

Development and Status of AWS Observations in KMA

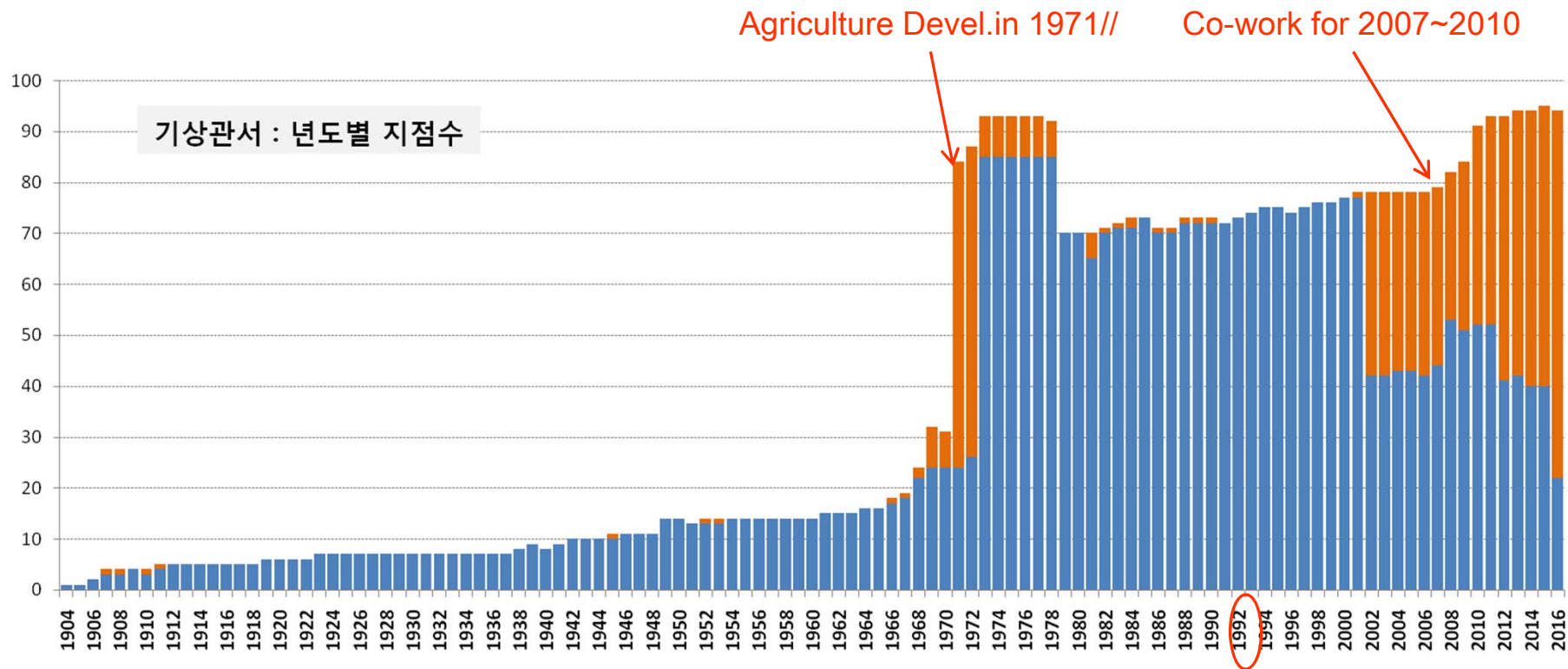
CHOI Chulwoon

Observation Policy Division, KMA

Status of AWS

- History
- Improvement
- Data flow

History – Observatory



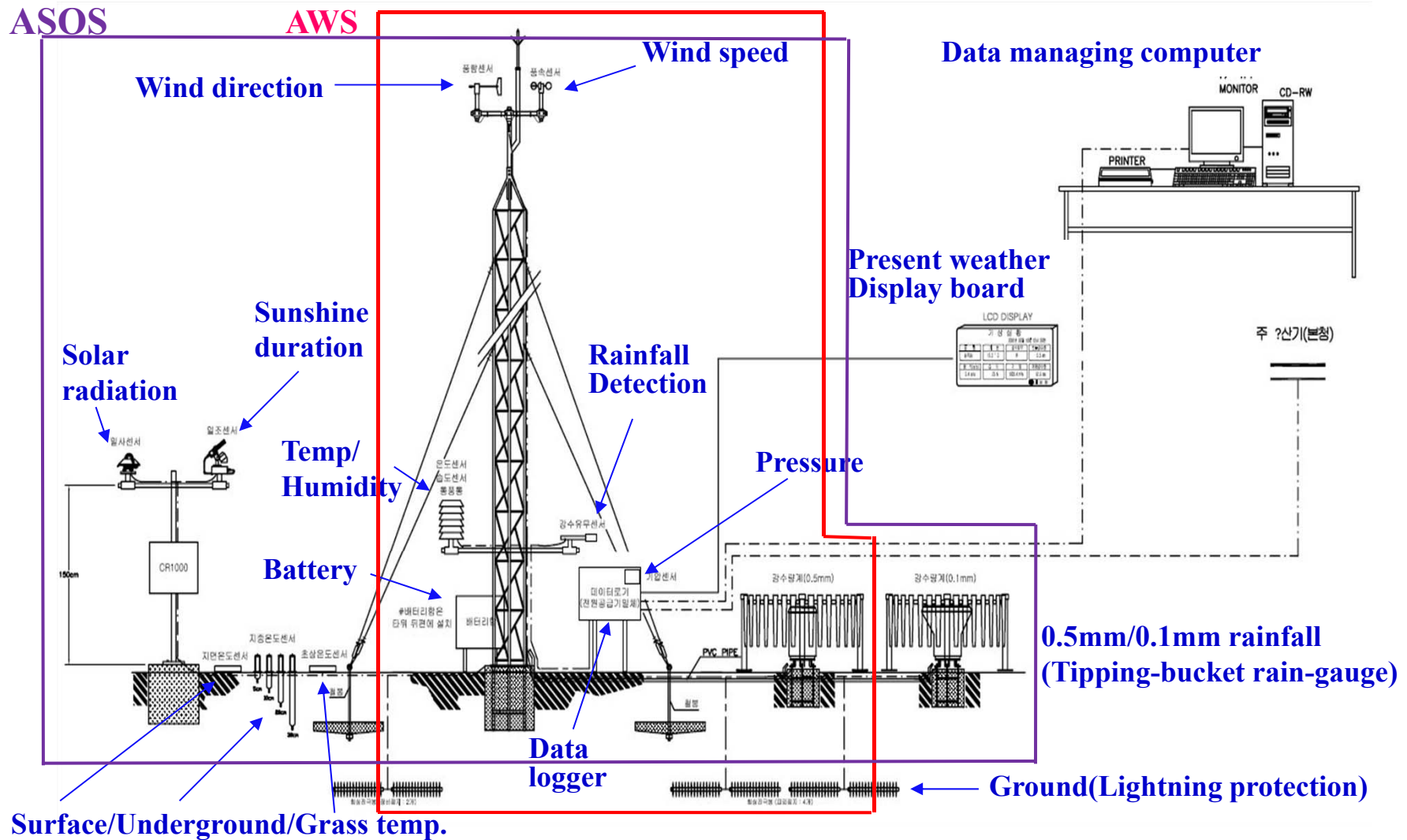
3 sites in 1904 : Mokpo, Busan, Incheon

2 sites in 1907 : Seoul, Daegu

ASOS

*) Blue means "manned office"

Type – ASOS(12) & AWS(6)



History – Land surface obs.

❑ Start of the establishment of AWS

- ✓ To support of Seoul Olympic Games in 1988
- ✓ 15 AWSs were installed at various sport stadiums (including the Main Stadium and KMA)
- ✓ 5 Observing element : WD, WS, T, H, Precipitation
- ✓ Change of observation : **Analog** → **Digital**

❑ Increase of AWSs : 15 → 122 ('89 ~ '91)

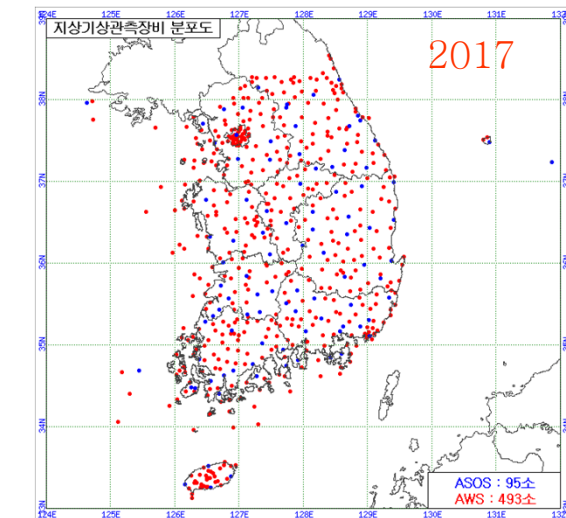
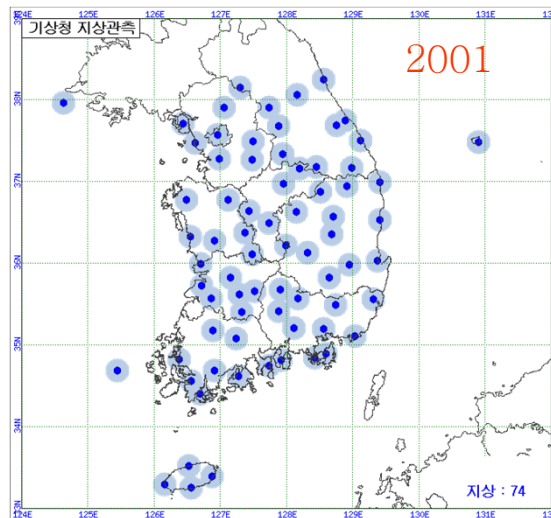
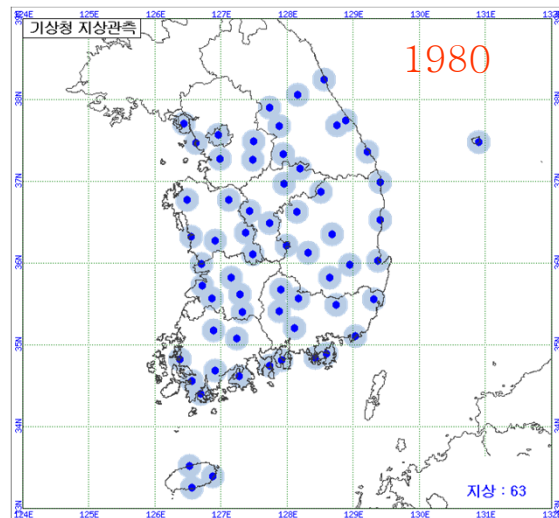
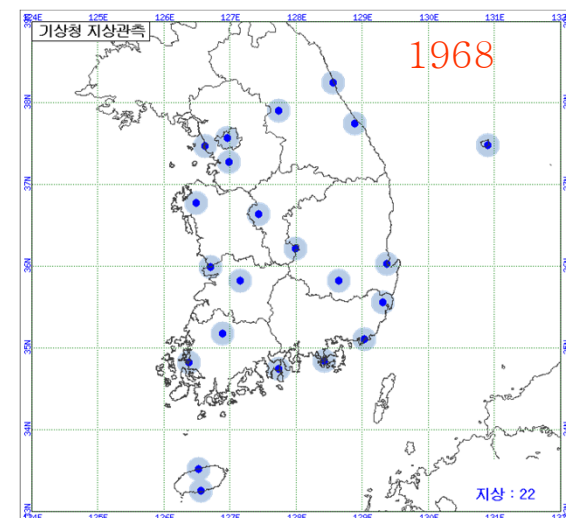
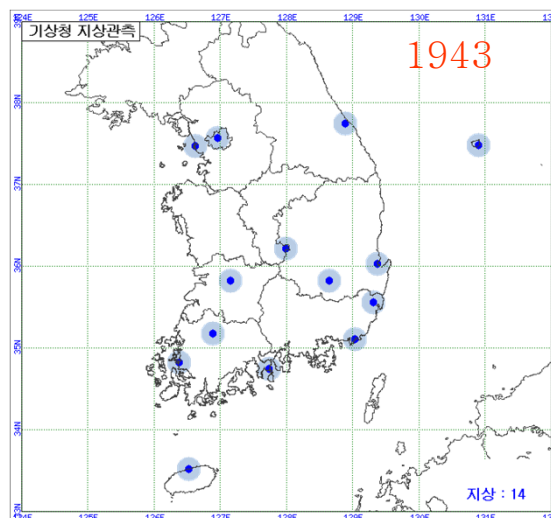
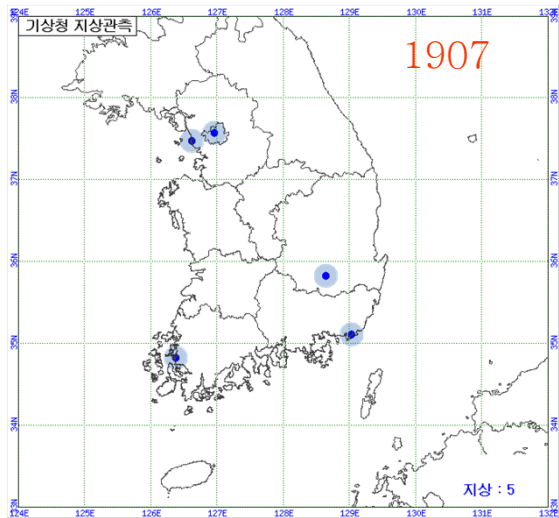
❑ Introduction of ASOSs ('92)

- ✓ 4 ASOSs at KMA's weather stations for synoptic observation

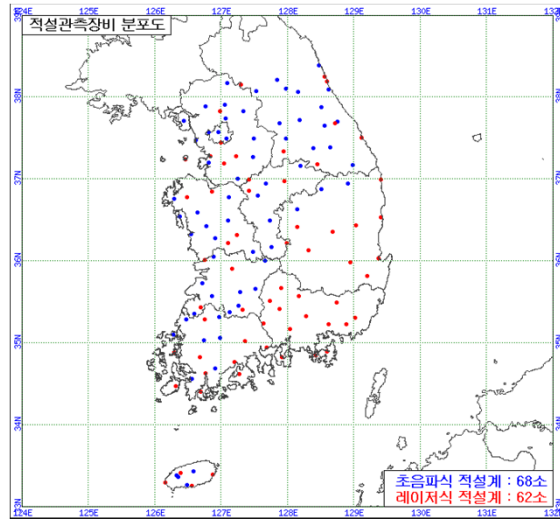
❑ At present, KMA has 493 AWSs and 95 ASOSs

History – ASOS Observatory

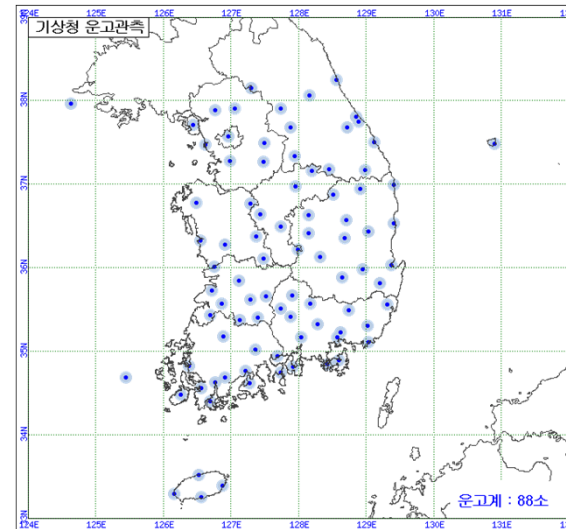
1904 (3) → 1923 (8) → 1943 (14) → 1968 (22) → 1980 (63) → 2001 (74) → Current (95)



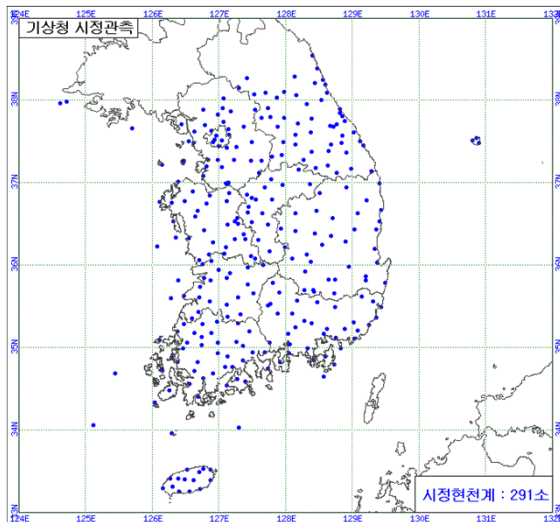
Various Sensors nation wide in AWS



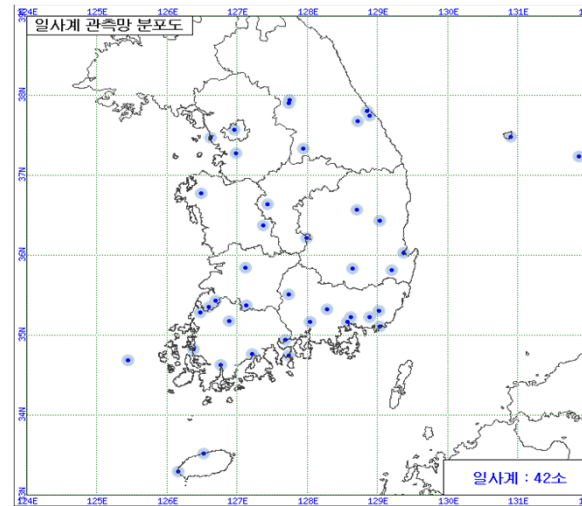
<Lasor based snow depth>



<Ceilometer for cloud height>

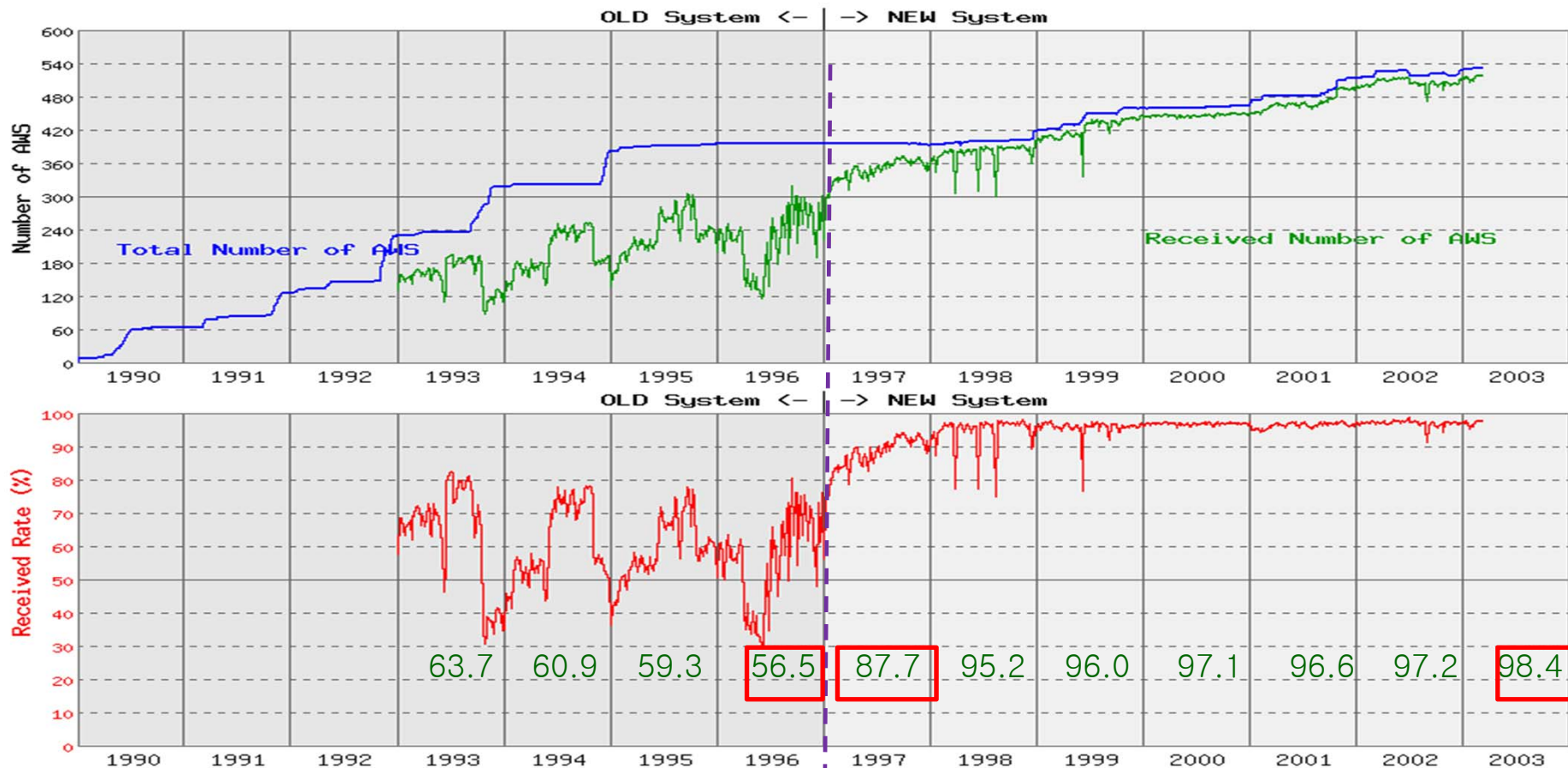


<Forward scatter meter for visibility>



<Solar radiation>

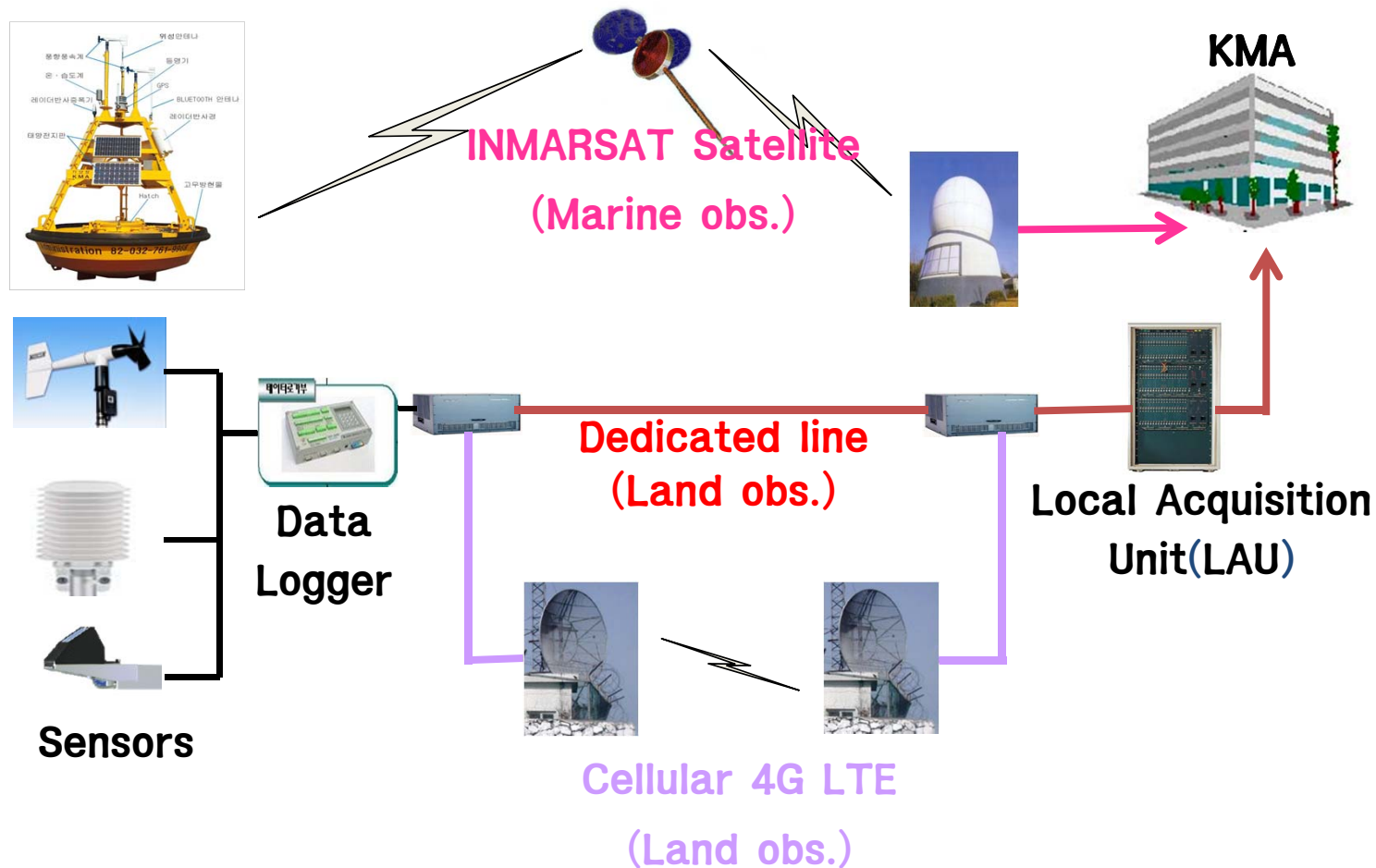
Improve – Securing observations



Diskette-based Prg. and strg.	Failure rate ↓	ROM-based Prg. and S-RAM used strg
Dial-up Modem	Fast ↑	Dedicated Line with 1.5Mbps
DAUP to Local agency to H.Q. (Data Acquisition&Processing Unit)	Simple ↑	LAU to H.Q server by TCP/IP (Local Acquisition Unit)

Improve – Various network

- ✓ **On-land obs.** : transmit by both dedicated line and 4G cellular phone network
- ✓ **At-sea obs.** : transmit by INMARSAT Satellite



Improve – Effective Data processing

- ✓ Decoding file to "File DB(a kind of binary file)" by "direct access"
 - One of 0~999 is allocated to AWS number that is the record location
 - A length of record : at most 184 bytes a file(obs.), at most 110 bytes a file
 - Storage one file by 0~59 min unit
- No indexing process
- Fast access to the AWS file
- Marking 4step QC by Flagging

Format : AWS3		Format : AWS3		Format : AWS3		Format : AWS3(QC)	
Contents	Bytes	Contents	Bytes	Contents	Bytes	Contents	Bytes
AWS ID	2	cloud amount(10)	2	latitude(decimal_degree)	2	AWS ID	2
Observing time	6	[average]1min_visibility(m)	2	latitude(min_sec)	2	LAU ID	2
1min_1.5m(height)_temp(0.1 C)	2	PM10 (0.1ug/m^3)	2	longitude(decimal_degree)	2	AWS observing time	6
[average]1min_10m(H)_wind direction(0.1 degree)	2	PM2.5(0.1ug/m^3)	2	longitude(min_sec)	2	LAU observing time	6
[average]1min_10m(H)_wind speed(0.1 degree)	2	[average]1min net radiation(0.1W/m^2)	2	sea_height(0.01m)	2	receiving time	6
[moment]1min_10m(H)_wind direction(0.1 degree)	2	[average]1min global radiation(0.1W/m^2)	2	tacometer	2	data logger electricity sta	8
[moment]1min_10m(H)_wind speed(0.1 degree)	2	[average]1min reflective radiation(0.1W/m^2)	2	[compute] 1min_sea level pressure(0.1hPa)	2	data logger sensor status	8
[day]0.5mm rain(0.1 mm)	2	[average]1min direct radiation(0.1W/m^2)	2	[compute] 10min wind direction(0.1deg)	2	LAU version	1
[average]1min_site_pressure(0.1 hPa)	2	1min_weather_state	2	[compute]10min wind speed(0.1m/s)	2	QC state	1
1min_rain_exist(0/*)	2	ultraviolet A	2	[compute]15min wind speed(0.1m/s)	2	QC time	6
snow(0.1 cm)	2	ultraviolet B/E	2	[compute]60min wind speed(0.1m/s)	2	QC-0 flag(sensor monitor)	8
[average]1min_1.5m_RH(0.1 %)	2	[average]1min_10cm_soil_moisture(0.1%)	2	[compute]3 hours moving average rain(0.1mm)	2	QC-1 flag(climate)	8
[day]0.1mm_rain(0.1 mm)	2	[average]1min_20cm_soil_moisture(0.1%)	2	[compute]6 hours moving average rain(0.1mm)	2	QC-2 flag(consistency)	8
[day]radiation(0.01 MJ/m^2)	2	[average]1min_30cm_soil_moisture(0.1%)	2	[compute]12 hours moving average rain(0.1mm)	2	QC-3 flag(reserved)	8
[day]sun_duration(sec)	2	[average]1min_50cm_soil_moisture(0.1%)	2	[compute]10 min moving average rain(0.1mm)	2	QC-4 flag(reserved)	8
[average]1min_surface_temp(0.1C)	2	[average]1min_lux(0.01klux)	2	[compute] corrected soil moisture(0.1%)	2	QC-5 flag(reserved)	8
[average]1min_grass_temp(0.1C)	2	[average]1min 1.5m wind direction(0.1m/s)	2	[compute] corrected rain(0.1mm)	2	QC-6 flag(manual)	8
[average]1min 5cm soil_temp(0.1C)	2	[average]1min 4m wind speed(0.1m/s)	2	[compute] corrected snow(0.1cm)	2	QC-7 flag(rserved)	8
[average]1min 10cm soil_temp(0.1C)	2	[average]1min 1.5m wind speed(0.1m/s)	2	[compute] manual or cctv snow(0.1cm)	2		
[average]1min 20cm soil_temp(0.1C)	2	[moment]1min 4m wind speed(0.1m/s)	2	[compute] corrected visibility(m)	2		
[average]1min 30cm soil_temp(0.1C)	2	[average]1min_0.5m temp(0.1C)	2				
[average]1min 50cm soil_temp(0.1C)	2	[average]1min_4m temp(0.1C)	2				
[average]1min 100cm soil_temp(0.1C)	2	[average]1min_0.5m RH(0.1%)	2				
[average]1min 150cm soil_temp(0.1C)	2	[average]1min_4m RH(0.1%)	2				
[average]1min 300cm soil_temp(0.1C)	2	water_temp (0.1C)	2				
[average]1min 500cm soil_temp(0.1C)	2	signaficant wave height (0.1m)	2				
[average]1min 1st layer cloud height(m)	2	wave period (0.1sec)	2				
[average]1min 2nd layer cloud height(m)	2	wave direction (0.1deg)	2				
[average]1min 3rd layer cloud height(m)	2	tide level (0.01m)	2				

Improve – Effective Data usage

- ✓ Easy access to read AWS observations by URL-API (<http://203.247.66.28>)
 - http://203.247.66.28/url/cgi-bin/url/nph-aws2_min_raw?tm2=201307140812&stn=0&disp=0&help=1&authKey=authority key

URL-API(외부)

tm=200911121500&help=1&authKey=6b89a8e82e7dc3a444ec0d0b0dbbd21ef86bc5c2151e15f9a5629a3ca
(정시자료)

변수명	의미	설명
var	변수종류	TA(기온), WD(바람), RN(강수), HM(습도), PS(기압) 등 없으면 각 변수별 정시자료
tm	년월일시분(KST)	해당 시점에 존재하는 지점목록 (없으면 현재시각)
stn	지점번호	해당 지점의 정보 표출 (0 이거나 없으면 전체지점)
help	도움말추가	1 이면 필드에 대한 약간의 도움말 추가 (0 이면 없음)
authKey	인증키	URL-API 사용자 인증키(필수)

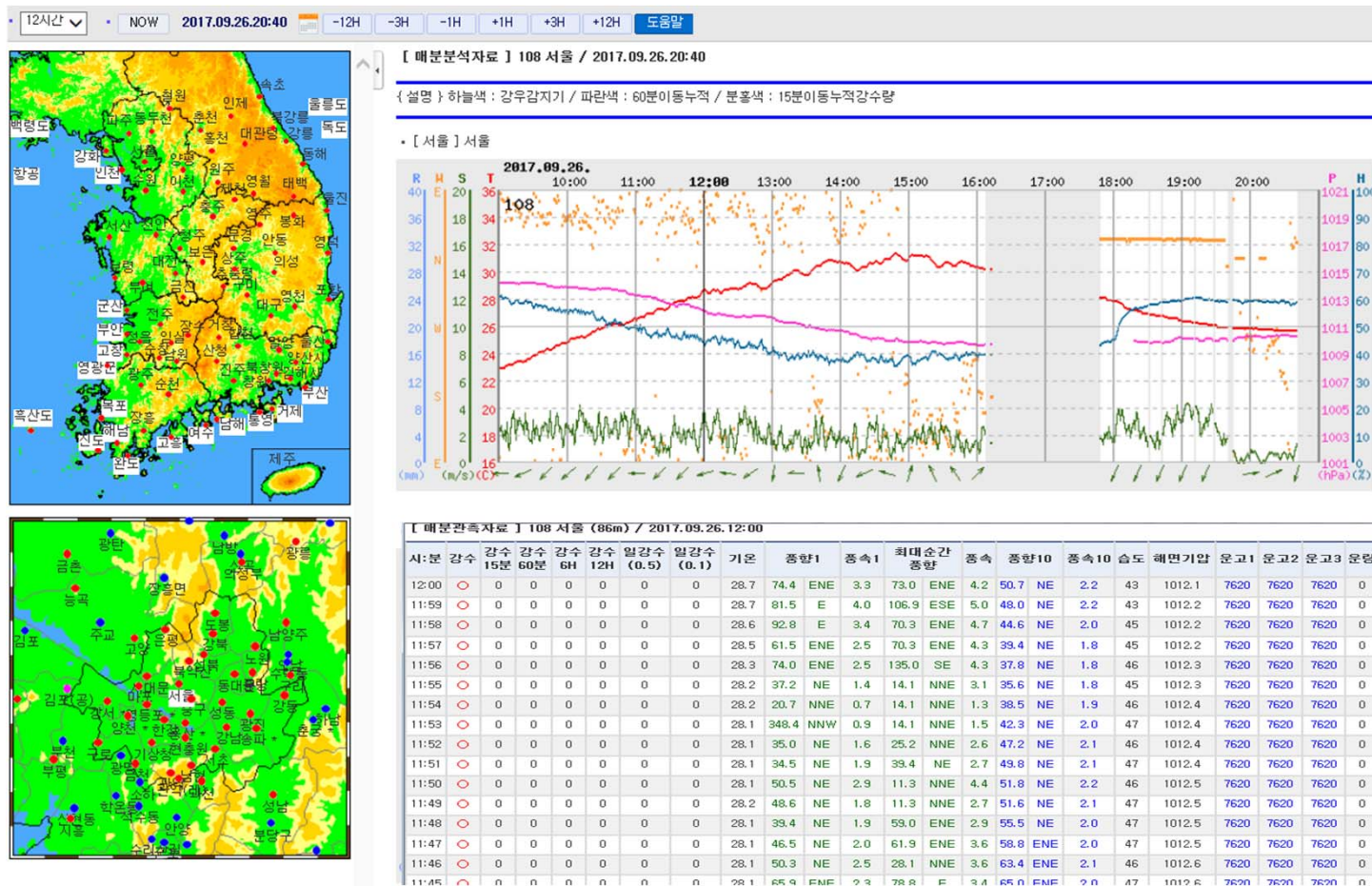
#STARI 7777	STN	000	001	002	003	004	005	006	007	008	009	010	011	012	013	014	015	016	017	018	019	020	021
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201307140812	4	258	2455	25	2672	39	2	10074	0	-999	926	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	35
201307140812	12	231	2188	43	2203	69	0	10057	0	0	990	0	0	0	0	0	0	0	0	0	0	0	0
201307140812	13	274	1927	62	2025	89	0	10076	0	0	846	0	0	0	0	0	0	0	0	0	0	0	-999
201307140812	16	265	1301	78	1209	101	0	10050	0	-999	914	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	124
201307140812	17	293	2390	32	2531	43	0	10108	0	-999	679	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	166
201307140812	18	270	1479	12	1463	26	0	10042	0	-999	745	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999
201307140812	19	293	2282	35	2166	42	0	10078	0	-999	681	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999
201307140812	20	273	1943	46	1913	67	0	10097	0	-999	858	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	0
201307140812	35	290	3095	36	3263	57	0	10058	0	0	699	0	0	0	0	0	0	0	0	0	0	0	104
201307140812	59	265	2654	22	2700	26	0	9978	-999	-999	828	0	-999	-999	-999	-999	0	-999	-999	-999	-999	-999	0
201307140812	90	207	3356	61	3488	83	840	10092	10	-999	999	778	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	0
201307140812	92	197	3400	70	3300	90	665	10094	-999	-999	0	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999
201307140812	95	220	285	10	3459	11	1325	9934	10	-999	995	1239	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	0
201307140812	96	230	2179	69	2225	87	35	10002	0	0	990	0	0	0	0	0	0	0	0	0	0	0	1
201307140812	98	238	3552	15	450	33	575	9991	10	-999	913	562	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	0
201307140812	99	243	2969	49	3038	62	190	10074	10	-999	933	189	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	0
201307140812	100	222	2685	59	2391	78	145	9238	0	-999	804	131	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	32
201307140812	101	235	377	10	534	17	560	10014	10	0	999	541	0	0	0	0	0	0	0	0	0	0	0
201307140812	102	205	2711	19	2728	27	145	9940	10	-999	999	139	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	0
201307140812	104	220	3465	12	3491	21	85	10004	10	-999	907	85	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	7
201307140812	105	230	1250	8	1631	14	85	10063	0	-999	961	82	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	8
201307140812	106	233	1632	13	1744	19	10	10045	0	-999	946	13	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	0
201307140812	108	251	2151	90	2166	107	40	10006	0	-999	884	37	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	17
201307140812	110	251	2300	75	2400	130	20	10094	-999	-999	0	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999
201307140812	112	231	2410	56	2700	102	6	10029	0	-999	999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	27
201307140812	113	236	2300	79	2400	100	0	10105	-999	-999	0	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999
201307140812	114	265	2261	43	2306	52	10	9936	0	-999	798	8	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	55
201307140812	115	239	2380	72	2418	94	25	9950	0	-999	841	23	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	0
201307140812	116	221	1945	67	1969	125	45	0	0	0	999	0	0	0	0	0	0	0	0	0	0	0	0
201307140812	119	257	2402	23	2318	36	0	10074	0	0	934	3	2366	32	1247	1261	0	0	0	891	995	0	38
201307140812	121	263	2434	12	2363	14	10	9839	0	-999	796	9	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	0
201307140812	127	270	2488	19	2447	77	0	9996	0	-999	762	1	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	0
201307140812	129	263	2044	51	1913	73	0	10092	0	-999	997	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	39
201307140812	130	267	1289	8	863	24	0	10043	0	0	799	0	1372	8	1248	1269	0	0	0	758	875	0	0
201307140812	131	276	2323	12	2616	20	0	10052	0	-999	604	0	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	55
201307140812	133	269	2394	22	2278	50	0	10045	0	-999	862	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	58
201307140812	135	248	1689	5	1463	8	0	9844	0	-999	870	0	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	63
201307140812	136	266	3004	7	3066	9	0	9959	0	-999	817	0	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	74
201307140812	137	253	1152	4	1097	6	0	10010	0	-999	858	0	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	0
201307140812	138	292	2565	23	2475	41	0	10108	0	0	648	0	0	0	0	0	0	0	0	0	0	0	189
201307140812	140	276	1633	67	1659	86	0	10100	0	-999	870	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	0
201307140812	143	300	2645	39	2672	55	0	10054	0	-999	649	0	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	126
201307140812	146	284	2140	12	1884	22	0	10064	0	-999	788	0	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	57
201307140812	151	291	2200	40	2000	50	0	10106	-999	-999	0	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999	-999

K4. AWS 매분자료

- http://203.247.66.28/url/cgi-bin/url/nph-aws_min?tm=201004271512&stn=0&disp=0&help=1&authKey=6b89a8e82e7dc3a444ec0d0b0dbbd21ef86bc5c2151e15f9a5629a3ca
- (AWS1 매분자료)
- http://203.247.66.28/url/cgi-bin/url/nph-aws2_min?tm2=201004271512&stn=0&disp=0&help=1&authKey=6b89a8e82e7dc3a444ec0d0b0dbbd21ef86bc5c2151e15f9a5629a3ca
- (AWS2 매분자료)
- http://203.247.66.28/url/cgi-bin/url/nph-aws2_min_raw?tm2=201307140812&stn=0&disp=0&help=1&authKey=6b89a8e82e7dc3a444ec0d0b0dbbd21ef86bc5c2151e15f9a5629a3ca
- (AWS2 원시자료)
- http://203.247.66.28/url/cgi-bin/url/nph-aws2_min_raw?tm1=201307140800&tm2=201307140812&stn=108&disp=0&help=1&authKey=6b89a8e82e7dc3a444ec0d0b0dbbd21ef86bc5c2151e15f9a5629a3ca
-

Display – Time series

- ✓ **COMIS** collects all observations from AWS nation wide, followed by displaying analysis based on GIS system.

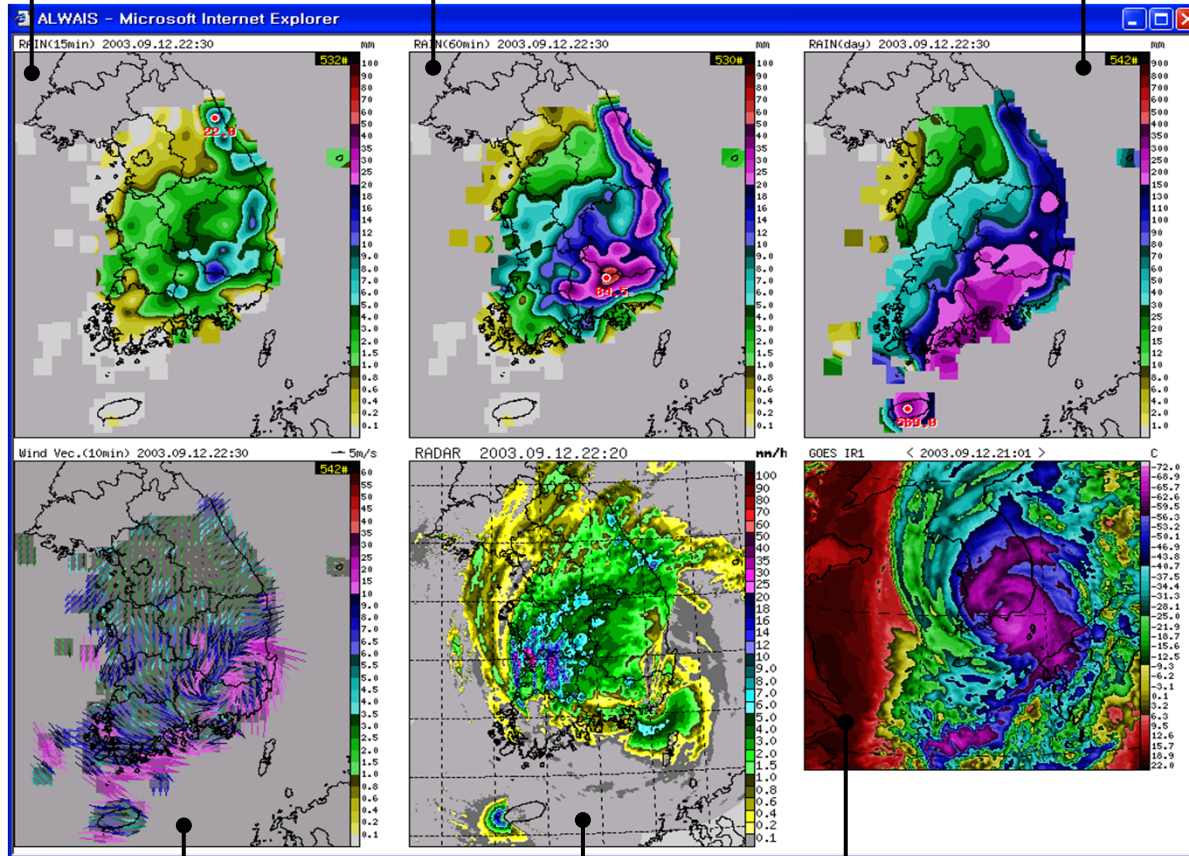


Display - Application

AWS accumulated precipitation for 15 min.

AWS accumulated precipitation for 60 min.

AWS daily precipitation

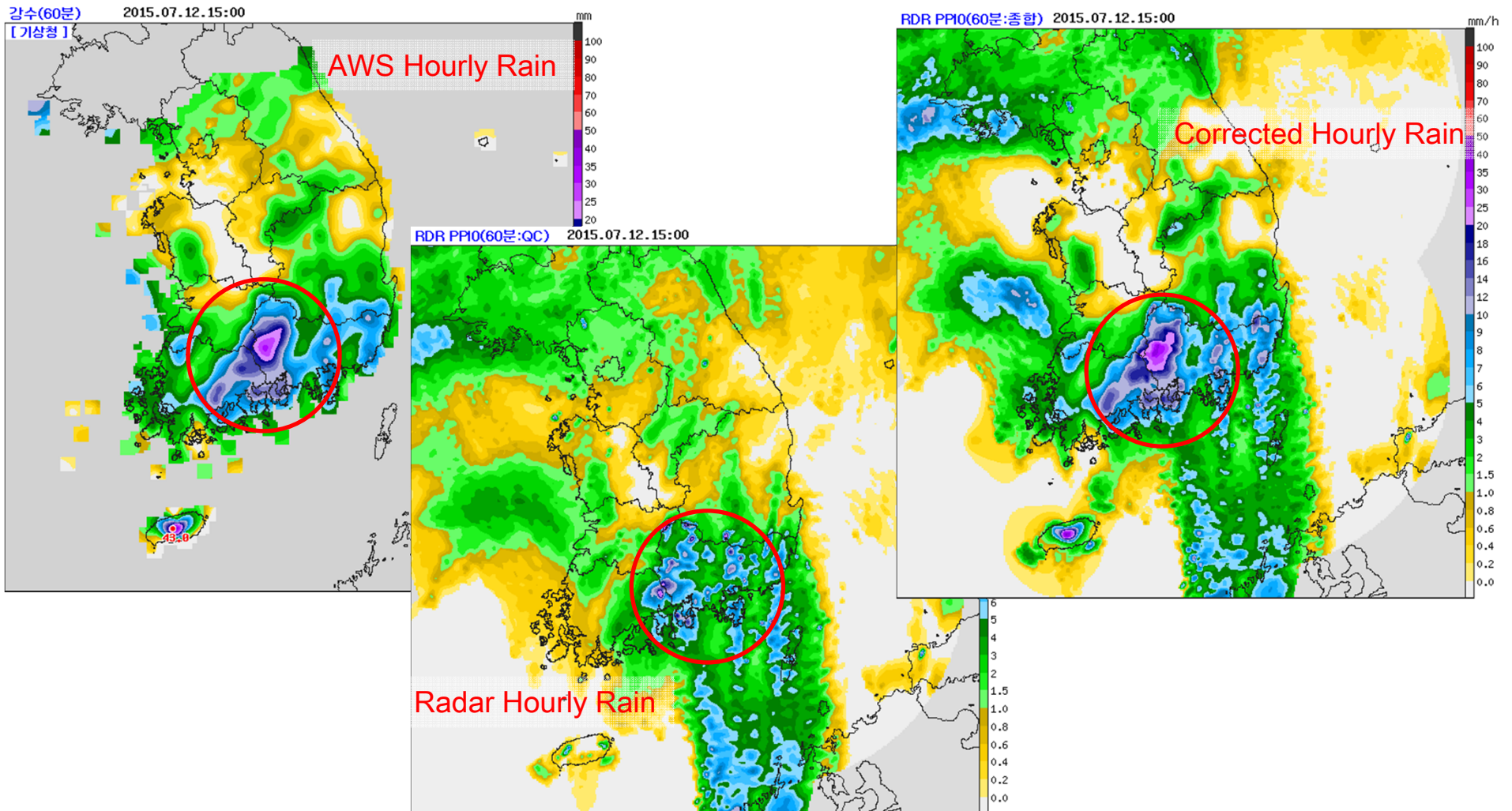


Wind vector from AWS Radar Satellite

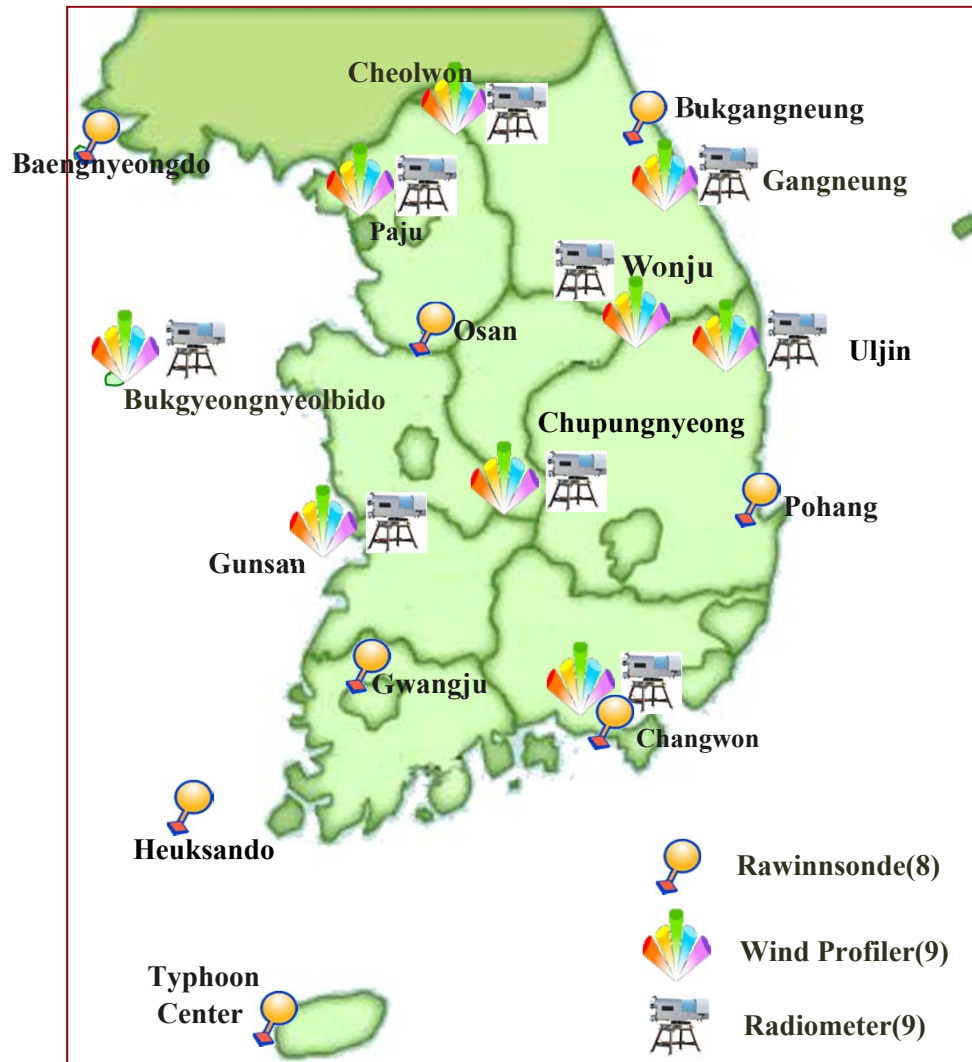
- ✓ ALWAIS has been set up for monitoring the real-time weather conditions and ensuring appropriate responses against severe weather.
- ✓ It collects and analyzes observation data collected from 588 AWSs, weather radars, and weather satellites.

Correct – [example] intercomparison

- ✓ Comparing between AWS and RADAR allows more accurate obs. to be made.



The others – Upper air



 **Rawinsonde : 8 sites**

 **Wind profiler : 9 sites**

 **Radiometer : 9 sites**

○ Resolution : 91km
○ Interval : 12h(rawinsonde)
10min(Windprofiler)
10min(Radiometer)

The others - Marine

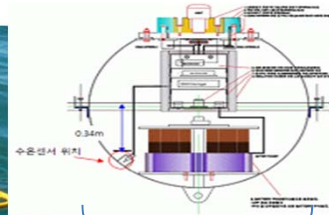
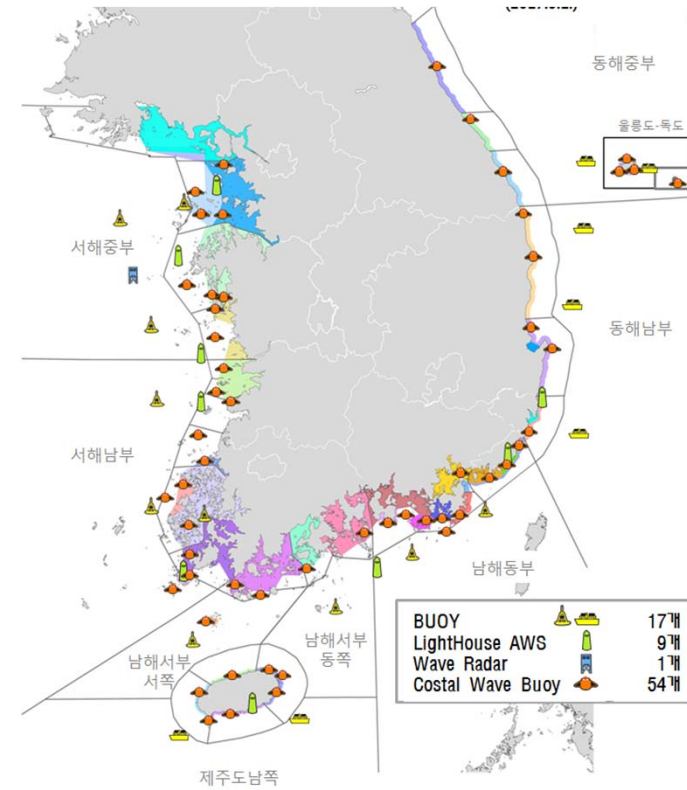
- ❑ Buoy : 17 sites
- ❑ Coastal Wave buoy : 54 sites
- ❑ Light house AWS : 9 sites
- ❑ Ship : 1 ea.
- ❑ Wave radar : 1 sites



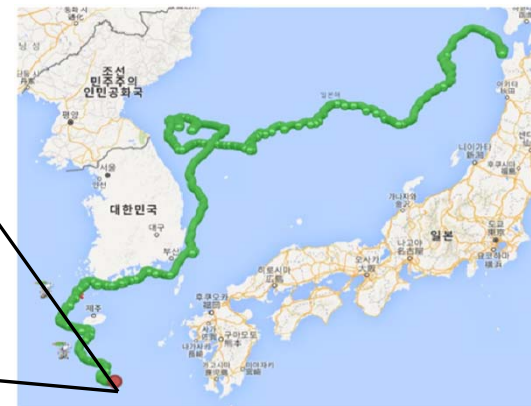
3 m discus buoy



6 m NOMAD

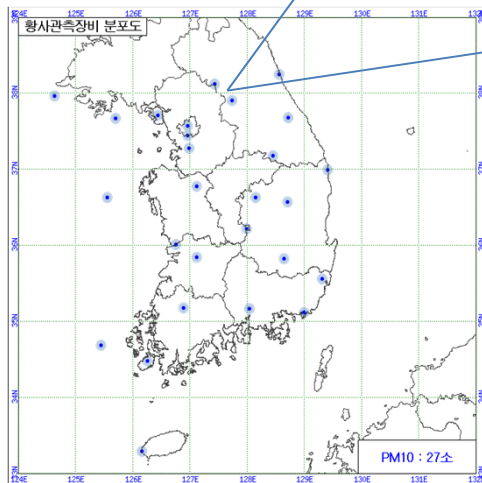
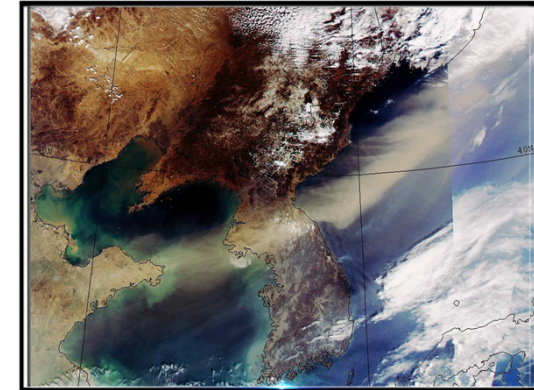


70cm

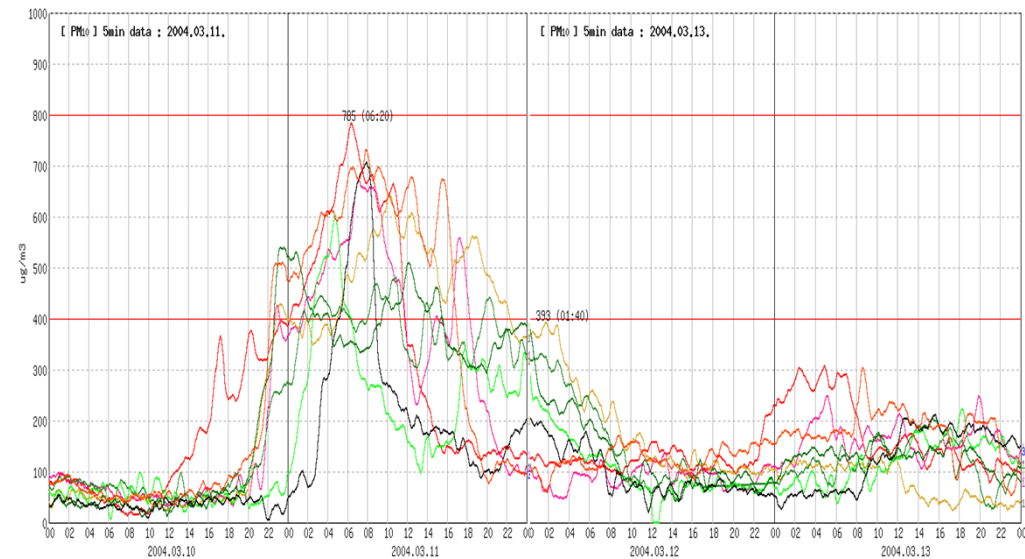


The others - Asian Dust

- **PM10(KMA)**
 - o Data Acquisition interval : **5 minutes**
 - o Display in COMIS
 - 5 minutes, 1 hour (every hour, average, maximum)



(PM10 Obs. nation wide)



The 3rd part Observation -Sharing Policy-

Standardization Activity – Enact the law in 2005

제23권 과학·기술 기상관측표준화법

Contents

- Chap. 1 : General provisions
- Chap. 2 : Standardization of weather obs.
- Chap. 3: Establishment and management of weather observations & utilization of data
- Chap. 4 : Validation of meteorological instruments
- Chap. 5 : Optimization of observation sites
- Chap. 6 : Composition of Committee for standardization of weather observations

WEATHER OBSERVATION STANDARDIZATION ACT

Act No. 7807, Dec. 30, 2005
Amended by Act No. 8486, May 25, 2007
Act No. 8733, Dec. 21, 2007
Act No. 8852, Feb. 29, 2008
Act No. 9308, Dec. 31, 2008
Act No. 9590, Apr. 1, 2009

CHAPTER I GENERAL PROVISIONS

Article 1 (Purpose)

The purpose of this Act is to protect the lives and property of citizens from meteorological disasters and, thus, to enhance public welfare by providing for matters necessary for the standardization of weather observations pursuant to Article 3 (2) of the Weather Act and by improving the accuracy of weather observations and efficiency in the operation of the equipment for weather observations, and the joint utilization of the data from weather observations.

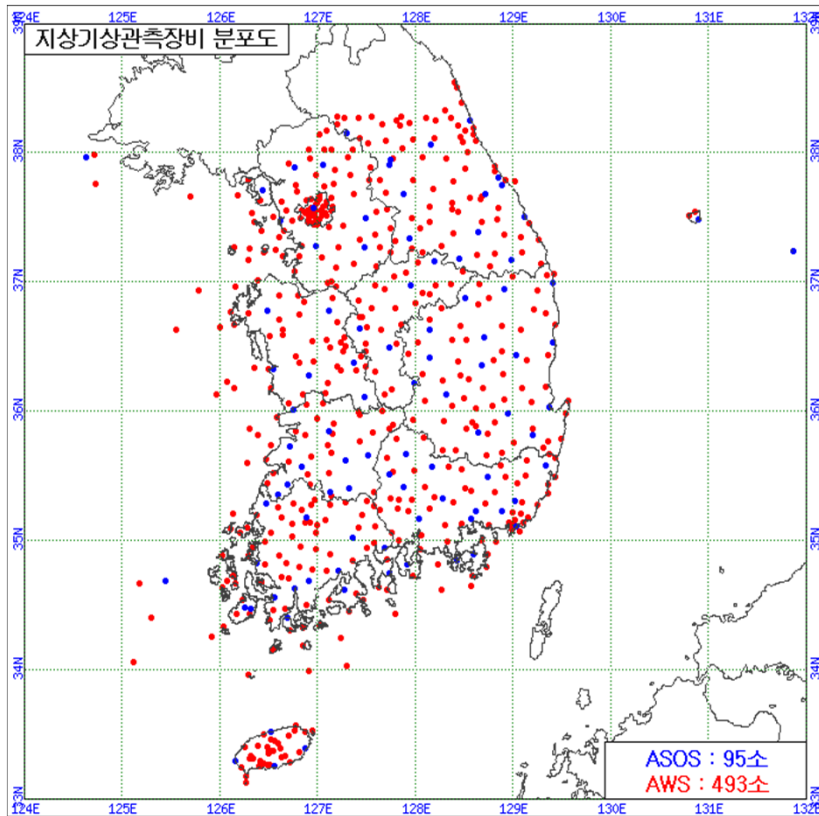
[This Article Wholly Amended by Act No. 9308, Dec. 31, 2008]

Article 2 (Definitions)

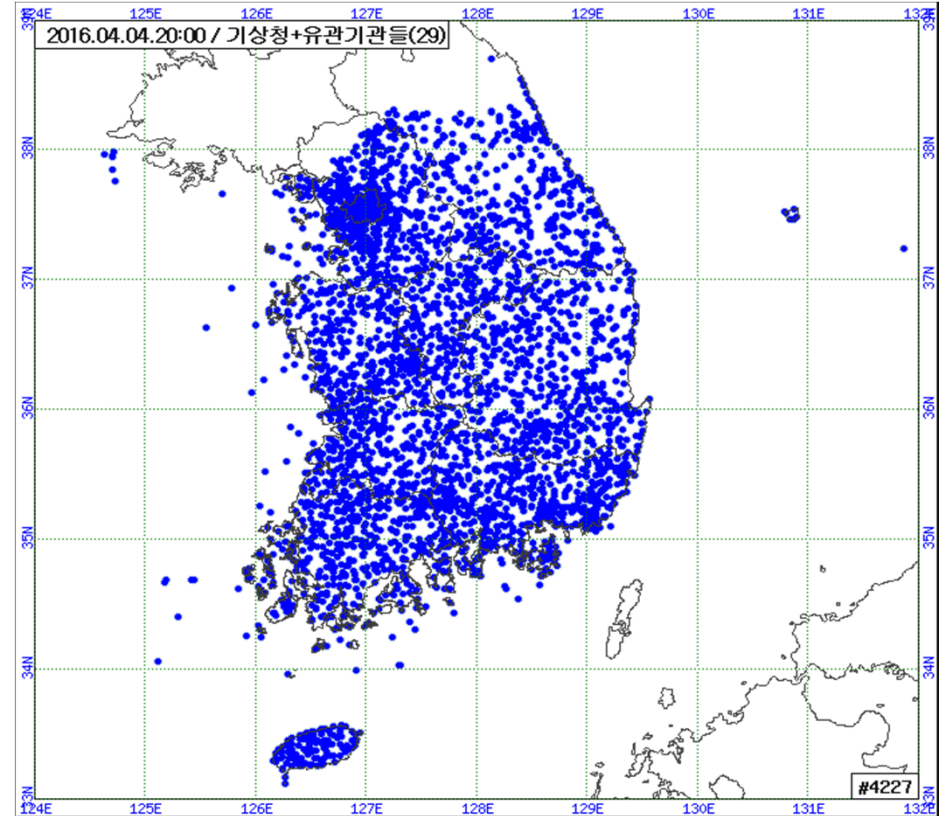
- (1) The terms used in this Act shall be defined in accordance with the provisions of the Weather Act.
- (2) Other terms used in this Act are defined as follows:
 1. The term "standardization of weather observations" means the standardization of the methods and standards for the performance of weather observations and the standardization of the setting for, and the data from, weather observations;
 2. The term "weather observations" means weather observations and work incidental thereto;
 3. The term "observation facilities" means meteorological facilities necessary for conducting weather observations;
 4. The term "conditions on weather observations" means the location and conditions for the installation of equipment for weather observations and

Standardization Activity – share AWS obs.

KMA (AWS)
588 stations



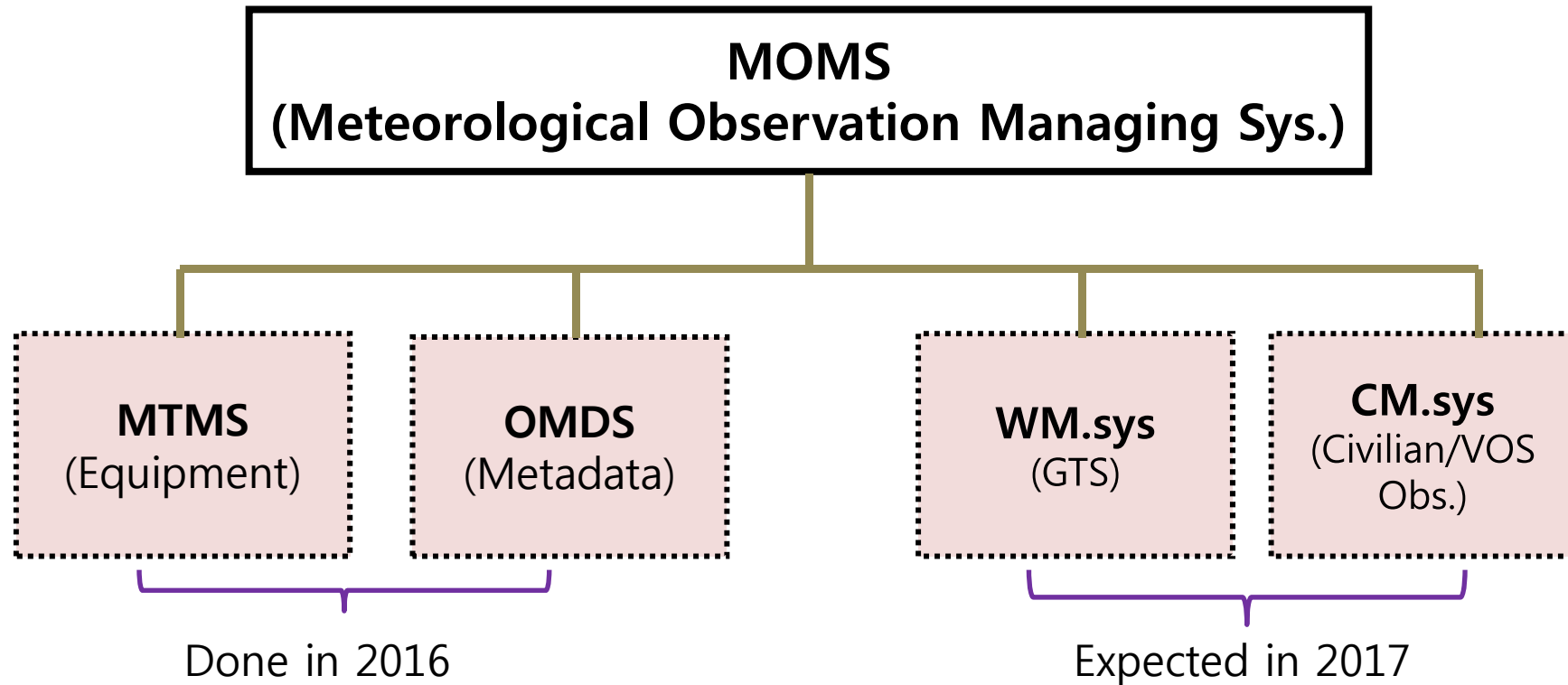
28 Agencies
Over 4,000 stations



- KMA is in charge of the data quality and site environment of over 4,000 weather obs. sites operated by 28 domestic agencies.
- All the weather obs. data is to be collected and distributed for the co-utilization by KMA : **Spatial resolution of ~5km** can be achieved.

Observation managing system

MOMS



Metadata system – Obs. nation wide

기상관측 통합 메타데이터 시스템
Korea Meteorological Administration

전산관리자님안녕하세요 :) LOGOUT 국문 | English

메타데이터 시설등급 품질관리계획 자료용 통계/모니터링 환경설정 도움말

원하는 분류 및 메타데이터 카테고리를 선택하여 검색할 수 있습니다.

지점검색 | 속기검색 | 등급검색

관리기관
기상청

지점명

지점번호

행정구역선택
전체

전체

검색 | 리셋

일반
위성

황해 Yellow Sea

대한해협 Korea Strait

시모노세키 기타큐슈 후쿠오카 사가 사세보 오

100 km

검색결과 (총 843 건) [역선택]

지점번호	지점명	위도/경도/해발고도	관리기관	주소
90	속초	38.2509 / 128.5647 / 18.06	기상청 강원지방기상청 관측과	강원도 고성군 토성면 봉포5길 9
93	북촌천	37.9474 / 127.7545 / 95.61	기상청 강릉지방기상청 춘천기상대	강원도 춘천시 신북읍 장분1길 12
95	함원	38.1479 / 127.3042 / 153.7	기상청 강원지방기상청 관측과	강원도 철원군 갈말읍 명성로179번길 26
96	독도	37.2366 / 131.8698 / 223	기상청 부산지방기상청 대구기상지청 관측예보과	경상북도 울릉군 울릉읍 독도이사부길 63

Searching Engine

- Authority
- Name
- ID
- Admin sector

Metadata system – Environment info.

상세검색

메타데이터 등록 >

- 지상메타 등록
- 해양메타 등록
- 메타 승인 대기

휴지통 >

● 상세 메타데이터 정보

기상청 - 속초 (90) 리포트 다운로드


· 기존 메타데이터 카테고리 정보

- > 지점정보
- ▼ 관측장비

· 관측장비 General Information of equipment 수정

장비명	종관기상관측장비	모델명	JDL-740A	바코드	3200009000
제조사	진양공업(주)	제조일자	2007-08-01	설치일자	2013-10-23
S/N	0708731	회선종류	전용선	회선번호	내부망내부망
관측타워높이(m)	10	통신방법	무선(기타)	내용연수	10
구매방법	수익	취득가격(천원)	25407	검정일	2017-03-06
도입일	2013-10-01	교체예정시기	2023-10-22	검정유효기간	3
검정기관	한국기상산업진흥원	관측자료수집경로	관측장소 -> 속초기상대 -> 강원지방 기상청 -> 기상청		

· 장비대표 수정

이미지		제목	ASOS
		촬영날씨	흐림
		촬영일자	2013.09.28 00:00:00
		특이사항	

Metadata system – Siting classification

Siting Classification by CIMO Guide of WMO

- Reference of uncertainty by sharing SC with end-users for data

기상관측시설등급 > 시설등급평가 수행 - 속초 (90)

시설등급평가수행

0090 속초

	NE	E	SE	S	SW	W	NW
거리(m)	61		14		29		91
높이(m)	11		5		16		22
L/H비	5.45		2.60		1.50		4.00
각넓이(°)	56		62		60		52

Obstacles

	1번	2번	3번	4번
Dist. 거리(m)	61	14	29	91
Hght. 높이(m)	11	5	16	22
L/H비	5.45	2.6	1.5	4
Angl. 각넓이(°)	56	62	60	52

목록

시설등급평가

기온/습도 Temp.	지면상태 (cm/R)	<input type="text" value="R"/>	평가결과 4등급
	그림자無 태양고도 (도)	<input type="text" value="7"/>	
	열원/수원 (m)	<input type="text" value="999"/> ※ 열원/수원이 없는경우, 999 입력	

수정

Metadata system – Searching within a radius

통계 >

- 제조회사
- 검정유무
- 시설등급
- 정상자료물
- 자료수집물
- 메타데이터

모니터링 >

- 변경 메타데이터
- **지점간격**

● 지점 간격 모니터링

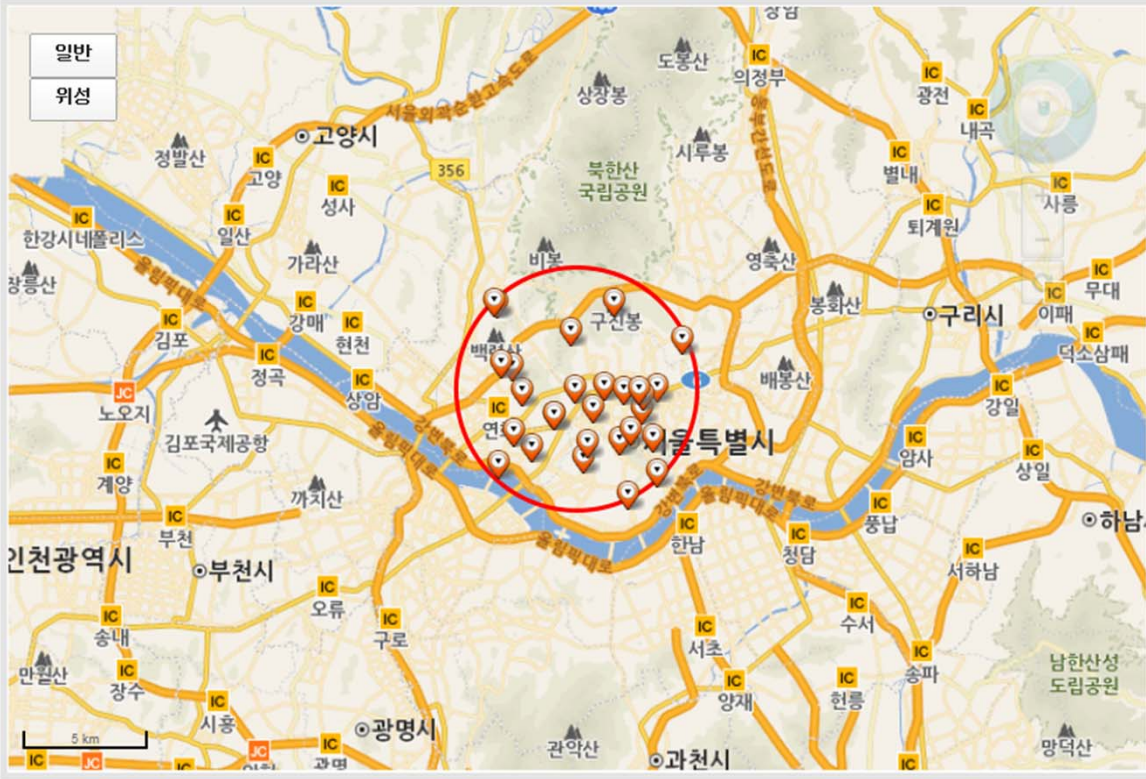
Stn. Num.

관리기관 전체 ▼ 지점명 서울 지점번호 108

위도 37.5714 경도 126.9657 반경(km) 5.0 검색

Lat. **Long.** **Radius.**

● 지점간격 표시

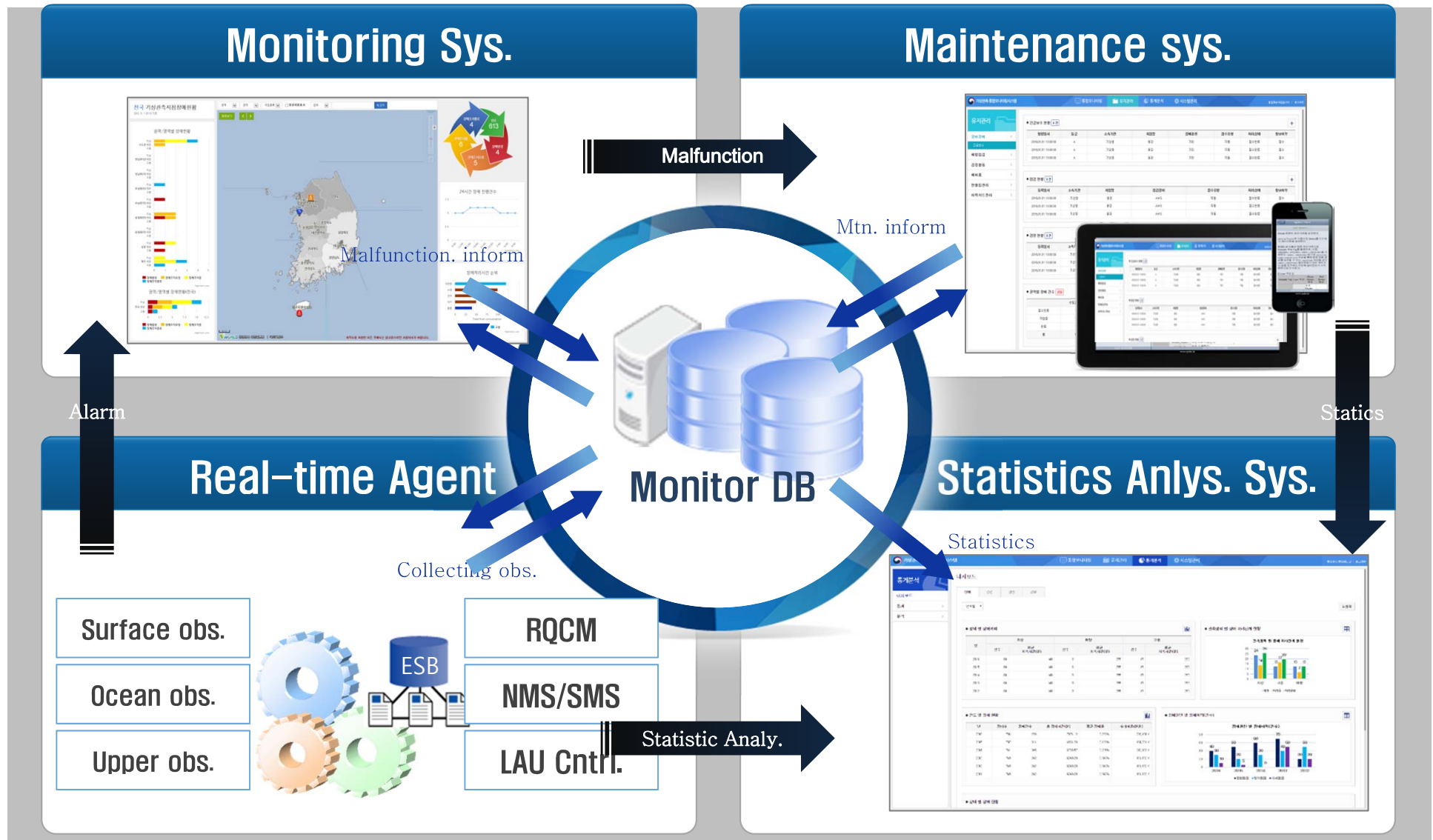


● 검색결과 (총 건) 엑셀

지점번호	지점명	위도/경도/해발고도	관리기관	주소	거리

Equipment Monitoring – Systematic control

Monitoring a life cycle of every obs. equipment on a basis of QC flag, receiving rate, status code, calibration info. and so on.



Equipment Monitoring – Handling malfunction

- ✓ Detect malfunction of each sensor, followed by contacting repair man
- ✓ Monitor all of the process of management

기상관측 종합관리시스템

통합모니터링 유지관리 통계분석 시스템관리

실시간 장애현황

실시간으로 장애가 발생한 지점을 확인할 수 있습니다.

Reserved component

statistics

현황 통계

주요한 현황에 대한 통계를 확인할 수 있습니다.

장애발생	장애 조치요청	장애 조치중	장애 조치종료
0	6	17	3

관서별 장애현황

관서구분	장애 발생	장애 조치요청	장애 조치중	장애 조치종료
수도권기상청	0	0	4	0
부산지방기상청	0	0	6	1
대구기상지청	0	1	1	0
광주지방기상청	0	3	3	1
전주기상지청	0	0	1	0
강원지방기상청	0	0	2	1
대전지방기상청	0	2	0	0
청주기상지청	0	0	0	0
제주지방기상청	0	0	0	0

Local Authorities

Each status

관측 영역별 장애 현황

Obs. area

관측 영역	장애 발생	장애 조치요청	장애 조치중	장애 조치종료
지상	0	5	12	2
해양	0	1	4	1
고층	0	0	1	0

Each status

실시간 이벤트

등록된 지점이 없습니다.

유지관리 현황

유지관리(긴급보수, 점검, 검정)의 현황을 확인할 수 있습니다.

유지관리 구분	상태	건수
긴급보수	접수완료	0
	작업중	7
예방점검	접수완료	826
	작업중	28
측기검정	접수완료	22
	작업중	7

공지사항

업무 관련 공지사항을 확인할 수 있습니다.

- 기상관측종합관리시스템 점검 안내 2017-05-10
- 기상관측 종합관리시스템 현업 운영 2017-03-22

서비스 바로가기

긴급보수목록 예방점검목록 측기검정목록 전체장애통계 장비현황통계

The End