

Overview of Meteorological Instruments Center (MIC)



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Meteorological Instruments Center (MIC)

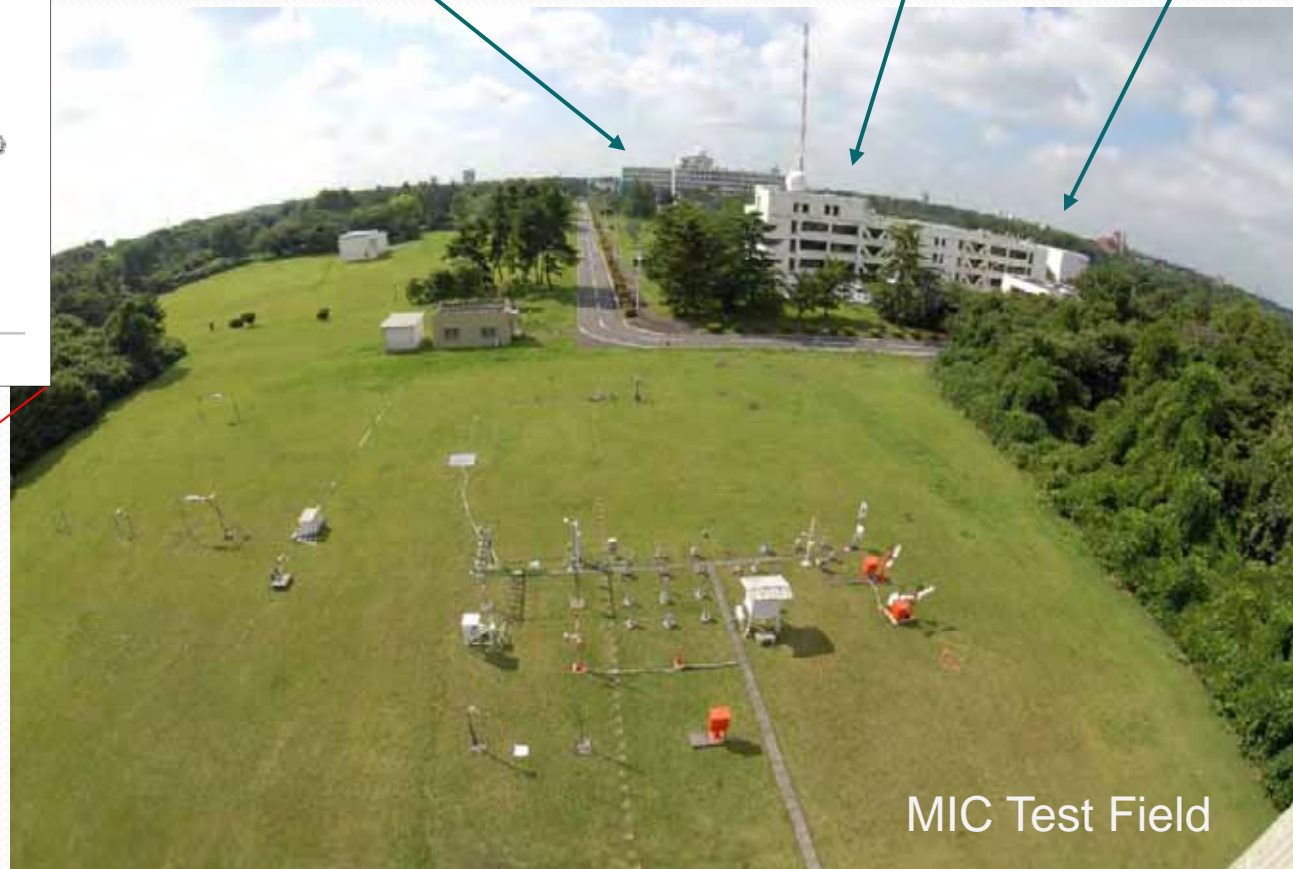
-History and location-



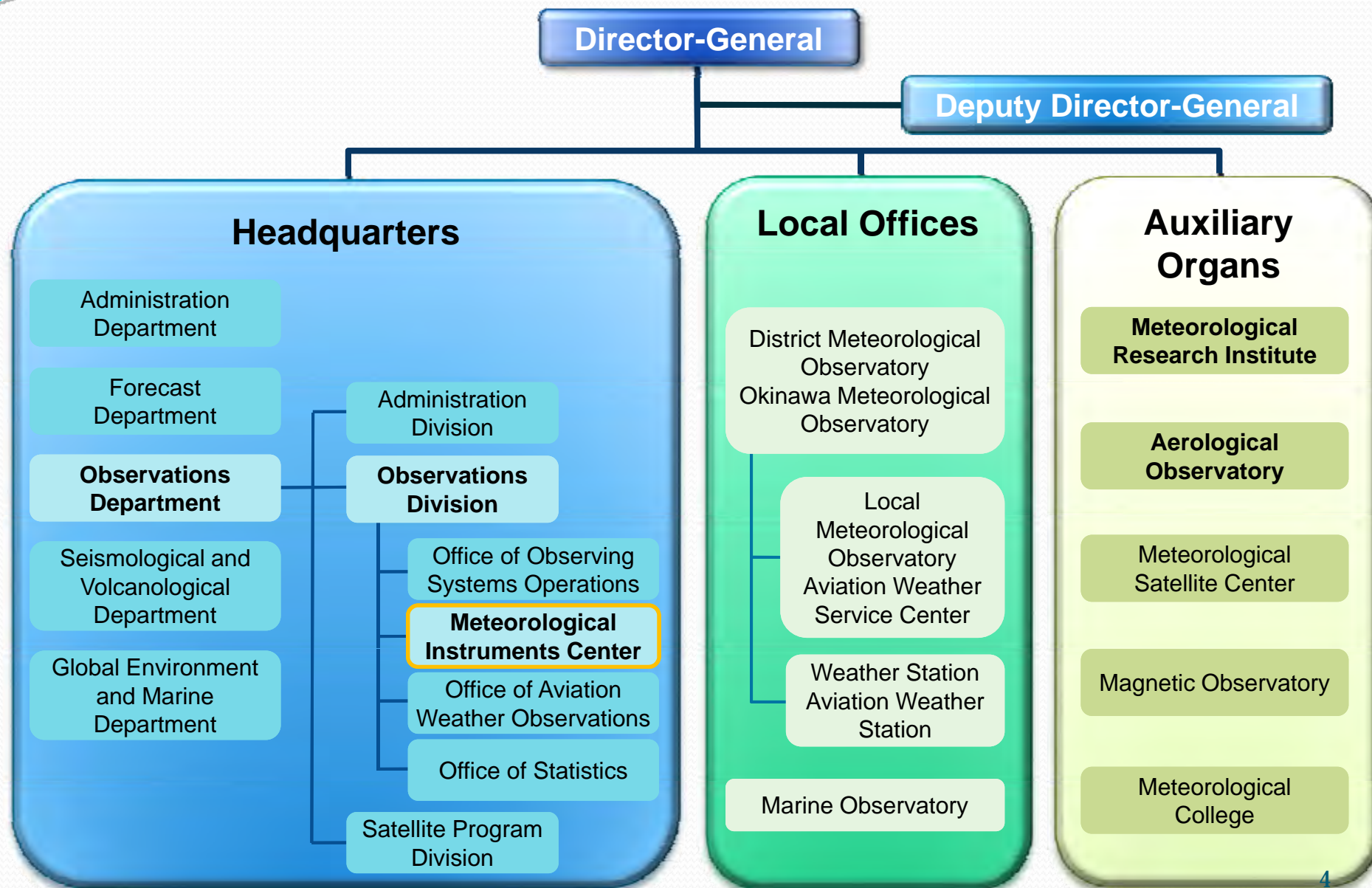
Meteorological
Research Institute

Aerological
Observatory

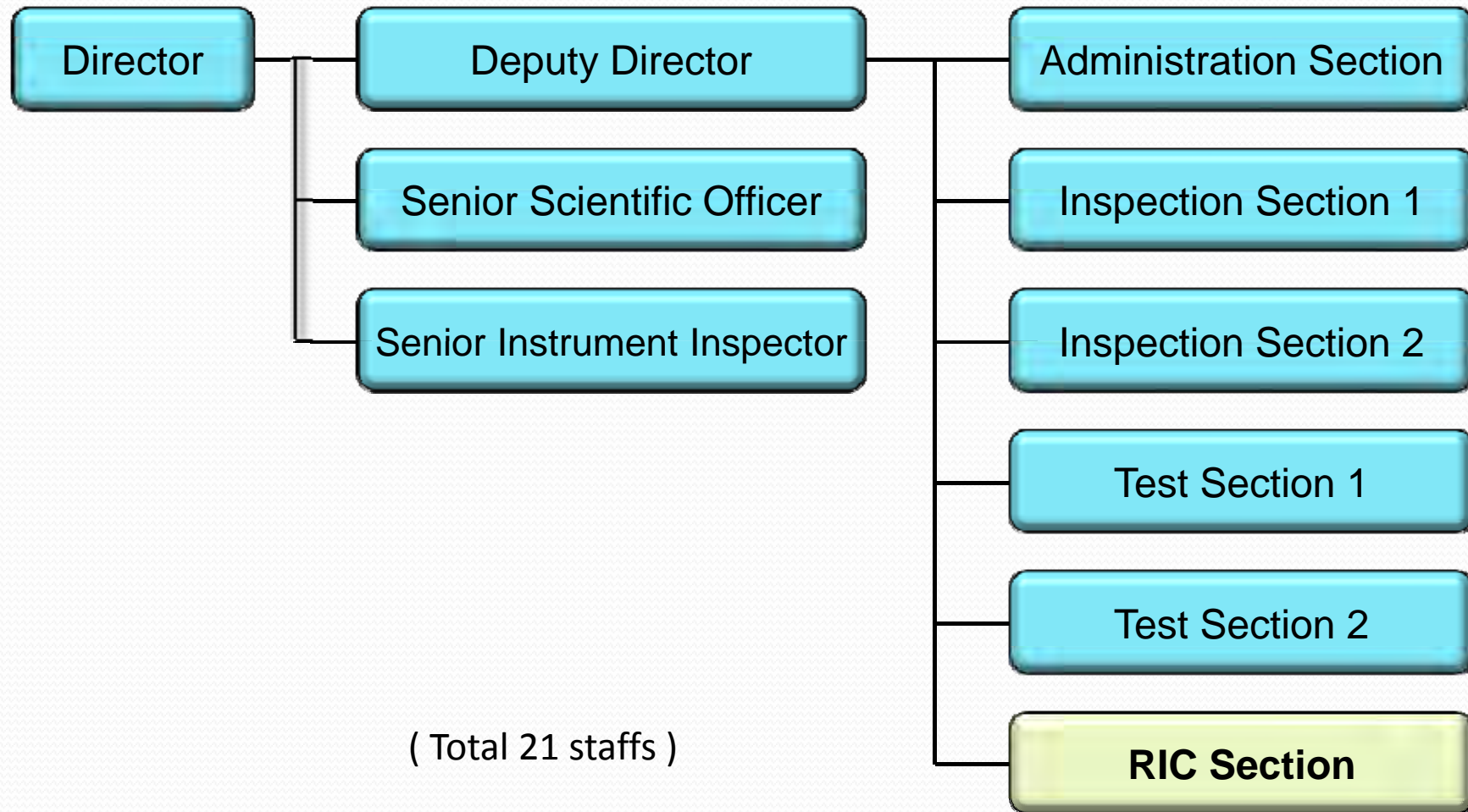
MIC



Organizational structure of JMA



Organizational structure of MIC



Main services of MIC

- **Quality assurance of meteorological instruments**

To inspect meteorological equipments to maintain high-precision meteorological observations in Japan, and to maintain meteorological standard instruments and their traceability.

- **Research and development**

To research and develop meteorological instruments, and to research site environment and methods of observation

- **Activities of RIC Tsukuba**

To assist Members of the Region II through calibration and comparison with meteorological instruments, and to support to train instrument specialists as Regional Instrument Center (RIC) in Asia.

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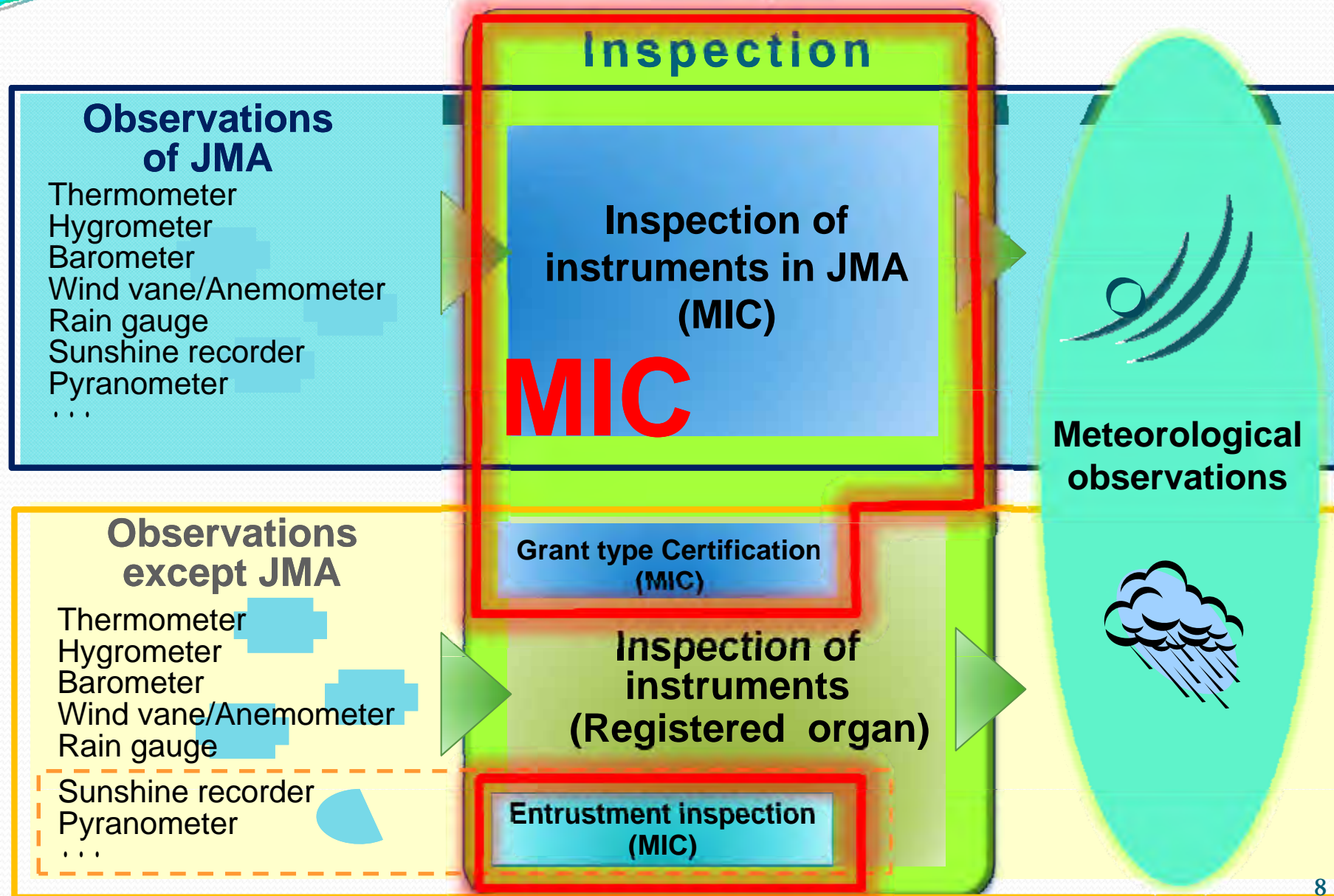
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- **Activities of RIC Tsukuba**

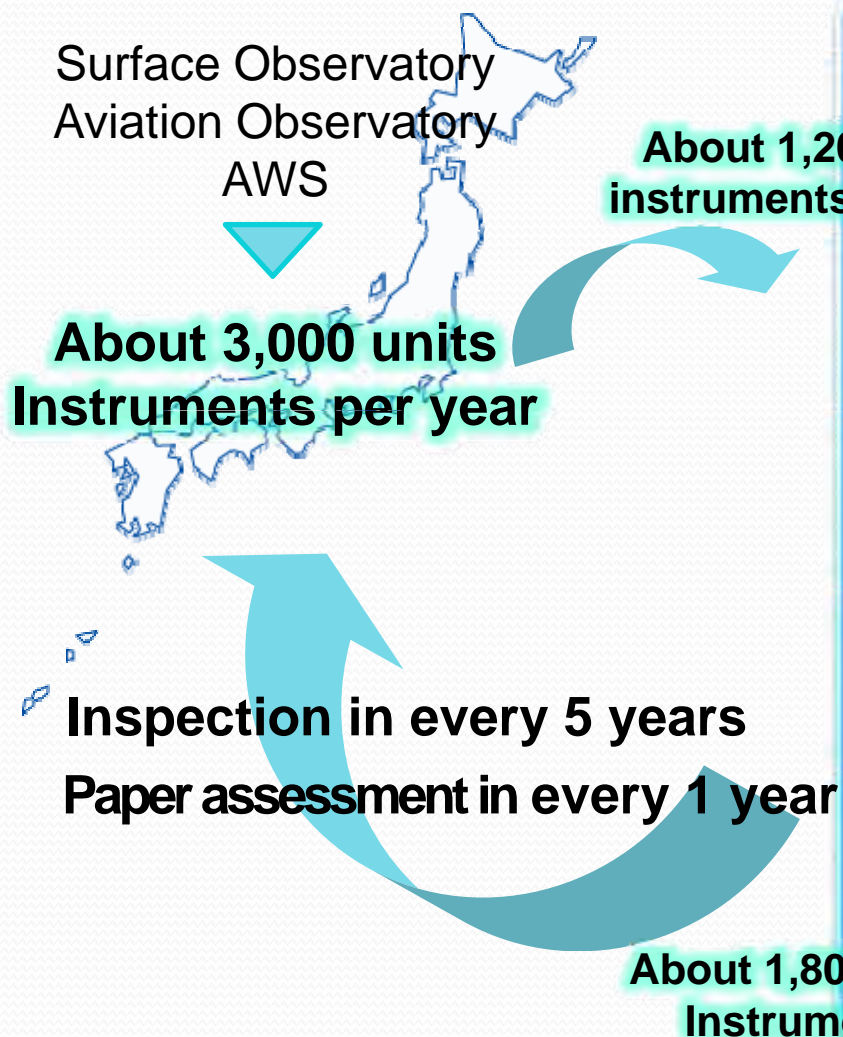
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Inspection of instruments

- To secure the accuracy of instrument -



Maintenance and inspection of instruments



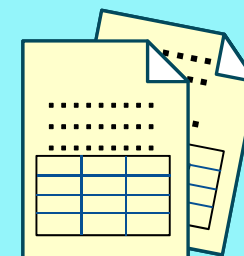
MIC

Propeller Anemometer · · · 340
Rain gauge · · · · · 300
Sunshine recorder · · · · 280
· · ·



Disassembly, Adjustment, Inspection

Thermometer · · · 900
Hygrometer · · · · 200
Barometer · · · · · 400
· · ·



Paper assessment

Maintenance and inspection of Propeller Anemometer

Disassembly

parts
replacement

Assembly
Adjustment

Inspection



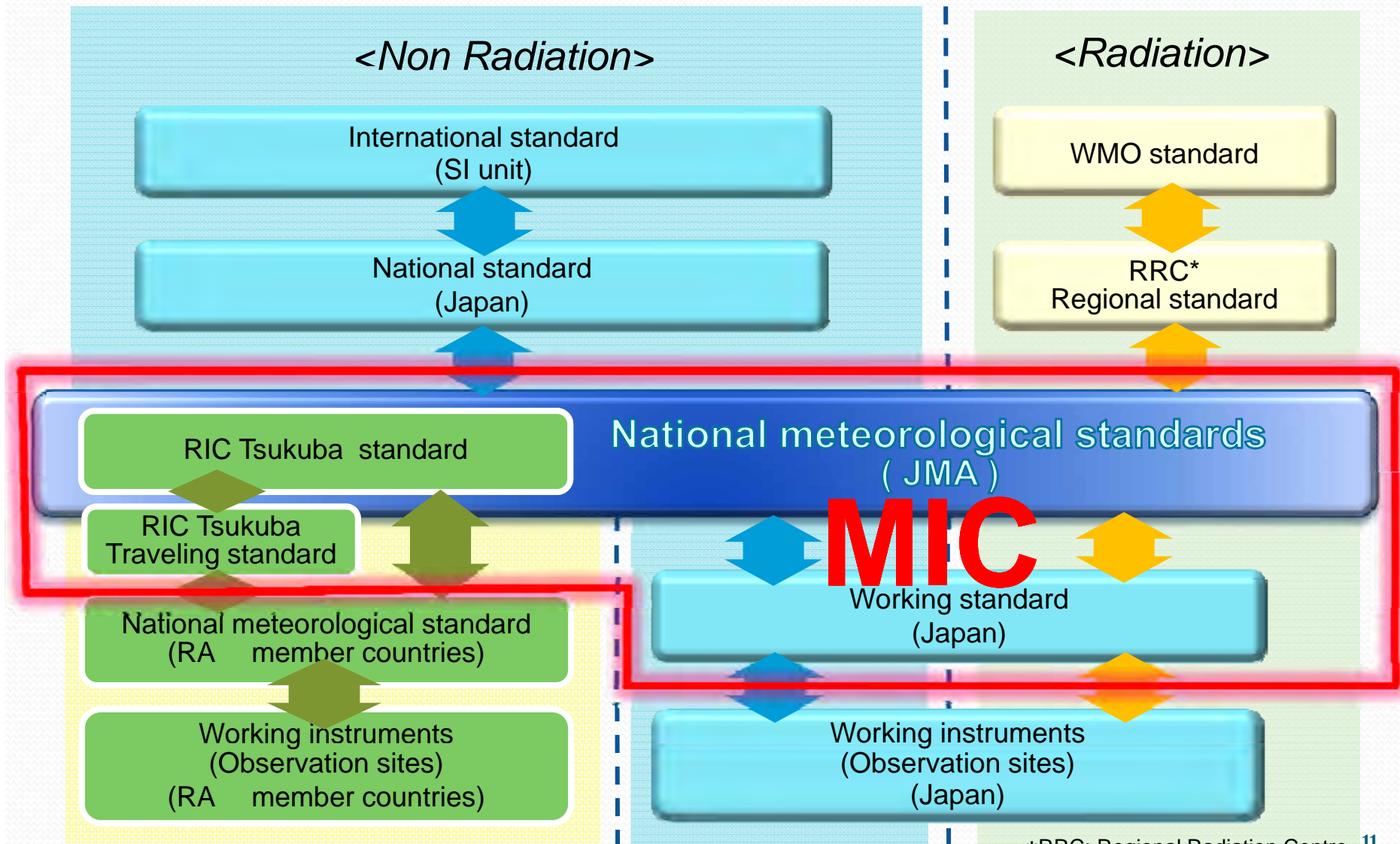
parts



Propeller
Anemometer
(FF-12A)



Quality control of observational instruments



Calibration equipments

- Standard instruments of JMA -



Standard thermometer

Platinum resistance thermometer sensor and alternating current bridge



Standard hygrometer

Dew point meter (electronic cooling type) and platinum resistance thermometer



Standard barometer

Air piston gauge type

Other Standard

Ultrasonic anemometer, Pitot tube, Differential pressure gauge and Wind tunnel, Pyranometer, Burette (Precipitation)

Calibration equipments

- Traveling standard instruments of RIC Tsukuba -

Standard thermometer



Platinum resistance thermometer
TS81A(CHINO, Japan)

Alternating current bridge
F-250 (ASL, UK)

Standard Humidity



Hygrometer (sensor)
D2 (General Eastern , USA)

Hygrometer (controller)
Hygro M2(General Eastern, USA)

Standard Pressure



Digital barometer
PTB220(Vaisala,Finland)

Calibration chambers

Chambers for calibrate thermometers



Liquid bath type

Range: - 85 ~ +50

Chambers for calibrate hygrometers



Wet and dry air mixing type

Range: 15 ~ 95%RH

Chambers for calibrate barometers



Range: 4 ~ 1050 hPa



Air chamber type

Range: -40 ~ +50



Wet and dry air mixing type

Range: 10 ~ 95%RH, -10 ~ +50

Main services of MIC

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- **Research and development**

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To assist Members of the region II through calibration and comparison with meteorological instruments, as Regional Instrument Centre (RIC) in Asia.

Research and development

For implementation of most suitable observation

- Research and development on meteorological instruments
- Research on site environment and methods of observation

Summary of activities in recent years

2008 : Test of piezo-resistive barometers

: Development of visibility presumption method using video images at airport

2009 : Test of capacitive hygrometer with warmed probe

: Intercomparison of thermometer screens/shields

(At TECO-2010, we will announce the poster session)

2010 : Investigation of environmental influence on the quality of meteorological measurement

: Research for instruments of the next generation system on surface measurement.

Examples of research and development



Test of capacitive hygrometer with warmed probe(2009)



Development of visibility presumption method using video images at airport (2008-2009)

Main services of MIC

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Activities of RIC Tsukuba

- History and main activities -

1996 : Japan and China were designated as RICs of RAI at the 11th session of RAI

1997 : Questionnaire on the meteorological instrument in RAI

1998 : RIC Tsukuba held the training workshops cooperating with WMO

1998,2002: Exchanging the information on activities of RIC Tsukuba and RIC Beijing(at Japan)

2007 : Calibration of RAI member's standard instruments

- Thailand, barometer and thermometer
- Hong Kong, China, barometer

2009 : Attendance at the ET-RIC(WMO, CIMO) meeting
:Visit RIC-France(one of the most advanced and active RICs)

2010 : Calibration trial using RIC Tsukuba's travelling pressure standard in cooperation with Thai Meteorological Department (TMD)
Mutual visits between RIC Tsukuba and RIC Beijing

Activities of RIC Tsukuba

- Support for instrument specialists -

- WMO and RIC Tsukuba held the training workshop in Nov. 1998 .
- 16 Members in RAI participated in the workshop



Activities of RIC Tsukuba

- RIC-Tsukuba's website and leaflet -



Building a RIC Tsukuba's Website

http://www.jma.go.jp/jma/jma-eng/jma-center/ric/RIC_HP.html

Publication of a RIC Tsukuba's leaflet



A questionnaire to RAI Members

- Future Plan -

- Survey both the present state of operational instrumentation and the training requirements on instrumentation
- RIC Tsukuba have plan to implement a questionnaire to RAI members in cooperating with RIC Beijing as early as possible in this year.
- Results of this survey will be used for the consideration of future activities of RIC Tsukuba and RIC Beijing and be shared among all RAI Members
- We wish this survey will prove helpful for us to assist RAI Members to improve the quality of meteorological instrument and to have well trained experts



Thank you for your attention