


# Overview of RIC Tsukuba (Japan, RAI)

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**Japan Meteorological Agency**

 気象庁 Japan Meteorological Agency

高層気象台  
Aerological Observatory

気象測器検定試験センター  
Meteorological Instrument Center

WMO RIC Tsukuba

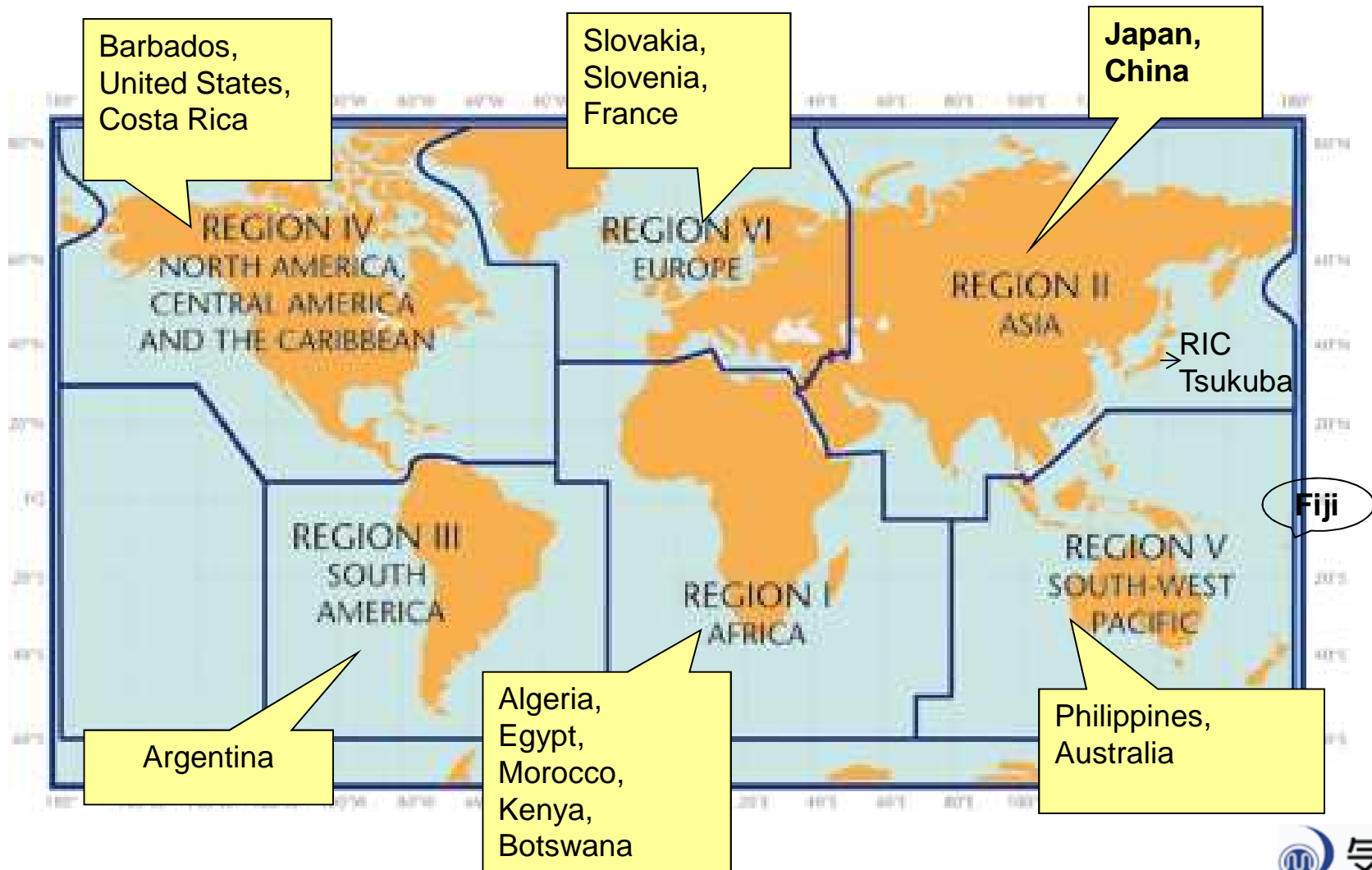
 気象庁

# Outline

1. WMO Regional Instrument Center (RIC)
2. Activities of RIC Tsukuba
3. For maintaining accuracy of instruments
4. Framework of Traceability

# 1. WMO Regional Instrument Centre (RIC)

# WMO Regional Instrument Centers (RICs)



# Main functions of RIC

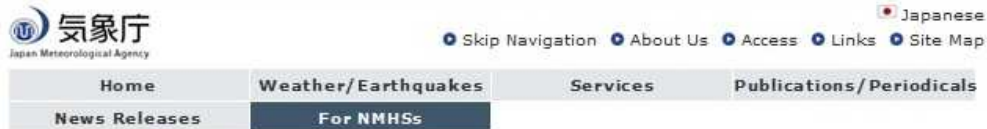
- To assist Members of its Region in calibrating their national meteorological standards;
- To advise Members on enquiries regarding instrument performance, maintenance and the availability of relevant guidance materials;

(For details, refer to WMO's website about RICs.

<https://www.wmo.int/pages/prog/www/IMOP/instrument-reg-centres.html>)

## 2. Activities of RIC Tsukuba

# RIC Tsukuba's Website



Home > For NMHSs > RIC Tsukuba

## RIC Tsukuba


### Welcome to RIC Tsukuba's Web Site

- ▶ [About RICs](#)
- ▶ [Overview of RIC Tsukuba](#)
- ▶ [ISO/IEC 17025](#) **New!**
- ▶ [Quality control of observational instruments](#)
- ▶ [Activity](#)
- ▶ [Material](#) **New!**
- ▶ [JMA/WMO Training Workshop on Calibration and Maintenance of Meteorological Instruments in RA II \(ASIA\)\(Feb. 2013\)](#) **New!**



We use ISO/IEC 17025 (JIS Q 17025) as an accreditation criteria and our accreditation scheme is accredited under JCSS operated in accordance with ISO/IEC 17011. The accreditation body (IAJapan) managing JCSS has signed the Mutual Recognition Arrangement (MRA) of the Asia Pacific Laboratory Accreditation Cooperation (APLAC) and International Laboratory Accreditation Cooperation (ILAC). This calibration room is JCSS accredited laboratory corresponding to international MRA. JCSS0295 is the accreditation number of this calibration room.

JIS: Japanese Industrial Standard  
JCSS: Japan Calibration Service System



**WMO Regional Instrument Centre Tsukuba for RA II (Asia)**  
**(RIC Tsukuba)**  
(Meteorological Instrument Center, Japan Meteorological Agency)

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[http://www.jma.go.jp/jma/jma-eng/jma-center/ric/RIC\\_HP.html](http://www.jma.go.jp/jma/jma-eng/jma-center/ric/RIC_HP.html)

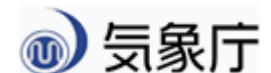
- About RICs
- Overview of RIC Tsukuba
- ISO/IEC 17025
- Quality control of observational instruments
- Activity
- Material etc.

# JMA/WMO Training Workshop on Calibration and Maintenance of Meteorological Instruments in RA II (ASIA)

(19-22 February 2013 Tokyo, Tsukuba, Japan)



[http://www.jma.go.jp/jma/en/Activities/RIC\\_Workshop\\_2013/RIC\\_Workshop\\_2013.html](http://www.jma.go.jp/jma/en/Activities/RIC_Workshop_2013/RIC_Workshop_2013.html)





# Calibration or inspection at RIC Tsukuba

2000: Thailand (barometer, thermometer)

2001: Republic of Korea (anemometer)

2006: Philippines (pyranometer)

2007: Thailand (barometer, thermometer)

Hong Kong, China (barometer)

2010: Thailand (barometer, thermometer, anemometer)

2012: Oman (barometer, thermometer, hygrometer)

Indonesia (barometer, thermometer, hygrometer)

2013: Bangladesh (barometer, thermometer)

2014: Hong Kong, China (anemometer)

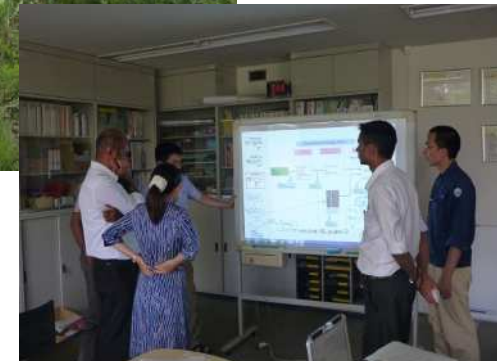
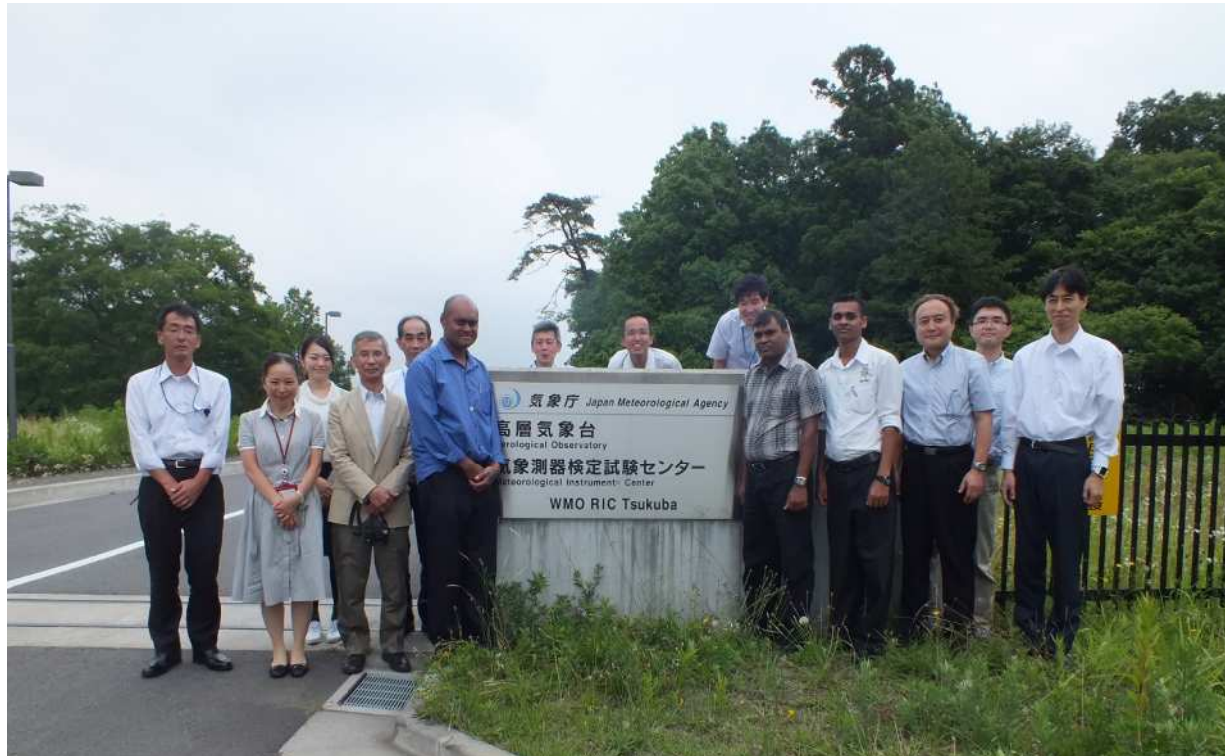
2015: Indonesia (pyranometer)

Fiji (barometer, thermometer, dew point meter)

2016: Mozambique (barometer, thermometer)

Sri Lanka (barometer)

# FMS members' visit and on-the-job training on instrument calibration



Meteorological Instrument Center

Japan Meteorological Agency

### 3. For maintaining accuracy of instruments

# To maintain the precision of observations

- The aims of the weather observation are mainly for weather forecast, disaster prevention and academic research.
- For these purposes, it is important to maintain the precision of observations.

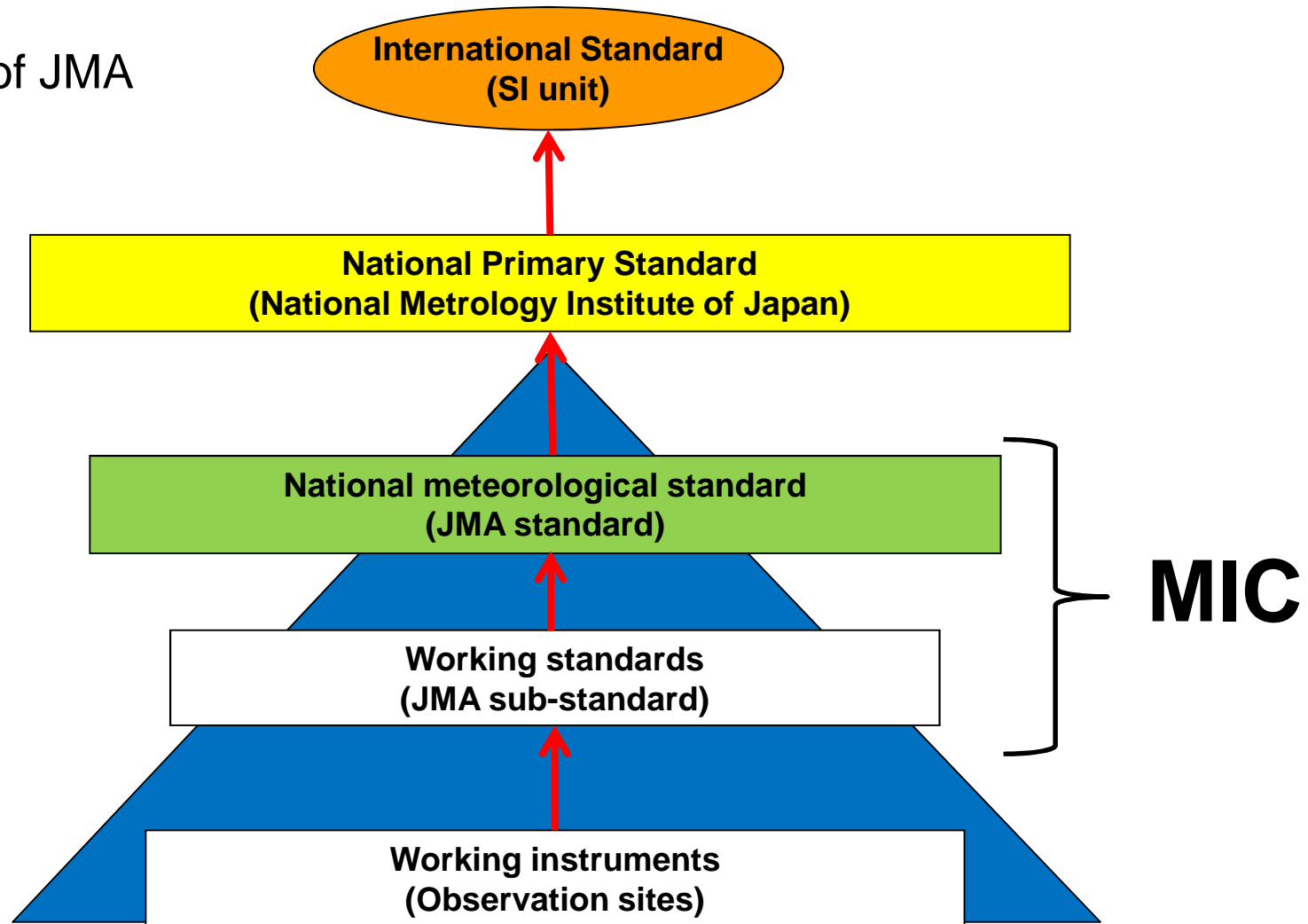
- 1. Appropriate choice of instruments**
- 2. Maintenance and periodical calibration of instruments**
- 3. Maintenance of observation environment**
- 4. Quality control of observation data**

# Why is calibration necessary?

- As performance and characteristic of an instrument change gradually over time, regular calibration should be carried out.
- Maintaining the accuracy of instruments contributes to improvement of the precision of observations and disaster prevention.

# What should your country do for Maintaining Accuracy ?

- In case of JMA



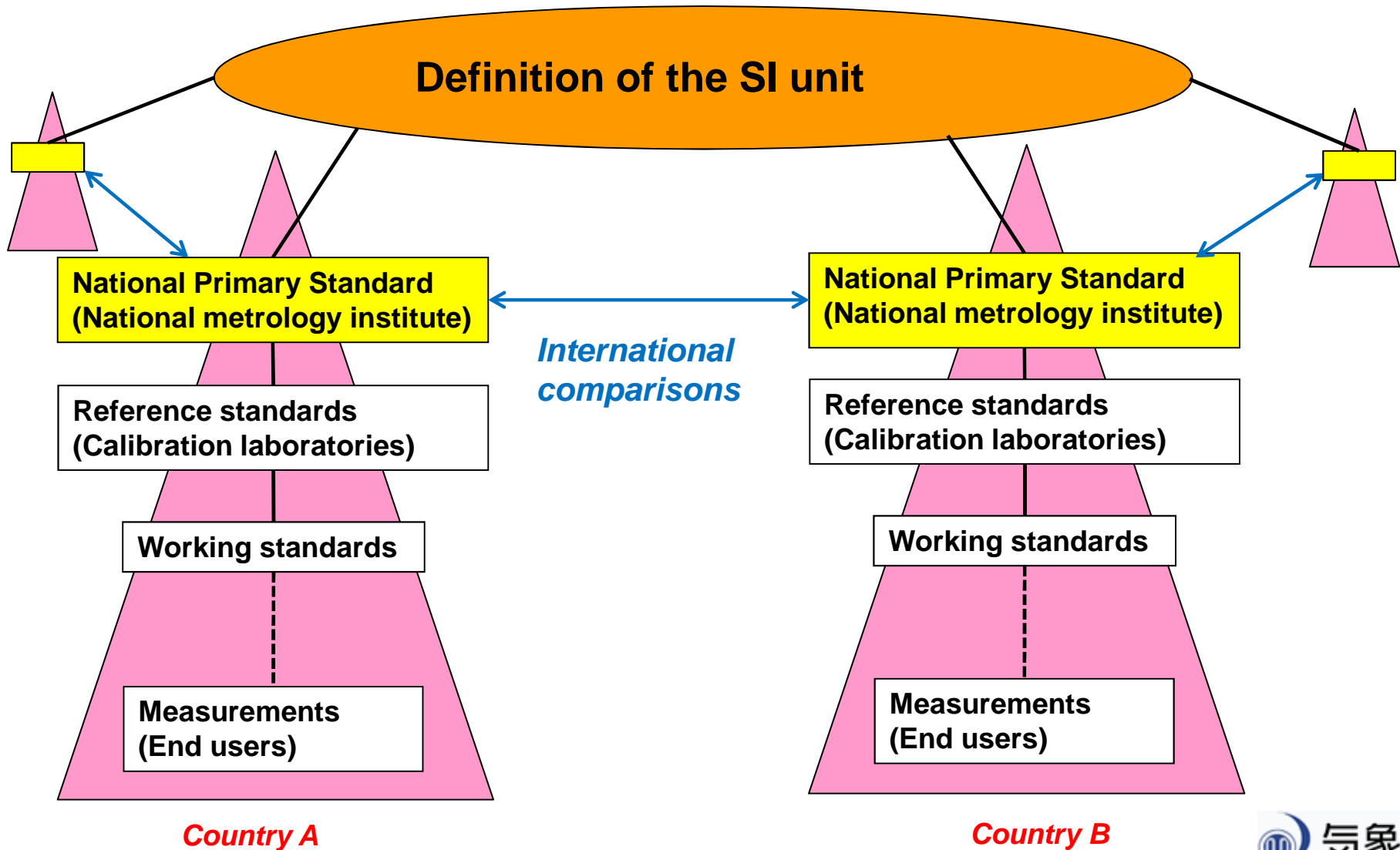
# Let's check...

- What should your country do for maintaining accuracy of instruments?
- Does your NMHS have and maintain necessary procedures for calibrating instruments?

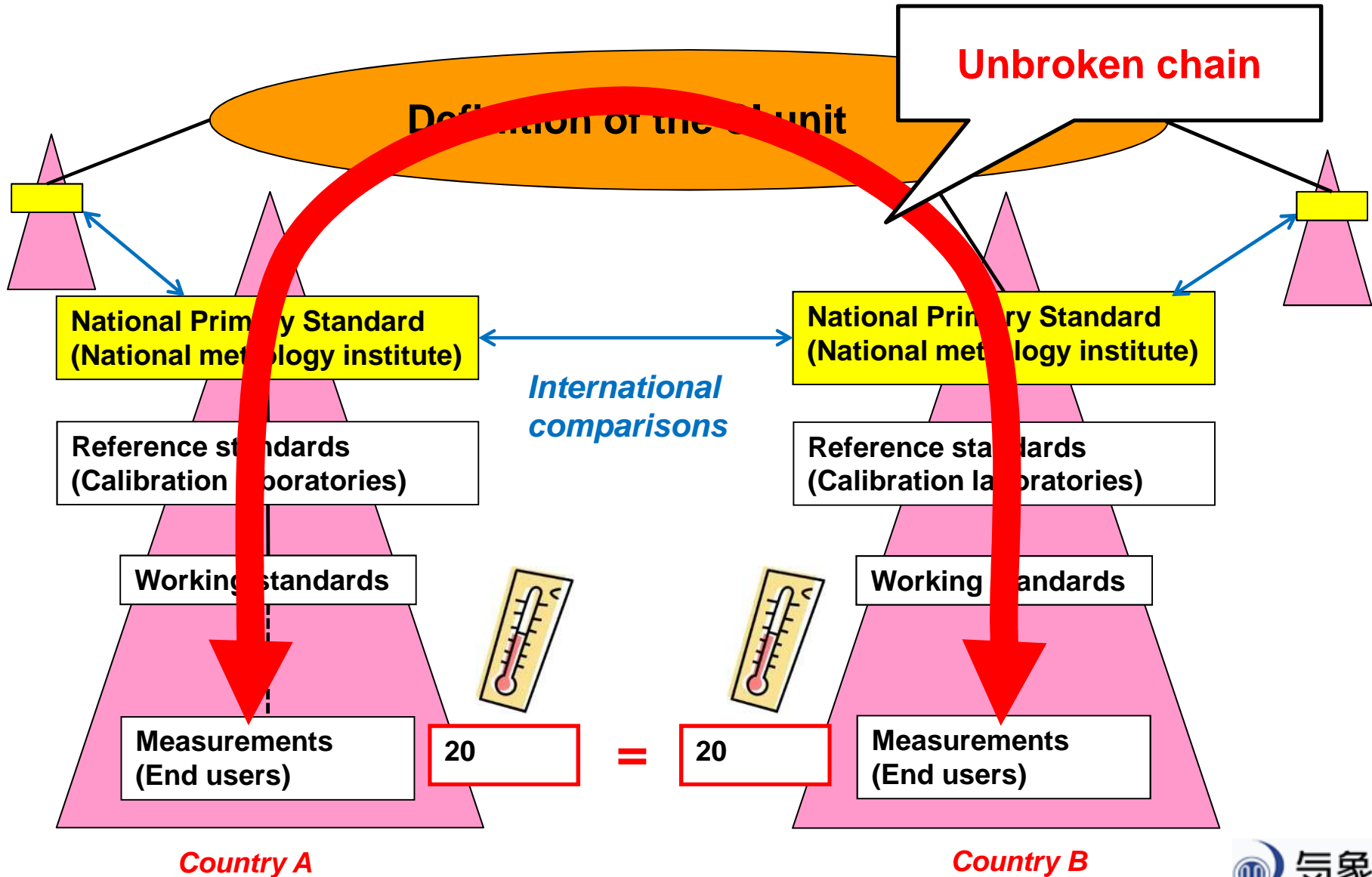
# 4. Framework of Traceability



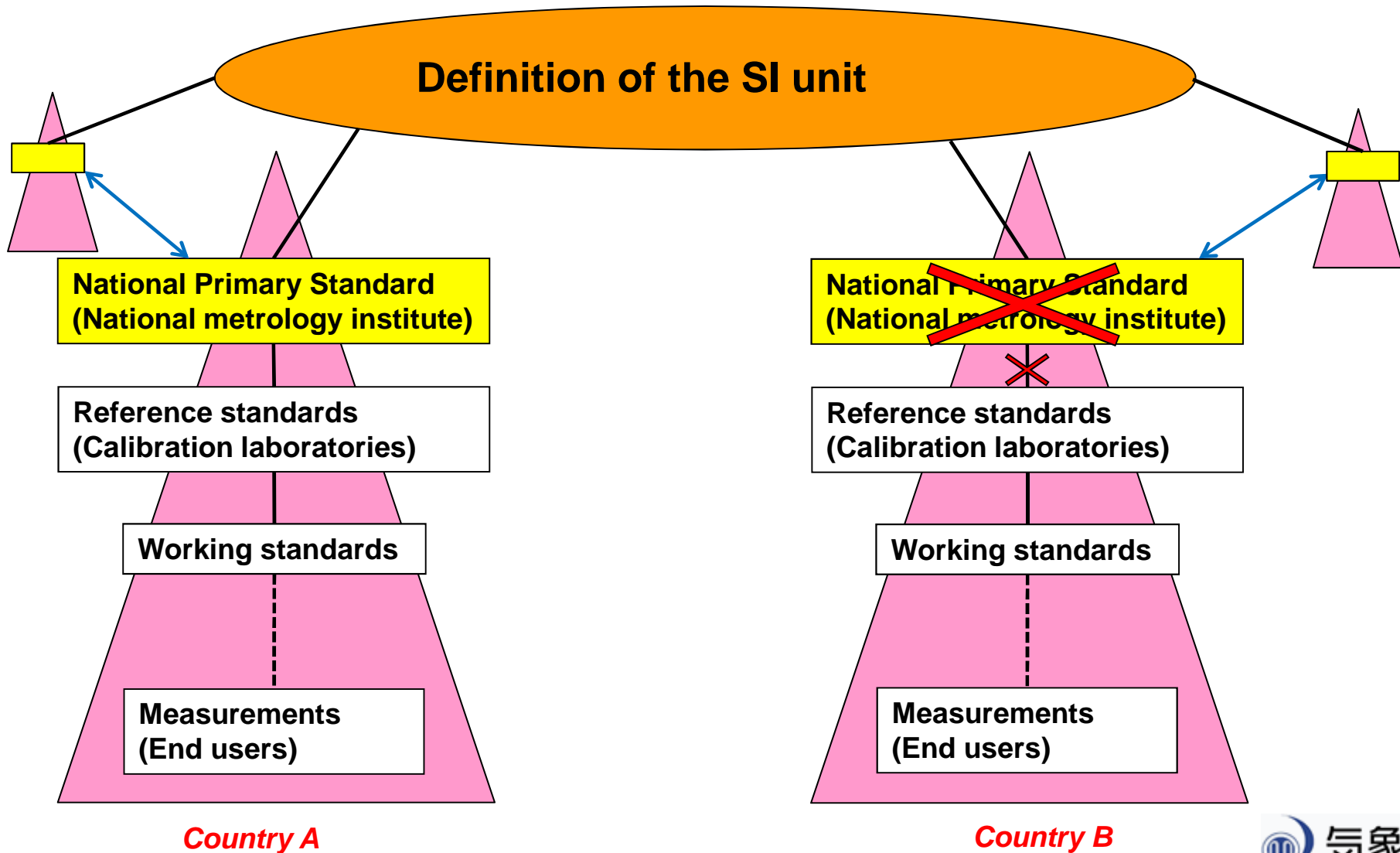
# Traceability to the SI



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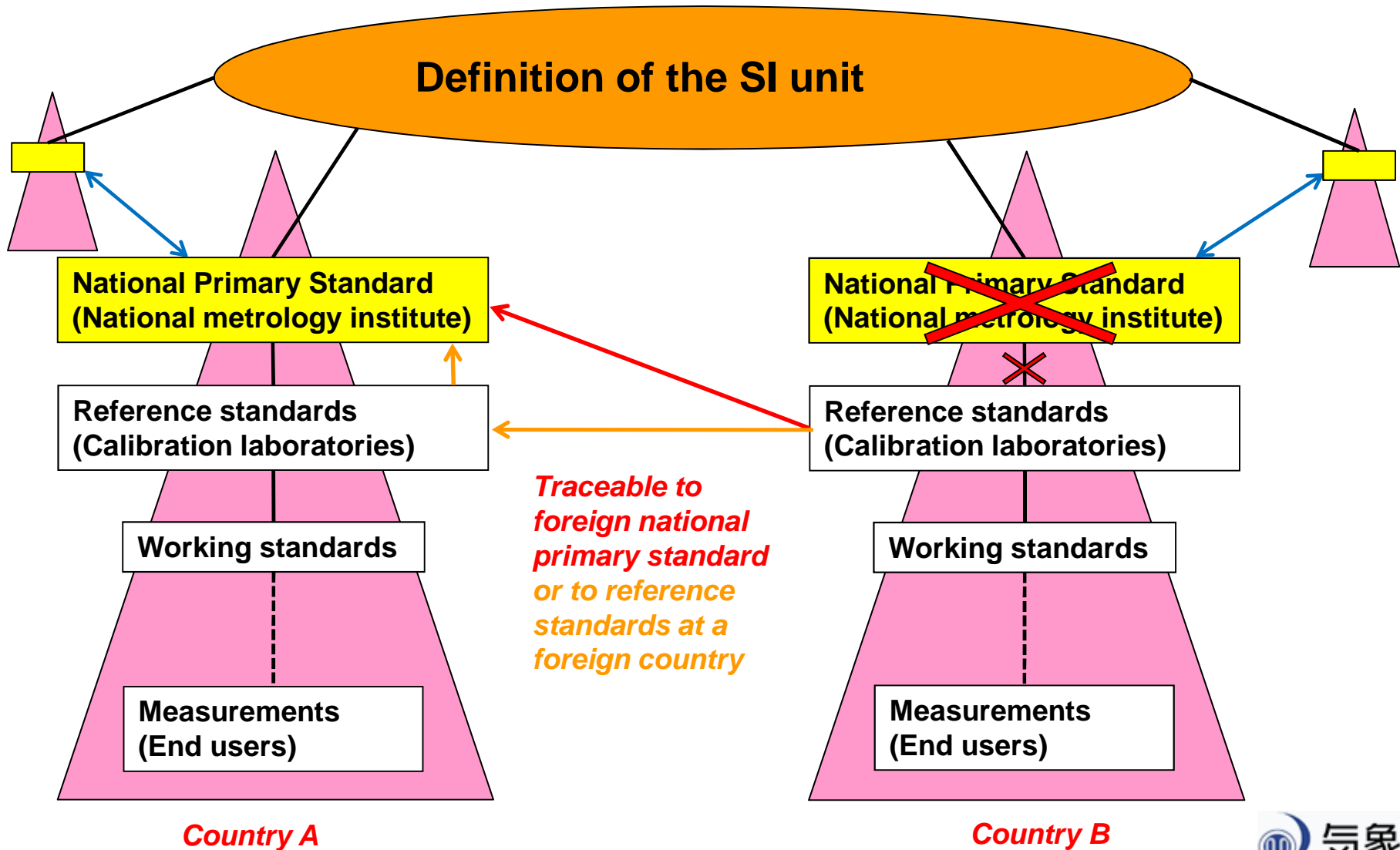


**Country A**

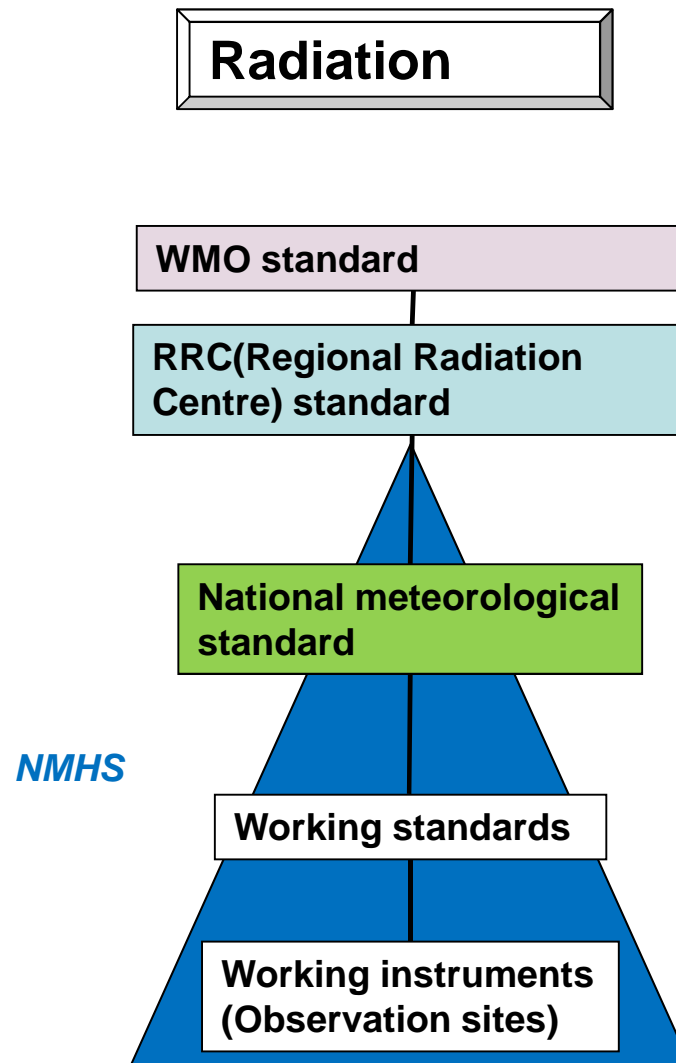
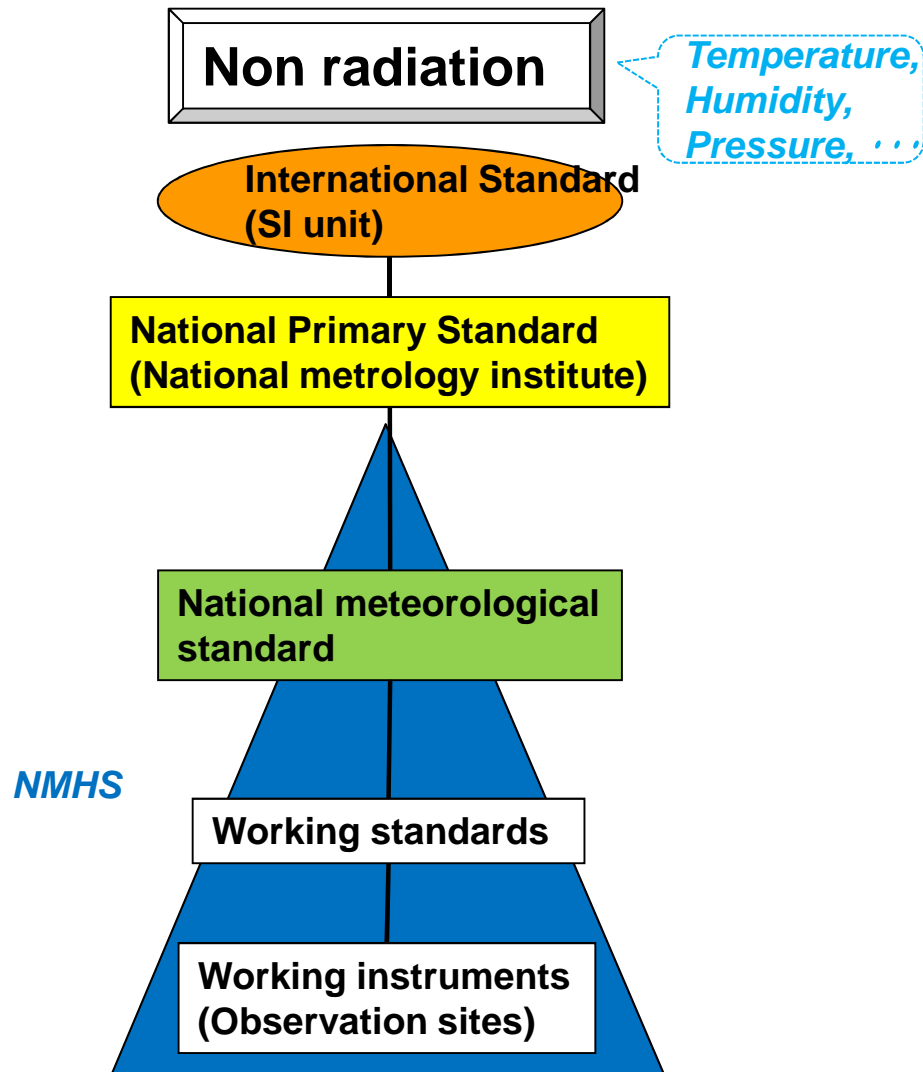
**Country B**



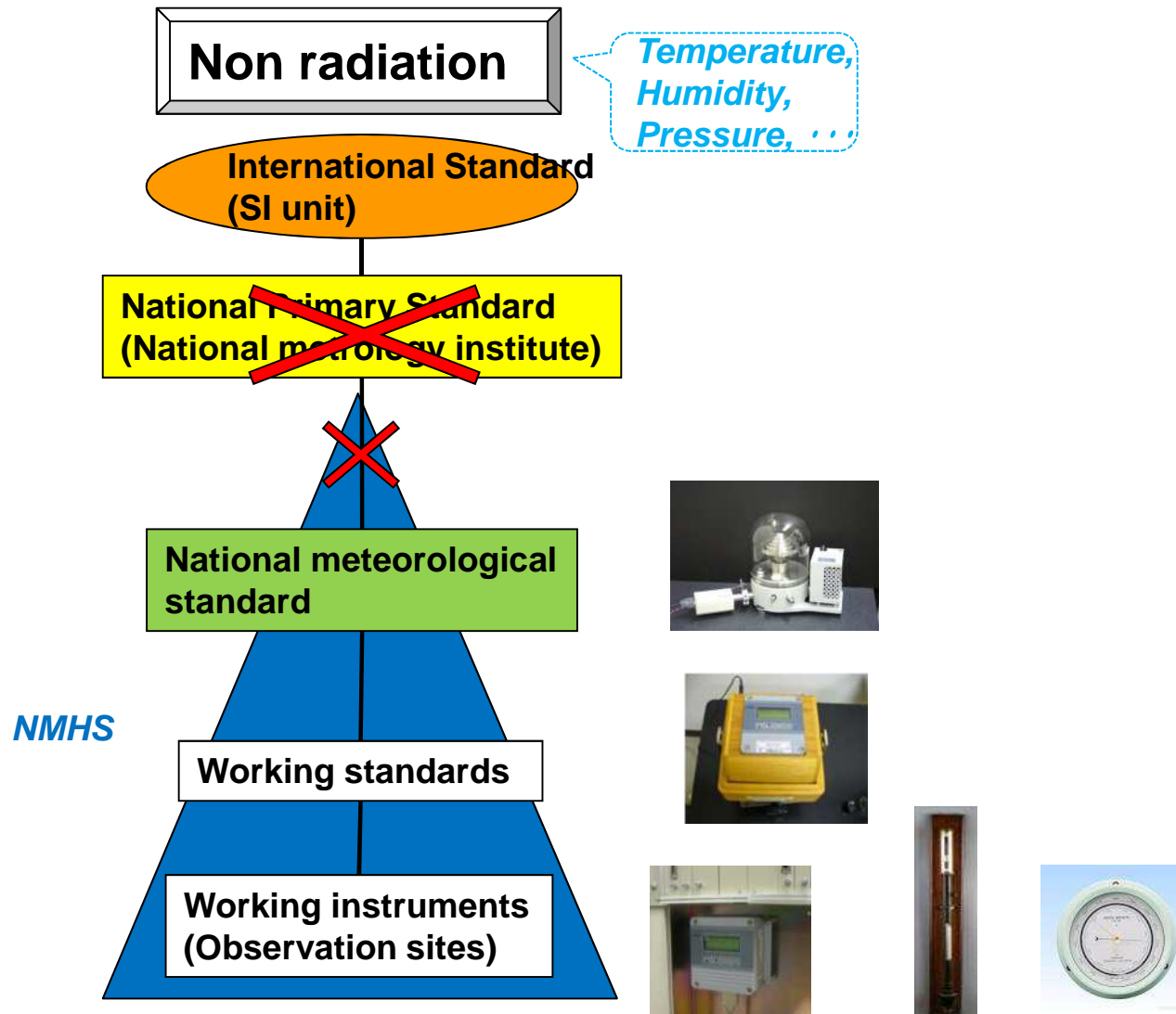
# Traceability to the SI



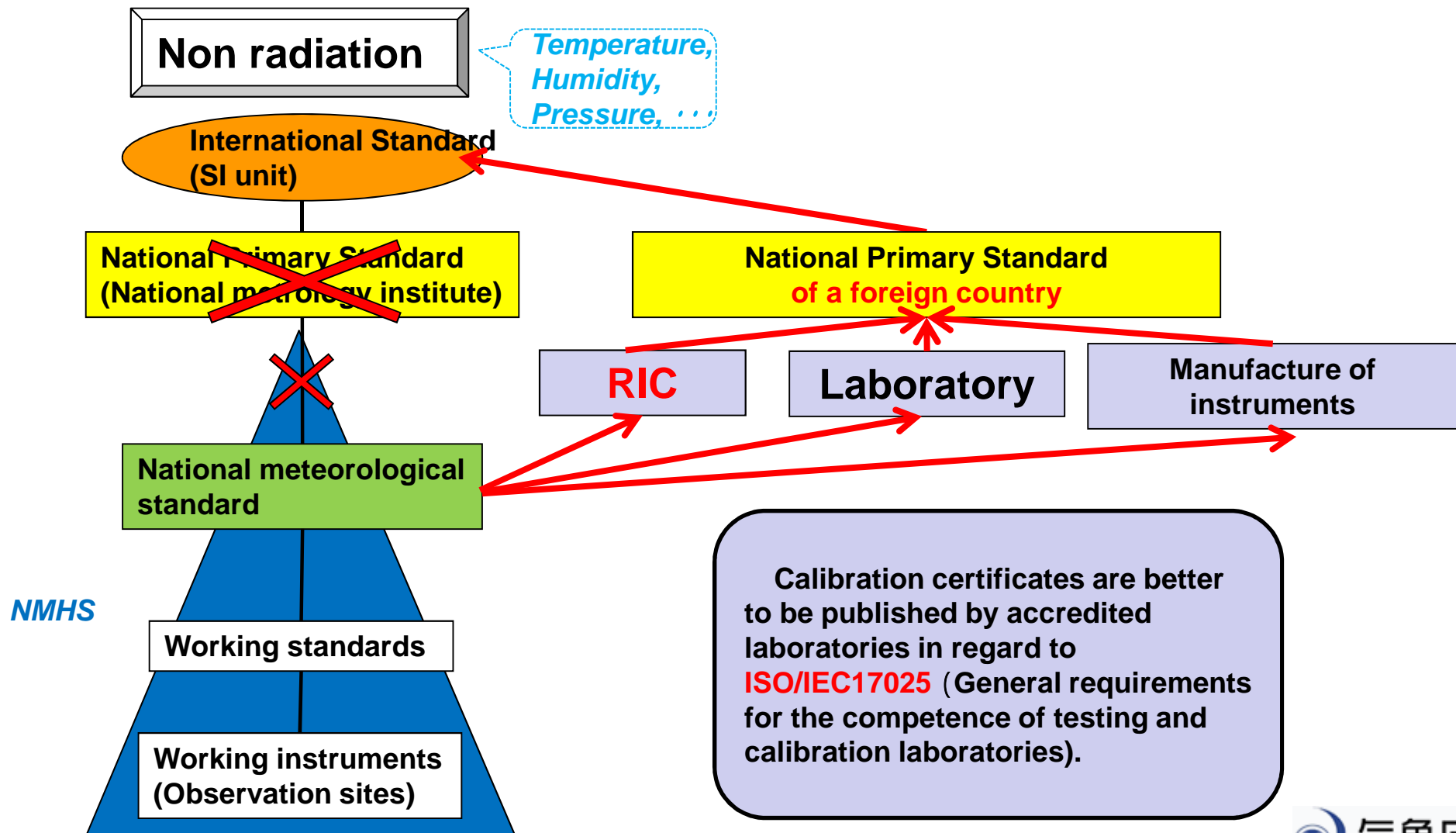
# Traceability in meteorological instruments



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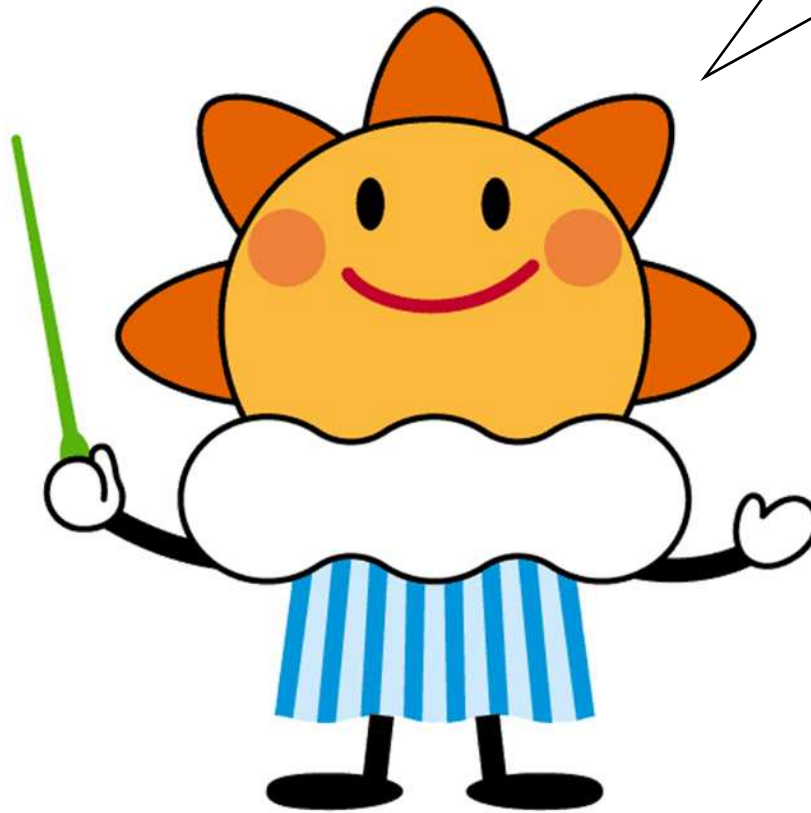


# Traceability in meteorological instruments

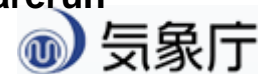


NMHS

**Thank You!**



Mascot of JMA "Harerun"



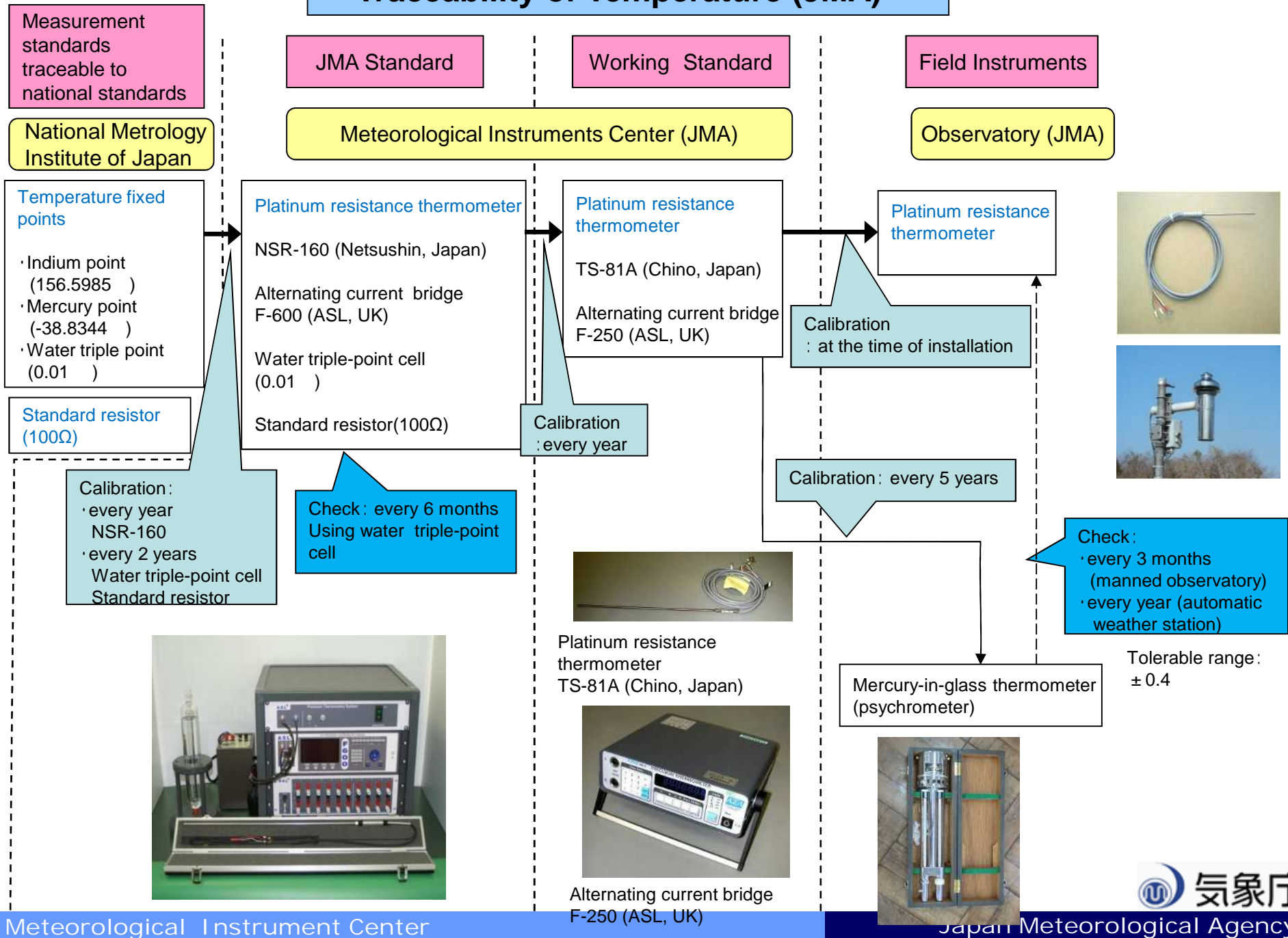




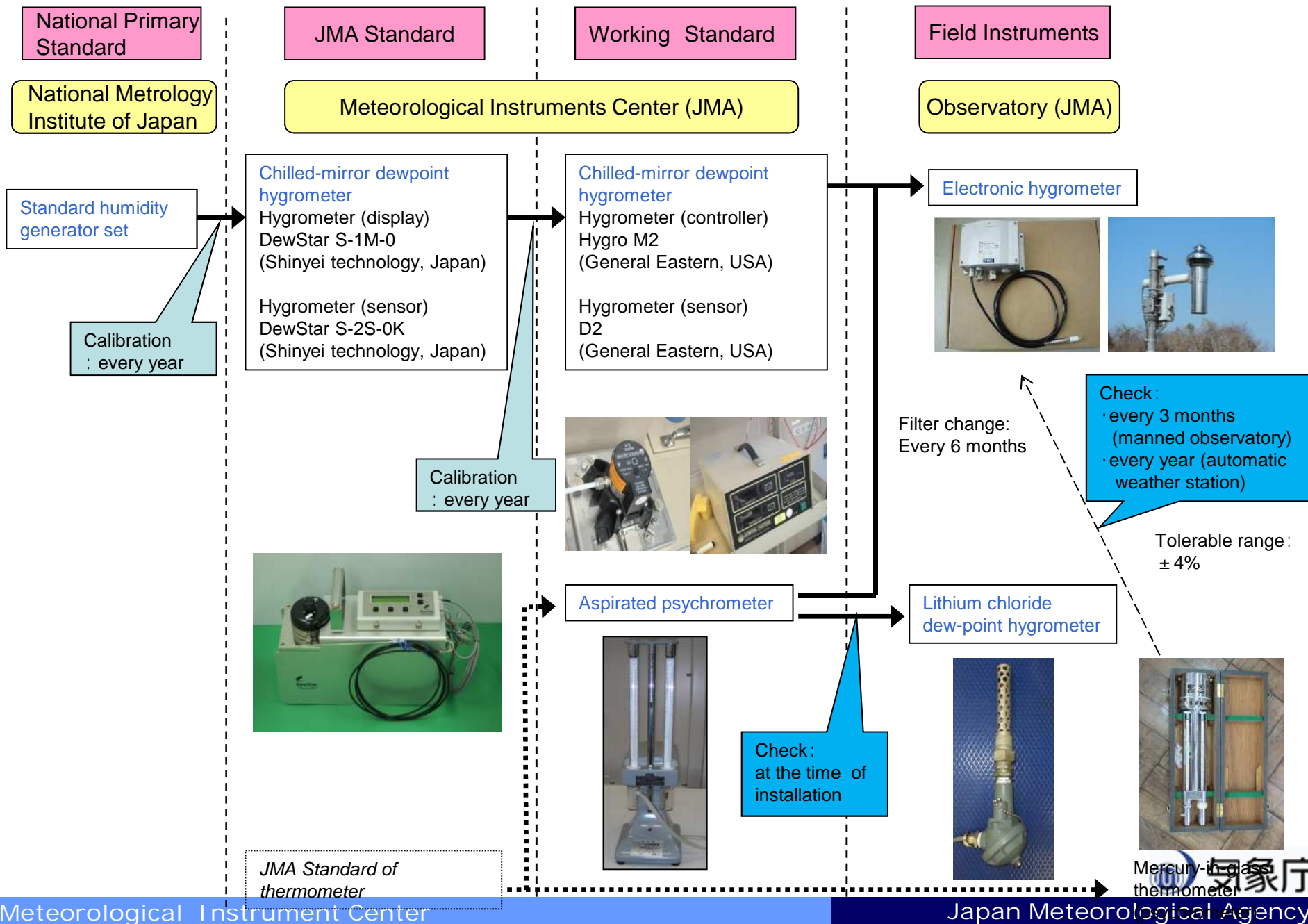


# (Ref.) Traceability around JMA

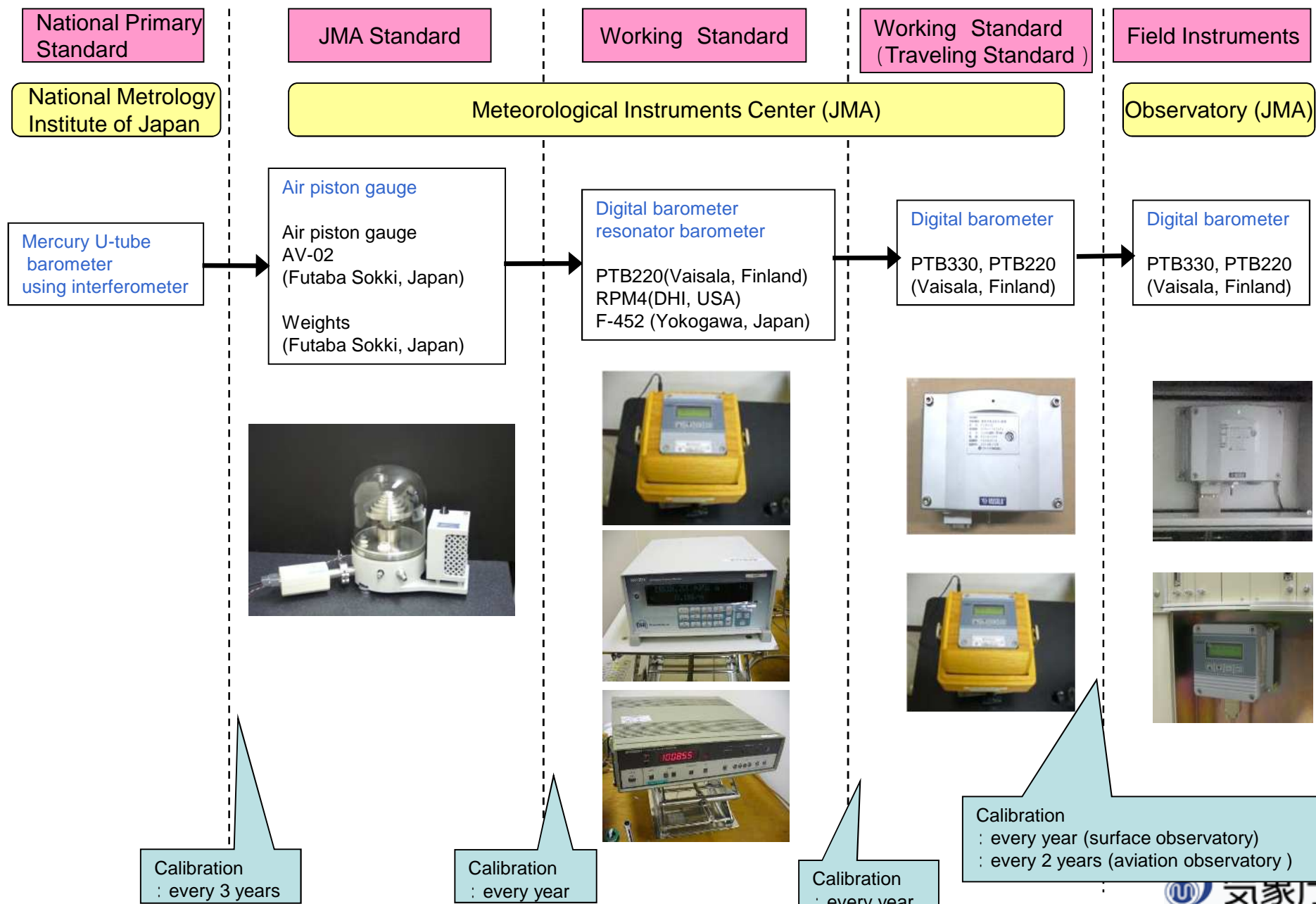
# Traceability of Temperature (JMA)



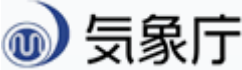
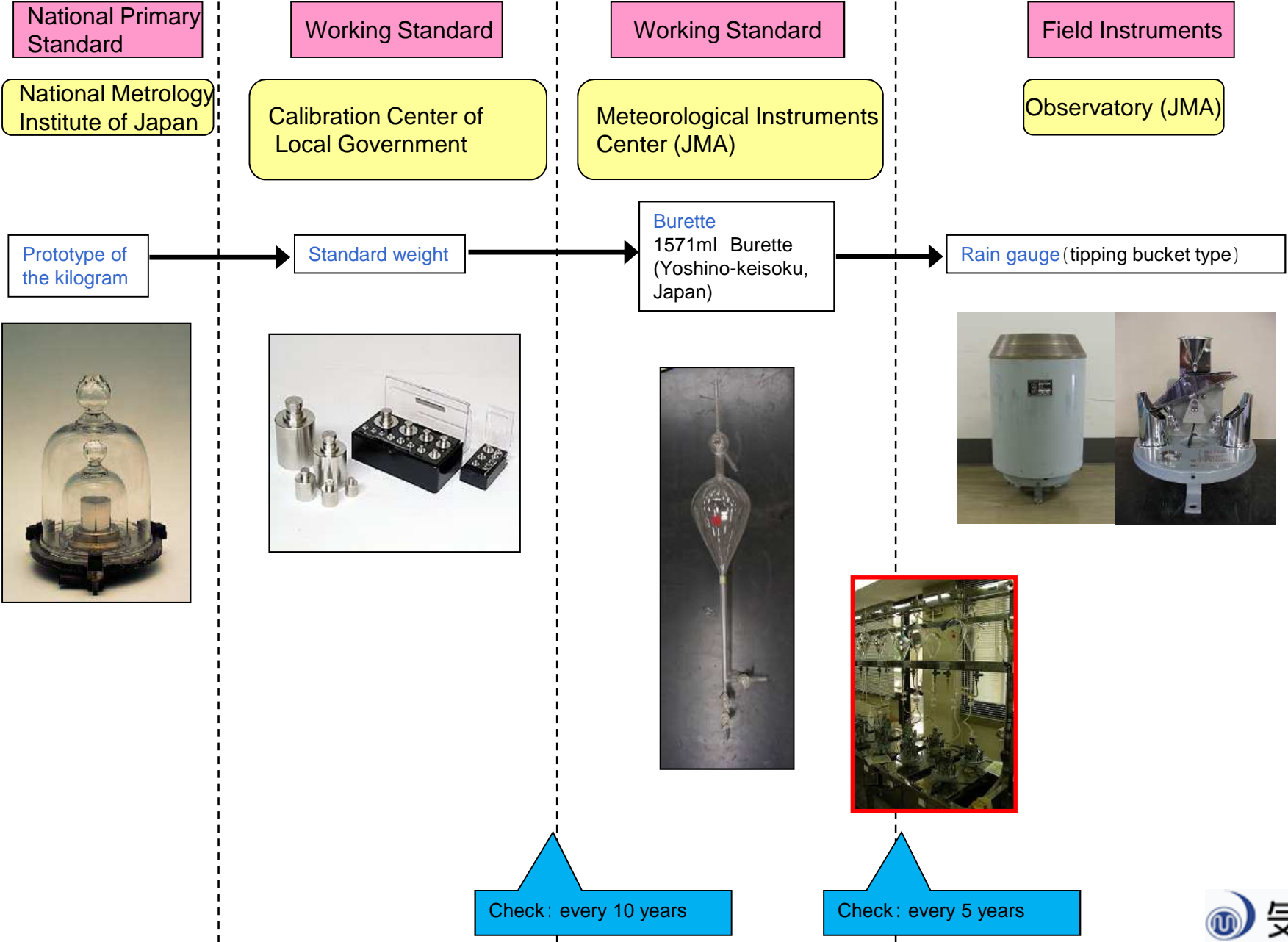
# Traceability of Humidity (JMA)



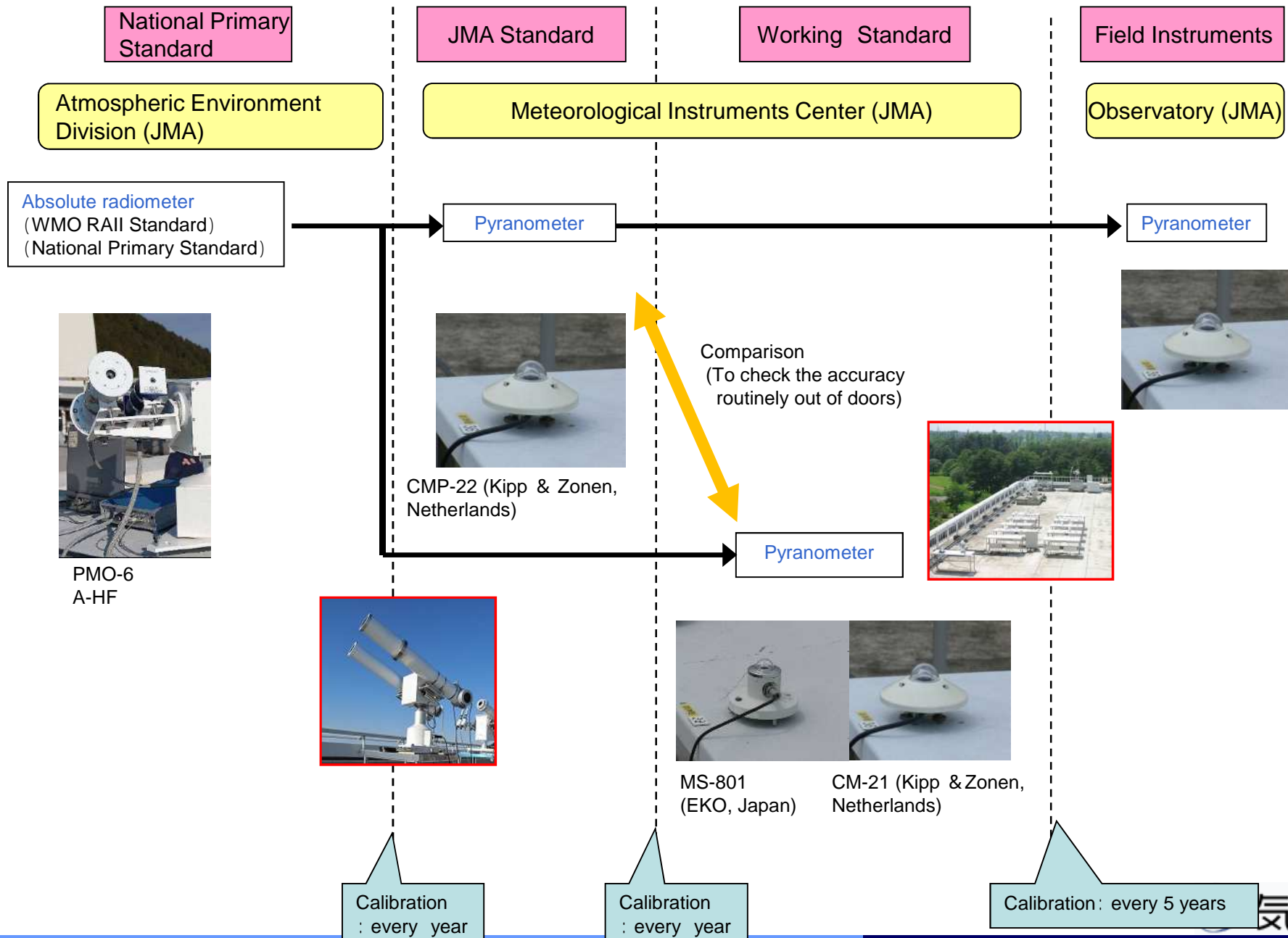
# Traceability of Pressure (JMA)



# Traceability of Precipitation (JMA)

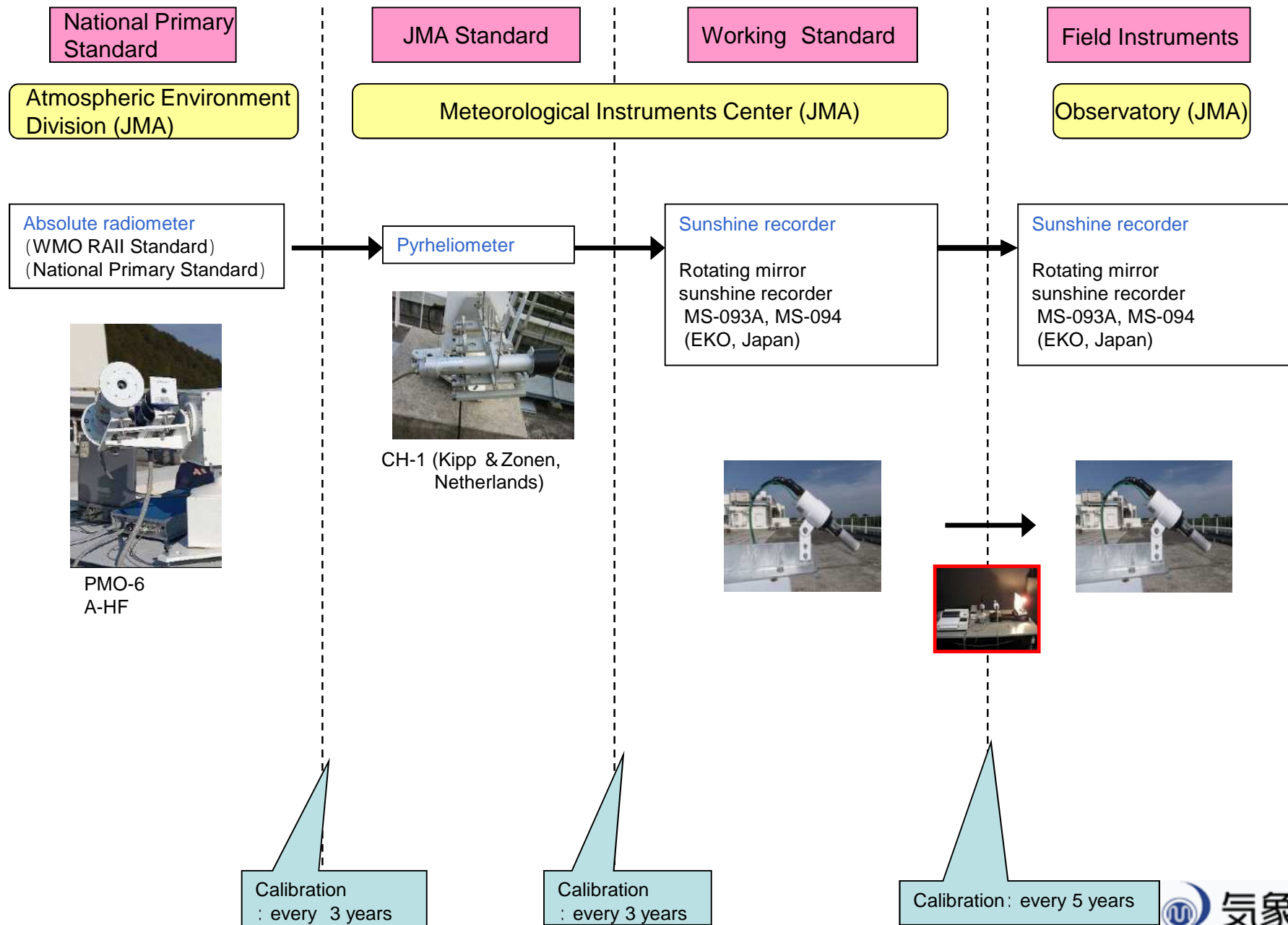


# Traceability of Solar Radiation (JMA)

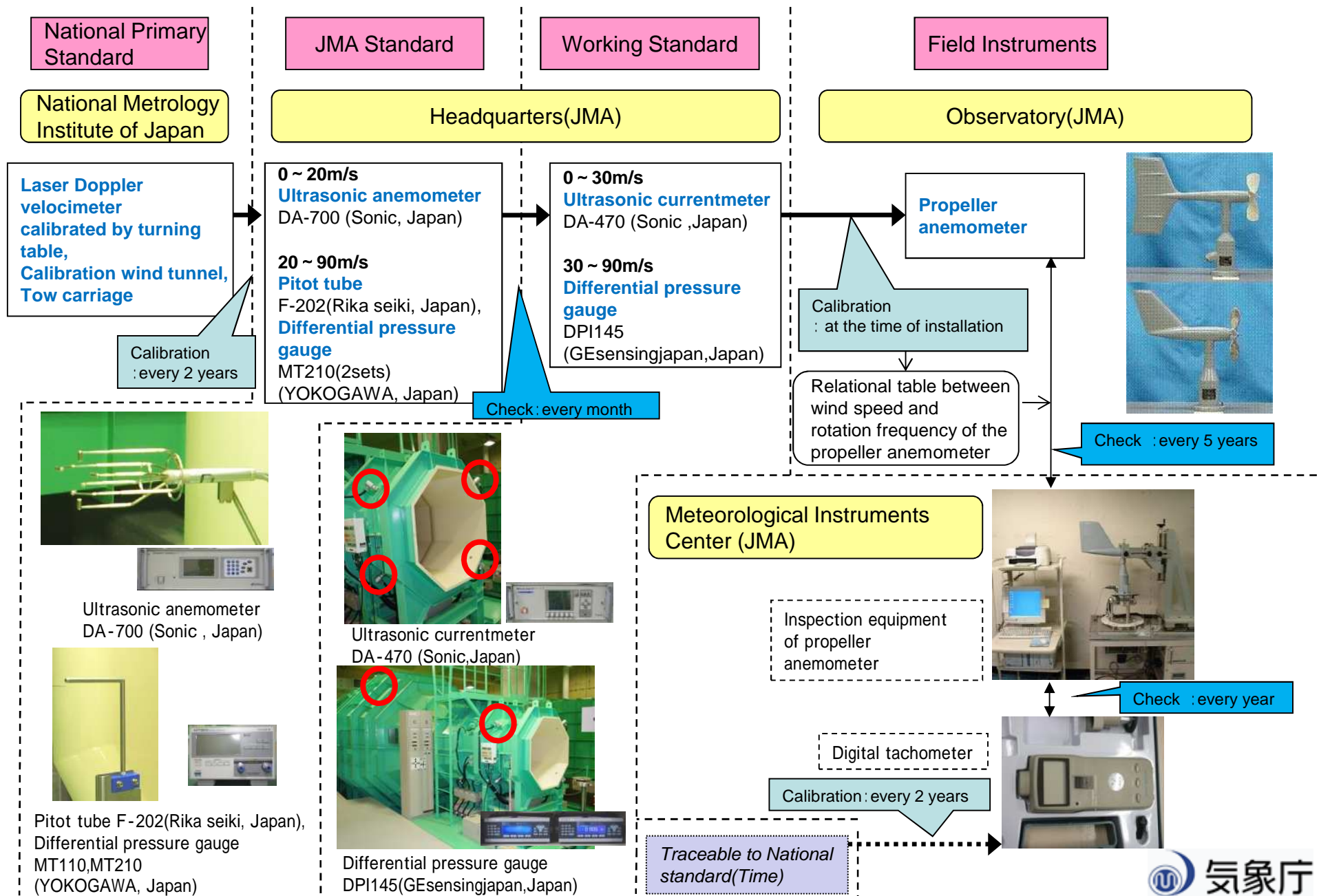




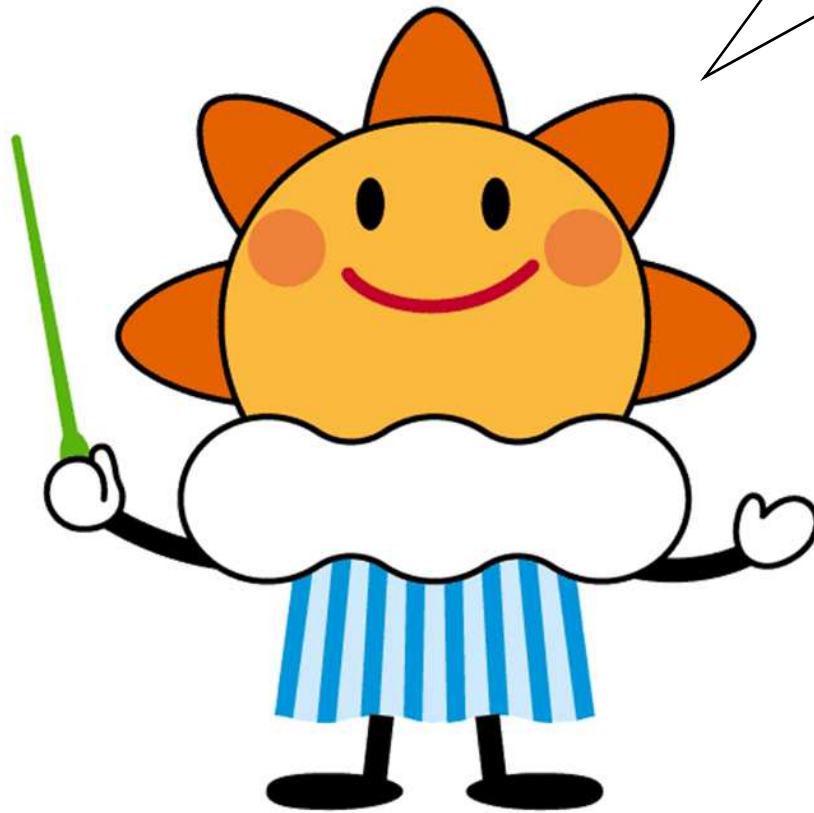
# Traceability of Sunshine Duration (JMA)



# Traceability of Wind Speed (JMA)



**Thank You!**



Mascot of JMA "Harerun"

