



Republic of the Philippines
Department of Environment and Natural Resources
Visayas Avenue, Diliman, 1106 Quezon City
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E-mail: web@denr.gov.ph; Website: www.denr.gov.ph

MEMORANDUM

TO : ALL REGIONAL EXECUTIVE DIRECTORS

FROM : THE UNDERSECRETARY
Field Operations and Environment

SUBJECT : GEOHAZARD ADVISORY NO. 2 RE: TROPICAL STORM AURING

DATE : FEB 22 2021

Referred herewith is the email dated February 21, 2021 from Geohazards Operations Center, Lands Geological Survey Division, Mines and Geosciences Bureau-Central Office, North ave., Diliman, Quezon City regarding the above-mentioned subject.

For information and appropriate action.


ATTY. JUAN MIGUEL T. CUNA, CESO I

Cc: All Assistant Secretary for Field Operation

Encl: a/s

MEMO NO. 2021 - 156



Undersecretary for Policy, Planning and International Affairs <officeofuseccuna@denr.gov.ph>

Fwd: [FOR POSTING] MGB Geohazard Advisory No. 2 re TS Auring

2 messages

Rommel Baybayon <baybayonrommel71@gmail.com>

Sun, Feb 21, 2021 at 5:16 PM

To: "Undersecretary for Policy, Planning and International Affairs" <officeofuseccuna@denr.gov.ph>, Gilbert Gonzales <adtreblig_emb@yahoo.com.ph>

Sir Asec Gonzales,

Per UJMTC, for your reference, please.

----- Forwarded message -----

From: **Mines and Geosciences Bureau - CO PDRA** <mgb.pdra@gmail.com>

Date: Sun, Feb 21, 2021 at 11:56 AM

Subject: [FOR POSTING] MGB Geohazard Advisory No. 2 re TS Auring

To: 10-Joy Christine Asis <jcva.mgb10@gmail.com>, 10-MGB Regional Office X Geosciences Division <geosciencesdivision@gmail.com>, 11-Beverly Brebante <bmbrebante.xi@gmail.com>, 11-MGB Regional Office XI Geosciences Division <mgbgeo@gmail.com>, 13-MGB Regional Office XIII Geosciences Division <mgbxiii_gsd@yahoo.com>, 13-Romeo Dalodado <rmdalodado@yahoo.com>, 2-Janah Joy Vicera <janahvicera@gmail.com>, 2-Oliver Hans Lapiña <ohhlapina25@gmail.com>, 3-MGB Regional Office III Geosciences Division <mgb3_geology@yahoo.com.ph>, CO-Central Office <geologydiv@gmail.com>, 4A-Leigh Lois De lara <leighlois.delara@gmail.com>, 4B-John Mathew Dennis <jmdmgarcia22@gmail.com>, 4B-MGB MIMAROPA OFFICE <mgbmimaropa.gsd@gmail.com>, 5-Mark Niño Miraballes <markoninmiraballes@gmail.com>, 5-Rojelon Vic Amata <rojelonvicamata@gmail.com>, 6-Adeline Grace Torreda <agtorreda@yahoo.com>, 6-Mae Magarzo <mae_magarzo@yahoo.com>, 7-AI Berador <bgea@yahoo.com>, 7-Josephine Aleta <jofeb64@yahoo.com>, 7-MGB Regional Office <geosciencesr7@gmail.com>, 7-MGBr7 <region7@mgb.gov.ph>, 8-MGB Region VIII <region8@mgb.gov.ph>, 8-MGB Regional Office VIII Geosciences Division <mgbgeo8@gmail.com>, CAR-Benigno Cesar Espejo <bcle69@yahoo.com>, CAR-Geosciences Division MGB-CAR <geologydivisionmgbcar@gmail.com>, 9-MGB Regional Office IX Geosciences Division <georegion9@gmail.com>, 9-Jessica Lucero <jeclu9@yahoo.com>

Cc: Liza Manzano <lizajmanzano@yahoo.com>, Michelle Mendoza <mitchymendoza01@gmail.com>, <jude2231@gmail.com>, <jethrobc@gmail.com>

Good day!

Per instruction of Ma'am Liza Manzano, we are sending the updated Geohazard Advisory of the Mines and Geosciences Bureau for TS Auring based on the rainfall data provided by DOST-PAGASA (8PM 02202021) for posting on your official pages for widest dissemination:

<https://drive.google.com/drive/folders/1PbaqhWT9XRva6nYGJv-8Do8XT29uduVz?usp=sharing>

We would like to highlight the regions with additional barangays in the listings: CAR, II, IV CALABARZON, IV MIMAROPA, VII, IX

Please note that we are sending additional listings of areas susceptible to flood and landslide as soon as the DOST-PAGASA sends their updated forecast rainfall data.

Thank you very much and stay safe always!

Very truly yours,

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Geohazards Operations Center

2/22/2021

Department of Environment and Natural Resources Mail - Fwd: [FOR POSTING] MGB Geohazard Advisory No. 2 re TS Auring

Lands Geological Survey Division
Mines and Geosciences Bureau - Central Office
North Ave., Diliman, Quezon City
Tel. No.:8-667-6700 local 180

 **MGB Geohazard Advisory No. 2 for TS Auring.pdf**
10170K

Gilbert Gonzales <adtrelig_emb@yahoo.com.ph>

Sun, Feb 21, 2021 at 5:27 PM

To: Rommel Baybayon <baybayonrommel71@gmail.com>, "Undersecretary for Policy, Planning and International Affairs" <officeofuseccuna@denr.gov.ph>

copy boss...lets advise mgb central to direct mgb regions to provide rdrmc these data for their info and reference...

Sent from Yahoo Mail for iPhone

[Quoted text hidden]

FLOOD

Ang **flooding** o **pagbaha** ay ang pag-apaw ng sobrang tubig sa natural nitong daluyan (sapa, ilog at dagat).



sheet floods

Ang ganitong klase ng baha ay mas malawak ang sakop at hindi nalilimitahan sa isang daluyan. Kadalasang mas matagal ito bago humupa.



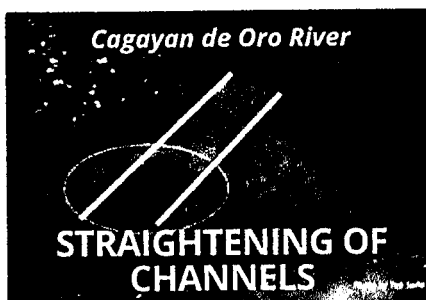
Ang ganitong klase ng baha ay may mas mabilis na pagtaas ng tubig at saglitan lamang. Limitado ang baha sa natural nitong daluyan..



ANO ANG DAPAT GAWIN UPANG MAKAIWAS SA BAHA?

Sundin ang pre-emptive evacuation protocols na ipinapatupad ng LGU at barangay officials

Bilang paghahanda, mainam na bantayan ang mga prosesong ito:



itong "short cut" channel ay nangyayari sa paliku-likong ilog, dahil dumidiretso ang malakas at mapinsalang daloy ng tubig-baha

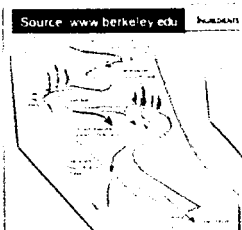


itong uri ng ilog, na hindi lang iisa ang daluyan, ay kaugnay ng mga malalakas na bahang may dalang maraming ibang materyal

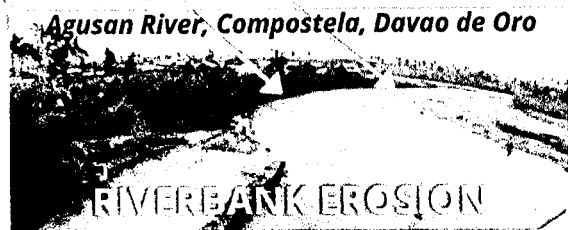


pagbabago ng daloy ng tubig sa ilog pagkatapos ng baha; maaaring permanente

MGAREKOMENDASYON



kahit hindi umapaw ang ilog, ang aksyon ng rumaragasang daloy ng tubig ay posibleng magsanhi ng pagbagsak ng lupa sa gilid ng ilog



- Mahigpit na bantayan ang lagay ng panahon at ang pagtaas ng lebel ng tubig sa ilog.
- Mainam na lumikas kaagad kapag nakatira sa tabi ng ilog o iba pang daluyan ng tubig, lalo na yung mga lugar na nakakaranas ng paulit-ulit ng pagbaha.
- Isara ang main switch ng kuryente bago lisanin ang bahay patungo sa Evacuation Center.
- Huwag lumusong o lumangoy sa tubig baha upang makaiwas sa sakit. Habang naglalakad sa baha, magingat sa mga bukas na manhole, imburnal at iba pang daluyan ng tubig. Sa mga motorista, iwasan ang pagtawid sa rumaragasang tubig baha kahit ito ay mababa lamang.
- Iwasan ang pagbalik sa bahay pagkatapos ng baha hanggat walang abiso mula sa mga kinauukulan.

Mayroon ka bang napansing landslide o senyales nito sa inyong lugar na dulot ng nakalipas na bagyo? Maaari lamang na ipagbigay alam ito sa inyong **City o Municipal Disaster Risk Reduction and Management Office (C/MDRMO)** o sa:



**Department of Environment and Natural Resources
MINES AND GEOSCIENCES BUREAU**

central@mgb.gov.ph | 8-867-6700
geology@mgb.gov.ph | ghegsmb@gmail.com | +639257644414

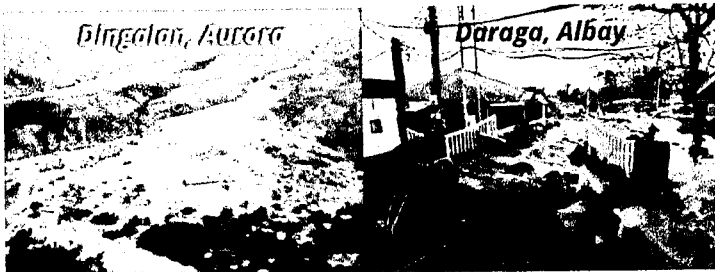
Maaaring makita at madownload ang aming mapa sa mga website na ito: <http://lgsd.mgb.gov.ph/mgbgoogle/> | <https://hazardhunter.georisk.gov.ph/>

LANDSLIDE

Ang rain-induced landslide o guho ay pagbaba ng lupa, bato, o burak dahil sa "gravity" o hatak ng natural na magneto ng daigdig; dulot ito ng matagalang malakas na pag-ulan



ANO NAMAN ANG "DEBRIS FLOWS"?



Ito ay uri ng pagguho na naglalaman ng halu-halong lupa, burak, bato, at iba pang materyales, at may mataas na porsyento ng tubig. Ito ay posibleng mangyari sa makikipot na ilog o matatarik na dalisdis na dinadaluyan ng maliliit na sapa. Lahar naman ang tawag kung sa gilid ng aktibong bulkan nangyari.

ANO ANG MGA DAPAT GAWIN PARA MAGING LIGTAS SA RAIN-INDUCED LANDSLIDE?

Sundin ang pre-emptive evacuation protocols na ipinapatupad ng LGU at barangay officials.

Alamin at maging mapagmatiyag sa iba't ibang mga senyales ng rain-induced landslide:



EFFLUGE
paglabas ng tubig mula sa lupa/lugar na hindi kadalasang makakakita ng tubig



TENSION CRACKS / TERRACETTES
mga bitak sa lupa na isahan o kaya'y nagmimistulang umuulit na mga hagdan



TILTING OF TREES / FENCES
pagtabingi ng mga puno at bakod na nagpapahiwatig ng paunti-unting paggalaw ng lupa

MGA REKOMENDASYON

- Mahigpit na bantayan ang lagay ng panahon, lalo na kung may paparating na bagyo o ibang weather systems na magdudulot ng malalakas na ulan. Alamin ang mga lugar na makakaranas ng higit sa 100mm na ulan sa loob ng 24 hours.
- Alamin ang lokasyon ng evacuation center at mga daanang ligtas sa landslide (escape routes).
- Alamin ang landslide susceptibility rating ng inyong lugar o barangay na maaaring daanan ng bagyo. Ito ay maaaring makita sa MGB Geohazard Map.
- Kapag nasa labas ng bahay at may nakaambang panganib ng landslide, pumunta sa pinakamalapit na mataas na lugar na malayo sa maaaring daanan ng landslide/debris flow.
- Pagkatapos ng landslide, iwasan ang mga lugar na may posibilidad sa "secondary landslide" o ang paggalaw ng mga earth materials sa dalisdis, at flashflood na sanhi ng artificial damming. Alamin ang mga danger zones gaya ng mahihinang dalisdis, malambot na lupa, at ang mga babad sa tubig na mga deposito ng landslide.

Mayroon ka bang napansing landslide o senyales nito sa inyong lugar na dulot ng nakalipas na bagyo? Maaari lamang na ipagbigay alam ito sa inyong City o Municipal Disaster Risk Reduction and Management Office (C/MDRRMO) o sa:



Department of Environment and Natural Resources
MINES AND GEOSCIENCES BUREAU
central@mgb.gov.ph | 8-887-8700
geology@mgb.gov.ph | ghegsmgb@gmail.com | +639257844414

Maaaring makita at madownload ang aming mapa sa mga website na ito: <http://lgsd.mgb.gov.ph/mgbgoogle/> | <https://hazardhunter.georisk.gov.ph/>

**MGB GEOHAZARD
ADVISORY NO. 2
FOR TROPICAL
STORM “AURING”**



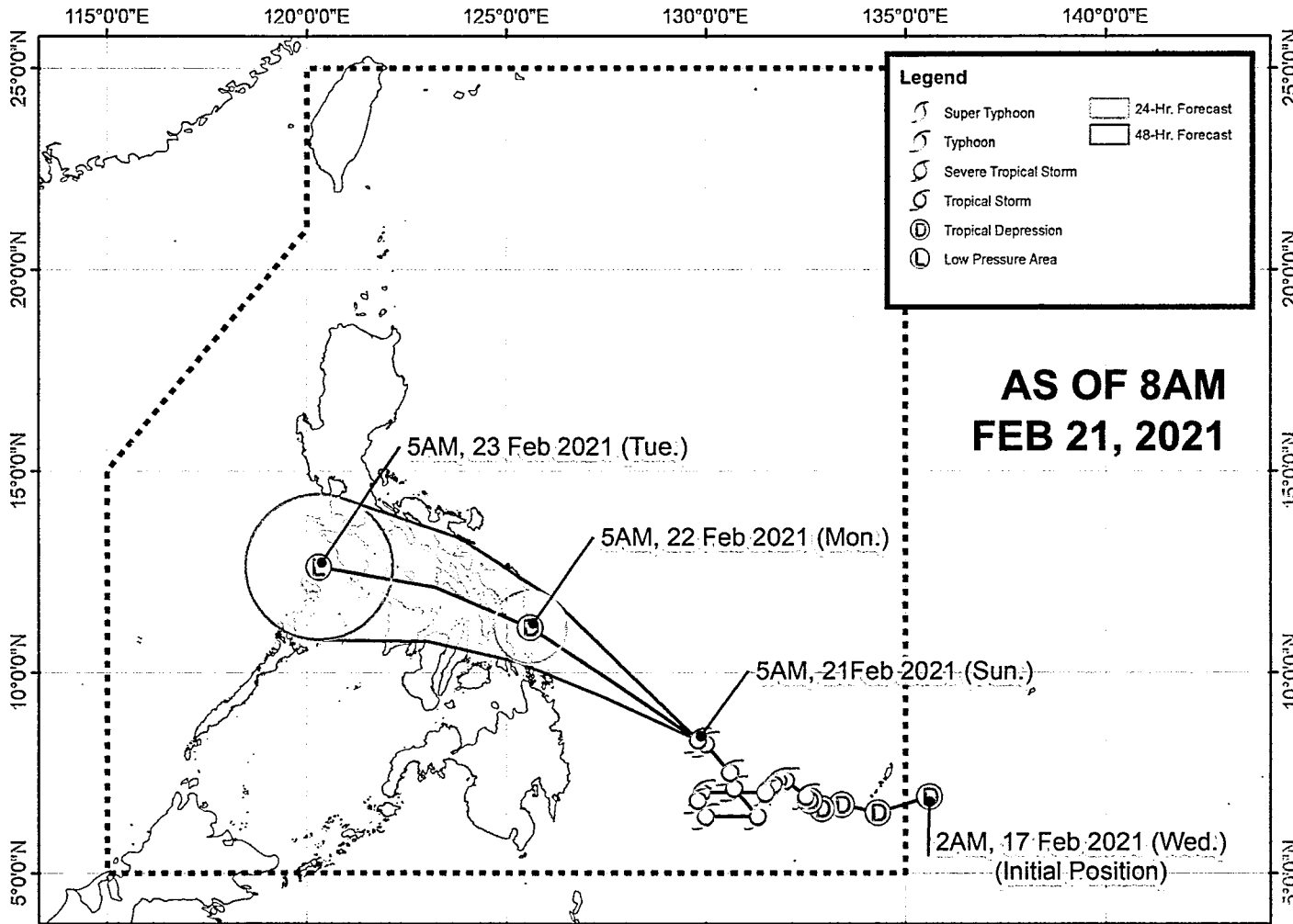
GEOHAZARD ADVISORY NO. 2 FOR TROPICAL STORM “AURING”

Since its activation last February 17, 2021, the Mines and Geosciences Bureau Central and Regional Offices’ 24/7 Geohazards Operation Centers are continuously monitoring and reporting any flood and landslide incidents within their jurisdiction. Additionally, actual on-ground weather conditions were also noted to validate the previously generated barangay listings.

As such, below are the updated track of Tropical Storm Auring, the updated GSM and WRF Rainfall Data, the respective MGB Barangay Listings based on the **DOST-PAGASA 2PM February 20, 2021 Rainfall Data**, and the MGB Infographics for flood and landslide.

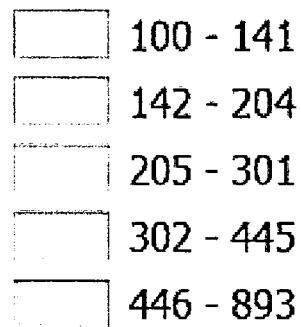
We would like to highlight the additional barangays included in the listing caused by the slight northwestward deflection of the track of TS Auring. However, despite the slight change of track, LGUs in the previous advisory should continue vigilant monitoring and initiate appropriate measures against the possible impacts of TS Auring.

Track of Tropical Storm "AURING" {DUJUAN}

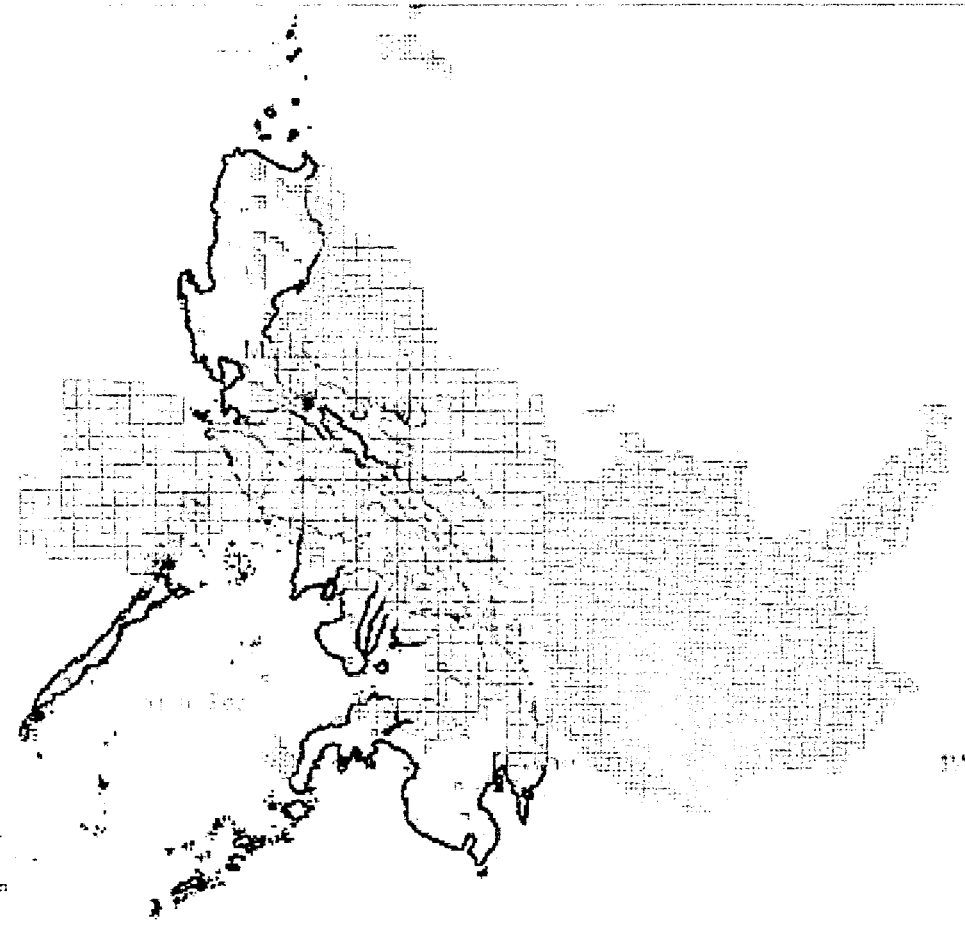


CUMULATIVE GSM 120- AND
WRF 72-HR RAINFALL DATA
AS OF 8PM 20 FEB 2021

Cumulative



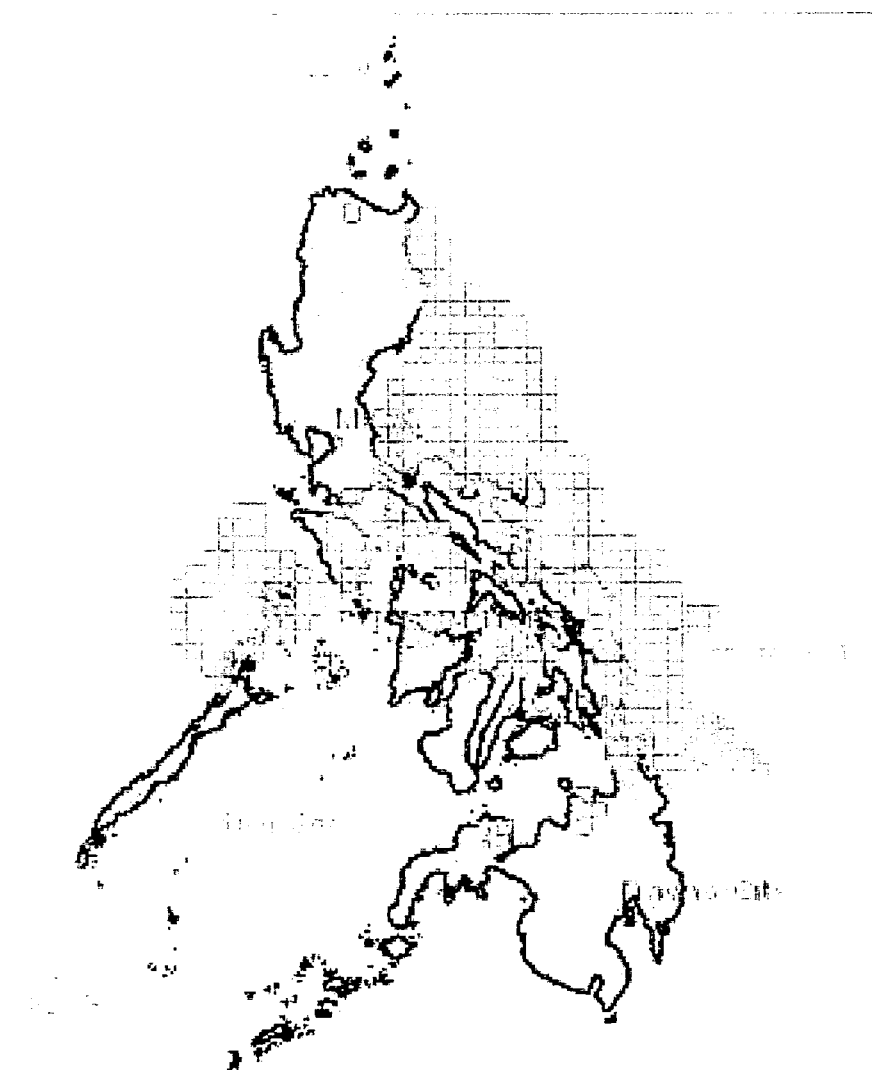
*Rainfall in mm



MERGED 8PM 20 FEB 2021
GSM 120- AND WRF 72-HR
RAINFALL DATA

GSM	WRF
100 - 117	150 - 177
118 - 134	178 - 218
135 - 152	219 - 277
153 - 181	278 - 344
182 - 280	345 - 531

*Rainfall in mm



LIST OF PROVINCES SUSCEPTIBLE TO LANDSLIDE AND FLOOD AS OF 8PM FEB 20, 2021

METROPOLITAN MANILA (NCR)	No. of Barangay
Muntinlupa	2
Total	2

CAGAYAN VALLEY (REGION II)	No. of Barangay
Cagayan	230
Isabela	205
Nueva Vizcaya	190
Quirino	6
Total	631

CORDILLERA ADMINISTRATIVE REGION (CAR)	No. of Barangay
Abra	2
Apayao	15
Ifugao	121
Kalinga	28
Mountain Province	10
Total	173

CENTRAL LUZON (REGION III)	No. of Barangay
Aurora	12
Bulacan	2
Nueva Ecija	2
Tarlac	2
Zambales	8
Total	26

LIST OF PROVINCES SUSCEPTIBLE TO LANDSLIDE AND FLOOD AS OF 8PM FEB 20, 2021

CALABARZON (REGION IV - CALABARZON)	No. of Barangay
Batangas	227
Cavite	113
Laguna	469
Quezon	473
Rizal	32
Total	1314

BICOL REGION (REGION V)	No. of Barangay
Albay	427
Camarines Norte	263
Camarines Sur	394
Catanduanes	307
Masbate	526
Sorsogon	473
Total	2390

MIMAROPA (REGION IV - MIMAROPA)	No. of Barangay
Marinduque	218
Occidental Mindoro	127
Oriental Mindoro	425
Palawan	98
Romblon	218
Total	1086

WESTERN VISAYAS (REGION VI)	No. of Barangay
Aklan	324
Antique	78
Capiz	419
Iloilo	395
Negros Occidental	243
Total	1459

LIST OF PROVINCES SUSCEPTIBLE TO LANDSLIDE AND FLOOD AS OF 8PM FEB 20, 2021

CENTRAL VISAYAS (REGION VII)	No. of Barangay
Bohol	650
Cebu	753
Negros Oriental	25
Total	1428

ZAMBOANGA PENINSULA (REGION IX)	No. of Barangay
Zamboanga del Norte	257
Zamboanga del Sur	87
Total	344

EASTERN VISAYAS (REGION VIII)	No. of Barangay
Biliran	130
Eastern Samar	593
Leyte	1619
Northern Samar	564
Samar	949
Southern Leyte	457
Total	4312

NORTHERN MINDANAO (REGION X)	No. of Barangay
Bukidnon	186
Camiguin	58
Lanao del Norte	187
Misamis Occidental	225
Misamis Oriental	488
Total	1144

LIST OF PROVINCES SUSCEPTIBLE TO LANDSLIDE AND FLOOD AS OF 8PM FEB 20, 2021

DAVAO REGION (REGION XI)	No. of Barangay
Compostela Valley	176
Davao del Norte	14
Davao Oriental	51
Total	241

CARAGA (REGION XIII)	No. of Barangay
Agusan del Norte	244
Agusan del Sur	242
Dinagat Islands	100
Surigao del Norte	335
Surigao del Sur	299
Total	1220

SOCCKSARGEN (REGION XII)	No. of Barangay
North Cotabato	12
Sarangani	3
South Cotabato	3
Total	18

AUTONOMOUS REGION OF MUSLIM MINADANO (ARMM)	No. of Barangay
Lanao del Sur	529
Shariff Kabunsuan	2
Total	531

ADDITIONS TO THE BARANGAY LISTINGS

REGION (PROVINCE)	NO. OF BRGYS
Cordillera Administrative Region (CAR)	17
Apayao	17
Cagayan Valley (Region II)	6
Cagayan	6
CALABARZON (Region IV-A)	165
Batangas	158
Quezon	7
MIMAROPA (Region IV-B)	42
Palawan	42
Central Visayas (Region VII)	83
Cebu	83
Zamboanga Peninsula (Region IX)	90
Zamboanga del Norte	90
Grand Total	403