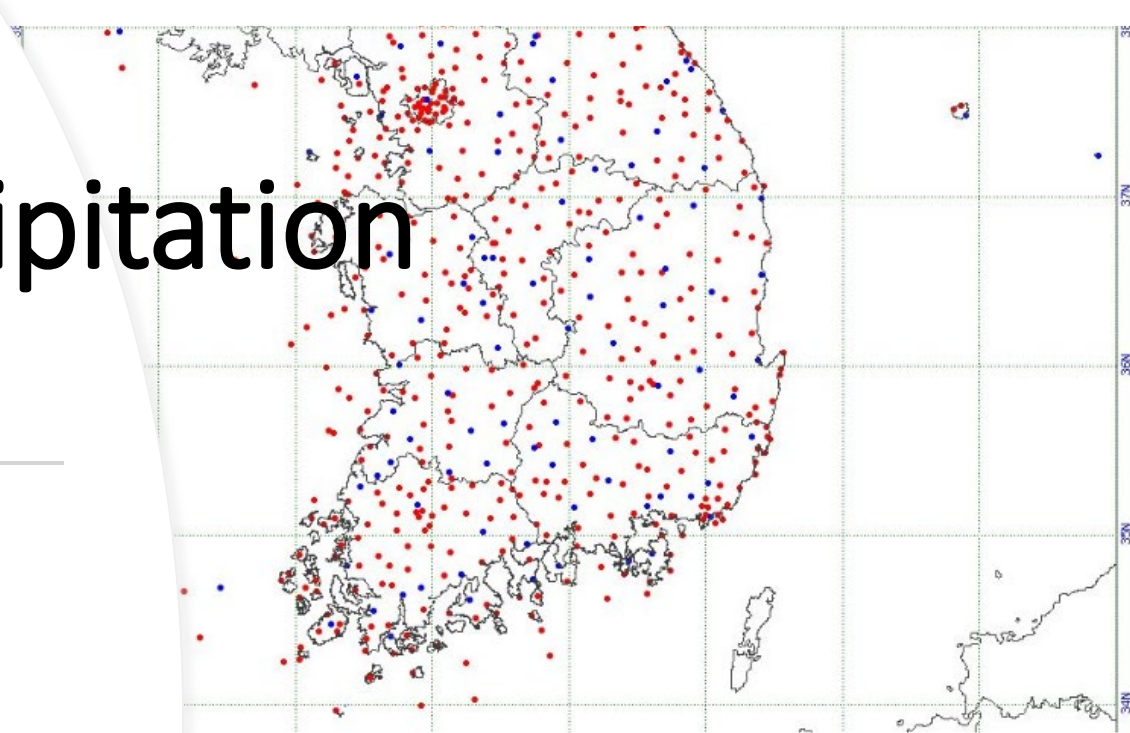


# Surface Precipitation Networks in Korea

- 11<sup>th</sup> Workshop of International Precipitation Working Group (IPWG-11)
- Soorok Ryu(KNU), GyuWon Lee(KNU)

sea



# Outlines

1

**Operational Weather Radars in Korea**

2

**Radar Composite Precipitation Data**

3

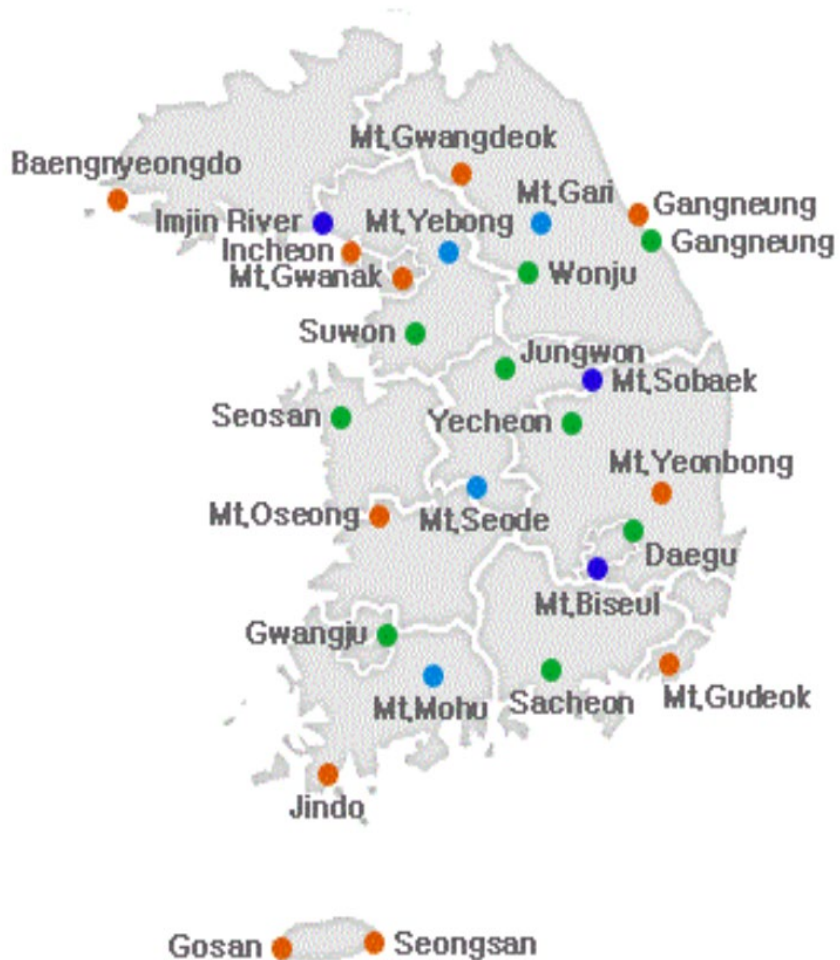
**Rain Gauges in Korea**

4

**Radar-Gauge Merged Precipitation Data**

# 1. Operational Weather radars in Korea

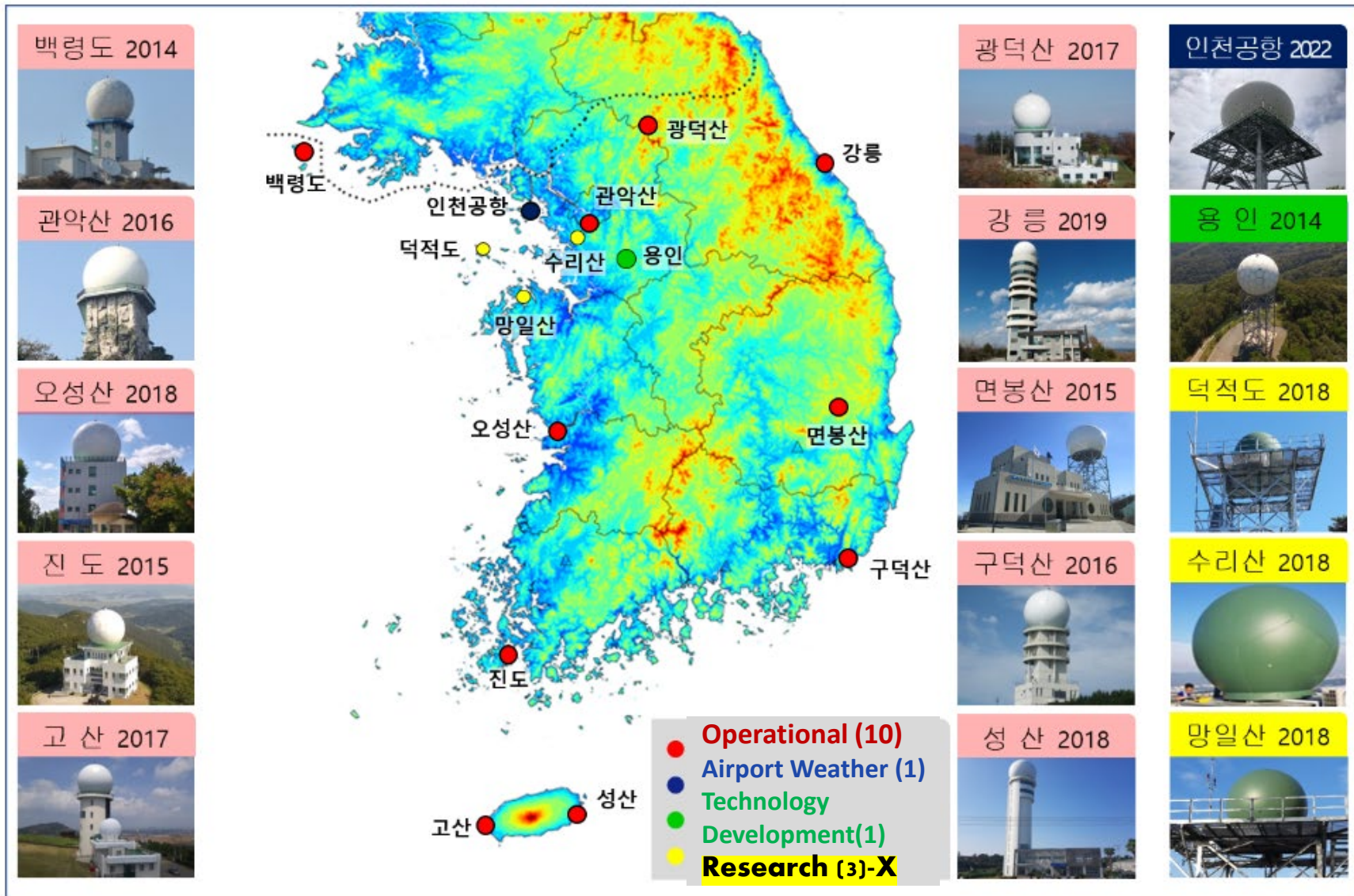
<https://radar.kma.go.kr/eng/notification/radar/network.do>



- **Korea Meteorological administration(KMA):**  
hazardous weather monitoring
  - **Ministry of Environment(ME) :**  
hydrological management and flood forecasting
  - **Ministry of National Defense (MND) :**  
meteorological support in military operational areas
- 
- **KMA(10+1, S-pol, C-pol)**
  - **Ministry of Environment (9,S-pol)**
  - **Ministry of National Defense(10, C-pol)**

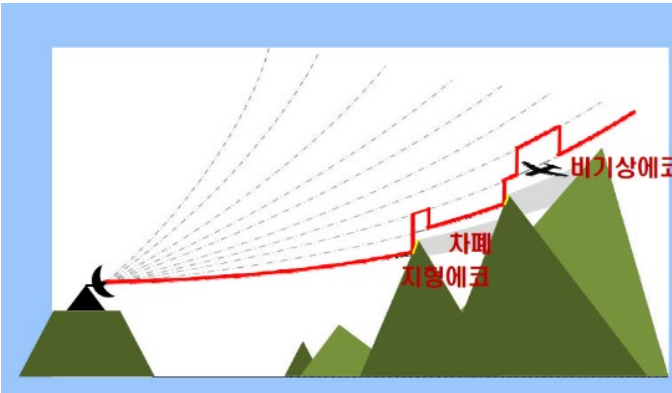
# 1. Operational Weather radars in Korea

## Radars of KMA

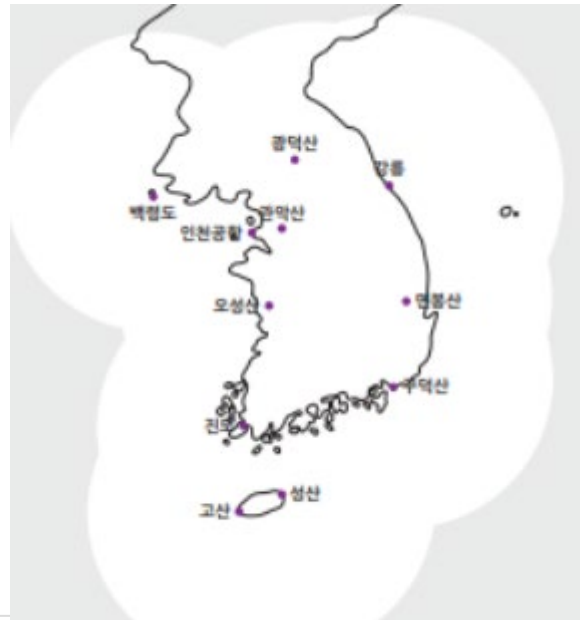


# 2. Radar Composite Precipitation Data (KMA)

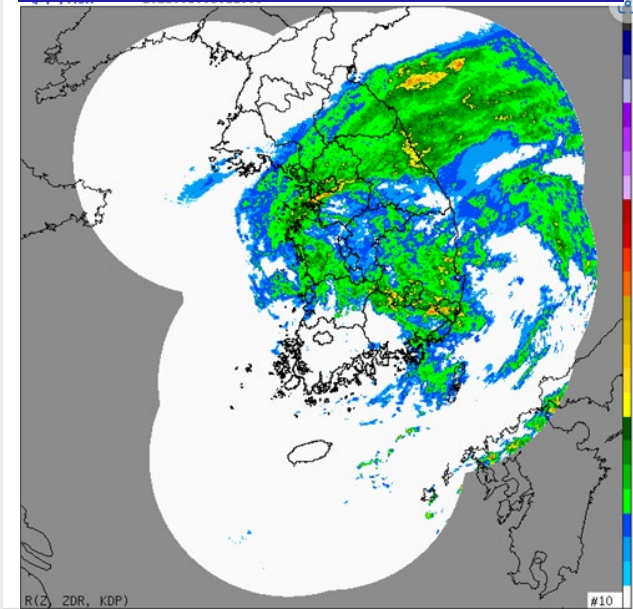
## HSR(Hybrid Surface Rainfall)



## 11 radars



## HSR Composite rainfall



### [Radar data]

- **HSR** : uses the lowest elevation angle data that is not affected by ground clutter or beam blocking [*Kwon et al. 2015 (Journal of Hydrology)*]

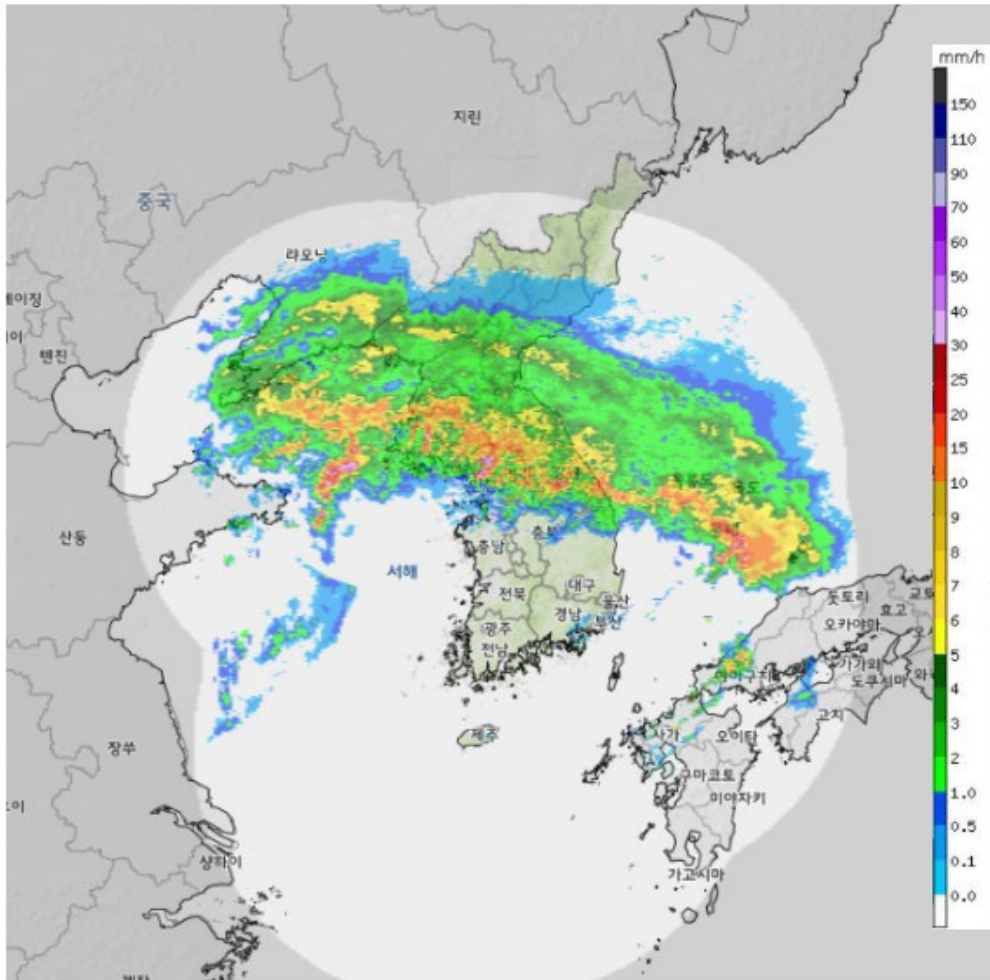
- **HSR radar composite data**: (0.5km\*0.5km, 2305 x 2885, 10 S-pol radar + 1 C-pol)

Size (nx, ny)	2305, 2885
Resolution	0.5 km
	5 min

# 2. Radar Composite Precipitation Data (KMA)

Images: <https://radar.kma.go.kr/radar/main.do?cgild=HSR>

Download: <https://apihub.kma.go.kr/>

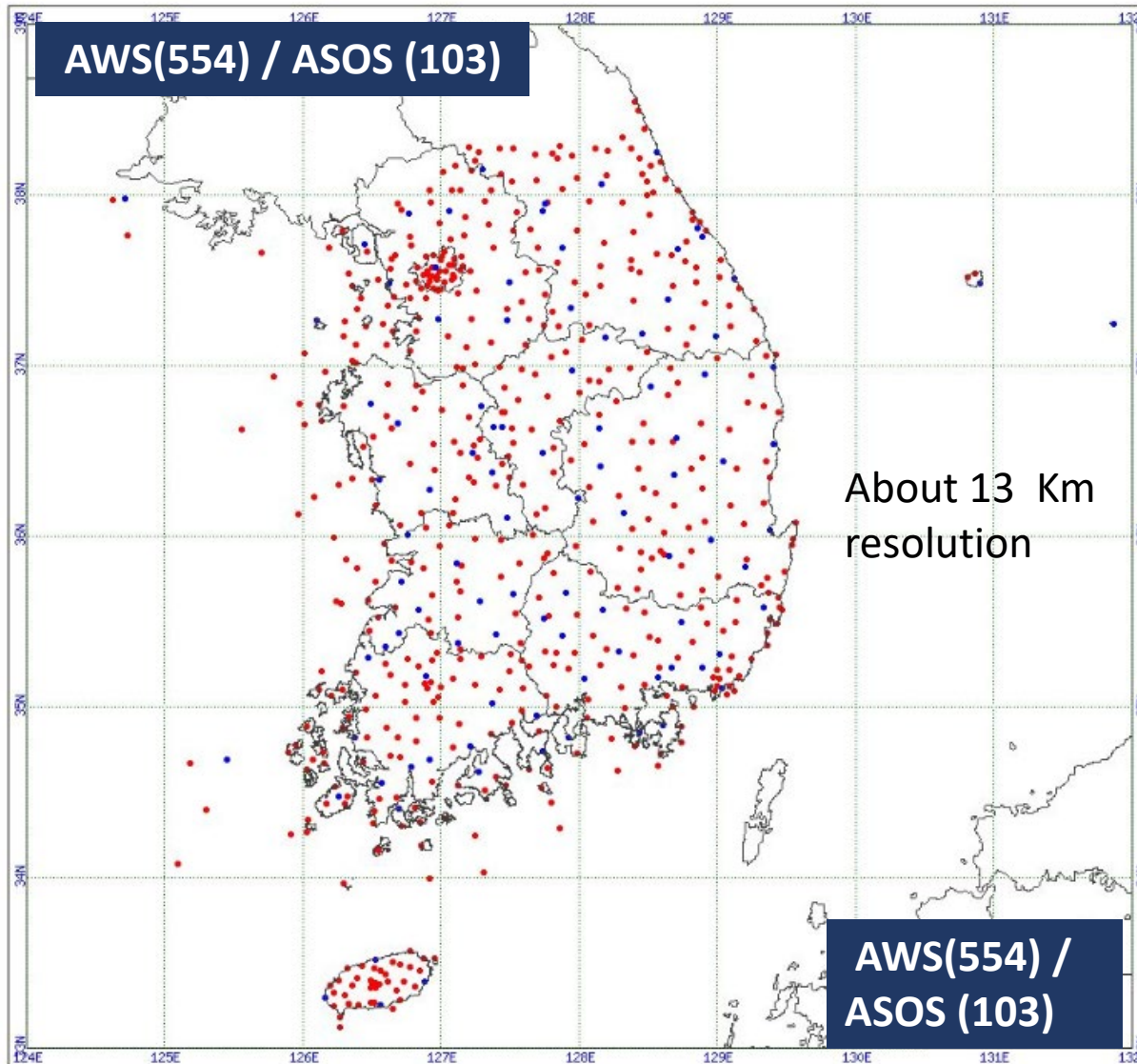


\* 연직단면 버튼 클릭 후 마우스 왼쪽 버튼으로 두 지점을 클릭하여 연직단면 표시

과거자료 연직

<b>Rain</b>	<b>지상</b>
Rain Area	1.4km
Snow&Rain	2km
Hydrometeor	3km
Hail	4km
Accumulation	5km
Prediction	

# 3. Rain Gauges : KMA



ASOS: weighing rain gauge



AWS: tipping bucket



## [Rain Gauge]

- **AWS** (automatic weather system) : 554 stations, 0.5 mm, 1 min
- **ASOS** (automated Synoptic Observing system): 103 stations, 0.1 mm, 1 min

# 4. Radar-Gauge Merged Precipitation Data

## Reference gridded data for surface precipitation?

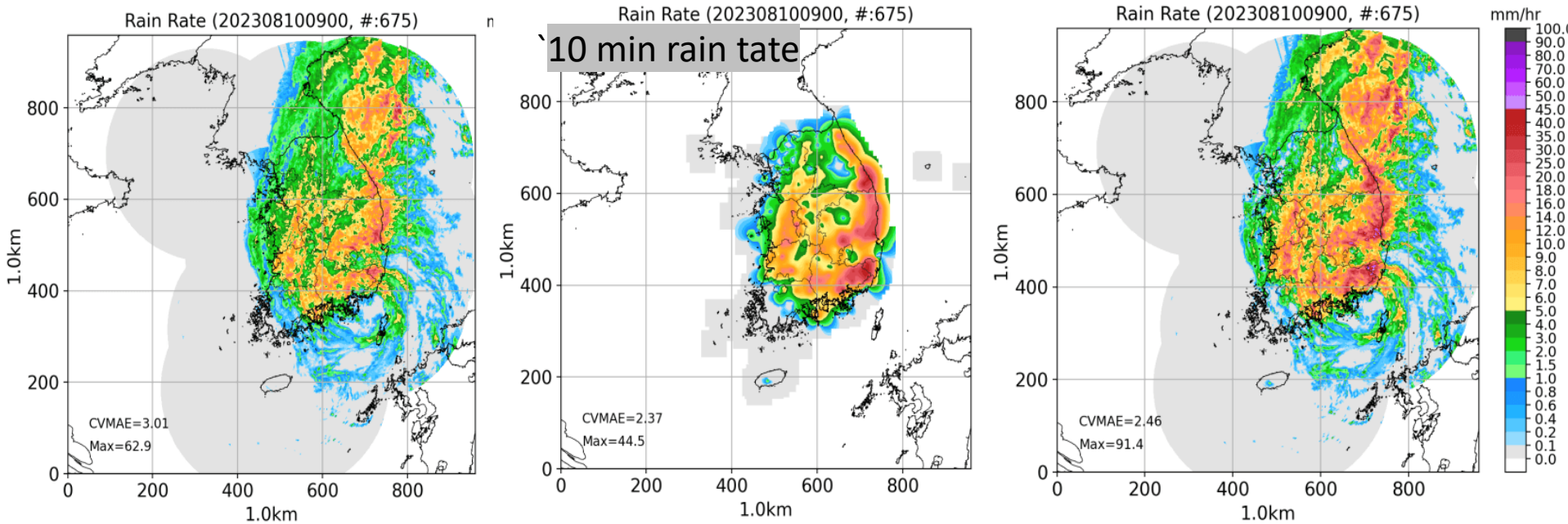
Radar(HSR)  
composite data



Rain gauge  
composite data



Merge data  
(Radar + Rain gauge)



➔ Merged precipitation data is available from 2018 to 2023 (6 years).