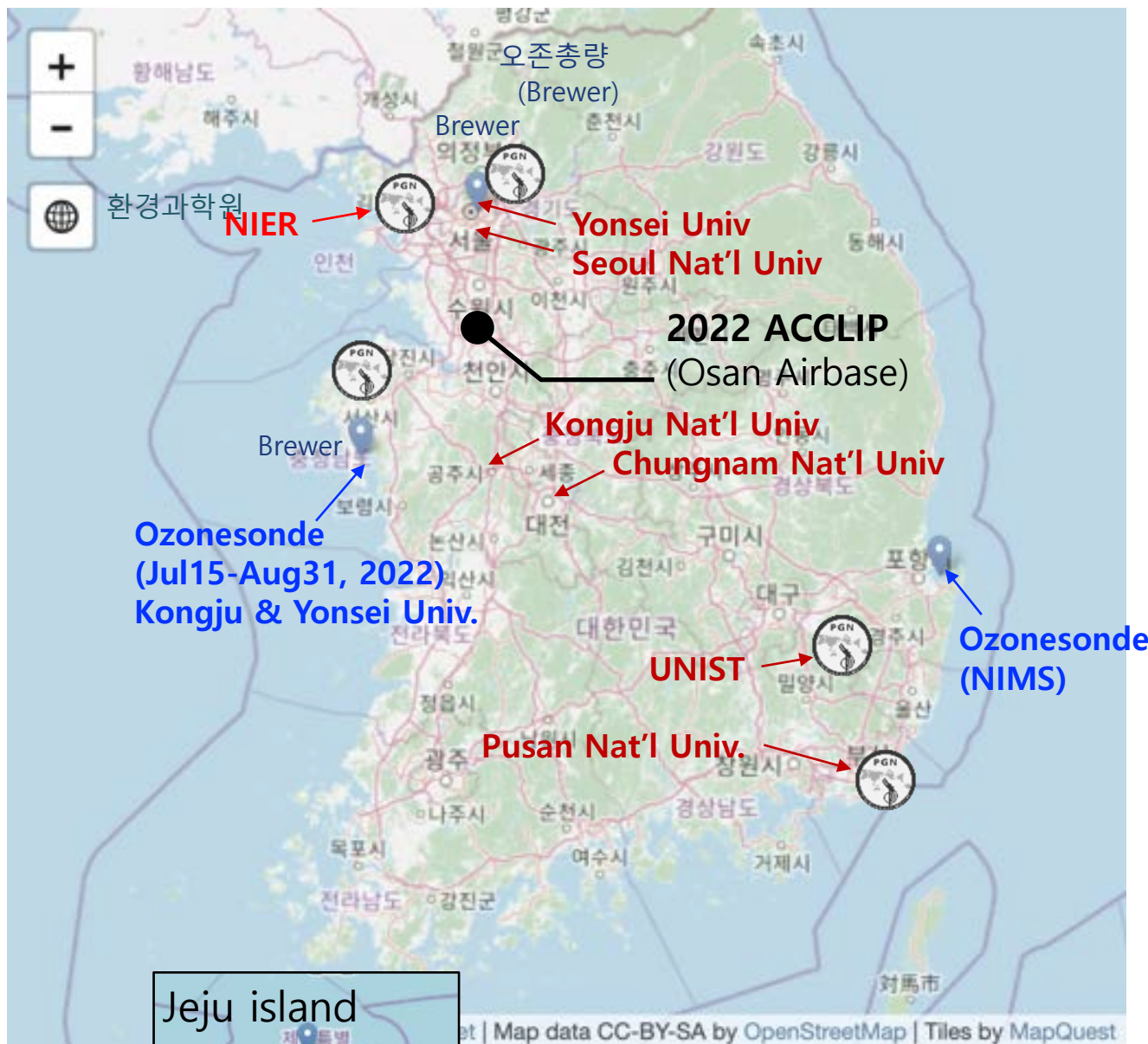- Ja-Ho Koo (zach45@yonsei.ac.kr)

Overview of location

WOUDC O3 Stations (Brewer)

Pandora network (could vary…)

Need to add
- Lidar
- Aeronet
- MAXDOAS (NIER)

Korean ACCLIP team (Universities)

Yonsei University, Department of Atmospheric Sciences
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- Ja-Ho Koo (Assistant professor, zach45@yonsei.ac.kr)

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- Hyojung Lee (Research professor, hyojung@pusan.ac.kr)
- Cheol-Hee Kim (Professor, chkim2@pusan.ac.kr)

Korean ACCLIP team

1. UTLS processes related to the Asian Summer Monsoon
2. Tropospheric and Stratospheric Ozone chemistry
3. Aerosol, SLCFs and their radiative impact
4. GEMS evaluation and application

Need to organize more…

1. Process and Case study (using Obs, Anal, Model):
   SNU

2. Surface obs (O3sonde, Brewer, lidar):
   Kongju Univ., Yonsei Univ., UNIST, NIMS

3. Modeling (WRF-Chem, trajectory):

   Pusan Univ.

4. GEMS evaluation (O_3, O_3prof, NO_2, HCHO, etc):
   Yonsei Univ., NIER-GEMS