

PAGASA



Philippine Atmospheric, Geophysical and
Astronomical Services Administration



ANNUAL REPORT

2023

TABLE OF CONTENTS

4 ABOUT DOST-PAGASA

6 MESSAGE BY THE DOST SECRETARY

8 MESSAGE BY THE ADMINISTRATOR

10 HIGHLIGHTS OF PAGASA

12 WEATHER AND CLIMATE MONITORING FORECASTING AND WARNING PROGRAM

12 Delivery of Weather Forecasts/ Warnings

13 DOST-PAGASA takes part in the National El Niño Team (NENT)

14 Social Media Reach

14 PAYONG PAGASA Mobile App Meeting with Developers

15 Weather Disaster Preparedness in the Conduct of Barangay and SK Elections 2023, and the Observation of Undas 2023 in the Northern Luzon

15 PAGASA Joins the Bar Incident Management Team in the Commencement of the Localized Philippine Bar Examination 2023 in Tuguegarao City

16 FLOOD FORECASTING AND WARNING PROGRAM

16 Development of Flood Early Warning System for the Greater Metro Manila and Surrounding Provinces of Laguna Lake Complex for Disaster Mitigation

17 Establishment of an Artificial Based Flood Early Warning System for the Laoag River Basin

18 PAGASA Joins Forces for Daet River Watershed Management Council

19 Strengthening the capability of the Republic of the Philippines on Disaster Risk Reduction (Phase2)

20 ASTRONOMICAL OBSERVATION AND MONITORING PROGRAM

20 100 Hours of Astronomy and World Space Week

21 DOST Tarlac Space Technology Application Exhibit 2023

22 Global Astronomy Month 2023

23 National Astronomy Week 2023

24 RESEARCH AND DEVELOPMENT PROGRAM FOR WEATHER AND ALLIED SCIENCES

24 Published Research Papers

27 PHYSICAL RESOURCE AND OPERATIONAL TECHNIQUES PROGRAMS

29 New DOST-PAGASA Planetarium in Mindanao

30 Improvement of Cagayan River Basin Telemetering System

31 Establishment of Integrated Hydrological Data Management (HDMS)

33 CLIMATE CHANGE ADAPTATION, DISASTER PREPAREDNESS AND RISK REDUCTION PROGRAM

33 Climate Forums

38 MAAGAP Awareness Webinar for Science Teachers and DRR Coordinators for CAR

38 Workshop on Multi-Sectoral Application of the Newly Developed High-Resolution Gridded Climate Data of the Philippines

39 Virtual Learning Session with PDRF and Jollibee Group Foundation

39 Climate Smart Farmers Field School in Camarines Norte

40 Met4You 2023 for Eastern Visayas

40 2023 Regional Science, Technology and Innovation Week in Cagayan Valley

41 Climate Resilience Conference in Iloilo City

41 IEC Campaign for the Province of Cagayan, Isabela and NIA Stakeholders

41 Empowering Isabela: Familiarization and Basics of Weather Monitoring and Forecasting Training Course

42 El Nino Forums

42 Disaster Risk Reduction and Management Training Courses for Farmers Group

43 Collaborative Efforts to Service SANJERA Farmers

43 IEC on Weather, Climate, and Flood Information for Public School Teachers in Sorsogon

- 
- 44 Pag-andam sa mga Katibadaan: A Community Training on Disaster Preparedness
 - 44 Coastal Engineering Summit ensuring Coastal Resiliency through S&T Intervention
 - 45 YMCA 7th Green Ambassador's Training
 - 45 HANDA Pilipinas Expo 2023
 - 46 MAAGAP Seminars
 - 46 El Niño Series: Kalamidad ay Maiiwasan
 - 47 SL-PRSD Exposure Tours and Information Education Campaign
 - 47 Community-Based Disaster Risk Reduction and Management (CBDRRM) 2023

48 HUMAN RESOURCE DEVELOPMENT PROGRAM

- 48 Snappy Salute Dr. Malano!
- 49 Dr. Nathaniel Servando, New Appointed PAGASA Administrator
- 50 List of Graduates
- 50 Agrometeorology Training Course (AgTC)
- 51 HR Training Programs and Seminars
- 53 NL PRSD Chief Meteorological Officers Conference 2023

53 REGIONAL AND INTERNATIONAL COOPERATION PROGRAM

- 53 Flood Early Warning System Project Briefing with the Australian Ambassador
- 53 Multi-Hazard Impact-Based Forecasting and Early Warning System Project Kick-Off (MH-IBF-EWS) and Stakeholder Engagement Workshop
- 54 13th Southeast Asia Astronomy Network Meeting
- 54 Fourth Sub-seasonal to Seasonal Southeast Asia Capability Building Programme Workshop
- 55 South-South Collaboration on Climate Information Services (SSCIS)
- 55 The 4-day Modular Training "Biodiversity Conservation and Human Well-Being" for the Asian and Pacific region
- 56 Blended Training of Trainers on Climate Field School
- 56 JMA-TCC Training Seminar on One-Month Forecast and iTacs
- 57 Sub-seasonal to Seasonal (S2S) Downscaling and Verification, Tropical Cyclone Detection and CWB Tracker Related Activities

- 58 Other Regional & International Cooperation Activities

60 GENERAL ADMINISTRATION AND SUPPORT PROGRAM

- 60 Recognizing the Need for Online Payments via PAGASA-LandBank Link.Biz Portal
- 60 Human Resource Management Information System (HRMIS)
 - 60 Installation of HRMIS in various PAGASA Buildings
 - 61 Procurement and BAC Monitoring System
- 61 PAGASA Strategic Plan 2023 to 2028
- 62 Conduct of PAGASA 2023 Midyear Program Review Analysis
- 62 2023 National Women's Month Celebration (NWMC)
- 63 Participation in DOST EndVAW "Orange Your Icon Contest"
- 63 Distribution of NFA One-Time Rice Assistance 2022 for PAGASA Employees
- 63 Vaccination Program (Influenza Vaccine)

64 AWARDS AND RECOGNITIONS

- 64 PAGASA Instrument Calibration Laboratory (PCL) accreditation to the ISO/IEC 17025:2017
- 64 Bangko Sentral ng Pilipinas (BSP) Outstanding Stakeholders
- 64 Certificate of Compliance – Freedom of Information
- 65 2023 Outstanding Institutional Partner for Learning, and 2022 Outstanding HR Partner Awards
- 65 Awarding of the CSC PRIME-HRM Accredited External Assessors
- 65 PAGASA, PSHSS SYSTEM Awardee
- 65 PAGASA bags the GADtimpala Bronze Award for Outstanding Gender-Responsive Agency, and Silver Award for Exemplary GAD Focal Point System (GADtimpala AlaGAD)

66 COMPLETED PROJECTS

69 GRAPHICAL REPRESENTATIONS:

70 HALL OF HONOR

- 70 2023 PAGASA COMPULSORY RETIREES
- 71 2023 PAGASA OPTIONAL RETIREES
- 71 2023 PAGASA POSTHUMOUS RECOGNITION

72 DIRECTORY OF KEY OFFICIALS

75 THE PRODUCTION STAFF

ABOUT

DOST-PAGASA

I. Mandate/Mission/Vision/Values/Functions

1. Mandate

Provide adequate, up-to-date data, and timely information on atmospheric, astronomical and other weather-related phenomena using the advances achieved in the realm of science to help government and the people prepare for calamities caused by typhoons, floods, landslides, storm surges, extreme climatic events, and climate change, among others, to afford greater protection to the people.

Provide science and technology-based assessments pertinent to decision-making in relevant areas of concern such as in disaster risk reduction, climate change adaptation and integrated water resources management, as well as capacity building.

Ensure that the country fulfills its commitments to international meteorological and climate change agreements.

2. Mission

We deliver reliable and relevant weather-related information, products and services to develop communities resilient to typhoons, floods, rain-induced landslides, storm surges, extreme climatic events, climate change and astronomical hazards.

3. Vision

The Center of Excellence for weather-related information and services helping develop a disaster and climate-resilient nation.

4. Values

Spirituality
Patriotism
Integrity
Innovation
Commitment
Excellence

5. Functions

- Maintains a nationwide network pertaining to observation and forecasting of weather and flood and other conditions affecting national safety, welfare and economy;
- Undertake activities relative to observation, collection, assessment and processing of atmospheric and allied data for the benefit of agriculture, commerce and industry;
- Engage in studies of geophysical and astronomical phenomena essential to the safety and welfare of the people;
- Undertake researches on the structure, development and motion of typhoons and formulate measures for their moderation; and
- Maintain effective linkages with scientific organizations here and abroad and promote exchange of scientific information and cooperation among personnel engaged in atmospheric, geophysical, astronomical and space studies.

II. Performance Pledge and Feedback and Redress Mechanisms

1. Performance Pledge

We, the professional and dedicated officials and employees of the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), commit to:

Provide service promptly, efficiently and with utmost courtesy by authorized personnel with proper identification from Mondays to Fridays. 8:00 AM to 5:00 PM, without noon break; for Administration support and other similar services and 24/7 whole year round for forecasting services,

Adhere to strict compliance with service standards, with written explanation for any delays in the services we offered;

Give timely response to complaint about our services the soonest and take corrective measures accordingly;

Assure that every client's comments, suggestions and needs are given importance.

Satisfy our customers' needs by acting on their feedback and informing them of any developments first hand;

Allow the public access to information on our programs, activities and services through our website (<http://bagong.pagasa.dost.gov.ph>) or through SMS, and our trunk line (02) 8284-0800, follow us on Twitter @dost-pagasa, https://twitter.com/dost_pagasa. Like us on Facebook DOST_pagasa <https://www.facebook.com/PAGASA.DOST.GOV.PH>

Above all, we pledge to serve everyone with utmost honesty, dedication, respect and understanding, for we believe that in so doing, we are also serving and honoring our country and God Almighty.

2. Feedback and Redress Mechanisms

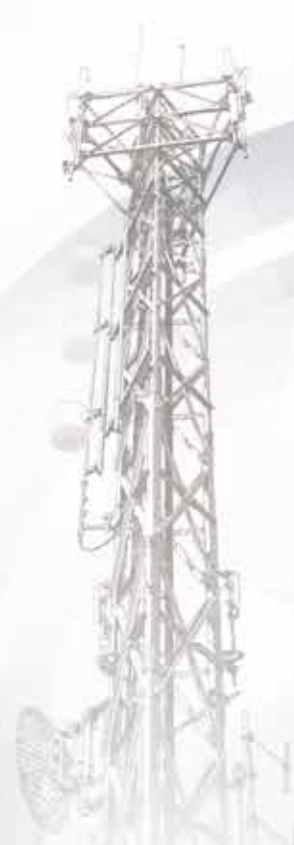
Please let us know how we have served you by:

- a. Accomplish our Feedback Form available at the lobby and put it in the drop box located at the front desk or give the form to the division concerned.
- b. Sending your feedback through our website (<http://bagong.pagasa.dost.gov.ph>) or call our trunk line (02) 8284-0800, follow us on Twitter @dost-pagasa, https://twitter.com/dost_pagasa. Like us on Facebook DOST_pagasa <https://www.facebook.com/PAGASA.DOST.GOV.PH>

Your written/verbal complaints shall immediately be attended to.

Thank you for helping us improve our service

* For details of the PAGASA's Citizen Charter, kindly visit our official website at www.pagasa.dost.gov.ph



MESSAGE BY THE DOST SECRETARY

Our vision of resilience and sustainability stands as the guiding force behind the relentless pursuit of excellence of the DOST Philippine Atmospheric, Geophysical and Astronomical Services Administration (DOST-PAGASA). With each passing year, I have witnessed the unwavering dedication of the men and women of the nation's weather and climate authority, and I am proud of the significant strides we have accomplished together.

The completion of the 755-square meter planetarium in Misamis Oriental is an achievement that we are proud to bring to the Filipinos as this will be Mindanao's first ever planetarium. More astronomical enthusiasts will be captivated as awareness in Astronomy will be cascaded further to the countryside showcasing them the beauty and wonders of the universe through planetarium lectures/shows.

Further, as we navigate the uncharted waters of climate variability and its impact on our communities, the DOST-PAGASA remains steadfast in its commitment to fostering a safer, adaptive, and disaster-resilient Filipino community.

The Agency fervently provides crucial updates on the evolving El Niño conditions. The collaborative efforts of the Task Force El Niño and the unwavering support from DOST-PAGASA underscored the government's dedication to proactive disaster preparedness and response. This cohesive approach demonstrated the nation's resilience in the face of environmental challenges, ensuring a comprehensive and well-coordinated response to the El Niño phenomenon.



In the pursuit of providing timely, accurate, and indispensable warning information, DOST-PAGASA has not only met but exceeded expectations. The seamless dissemination of critical information to our stakeholders, coupled with a proactive approach to engaging with the public through social media platforms and accessible online services, exemplifies our commitment to serving the nation. Undeniably, the growing number of our social media followers and subscribers signifies the confidence that we built over the years.

Amidst the challenges posed by differing characteristics of strong tropical cyclones, the resilience of DOST-PAGASA shone through. The agency's unwavering dedication to accuracy and precision in forecasting, despite the formidable obstacles, resulted in 97.10 km forecast track error at a 24-hour lead time against 100 km baseline/target—a testament to the expertise and commitment of the Agency.

Moreover, with the Agency's dedication to provide early warning for potential hydrometeorological threats, additional Flood Forecasting and Warning Systems (FFWSs) were established for Ilog Hilabangan and Agus River Basins (RBs). PAGASA now boasts a total of 19 FFWSs installed all over the country. In addition, X-Band Radar in Davao was completed and the conversion of mobile to fixed X-Band radar station in Iriga, Camarines Sur is already operational.

I extend my appreciation to every member of the DOST-PAGASA family. Your tireless efforts, even in the face of adversity, reflect the true spirit of public service and dedication to our nation's welfare. Your commitment to excellence continues to inspire us all.

As we progress forward, please be assured of my steadfast support for the Agency's initiatives. Let us unite in our commitment to innovation, resilience, and service, positioning our nation at the forefront of progress, equipping it to overcome any obstacles that may arise, providing solutions and opening opportunities amidst the challenges it faces.

Salute and gratitude to the remarkable men and women of DOST-PAGASA!


RENATO U. SOLIDUM, JR.
SECRETARY

MESSAGE BY THE ADMINISTRATOR

2023 was quite a challenging time for DOST-PAGASA.

The year started with heavy rains battering the southern part of the country. The week-long downpour caused massive flooding in hazard-prone areas.

In the second quarter, the expected El Niño phenomena gradually strengthened, causing President Ferdinand R. Marcos, Jr. to reactivate and reconstitute the Task Force El Niño (TFEN).


In December, a 7.4 magnitude earthquake hit the Hinatuan Province. It caused considerable damage to the DOST-PAGASA Doppler Radar Station.

Some of our key officials, who are considered pillars of the Agency, also retired from public service, but we also welcomed new members of the workforce.

Amidst these challenges, and true to our mandate, we continued to serve the public with utmost dedication.

Hope, literally, is what the mandate of DOST-PAGASA represents as its dissemination of advanced forecasts and warnings has given every individual a chance to prepare and protect their properties from the damaging effects of weather disturbances and the impacts of climate change.





Through its consistent efforts to be the Center of Excellence for weather-related information, the Agency has gained the trust and confidence of the Filipino people and helped develop a disaster and climate-resilient nation.

DOST-PAGASA, as a member of TFEN, played a vital role to prepare for the impacts brought about by the El Niño phenomena in 2023. The Agency has issued timely advisories on the said phenomena, assessment and outlook of Dry Spell/Drought, conducted national and provincial forums, and actively participated in the regular meetings of the task force.

We are also fortunate to have fruitful collaborations with different institutions and signed several agreements with media organizations who helped us in providing relevant information to the public.

This year, our request for an additional plantilla position was partially granted by the Department of Budget and Management. With new 125 positions, the scarcity of manpower in the field stations will be fulfilled.

The much-awaited completion of the DOST-PAGASA Planetarium in Molugan, El Salvador City in Misamis Oriental is also a significant feat for the Agency as the 755-square meter facility, which will be Mindanao's first-ever planetarium, is expected to be operationalized in 2024.

In attestation of our committed public service, the PAGASA Instrument Calibration Laboratory (PICL) was added to the pool of ISO-certified services of the agency, having been accredited with ISO /IEC 17025:2017 by the Philippine Accreditation Bureau of the Department of Trade and Industry on 22 August 2023.

These testaments are proof of our dedication to excel in our mission of serving our fellow countrymen, a fire within that is fueled by our compassion. The trust placed in us serves as a driving force, propelling us towards achieving our vision.

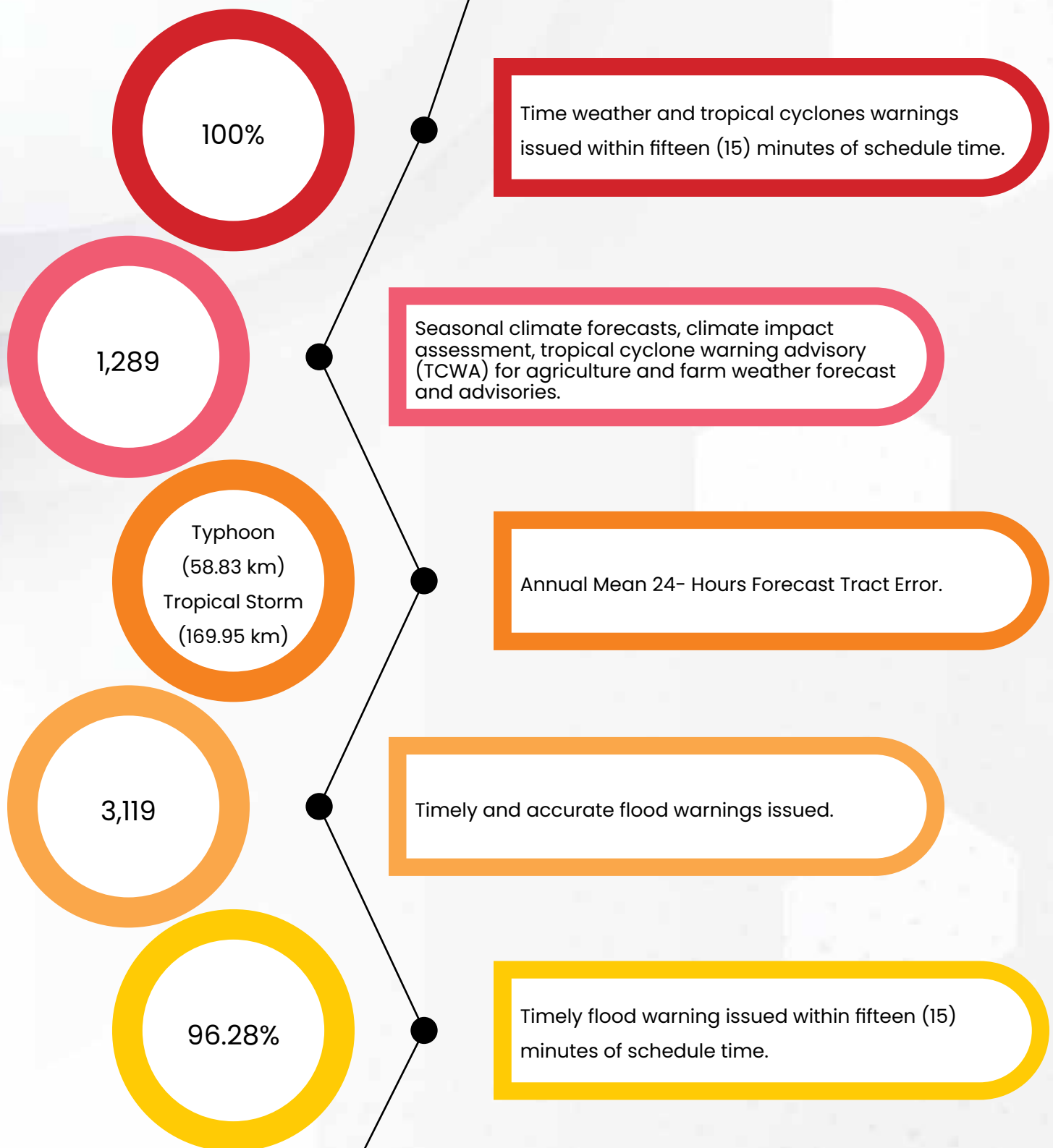
With all that we have achieved in 2023, I commend my colleagues in DOST-PAGASA for working hand-in-hand in fulfilling our mission and striving to achieve our vision. May we continue to return the confidence entrusted to us by the general public by giving our unwavering dedication and commitment to our present and future endeavors.

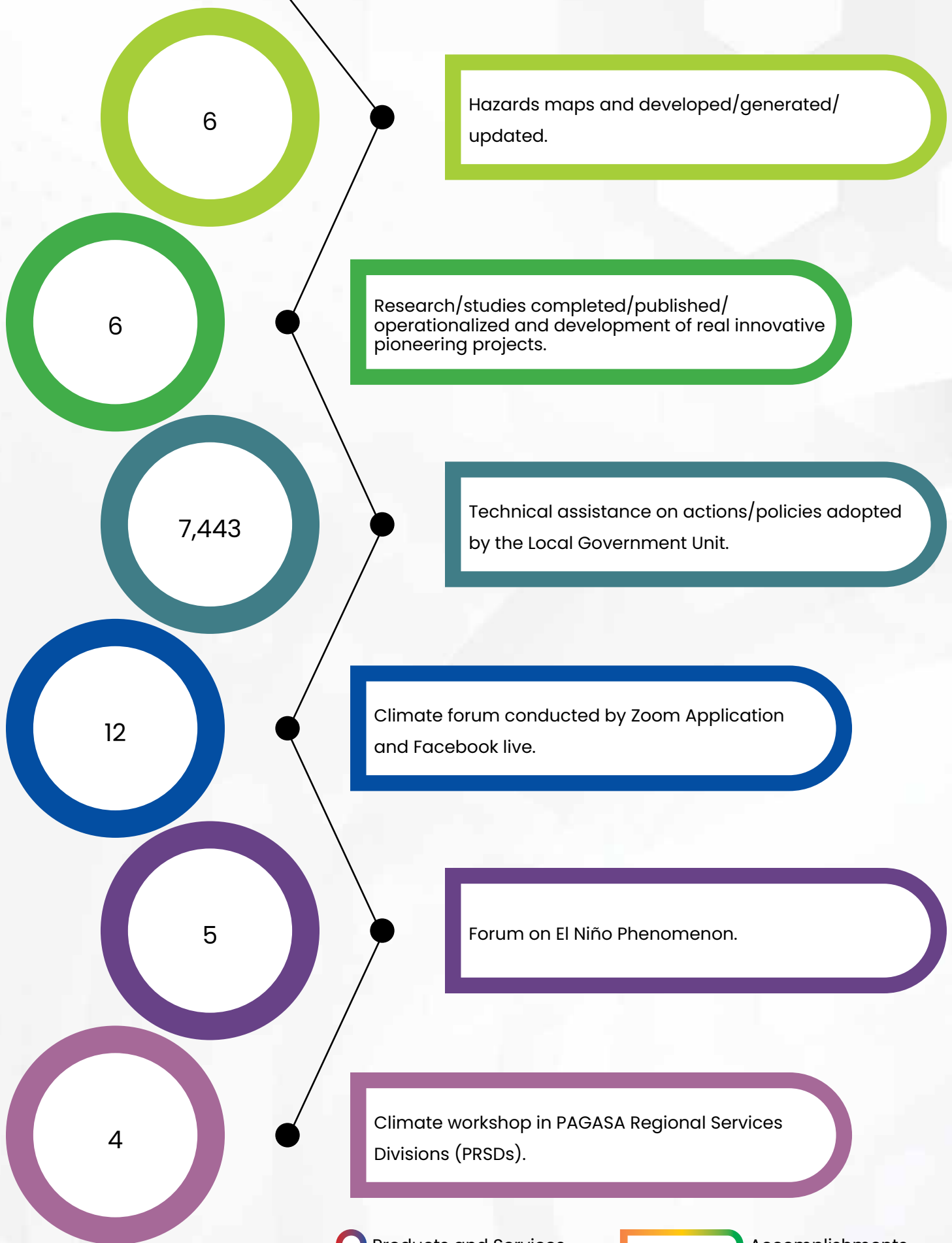
Thank you and God bless.



NATHANIEL T. SERVADO, PH.D.
ADMINISTRATOR

HIGHLIGHTS of PAGASA



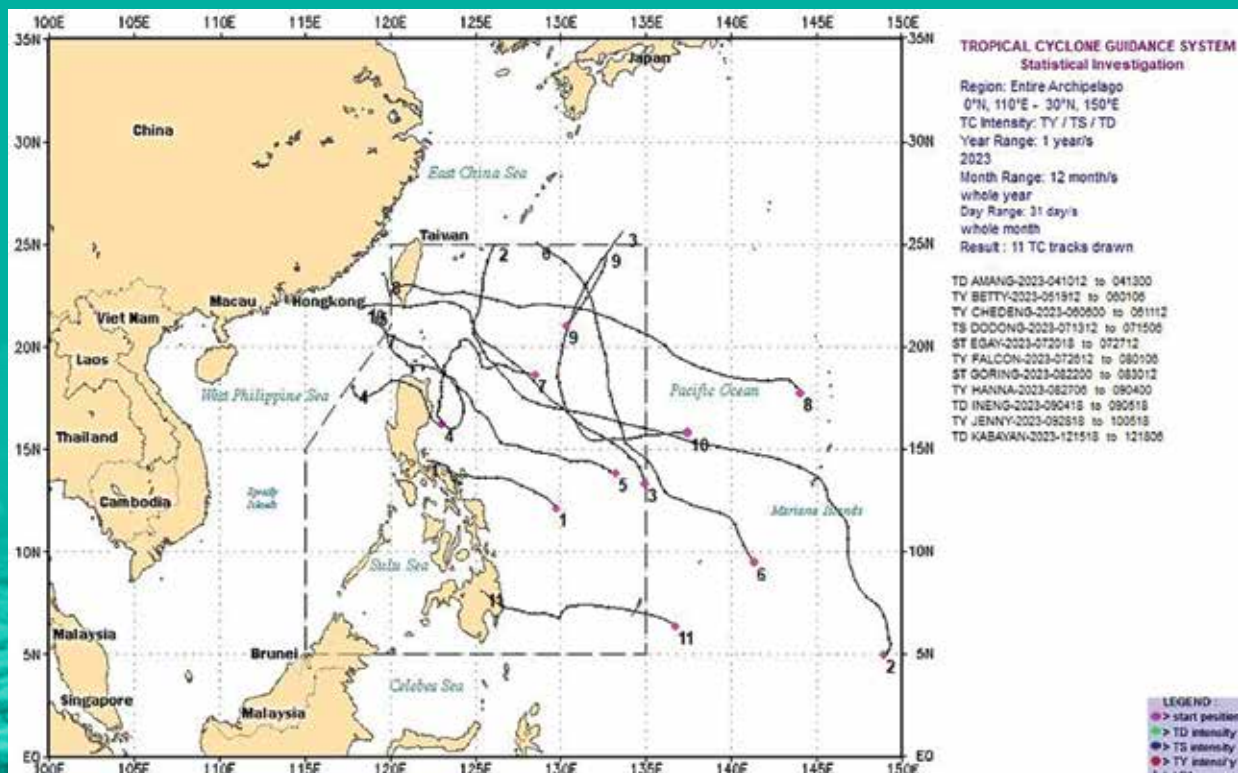


WEATHER AND CLIMATE MONITORING, FORECASTING AND WARNING PROGRAM

Delivery of Weather Forecasts/ Warnings

Weather forecasts and warnings play a significant role in our society as it affects the planning and decision making of our community leaders in order to ensure the safety of the lives and properties of its citizens. Every year, Tropical Cyclones (TCs) of different parameters are monitored by PAGASA in its commitment to its mandate of providing a quality weather forecast.

Signifying its commitment, PAGASA achieved an average of 58.83 kms forecast track error for Tropical Storm at 24-hour lead time. It is a testament to the capability of the agency in minimizing the margin of error as compared to the actual TC tracks amidst the strong typhoons that hit the country.



DOST-PAGASA takes part in the Establishment of the Task Force El Niño

After DOST-PAGASA confirmed the presence of El Niño conditions in the tropical Pacific, the Philippine government swiftly reactivated the National El Niño Team, spearheaded by the National Disaster Risk Reduction and Management Council (NDRRMC). Comprising various National Government Agencies (NGAs), Local Government Units, and representatives from the private sector, the team aimed to minimize the potential adverse effects of the El Niño phenomenon. DOST-PAGASA's primary role is to supply the latest updates on the ongoing El Niño phenomenon to assist the National Government as well the Local Government Units for the timely prepositioning of government assets.

The proactive approach of the National El Niño Team manifested in a series of meetings and press briefings, commencing in July of 2023 at the Office of the Civil Defense in Camp Aguinaldo, Quezon City. In September of the same year, a comprehensive 2-day training workshop on the development of the National El Niño Team (NENT) monitoring platform took place in collaboration with the Department of Information and Communications Technology.



Press briefings and media interviews on El Niño



Update on El Niño at the Malacañang Palace with the presence of His Excellency President Ferdinand Romualdez Marcos Jr., DOST Secretary Renato Solidum Jr, DOST-PAGASA Administrator Dr. Nathaniel T. Servando and DOST-PAGASA Climatologist, Ms. Ana Solis.

As the year progressed, the National El Niño Team diligently worked towards finalizing and adopting the National Action Plan, marking a significant milestone in their preparedness efforts. This strategic document served as the blueprint for the team's comprehensive response to the El Niño phenomenon, guiding them through its full implementation.

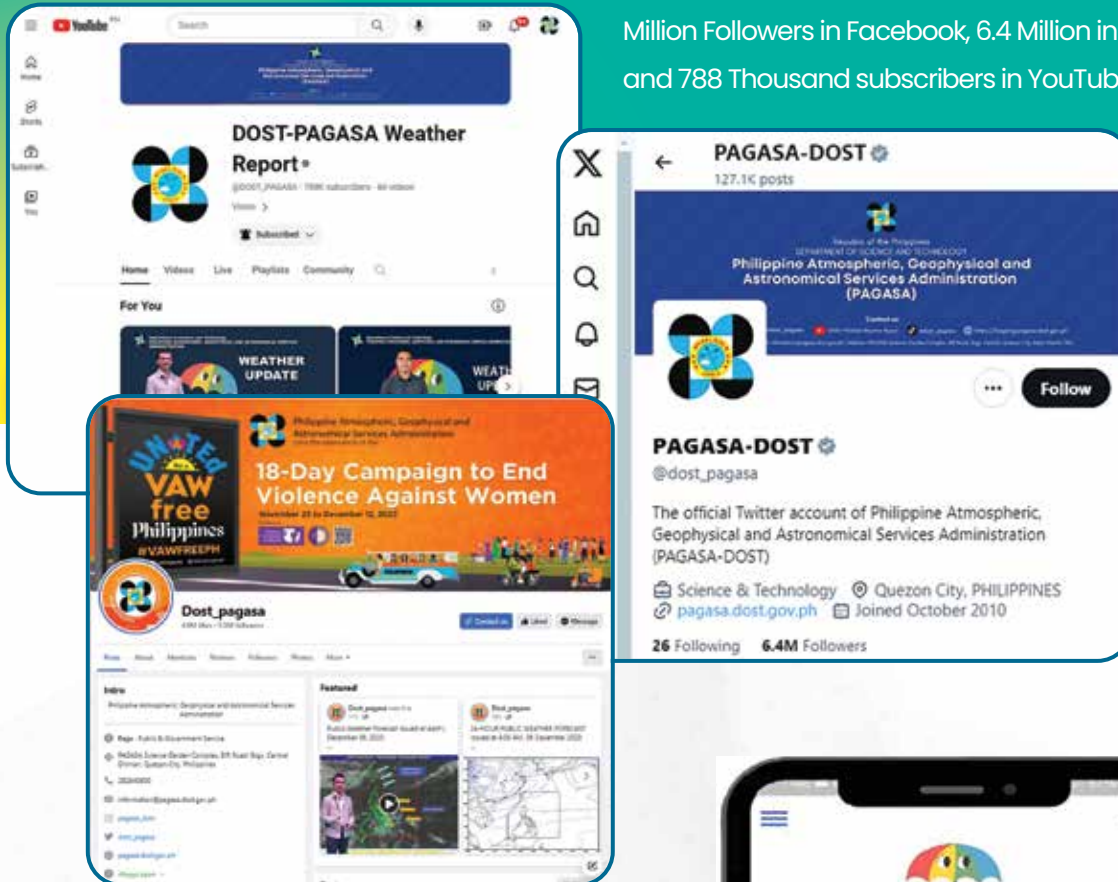
In a move to enhance efficiency and streamline the execution of the National Action Plan, the National El Niño Team underwent restructuring, transforming into the more dynamic and focused Task Force El Niño (TFEN). This restructuring aimed to maximize the effectiveness of the team in addressing the challenges posed by El Niño.

Throughout this process, DOST-PAGASA remained steadfast in its commitment, continually providing crucial updates on the evolving El Niño conditions. The collaborative efforts of the TFEN and the unwavering support from DOST-PAGASA underscored the government's dedication to proactive disaster preparedness and response. This cohesive approach demonstrated the nation's resilience in the face of environmental challenges, ensuring a comprehensive and well-coordinated response to the El Niño phenomenon.

Social Media Reach

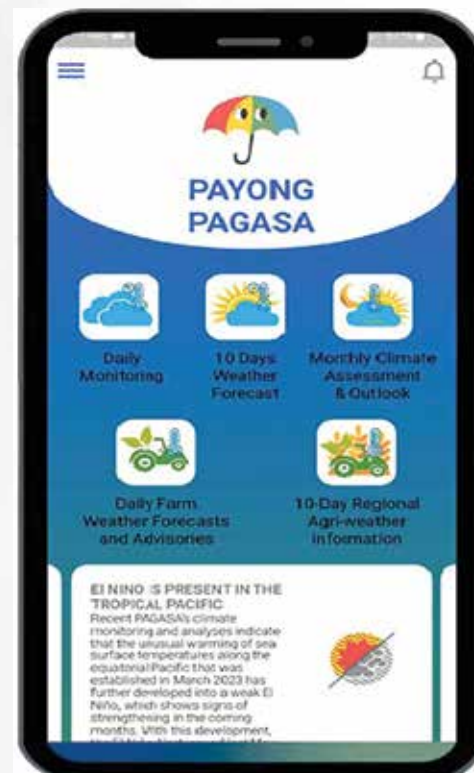
Over the years, PAGASA has found its place in the mind and heart of the Filipino people especially when it comes to weather information. The trust and confidence placed to DOST-PAGASA is evidently reflected in the increasing number of its subscribers and followers in various Social Media platforms of the Agency considering ease of access to our products and services.

PAGASA established its significant presence online with 5.5 Million Followers in Facebook, 6.4 Million in X (formerly Twitter), and 788 Thousand subscribers in YouTube in 2023.



PAYONG PAGASA Mobile App Meeting with Developers

PAYONG PAGASA mobile application aims to enhance user accessibility and bolster the app's features to ensure effectiveness in disseminating crucial weather forecasts and advisories to the public. On 13 November 2023, online assembly was conducted via Zoom to fine-tune and amplify the capabilities of the said app. Proponents of the project are looking forward to open the said mobile app to the public.



Weather Disaster Preparedness in the Conduct of Barangay and SK Elections 2023, and the Observation of Undas 2023 in the Northern Luzon



The Northern Luzon PAGASA Regional Services Division (NL-PRSD) actively engaged with communities through a Pre-Disaster Risk Assessment (PDRA) for preparedness in anticipation of the Barangay and Sangguniang Kabataan (SK) Elections and the Undas season in 2023. NL-PRSD provided weather

information services organized by the Cagayan Valley Regional Disaster Risk Reduction and Management Council (RDRRMC) in collaboration with the Office of Civil Defense Region 2 via Zoom, with 40 participants (23 males and 17 females).

PAGASA Joins the Bar Incident Management Team in the Commencement of the Localized Philippine Bar Examination 2023 in Tuguegarao City



The Bar Incident Management Team, led by the Philippine Supreme Court in conjunction with the local government unit of Tuguegarao City, regarded PAGASA's service particularly the provision of local weather forecasts as an essential factor throughout the Bar examination on 20, 22, and 24 and September 2023, held at Cagayan State University, Tuguegarao City, Cagayan. The involvement of PAGASA in this critical role showcased its commitment to supporting significant public events and ensuring the safety and well-being of participants. With a total of 41 participants (18 females and 23 males), the collaborative effort demonstrated the effectiveness of a multi-agency approach in managing incidents and fostering a secure environment during the bar examination.

FLOOD FORECASTING AND WARNING PROGRAM

Development of Flood Early Warning System for the Greater Metro Manila and Surrounding Provinces of Laguna Lake Complex for Disaster Mitigation

The Korea International Cooperation Agency (KOICA) and the DOST-PAGASA have joined hands reinforcing disaster resilience in the Philippines through the signing of the Record of Discussions for the project “Development of Flood Forecasting and Early Warning System for the Greater Metro Manila and Surrounding Provinces of Laguna Lake Complex for Disaster Mitigation (EWS4)”. Country Director KIM Eunsub of KOICA Philippines Office and DOST Secretary Renato Solidum, Jr. along with DOST-PAGASA’s officials and key personnel led by Dr. Servando graced the said event held at the Amihan Conference Room in PAGASA Science Garden Complex on 21 November 2023.

The Korean government provided a grant aid of US\$12.7 million to implement the 6-year EWS4 Project. This initiative aims to improve flood management and flood response capabilities in the Greater Metro Manila Area and the provinces of Bulacan, Cavite, Rizal, and Laguna.

The project aims to develop advanced Flood Forecasting and Early Warning System (FFEWS), establish hydrological observation and warning facilities, provide flood forecasting and warning equipment, and to provide capacity building to PAGASA local personnel.

Residents in mentioned target areas will benefit from the timely and accurate warnings provided by the EWS4 Project, which will also empower them to take proactive measures against impending natural disasters.



Establishment of an Artificial Based Flood Early Warning System for the Laoag River Basin

On 08 November 2023, a kick-off meeting between the Ministry of Environment (MoE) of the Republic of Korea, represented by K-Water, and the DOST-PAGASA was held. This is a pivotal initiation for the joint implementation of the Establishment of an AI-Based Flood Forecasting and Warning System in the Laoag River Basin. The project aims to address the pressing need for advanced flood forecasting and warning capabilities, crucial for adapting to climate change and safeguarding the residents of the Laoag River Basin. The said meeting involves comprehensive discussion on timelines, resource allocation, and approval processes to ensure shared understanding among involved entities, fostering a collaborative and efficient approach.



PAGASA Joins Forces for Daet River Watershed Management Council

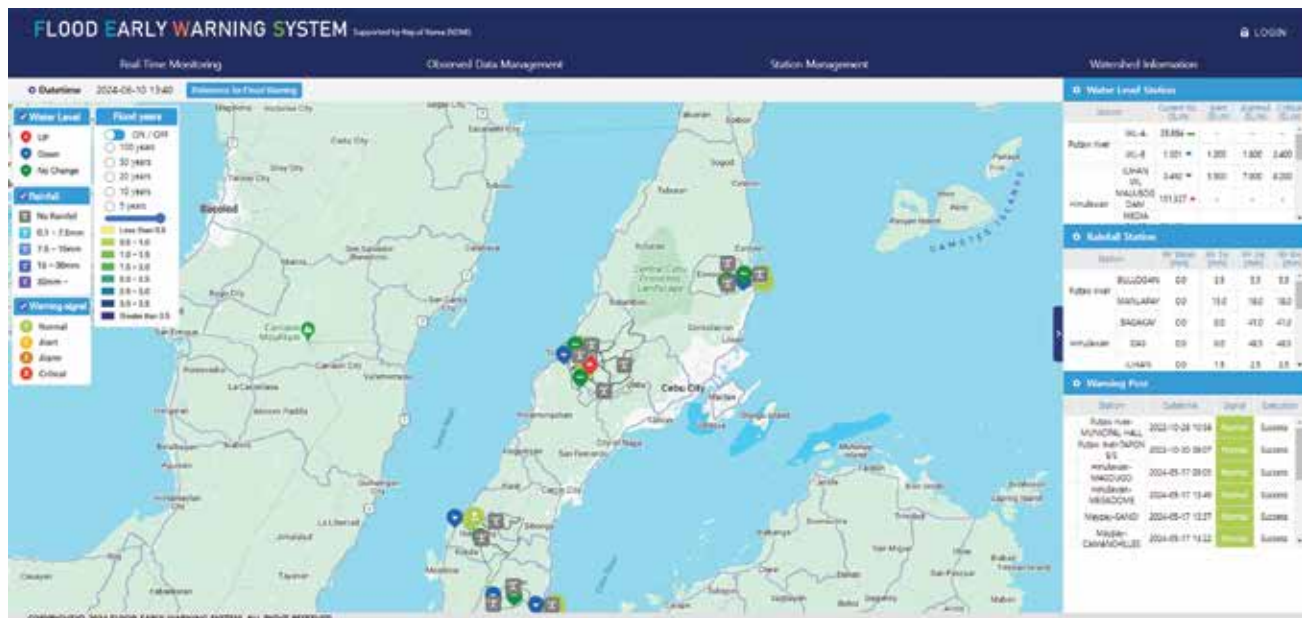
The Provincial Environment and Natural Resources Office (PENRO) and the Camarines Norte LGU spearheaded the Daet River Watershed Management Council in accordance with the Local Government Code under RA No. 7160 which aims to conserve communal forests and watersheds for the betterment of the community.

The signing ceremony took place on 23 August 2023 at the Prime Suite Hotel in Daet, Camarines Norte participated by various government agencies such as the DENR, NIA, DPWH, DA and

the DOST-PAGASA. The Agency's involvement demonstrates the importance of weather and climate information in managing and preserving watersheds. The primary goal of this endeavor is to prevent further degradation of the watershed and to restore its productivity and protective functions through sustainable multiple uses of natural resources within the area. This collaborative effort signifies a significant step towards safeguarding our environment and ensuring a sustainable future for Camarines Norte.



Strengthening the capability of the Republic of the Philippines on Disaster Risk Reduction (Phase2)



The Flood Early Warning System (FEWS) can be accessed online at <http://121.58.193.178/main.do>

The project Strengthening the Capability of the Republic of the Philippines on Disaster Risk Reduction is a partnership between PAGASA and the National Disaster Management Research Institute (NDMI) of South Korea which

main goal is to develop a reliable Flood Early Warning System (FEWS) that could be accessed online. The system combined hydrological and hydraulic analyses, flood inundation mapping, and guidelines for effective flood early warning.



The turnover ceremony and Disaster Risk Reduction and Management Officers (DRRMOs) training were held on 08 September 2023 in Mandaue City Cebu

ASTRONOMICAL OBSERVATION AND MONITORING PROGRAM

100 Hours of Astronomy and World Space Week



There were two significant Astronomy events happened in October 2023. The first one was the 100 Hours of Astronomy organized by the International Astronomical Union (IAU) – Office of the Astronomical Outreach (OAO), held from 1-4 October 2023 which was conducted to promote astronomy and inspire individuals of all ages to delve into the wonders of the universe. The other event is the World Space Week (WSW) which was held on 04-10 October 2023 to raise awareness about the importance of space exploration and its myriad benefits to humanity.

The DOST-PAGASA orchestrated an impactful outreach activity at the Children of Joy Foundation, Inc., with a theme “Space Adventure Day: Exploring the Solar System.” This event was crafted to ignite curiosity and understanding of the solar system among the younger generation, creating lasting memories and cultivating an appreciation for the beauty of the universe.



Free Telescoping and Stargazing



Free Planetarium Lectures

PAGASA also hosted an open-house session offering free lectures, telescoping sessions, and stargazing opportunities on 10 October 2023. The outreach efforts at the Children of Joy Foundation, Inc., witnessed the active participation of 13 individuals and 1,279 audience on free planetarium lectures. The telescoping and stargazing sessions engaged a total of 848 individuals, showcasing PAGASA's commitment to promoting astronomy education and inclusivity in the Philippines.

DOST Tarlac Space Technology Application Exhibit 2023

The DOST-PSTO-Tarlac, in partnership with the Philippine Space Agency (PSA) and the DOST-PAGASA, organized an exhibit to showcase the achievements of Filipino scientists in the field of space exploration. The exhibition at Tarlac State University was held on 16–18 May 2023. Exhibits included replicas of Philippine microsatellites, space technology applications developed by Filipinos, and a mobile planetarium. Students from various schools in Tarlac province got the opportunity to view these replicas and learn about the country's involvement in space activities.

The exhibit aims to inspire and ignite curiosity among visitors of all ages, encouraging them to dream big and aspire for achievements in space science.





Part of the exhibit included the conduct of free planetarium shows for students including the activity conducted for selected students of Tarlac National High School with a theme "Let's Light Up the Constellations". A total of 916 individuals, consisting of 312 males and 604 females, participated in the free mobile planetarium shows.



Global Astronomy Month 2023

Held every April of the year, the Global Astronomy Month is an initiative of the Astronomers Without Borders, a global community of astronomy enthusiasts, with the aim of gathering people from all walks of life to experience and enjoy the beauty of the sky with the stars and other celestial bodies.

This year, PAGASA conducted series of several activities in celebration for the month-long event. Free shows at the PAGASA Planetarium and workshops were conducted on 12, 19, and 26 April 2023. Meanwhile, free Telescoping and Stargazing were conducted in the evening.

On 28 April 2023, a virtual planetarium show was held marking the conclusion of the Global Astronomy Month 2023 celebration.

The celebration was participated mostly by students from various universities and colleges, consisted of 253 male and 332 female attendees.

Global Astronomy Month
presented by Astronomers Without Borders

FREE PLANETARIUM SHOW
Every Wednesday of April 2023
April 12, 19 & 26

Morning Session 8:00 a.m. - 8:45 a.m. 9:00 a.m. - 9:45 a.m. 10:00 a.m. - 10:45 a.m. 11:00 a.m. - 11:45 a.m.	From Earth to the Universe The Sky Tonight From Earth to the Universe The Sky Tonight
Afternoon Session 1:00 p.m. - 1:45 p.m. 2:00 p.m. - 2:45 p.m. 3:00 p.m. - 3:45 p.m.	The Sky Tonight From Earth to the Universe The Sky Tonight

Address: PAGASA Planetarium, Bill Road, Quezon City

Global Astronomy Month
presented by Astronomers Without Borders

FREE TELESCOPING AND STARGAZING SESSION
Every Wednesday of April 2023
April 12, 19 & 26

7:00 p.m. - 10:00 p.m.

OPEN FOR WALK-INS
UNDER FAVORABLE SKY CONDITION

Address: PAGASA Astronomical Observatory, UP Diliman Campus, Quezon City

VIRTUAL PLANETARIUM SHOW

VIA ZOOM
April 28, 2023
2:00 p.m. - 3:00 p.m.

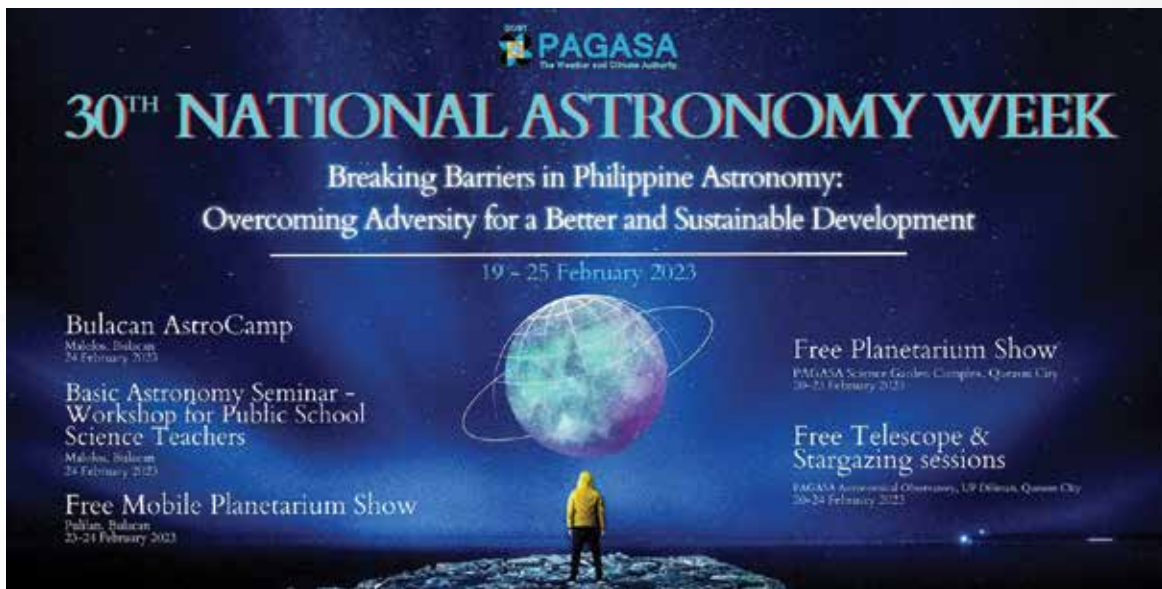
Information@pagasa.dost.gov.ph | astronomy@pagasa.dost.gov.ph

ONE PEOPLE, ONE SKY

LET'S LIGHT UP THE STARS

Information@pagasa.dost.gov.ph | astronomy@pagasa.dost.gov.ph

National Astronomy Week 2023



Recognizing the significant contribution of Astronomy in the advancement of Science, Presidential Proclamation No. 130, s. 1993 declares third week of February every year as the “National Astronomy Week” (NAW) under the auspices of the Philippine Atmospheric, Geophysical and Astronomical Service Administration (PAGASA)

PAGASA organized on 19–25 February 2023 educational and outreach activities with a theme “Breaking Barriers in Philippine Astronomy:

Overcoming Adversity for a Better and Sustainable Development to showcase the facilities of PAGASA to the general public as well as conducting seminar for Science Teachers and Astro camp for Junior High School students of selected schools in Bulacan.

The opening ceremony of the celebration was done via Facebook Live and Zoom. Ms. Lina Canas Director of the IAU–OAO graced the program as the keynote speaker. Activities were conducted in coordination with DepEd–Division of Bulacan.



The seminar/ workshop and the Astro Camp were held in Malolos, Bulacan and the Mobile Planetarium was held in Guiguinto Central School in Guiguinto, Bulacan.

“NAW–On–Tour. Astro Camp for Selected Junior High Schools” activity was also held with the participation of nine (9) schools in Bulacan on various competitions namely On–The–Spot Poster Making, Astro Quiz Bee, Astro Category Game, and Group Contest.

RESEARCH AND DEVELOPMENT PROGRAM FOR WEATHER AND ALLIED SCIENCES

Published Research Papers

Research is the systematic gathering of data in order to derive into a new information. In the organization, it is a vital tool to provide additional insights for the improvement of its current operation.

The following are PAGASA research papers published in 2023:

The Philippine springtime (February – April) sub-seasonal rainfall extremes and extended-range forecast skill assessment using the S2S database

Authors: Ana L. S. Solis, et al

Date of Publication and Journal / Site:

June 2023, Science Direct

Abstract:

During the first half month of April 2022, the Philippines experienced severe disasters associated with the weak but deadly tropical storm Megi that caused 214 deaths and two sunken ships. This prompted the researchers to investigate the extended-range prediction skill of the springtime Philippine sub-seasonal scale rainfall extremes in the subseasonal-to-seasonal (S2S) prediction database. The results suggest that the S2S models can well predict the extremity of the 2022 Springtime sub-seasonal peak rainfall event (SPRE) ten days ahead. In addition to the La Niña sea surface temperature anomalies, this prolonged rainfall event, from March 26 – April 14, 2022, was associated with an anomalous cyclonic circulation straddled over the South China Sea (SCS) and the Philippine Sea and persisted for two weeks. The strong relationship between the El Niño and Southern Oscillation (ENSO) and the springtime (February – April) rainfall variability in the Philippines is clearly revealed in the analysis of 25 years observational and hindcast data. The extremely wet SPREs tend to occur during the La Niña springs, while extremely dry SPREs tend to occur during the El Niño springs. The Madden-Julian oscillation (MJO) and equatorial Rossby (ER) waves that are capable of modulating the sub-seasonal rainfall extremes were weak when the deadly SPRE



occurred in April 2022. Thus, the extended-range forecast skill of this example can be interpreted as the baseline skill of the current S2S prediction revealed in the multi-model database. The findings suggest that the SPRE is a useful item to be included in the operational forecast as potential opportunities to harness the benefits of S2S prediction.

Development and Evaluation of Multi-Week Tropical Cyclone Strike Probability Forecasts in the Philippines

Authors: J.M.B. Adelino, M.C.M. Tierra, and M.Q. Villafuerte II

Date of Publication and Journal / Site:

July 2023, Philippine Journal of Science

Abstract:

Tropical cyclone (TC) forecast, provided a few weeks in advance, can be beneficial for the preparation and mitigation of disaster risks in TC-vulnerable countries such as the Philippines. In this study, TC strike probability forecasts with a lead time up to 4 weeks were derived by combining the TC tracks from each ensemble member of the three models—namely, NCEP Coupled Forecast System version 2 (CFSv2), European Centre for Medium-Range Weather Forecasts Ensemble Prediction System (ECMWF), and NCEP Global Ensemble Forecast System version 12 (GEFSv12)—to show how likely it is for a TC to form or strike an area within the 300-km radius of the TC center. To assess its performance, real-time derived TC strike probability forecasts over the Tropical Cyclone Information Domain (TCID) of the Philippines (bounded by 0–27°N and 110–155°E) covering the period from 06 Oct 2020–31 Oct 2022 were evaluated. Verification metrics revealed that the skill and reliability of the TC forecasts vary with lead time and the TC being forecasted. Week 1 forecasts are reliable and can be helpful for decision-making, whereas Week 2 forecasts are considered most reliable only up to the 51–60%

probability interval. On the other hand, forecasts with 3–4 wk lead times are reliable for probabilities less than 20%. The case study performed using five TCs with different intensity classifications has shown that generally, forecasts for TCs with stronger intensity have higher skills than forecasts for relatively weaker ones. It was also observed that the magnitude of the probability values varies with the intensity changes within the validity period. These findings suggest that the multi-model ensemble forecasts can be utilized for the improvement and eventual operationalization of multi-week TC strike probability forecasts over the Philippines.

Evaluation of Multi-Week Tropical Cyclone Forecasts in the Philippines

Authors: M.Q. Villafuerte II, et al

Date of Publication and Journal / Site:

October 2023, American Meteorological Society

Abstract:

In the pursuit of providing tropical cyclone (TC) forecasts beyond the conventional time scales covered by weather forecasting in the Philippines, this study has examined the multi-week (ie., from week 1 to week 4) TC forecast skill in the country. TC forecasts derived from three ensemble models, namely, the NCEP Climate Forecast System version 2 (CFSv2), the European Centre for Medium-Range Weather Forecasts Ensemble Prediction System (ECMWF), and the NCEP Global Ensemble Forecast System version 12 (GEFSv12) from 6 October 2020 to 31 October 2021 were verified. Results revealed that the ECMWF model is consistently the most skillful in multiweek TC prediction over the domain bounded by 110°–155°E and 0°–0.33°, and the highest equitable threat scores among the models. In contrast to this, the GEFSv12 and CFSv2 models had varying skills, with the former performing better in the first two weeks and the latter in longer

lead times. It is further revealed that the three models generally underestimate the observed number of storms, storm days, and accumulated cyclone energy. Moreover, the study shows that the forecast TC tracks have a significant ($p < 0.05$) positional bias toward the right of observed tracks beyond week 1, and that they tend to propagate slower than observations especially in week 1 and week 2. These findings contribute to better understanding the strengths and limitations of these ensemble models useful for eventual provision of multiweek TC forecasts in the Philippines.

Decreasing Quiescence of Tropical Cyclones passing through Korean Peninsula

Authors: G.A.M. Duran and J. Basconcillo

Date of Publication and Journal / Site:

November 2023, Scientific Online Letters on the Atmosphere

Abstract:

Due to less tropical cyclone (TC) occurrences, the climatology of the quiescent TC season (ie., March–April–May, MAM) in the Western North Pacific (WNP) is less understood when compared to the more active season (ie., June–November). Here, the researcher showed the observational evidence of significantly decreasing TC quiescence during MAM. Such anomalous SST pattern prompts the Western North Pacific Subtropical High to expand westward, creating a conducive large-scale environment for TC development and allowing TCs to move closer to the landmass, which ultimately leads to an increasing cost of TC-associated damages during the quiescent season. The study provides new insights into the decreasing TC quiescence and TC climatology in the WNP during MAM, which is ultimately expected to contribute to disaster risk reduction in the region.

Influence of Multiyear Variability on the Observed Regime Shifts in Philippine Climatology

Authors: Joseph Basconcillo, Ger Anne Duran, Shalou-Lea Maratas, Edna Juanillo, Esperanza Cayanan, et al

Date of Publication and Journal / Site:

November 2023, Asia Pacific Journal on Atmospheric Science

Abstract:

In the advent of the new climate normal period (i.e., 1991–2020), questions are raised on what are the recent changes in the observed Philippine climatology. Here we present evidence that the Philippine climate has become warmer (i.e., increased annual surface temperatures) and wetter (i.e., increased annual rainfall) since the mid-1990s while an abrupt increase in tropical cyclone (TC) activity in the Philippines is detected in the mid-2000s. Such regime changes are mainly attributed with the shift of the Atlantic Multidecadal Oscillation (AMO) to its positive phase since the mid-1990s. A positive AMO enhances the Pacific Walker Circulation where the more intense convection center typically shifts towards the western Pacific – this translates to more rainfall, narrowing diurnal temperature range, warmer sea surface temperatures, and more intense TC activity in the Philippines. However, the recent positive AMO phase is reported as externally and possibly driven by anthropogenic warming rather than it is naturally oscillatory, which likely implies that the detected abrupt regime shifts in the Philippine climate, particularly in increased surface temperatures, are also externally driven. Our findings provide new insights on the long-term trends and variability of the Philippine climate in support of its disaster risk reduction preparedness and seasonal forecasting.

PHYSICAL RESOURCE AND OPERATIONAL TECHNIQUES PROGRAMS

DOST – PAGASA's NETWORK OF FACILITIES

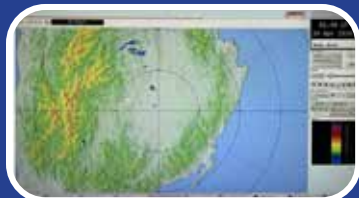
DOPPLER WEATHER RADAR STATION

In 2023:

Two (2) stations, Masbate and Laoag Doppler Radar Stations.

Overall:

19 Doppler Weather Radar Stations.



X-BAND RADARS

In 2023:

Two (2) X-Band Radars, Davao City for Davao RB and Iriga, Camarines Sur for Bicol RB.

Overall:

Six (6) X-Band Radars.

FLOOD FORECASTING AND WARNING SYSTEMS (FFWSS)

In 2023:

Major River Basin:

Two (2) River Basins, Ilog Hilabangan and Ilog Agus.

Principal River Basins:

Danao River (Cebu)
Argao River (Cebu)
Rivers in Biliran

Overall:

Twenty Four (24) River Basins
(18 Major RBs and 6 Principal RBs)



FIELD WEATHER STATIONS

In 2023:

Two (2) Field Weather Stations, Panglao Field Weather Station and Quirino Field Weather Station.

Overall:

Eighty Five (85) Field Weather Stations.



DOST – PAGASA's NETWORK OF FACILITIES

AUTOMATIC WEATHER STATIONS

Overall:

One Hundred Sixty Five (165)
Automatic Weather Station.



AVIATION WEATHER OBSERVATION STATION

Overall:

Seven (7)
Automatic Weather Observation
Station (AWOS)

LIGHTNING DETECTION SYSTEMS

Overall:

Twenty Eight (28)
Lightning and Detection System



HIGH FREQUENCY RADARS

Overall:

Thirty Two (32)
High Frequency Radars.



UNMANNED SEA- SURFACE VESSEL

Overall:

One (1) Unmanned Sea-
Surface Vessel.



HIGH PERFORMANCE COMPUTING SYSTEM/FACILITIES

Overall:

One (1) High Performance
Computing
System/Facilities



New DOST-PAGASA Planetarium in Mindanao



Aerial view of the DOST-PAGASA Planetarium in Misamis Oriental

This is 35 Million-project funded by the Government of the Philippines with a 755-square meter facility located in El Salvador City, Misamis Oriental. The DOST-PAGASA takes pride as this facility will be the **Mindanao's first-ever planetarium**. The observatory includes a planetarium chamber and a small astronomical observatory, featuring a large dome-shaped projection screen that will showcase constellations, planets and various astronomical phenomena. **It is already 100% completed and is targeted to be operational in 2024.**

The ultimate goal of the project is to captivate the interest of students and astronomical enthusiasts in the countryside bringing them the planetarium experience such as the beauty and wonders of the universe through planetarium lecture/shows. With this development in science and technology, awareness in Astronomy will have a wider reach. This aim meets the DOST Pillar 1 or the Human Well Being particularly achieving quality science education and enhancing knowledge and socio-economic contribution of S&T talents.



Improvement of Cagayan River Basin Telemetering System

Photos of Selected Telemetering Stations



Having a drainage area of 27,580 sq km at the river mouth in Aparri, the Cagayan River Basin (CRB) forms the largest river basin in the Philippines. This River Basin is already covered by five different provinces mainly of Cagayan, Isabela, Kalinga Apayao, Ifugao and Nueva Vizcaya.

The installation of additional water level and rain gauges reinforced the improvement of the Cagayan River Basin Telemetering system. It is beneficial in monitoring the rainfall from the upstream and adjacent places most especially during the inclement weather, for flood monitoring and warning purposes.

Establishment of Integrated Hydrological Data Management (HDMS)



Installed rack, servers, UPS, and workstation at HMD-Flood Forecasting and Warning Office (Quezon City) for Pasig-Marikina-Tullahan River Basins.

PAGASA has collected enormous hydrological data from 18 major river basins nationwide. Managing this information requires a secure and dependable IT system. The Integrated Hydrological Data Management System (HDMS) was developed to fulfill this requirement. It efficiently stores, edits, and retrieves hydrometeorological data through the Time Series software. The Visualization software allows the sharing of hydrologic information with the public, disaster risk reduction officers, and planners through various communication channels, such as the Internet and global mobile communication systems.



System architecture, time series, data import, validation, and model integration training at the Kister Office in Aachen, Germany in May 2023.

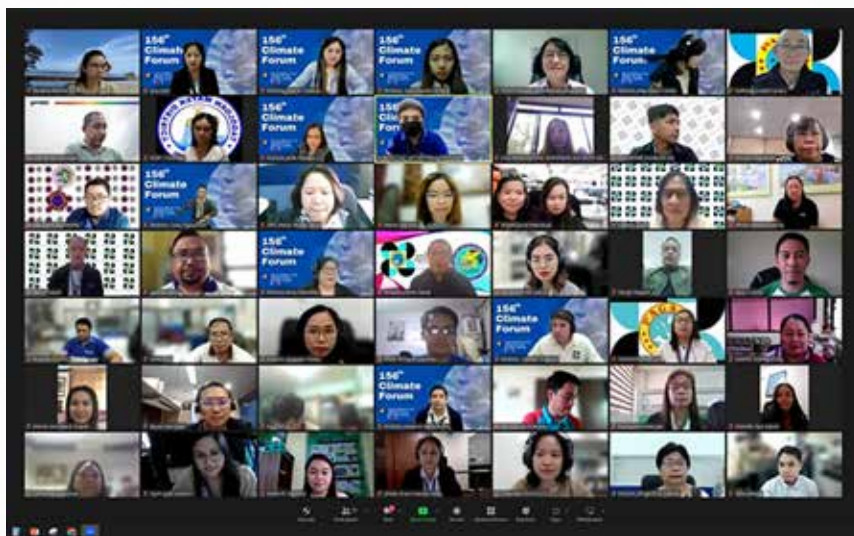


Inspection, testing, commissioning, and end-user training conducted at the HMD-Flood Forecasting and Warning Center in Quezon City for Pasig-Marikina-Tullahan River Basins in August 2023.



CLIMATE CHANGE ADAPTATION, DISASTER PREPAREDNESS AND RISK REDUCTION PROGRAM

Climate Forums



The National Climate Forum aims to link the weather and climate information with stakeholders' decision-making processes and to gather as well feedback for the improvement of climate information, particularly the seasonal climate outlooks.

The forum allows PAGASA and stakeholders to discuss current climate conditions and outlook that may be utilized for addressing climate-related risks and their possible implications in different socio-economic sectors.

CLIMATE FORUM 2023



156th Climate Forum



January 25, 2023



One Hundred Eighty Three (183)



Five Thousand Two Hundred (5,200)



One Thousand Five Hundred (1,500)



157th Climate Forum



February 22, 2023



Two Hundred Twelve (212)



Eight Thousand Five Hundred (8,500)



One Thousand Five Hundred (1,500)



158th Climate Forum



March 22, 2023



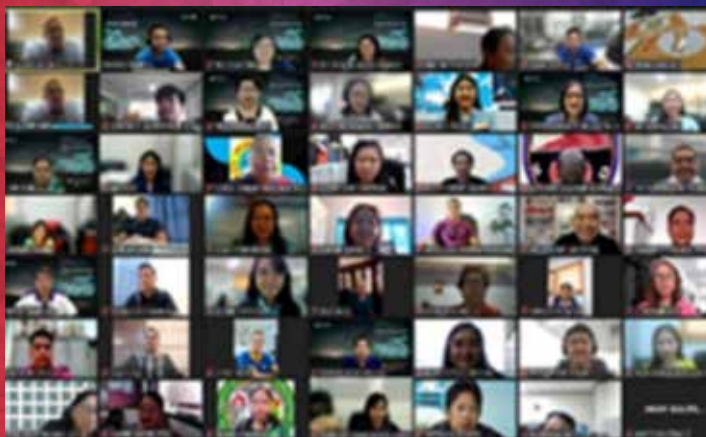
One Hundred Sixty Four (164)



Nine Thousand Five Hundred (9,500)



One Thousand Three Hundred (1,300)





159th Climate Forum



April 26, 2023



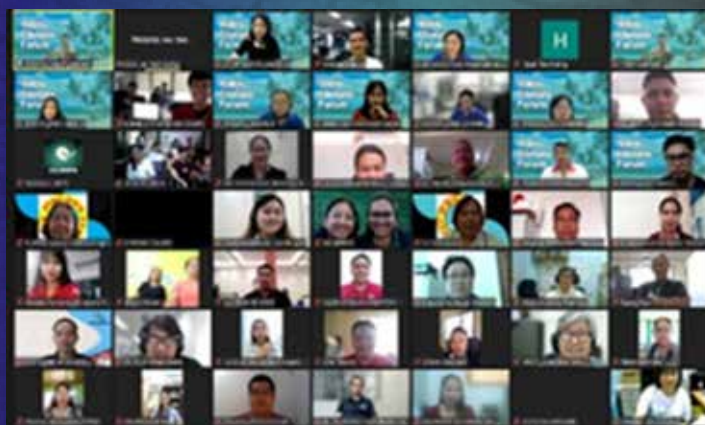
One Hundred Eighty Eight (188)



Eight Thousand Five Hundred (8,500)



Seven Hundred Eighty Nine (789)



160th Climate Forum



May 24, 2023



Two Hundred Thirty Two (232)



Two Thousand Three Hundred (2,300)



Two Thousand Two Hundred (2,200)



161st Climate Forum



June 22, 2023



One Hundred Sixty Four (164)



Nine Thousand Five Hundred (9,500)



One Thousand Three Hundred (1,300)





162nd Climate Forum



July 26, 2023



Two Hundred Six (206)



Forty Four Thousand (44,000)



One Hundred Seventy Eight (178)



163rd Climate Forum



August 23, 2023



Two Hundred Thirty Eight (238)



Seventeen Thousand Five Hundred (17,500)



Two Thousand Nine Hundred Seventy One (2,971)



164th Climate Forum



September 27, 2023



Two Hundred Sixty Three (263)

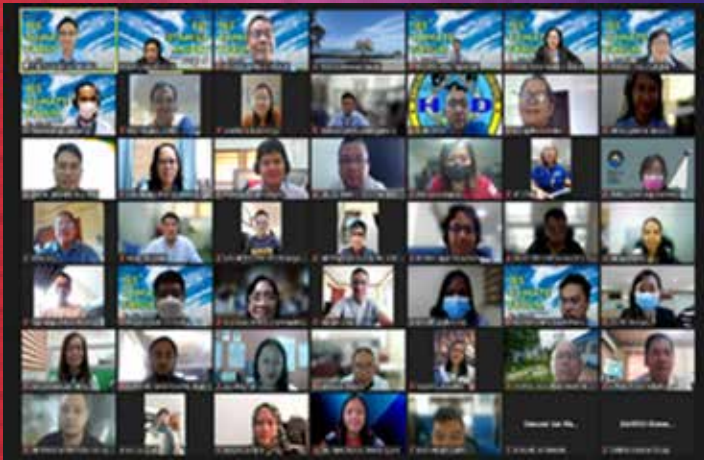


Eleven Thousand (11,000)



Three Thousand (3,000)





165th Climate Forum



October 25, 2023



Three Hundred Seventy One (371)



Ten Thousand Six Hundred (10,600)



Two Thousand Nine Hundred (2,900)



166th Climate Forum



November 22, 2023



Two Hundred Two (202)



Thirty Seven Thousand Eight Hundred (37,800)



Two Thousand Six Hundred (2,600)



167th Climate Forum



December 20, 2023



Two Hundred Thirty One (231)



Twelve Thousand One Hundred (12,100)



Two Thousand (2,000)



MAAGAP Awareness Webinar for Science Teachers and DRR Coordinators for CAR

MAAGAP Awareness Webinar was conducted on 04 December 2023 via Zoom which is specifically designed for Science teachers and Disaster Risk Reduction (DRR) coordinators across CAR. MAAGAP, which stands for Maagang Aksyon at Akmang Gawing Ayon sa Panahon (Early Action and Appropriate Response to the Weather), is a crucial initiative aimed at fostering a proactive approach to disaster management.



During the webinar, participants were engaged in an informative session that delved into the significance of early action and proper response during occurrence of a certain weather disturbance. The platform served as an invaluable opportunity for science teachers and DRR coordinators to expand their knowledge and exchange insights on integrating MAAGAP principles into their educational practices. By empowering educators with the tools to instill a culture of preparedness, the MAAGAP Awareness Webinar is expected to contribute significantly to building resilient communities in CAR, safeguarding lives, and mitigating the impact of natural disasters.

Workshop on Multi-Sectoral Application of the Newly Developed High-Resolution Gridded Climate Data of the Philippines

On 15 December 2023, workshop on the Multi-Sectoral Application of the Newly Developed High-Resolution.

Gridded Climate Data of the Philippines was held at Harolds Evotel. It aims to showcase PAGASA's innovative efforts in advancing climate science as the newly developed high-resolution gridded climate data promises to revolutionize various sectors by providing more accurate and detailed insights into the country's climate patterns, which will empower decision-makers to implement strategies for climate resilience and adaptation.

Participants of the said workshop were mostly from government agencies to private sector representatives. The workshop facilitated a collaborative environment



for knowledge exchange and exploration of potential applications for the high-resolution climate data. PAGASA's commitment to advancing climate research and providing accessible tools for informed decision-making was evident throughout the event, marking a significant step forward in enhancing the Philippines' capacity to address the challenges posed by a changing climate.

Virtual Learning Session with PDRF and Jollibee Group Foundation



A virtual learning session was held among DOST-PAGASA, Philippine Disaster Resilience Foundation (PDRF), and Jollibee Group Foundation on 19 December 2023 via Zoom which gathered 69 participants. The virtual learning session not only underscored the crucial role of PAGASA in providing valuable insights on weather, flood and climate information but also highlighted the importance of cross-sector collaboration in building a united front against natural disasters.

Climate Smart Farmers Field School in Camarines Norte



Empowering local farmers with climate-smart practices, the Municipal Agriculturist office of Labo, Camarines Norte, collaborated with PAGASA in hosting a Farmers Field School on Organic Vegetable Production. Held at the PAGASA Daet Complex Weather Station on 24 November 2023, this initiative aimed to equip farmers with critical insights into weather patterns and their impact on agricultural yields. PAGASA's contribution through lectures on weather conditions and climate dynamics provided farmers with invaluable knowledge to better understand and anticipate the effects of weather systems on their crops and livestock.

The session emphasized the pivotal role of climate forecasts in optimizing agricultural practices, enabling farmers to make informed decisions crucial to maximize profits, minimize losses, and elevate net farm income. By integrating weather and farming data, farmers gained the tools to strategize planting schedules, irrigation, pest control measures, and harvesting, aligning their practices with weather predictions.

Met4You 2023 for Eastern Visayas

In partnership with the Philippine Meteorological Society Inc., DOST, and DOST-SEI, PAGASA hosted the event Met4You for Eastern Visayas at the Visayas State University on 24 November 2023. The event served as a platform for aspiring meteorologists and weather enthusiasts to showcase their expertise and innovative approaches in understanding and predicting weather phenomena.



PAGASA's involvement as critical evaluator and resource person on participant's competitions and presentations provided invaluable insights and guidance, shaping the next generation of weather forecasters

and scientists in Eastern Visayas. The agency's active participation not only demonstrated its dedication to advancing meteorological knowledge but also reaffirmed its role as a cornerstone in fostering a deeper understanding of weather dynamics within the aspiring meteorological community.

2023 Regional Science, Technology and Innovation Week in Cagayan Valley

In a pioneering initiative to bridge the gap between technical expertise and accessible information in disaster risk reduction and management (DRRM), PAGASA and PHILVOCS collaborated with DOST Region 2 in launching the Simplifying Understanding of DRRM Information eXchange (SUDI-X). The program was held at Robinson's Tuguegarao in Tuguegarao City, Cagayan on 14-16 November 2023 which is aimed to equip media professionals, Provincial Disaster Risk and Reduction Management Officers (PDRRMO), and Provincial Information Officers with the tools to translate intricate technical concepts used by experts into more understandable language. At the forefront of this innovative approach, PAGASA, alongside PHILVOCS, actively participated as exhibitors and presenters



during the event. This collaborative effort not only empowers local communities with simplified yet essential disaster-related knowledge but also exemplifies PAGASA's dedication to fostering a more informed and prepared society in mitigating the impact of natural hazards.

Climate Resilience Conference in Iloilo City

The Climate Resilience Conference held at District 21 Hotel in Iloilo City on 27–29 November 2023 was to bring together experts, policy makers and community leaders for proactive strategies against climate change impacts. The conference involves workshops to facilitate meaningful dialogues and commitment to empower communities with the tools and know-how to combat the changing climate and its challenges.



IEC Campaign for the Province of Cagayan, Isabela and NIA Stakeholders

PAGASA, through its Northern Luzon PAGASA Regional Services Division (NL-PRSD), took a proactive step towards strengthening disaster resilience in the provinces of Cagayan and Isabela, along with stakeholders from the National Irrigation Administration (NIA), through conduct of IEC Campaign. The Campaign was held on 12–13 October 2023 which utilized both physical and virtual platforms.

It aimed to broaden public awareness and bolster the capacities of local Disaster Risk Reduction and Management (DRRM) managers and responders by equipping them with the skills to interpret and apply timely, accurate, and relevant information on tropical cyclone hazards. The campaign support prevention and mitigation strategies to foster prompt decision-making in the face of potential disasters.



Empowering Isabela: Familiarization and Basics of Weather Monitoring and Forecasting Training Course

Led by the Federation of Cagayan Valley Rescue Group Inc., months-long comprehensive training session on Familiarization and Basics of Weather Monitoring and Forecasting Training Course was conducted together with PAGASA's NL-PRSD. The said Training course happened between September and October 2023 for disaster managers held in five batches which include topics on weather forecasts, tropical cyclone warnings, flood



Batch 1



Batch 5

advisories, hydrological and climatological forecasts, Rainfall Warning System and Gale Warning. By empowering local disaster managers with this knowledge, PAGASA contributes to the overall preparedness and response capabilities of communities, ensuring a proactive approach to weather-related challenges in the Northern Luzon region.

El Nino Forums

The El Niño Southern Oscillation (ENSO) is a naturally occurring phenomenon of the climate system which results to the interaction between the ocean and atmosphere in the Central and Eastern Equatorial Pacific (CEEP). It warms temperatures, weaken winds from the east which disables the pushing of warm water towards the west. This also means less rainfall as warm water scatters over the Pacific and clouds form away from the Philippines.

In an effort to address the potential impacts of the El Niño on various regions, experts, stakeholders and community representatives were gathered to El Niño Forum for Mindanao, Northern Luzon, and Visayas on 26 October, 23 and 28 November 2024 respectively via online platform. PAGASA's initiative to host this forum underscores the agency's commitment to fostering public awareness and preparedness, utilizing technology to bring together a diverse audience and share essential information in the face of climate-related challenges.

Disaster Risk Reduction and Management Training Courses for Farmers Group



The Northern Luzon PAGASA Regional Services Division (NLPRSD) and the Department of Agriculture Cagayan Valley Research Center collaborated for a Disaster Risk Reduction Training Course for farmers. The said activity which was conducted on 06 September 2023 in San Felipe, Ilagan City, Isabela is enriched with informative sessions on hydrometeorological hazards. There was a total of 35 attendees, comprised of 19 males and 16 females.

Collaborative Efforts to Service SANJERA Farmers

The PAGASA Laoag Station Complex of the NL-PRSD responded with the National Irrigation Administration's invitation along with other government agencies to prepare for the upcoming dry season. Impacts of the El Niño Phenomenon and Climate Outlook are the main topics of the Agency's resource persons for the said endeavor particularly for the SANJERA farmers.

The meetings took place in various locations particularly at the Dumaya Irrigators Association Office in Brgy Sta Maria, Piddig; NIA North Main CANAL & Pasuquin Extension RIS in Agarlobo, Salsalamagui, Vintar; Madongan RIS and Laoag Vintar RIS in San Marcelino Vintar; NIA Field Office in Laoag City; Hotel Arian in Paringao, Bauang, La Union for the NDRRM Summit 2023; Bonga Pump RIS 1A Office in San Antonio Sarrat; and Dingras RIS Binaritan Shed in Brgy Cali Dingras.

The engagement showcased PAGASA's dedication to proactive engagement with communities, contributing to disaster preparedness and fostering resilient responses to weather-related challenges.



Meeting on Sept. 12, 2023 in Dumaya Irrigators Association Office, Brgy Sta Maria Piddig



Sept. 15, 2023 Madongan RIS Meeting with the officer of SANJERA / Farmers – San Marcelino Vintar

IEC on Weather, Climate, and Flood Information for Public School Teachers in Sorsogon

IEC on Weather, Climate, and Flood information for public school teachers is part of a three-year program strategically designed to equip DRR Coordinators from public schools across the Bicol Region. It aims to empower educators with the insights and tools needed for informed decision-making and proactive measures, particularly in remote areas susceptible to extreme weather events.

The said campaign was held on 19-20 September 2023 at the People's Mansion and AV Hall in Sorsogon State University, Sorsogon City.



Pag-andam sa mga Katibadaan: A Community Training on Disaster Preparedness

"Pag-andam sa mga Katibadaan: A Community Training on Disaster Preparedness" is a proactive effort to enhance disaster preparedness within the community particularly in Legazpi City.

It took place at Gogon High School, Barriada, Brgy. Gogon, Legazpi City on 11 August 2023 participated by Barangay workers and organizations, representatives of the establishments, and Purok Officials.



The highlight of the seminar was a comprehensive session on "Understanding Meteorological Hazard," led by experts from the Southern Luzon PAGASA Regional Services Division. This session educated participants about the dangers and effects of meteorological hazards, providing valuable insights into how to prepare for and respond to weather-related disasters.

Coastal Engineering Summit ensuring Coastal Resiliency through S&T Intervention



The Coastal Engineering Summit hosted by the Mariano Marcos State University (MMSU) on 14-15 August 2023 in Batac City, Ilocos Norte is a dynamic platform for government officials, community leaders, experts, and scientists to collaborate and exchange insights on tackling climate change's impact on coastal areas.

The summit focused on innovative coastal engineering solutions and sustainable coastal management



practices. Esteemed experts and thought leaders delved into strategies to fortify coastal communities against the challenges posed by climate change.

PAGASA delivered vital hydrometeorological and climate information services, a significant input to develop sustainable solutions that ensure the resilience of coastal communities in the face of mounting environmental threats.

YMCA 7th Green Ambassador's Training

The Young Men's Christian Association (YMCA) conducted the 7th Green Ambassador Training on 01 July 2023 at Atio-An Resort and Gethsemane Prayer Mountain, Aguinaldo, Ramon, Isabela. It is an educational program designed to empower individuals to become advocates for environmental sustainability and positive change within their communities. PAGASA supported the Association's mission by providing them information on hydrometeorological and climate information.



Participants are engaged in a series of workshops, discussions, and hands-on activities focused on various aspects of sustainability so as to equip them about climate change, waste reduction, energy efficiency, water conservation, biodiversity, and sustainable lifestyles.

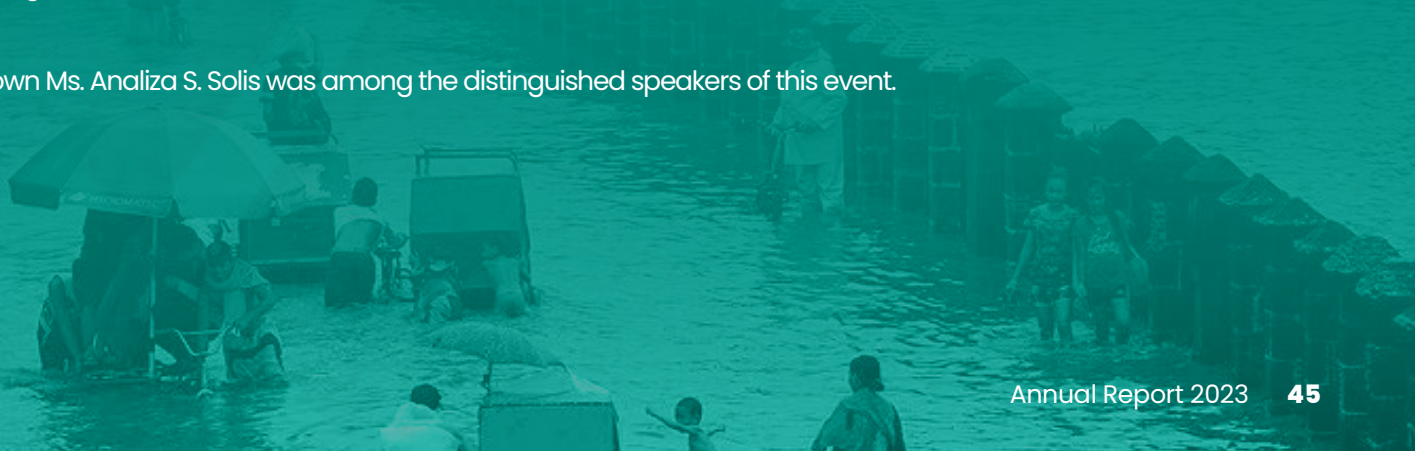
HANDA Pilipinas Expo 2023

HANDA PILIPINAS: Innovations in Disaster Risk Reduction and Management (DRRM) Exposition stands as an annual affair organized by the Department of Science and Technology (DOST). The inaugural segment of this tripartite series, known as HANDA PILIPINAS Luzon Leg 2023 took place on July 27 to 29 at the World Trade Center in Pasay City. This timeframe aligns with the observance of the National Resilience Month, a yearly tradition held every July.



Under the overarching theme of "Risk Reduction in Mega Cities," this three-day exhibition seeks to enhance public consciousness and encourage the adoption of innovative technological solutions developed by the DOST. These solutions pertain to mitigating risks and managing crises, particularly in the realms of disaster preparedness, response, recovery, and rehabilitation. The attendees of this exposition were comprised of diverse entities such as local government units, national and regional government agencies, regional councils for disaster risk reduction and management, volunteer groups, non-governmental organizations, educational institutions, and private sectors within the Luzon region.

Our very own Ms. Analiza S. Solis was among the distinguished speakers of this event.



MAAGAP Seminars

The “Maagang Aksyon at Akmang Gawin Ayon sa Panahon (MAAGAP)” Information Education and Communication (IEC) Campaign is one of the events featured during this year’s celebration of Typhoon and Flood Awareness Week (TFAW).

MAAGAP webinars for Science School Teachers and School DRR coordinators in Regions 11, 12 and BARMM were conducted via Zoom on 20-21 June 2023 with 525 attendees. In addition, MAAGAP seminar was also conducted in Bulacan and Ilocos Norte in coordination with their respective officers.



MAAGAP for Science School Teachers and School DRR coordinators for Regions 11, 12 and BARMM



MAAGAP seminar in Bulacan



MAAGAP seminar in Ilocos Norte

El Niño Series: Kalamidad ay Maiiwasan



Garnering attention for its data-driven approach, KlimAgrikultura was featured in the DOST Report 164th episode aired on 30 June 2023. The exclusive interview, conducted via Zoom on 14 June 2023, discussed the tool’s invaluable role in aiding farmers in their critical decision-making processes.

KlimAgrikultura is a tool which equips farmers with essential information to optimize their farm activities by understanding weather patterns, soil conditions, and other crucial factors.

Hosted on the DOSTv YouTube channel and on the official DOSTv Facebook page, KlimAgrikultura emerges as a promising solution to bridge the gap between traditional farming practices and modern technological insights. As DOST continues to drive innovation in agriculture, the integration of data and science is set to usher in a new era of prosperity for Filipino farmers.

SL-PRSD Exposure Tours and Information Education Campaign

From March to May 2023, the Southern Luzon PAGASA Regional Services Division (SL-PRSD) conducted Exposure Tours and Information Education Campaign to various schools such as the Libon Community College, Pili Parochial School, Universidad de Sta. Isabel, Central Bicol State University of Agriculture (CBSUA), Bicol University, Camarines Norte State College, Dr. Emelio B. Espinoza Sr. Memorial State College of Agriculture and Technology, Senior High Department of Mariners' Polytechnic Colleges Foundation – Canaman,, San Agustin Romblon State University, and the Mindoro State University including the Boy Scout of the Philippines – Camarines Sur Council.



*School: San Augustine Romblon State University
Date: 05 May 2023*

This is one of the Agency's initiative that provides series of lectures and exposure activities to acquaint the senior high school and college students with the features and services of PAGASA stations along with the use of its respective instruments.

Community-Based Disaster Risk Reduction and Management (CBDRM) 2023

Community-Based Disaster Risk Reduction and Management (CBDRM) workshops were conducted across various provinces in the Philippines, aiming to empower at-risk communities to effectively address disaster risks. The workshops, held through virtual platforms and physical venues, were organized by the CVRDRRMC/OCD-RO2 and DSWD-RO2, in collaboration with local government units in various dates.

The workshops were able to provide necessary knowledge and skills to identify, analyze, treat, monitor, and evaluate disaster risks to enhance their capacities and reduce vulnerabilities, without relying solely on external assistance. The efforts extended to various provinces and municipalities in Pangasinan, Isabela, Cagayan, Baler in Aurora, Benguet Province and Baguio City, and Ilocos Norte.



**MDRRMC PLANNING-WRITESHOP ON UPDATING OF MUNICIPAL DISASTER AND MANAGEMENT PLAN
BALER, AURORA FEB. 28-MAR. 2, 2023**



HUMAN RESOURCE DEVELOPMENT PROGRAM

Snappy Salute Dr. Malano!



Dr. Vicente B. Malano was designated Acting Administrator in 2013. He finally secured the position when the former President Rodrigo Roa Duterte appointed him as PAGASA's Administrator in 2016. He had effectively led PAGASA's overall operations to improve PAGASA'S product and services through his strategic foresight. He urged young scientists and engineers to cultivate and develop their skills by introducing several initiatives that include the capacity building among PAGASA's young professionals. His leadership has expanded the Agency's international collaborations through successful implementation of various Official Development Assistance Projects with the Governments of Japan, Korea, and others.

His unwavering commitment to public service has significantly advanced the capabilities of DOST-PAGASA through several

key interventions such as the enhancement of dissemination of accurate weather forecasts, modernization and procurement of state-of-the-art equipment, and advocacy to proactive alert systems to provide advance information to partner public and private entities for the benefit of the public.

Under his tenure, RA 10692 or the PAGASA Modernization Act was signed. Its Implementing Rules and Regulations (IRR) was signed by the former DOST Secretary Fortunato T. dela Pena and former DBM Secretary Benjamin E. Diokno. The Agency has also received numerous recognitions and awards during his term. PAGASA was recognized by the Makati Business Club as among the top 5 best performing government agencies in 2014, 2015, and 2019 and was also awarded as the Bangko Sentral ng Pilipinas' Outstanding Stakeholder for Monetary Policy and Outstanding Partner for Sources of Information in 2016, 2018, 2021 and 2023. The Outstanding Institution Award was also conferred to PAGASA by the National Research Council of the Philippines in 2016. The Office of the President and the Vatican City Officials also commended PAGASA's commitment to secure the safety of Pope Francis during his visit to Tacloban at the height of Tropical Storm Amang in January 2015. Several more other entities lauded PAGASA during Dr. Malano's leadership.

Truly, Dr. Malano's leadership is a testament of his sworn duty translated into action, a leader that has transformed PAGASA to what it is today, a trusted and reliable national meteorological agency of the Philippines.

Dr. Nathaniel Servando, New Appointed PAGASA Administrator

On 04 December 2023, Dr. Nathaniel T. Servando marked a new chapter in his illustrious career as he ascended to the prestigious role of Administrator of the Philippine Atmospheric, Geophysical, and Astronomical Services Administration (PAGASA), under the Department of Science and Technology (DOST). With an impressive track record spanning decade within the agency, Dr. Servando's appointment was not just a recognition of his past accomplishments but a testament to his unwavering commitment to excellence and leadership.



Stepping into his new role, Dr. Servando's oath-taking before DOST Secretary Solidum symbolized a seamless transition marked by continuity and vision. His journey from a Meteorologist Trainee in 1989 to the pinnacle of PAGASA's leadership exemplifies his dedication, expertise, and passion for service. Throughout his tenure, Dr. Servando has consistently pushed the boundaries of innovation, enhancing PAGASA's forecasting capabilities and ensuring the agency remains at the forefront of meteorological advancements.

As a dignified and low-keyed leader, Dr. Servando's leadership style is characterized by humility, strategic foresight, and a relentless pursuit of excellence. Under his stewardship, PAGASA has embraced new technologies, streamlined operations, and prioritized responsiveness to the evolving needs of the nation. From implementing one-hour warning updates to the utilization of Doppler radars and the establishment of the Rainfall Alert System in Metro Manila, Dr. Servando's tenure promises a future where PAGASA continues to be a beacon of reliability, credibility, and service to the Filipino people.

A native of Ajuy, Iloilo, Dr. Servando is a graduate of BS Electrical Engineering at the University of Negros

Occidental Recoletos (UNO-R) in 1988. He obtained his Master's and Ph.D. degrees in Meteorology at the University of the Philippines in Diliman in 1994 and 1999, respectively. He was a recipient of a Japanese Government (Monboshu) scholarship for a 2-year Masters Degree in Marine Meteorology at the University of the Ryukyus in Okinawa, Japan from 1996-1998.

Aside from his position in PAGASA, he also worked as a Professional Lecturer at the Institute of Environmental Science and Meteorology, College of Science, UP-Diliman in 2000-2001 and in 2005. He was among the recipients of the Achievement Award given by the National Research Council of the Philippines (NRCP) during its 77th General Assembly in 2010.

Dr. Servando's leadership credentials are further solidified by his eligibility and rank within the Career Executive Service (CES). On 08 September 2011, he was conferred with the rank of Career Executive Service Officer (CESO) IV which was reactivated on 03 February 2023. This significant milestone displays his professional competence and dedication to service for the Filipino people.

List of Graduates

The extra milestone and dedication to public service of some PAGASA personnel have proven that through perseverance and hard work, anything is achievable. The new list of graduates has shown their pursuit to set a great example to others as their quest for knowledge and personal growth is expressed.



Jaime M. Bordaes Jr.
Weather Specialist I
Master of Science in Agrometeorology
University of the Philippines – Los Baños
2020 – 2023



Loredin A. De La Cruz
Weather Specialist I
Master of Science in Meteorology
University of the Philippines – Diliman
2021 – 2023



Allen B. Orogo
Weather Specialist I
Master's Degree Program in Flood
Disaster Risk Reduction
National Graduate Institute for Policy
Studies (GRIPS)
2022 – 2023

Agrometeorology Training Course (AgTC)

The Agrometeorologist Training Course is a comprehensive 3-month in-house training course which commenced on 06 September 2023. 15 participants from the Climatology and Agrometeorology Division (CAD), Research & Development and Training Division (RDTD), and PAGASA Regional Services Divisions (PRSDs) successfully completed the program with a total of 290 training hours. This included 80 hours of on-the-job training (OJT) to enhance their practical skills and knowledge application in Agrometeorology.

Designed to achieve specific learning outcomes, the course focused on imparting basic knowledge about physical principles



and atmospheric interactions, methods of measurement and data analysis, and fundamental understanding of weather and climate systems as applied to agriculture and aquaculture. Having been able to complete the said training course, participants will be able to analyze meteorological and climatological data, to create agrometeorological products and services beneficial to stakeholders in the agriculture sector.

HR Training Programs & Seminars

Orientation of Senior Citizen Laws and Pre Retirement Seminar



Objectives

To inform incoming retirees about their rights, privileges, process and benefits as Senior Citizens & GSIS members

Number of Participants

Total of Sixty (60) Participants, Twenty Six (26) Females and Thirty Four (34) Males.

Resource Speaker

Ms. Christina S. Agbayani of GSIS NCR and Mr. Daniel Oro of Quezon City Office of the Senior Citizen, Quezon City Hall.

When: April 27, 2023

Venue: Zoom

Objectives

To bridge the gap in the core competencies, specifically in oral and written communication, to enhance employees ability to communicate effectively with both internal and external stakeholders of the Agency.

Number of Participants

Total of Twenty Seven (27) Participants, Twelve (12) Females and Fifteen (15) Males.

Resource Speaker

Mr. Al Marcial Bengco of East Sherpa Management Training and Consultancy Services

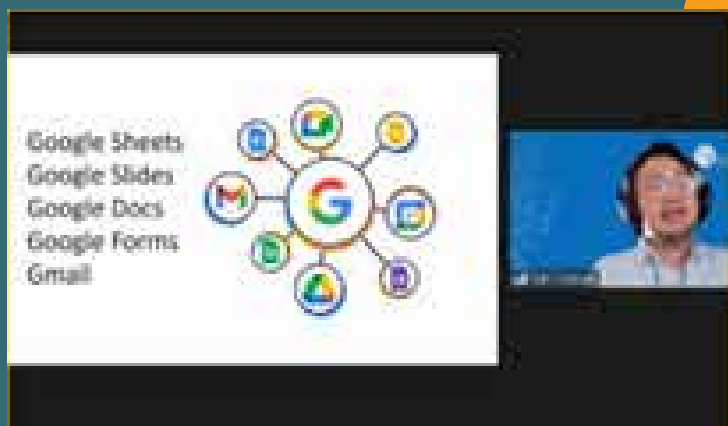
When: May 10 and 11, 2023

Venue: Training Room, PAGASA Central Office

Effective Communication Skills Training



Google Workspace Seminar-Workshop



Objectives

To present information and functionalities of Google Workspace and to use these tools to boost productivity and cooperation in a cloud-based environment

Number of Participants

Total of One hundred Six (106) Participants, Fifty Eight (58) Females and Forty Eight (48) Males.

Resource Speaker

Mr. Jan Calinao and Mr. Donnie Bjaie

When: June 27 and 29, 2023

Venue: Zoom

Objectives

To equip PAGASA personnel to handle Persons with Disabilities by increasing their knowledge of the concept of disability and enhancing their skills in communicating with and assisting Persons with Disabilities

Number of Participants

Total of Thirty Five (35) Participants, Twenty One (21) Females and Fourteen (14) Males.

Resource Speaker

Ms. Mojaira Dela Cruz and
Ms. Jonalyn Lucas

When: July 11 and 12, 2023

Venue: Zoom

Orientation on Disability Laws and Sensitivity Training



Objectives

To inspire and motivate personnel to adopt healthier dietary choices and lifestyles.

Number of Participants

Total of Twenty Two (22) Participants, Fourteen (14) Females and Eight (8) Males.

Resource Speaker

Mesdames Josefina T. Gonzales, RND, and Trina Mae B. Santos, RND, from the Food and Nutrition Research Institute

When: September 7, 2023

Venue: Amihan Conference Room, PAGASA Central Office

Nutrition and Livelihood Seminar for Senior Citizen and PWD's



Mental Health Awareness Seminar



Objectives

To promote and reinforce overall mental well-being, fostering a safer, inclusive, and supportive workplace environment for all PAGASA personnel.

Number of Participants

Total of Twenty Seven (27) Participants, Twelve (12) Females and Fifteen (15) Males.

Resource Speaker

Mr. Joseph Jayson M. Bonifacio
from the National Center for Mental Health

When: October 26, 2023

Venue: Zoom

NL PRSD Chief Meteorological Officers Conference 2023

The NL-PRSD Chief Meteorological Officers Conference (CMOC) was held on 20-21 April 2023 in Tuguegarao City. It served as a bridge for the different field stations to share common disciplines, fields of interests, solve problems, issues and concerns as well as networking with others by renewing motivation, confidence and providing a sense of direction.



REGIONAL AND INTERNATIONAL COOPERATION PROGRAM

Flood Early Warning System Project Briefing with the Australian Ambassador

The Flood Early Warning System Project briefing with the Australian Ambassador to the Philippines, Hae Kyong Yu was held at the Command Center of the Baguio Convention and Cultural Center in Baguio City on 17 November 2023.



The briefing served as a nexus for collaboration and strategic discussions between PAGASA and Australia, highlighting the agency's dedication to flood early warning services. This engagement not only reinforces PAGASA's commitment to serving communities but also underscores its role as a key facilitator in implementing crucial projects aimed at enhancing disaster preparedness across the region.

Multi-Hazard Impact-Based Forecasting and Early Warning System Project Kick-Off (MH-IBF-EWS) and Stakeholder Engagement Workshop

PAGASA, in partnership with the City Government of Legazpi, held the Multi-Hazard Impact-Based Forecasting and Early Warning System (MH-IBF-EWS) Project Kickoff and Stakeholder Engagement Workshop for the Green-Climates Fund on 15 September 2023 at the Pepperland Hotel in Legazpi City. The city of Legazpi is among the pilot areas of this project.





13th Southeast Asia Astronomy Network Meeting

PAGASA, as the local organizing committee of the 13th South East Asia Astronomy Network (SEAAN), hosted the event at Park Inn by Radisson for onsite participants and via Zoom for online participants on 28–29 November 2023. The activity's theme is *"Radio Astronomy Development in South East Asia,"* which gathered 100 attendees, committing to fortify astronomy's evolution across Southeast Asia.

Notably, 26 research papers illuminated the forefronts of Astronomy. This convergence not only fortified endeavors in establishing a Southeast Asia VLBI Network (SEA-VN) but also propelled discussions on astronomical realms such as Archeoastronomy, Solar and Stellar Physics, Extragalaxy, Cosmology, and Astronomy Education and Outreach.



The aim of this workshop is to capacitate the participants from the Local Government Unit of Legazpi City on different key-concepts relative to this project such as best practices in multi-hazard early warning systems and links with forecast-based action to maximize impacts on the ground.

Fourth Sub-seasonal to Seasonal Southeast Asia Capability Building Programme Workshop



The Subseasonal-to-Seasonal (S2S) Prediction Project, a collaborative initiative spearheaded by the World Meteorological Organization (WMO) and THORPEX-WCRP, recently wrapped up its third-phase workshop at the Furama City Center in Singapore from August 22 to 24, 2023.

This event marks a significant milestone as the second phase of the S2S project is set to conclude in December 2023, paving the way for a new five-year project called Sub-seasonal applications for Agriculture and Environment (SAGE) in 2024.

With regional weather authorities, including DOST-PAGASA, SAGE is poised to make significant strides in improving understanding of sub-seasonal to seasonal weather patterns. This collaboration not only bolsters the scientific community's capabilities but also empowers governments and stakeholders in the region to make informed decisions in agriculture, environmental management and disaster preparedness, ultimately increasing the resilience of communities against the challenges posed by changing weather patterns.

South-South Collaboration on Climate Information Services (SSCIS)

South-South Collaboration on Climate Information Services (SSCIS) is a project implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) in collaboration with the Climate Change Commission (CCC) and is funded by the International Climate Initiative of the German Federal Ministry for Economic Affairs and Climate Action. SSCIS seeks to benefit the Philippines and Climate Vulnerable Forum (CVF) members by developing science-based, expert-vetted knowledge products.



On 24 November 2023, the SSCIS Project organized a symposium at Joy Nostalg Hotel in Pasig City as part of the Climate Change Consciousness Week led by the CCC, featuring presentations on climate information service for agriculture and health planning among local government units, a CIS Community of Practice Guidance Document, and mapping the CIS data usage landscape in the Philippines.

The 4-day Modular Training “Biodiversity Conservation and Human Well-Being” for the Asian and Pacific region

On 23–26 October 2023, the Biodiversity Conservation and Human Well-Being Training took place at Khao Yai National Park in Thailand which welcomed participants from the Asia-Pacific Region. The four-day modular training aimed to provide a comprehensive understanding of biodiversity conservation and management within the framework of international cooperation, emphasizing the Convention on Biodiversity (CBD) and its implementation at various levels.



Participants at Khao Yai National Park



GIZ SSCIS Project Staff from PAGASA (Ms. Estrebilló), UP-NIH, and UP-INREM

Throughout the course, participants delved into current challenges, opportunities, and tools in technical and policy advisory services including funding sources for biodiversity mainstreaming. The training facilitated meaningful exchanges of experiences, fostering networking among Southeast Asian and other Asia-Pacific countries. Participants coming from diverse sectors and ministries, gained insights into contemporary concepts and approaches for the conservation and sustainable use of biodiversity.

Blended Training of Trainers on Climate Field School

In a bid to bolster understanding and practice of climate information, Training of Trainers on Climate Field School, was conducted in Citeko and Cianjur, West Java, Indonesia on 09 to 18 July 2023.

The training is aimed to enhance the participants' capabilities in educating farmers about leveraging weather and climate insights to ensure sustainable agricultural practices that contribute to food security.



This initiative, held in collaboration with the Colombo Plan, underscores the significance of international cooperation in tackling climate-related challenges. With this training, participants not only gained valuable insights but also became catalysts for positive change, fostering resilience and sustainable agricultural practices amid a changing climate landscape.

JMA-TCC Training Seminar on One-Month Forecast and iTacs

The Japan Meteorological Agency-Tokyo Climate Center (JMA-TCC) experts conducted a Training-Seminar on Seasonal Climate Forecast on 07-10 February 2023 at the PAGASA Training Room. 22 PAGASA personnel learned to utilize the one-month guidance web-tool and produced the one-month probabilistic forecast. Also, they were trained to produce maps from iTacs that will serve as guidance for operational climate monitoring and/or assessment.



Sub-seasonal to Seasonal (S2S) Downscaling and Verification, Tropical Cyclone Detection and CWB Tracker Related Activities



The Training on Sub-seasonal to Seasonal (S2S) downscaling and verification, Tropical Cyclone Detection and CWB Tracker were organized by the Central Weather Bureau (CWB) which included quarterly meeting on 07-10 March 2023 at the Headquarters of CWB in Taipei City and at Tamkang University, New Taipei City. This is part of the ongoing collaboration between DOST-PAGASA and CWB-TAIWAN thru the MECO/TECO VOTE 2 Project 3.

The training consisted of lectures focusing on S2S downscaling and verification, introduction to CWB model suites, statistical downscaling and verification of seasonal forecast model, hands-on exercise of S2S downscaling precipitation forecasts using Statistical post-process method.

Moreover, face-to-face quarterly meetings were conducted together with Taiwan partners for the MECO/TECO VOTE Project 3. Discussion included results about

S2S prediction of rainfall extremes for Taiwan and the Philippines CWB's sub-seasonal to seasonal prediction system and operational long-range forecast including future model developments, PAGASA's climate products and services including S2S and seasonal forecasts, which highlighted the significance of the established National ENSO Alert and Warning System. Also, part of the discussions were considerations on exchange students' program between universities in the Philippines and their university to work towards CWB tracker forecast verification and TC detection and its potential application to energy and water resources sector.

Lastly, Dr. Tsai, who developed the CWB tracker, presented the updates on its methodology and new ways of verification to improve the skill of the forecast up to Week 4, including some issues encountered with the existing CWB tracker being run by the PAGASA were discussed in Tamkang University

OTHER REGIONAL & INTERNATIONAL COOPERATION ACTIVITIES

1

WORLD ORGANIZATION FOR ANIMAL HEALTH INTERVIEW



Objective: To foster understanding and awareness, and to have an exchange of vital information about weather phenomena's impact on animal well-being.

Venue: PAGASA Legazpi Complex Station

Date: June 23, 2023

2

TECHNICAL TRAINING ON AUTOMATIC WEATHER STATIONS



Objective: To equip participants with the specialized skills and knowledge required for the successful implementation of advanced automatic weather stations with a focus on cutting-edge technology and industry best practices

Venue: Campbell Scientific Australia Pty. Ltd., at 411 Bayswater Road, Gabut, Queensland

Date: July 10 to 14, 2023

3

JPOW 2 TECHNICAL WORKING GROUP 4 WRAP-UP MEETING



Objective: To have a discussion on ocean wave forecasting capabilities and to demonstrate the commitment of experts and organizations in harnessing technological solutions for the benefit of scientific research and public safety

Implementing Agencies: Japan International Cooperation Agency and DOST-PAGASA.

Participants: 12 (3 females and 9 males)

Venue: Online Via Zoom

Date: October 12, 2023

4

CMIP6 CLIMATE AND OCEAN DATA WORKSHOP



Objective: To support climate services of PAGASA by exchanging knowledge through the project Integrated Seascape Management Empowered by Geospatial Information for the Philippines of the WB Climate Change Group.

Resource Persons: Dr. David Yates of the WBG, Mr. Dennis Bringas of NAMRIA and PAGASA experts

Participants: PAGASA's Climatology and Agrometeorology Division and Hydrometeorology Division, DENR and NAM RIA

Implementing Agencies: World Bank Group (WBG) and DOST-PAGASA

Venue: CAD Conference Room

Date: October 18,19 and 20, 2023

5

ASIAN CLIMATE OUTLOOK FORUM



Objective: To equip nations with predictive tools and strategies essential for proactive adaption and mitigation efforts.

Venue: Online Via Zoom

Date: November 21, 2023

GENERAL ADMINISTRATION & SUPPORT PROGRAM

Recognizing the Need for Online Payments via PAGASA–LandBank Link.Biz Portal

As part of our commitment to provide expedient solutions in meeting with the dynamic needs of the evolving world, PAGASA, in partnership with the Landbank of the Philippines (LBP), has secured a Memorandum of Agreement (MOA) in 2023 to adopt the online payment system/channel of the LBP's Link.Biz Portal.

The said digitization initiative aims to provide another option for PAGASA clients and stakeholders of a more convenient and efficient payment method. The Link.Biz Online Payment portal would not just meet the growing demand for a streamlined and modernized payment process, but will also facilitate secure, seamless, and transparent transactions.

PAGASA is confident that this initiative would not only save our clients valuable time but will also offer them user-friendly and efficient platform to interact with PAGASA ultimately increasing productivity and efficiency. Moreover, this payment scheme will significantly reduce the steps required for clients and will enable them as well to complete their payments without physically visiting the PAGASA office, effectively saving their time and their commuting costs.



During the last quarter of 2023, a dry-run was conducted to familiarize with the features of the said online platform. The full-blown usage of this digitization initiative will start in early 2024 as Office guidelines for its implementation is currently being finalized. PAGASA's products and services with fees will be included in this online payment as another payment option.

Subsequently, products and services of the Agency with fees or free of charge will reach out a wider scope of clients as our services are availed online, via online platform (*website, social media accounts, emails, etc.*)

Human Resource Management Information System (HRMIS)

Installation of HRMIS in various PAGASA Buildings



The Human Resource Management Information System (HRMIS) allows PAGASA employees to access the system via server in administering its different functions through the use of online components accessed via intranet.

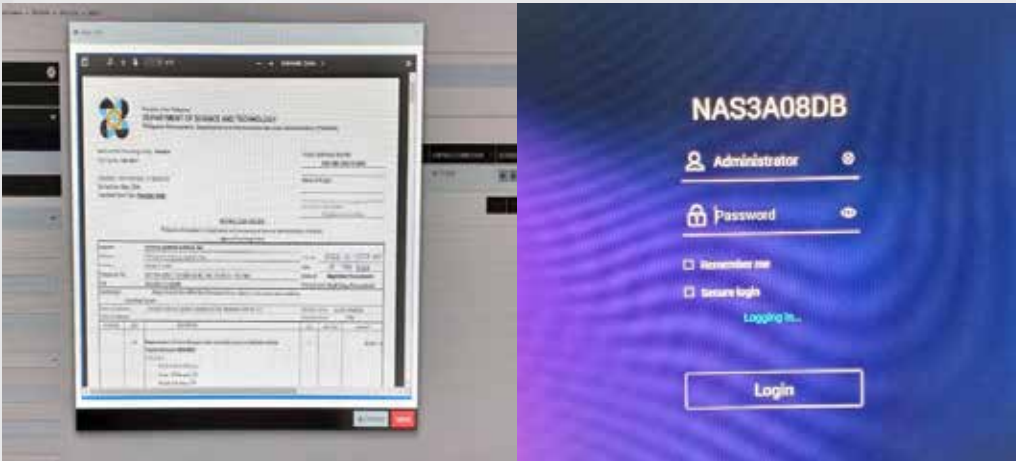


Held between April and May 2023, new Biometric Finger Scan Attendance and HRMIS Kiosks are installed selected areas in PAGASA Central Office.

Also, hands-on training and navigation were conducted in different schedules to PAGASA personnel including Job Order employees.

Procurement and BAC Monitoring System

The procurement and BAC Monitoring system is a valuable step towards modernizing procurement processes and leveraging technology to optimize efficiency and productivity. It enables faster document retrieval, sharing, and collaboration, leading to increased efficiency in procurement operations. Digitizing procurement documents enables the implementation of robust data security measures, including access controls, and audit trails.



In March this year, the Procurement Unit gathered and uploaded documents that need to be indexed which involved creating a searchable database, where the extracted data and content were organized and stored. This ensures efficient storage and retrieval. Digitizing procurement documents aims to transform traditional procurement practices into efficient, transparent, and data-driven processes, resulting in cost-saving, improved collaboration, and better decision-making in procurement operations.

PAGASA Strategic Plan 2023 to 2028



Beginning September until the end of the year, Members of PAGASA's Executive Staff, Planning Officers and Administrative and Technical Officers joined together to discuss the strategic goals and plans of PAGASA for the next five (5) years. This activity was assisted by the Development Academy of the Philippines (DAP), our partner-consultant for this endeavor.

Conduct of PAGASA 2023 Midyear Program Review Analysis

The DOST-PAGASA, through its Plans and Programs Development Unit, conducted the Midyear Program Review and Analysis on 20 July 2023 at the Amihan Conference Room in PAGASA Central Office via hybrid format. This activity brought together the PAGASA Executive Staff and Planning Officers from various Divisions to assess the progress of ongoing projects and the effectiveness of implemented strategies. Key topics included the developments of the implementations on PAGASA Modernization Plan, the accomplished targets for January to June 2023 and the initiatives for the next semester.



2023 National Women's Month Celebration (NWMC)



The National Women's Month Celebration served as a venue to highlight the role of women in nation-building and to discuss women empowerment across the different sectors of our society. In 2023, PAGASA celebrated the NWMC with the theme "WE for Gender Equality and Inclusive Society".

PAGASA Employees wore purple colored shirts every Wednesday of the month as a sign of support for this celebration. Likewise, different women speakers are invited to give an address about the significant role of women during flag ceremony every Monday of March. Dr. Esperanza Cayan, Ms. Thelma Cinco and Ms. Julie Ann Delda gave their respective speech on 13 March, 20 March and 27 March 2023, respectively.



Participation in DOST EndVAW “Orange Your Icon Contest”



In celebration of the 18-day Campaign to End Violence Against Women (VAW), PAGASA participated in the Orange Your Icon Contest. This contest enjoins government offices and private organizations nationwide to color its major landmarks or icons with orange from 25 November to 12 December 2023 with the purpose of raising awareness on acting and ending violence against women. This also provides opportunities to support anti-VAW advocacy and disseminate the message of zero tolerance for VAW.

Distribution of NFA One-Time Rice Assistance 2022 for PAGASA Employees

Administrative Order No. 2, signed by President Marcos Jr., authorized the grant of one-time assistance at a uniform quantity of 25 kilograms of rice to all qualified government workers and who are still in the government service as of 30 November 2022.

Coinciding with the Christmas Party celebration of PAGASA on 14 December 2023, each PAGASA personnel received their share of half-sack of rice. This endeavor not only benefits our public servants, but also boost domestic production that helps local farmers, consistent with the policy of the Administration towards economic recovery and transformation.



Vaccination Program (Influenza Vaccine)



Even with the eased restrictions sanctioned by the Government to the public due to the COVID-19 Pandemic, there is still no assurance that the general public is fully protected from illness and viruses.

On 30 June 2023, a total of 124 PAGASA Personnel consisting of 65 Senior Citizens and Persons with Disabilities (PWD) together with 59 other personnel and their immediate relatives received a flu vaccine. This vaccination activity was facilitated by Vaccines & Vaccination Services PH Medical Health Services.

AWARDS & RECOGNITIONS

PAGASA Instrument Calibration Laboratory (PICL) accreditation to the ISO/IEC 17025:2017

The accreditation of the PAGASA Instrument Calibration Laboratory (PICL) to PNS ISO/IEC 17025:2017 by the DTI's Philippine Accreditation Bureau on 22 August 2023 is a testament to the Agency's dedication and commitment to standardization and ease of doing business in the government.

The strict and tedious requirement of achieving the accreditation never hampered PICL's perseverance to formally granted with the accreditation that they aim since they started their journey in 2018.

The awarding ceremony took place on 25 September 2023, at the PAGASA Science Garden, graced by Ms. Michelle Esteban, Chief of the Laboratory Accreditation Division of the DTI-PAB and PAGASA Officials and employees led by the PAGASA Administrator, Dr. Servando.

Bangko Sentral ng Pilipinas (BSP) Outstanding Stakeholders

On 27 October 2023, PAGASA was recognized as among the outstanding partners of Bangko Sentral ng Pilipinas. The award was given in recognition of the Agency's contribution for helping the Central Bank fulfill its mandate in supporting the Philippine economy and making lives better for the Filipino People.

Certificate of Compliance – Freedom of Information

On 03 October 2023, the Freedom of Information-Program Management Office (FOI-PMO) issued a Certificate of Compliance to PAGASA for being full compliant with the FOI requirements, one of the accountabilities for the grant of the Performance Based Bonus (PBB) for the FY 2022.

The FOI-PMO is the agency of the government in charge of overseeing, monitoring, developing and evaluating the implementation of all FOI and eFOI programs for all government agencies in the Executive Branch.



As a Regional Instrument Centre (RIC) for the South-West Pacific region since 1996, PAGASA PICL plays a crucial role in maintaining the National Reference Standard for Basic Meteorological Instruments. This ISO/IEC 17025 accreditation further solidifies its reputation as a center of excellence, empowering DOST-PICL to continue ensuring the accuracy and reliability of meteorological instruments, contributing to the safety and well-being of the Philippines and the broader South-West Pacific region.



2023 Outstanding Institutional Partner for Learning, and 2022 Outstanding HR Partner Awards

On 06 December 2023 in Pasay City, PAGASA received the 2023 Outstanding Institutional Partner for Learning Award and the 2022 Outstanding Human Resource (HR) Partner Awards.

This is a recognition by the Career Executive Service Board (CESB) on the Agency's timely submission of Career Executive Services Reports, Performance Evaluations, and attendance to quarterly meetings and learning sessions.



Awarding of the CSC PRIME-HRM Accredited External Assessors

Ms. Arceli S. Arroyo, Chief of the Administrative Division, has been recognized as one of the PRIME-HRM accredited external assessors by the Civil Service Commission at the 2023 HR Symposium at the World Trade Center on 27 September 2023. This is a commitment shown in the realm of human resources.



PAGASA, PSHSS SYSTEM Awardee



During the 25th Founding Anniversary of the Philippine Science High School System (PSHSS) held at the Jose Rizal Hall on 09 February 2023, DOST-PAGASA was awarded with the "Service and Initiative for the Advancement of STEM (SYSTEM)" as one of their partners for promoting Meteorology to students and for its exemplary contribution to the PSHS System.

PAGASA bags the GADtimpala Bronze Award for Outstanding Gender-Responsive Agency, and Silver Award for Exemplary GAD Focal Point System (GADtimpala AlaGAD)

On 14 August 2023, the PAGASA GAD Focal Point System (GFPS) along with Dr. Nathaniel Servando accepted the award GADtimpala BRONZE for Outstanding Gender-Responsive Agency. This year, PAGASA was recognized for its dedication in gender mainstreaming and the effective implementation of gender-responsive programs.

Also, the GADtimpala Silver Award was given to PAGASA GFPS for aligning initiatives to gender mainstreaming.

This awarding ceremony aims to recognize different National Government Agencies and government-owned and controlled corporations (GOCCs) with outstanding achievements and performance in mainstreaming gender in their agencies.



COMPLETED PROJECTS

Project Title	Fund Source	Objective of the Project	Output
Establishment of an Integrated Hydrological Data Management (HDMS)	LFP	To collect enormous hydrological data from 18 major river basins nationwide. The Visualization software allows the sharing of hydrologic information with the public, DRR officers, and planners through various communication channels, such as the Internet and global mobile communication systems.	<ul style="list-style-type: none"> 20 software packages (20) supported the project, with 9 licenses installed on each server in the Hydro-Meteorology Division and across various Flood Forecasting and Warning Centers (FFWCs). The 11 licenses will be utilized for the proposed Phase III, covering the county's remaining 11 major river basins.
Establishment of Flood Forecasting and Warning System (FFWS) in RBs	LFP	To address frequent flooding issues in the complex network of rivers and watersheds of the Philippines. This system consists of rain gauges, water level sensors, and an X-Band radar network	<p>Established FFWS-RB (2020-2023) include</p> <ol style="list-style-type: none"> 1. Abulog River Basin 2. Aklan River Basin 3. Ilog-Hilabangan River Basin 4. Mindanao River Basin 5. Agus River Basin 6. Agusan River Basin
Strengthening the capability of the Republic of the Philippines on Disaster Risk Reduction (Phase2)	FAP	To develop a reliable Flood Early Warning System (FEWS) that could be accessed online. A system of hydrological and hydraulic analyses, flood inundation mapping, and guidelines for effective flood early warning	Established FEWS in critical areas like Danao City and the Municipality of Argao in Cebu.
Upgrading Cagayan River Basin Flood Forecasting and Warning System	LFP	To upgrade the Cagayan RB FFWS telemetry system to meet modern-day forecasting requirements.	Upgraded system of Cagayan RB FFWS

Project Title	Fund Source	Objective of the Project	Output
Updating Tropical Cyclone Severe Wind Risk Analysis for Metro Manila Area (National Capital Region)	GIA	To update and enhance the severe wind risk analysis for Greater Metro Manila Area (GMMA)	<ul style="list-style-type: none"> Updated Tropical Cyclone Severe Wind Risk Maps for Metro Manila are expressed in terms of: <ol style="list-style-type: none"> Physical Damages to Buildings) Economic Losses (Barangay Building Damage Cost - Million Pesos/Sq.Km) in 12 different return periods (RP 2, 10, 20, 50, 100, 200, 300, 500, 700,1000,1700,and 3000) Technical Report
Hind-Mapping the Typhoon Haiyan Storm Surge in Coastal Eastern Leyte	GIA	To map the extent of the storm surge inundation caused by Super-Typhoon Yolanda (Haiyan) in 2013 using a 3D natural neighbor interpolation method applied to simulation data from a dispersive longwave model.	Submitted manuscript on "Tropical Cyclone Research and Review" for publication
Weather and Climate Science for Partnership for Southeast Asia: Component A - Global Model Science	FAP	Global model science focuses on the large-scale processes - fundamental understanding, and evaluation in models of large-scale processes and their impact on the weather of Southeast Asia/ Philippines	<p>Results was presented during the 5th Regional WCSSP Workshop in Hanoi last May 2023.</p> <p>Talk/ Report titles:</p> <p>(1) Process evaluation on genesis and rapid intensification of tropical cyclone. (2) Comparison of GFS- and UM-driven WRF forecast for the case of TC Maymay (October 2022)</p>
Data Rescue and Digitization of Climatological and Agrometeorological Archive	LFP	To rescue and digitize historical climatological and agrometeorological data crucial for understanding past weather patterns, climate trends, and agricultural conditions.	Digitized a total of 729,548 Observation forms.

Project Title	Fund Source	Objective of the Project	Output
Identity and Access Management with Active Directory for Database Management System	LFP	To provide a single directory for authentication using Active Directory and an Identity and Access Management (IDM) solution for managing access rights and access control to the different systems. choice	<ul style="list-style-type: none"> Established the Active Directory service on the PUMIS system and other systems connected in the domain. Provided a centralized management for access control across the systems within the PUMIS domain
Operationalization of Agrometeorological Information System (AIS)	LFP	<ul style="list-style-type: none"> To transfer of newly developed information system to agricultural communities including Payong PAGASA mobile application To conduct IEC campaign from the national level to the barangay level 	<ul style="list-style-type: none"> Conducted webinars for Department of Agriculture agricultural extension workers and other stakeholders Conducted Training of Trainers for KlimAgrikultura Enhanced Payong PAGASA Mobile App
PAGASA Unified Meteorological Information System (PUMIS) Storage Expansion	LFP	To provide additional data storage capacity to address data growth across PAGASA's large files	<ul style="list-style-type: none"> Acquired additional Tier 3 storage capacity (warm data) to both production site (QC) and DR site (Cebu) including moving to safeguard climatological data among others.
TCPassagePH: Development of operational seasonal prediction system for tropical cyclone (TC) passage in the Philippines	GIA	<ul style="list-style-type: none"> To develop an operational seasonal prediction system for TC) passage in the Philippines 	<ul style="list-style-type: none"> Conducted workshop for 80 PAGASA personnel 1 graduate student mentorship in UP Diliman 4 papers published in international SCOPUS-indexed journals 2 papers in international conferences 2 papers in national conference 4 Ordinary Least Square regression models in Graphical User Interface Partnership with DOST-SEI on Continuous Improvement Programme research mentoring

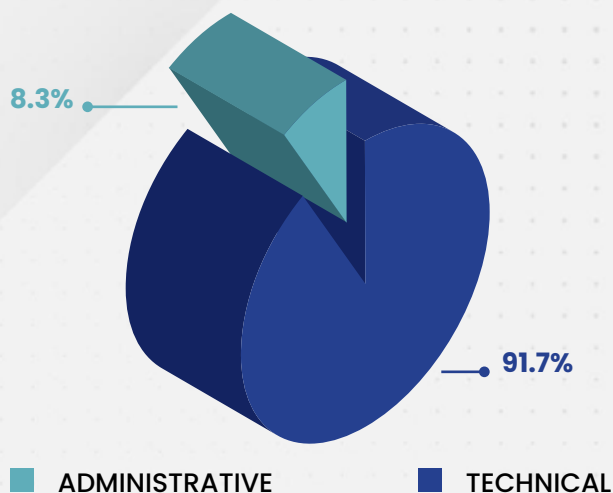
GRAPHICAL REPRESENTATION

SUMMARY OF PAGASA PERSONNEL

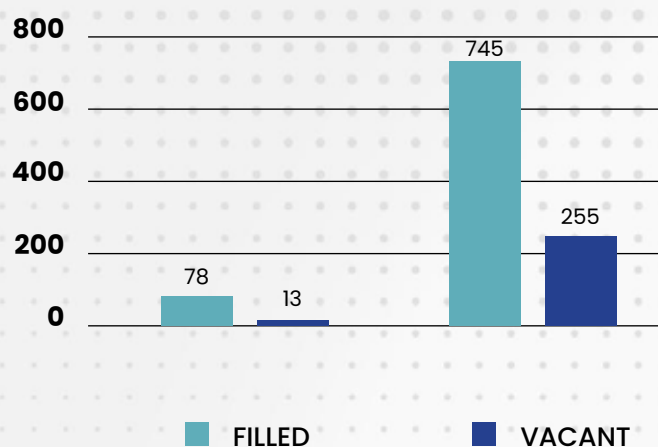
Reference: PLANTILLA OF PERSONNEL as of December 31, 2023

	FILLED	VACANT	Male	Female	TOTAL NO. OF POSITIONS
ADMINISTRATIVE	78	13	25	53	91
TECHNICAL	745	255	478	267	1000
GRAND TOTAL	823	268	503	320	1091

SUMMARY OF PAGASA PERSONNEL



SUMMARY OF PERSONNEL BY FUNCTION



FINANCIAL PERFORMANCE 2023

CURRENT

CONTINUING

	OBLIGATIONS	DISBURSEMENT	OBLIGATIONS	DISBURSEMENT
MOOE	481,789,704.08	449,909,082.69	2,478,377.36	2,478,377.36
CO	-	-	131,266,306.36	3,595,813.73
TOTAL	481,789,704.08	449,909,082.69	133,744,683.72	6,074,191.09



HALL OF HONOR

2023 PAGASA COMPULSARY RETIREES



AGBAYANI, Cesar Y.

18 years in Service



BAGADIONG, Rogelio T.

39 years in Service



BENTO, Evangeline P.

43 years in Service



BERENGUER, Ernesto B.

20 years in Service



BORJAL, Encarnacion A.

39 years in Service



BUÑAG, Leo L.

40 years in Service



CAJULIS, Romeo P.

34 years in Service



CAYANAN, Esperanza O.

39 years in Service



CONSULTA, Alfredo B.

39 years in Service



DE GUZMAN, Rosalina G.

39 years in Service



HAGAD, Pedro T.

33 years in Service



JAMERO, Charlyn A.

33 years in Service



LANCE, Nancy T.

39 years in Service



MALANO, Vicente B.

40 years in Service



MANGOSONG, Nestor V.

32 years in Service



MERCADO, Luciana T.

39 years in Service



POLVOROSA, Elvie B.

35 years in Service



SIOJO, Rainier L.

43 years in Service



VALERIO, Rosana D.

42 years in Service

2023 PAGASA OPTIONAL RETIREES



BARCENAS, Ferdinand Y.

33 years in Service



DEL ROSARIO, Rose Ella P.

43 years in Service



GAVILAN, Constantino A.

39 years in Service



LARDIZABAL, Efren P.

41 years in Service



MARIÑAS, Aurelio G.

33 years in Service



MARTINEZ, Maripet C.

35 years in Service



MATA, Anthony M.

29 years in Service



MIRANDA, Jose T.

26 years in Service



OYAN, Julio N.

35 years in Service



RUSIANA, Paz B.

38 years in Service



SAWI, Roberto S.

39 years in Service



SINGUN, Teddy-Marino T.

41 years in Service

2023 PAGASA POSTHUMOUS RECOGNITION



ATOS, Luisito S.

34 years in Service

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THE PRODUCTION STAFF

We, the Production Staff, extends our heartfelt appreciation to all the men and women of PAGASA who contributed for the completion of the Annual Report 2023. We are also equally grateful to have finished this Report with the guidance and supervision of the Chief of the Financial, Planning and Management Division, Mr. Jose Daniel C. Suarez. This is a testament of the continued commitment of PAGASA to pursue holistic excellence in public service. All Glory to God!



Cynthia R. Paltuob



Noel B. Villar



John Marc B. Estoque



Jhaymer Caracuel



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Philippine Atmospheric, Geophysical and Astronomical Services Administration

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