



IMPACT-BASED FORECASTING



DOST-PAGASA

Severe Weather Advisories- Examples

WMO PTC/GCC Workshop on Impact-based Forecast and Warning Services,
Muscat, Sultanate of Oman | 05 – 09 November 2023

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Aim

- To explore severe weather impacts and review existing advisories issued for them

So far...

- We have learned the various hazards present globally, in our region and specific to this country
- We have also learned the impacts that the hazards bring with them
- But how do we warn for them?

Severe Weather

- Any atmospheric condition ***potentially destructive or hazardous for human beings***. It is often associated with extreme convective weather (tropical cyclones, tornadoes, severe thunderstorms, squalls, etc.) and with storms of freezing precipitation or blizzard conditions. (WMO)



IMPACT-BASED FORECASTING



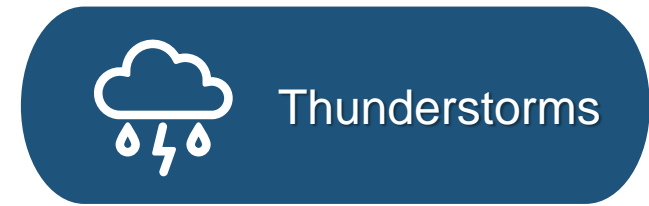
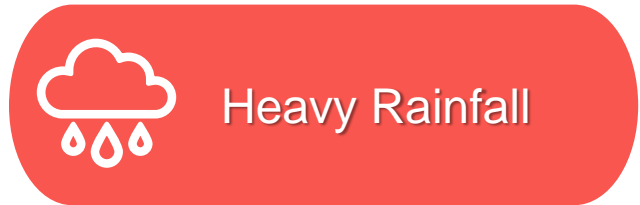
DOST-PAGASA

Philippines



PAGASA (existing)

Warnings for:



Tropical Cyclones- Wind Signals

Everything You Need to Know about the **Modified Tropical Cyclone Warning System**

Modified Tropical Cyclone Wind Signal (TCWS)

Signal No.	Wind Threat	Warning Lead Time	Issued for	Potential Impacts
1	OLD: 30-60 km/h NEW: 39-61 km/h	36 hrs	Tropical Depression (TD) or higher	Minimal to Minor threat to life and property

Everything You Need to Know about the **Modified Tropical Cyclone Warning System**

Updated Tropical Cyclone Wind Signal (TCWS)

Signal No.	Wind Threat	Warning Lead Time	Issued for	Potential Impacts
2	OLD: 61-120 km/h NEW: 62-88 km/h	24 hrs	Tropical Storm (TS) or higher	Minor to Moderate threat to life and property

Everything You Need to Know about the **Modified Tropical Cyclone Warning System**

Updated Tropical Cyclone Wind Signal (TCWS)

Signal No.	Wind Threat	Warning Lead Time	Issued for	Potential Impacts
3	OLD: 121-170 km/h NEW: 89-117 km/h	18 hrs	Severe Tropical Storm (STS) or higher	Moderate to Significant threat to life and property

Dissemination through:

- Website
- TV, Radio
- SNS (Facebook, Twitter)
- Email, Fax
- Emergency alerts (through NDRRMC)

Everything You Need to Know about the **Modified Tropical Cyclone Warning System**

Updated Tropical Cyclone Wind Signal (TCWS)

Signal No.	Wind Threat	Warning Lead Time	Issued for	Potential Impacts
4	OLD: 171-220 km/h NEW: 118-184 km/h	12 hrs	Typhoon (TY) or higher	Significant to Severe threat to life and property

Everything You Need to Know about the **Modified Tropical Cyclone Warning System**

Updated Tropical Cyclone Wind Signal (TCWS)

Signal No.	Wind Threat	Warning Lead Time	Issued for	Potential Impacts
5	OLD: More than 220 km/h NEW: 185 km/h or higher	12 hrs	Super Typhoon (STY)	Extreme Threat to life and property



IMPACT-BASED FORECASTING

DOST-PAGASA

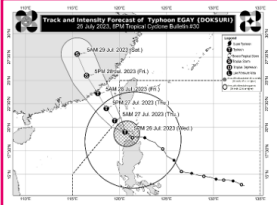


Tropical Cyclone Bulletin

TROPICAL CYCLONE BULLETIN NO. 30
Typhoon EGAY (DOKSUR)
Issued at 8:00 PM, 26 July 2023
Valid for broadcast until the next bulletin at 11:00 PM today.

TYPHOON EGAY SLIGHTLY WEAKENS AS IT ACCELERATES NORTHWESTWARD OVER THE WATERS OF LUZON STRAIT

Location of Center (7:00 PM)
The center of the eye of Typhoon EGAY was estimated based on all available data at **85 km West Northwest of Calayan, Cagayan (19.5°N, 120.6°E)**



Intensity
Maximum sustained winds of **165 km/h** near the center, gustiness of up to **230 km/h**, and central pressure of **940 hPa**

Present Movement
Northward at 15 km/h
Extent of Tropical Cyclone Winds
Strong to typhoon-force winds extend outward up to **700 km** from the center

TRACK AND INTENSITY FORECAST

Date and Time	Center Position			Intensity (MSW (km/h))	Cat.	Movement dir. and speed (km/h)
	Lat. (°N)	Lon. (°E)	Location			
12-Hour Forecast 5:00 AM 27 July 2023	20.7	119.5	245 km West of Ibatay, Batanes (OUTSIDE PAR)	155	TY	NW 15
24-Hour Forecast 5:00 PM 27 July 2023	22.0	118.6	360 km West Northwest of Ibatay, Batanes (OUTSIDE PAR)	150	TY	NNW 15
36-Hour Forecast 5:00 AM 28 July 2023	23.6	117.7	530 km Northwest of Ibatay, Batanes (OUTSIDE PAR)	140	TY	NNW 15
48-Hour Forecast 5:00 PM 28 July 2023	25.5	116.5	755 km Northwest of Ibatay, Batanes or in the vicinity of Fujian, China (OUTSIDE PAR)	85	TS	NNW 20
60-Hour Forecast 5:00 AM 29 July 2023	27.8	115.5	1,010 km Northwest of Extreme Northern Luzon or in the vicinity of Jiangxi, China (OUTSIDE PAR)	65	TS	NNW 25

Basic information about the TC

TROPICAL CYCLONE BULLETIN NO. 30
Typhoon EGAY (DOKSUR)
Issued at 8:00 PM, 26 July 2023
Valid for broadcast until the next bulletin at 11:00 PM today.

Which areas are affected and how intense the winds are

TROPICAL CYCLONE WIND SIGNALS (TCWS) IN EFFECT

TCWS No.	Luzon	Visayas	Mindanao
3 Wind threat: Storm-force winds	The northwestern portion of Ilocos Norte (Bangui, Pagudpud, Burgos, Pasuquin) Warning lead time: 18 hours Range of wind speeds: 89 to 117 km/h (Beaufort 10 to 11) Potential impacts of winds: Moderate to significant threat to life and property		
2 Wind threat: Gale-force winds	Cagayan including Babuyan Islands, Kalinga, Abra, the rest of Ilocos Norte, Apayao, northern and central portion of Ilocos Sur (Gregorio del Pilar, Magsangal, San Esteban, Banayoyo, Burgos, City of Candon, Santa Lucia, Santiago, San Vicente, Santa Catalina, Lidlidda, Nagbukel, Sinait, Suyo, Sigay, San Isidro, Galinguyod, Quirino, City of Vigan, San Emilio, Catubog, Caoyan, San Juan, Santa, Bantay, Santo Domingo, Santa Cruz, Santa Maria, Narvacan, Salcedo, Tagudin, Cervantes), western portion of Mountain Province (Besao, Sagada, Bontoc, Sadanga, Tadian, Sabangan, Bako) and Batanes		
1 Wind threat: Strong winds	Isabela, the rest of Mountain Province, Ifugao, Zambales, Pangasinan, Benguet, La Union, Nueva Vizcaya, the rest of Ilocos Sur, Quirino, Aurora, Nueva Ecija, Tarlac, Pampanga, northern portion of Bataan (Morong, Samal, Orani, Hermosa, Danaliguitan) and the northern portion of Bulacan (Hagonoy, Dona Remedios Trinidad, Paombong, City of Malolos, Plaridel, Guiguinto, Pandi, Bustos, Angat, Calumpit, Pullian, Baliuag, San Rafael, San Ildefonso, San Miguel)		

HAZARDS AFFECTING LAND AREAS

Heavy Rainfall Outlook
Forecast accumulated rainfall from today to tomorrow afternoon
• Above 200 mm: The northwestern portion of Cagayan including Babuyan Islands, and Ilocos Norte
• 100-200 mm: Batanes, Ilocos Sur, the rest of Cagayan, Apayao, and Abra
• 50-100 mm: Zambales and the rest of Cordillera Administrative Region and Ilocos Region
Forecast rainfall are generally higher in elevated or mountainous areas. Under these conditions, flooding and rain-induced landslides are highly likely especially in areas that are highly or very highly susceptible to these hazards as identified in hazard maps and in localities that experienced considerable amounts of rainfall for the past several days.
The Southwest Monsoon enhanced by EGAY will continue to bring occasional to monsoon rains over the western portions of Central Luzon, Southern Luzon, and Visayas in the next three days. For more information, refer to **Weather Advisory #8 for Southwest Monsoon** issued at 11:00 AM today and the **24-Hour Public Weather Forecast and Outlook** at 4:00 PM today.

TROPICAL CYCLONE BULLETIN NO. 30
Typhoon EGAY (DOKSUR)
Issued at 8:00 PM, 26 July 2023
Valid for broadcast until the next bulletin at 11:00 PM today.

Severe Winds

Violent, life-threatening conditions are expected to continue over Babuyan Islands, the northwestern portion of mainland Cagayan, and the northern portions of Apayao and Ilocos Norte in the next 6 hours.

Moderate to significant impacts from storm-force winds may be experienced within the areas under Wind Signal No. 3. Minor to moderate impacts from gale-force winds are possible within any of the areas where Wind Signal No. 2 is in effect. Minimal to minor impacts from strong winds are also possible within any of the areas where Wind Signal No. 1 is hoisted.

The wind signals warn the public of the general wind threat over an area due to the tropical cyclone. Local winds may be slightly stronger/enhanced in coastal and upland/mountainous areas exposed to winds. Winds are less strong in areas sheltered from the prevailing wind direction.

EGAY and the enhanced Southwest Monsoon will continue to bring gusty conditions over the following areas not under any Wind Signal, especially in coastal and upland/mountainous areas exposed to winds:

- Today: Luzon and Visayas
- Tomorrow: Luzon and Western Visayas
- Friday: Batanes, Ilocos Region, Zambales, Bataan, Cavite, the southern portion of Quezon, MIMAROPA, Bicol Region, and Western Visayas

Coastal Inundation

There is a high risk of storm surge which may cause flooding in the low-lying and exposed coastal areas of Batanes, Cagayan including Babuyan Islands, Ilocos Norte, and portions of Isabela and Ilocos Sur. Maximum surge heights may exceed 3.0 m in most of the warning areas. For more information, refer to Storm Surge Warning #11 issued at 2:00 PM today.

HAZARDS AFFECTING COASTAL WATERS

Rough to high or very high seas: Sea travel is risky for most vessels. All mariners are advised to remain in port or seek safe harbor until winds and waves subside.
Rough to very rough seas: Sea travel is risky for small seacrafts. For larger vessels, operating in gale conditions requires experience and properly equipped vessels. Mariners without proper experience or operating ill-equipped vessels are advised to remain in port or seek safe harbor.

Under the influence of EGAY and the enhanced Southwest Monsoon, a Gale Warning is in effect over several coastal waters along the seaboard of Luzon and Visayas. For more information, refer to Gale Warning #8 issued at 5:00 PM today.

In the next 24 hours, the enhanced Southwest Monsoon will also bring moderate to rough seas (2.0 to 3.0 m) over the coastal waters of Mindanao. Mariners of small seacrafts are advised to take precautionary measures when venturing over these waters. If inexperienced or operating ill-equipped vessels, avoid navigating in these conditions.

TROPICAL CYCLONE BULLETIN NO. 30
Typhoon EGAY (DOKSUR)
Issued at 8:00 PM, 26 July 2023
Valid for broadcast until the next bulletin at 11:00 PM today.

TRACK AND INTENSITY OUTLOOK

- EGAY is forecast to track generally northwestward or north northwestward passing over the waters south and southwest of Taiwan in the next 24 hours and may continue to track north northwestward for the remainder of the forecast period. It is forecast to exit the Philippine Area of Responsibility tomorrow morning. Outside the PAR region, EGAY will cross the Taiwan Strait and make landfall in the vicinity of Fujian, China on Friday morning.
- EGAY is forecast to weaken throughout the forecast period, although the rate of weakening will not be rapid due to slightly favorable environment offsetting the impact of land interaction with the rugged terrain of Northern Luzon and Taiwan. A more rapid weakening is expected once EGAY makes landfall and moves inland over mainland China, with the tropical cyclone degenerating into a remnant low by Saturday.

Considering these developments, the public and disaster risk reduction and management offices concerned are advised to take all necessary measures to protect life and property. Persons living in areas identified to be highly or very highly susceptible to these hazards are advised to follow evacuation and other instructions from local officials. For heavy rainfall warnings, thunderstorm/rainfall advisories, and other severe weather information specific to your area, please monitor products issued by your local PAGASA Regional Services Division.

The next tropical cyclone bulletin will be issued at 11:00 PM today.

DOST-PAGASA



Heavy Rainfall Warning

WARNING LEVEL		
<p>ADVISORY</p>	<p>COMMUNITY AWARENESS Flooding is possible.</p>	<p>IMPACTS</p> <ul style="list-style-type: none"> Flooding in low-lying areas especially along river channels
	<p>HOW TO STAY UPDATED</p>	<p>WHAT TO DO</p> <ul style="list-style-type: none"> Listen to the radio or watch the news for the latest updates. Monitor the water levels in rivers and low-lying areas.
<p>ALERT</p>	<p>COMMUNITY PREPAREDNESS Flooding is alarming.</p>	<p>IMPACTS</p> <ul style="list-style-type: none"> Flooding in other areas Possible landslides
	<p>HOW TO STAY UPDATED</p>	<p>WHAT TO DO</p> <ul style="list-style-type: none"> Get ready for evacuation with your emergency kit.
<p>EMERGENCY</p>	<p>COMMUNITY RESPONSE Serious flooding is damaging.</p>	<p>IMPACTS</p> <ul style="list-style-type: none"> Widespread flooding More roads are not passable Higher chance of landslides
	<p>HOW TO STAY UPDATED</p>	<p>WHAT TO DO</p> <ul style="list-style-type: none"> Evacuate to higher ground and away from landslide prone areas.

- For rainfall events of long duration and widespread rain
- Covers a larger area
- Usually caused by tropical cyclones, monsoons, etc.

RAINFALL ADVISORIES, CLASSIFICATION, AND MEASUREMENT			
COLOR-CODED RAINFALL ADVISORIES AND CLASSIFICATION	RAIN MEASUREMENT	FLOOD POSSIBILITY	RESPONSE
RED RAINFALL ADVISORY <p>TORRENTIAL</p>	MORE THAN 30mm RAIN observed in 1 hour and expected to continue in the next 2 hours = 8 gallons per square meter/hour	Serious Flooding expected in low lying areas	EVACUATION
ORANGE RAINFALL ADVISORY <p>INTENSE</p>	15-30mm RAIN observed in 1 hour and expected to continue in the next 2 hours = 4 to 8 gallons per square meter/hour	Flooding is threatening	ALERT for possible evacuation
YELLOW RAINFALL ADVISORY <p>HEAVY</p>	7.5-15mm RAIN observed in 1 hour and expected to continue in the next 2 hours = 2 gallons per square meter/hour	Flooding is possible	MONITOR the weather condition
<p>MODERATE</p>	2.5 - 7.5mm RAIN observed in 1 hour and expected to continue in the next 2 hours = 2.5 liters per square meter/hour to 7.5 liters per square meter/hour	(Flooding still possible in certain areas)	
<p>LIGHT</p>	LESS THAN 2.5 mm RAIN observed in 1 hour and expected to continue in the next 2 hours = up to 2.5 liters per square meter/hour		



Heavy Rainfall Warning-Example

Basic information about the warning

DOST
PAGASA
NORTHERN LUZON

HEAVY RAINFALL WARNING NO.10
Weather System: Typhoon #EgayPh
Issued at: 5:00 PM, 26 Jul 2023

RED WARNING
COMMUNITY RESPONSE
Serious FLOODING and LANDSLIDES in flood and landslides prone areas.

#Babuyan Group of Islands, #Abra, #Kalinga, #Apayao, #Benguet, #IlocosNorte, #IlocosSur, and #LaUnion,

ORANGE WARNING
COMMUNITY AWARENESS
FLOODING and LANDSLIDES is still THREATENING in flood and landslides prone areas.

#MountainProvince, #Ifugao, #Batanes, Northern #Cagayan(Sta. Ana, Gonzaga, Abulug, Buguey, Sta. Teresita, Aparri, Camalaniugan, Ballesteros, Lal-lo, Gattaran, Allacapan, Pamplona, SanchezMira, Claveria, Sta. Praxedes)

YELLOW WARNING
COMMUNITY AWARENESS
Possible FLOODING AND LANDSLIDES in flood and landslides-prone areas.

#Pangasinan, Rest of #Cagayan, and #NuevaVizcaya

Light to moderate rains at times heavy rain are being experienced #Isabela and #Quirino which may persist for 2-3 hours.

The public and the disaster risk reduction and management offices concerned are advised to take appropriate actions, MONITOR the weather condition and watch for the next advisory to be issued at 8:00 PM

☎ 09663255672
📍 Dost_pagasa
🌐 www.pagasa.dost.gov.ph
✉ nlpagasarsd@gmail.com

Warning Levels

Areas affected

Current situation

Dissemination through:

- SNS (Facebook, Twitter)
- SMS
- Emergency alerts (through NDRRMC + telcos)

Storm Surge Warning

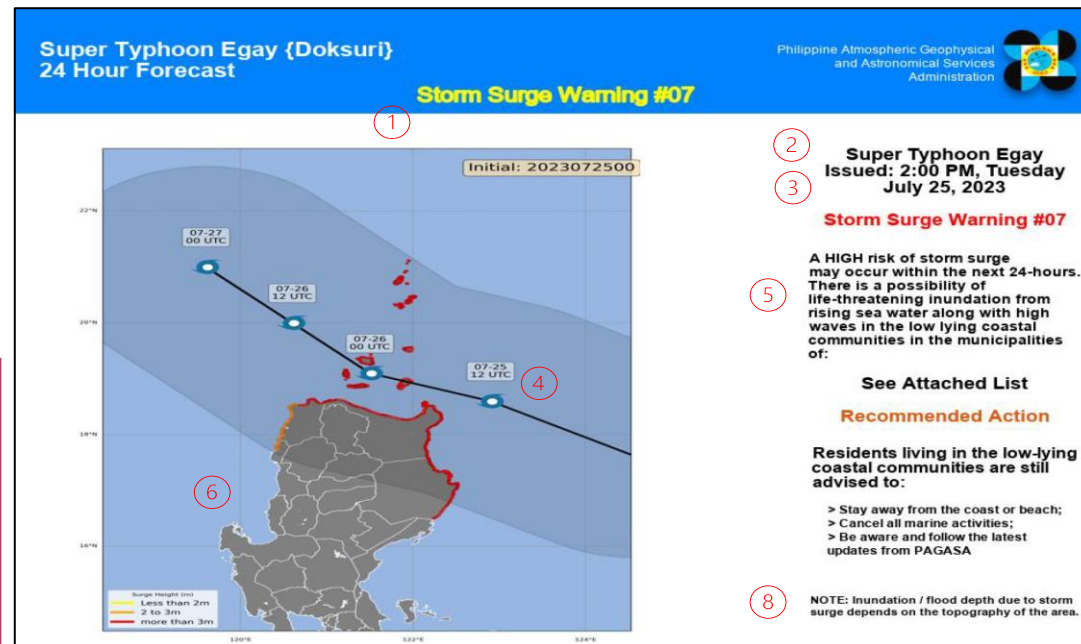
- Color-coded
- Municipality-aggregated
- Impact-focused
- With actions to take
- Launched in 2019

Dissemination through:

- Website
- TV, Radio
- SNS (Facebook, Twitter)
- Email, Fax
- Emergency alerts (through NDRRMC + telcos)

Contents:

1. Warning number
2. Name of the tropical cyclone
3. Time and date of issuance
4. Tropical cyclone current and forecast positions
5. Description
6. Storm surge hazard map
7. Matrix that includes the affected municipalities, storm surge height, impact and recommended actions
8. Note regarding the flood depth depends on the topography of the area.



7

REPUBLIC OF THE PHILIPPINES
Department of Science and Technology
Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA)
Science Garden, Alhambra Road, Diliman, Quezon City 1106

STORM SURGE INFORMATION
STORM SURGE: WARNING #07
FOR: STY EGAY (DOKSURI)
(Valid until the next storm surge information to be issued at 8 PM today)

Estimated Storm Surge Heights	Provinces	Low-lying Coastal Areas of	IMPACTS	ADVICE/Actions to Take
2.1 - 3.0 meters	ILOCOS NORTE	BACARRA BADOC LADANG CITY (Capital) CURIMAQ BURGOS PASUQUIN PAOAY	MODERATE to SIGNIFICANT damage to coastal/marine infrastructures and disruptions to all marine-related activities. Significant erosion to beaches. Possible river flooding due to storm surge.	Evacuation is advised. All marine activities must be cancelled. Public is advised to follow the latest Tropical Cyclone Bulletins and Storm Surge Warnings from PAGASA
	ILOCOS SUR	CABUGAO SAN JUAN (LIPING) SINAIT		
More than 3.0 meters	BATANES	IVANA BASCO (Capital) LUYUGAN ITBAYAT SABTANG MAHATAO BUQUITY PUNALINC A	SIGNIFICANT damage to communities, coastal/marine infrastructures and disruptions to all marine-related activities. Significant erosion to beaches. Possible river flooding due to storm surge.	Evacuation is advised. All marine activities must be cancelled. Public is advised to follow the latest Tropical Cyclone Bulletins and Storm Surge Warnings from PAGASA
	CAGAYAN	APARRI CALAYAN GONZAGA BAGGAO SANTA ANA LAL-LO GATTARAN PAMPLONA BALLESTERO S SANTA TERESITA SANCHEZ-MIRA ABULUG SANTA PRAXEDES CLAVERIA PAGDUPUD		
	ILOCOS			

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Postal Address: P.O. Box 3278 Manila 434-0000 Tel No. (63-2) 929-4865, 922-1992 (w/fax) & 434-0000

REPUBLIC OF THE PHILIPPINES
Department of Science and Technology
Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA)
Science Garden, Alhambra Road, Diliman, Quezon City 1106

NORTE	BANGUI
ISABELA	MACONOGON DINAPIGUE DIVULACAN PALANAN

* The public and the disaster risk reduction and management council concerned are advised to take appropriate actions and precautionary measures, and watch for the next storm surge information to be issued at 8 PM today.
* Inundation/flood depth due to storm surge will depend on the topography of the area(s).

Prepared by: JSP Checked by: JMD

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IMPACT-BASED FORECASTING



DOST-PAGASA

Flood Warnings

Non-Telemetered River Basin

General Flood Advisory (GFA)

A General Flood Advisory is simplified flood bulletin issued for non-telemetered river basins whenever there is a significant amount of rainfall recorded based on past/current observation and the forecast rainfall from the numerical weather prediction models, satellite-based information and estimates from radar. It is issued to the public on a regional basis through NDRRMC at 7:00am and 7:00pm

Telemetered River Basin

River Basins with fully automatic data transmission equipped with a telecommunication system.

Flood Bulletin

Flood forecast issued by the respective river basin centers like Pampanga, Agno, Bicol, Cagayan and Cagayan De Oro, prepared twice daily during floodwatch. Water level is monitored based on the assessment levels (Alert, Alarm and Critical) which means 40%, 60% and 100% of the river is full respectively.

Flood warnings–Levels

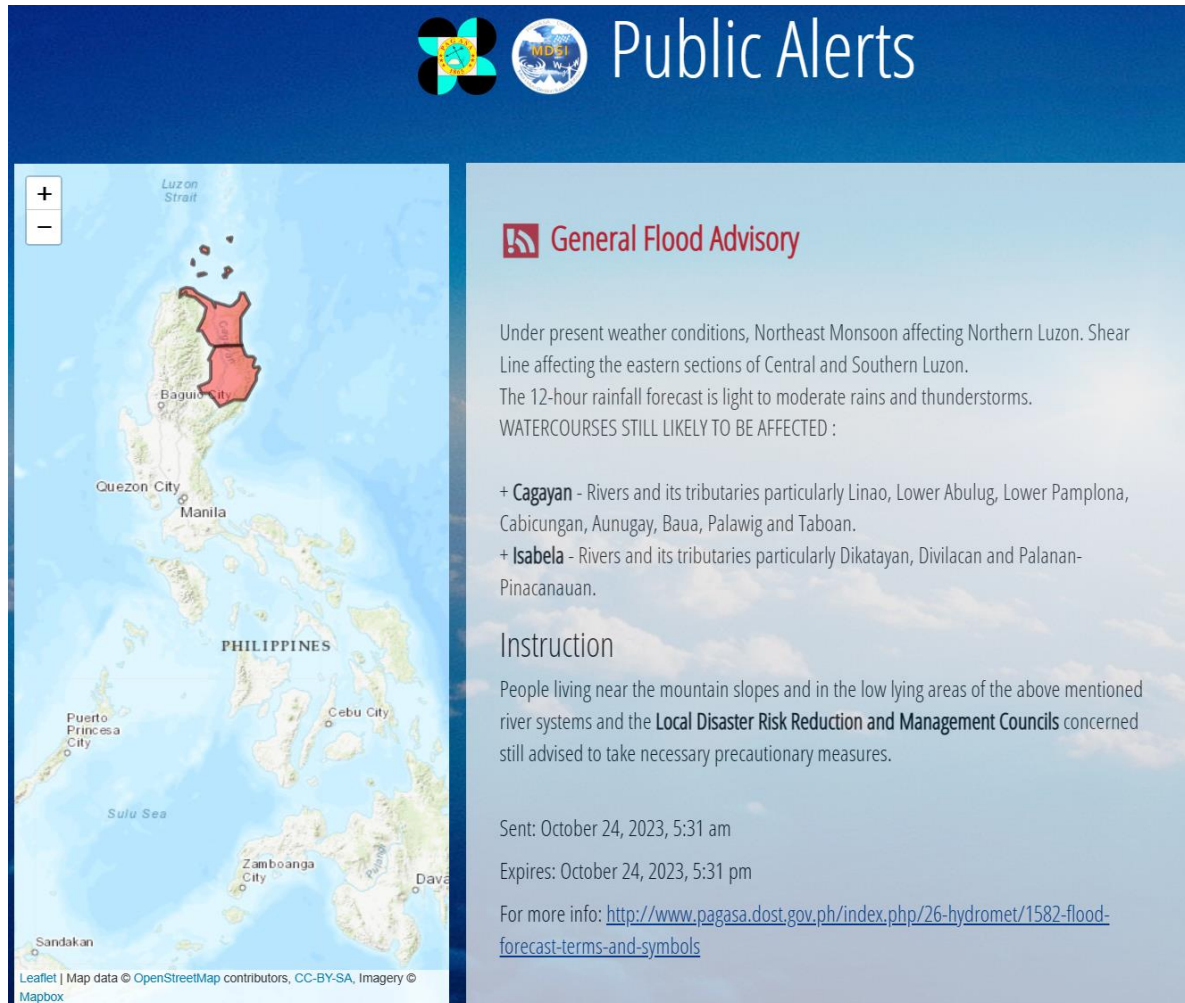


Icon	Description	Forecast	Action / Response
	Flood Monitoring Telemetered: Slow rise in water level but still below alarm level Non-Telemetered: Monitor for possible flooding area	Telemetered: Flood is possible Non-Telemetered: Light to Moderate Rainfall	Telemetered: Non-Telemetered: Advised to take Precautionary Measures
	Flood Alert Telemetered: Water level is continuously rising but still below critical level Non-Telemetered: Alert for possible flash floods and landslides	Telemetered: Flood is threatening Non-Telemetered: Moderate to Heavy Rainfall	Telemetered: Non-Telemetered: Advised to be alert for possible flood, flash flood and landslides

Icon	Description	Forecast	Action / Response
	Flood Warning Telemetered: Water level is above critical level Non-Telemetered: Flood is occurring immediate action is recommended	Telemetered: Flood is occurring Non-Telemetered: Heavy to Intense Rainfall	Telemetered: Non-Telemetered: Advised to take appropriate action
	Severe Flood Warning Telemetered: Water level is continuously rising above critical level Non-Telemetered: Flood is persisting force evacuation is recommended	Telemetered: Flood is persisting Non-Telemetered: Intense to Torrential Rainfall	Telemetered: Non-Telemetered: Advised to force evacuation

Icon	Description	Forecast	Action / Response
	Final Telemetered: Slow recession of water level Non-Telemetered: Light rains	Flood is no longer possible	

Flood Warning-Example



Public Alerts

General Flood Advisory

Under present weather conditions, Northeast Monsoon affecting Northern Luzon. Shear Line affecting the eastern sections of Central and Southern Luzon. The 12-hour rainfall forecast is light to moderate rains and thunderstorms. WATERCOURSES STILL LIKELY TO BE AFFECTED :

- + **Cagayan** - Rivers and its tributaries particularly Linao, Lower Abulug, Lower Pamplona, Cabicungan, Aunugay, Baua, Palawig and Taboan.
- + **Isabela** - Rivers and its tributaries particularly Dikatayan, Divilacan and Palanan-Pinacanauan.

Instruction

People living near the mountain slopes and in the low lying areas of the above mentioned river systems and the **Local Disaster Risk Reduction and Management Councils** concerned still advised to take necessary precautionary measures.

Sent: October 24, 2023, 5:31 am
Expires: October 24, 2023, 5:31 pm

For more info: <http://www.pagasa.dost.gov.ph/index.php/26-hydromet/1582-flood-forecast-terms-and-symbols>

Dissemination through:

- Website
- SNS (Facebook, Twitter)
- Email, Fax
- Emergency alerts (through NDRRMC + telcos)

Thunderstorm Warning

- For short duration rainfall events

WARNING LEVEL

Information



WHAT IT MEANS

Small chance of thunderstorm development



HOW TO STAY UPDATED

Watch



WHAT IT MEANS

Thunderstorm is likely to form within the next 12 hours.



HOW TO STAY UPDATED

Dissemination through:

- SNS (Facebook, Twitter)
- SMS
- Emergency alerts (through NDRRMC + telcos)

Warning



WHAT IT MEANS

Thunderstorm is threatening a specific area within the next 2 hours. Updates will be issued as necessary.



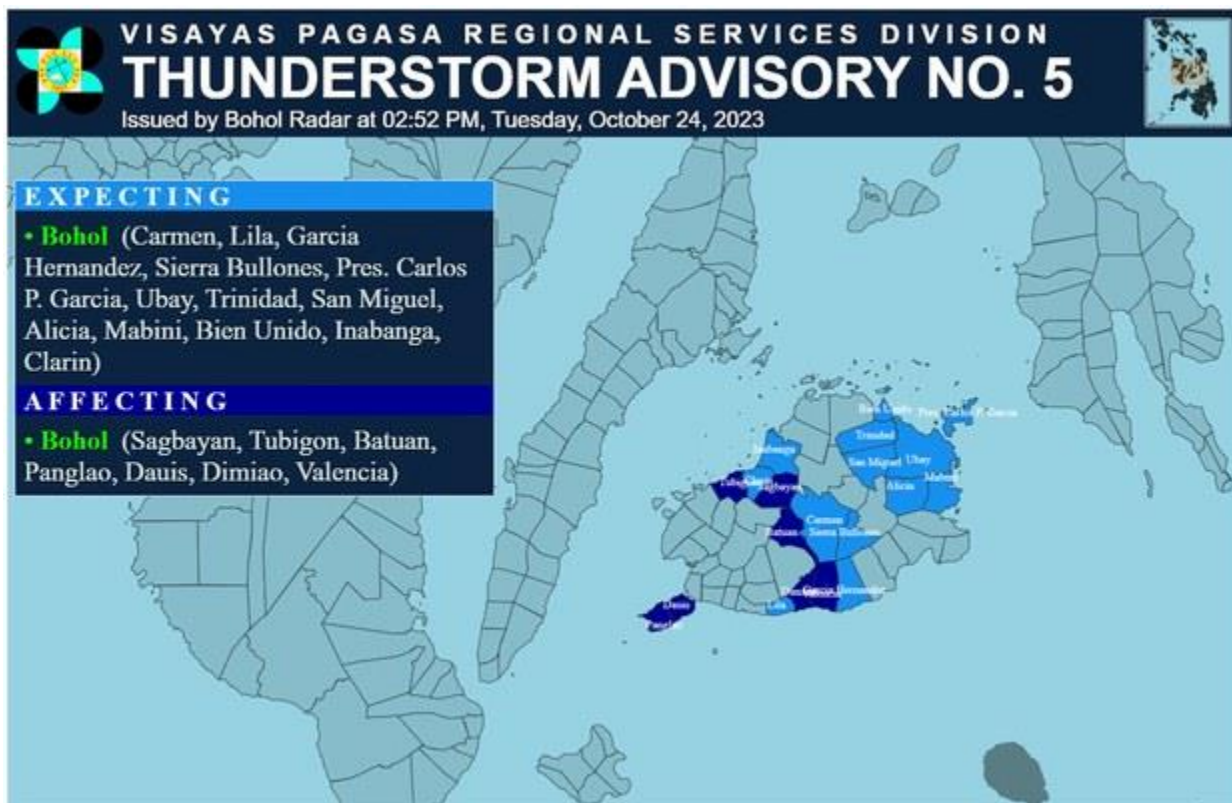
HOW TO STAY UPDATED



IMPACTS

- Flash floods
- Possible power interruption
- Traffic congestion in urban areas due to flooding
- Lightning strikes

Thunderstorm Warning-Example



Thunderstorm Advisory No. 5 #VIS_PRSD - Bohol Radar
Issued at 02:52 PM, Tuesday, October 24, 2023

Moderate to heavy (5.5-7.5 liters/meter² per hour) rain showers with lightning and strong winds due to thunderstorms are expected over #Bohol (Carmen, Lila, Garcia Hernandez, Sierra Bullones, Pres. Carlos P. Garcia, Ubay, Trinidad, San Miguel, Alicia, Mabini, Bien Unido, Inabanga, Clarin); within 30 minutes to an hour.

The above conditions are being experienced in #Bohol (Sagbayan, Tubigon, Batuan, Panglao, Daus, Dimiao, Valencia); which may persist within 1 to 2 hours.

All are advised to take precautionary measures against the impacts associated with these hazards which include flash floods and landslides. Keep monitoring for updates.

PAGASA (towards IBFWS)

Warning number

Weather system

Impact matrix

Description of the event

Republic of the Philippines
DEPARTMENT OF SCIENCE AND TECHNOLOGY
 Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA)

IMPACT-BASED WEATHER WARNING NO. 5

For: Enhanced Southwest Monsoon
 Issued at 3:00 PM, 29 July 2023
 Valid for broadcast until the next issuance at 3:00 PM tomorrow

MEDIUM LIKELIHOOD OF SIGNIFICANT IMPACTS DUE TO HEAVY RAINFALL IN METRO MANILA
 Warning valid on Today and Tomorrow (July 29-30, 2023)

High	Green	Yellow	Orange	Red
Medium	Green	Yellow	Orange	Red
Low	Green	Yellow	Orange	Red
Very low	Green	Yellow	Orange	Red
	Minimal	Minor	Significant	Severe

MEDIUM LIKELIHOOD OF MINOR IMPACTS DUE TO HEAVY RAINFALL IN METRO MANILA
 Warning valid on Monday (July 31, 2023)

High	Green	Yellow	Orange	Red
Medium	Green	Yellow	Orange	Red
Low	Green	Yellow	Orange	Red
Very low	Green	Yellow	Orange	Red
	Minimal	Minor	Significant	Severe

Event description:

Tropical Storm "FALCON" has entered the Philippine Area of Responsibility (PAR) and is now enhancing the Southwest Monsoon which is currently bringing rains over Metro Manila today (July 29) and will continue in the next 2 days (July 30-31). With Metro Manila having received a significant amount of rainfall these past five days, additional rainfall events may lead to minor to significant impacts.

This warning is updated to reflect the change in the likelihood of impacts for today and the addition of a warning for Sunday and Monday in Metro Manila.

"tracking the sky...helping the country"

Science Garden Compound, BIR Road, Brgy. Central, Quezon City, Metro Manila, Philippines 1100
 Tel. No. 8284-08-00
 Website: <http://bagong.pagasa.dost.gov.ph>

What to expect Today and Tomorrow (July 29-30)

- Homes and businesses are likely to be flooded, causing damage to some buildings
- Some public infrastructure (e.g., bridges, levees/dikes) are likely to be damaged.
- Fast flowing or deep floodwater is likely causing danger to life (e.g., injuries or deaths).
- A good chance that all outdoor activities are cancelled.
- Delays or cancellations in public land transportation are likely. A substantial number of flights are probably delayed or cancelled.
- Spray and flooding probably leading to difficult driving conditions and some road closures.
- A good chance that some communities may be cut off by flooded roads.
- Work or operations of most businesses are probably cancelled.
- Power cuts and interruptions or loss of other public utilities to some homes and businesses are likely
- Commitment or work of emergency responders and local DRRM staff may significantly increase.

What to expect on Monday (July 31)

- Flooding of a few homes and businesses is likely, especially in low-lying and poor drainage areas
- Postponement or cancellation of some outdoor activities is likely.
- Public land transportation probably affected with journey times taking longer than usual. There is a good chance of delays in a few flights due to reduced visibility.
- Spray and flooding on roads probably making travel times longer.
- Unless affected by flood, a good chance business to continue as usual.
- A good chance that interruptions or disruption to public utilities are minimal
- Slight increase in commitment or work of emergency responders and local DRRM staff is likely.

The public and disaster risk reduction and management (DRRMO) offices concerned are advised to continue monitoring for updates and take all necessary measures to reduce the impact of these hazards. Unless there is an intermediate issuance, the next impact-based weather warning will be issued at 3:00 PM tomorrow.

DISCLAIMER: This is an experimental issuance of impact-based warning for Metro Manila and is intended for local DRRMO staff only. THIS IS NOT FOR PUBLIC USE. No life-or-death decision shall be made based solely on this document. PAGASA makes no warranty, statement or representation, express or implied, with respect to the accuracy, availability, completeness or usefulness of the information, contained herein, and in so far as permitted by law, will not have any legal liability or responsibility (including liability for negligence) for any loss, damage, or injury (including death) which may result, whether directly or indirectly, from the supply or use of such information.

Prepared by: *RA/RCR*
 Checked by: *SED*

"tracking the sky...helping the country"

Science Garden Compound, BIR Road, Brgy. Central, Quezon City, Metro Manila, Philippines 1100
 Tel. No. 8284-08-00
 Website: <http://bagong.pagasa.dost.gov.ph>

Hazards:

Heavy Rainfall

Severe Winds

Expected impacts

Dissemination through:

- Messenger Groups (pre-identified focal persons)
- Viber Groups

Operational testing for Metro Manila and Metro Cebu



PAGASA IBF Visualization Tool

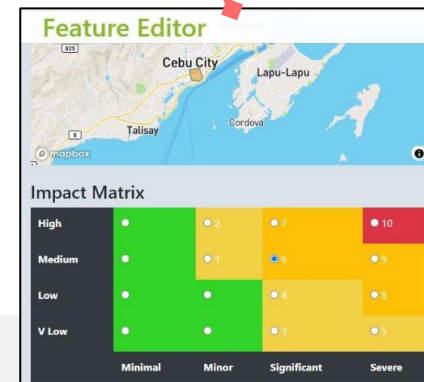
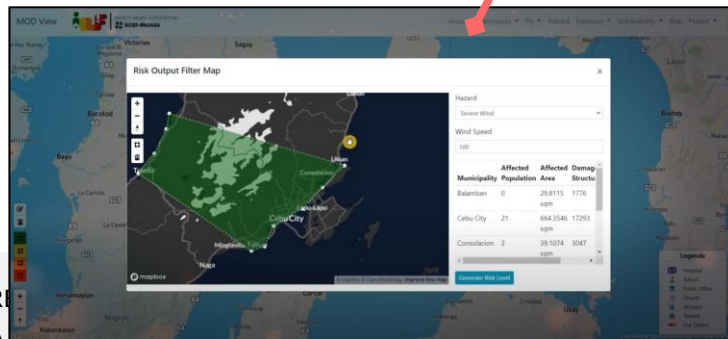
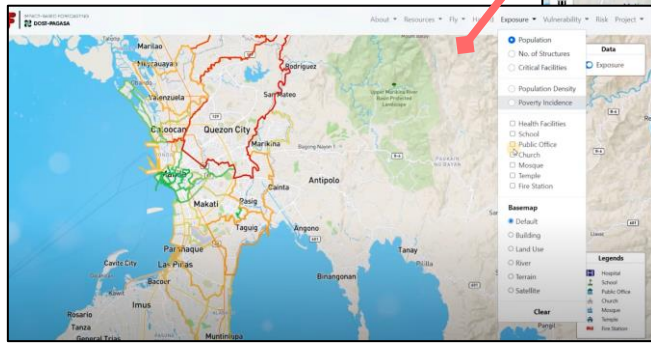
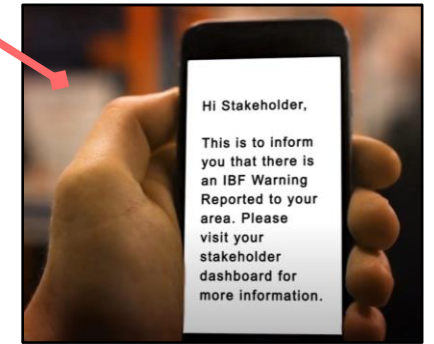
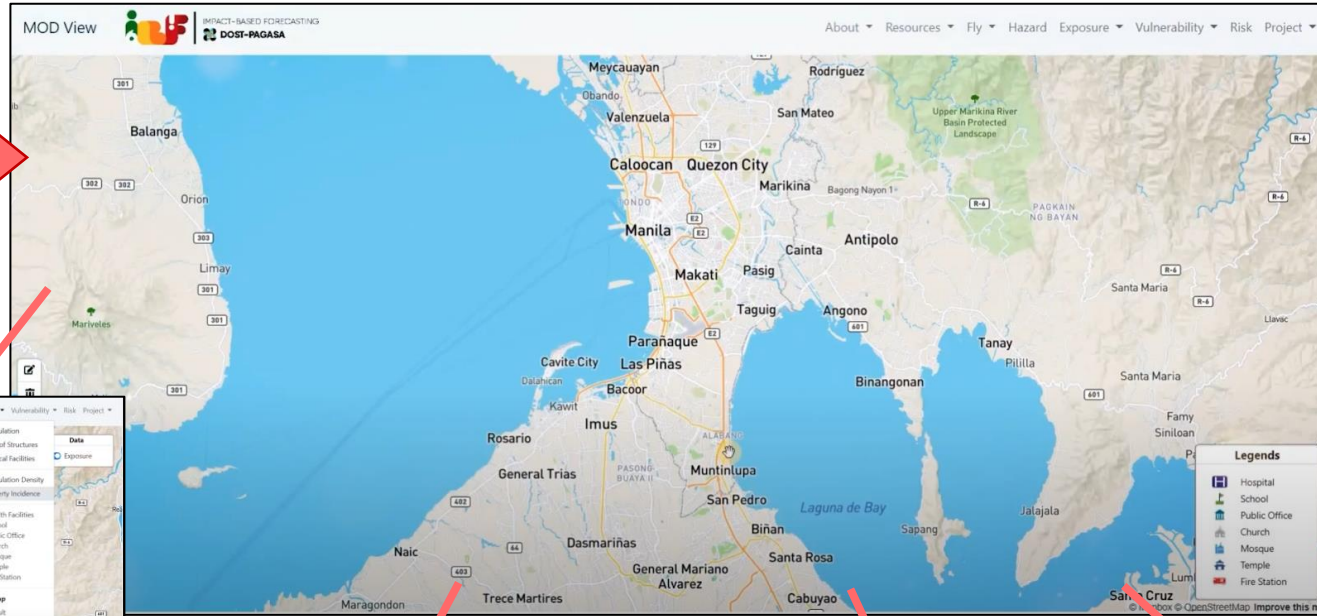
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United Kingdom



Met Office-National Severe Weather Warning Service (NSWWS)

- 8 Weather Elements

Rain

Thunderstorm

Wind

Fog¹

Ice

Snow

¹Low & medium Impact only

Extreme Heat²

Lightning

²Amber & Red Warnings only

Met Office (NSWWS)- Example

Warning Validity: Between 21:00 Sat 19 Nov 2016 and 14:00 Sun 20 Nov 2016

Warning colour and weather element(s): Yellow warning Rain and Wind

Map showing warning area: Map of the United Kingdom with the south-west coast highlighted in yellow.

Headline: Strong winds may develop across south-west England on Wednesday and Thursday.

Expected Impacts:

- Some delays to road, rail and ferry transport are likely
- Flooding of a few homes and businesses is likely
- Probably some bus and train services affected, with some journeys taking longer
- Delays for high-sided vehicles on exposed routes and bridges likely
- Some roads and bridges may close
- Short term loss of power and other services
- It is likely that some coastal routes, sea fronts and coastal communities affected by spray and/or large waves.

Further Details:

Further details
An area of low pressure, now named Storm Angus, will move northeast across southern and southeast England during Sunday morning. Gusts of 45-55 mph are likely inland and 60-85 mph near English Channel coasts, but we expect the strongest gusts to affect coastal counties from the Isle of Wight eastwards, where 70-80 mph gusts are possible (see separate Amber warning). Heavy rain could give 20-30 mm and locally 40 mm within 6-9 hours. Conditions expected to improve from the west during the morning and early afternoon.

The warning updated to extend it further west and bring the start time earlier.

Impact Matrix: A 3x3 grid with Likelihood on the y-axis and Impact on the x-axis. The middle cell (yellow) contains a checkmark. Below the grid is the text "Enter likelihood of impacts".

Images from presentation slides of Ms. Helen Caughey during the 2023 IBF Workshops in the Philippines

Issue time

Issued at 10:37 Fri 18 Nov 2016

Updated at 17:42 Sat 19 Nov 2016

Update time

For enquiries regarding this warning please contact the Met Office Weather Desk Phone: 0370 3000000
 E-mail: enquiries@metoffice.gov.uk
 Visit www.metoffice.gov.uk/premium/hazardmanager





IMPACT-BASED FORECASTING



Japan



Japan Meteorological Agency (JMA)

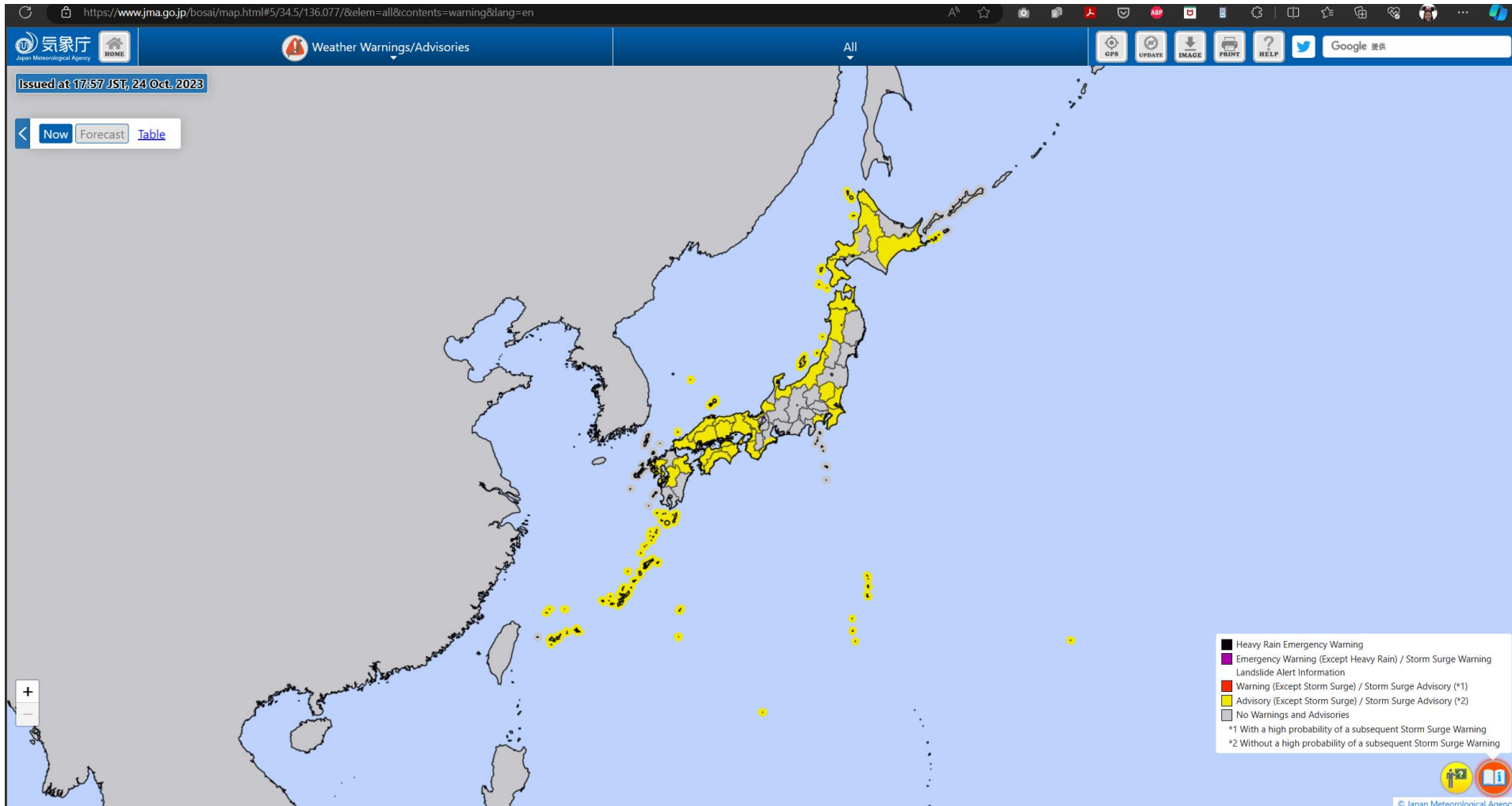
- Multiple hazards

5-Level Warning System

Warning Level	Action to take	Information provided by local government	Weather alerts issued by JMA
5	Must take measures to protect lives	Disaster information	Emergency warning
4	Must evacuate	Evacuation order / advisory	Landslide alert info. etc.
3	Elderly people must evacuate	Evacuation preparation information	Rain / flood / storm surge warnings etc.
2	Should check evacuation procedures	—	Rain / flood / storm surge advisories etc.
1	Should be on alert for disasters	—	—

Weather Warnings/Advisories	Alert Level	Action to be taken by municipalities	Action to be taken by residents
• Heavy rain emergency warning	5 eq.	Emergency Safety Measures	Evacuate before Alert Level 5 is issued. (A life-threatening situation in which safe evacuation is no longer possible.)
~~~~~ Be sure to evacuate by Alert Level 4 ! ~~~~~			
• Landslide alert information • Storm surge emergency warning • Storm surge warning	4 eq.	Evacuation Instruction	All residents should evacuate from affected areas when or before Evacuation Instruction is issued.
• Heavy rain warning (landslide) • Flood warning • Storm surge advisory (when possibility to become warning is high)	3 eq.	Evacuation of the Elderly, Etc.	Elderly people, those with disabilities, and others who may need more time to evacuate should evacuate from affected areas when Evacuation of the Elderly, Etc. is issued.
• Heavy rain advisory • Flood advisory • Storm surge advisory (when possibility to become warning is not referred)	2	Prepare for emergency response	Check evacuation action with a hazard map etc.
• Probability of warnings	1	Prepare for disaster	Prepare for disaster

# JMA Warning-Example







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# Examples of various applications of IBFWS





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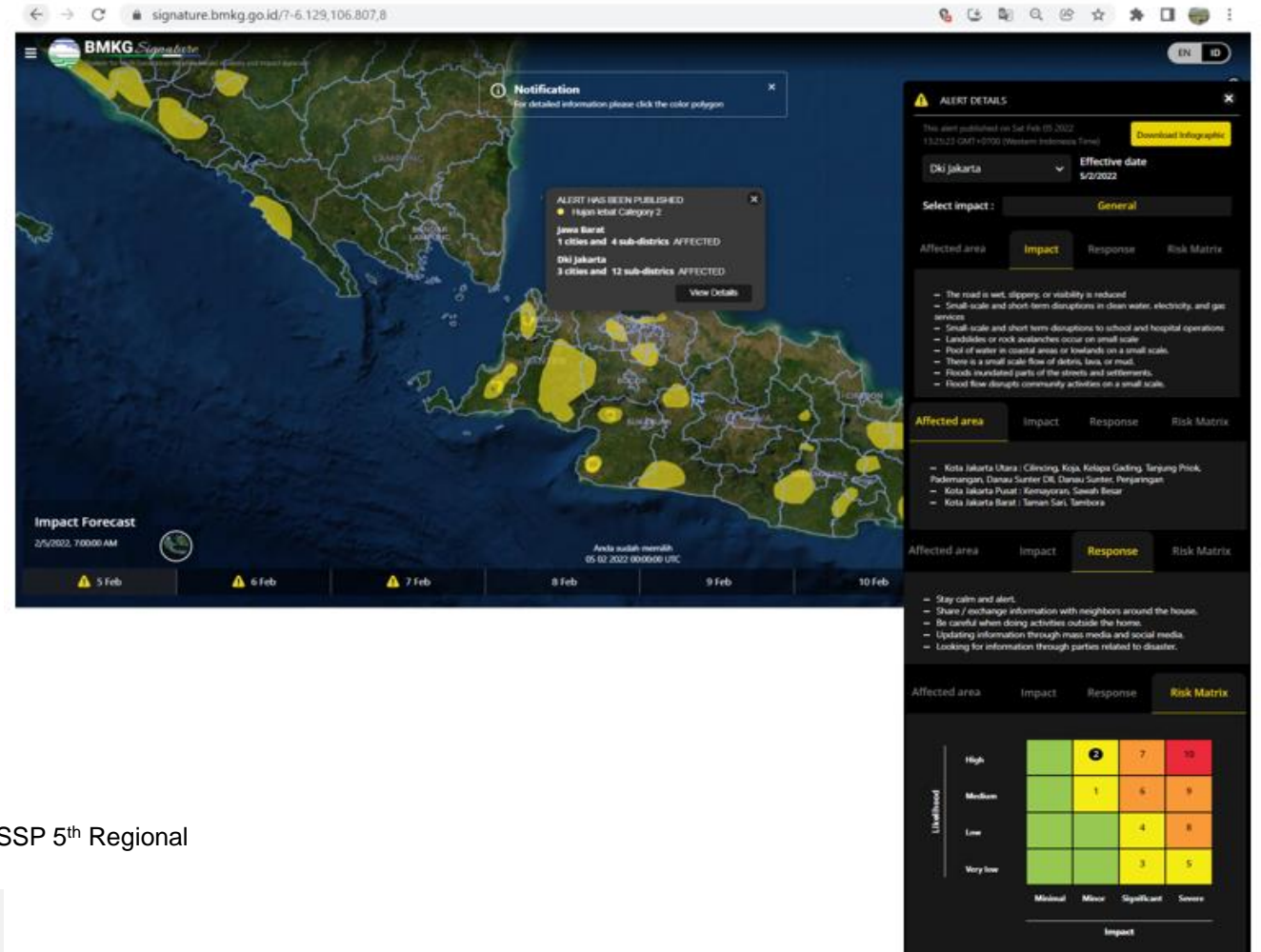
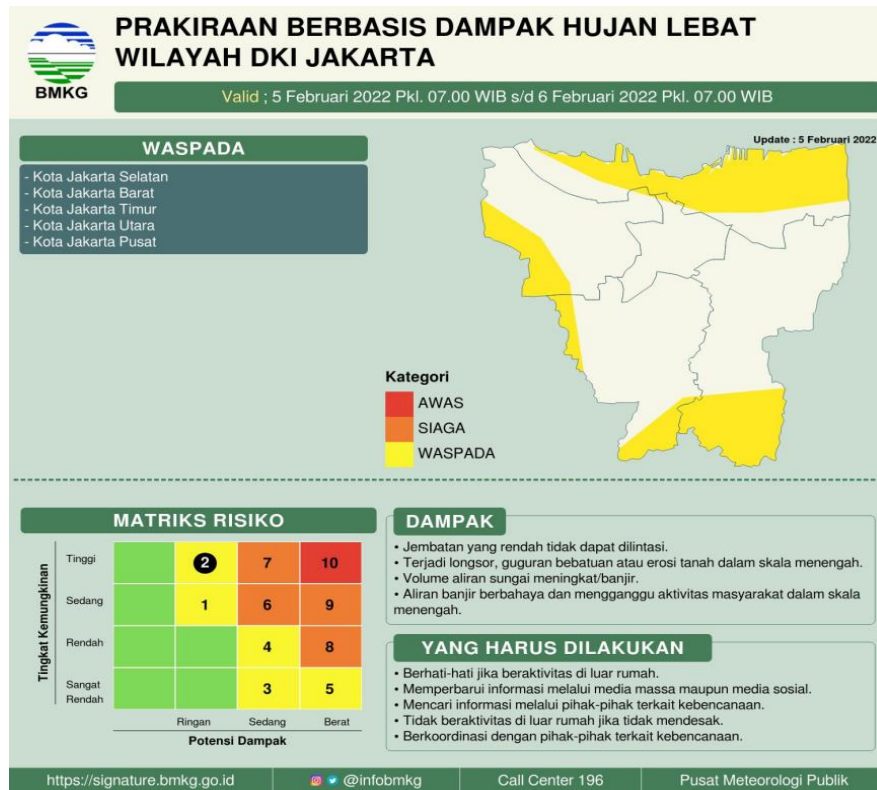


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# Indonesia



# Badan Meteorologi, Klimatologi, Dan Geofisika (BMKG) – IBF Flood



Images from presentation slides of Mr. Muhammad Hakiki, BMKG during the WCSSP 5th Regional Science Workshop 2023



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# New Zealand



# MetService New Zealand

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Search for a location

Warnings & Watches Severe Weather Outlook Thunderstorm Outlook Marine Tropical Cyclone Activity

**Severe Weather by Region**

**NORTH ISLAND**

- Upper 0 Warnings/Watches
- West 0 Warnings/Watches
- Central 0 Warnings/Watches
- East 1 Warning/Watch
- Lower 2 Warnings/Watches

**SOUTH ISLAND**

- Upper 4 Warnings/Watches
- Central 9 Warnings/Watches
- Lower 11 Warnings/Watches

**OTHER ISLANDS**

- Chatham Islands 0 Warnings/Watches

**Land Warnings**

- Thunderstorm
- Heavy Rain
- Heavy Snow
- Strong Winds
- Road Snowfall
- Heavy Swell

**Time Frame**

- All
- Today
- Tomorrow
- Later

Close

Leaflet | © MapTiler © OpenStreetMap contributors



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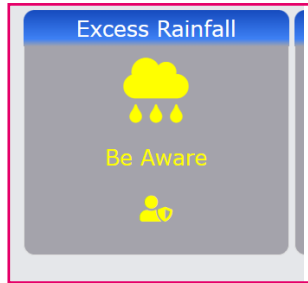
# Barbados



# Barbados Meteorological Services

The screenshot displays the Barbados Meteorological Services website. At the top, the Barbados coat of arms and the Barbados Weather logo are visible. A navigation menu includes: Weather, Satellites, Radars, Aviation, Articles, Climate, Cyclone Smart, Model Products, Information, and Information Leaflets. The main content area features several alert cards: 'Excess Rainfall' (highlighted with a red box) with a yellow rain cloud icon and the text 'Be Aware'; 'Wind', 'Marine', 'Haze', 'Severe TS', and 'Tsunami', all with green icons and the text 'No Action'. Below these are three radar maps of the Eastern Caribbean region, labeled 'Eastern Caribbean Mosaic DBZ Max', 'Eastern Caribbean Mosaic 3 hr Accum.', and 'Eastern Caribbean Mosaic 6 hr Accum.'. On the left sidebar, there are sections for 'Latest Developments' (BMS Swan Model, Zamasu Interface, BMS Digital Analyses), 'Weather Stations' (Grafana Portal), 'BMS Cam Tower' (Wx Cameras), and 'Follow Us On Social Media' (Facebook, Instagram, Twitter, YouTube). The bottom of the page shows the start of two more alert cards: 'Barbados 10 Minute Rainfall & Winds (+1H)' and 'Barbados 10 Minute Temperature (+1H)'. A small logo is present in the bottom left corner of the slide.

# Barbados Meteorological Services



Barbados 5 day Excess Rainfall Forecast

Today 01 Sep   Tonight 01 Sep   Thu 02 Sep Day   Thu 02 Sep Night   Fri 03 Sep Day   Fri 03 Sep Night   Sat 04 Sep Day   Sat 04 Sep Night   Sun 05 Sep Day   Sun 05 Sep Night

**Be Aware**

Weather Forecast Info

What to expect?

What should you do?

- Prepare yourself well in advance in case this alert elevates to orange or red with the following tips:-
- Travel with full protective rain gear such as full body raincoat, and suitable weather boots or shoes.
- Start your travels well in advance to allow for significant delays.
- Stay off roads if you can.
- Monitor radio or television stations for updates from BMS, DEM and official sources.
- Download CAPCAP for your mobile phones to get updates from the BMS.
- Have emergency numbers on standby.
- Be ready to evacuate your property or work ONLY if necessary.
- Constantly monitor the situation as it evolves.

What do these colors mean?

Meteorologist: Andrew Daniel  
Published 2021-09-01 10:16Z

Barbados 5 day Excess Rainfall Forecast

Today 01 Sep   Tonight 01 Sep   Thu 02 Sep Day   Thu 02 Sep Night   Fri 03 Sep Day   Fri 03 Sep Night   Sat 04 Sep Day   Sat 04 Sep Night   Sun 05 Sep Day   Sun 05 Sep Night

**Be Aware**

Weather Forecast Info

What to expect?

**Local Impact Forecast For Zone 12**

Shower Duration	Starting and stopping at intervals, not continuous.
Shower Frequency	Infrequent or irregular (e.g. a shower every 2 to 3 hours).
Skies	Sunny with cloudy periods
Rainfall Rate	10.0 to 20.0 millimeters/hr
Rainfall Accumulation	5.0 to 20.0 millimeters
Chance Of Severe Thunderstorms	0%
Forecast Confidence	80%

What should you do?

What do these colors mean?

Meteorologist: Andrew Daniel  
Published 2021-09-01 10:16Z



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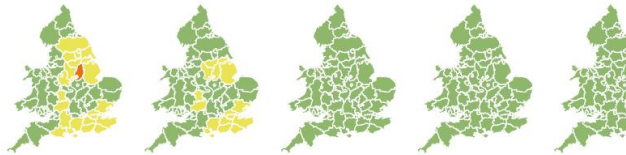
# England and Wales



# Flood Forecasting Center-Flood Guidance Statement

## Flood Guidance Statement

15:30hrs Tuesday 24 October 2023



**Tuesday** 24 Oct 2023 15:30-23:59  
Trend since last FGS: Steady  
**Wednesday** 25 Oct 2023  
Trend since last FGS: Steady  
**Thursday** 26 Oct 2023  
Trend since last FGS: Steady  
**Friday** 27 Oct 2023  
Trend since last FGS: Steady  
**Saturday** 28 Oct 2023  
Trend since last FGS: Steady

Significant river flooding continues and further significant inland flooding impacts are possible but not expected in parts of East Midlands and Yorkshire and the Humber on Tuesday and Wednesday. The overall flood risk is MEDIUM.

### Specific Areas of Concern Map 1 - Tuesday 24 October 2023

<b>RISK AREA A</b> Impact <b>SIGNIFICANT</b> Likelihood <b>MEDIUM</b> Source: River Likely duration 4 Days Significant ongoing impacts on Rivers Trent and Idle, reducing to minor Thurs/Fri.	<b>RISK AREA B</b> Impact <b>SIGNIFICANT</b> Likelihood <b>VERY LOW</b> Source: River Surface Likely duration 2 Days Surface water risk across whole area. River risk only: S Yorks, N Lincs and E Mids.	<b>RISK AREA C</b> Impact <b>MINOR</b> Likelihood <b>HIGH</b> Source: River Likely duration 1 Day Ongoing river flooding expected.
<b>RISK AREA D</b> Impact <b>MINOR</b> Likelihood <b>HIGH</b> Source: River Likely duration 2 Days Ongoing impacts along the River Severn. Continuing until Wed in lower reaches.		
<b>RISK AREA E</b> Impact <b>MINOR</b> Likelihood <b>LOW</b> Source: River Surface Likely duration 2 Days Rain falling on sensitive catchments. River flooding may continue through Weds.	<b>RISK AREA F</b> Impact <b>MINOR</b> Likelihood <b>MEDIUM</b> Source: River Surface Likely duration 2 Days Heavy rain Tues evening into Weds. Surface water only in Dorset and Wiltshire.	

## Flood Guidance Statement

15:30hrs Tuesday 24 October 2023



### Specific Areas of Concern Map 2 - Wednesday 25 October 2023

<b>RISK AREA A</b> Impact <b>SIGNIFICANT</b> Likelihood <b>LOW</b> Source: River Likely duration 4 Days Significant ongoing impacts on Rivers Trent and Idle, reducing to minor Thurs/Fri.	<b>RISK AREA B</b> Impact <b>SIGNIFICANT</b> Likelihood <b>VERY LOW</b> Source: River Likely duration 2 Days Rivers continue to respond to Tuesday's heavy rainfall.
<b>RISK AREA E</b> Impact <b>MINOR</b> Likelihood <b>LOW</b> Source: River Surface Likely duration 2 Days River flooding may continue through Weds as a result of rain on Tuesday.	
<b>RISK AREA F</b> Impact <b>MINOR</b> Likelihood <b>MEDIUM</b> Source: River Likely duration 2 Days Rivers may continue to respond from overnight rain into Wednesday.	<b>RISK AREA G</b> Impact <b>MINOR</b> Likelihood <b>LOW</b> Source: Coastal/Tidal Likely duration 1 + Day Large waves and spring tides. Impacts possible around times of high water.

## Flood Guidance Statement

15:30hrs Tuesday 24 October 2023

### Specific Areas of Concern Map 3 - Thursday 26 and

<b>RISK AREA A</b> Impact <b>MINOR</b> Likelihood <b>LOW</b> Source: River Likely duration 4 Days Minor ongoing impacts on Rivers Trent and Idle Thurs/Fri.	<b>RISK AREA H</b> Impact <b>MINOR</b> Likelihood <b>LOW</b> Source: River Surface Likely duration 1 Day Heavy rain falling on sensitive catchments. Thursday only.
	<b>RISK AREA G</b> Impact <b>MINOR</b> Likelihood <b>LOW</b> Source: Coastal/Tidal Likely duration 1 + Day Large waves and spring tides. Impacts possible around times of high water.

### Specific Areas of Concern Map 4 - Saturday 28 Octo

<b>RISK AREA G</b> Impact <b>MINOR</b> Likelihood <b>LOW</b> Source: Coastal/Tidal Likely duration 1 + Day Large waves and spring tides. Impacts possible around times of high water.	
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--

## Flood Guidance Statement

15:30hrs Tuesday 24 October 2023

### Assessment of flood risk



The river flood risk is MEDIUM.

Ongoing significant river flooding impacts from the reducing to minor impacts on Thursday and Friday. Significant river flooding is possible but not expected and South Yorkshire in response to rain falling over widely.

Minor river flooding impacts are also probable across rain pushes across these areas. See Specific Areas of Concern Map 1.

Further rain on Thursday may lead to minor river flooding falls on to sensitive catchments.



The surface water flood risk is LOW.

Significant surface water flooding is possible but not rain today, with minor impacts possible more widely.

Minor surface water flooding impacts are also possible heavy rain pushes across these areas. See Specific Areas of Concern Map 1.

Further rain on Thursday may lead to minor surface water falls on to sensitive catchments.

Impacts could include localised flooding from urban and flooding from overland flow.



The coastal/tidal flood risk is VERY LOW for the next 24 hours.

Minor coastal flooding impacts are possible on Saturday. High tide levels may also lead to minor impacts on the coast. See Specific Areas of Concern Map 4.



The groundwater flood risk is VERY LOW for the next 24 hours.

## Flood Guidance Statement

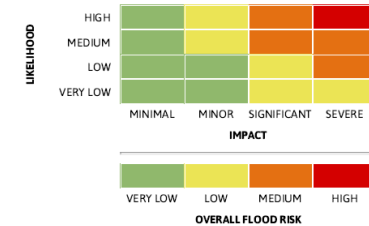
15:30hrs Tuesday 24 October 2023



### 6-10 day forecast

Strong winds and large waves may coincide with peak spring tides next Sunday and Monday (29 and 30 October). This brings a possibility of heightened flood risk for parts of the south and west coasts of England and Wales.

### Flood risk matrix



### Summary of potential impacts

- MINIMAL**  
Isolated and minor flooding of low-lying land and roads  
Isolated spray/wave on coastal promenades  
Little or no disruption to travel, but wet road surfaces
- MINOR**  
Localised flooding of land and roads  
Flooding affecting individual properties  
Disruption to travel and key sites in flood plans
- SIGNIFICANT**  
Flooding affecting parts of communities  
Possible danger to life and damage to buildings/structures  
Disruption to travel and key sites in flood plans
- SEVERE**  
Danger to life, severe disruption to travel  
Widespread flooding affecting whole communities  
Widespread disruption or loss of infrastructure  
Large scale evacuation of properties possible

Next statement due 10:30hrs Wednesday 25 October 2023 (all times are local)

Contact details Flood Forecasting Centre Duty Hydrometeorologist - 0330 135 4400

More information <https://www.gov.uk/government/organisations/flood-forecasting-centre>



IMPACT-BASED FORECASTING



# South Africa



# South African Weather Service

**ORANGE LEVEL 9 WARNING**

**WEATHER TYPE**  
Disruptive Rain

**WARNING KEY**

Likelihood	1	2	3	4	5	6	7	8	9
Impact	1	2	3	4	5	6	7	8	9

**AFFECTED AREA: WESTERN CAPE & NAMAQUA**

**WARNING VALID FROM Sun 24 Sep 2023 13:00 UNTIL Mon 25 Sep 2023 23:00**

**DISCUSSION**

An intense cut-off low pressure system is expected to produce showers and thundershowers over the Western Cape from Sunday into Monday. From Sunday afternoon; some of these thundershowers are expected to be severe over the City of Cape Town, West Coast, Cape Winelands, Overberg, Central Karoo and the Garden Route districts; resulting in rapid heavy downpours, excessive lightning, strong downdraft as well as large amounts of small hail. Rainfall accumulation is expected to be 100-150 mm in the Overberg.

**IMPACTS**

Widespread damage or loss of infrastructure, property, vehicles, livelihood and livestock  
 Widespread major travel disruptions (incl route obstructions) and incidents. Widespread disruption of municipal and other essential services (Education, health, communication and power supply)  
 Widespread loss of agricultural production  
 Widespread flooding of low-lying areas, resulting in closure of some bridges and major roads. Danger to life (fast flowing streams / deep water). Large amounts of small hail over a widespread, populated area.

South African Weather Service

forestry, fisheries & the environment  
Department of Forestry, Fisheries and the Environment  
REPUBLIC OF SOUTH AFRICA

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26/10/2023 27/10/2023 28/10/2023-30/10/2023

**Niketoana / Reitz**

**Today**

Headline: Veld Fire Conditions  
 Start Time: 26-10-2023 08:00 AM  
 End Time: 26-10-2023 07:59 PM  
 Impact: Conditions are such that the FDI index is above 75. Under these conditions fires may develop and spread rapidly resulting in damage to property and possible loss of human and/or animal life.  
 Instruction: Fire teams on standby.



IMPACT-BASED FORECASTING





IMPACT-BASED FORECASTING



# Nepal



# Nepal-Department of Hydrology and Meteorology

## Year 1 of Pilots

### सम्भावित घटनाको विवरण (Probable Event Description)

- कच्ची सडक चिप्लो, हिलो हुन सक्ने एवं वर्षाको कारण आ बाढीले बाटो बिभेर, खाल्डामा पानी जमेर यातायात सेवाहरु लाग्ने साथै दुर्घटनाको जोखिम बढ्न सक्ने सम्भावना देखि
- बिगतका दिनहरुमा पहिरो गएको जोखिमका क्षेत्रहरुमा सडक शक्ति पुग्ने र स-साना पहिरो जान सक्ने सम्भावना देखिन्छ।
- खोला र नदीहरुमा पानीको सतह हल्का बढ्न सक्ने सम्भावना देखिन्छ।
- वर्षाको कारण आउनसक्ने भलले सिंचाई नहर, कुलोहरुमा देखिन्छ।
- सानोतिनो खोला खहरे बढ्नसक्ने हुँदा कार्यालय, स्वास्थ्य सक्ने सम्भावना रहेको छ।
- अति आवश्यक खाद्यान्न लगायत अन्य सामग्री दुबानीमा स रहेको छ।
- सर्वसाधारणको दैनिक जनजीवन र कामकाजमा केही असरि
- विद्युत तथा पानी आपूर्ति र संचारका माध्यम (टेलिफोन तथा तथा अवरोध हुन सक्ने सम्भावना देखिन्छ।

### सल्लाह (Advice)

बेनी मुस्ताङ/दार्चुल-मुना र निर्माणपिन सडक तथा भिराको ज थोरै रहेको र नदीनाला तथा खहरे खोलाहरुमा पानीको सतह वर्षाको कारण बिगतका दिनहरुमा पहिरो गएको ठाँउहरुमा पु सक्ने सम्भावना थोरै रहेकोले यातायात क्षेत्र सामान्य प्रभावित हु यात्रा गर्नु परेमा बाढी, खहरे, पहिरो र ढुङ्गा खसेर हुन सक्ने हु हुन सबैमा अनुरोध छ।

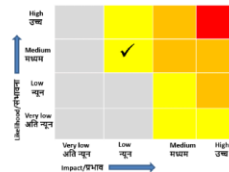
रघुगङ्गा गाउँपालिका वडा नं ६-७ को सिमानामा केही दिन र सो ताल फुटेमा वडा नं ३ गलेधर वस्ती, बेनी वजार स सक्ने देखिएकोले आवश्यक सतर्कता अपनाउनु हुन सबैमा अनुरोध

## म्याग्दी जिल्ला (अन्नपूर्ण, मालिका, धवलागिरी र रघुगङ्गा गाउँपालिका) को लागि प्रभावमा आधारित मौसम पूर्वानुमान



जारी मिति: २०७८/०६/२१ गते दिउसो: ४:०० बजे,  
बैशाको मिति: २०७८/०६/२१ साँझ: ६:०० बजे देखि  
२०७८/०६/२२ साँझ: ६:०० बजे सम्म।

### जोखिम तालिका/Risk Matrix



### जोखिम तालिकाको संक्षिप्त विवरण (Brief Description of Risk Matrix)

वर्षाको मध्यम संभावना र न्यून प्रभाव (Medium likelihood of Rain with Low impacts)

### आगामी २४ घण्टाको मौसमको पूर्वानुमान (Probable Weather Prediction)

जिल्लाका केही स्थानहरुमा मेघ गर्जन/पट्याइ सहित हल्का देखि मध्यम वर्षाको सम्भावना रहेको छ। जिल्लाभर आंशिक देखि सामान्य बदली रहने छ।



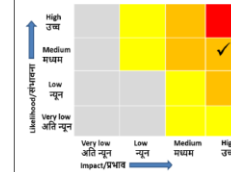
- More concise
- Improved map visualization
- Increased dissemination channels

## Year 2 of Pilots

### उच्च प्रभावको मध्यम संभावना

जारी मिति: २०७९/०६/२० गते बिहान १०:५० बजे,  
बैशाको मिति: २०७९/०६/२० गते बिहान १०:५० बजे देखि  
२०७९/०६/२१ गते बिहान ०६:०० बजे सम्म

### जोखिम तालिका



- मौसमको पूर्वानुमान थोरै स्थानमा हल्का देखि मध्यम वर्षा थोरै स्थानमा भारी वर्षा र धेरै भारी वर्षाको पनि सम्भावना रहेको छ।

### सम्भावित प्रभावहरु:

- विद्युत, संचार, खानेपानी, सडक अन्य क्षेत्रमा प्रभाव परी केही समयका लागि अवरुद्ध हुन सक्ने उच्च सम्भावना देखिन्छ।
- खोलानाला, खहरेहरुमा पानीको बहाव बढ्न सक्ने र जमिन कटान हुन सक्ने उच्च सम्भावना देखिन्छ।
- जोखिममा रहेका घर, विद्यालय, स्वास्थ्य चौकी र अन्य संरचना बरीपरीको जमिन भ्रंशन सक्ने र पहिरोले क्षति पुग्न सक्ने उच्च सम्भावना देखिन्छ।
- कच्ची सडकहरु अवरुद्ध हुन सक्ने उच्च सम्भावना देखिन्छ।
- धार्मिक तथा पर्यटकिय क्षेत्रमा बाढी र पहिरोका कारण आबतजावतमा कठिनाई हुन सक्ने उच्च सम्भावना देखिन्छ।
- पहिरो जान सक्ने र गैसकेको ठाउँमा फेरि पहिरो झर्न सक्ने उच्च सम्भावना देखिन्छ।
- बढावरीको अवसरमा हुने मेला, यातायात र अन्य मनोरञ्जनात्मक गतिबिधिहरुमा प्रभाव पर्ने उच्च सम्भावना देखिन्छ।

• पुनः उच्च प्रभाव पार्ने वर्षा हुने सम्भावना मध्यम रहेकोले सतर्क रहनुहोला साथै विभागबाट जारी गरिने सबैभन्दा पछिल्लो मौसम पूर्वानुमान सूचनाका बारेमा जानकारी विवरण हेर्नु होला।

नोट: आगामी दिनहरुका लागि गरिएको मौसम पूर्वानुमान तथा समय समयमा दिइने मौसमसम्बन्धी जानकारीहरु मौसम पूर्वानुमान महाशाखाको वेबसाइट [www.mfd.gov.np](http://www.mfd.gov.np), फेसबुक पेज [www.facebook.com/mfd.gov.np/](https://www.facebook.com/mfd.gov.np/) र [www.facebook.com/dhmweather](https://www.facebook.com/dhmweather) साथै ट्विटर [https://twitter.com/DHM_Weather](https://twitter.com/DHM_Weather), बाट अथवा अधिक जानकारी लिनुहुन अनुरोध छ।

यस लिङ्कमा गई आफ्नो प्रतिक्रिया दिनुहोला <https://forms.gle/mBEFqmLSxQYH5hS8A>





IMPACT-BASED FORECASTING



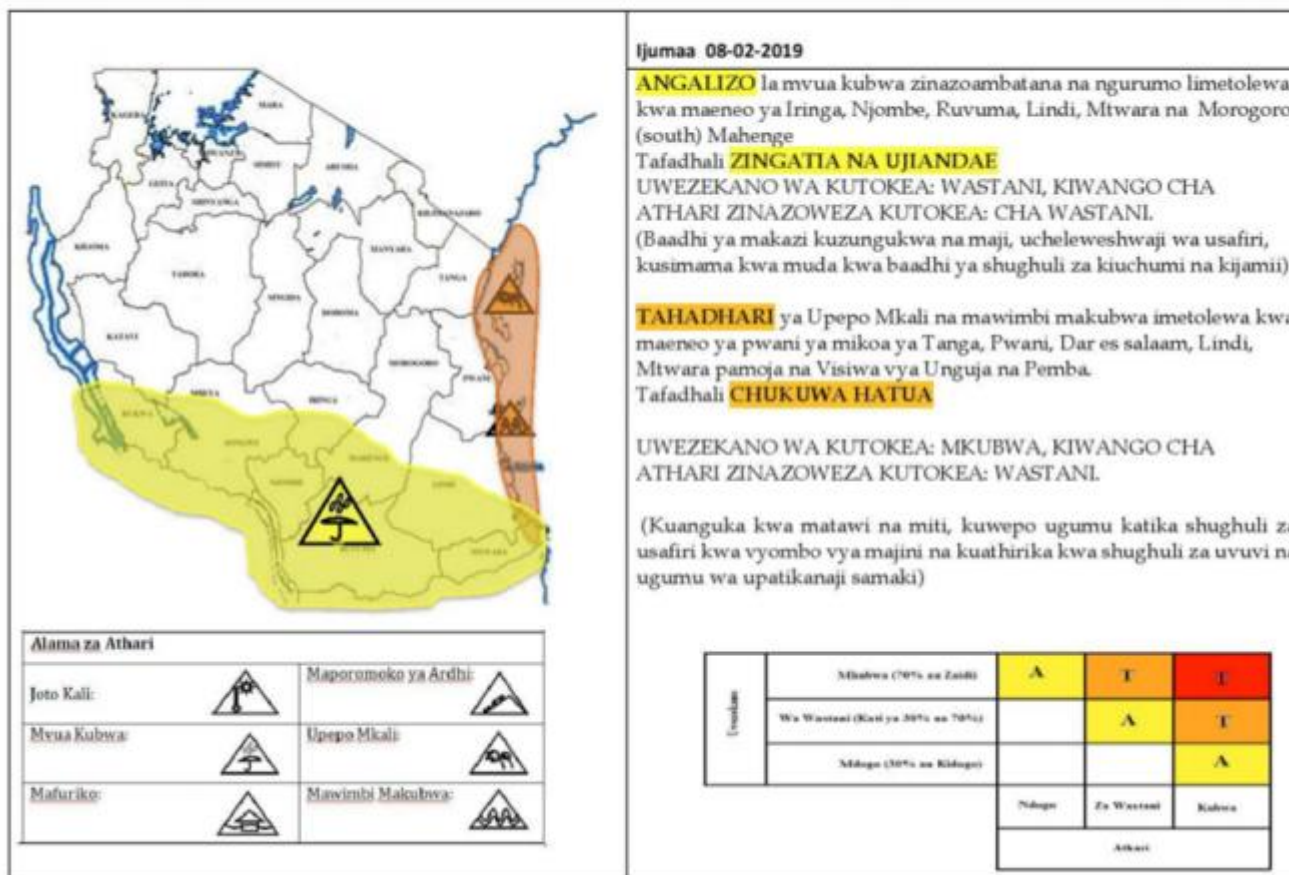
# Tanzania



# Tanzania Meteorological Agency

## Utabiri wa Hali ya Hewa wa Siku Tano na Athari Zinazoweza Kutokea

Umetolewa Leo Tarehe 08-02-2019 Saa 10:00 Jioni na Mamlaka ya Hali ya Hewa Tanzania







IMPACT-BASED FORECASTING



DOST-PAGASA

# Pakistan



# Pakistan Meteorological Department

The screenshot shows the official website of the Pakistan Meteorological Department. The 'SERVICES' menu is open, and the 'IBF (Pilot Project)' option is highlighted with a red box. Other menu items include 'Weather Forecasting Centre', 'SMRFC', 'National Agromet Centre', 'Drought Monitoring Centre', 'Seismic Monitoring Centre', 'Flood Forecasting Division', 'Research & Development', 'Climate Data Processing Center', 'Nullah Lal Updates', 'Aviation Products', 'Marine Forecast (MET Area IX)', and 'Karachi Forecast (3 Days)'. The main content area displays 'Current Weather' for Islamabad (11°C) and Gilgit (6°C), along with 'Latest Updates' including a 'Partial Lunar Eclipse on 28th and 29th October, 2023' and an 'Extremely Severe Cyclonic Storm (ESCS) over Southwest Arabian Sea'.

- Dedicated website - <https://namc.pmd.gov.pk/new/ibf/>
- + dissemination through SMS and short audio message

The screenshot shows the 'Impact Based Weather Forecast' website for the Pothohar region. The page features a green header with navigation links: 'HOME', 'BACKGROUND', 'NATIONAL WEATHER FORECAST', 'NATIONAL AGROMET CENTRE', 'FEEDBACK', 'AUDIO', and 'VIDEO'. The main content area displays the date '23/10/2023' and the title 'تاریخ اجراء: 26 اکتوبر تک خطہ عیوٹھوہار کیلئے موسمی پیش گوئی'. Below this, there are two bullet points in Urdu discussing the impact of the forecast on agricultural activities and the potential for a severe cyclonic storm. The page also includes a 'موسمی حالات کے متوقع اثرات' (Seasonal Outlook) section with a map of the region and a color-coded legend for weather conditions: 'معمولی' (Normal), 'توجہ طلب' (Attention), 'ضروری / اہم' (Necessary / Important), and 'شدید' (Severe).

# Discussion

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Do you have any questions?

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Would you have something like these?

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What do you like about this approach to warnings?

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Do you think this approach would be useful for your country?

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What would you need to change?

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IMPACT-BASED FORECASTING



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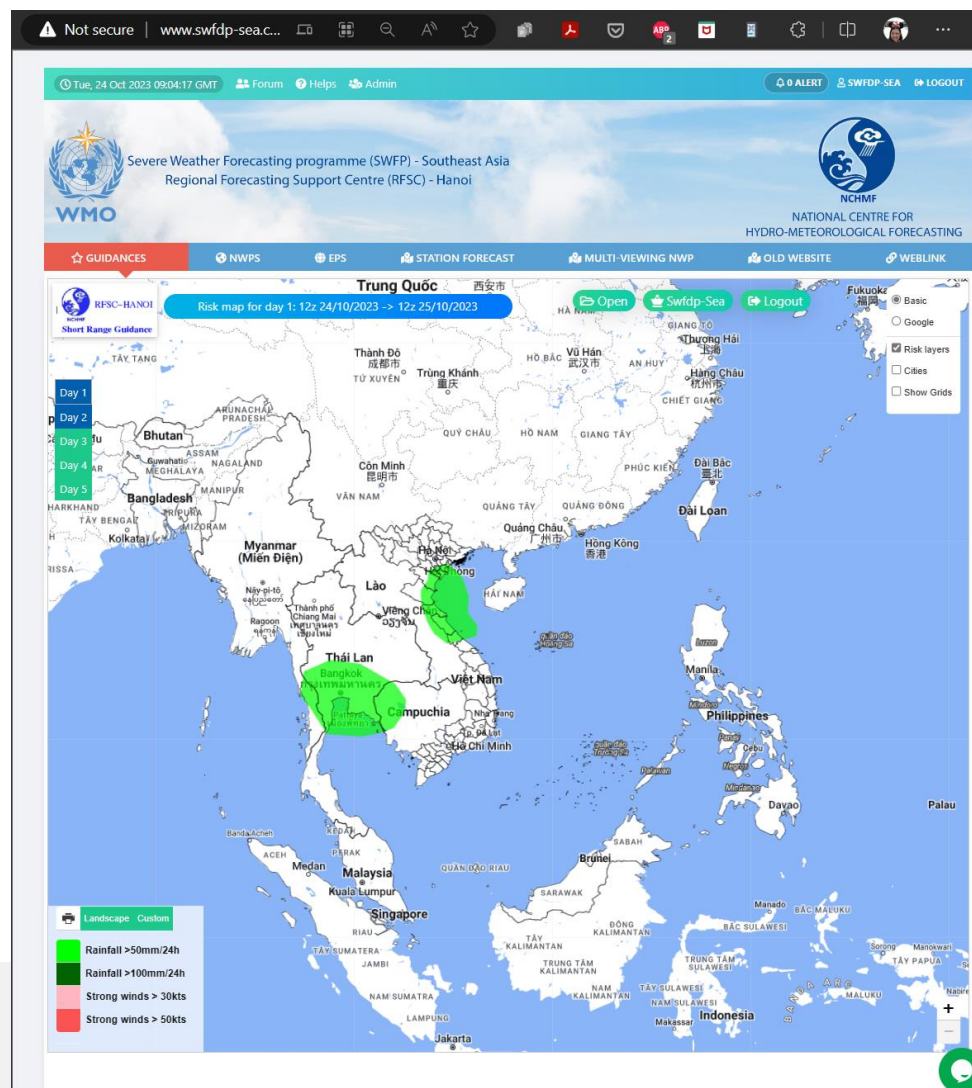
# Additional Resources



# WMO-Severe Weather Forecasting Programme (SWFP) Southeast Asia

- <http://www.swfdp-sea.com.vn/>
- New web portal since January 2022 maintained by RFSC Ha Noi
- Password-protected
- Main focus are heavy rains, strong winds and damaging waves

# WMO SWFP-Southeast Asia



IMPACT-BASED FORECASTING



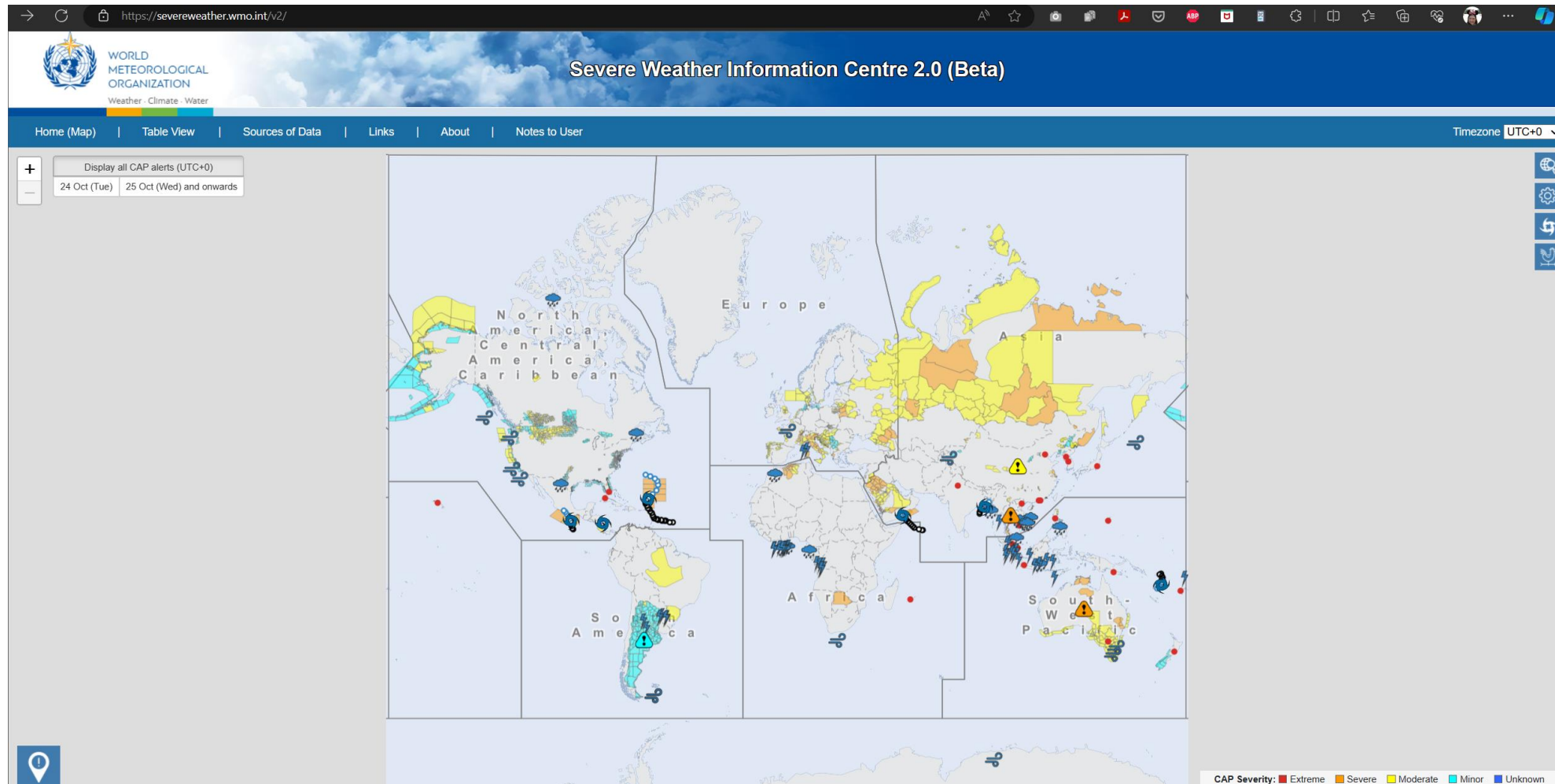
DOST-PAGASA



# WMO-Severe Weather Information Center

- <https://severeweather.wmo.int/v2/>
- Provides a single and centralized source for the media and the general public to access official warning and information issued by National Meteorological and Hydrological Services (NMHSs) efficiently and effectively.
- The website was developed and maintained by the Hong Kong Observatory (HKO).
- Operational since 23 March 2005
- The SWIC website covers tropical cyclone in the following regions:
  - Western North Pacific Ocean and South China Sea
  - South-East Indian Ocean, Arafura Sea, Gulf of Carpentaria, Coral Sea, Solomon Sea and Gulf of Papua
  - South-West Pacific Ocean
  - Tasman Sea
  - Central North Pacific Ocean
  - South-West Indian Ocean
  - Bay of Bengal and the Arabian Sea
  - Caribbean Sea, Gulf of Mexico, North Atlantic and eastern North Pacific Oceans
- In version 2.0, it also provides weather warnings in CAP format issued by about 60 WMO Members

# WMO-Severe Weather Information Center





WMO PTC/GCC Workshop on Impact-based Forecast and Warning Services, Muscat, Sultanate of Oman  
05 – 09 November 2023

**Thank you very much for your  
attention!**



*"tracking the sky...helping the country"*

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Tel. No.: (+632) 8284-0800

Website: <https://www.pagasa.dost.gov.ph/>

