Project #MAGHANDA

Meteorological And Geological Hazard Advisories, Warnings and Notifications for Decisive Action

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Meteorological And Geological Hazard Advisories, Warnings and Notifications for Decisive Action

DOST DOST-PAGASA DOST-PHIVOLCS DOST-STII DOST-PCIEERD DILG DILG-LGA

OUTLINE OF PRESENTATION

A. PROJECT BACKGROUND
B. OBJECTIVES
C. DELIVERABLES

A. BACKGROUND

Iba na ang Panahon: Science for Safer Communities (INAP: S4SC) Program- address the gap in hazard information

#MAGHANDA- refresher on the updated hazard information and corresponding warning messages

Project Leader: Dr. Vicente B. Malano, DOST- PAGASA

Institutional Partners: DOST-PHIVOLCS, DOST-STII, DOST-PCIEERD, DILG and DILG-LGA

DOST-GIA Grant: Php 25,915,956.00

Program Duration: 15 July 2021 – 14 July 2022 (extension until 31 December 2022)

B. OBJECTIVES

General Objective: Provide clearer understanding on warning messages on natural hazards to have better response action among LGUs and media.

Specific Objectives:

a. Develop the skills of the LGUs, DRRMOs, MLGOOs, Local Information Officers and First Responders in understanding warning messages and planning for response actions;

Specific Objectives:

b. Develop the skills of local Information Officers and Media in understanding warning messages and developing news reports and articles; and

c. Develop policy recommendations for DILG and LGUs to use as basis for updating their DRR plan.

People services: About 7,549 participants for the conduct of seminar workshop in 17 regions

Places and Partnerships: MOA between DOST and DILG, JMC

Policy: Gender-sensitive policy recommendations ensuring utilization of DOST-PAGASA and DOST-PHIVOLCS information products, tools and services

Target Participants

- ✓ Governors - 1 Session (Half day)
- ✓ Mayors - 3 Sessions (Half day)
- ✓ PDRRMO, PIO, PLGOO
- ✓ MDRRMO, MIO, MLGOO
- ✓ First Responders

  - 17 Sessions (2 Weeks Asynchronous, 1.5 days Synchronous)

- ✓ Media - 7 Sessions (Half day)

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C. DELIVERABLES

1. 1 Learning Management System for seminar workshops
2. 26 Topics of IEC Materials on different hydrometeorological and geological information from DOST-PAGASA and DOST-PHIVOLCS (e.g. brochures, posters and updated Broadcasters' Manual)
3. 1 Audio-visual Presentation
4. 4 Public Service Announcements (2 Hydrometeorological and 2 Geological)
5. Updated DRRM Contingency Plan in the context of the new normal
6. 28 Activity Reports (documentation of process & proceedings) per region

Impacts of a Tropical Cyclone

Heavy Rain
- Can cause flood and damage to agriculture
- Can contaminate drinking water and cause disease outbreak

Strong Wind
- Wind speed may exceed 250kph
- Can cause severe structural damage

Storm Surge/ Coastal Flooding
- Can flood low-lying coastal communities
- Can destroy natural and man-made structures (especially during high tide)

Landslide/Mudflow
- Mountainous areas, especially steep slopes, are prone to landslides
- Landslides and mudflows can bury people alive and destroy properties

How to stay updated

Radio · Television · DOST-PAGASA Website · Official Social Media · Emergency Alert System (EMS)

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This material is produced by Project #MAGHANDA, a Department of Science and Technology – Grant-in-Aid (DOST-GIA) funded project from the Philippine Council for Industry, Engineering, and Emerging Technology Research and Development (PCIEERD).

The Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA) leads the Project #MAGHANDA implementation together with the Philippine Institute for Volcanology and Seismology (PHIVOLCS) and Science and Technology Information Institute (STII) in partnership with two Department of the Interior and Local Government (DILG) offices: Central Office Disaster Information Coordinating Center (CODIX) and Local Government Academy (LGA).

Trunkline Number: (02) 8284-0800
Email Address: information@pagasa.dost.gov.ph
Address: PAGASA Science Garden Complex, BIR Road, Barangay Central, Quezon City, Metro Manila 1100
Facebook: @pagasa.dost.gov.ph
Twitter/TikTok: @dost_pagasa
YouTube: DOST-PAGASA Weather Report

TROPICAL CYCLONE

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Lightning Safety

Stay indoors!
Find immediate shelter to avoid getting struck by lightning.

Stay away from anything that could conduct electricity
This includes water, corded telephones, and plug-in electrical appliances.

If outdoors, stay away from metal
Steer clear of fences and posts made out of metal. Don't use metal objects such as golf clubs or gardening tools.

Do not lie on the ground
Lying flat on the ground allows the electrical currents from lightning to enter your body. Instead, do the **Lightning Safety Position.**

Lightning Safety Position

1. **Crouch down into a ball position**
   Become a very small target to avoid getting struck.
2. **Cover your ears**
   Thunder will be very loud, so protect your ears.
3. **Keep only the balls of your feet on the ground**
   The less contact you have with the ground, the less likely that you will get electrocuted.
4. **Make sure your heels are touching each other**
   If the ground around you gets struck, the electricity will enter your body through one foot and go out the other.

Thunderstorm Checklist

If you can see, feel or hear at least 3 of these:

- ☐ Towering cumulus clouds
- ☐ Darkening skies
- ☐ Flashes of lightning
- ☐ Gusty wind
- ☐ Sound of thunder

There is a thunderstorm! Stay indoors!

Contact Us

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2022

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Thunderstorm

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Impacts of Gale Force Winds

High-speed winds can be destructive and life-threatening. Here are some of the effects that Gale Force Winds may bring:

Big sea waves
The presence of strong winds can generate high and powerful sea waves, too. This makes the seas rough which can endanger lives and sea vessels.

Cancellation of marine transportation
Gale force winds can be dangerous to fisherfolk, communities near coastal areas, and people who are traveling by sea. Because of this, all marine activities should be canceled.

Loss for fisherfolk and fishing companies
When gale force winds are present, fishing and other marine activities are to be put on hold for their safety. This results in disruption of operations and businesses of fisherfolk and fishing companies.

What to Do?

For fisherfolk and sea travelers:

Monitor DOST-PAGASA's latest Gale Warning.
Get the latest updates on gale force winds through radio, television, DOST-PAGASA website, Emergency Alert System (SMS), and official social media accounts of DOST-PAGASA.

Seek for guidance from experts
Coordinate with your local Philippine Coast Guard for accurate information and guidance on Gale Warnings.

Safety first, seafarers!
Gale force winds are life-threatening. Keep in mind that when there are strong to gale force winds, fishing boats and other small seacraft are not allowed to sail while larger sea vessels are alerted against big waves.

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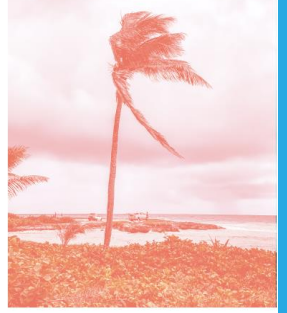
Gale



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Mga Paghahanda

Bilang Indibidwal

Imonitor ang mga inilalabas na abiso kaugnay sa Daluyong ng Bagyo.
Alamin ang pinakabagong update sa pamamagitan ng TV, radyo, Emergency Alert System (SMS), at sa website at mga opisyal na social media account ng DOST-PAGASA.

Lumikas sa mataas na lugar
Pinapayuhan ang komunidad sa tabing-dagat na lumayo 500 metro mula sa mga baybayin kapag may paparating na bagyo.

I-secure ang mahahalagang kagamitan at dokumento
Itabi ang mahahalagang dokumento gaya ng mga ID sa mas mataas at ligtas na bahagi ng inyong tahanan.

I turn off ang mga main switch ng kuryente.
Bago lumikas, patayin ang mga main switch ng kuryente, tubig at maging ang mga tangke.

Ihanda ang GO BAG.
Ihanda ang GO BAG na naglalaman ng mga pangangailangan ng pamilya gaya ng tubig, pagkain, legal na dokumento, identification card, first aid kit, hygiene kit, heavy-duty na flashlight, damit, kapote at kumot at pera.

Sumali sa mga safety drill
Makiisa st lumahok sa mga isinasagawang safety drill ng mga awtoridad.

Sa Pamayanan

Magplano at gumawa ng mga evacuation plan
Pag-aralan ang lahat ng pamamaraan ukol sa kahandaan sa mga kalamidad.

Magsagawa ng safety drills
Magsagawa ng regular at tuluy-tuloy na mga pagsasanay kaugnay sa mga aktwal na sitwasyon kapag may kalamidad.

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Daluyong ng Bagyo

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Heavy Rainfall

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Effects of La Niña

Early rainy season · Short dry season · More tropical cyclones · Above normal rainfall · Strong monsoon activity

Sectoral Impacts of La Niña

Agriculture
- Flooding in low-lying agricultural lands
- Damage to crops due to flooding
- Increase in pests and diseases

Water Resources
- River flooding
- Dam spillage

Human Health
- Prevalence of water-borne diseases
- Loss of life from flash floods

Environment
- Landslides
- Coastal erosion caused by big, strong waves (storm swells) or seaside flooding (storm surge)

Urban
- Damage to infrastructure
- Economic losses from traffic, work and school suspension due to floods

What to Do

- ☐ Check flood warning advisories from PAGASA
- ☐ Maximize rainwater harvesting and storage
- ☐ Remove anything that blocks the free flow of water
- ☐ Cooperate on local measures to manage the impacts
- ☐ Get crop insurance

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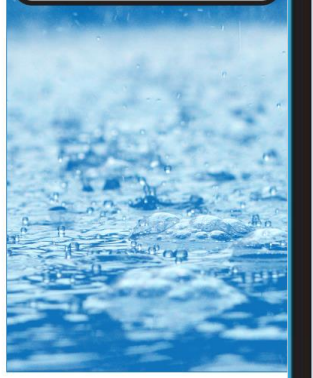
La Niña Guide



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IEC Materials for Geological Hazards

Ashfall Preparedness

What is Ashfall?

Volcanic ash fall, or ash fall, is the shower of fine-to-coarse-grained volcanic material and other airborne products that fall when there is a volcanic eruption. Ash fall spreads and is distributed depending on the direction of the wind.

for Building

The amount of ash in the building, its quality, and the environmental conditions all have an effect on the severity of damage. Ash can cause minor damages, such as corrosion of metal and paint in buildings, to dangerous structural collapse due to thick ash deposits.

BEFORE

Ash can cause damage to a building's roofs, gutters, and Ventilation and Air Conditioning (VAC) system. People should remain indoors as it also considered as a health hazard. If it is still possible to go outside, perform the necessary actions while wearing the appropriate Personal Protective Equipment (PPE).

- Establish an ash fall response team with define duties and responsibilities of each member.
- Maintain an updated emergency contacts list of the Local Government Units (LGU) Disaster Risk Reduction Officer, Police Department, and Fire Department.
- Coordinate with LGUs and relevant agencies for information on disaster risk reduction practices.
- Conduct quarterly inventory of supplies.
- Maintain disaster response equipment and supplies like plastic covers, vacuum cleaners and safety apparel and apparatus.
- Check and ensure that back-up power generators are in proper working condition.
- Conduct volcanic eruption evacuation drills and first aid training, specifically those who live near an active volcano.
- Conduct routine checks to ensure the building's structural integrity

It is important to determine the distance of the building from the volcano, its architecture and occupants. Volcanic eruptions are frequently unexpected. Building owners must plan and prepare for disaster situations such as an ash fall.

DURING

Ash can cause damage to a building's roofs, gutters, and VAC system. People should remain indoors as it also considered as a health hazard. If it is still possible to go outside, perform the necessary actions while wearing the appropriate Personal Protective Equipment (PPE).

- Wear protective N95 masks and safety goggles.
- Close all windows and doors.
- Turn off all VAC systems vulnerable to filter obstruction.
- Use damp towels or cloth or duct tape to seal window gaps.
- Cover downpipes to prevent ash from entering into the drainage.
- Disconnect any roof-fed water to avoid ash contamination of the water supply.
- Coordinate with building communications department to ensure that critical safety advisories are communicated to building occupants.
- Assign a single entrance and exit doorway.
- Maintain constant contact with local news sources.
- Prepare a battery-powered radio in case of a power loss.
- Cover all electronic equipment with plastic.
- Remove outdoor clothing with ashfall deposits before entering the building.

AFTER

Cleanup should begin as soon as possible to prevent rainwater from wetting the ash. Thick ash deposits, particularly when moist, have the potential to collapse roofs. By combining water and ash, a glue-like substance can be formed, which might clog the drainage system.

- Wear protective masks, goggles, overalls, and gloves.
- Use safety harnesses when cleaning roofs, especially at maximum load capacity.
- Use mats and sturdy footwear to avoid slipping.
- Moisten and sweep the ash instead of soaking it with water.
- Use a shovel to get rid of deposits that are more than 1cm thick.
- Use damp towels or clothes in wiping glass or porcelain surfaces.
- Brush away ash from paint coats or glass to prevent abrasions.
- Check HVAC filters that need replacements.
- Use vacuum for indoor cleanup.
- Seal ash in plastic bags and store tightly.
- Dispose ashes in designated dumping areas as recommended by the local government.

for Communications and Equipment

Electronics and communications equipment are very important in an ash fall event for any company's business or service continuity. Communication lines must be operational in order to coordinate effectively the disaster response actions. Heavy machinery and tools may be required for road clearance and infrastructure cleanup.

BEFORE

Preparation of protective measures beforehand can spare equipment and critical facilities from expensive repairs and replacements.

Volcanic eruptions are frequently unexpected, building owners must plan and prepare disaster situations such as an ash fall.

- Maintain and update inventory for plastic sheets, duct tape, vacuum cleaners, and compressed air.
- Install protective hoods on air intakes and condensers.
- Develop and test contingency plans for managing ashfall events, especially for high-risk facilities.
- Conduct regular safety checks and servicing.
- Coordinate with DOST-PHIVOLCS and NDRRMC for ashfall preparedness plans.
- Educate response teams on the cleanup operations and safety equipment.
- Keep backup communication equipment like radios and charged power banks, on hand.
- Keep updated with any volcanic activity around your area.

Since volcanic eruptions are often sudden, building owners must prepare for disaster situations such as an ash fall.

DURING

Keeping ash out of the building is the most effective way to prevent damage and equipment failure.

Air intakes, condensers, and vertical pipes can all be contaminated by ash particles. Accumulated ash restricts air movement, resulting in stalling and overheating. Wet ash that comes into contact with electrical equipment can be conductive, resulting in short circuits and grounding.

- Check on air intakes and condensers that may require additional protection.
- Perform regular safety checks and servicing.
- Disconnect the ventilation and air conditioning (VAC) system as well as any externally fed water supply.
- Monitor and replace any existing filtration as needed.
- Turn off any electrical equipment without immediate use.

As for computers, desktop units are more vulnerable due to having more openings than laptops. When using telephones, expect minor interference and malfunctions during a nearby volcanic eruption.

AFTER

Cleanup should begin only after ash fall subsides, unless critical equipment requires immediate attention to prevent breakage. Always keep a dry environment during the cleanup. Aside from electrical hazards, ash on electric motors can cause fires. Vigorous rubbing can scratch delicate surfaces of equipment.

- Ensure that all electrical equipment for cleaning are turned off and unplugged.
- Prepare fire extinguishers for the possibility of overheating and fires.
- Blow out computers, radio equipment, telephone, and appliances with vacuums before sweeping.
- Remove any temporary air filters.
- Use vacuum cleaners for computer rooms and equipment storage to avoid recontamination.
- Blow out air intakes and condensers on or under 30psi before gently wiping with a rag.
- Clean delicate equipment with compressed air and soft brushes.
- Store collected ash in trash bags to stop remobilization.

Make sure that all the affected equipment has been fully inspected. Long exposure to ash can cause significant corrosion. Avoid vigorous rubbing that can scratch delivate surfaces of equipment.

Community and Family EARTHQUAKE SAFETY GUIDE

COMMUNITY PREPAREDNESS

1 Plan

a. Create or update a Disaster Risk Reduction and Management Committee (DRRMC).

Over-all coordinator · Communication · Building safety · First aid · Fire safety · Site security

b. Conduct community data gathering

Annual population · Recent community agent maps · List of persons with disabilities, elderly, children and pregnant women · Identify location of open spaces and community resources

Assess the strength of the houses or buildings. For Concrete Hollow Block (CHB) Masonry Houses, use the DOST-PHIVOLCS "How Safe is my House?" tool for earthquake safety.

Identify safe and unsafe areas within the community.

	INSIDE	OUTSIDE
Good and Safe areas	Strong Wide corridors Visible emergency exits	Open spaces for evacuation Public alarm system Wide pathways
Unsafe areas	Glass windows and doors Shelves, machineries, appliances and furniture that may topple or fall Narrow corridors with obstructions	Powerlines, poles, concrete structures, trees, bridges, overpass or flyovers Narrow alleys Steep slopes or landslide prone and hazard prone areas

d. Conduct inventory of available resources and facilities that can be utilized during emergencies.

e. Provide for the needs of persons with disabilities, the elderly, children, and pregnant women

2 Develop community earthquake evacuation plan

a. Identify hazards present in your area using the available hazards maps

Establish warning system and put-up signage.

b. Evacuation area

Assess safety of all available open spaces for evacuation sites.

EVACUATION AREA

For Tsunami, identify high grounds.

Consider the number of occupants per house or building (daytime and nighttime), designate a specific open space for everyone.

Determine and ensure there is sufficient open space for all.

c. Formulate building and community evacuation procedures

EXIT

Identify and mark all possible emergency exits in the building and pathways going to evacuation areas.

Set a buffer zone from the house or building.

Map the fastest and safest way out going to designated evacuation area.

Prepare an evacuation procedure or plan, including a back-up or contingency plan.

3 Conduct orientation on earthquake preparedness and earthquake drill

a. Preparations prior to the earthquake drill

Organize lecture about earthquake and its hazards, and how to protect one's self.

IF INSIDE a house or building...

DROP → take cover under sturdy table or as a corner

COVER → watch out for falling objects or debris

HOLD ON → keep calm and don't panic

IF OUTDOORS...

→ move to an open space

→ stay away from trees, powerlines, pools, buildings, and walls

→ move away from steep slopes

Introduce the evacuation plan and routes going to the identified evacuation areas. Post the evacuation map in visible places.

Regularly check available warning devices such as alarm systems and sirens.

Assign building marshals to be in-charge of ensuring that exit points are open during shaking.

Assign marshals who will manage the traffic and assist the persons with disabilities, elderly, children and pregnant women.

Announce the drill schedule and ensure maximum community participation.

Assign observers and evaluators who will give comments/suggestions during post-drill evaluation.

b. Follow the phases in conducting an earthquake drill

1 Earthquake → 2 Response → 3 Evacuation → 4 Assembly → 5 Head Count → 6 Assess and address effects → 7 Evaluation of drill

BEFORE EARTHQUAKE

BE AWARE OF THE HAZARDS. Learn about the earthquake threats in your area.

IDENTIFY THE EVACUATION AREA. Check the nearest route going to identified evacuation area.

SECURE YOUR HOUSE OR WORK-PLACE. Consider making structural changes to your home or building to ensure it is as earthquake-proof as possible.

PREPARE AN EMERGENCY KIT. Store supplies to help you and your family get through or essentials you can take in the event of an evacuation.

FAMILIARIZE THE EMERGENCY ESSENTIALS. Learn how to use the first aid kit, fire extinguishers, alarms, switching off waterlines, gas tanks, and circuit breaker.

PARTICIPATE DURING DRILLS. Regularly practice the evacuation procedure.

DURING EARTHQUAKE

RESPONSE during the shaking.

DROP

COVER

HOLD ON

or stay in safer part of the room.

STAY CALM and ALERT. Watch out for falling objects, glass windows, shelves, cabinets, and other heavy objects that may cause injury.

IF OUTSIDE. Move to an open area.

IF NEAR SHORE. Move quickly to higher grounds.

MOVE AWAY FROM STEEP SLOPES.

STOP IF INSIDE A MOVING VEHICLE. Do not cross bridges, overpasses, or flyovers.

AFTER EARTHQUAKE

EVACUATE. As soon as the shaking stops, take the fastest and safest way out.

EXPECT AFTERSHOCKS.

BE UPDATED. Monitor the situation from the radio.

PUT OUT SMALL FIRES USING EXTINGUISHER.

CHECK YOURSELF AND OTHERS FOR INJURIES.

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Department of Science and Technology · Philippine Institute of Volcanology and Seismology (PHIVOLCS Building, C.P. Garcia Avenue, UP Campus, Diliman, Quezon City)

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IEC Materials (Posters)

ENSO Alert and Warning System (La Niña)

La Niña is the **cold** phase of El Niño Southern Oscillation (ENSO).

It is characterized by colder temperatures, stronger winds from the east, and more clouds resulting in more rain. It lasts between one to three years and occurs every three to seven years.

Warning Type	Forecast	Sea Surface Temperature Anomaly	Response	Form of Issuance
WATCH	If the conditions are favorable with 55% chance of La Niña development within the next six months	1 month 0.5°C or lesser is observed	**Be Aware and Prepared!**	Monthly Climate Assessment and Outlook Press Statement
ALERT	If the conditions are favorable with 70% chance of La Niña development within the next six months	5 consecutive months of 0.5°C or lesser is observed	**Early Action!**	Monthly Climate Assessment and Outlook Press Statement
ADVISORY	La Niña is present and expected to continue.	7 consecutive months of 0.5°C or lesser is observed	**Take Action!**	La Niña Advisories Press Statement Press Briefing
FINAL ADVISORY	La Niña has ended.	-	**Assess and Act Whenever Necessary**	La Niña Advisory (Final) Press Statement

EL NIÑO SOUTHERN OSCILLATION (ENSO) is a naturally occurring phenomenon of the climate system resulting from the interaction between the ocean and atmosphere in the central and eastern equatorial Pacific.

La Niña is the cold phase of ENSO.

- Lasts **1-3** years
- Occurs every **3-4** years

Effects on the Philippine Climate

- **Early rainy season**
- **Short dry season**
- **Strong monsoon activity**
- **More Tropical Cyclones**
- **Above normal rainfall**

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ENSO Alert and Warning System (El Niño)

El Niño is the **warm phase** of El Niño Southern Oscillation (ENSO).

It is characterized by warmer temperatures (0.5°C or higher than average), weak winds from the east, and fewer clouds resulting in less rain. It lasts between eight to twelve months and occurs every two to seven years with strongest ones occurring every 10 to 15 years.

Warning Type	Forecast	Sea Surface Temperature Anomaly	Response	Form of Issuance
WATCH	If the conditions are favorable with 55% chance of El Niño development within the next six months	1 month 0.5°C or greater is observed	**Be Aware and Prepared!**	Monthly Climate Assessment and Outlook Press Statement
ALERT	If the conditions are favorable with 70% chance of El Niño development within the next six months	5 consecutive months of 0.5°C or greater is observed	**Early Action!**	Monthly Climate Assessment and Outlook Press Statement
ADVISORY	El Niño is present and expected to continue.	7 consecutive months of 0.5°C or greater is observed	**Take Action!**	La Niña Advisories Press Statement Press Briefing
FINAL ADVISORY	El Niño has ended.	-	**Assess and Act Whenever Necessary**	La Niña Advisory (Final) Press Statement

Dry Condition
Below normal rainfall conditions for **2 consecutive months**

Dry Spell
Below normal rainfall conditions for **3 consecutive months**

Way below normal rainfall conditions for **2 consecutive months**

Drought
Below normal rainfall conditions for **5 consecutive months**

Way below normal rainfall conditions for **3 consecutive months**

Effects on the Philippine Climate

- **Delayed onset of rainy season**
- **Extended dry season**
- **Weak monsoon activity**
- **Fewer Tropical Cyclones**
- **Below normal rainfall**
- **Above normal air temperature**

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IEC Materials (Poster)

Flood

What is Flood?

It is the rise in water level in a stream to a peak from which the water level recedes at a slower rate. Usually brief, it happens when large amounts of water, such as rainfall, accumulates faster than it can evaporate, disperse, or get discharged.

Types of Flooding

Based on Location

River Flooding occurs when a large amount of rainfall causes a river to overflow. This type of flooding may last a few hours or many days depending on the intensity and amount of rainfall and the carrying capacity of the river.

Coastal Flooding may occur due to storm surges, high tide, and tsunamis (waves produced by earthquakes at sea).

Urban Flooding occurs in locations where most areas are covered by buildings or paved. During heavy rains, water cannot infiltrate into the ground and accumulates on the surface. Urban flooding is also caused by the limited capacity of drainage systems to accommodate heavy rains.

Based on Duration

Flash flooding is the result of heavy rainfall over a relatively small drainage area. Flash floods carry highly destructive flood waves and are most common in mountainous areas or in steep places that have streams flowing through narrow canyons. It happens quickly and with little warning.

Sheet flooding is caused by shallow water flowing over a wide area and is very common in flood plains that are normally flat. Sheet flooding may also result when water in a river channel with insufficient carrying capacity overtops its banks, inundating the adjacent areas.

Causes of Flooding

- Heavy, continuous rain that lasts for days or ceases only briefly.
- Heavy siltation of the river system that decreases the carrying capacity of the river.
- Overtopping of dikes and levees
- Insufficient carrying capacities of the river system
- Changes in tide

Flood Forecasting and Warning System for River Basins

Flood forecasting and warning system is the estimation of stage, discharge, time of occurrence, and duration of a flood, especially of peak discharge, at a specified point on a stream, resulting from precipitation or ombined effect of precipitation and dam discharge.

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Meteorological And Geological Hazard Advisories, Warnings and Notifications for Decisive Action

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Mode 1: Asynchronous Session (LMS)

Introduction: MAGHANDA Project

- Pretest
- Introduce Yourself
- MAGHANDA Project Briefer
- CANVAS How to
- MAGHANDA Portal

Module 1: Meteorological (MET) Warning Messages

- Lesson 1: Severe Wind
- Lesson 2: Heavy Rainfall

Module 2: Geological (GEO) Warning Messages

- Lesson 1: Volcano
- Lesson 2: Earthquake
- Lesson 3: Tsunami

Module 3: Tools and Platforms

- Lesson 1: DOST-PAGASA Website
- Lesson 2: GeoRiskPH
- Lesson 3: Other Tools

Module 4: Impact-based Forecasting

Post-Training

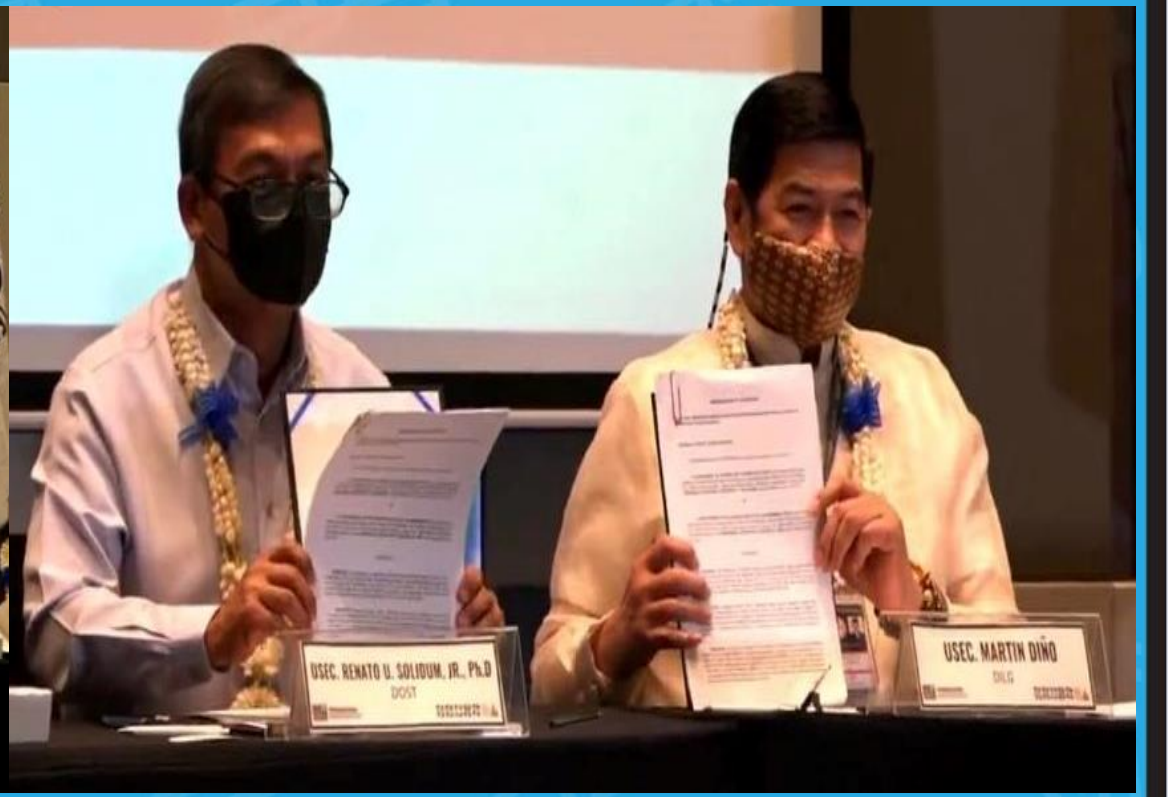
- Posttest
- Course Evaluation

Each Lesson contains six components;

1. **Let's Engage** - Motivation and Recall
2. **Let's Explain** - Explanation of hazards/effects/differences etc.
3. **Let's Analyze** - Warning messages, alert systems
4. **Let's Do It!** - Recommended action/response
5. **Let's Evaluate** - Quiz
6. **Appendix**


SEISMIC MONITORING OPERATIONS AND
EARTHQUAKE INFORMATION

Memorandum of Agreement Signing, March 16, 2022



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THANK YOU !

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