

Session 3.3

Country report

— Progress on the RWC Pilot Project in China

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In order to get a high-quality observation data, we have to do:

Optimized and fit-for-purpose Observation Network

- the Rolling Review of Requirements process(RRR)
- Observing Systems Capability Analysis and Review tool (OSCAR)

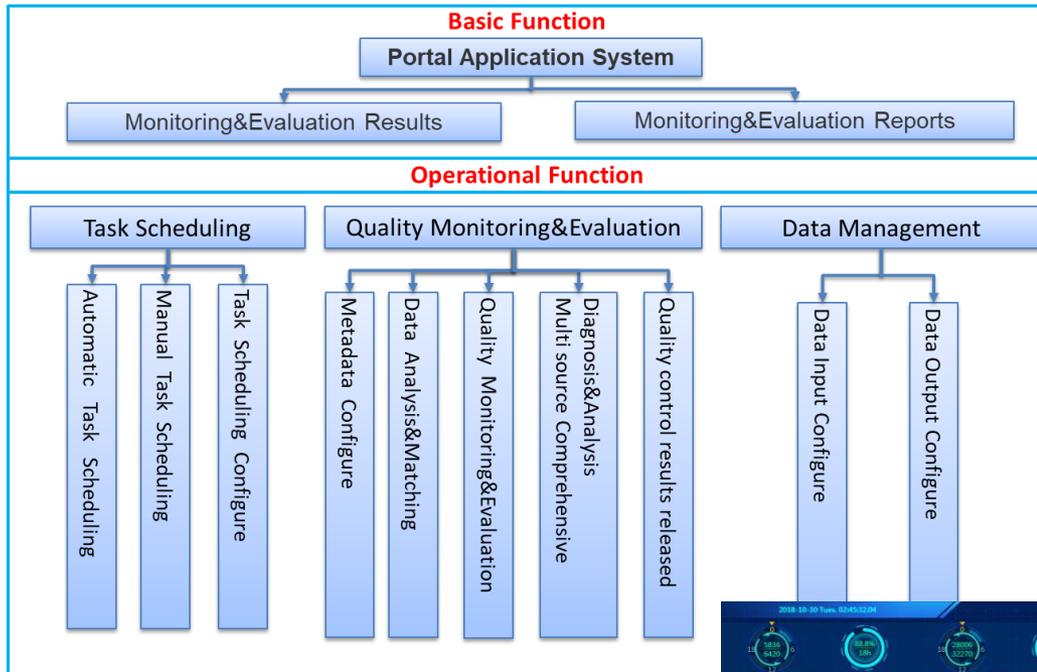
Cost-effective instrument/observing system

- R & D of the new technology
- Observing test and inter-comparison, improvement

Quality Control and management

- Data QC & QA
- Metrology, calibration and validation
- Operation and maintenance
- Quality training

RA II Observation Monitoring & Analysis System



(1) Surface Observation: data quality monitoring and assessment

To identify low-quality land surface problematic observation data on suspicious site, then to analyze, verify and trigger relevant quality improvement activities

To establish a closed loop of operational processes, timely discover and solve data quality problems from the source, and provide trusted data support for back-end applications

Using the WIGOS assessment technology method, to construct an observation and the GRAPES numerical forecasting model product deviation assessment model, and quantitatively monitor and evaluate the quality of surface data.



$$s = \left(\frac{1}{n-1} \sum_{i=1}^n (x_i - \bar{x})^2 \right)^{\frac{1}{2}}$$

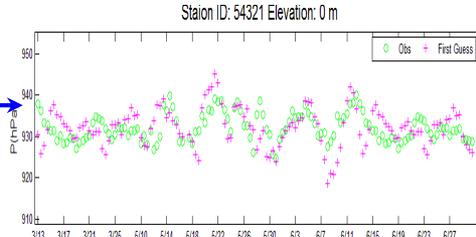
Standard : $P \leq 4 \text{ hPa}$, $T \leq 6 \text{ }^\circ\text{C}$

Observation / Background: Every 6 hours

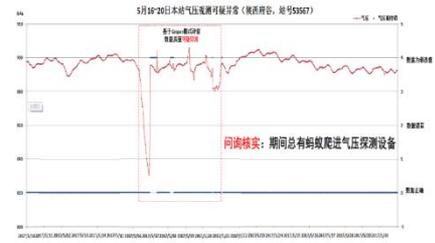
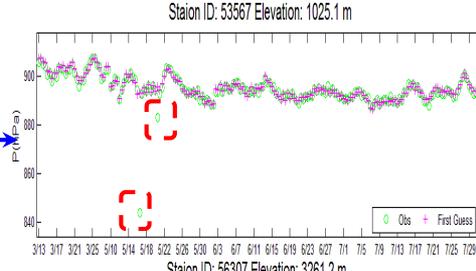
Observation: every 1 hour

Evaluate Suspicious Station

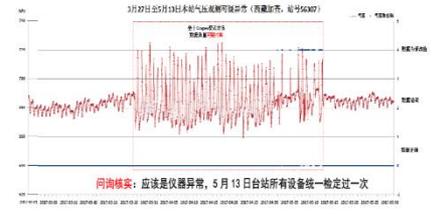
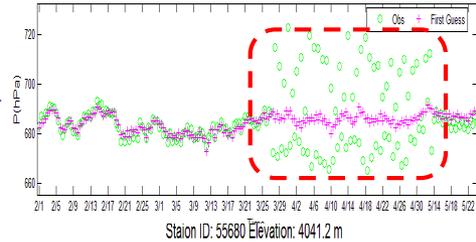
Latitude and longitude error



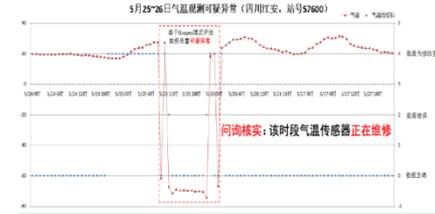
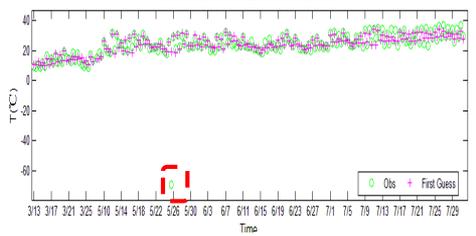
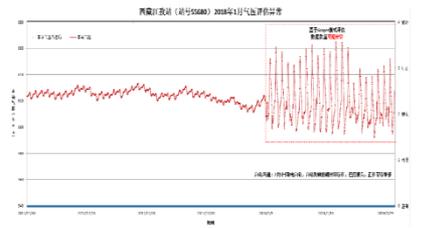
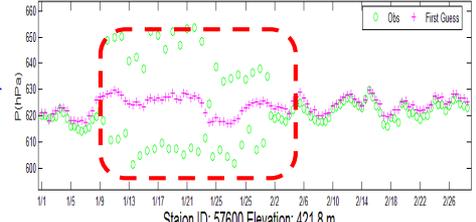
Short-term abnormality of air pressure



Abnormal air pressure sensor



Temperature equipment maintenance



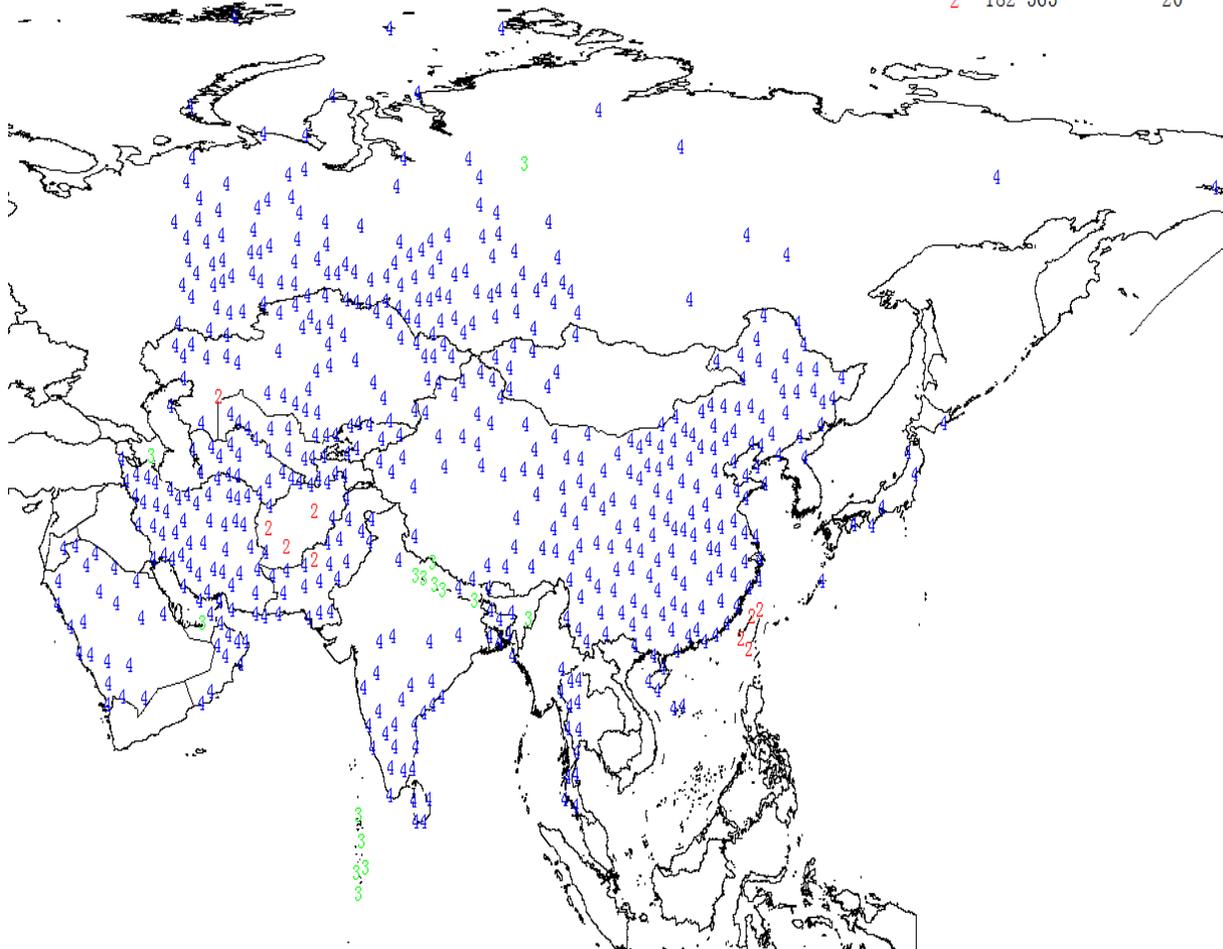
The numbers of stations in Region II : 937

OBS. SPEC. = SYNOP

ELEMENT = SLP

FROM 2018 01 01 00 Z TO 2018 06 31 18 Z 181 DAYS

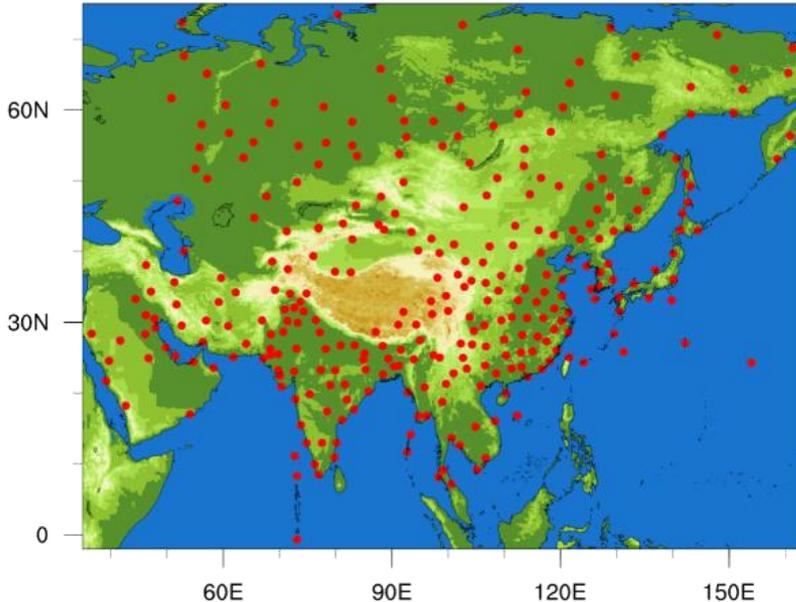
	NOBS	NSTA
4	546-	699
3	364-545	27
2	182-363	20



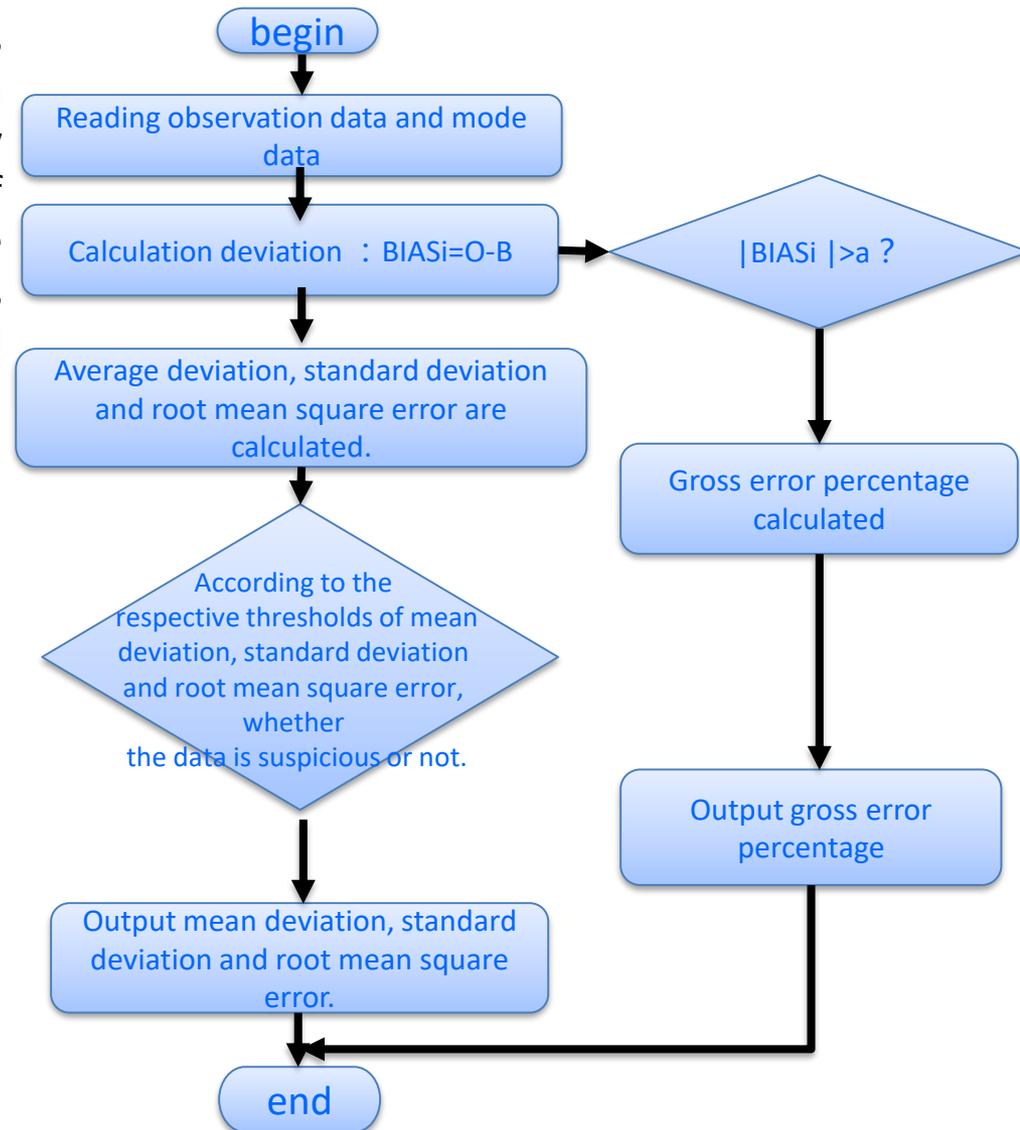
Location of all land surface stations reporting station level pressure (SLP) observations in Region II over the six-month period from January to June 2018

(2) Radiosonde Data Quality Evaluation

Comparing the data quality evaluation methods of WMO, ECMWF and JMA, we can quantitatively evaluate and monitor data quality of radiosonde, find and solve the problem of data quality in time, improve the data service quality, and fully support the new requirements of the World Meteorological Center for global meteorological data service.



286 radiosonde stations of WIGOS II



Quality evaluation method of O-B

Comparison of evaluation (wind speed)

China

EC

JMA

January

IDENT	OBSTIME	ELEMENT	LEVEL
31004	0	V	200
31004	12	V	200
42182	12	V	200

WMO IDENT	OBS TIME	ELM	LEV
42182	12	V	100

WMO IDENT	OBS TIME	ELE- MENT	LEVEL
41768	12	V	500
41859	12	V	700
41893	12	V	700
42182	12	V	200

February

IDENT	OBSTIME	ELEMENT	LEVEL
31004	0	V	200
31004	12	V	250
42182	0	V	200
42182	12	V	200
57993	0	V	150

WMO IDENT	OBS TIME	ELM	LEV
42182	12	V	150
42182	00	V	100

WMO IDENT	OBS TIME	ELE- MENT	LEVEL
41768	12	V	500
41780	12	V	500
42182	00	V	200
42182	12	V	200
57993	12	V	300

March

IDENT	OBSTIME	ELEMENT	LEVEL
31004	0	V	250
31004	12	V	200
40800	0	V	250
42182	12	V	200
57993	12	V	250

WMO IDENT	OBS TIME	ELM	LEV
42182	12	V	150

WMO IDENT	OBS TIME	ELE- MENT	LEVEL
42182	00	V	200
42182	12	V	200

April

IDENT	OBSTIME	ELEMENT	LEVEL
31004	0	V	200
31004	12	V	250
42182	12	V	200

WMO IDENT	OBS TIME	ELM	LEV
42182	12	V	200

WMO IDENT	OBS TIME	ELE- MENT	LEVEL
42182	12	V	200

May
June

IDENT	OBSTIME	ELEMENT	LEVEL
31004	0	V	150
31004	12	V	150
31004	0	V	150
31004	12	V	150

NO

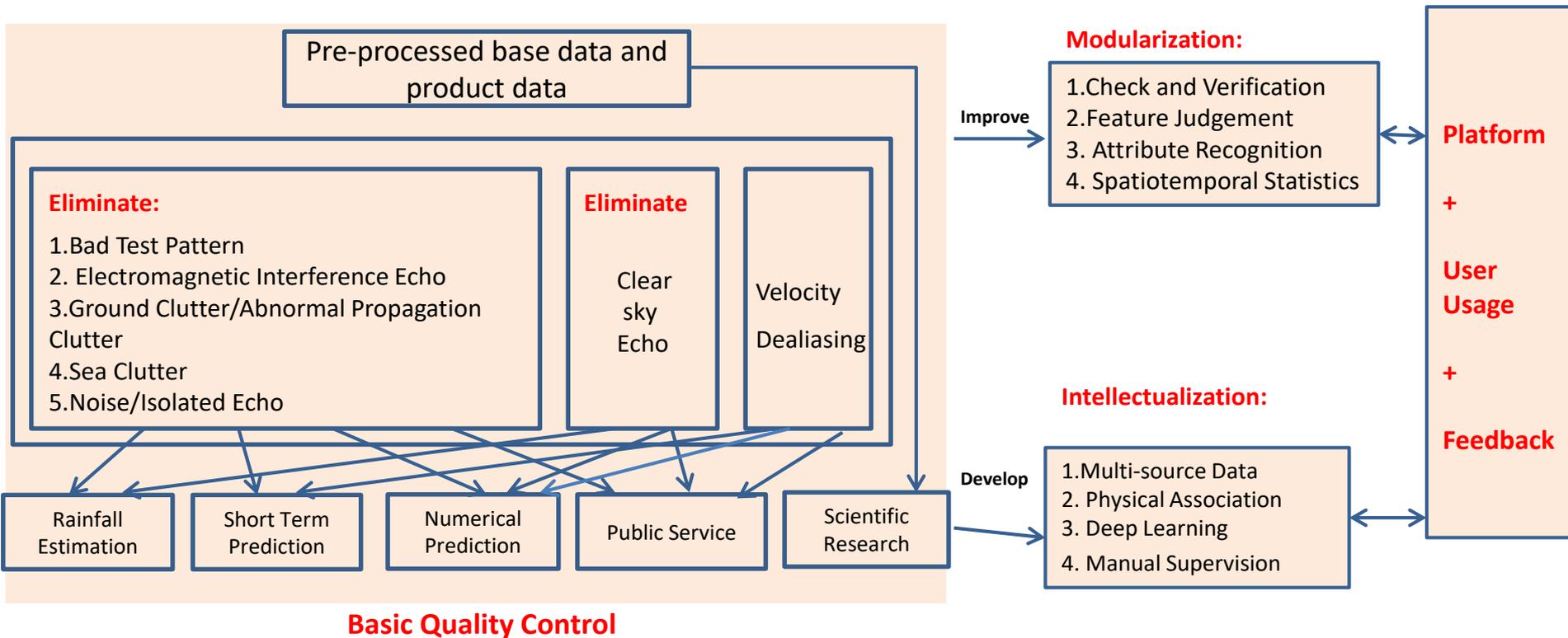
NO

NO

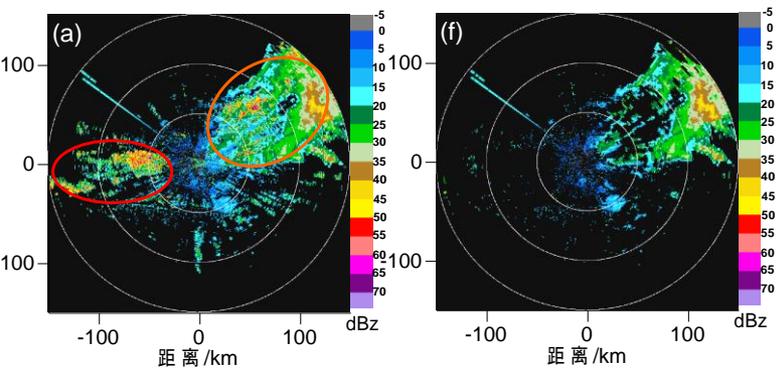
NO

(3) Doppler Weather Radar Data Quality Control —Only for China

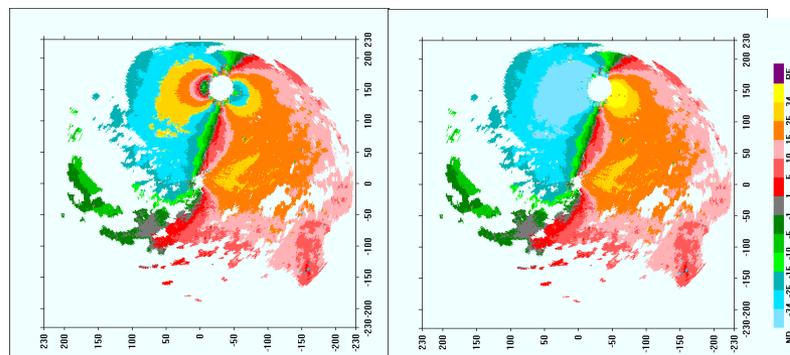
Technical Route: Basic Quality Control, Modularization, Intellectualization



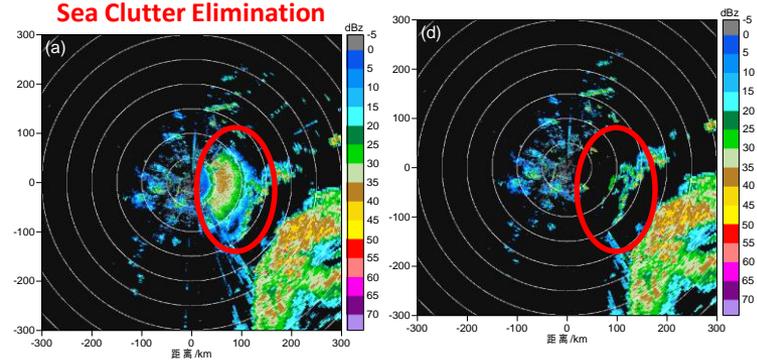
Abnormal Propagation Clutter Elimination



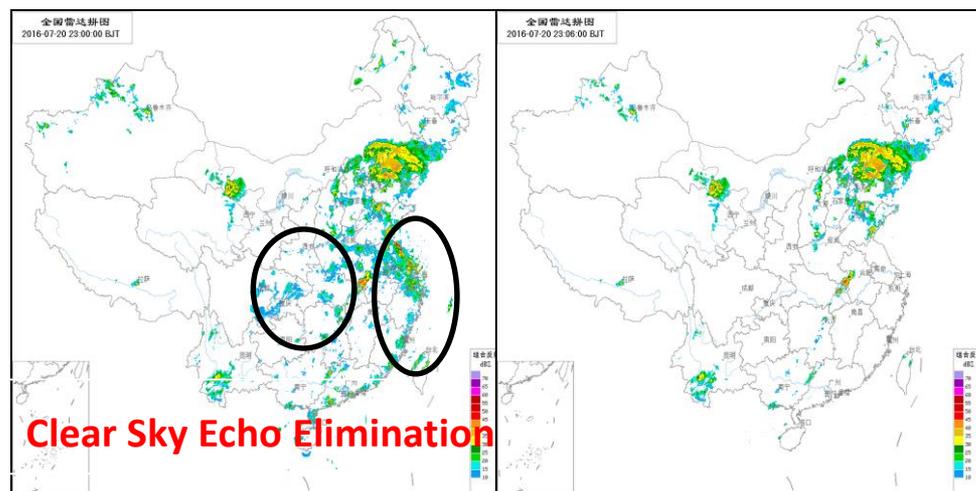
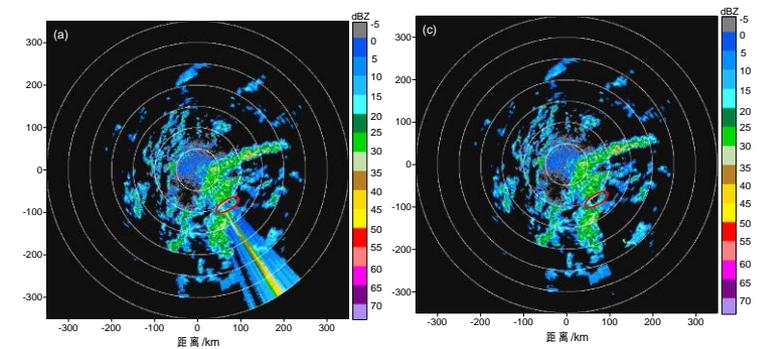
Velocity Dealiasing



Sea Clutter Elimination



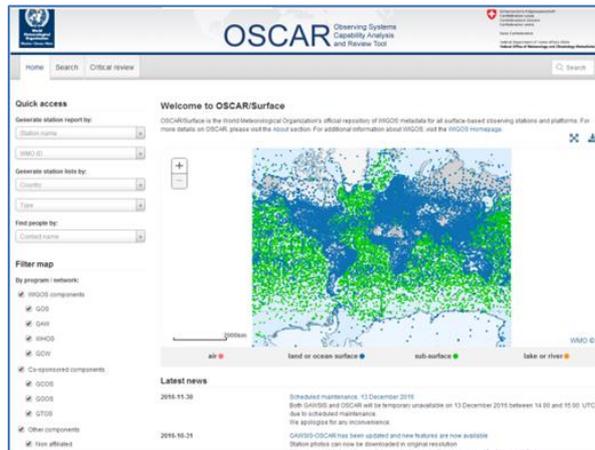
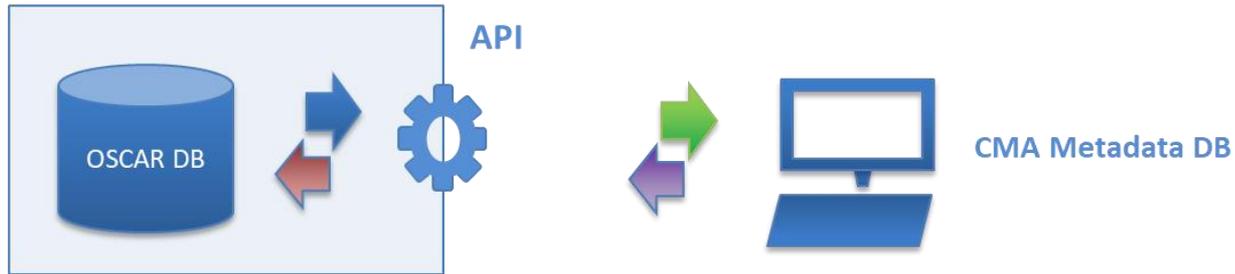
Electromagnetic Interference Echo Elimination



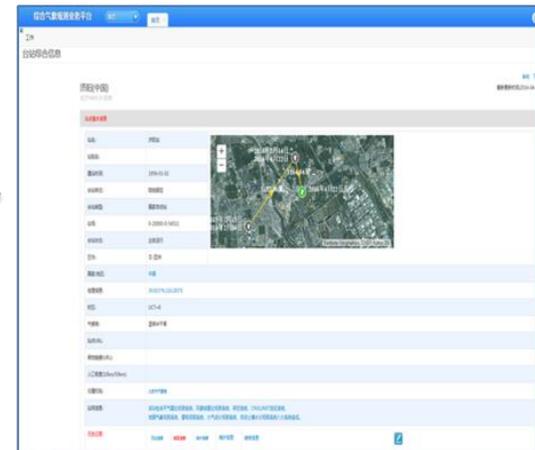
Clear Sky Echo Elimination

(4) OSCAR/Surface-----Metadata Maintain

- Nominated a National Focal Point for OSCAR/Surface
- Maintain the metadata of 88 Sounding stations and 385 surface stations
- Update the metadata of relocated stations every year
- Correct any erroneous and/or missing metadata identified in OSCAR



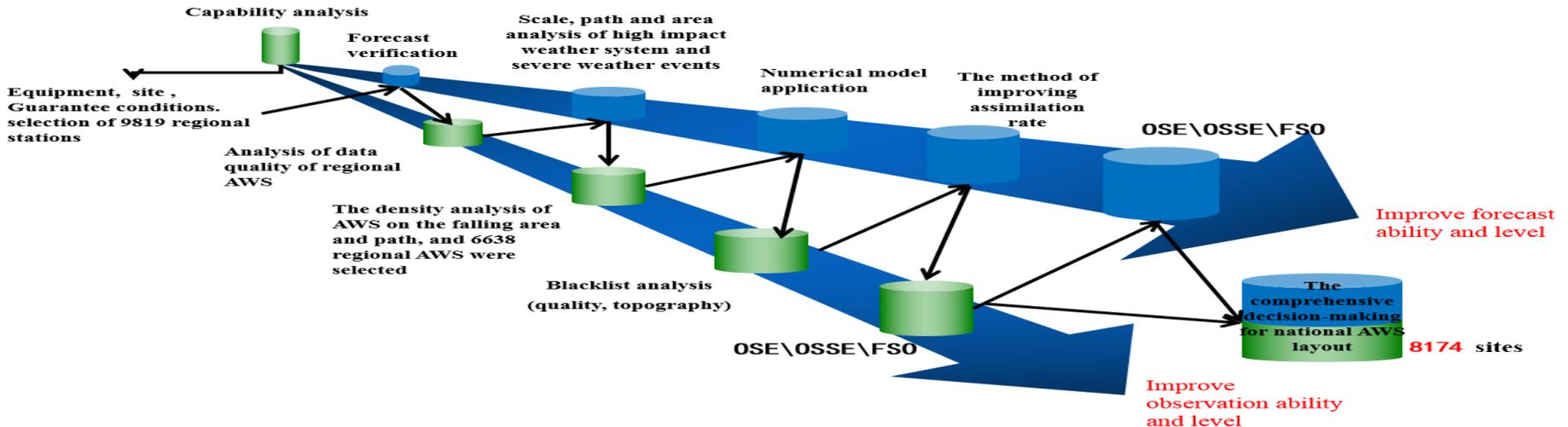
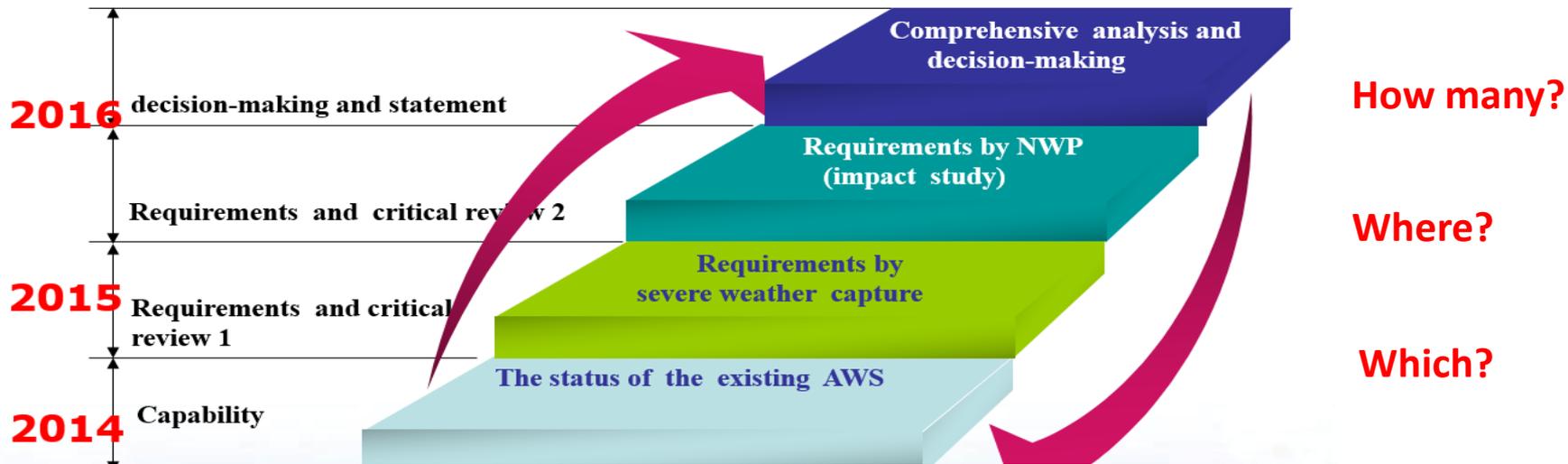
OSCAR



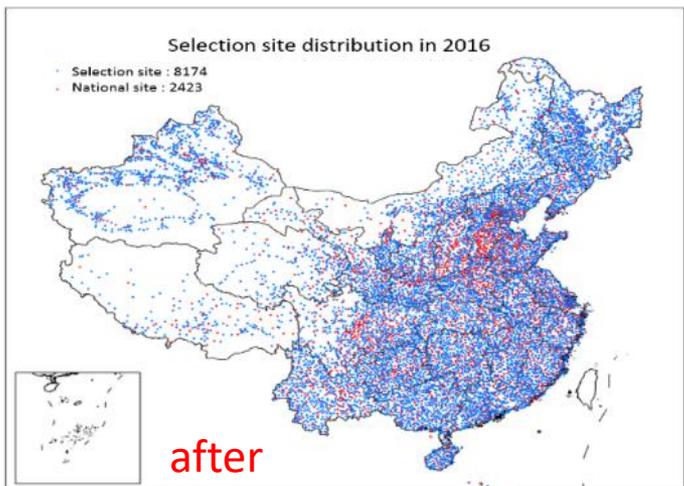
CMA system

(5) Optimization of the Surface AWS network CMA practice of RRR tool

The RRR cycle of the optimization AWS network activities

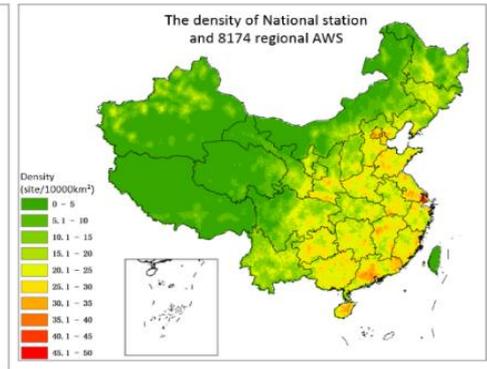
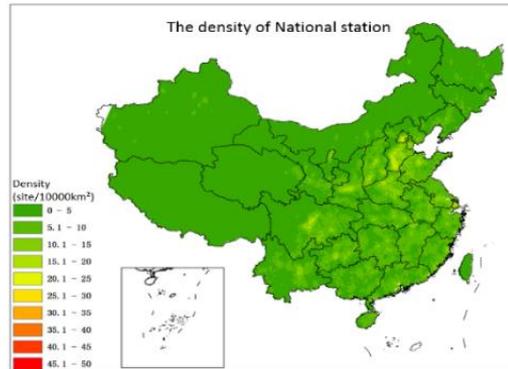


Comparisons of the layout before and after the optimization

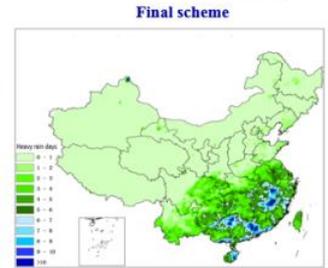
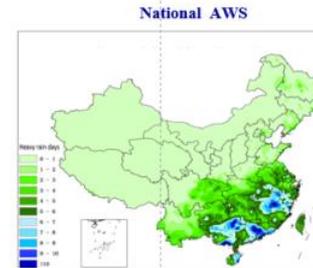
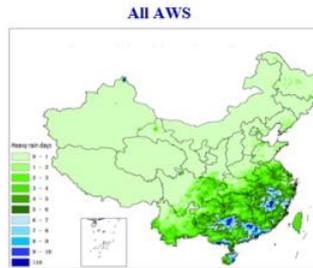


before

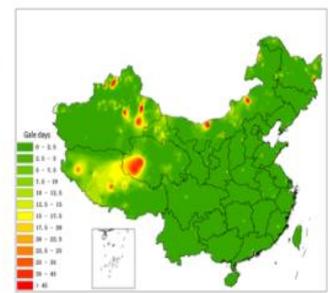
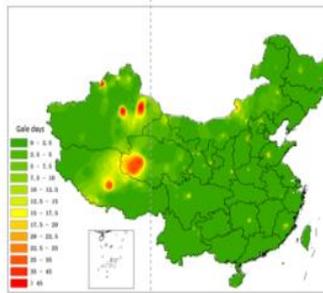
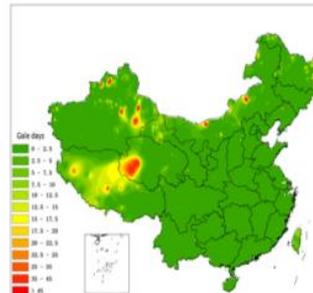
after



Heavy rain days



Gale days



III. Next work planning

(1) Human resource training plan.

- Based on the RTC-Nanjing (Beijing), CMA will develop training course and open a training course every year for all member of RA II.
- 2-3 postdoctoral visiting scholars project each year.
- Expert on-site technical training for one week every time.

(2) provide technical support and service

- Based on the RIC-Beijing, CMA would like to joint all members of RA II to find the cost-effective instrument or observing system.
- To build RWC website(www.observation-cma.com)

(3) to strengthen cooperation between members

- to strengthen bilateral cooperation;
- to joint implementation of the "One Belt And One Road" international development strategy on redesign and improvement of the GBON.