

### Session 4.4 Regional Instrument Center Manila

Rex L. Abdon Jr. PAGASA-DOST (Philippine Atmospheric, Geophysical and Astronomical, Services Administration)

# Outline

- About PAGASA
- Organizational Structure
- RIC Manila
- Functions of the Main Instrument Center
- Current Status
- Plans and Goals
- Current Challenges

### Department of Science and Technology (DOST) **Philippine Atmospheric, Geophysical, and Astronomical Services Administration (PAGASA)** *"The Weather and Climate Authority"*



# **BRIEF HISTORY**

- 1865: start of regular meteorological observations
- **1884**: officially a government agency under Spain
- 1901: the meteorological service was formally named as Weather Bureau
- 1972: abolition of the Weather Bureau and the creation of the PAGASA under the Department of National
- Defense (DND) (P.D. 78)
- 1977: addition of Typhoon Moderation Research and Development Office (TMRDO) and National Flood Forecasting Office (NFFO) to the PAGASA (P.D. 1149)
- **1984:** transfer of the PAGASA to National Science and Technology Authority (NSTA) (E.O. 984)
- 1987: Reorganization of the NSTA to the present DOST (E.O. 128)

### The nation's public weather service provider





# The Philippines, through the PAGASA, is a member of the World Meteorological Organization (WMO)

### **PAGASA ICON**





### PAGASA

#### 2018-2022 STRATEGY MAP



Philippine Area of Responsibility



# Data and Information flow overview



# **Observation Network**





# **Observation Network**



#### **Unmanned Stations**



#### **PAGASA Meteorological Information System**





WMO 1131



# **ORGANIZATIONAL CHART**



# **ORGANIZATIONAL CHART**



# STRUCTURE of RIC Manila



- Serve as the centre for the national reference standard for basic meteorological instrument of the agency.
- Keep a set of meteorological standard instruments traceable with recognized international or national standards
- Training of personnel in the operation, maintenance and calibration method.
- Perform the calibration of basic meteorological and related instruments and equipment.
- Regularly visit the PAGASA Field stations and AWSs for the checking, inspection and maintenance of basic meteorological instruments and/or sensors
- Issue and file certificates of calibration
- Cooperate with other local and international instrument center for standardization of basic meteorological instruments.
- Participate in inter-comparison of basic meteorological instruments.
- Participate actively in workshops and conferences.
- Entertain local and international inquiries regarding our standard instruments and other relevant materials/information.

Serve as the centre for the national reference standard for basic meteorological instrument of the agency.











Keep a set of meteorological standard instruments traceable with recognized international or national standards.





TRACEABILITY for Precipitation



# Training of personnel in the operation, maintenance and calibration method



Perform the calibration of basic meteorological and related instruments and equipment, and issue Calibrations certificates.







RA II WIGOS Workshop - Regional WIGOS Centres (RWCs) and its services for Members, Tokyo, Japan, 6-9 March 2019



REPUBLIC OF THE PHILIPPINES Department of Science and Technology Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) Science Garden, Agnam Road, Dilman, Quezon City 1100

#### CALIBRATION CERTIFICATE NO.003

Series 2018

Type of instrument	: T
Model Type	: T
Serial number	: N
Owner	: 11
Calibration date	: J

: Tipping Bucket Rain Gauge : TB3 : None : IRDU-PAGASA : July 19, 2018



This is to certify that the above Instrument has been calibrated at the Instrument Research and Development Unit (IRDU) of the PAGASA.

#### Calibration Results:

Actual Rate (mm/hr)	Percent Error (%)	
4.83	+1.92	
16.05	+1.76	
34.56	+1.13	
66.67	+2.17	
106.46	+2.17	
219.13	-0.20	

Orifice Area : 20 cm<sup>2</sup>

Height or rainfall per tip: 0.5 mm

Note: Required Percentage Error: within +/-5%.

Reference used: Field Calibration Device FCD (Marked A) Hydrological Services P/L Calibration date: March 10, 2017 Calibration Certificate No. 133

This certification is valid up to July 2019 unless malfunction due to mishandling calls for an earlier recalibration.

Calibrated by:

Noted by:

Jessa P. Cadelario Science Research Technician I Ferdinand Y. Barcenas Senior Weather Specialist

"tracking the sky... helping the country"

Postal Address: P.O. Box 3278 Manila

Tel No. (63-2) 929-2121 (w/Fax)



REPUBLIC OF THE PHILIPPINES Department of Science and Technology Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) Science Garden, Agham Road, Diliman, Quezon City 1100

#### CALIBRATION CERTIFICATE NO.092

 Type of instrument
 : Alcohol in Glass Thermometer

 Brand
 : None

 Serial Number
 : 18

 Owner
 : PAGASA

 Calibration Date
 : October 18, 2018



This is to certify that the above Instrument was calibrated at the Instrument Research and Development Unit (IRDU) of the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) of the Department of Science and Technology (DOST) with the following results:

Calibration Results

Reference Temperature (°C)	Observed Temperature (°C)	Correction (°C)	Uncertainty (±°C)
39.8	41.0	-1.2	0.16
29.9	30.5	-0.6	0.14
19.9	20.3	-0.4	0.16
9.9	10.0	-0.1	0.14

Note: Interpolate between different readings if necessary. Required achievable measurement uncertainty: 0.2 °C

#### ENVIRONMENTAL CONDITIONS:

Reference Temperature: (29.1 ± 1) °C	Relative Humidity: (46.0 ± 7) %RH	Pressure: (1004.3 ± 2) hPa
--------------------------------------	-----------------------------------	----------------------------

#### UNCERTAINTY OF MEASUREMENT:

The uncertainty stated has been calculated based on a standard uncertainty multiplied by a coverage factor k= 2 with confidence level of 95%.

Reference Used:

Type	Serial Number	Calibration Date	Certificate Number	Issuing Lab/Traceability
Mercurial Thermometer	943	2015-07-23	001458	National Metrology Lab. ITDI, DOST
Calibrated by:			Not	ted by:
Jessa P. Cand Science Resea	elario Irch Technician I		lnw We	in C. Aguilar eather Specialist I
"tracking the s	sky helping the o	country"		
Postal Address: P.O. Box 3278 Manila		78 Manila 👳	- Tel No. (63-2) 929-2121 (w/Fax)	

- Regularly visit to the PAGASA Field stations for the checking, inspection and maintenance of basic meteorological instruments and/or sensors.
- Inspection of AWSs of Private Company as requested



RA II WIGOS Workshop - Regional WIGOS Centres (RWCs) and its services for Members, Tokyo, Japan, 6-9 March 2019

Cooperate with other local and international instrument center for standardization of basic meteorological instruments.







### Experts from Japan March 2016

### Participate in workshops, conferences and intercomparison of basic meteorological instruments





Entertain local and international inquiries regarding our standard instruments and other relevant materials/information.





RA II WIGOS Workshop - Regional WIGOS Centres (RWCs) and its services for Members, Tokyo, Japan, 6-9 March 2019

### Maintain standard instruments and equipment





#### **RAIN GUAGE TEST EQUIPMENT**



WIND SPEED TEST TUNNEL

### Maintain standard instruments and equipment



#### Climatic Chambers for the calibration of Humidity and Temperature Sensors/Instruments

# **Current Status**

- PAGASA has its own calibration laboratory with complete calibration test chambers/ equipment for PTU, raingauge (tipping bucket), & wind instruments.
- Installations of new wind tunnel at RIC and establishment of wind tunnel facility in 1 LIC.
- Conducting on site checking and/or field inspection and maintenance with the available traveling standards and equipment.
- Maintain instrument performance within the WMO Integrated Global Observing System.

# **On-Going** Plan



# Plans and Goals

- Establishment of Local Instrument Centre in Northern Luzon, the Visayas and Mindanao PRSDs each with calibration laboratory and field inspection personnel.
- Acquisition of more traveling standards and portable calibration equipment to conduct on site calibration to be performed for the whole range.
- As a Regional Instrument Centre, it does not intend to be left behind the potential opportunities offered by the advances in meteorological instrumentation.
- Maintain instrument performance within the WMO Integrated Global Observing System.
- Acquire ISO 9001 certification

# **Current Challenges**

- Personnel (ICTs, Observers, etc.)
- Skills (Experts)
- Technology
- Policies
- Lack of Enthusiasm

# THANK YOU FOR YOUR KIND ATTENTION

Rex L. Abdon Jr.

rexabdonjr@gmail.com rex.abdonjr@pagasa.dost.gov.ph **Ferdinand Barcena** 

RIC Manila <u>fybarce8@yahoo.com</u> <u>ferdie@pagasa.dost.gov.ph</u>