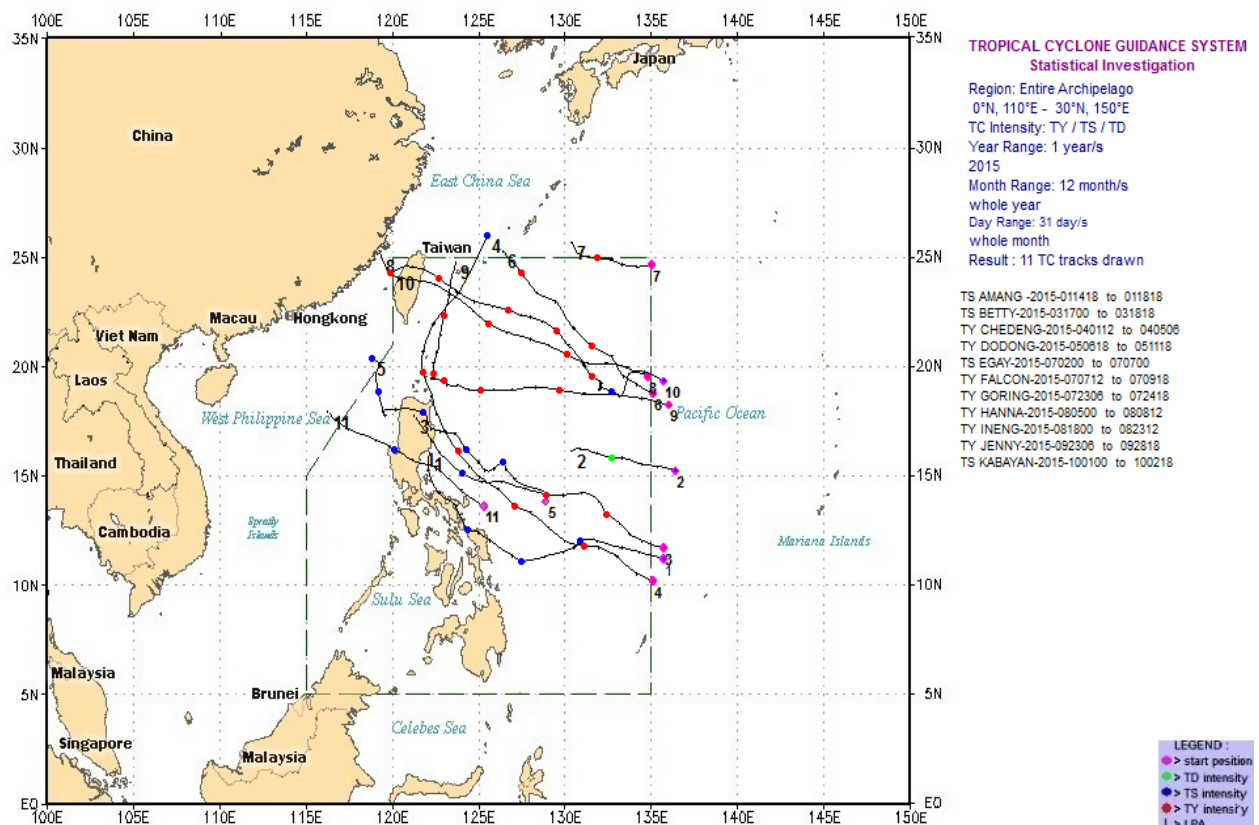


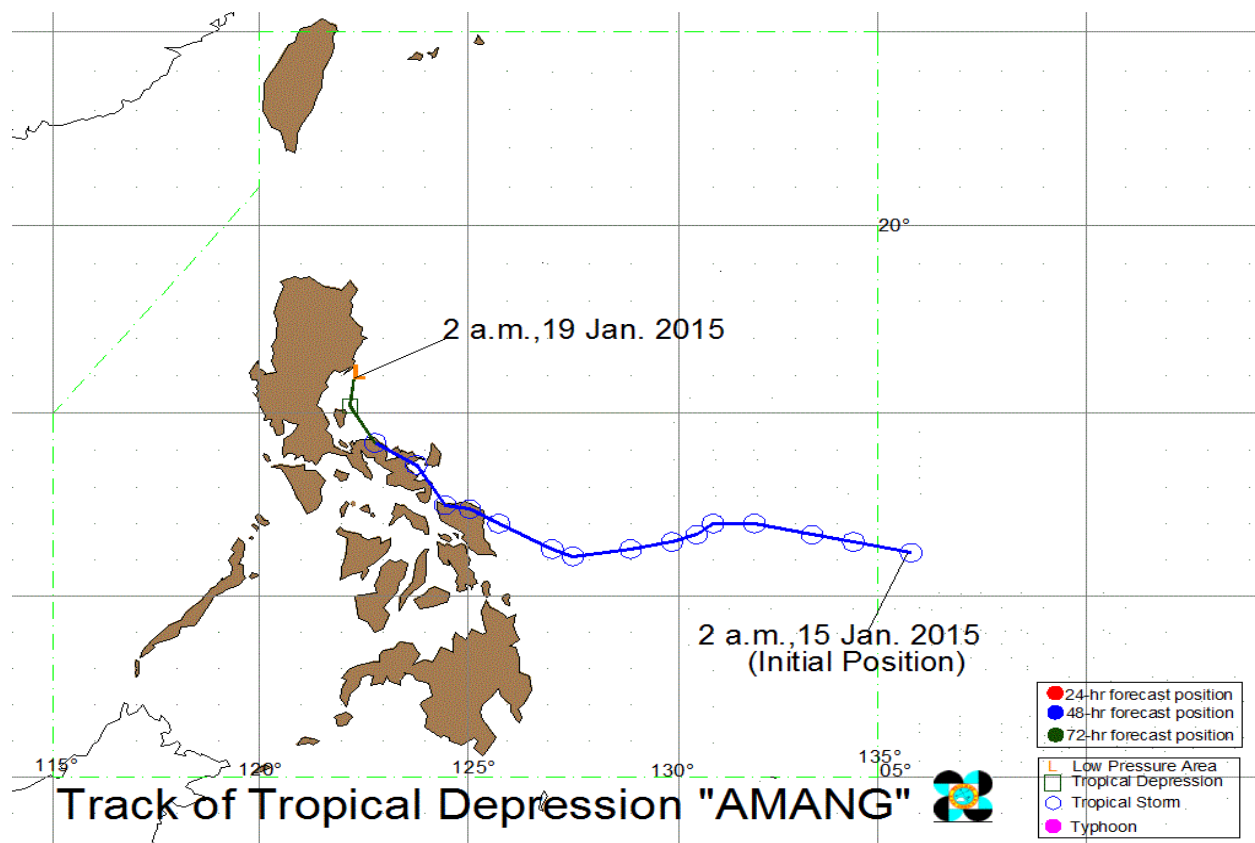
I. Overview of tropical cyclones which have affected/impacted Member's area in 2015

- **Meteorological Assessment (highlighting forecasting issues/impacts)**

CY 2015 was not a very active year in terms of tropical cyclone formation and occurrence in our Area of Responsibility and a total of only 12 tropical cyclones entered and developed inside the Philippine Area of Responsibility (PAR), two (2) were Tropical Storm, two (2) were Severe Tropical Storm (STS) and eight (8) were typhoon intensities. From the 12 tropical cyclones shown in Figure 1, six (6) made landfall and these were STS Mekkhala, Typhoon Maysak but weakened into a TD, Typhoon Noul, STS Linfa, TS Mujigae and Typhoon Koppu.

Figure 1.1 Tracks of Tropical cyclones that entered and developed inside the PAR in 2015



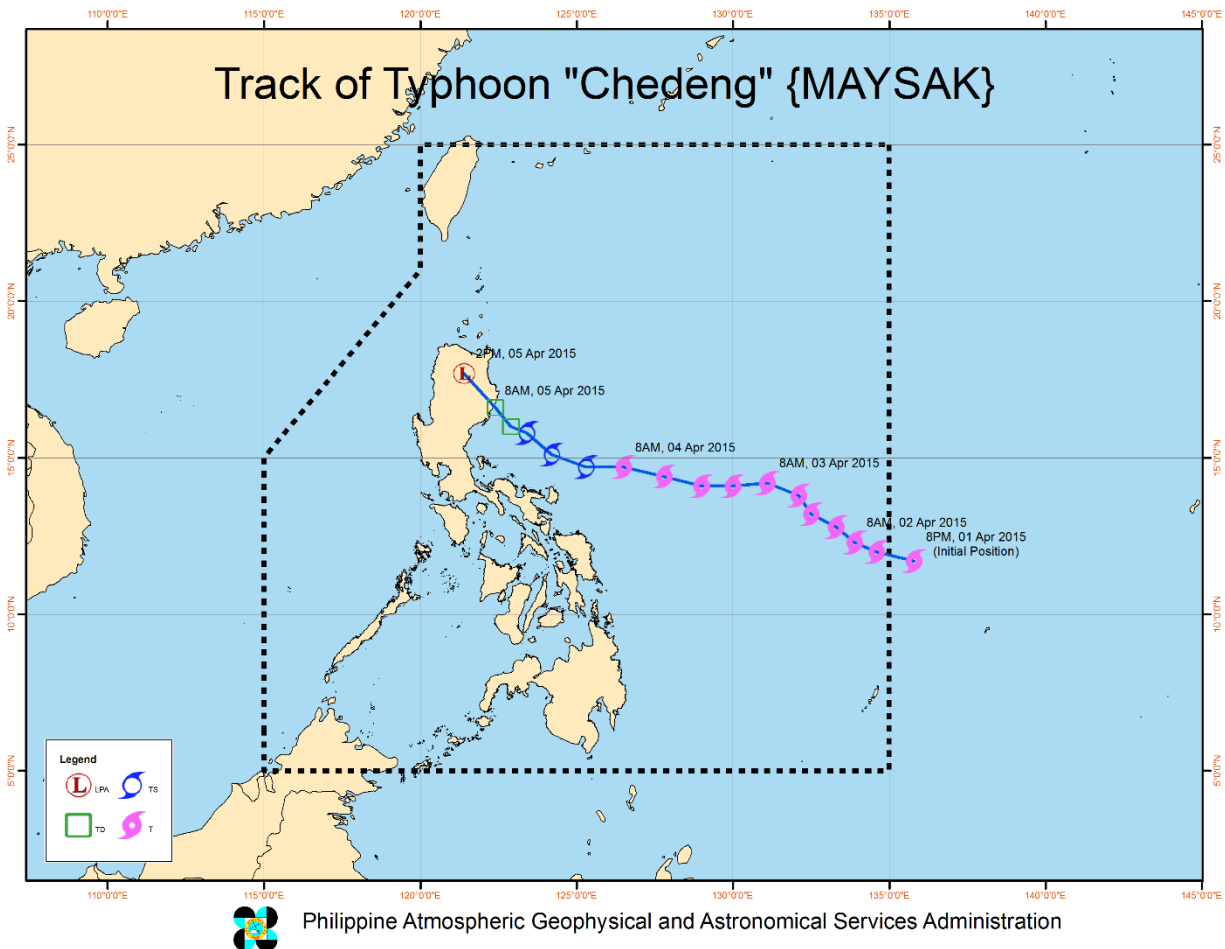


1. SEVERE TROPICAL STORM (STS) MEKKHALA (1501)

- **MAX. SUSTAINED WINDS - 100 KPH**
- **GUST-130 KPH**

"MEKKHALA" AS A SEVERE TROPICAL STORM HAS ENTERED THE PHILIPPINE AREA OF RESPONSIBILITY (PAR) IN THE EARLY MORNING OF JANUARY 15TH. IT MOVED WEST NORTHWEST TO WEST DIRECTIONS CLOSER TO THE COUNTRY (EASTERN VISAYAS). IT GAINED STRENGTH BEFORE IT MADE LANDFALL AND CROSSED OVER THE FOLLOWING AREAS: 3PM, 17 JAN, DOLORES, EASTERN SAMAR; 5AM, 18 JAN, SORSOGON AND 8:30AM, JAN 18, GOA, CAMARINES SUR. IT WEAKENED INTO A LPA IN THE EARLY MORNING OF JANUARY 19 IN THE VICINITY OF CASIGURAN, AURORA.

- Weather Advisory Issued - 2
- International Warning for Shipping – 17
- Severe Weather Bulletin Issued -16
- Casualties – 2 Persons
- Damage – 30.3 M PhP



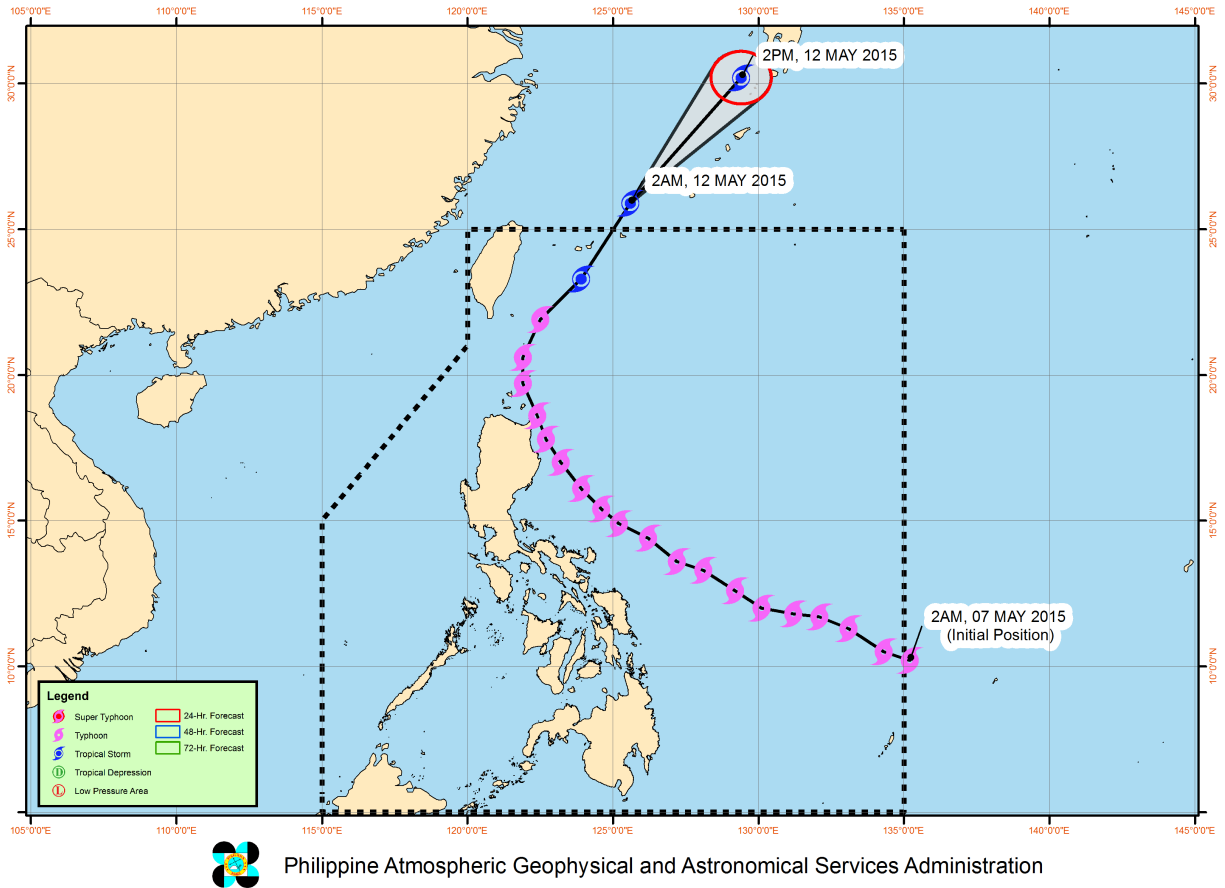
2. TYPHOON MAYSAK (1504)

- **MAX. SUSTAINED WINDS - 185 KPH**
- **GUST-220 KPH**
-

"MAYSAK" FORMED FROM AN AREA OF CONVECTION NEAR THE INTERNATIONAL DATE LINE. IT GAINED STRENGTH AND REACHED TYPHOON INTENSITY. IT ENTERED THE IN THE EVENING OF 01 APRIL. IT MOVED CLOSER TO THE COUNTRY AND MADE LANDFALL OVER ISABELA THEN WEAKENED INTO A LPA IN THE AFTERNOON OF APR 5.

- Weather Advisory Issued - 3
- International Warning for Shipping – 16
- Severe Weather Bulletin Issued -13
- Casualties – 0
- Damage – No reported Damage

Track of Severe Tropical Storm "DODONG" {NOUL}



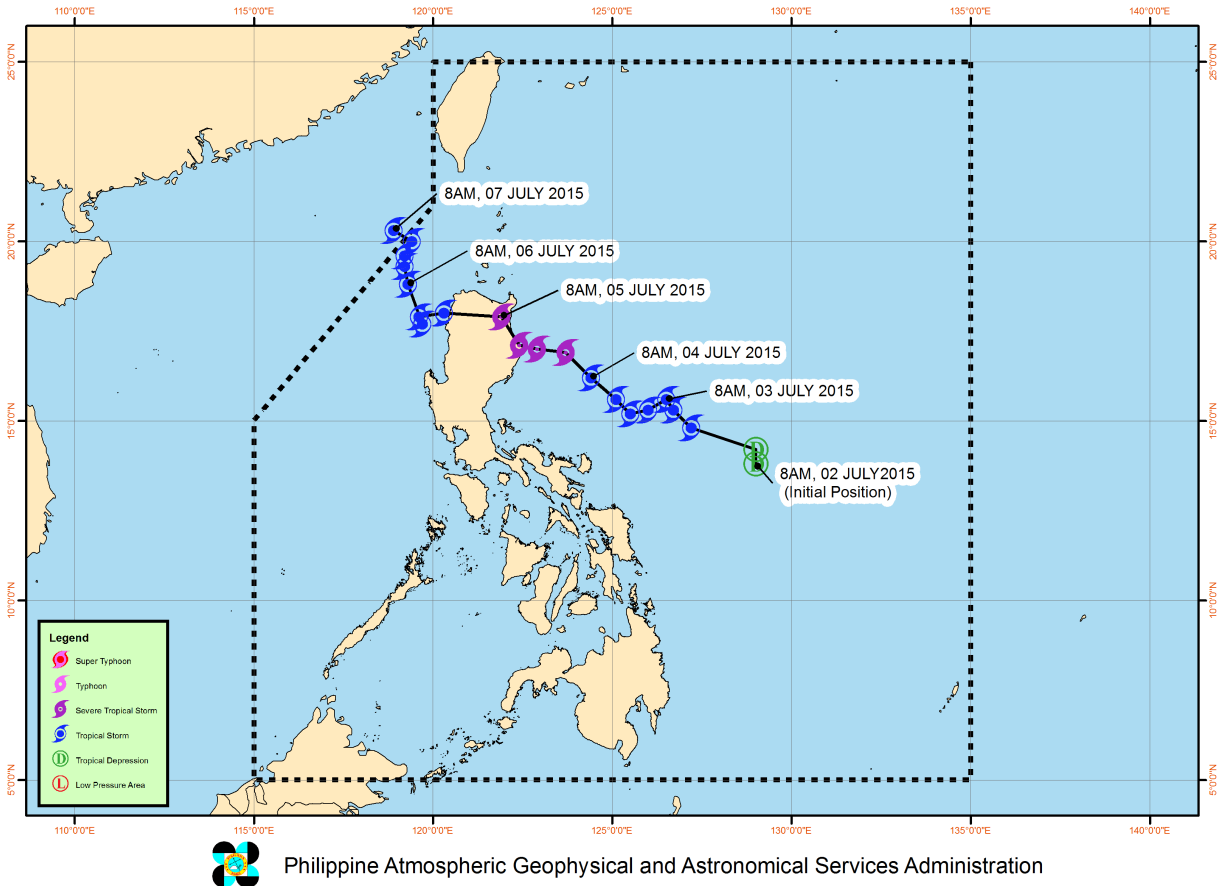
3. TYPHOON NOUL (1506)

- **MAX. SUSTAINED WINDS - 185 KPH**
- **GUST-220 KPH**
-

"NOUL" AS A TYPHOON HAS ENTERED **PAR** IN THE MORNING OF MAY 7. IT CONTINUED TO GAIN STRENGTH WHILE APPROACHING THE EASTERN COAST OF LUZON. IT MADE LANDFALL OVER THE NORTHEASTERN TIP OF CAGAYAN THEN TRACKED ACROSS BABUYAN AND CALAYAN GROUP OF ISLANDS AND BATANES OUT INTO THE NORTHERN BORDER OF PAR ON 12TH OF MAY.

- Advisory Issued - 4
- International Warning for Shipping Issued – 21
- Severe Weather Bulletin Issued - 21
- Casualty – 2 Persons
- Cost of Damage – 16.3 Million in PhP

Track of Severe Tropical Storm "EGAY" {LINFA}



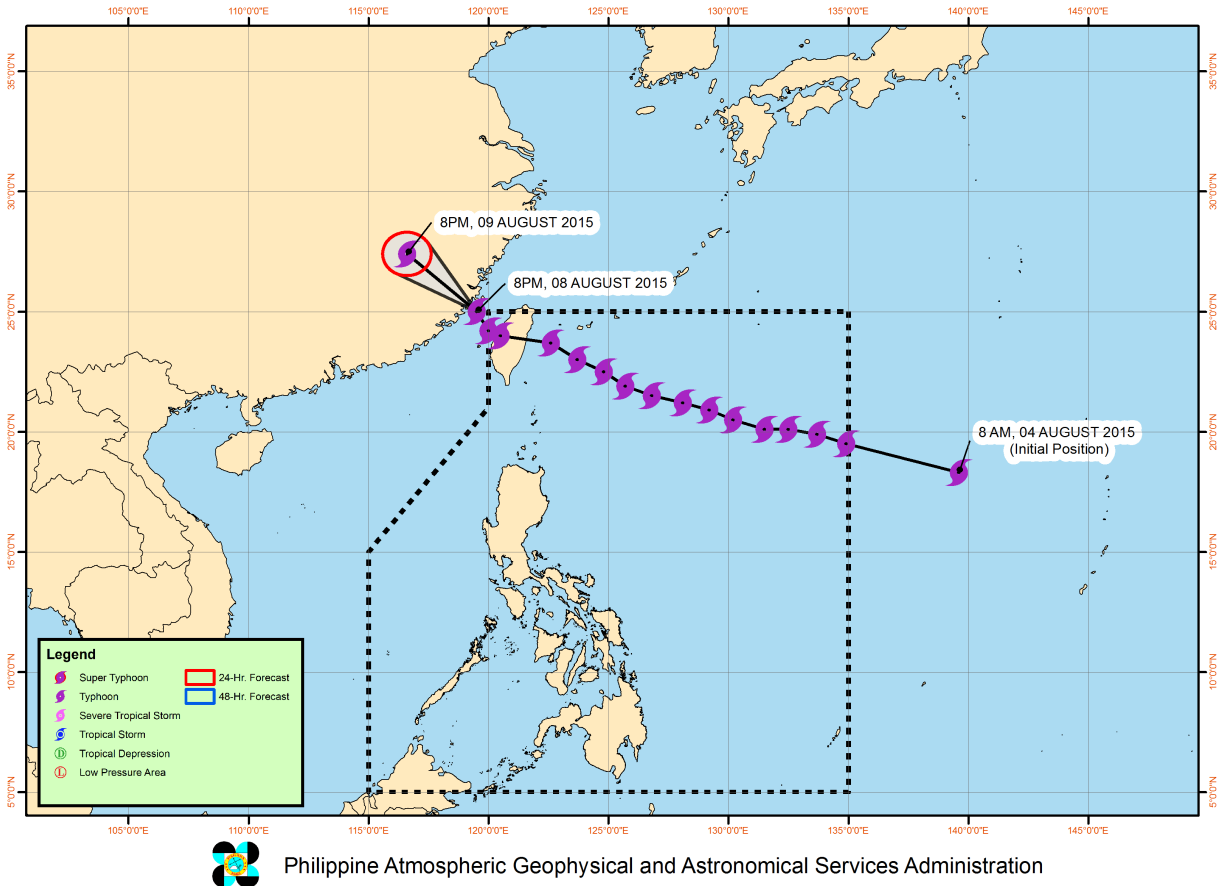
4. SEVERE TROPICAL STORM (STS) LINFA (1510)

- **MAX. SUSTAINED WINDS - 95 KPH**
- **GUST-120 KPH**
-

"LINFA" HAS DEVELOPED INTO A TROPICAL DEPRESSION INSIDE THE PAR IN THE MORNING OF 02 JULY. IT GAINED STRENGTH AND BECAME A SEVERE TROPICAL STORM BEFORE IT MADE LANDFALL OVER PALANAN, ISABELA IN THE EVENING OF 4TH JULY THEN TRACKED ACROSS CAGAYAN, APAYAO AND ILOCOS NORTE OUT INTO THE WEST PHILIPPINE SEA.

- Weather Advisory Issued -2
- International Warning for Shipping – 21
- Severe Weather Bulletin issued – 20
- Casualty – No casualty reported
- Cost of Damage – 214 M PhP

Track of Typhoon "HANNA" {SOUDELOR}



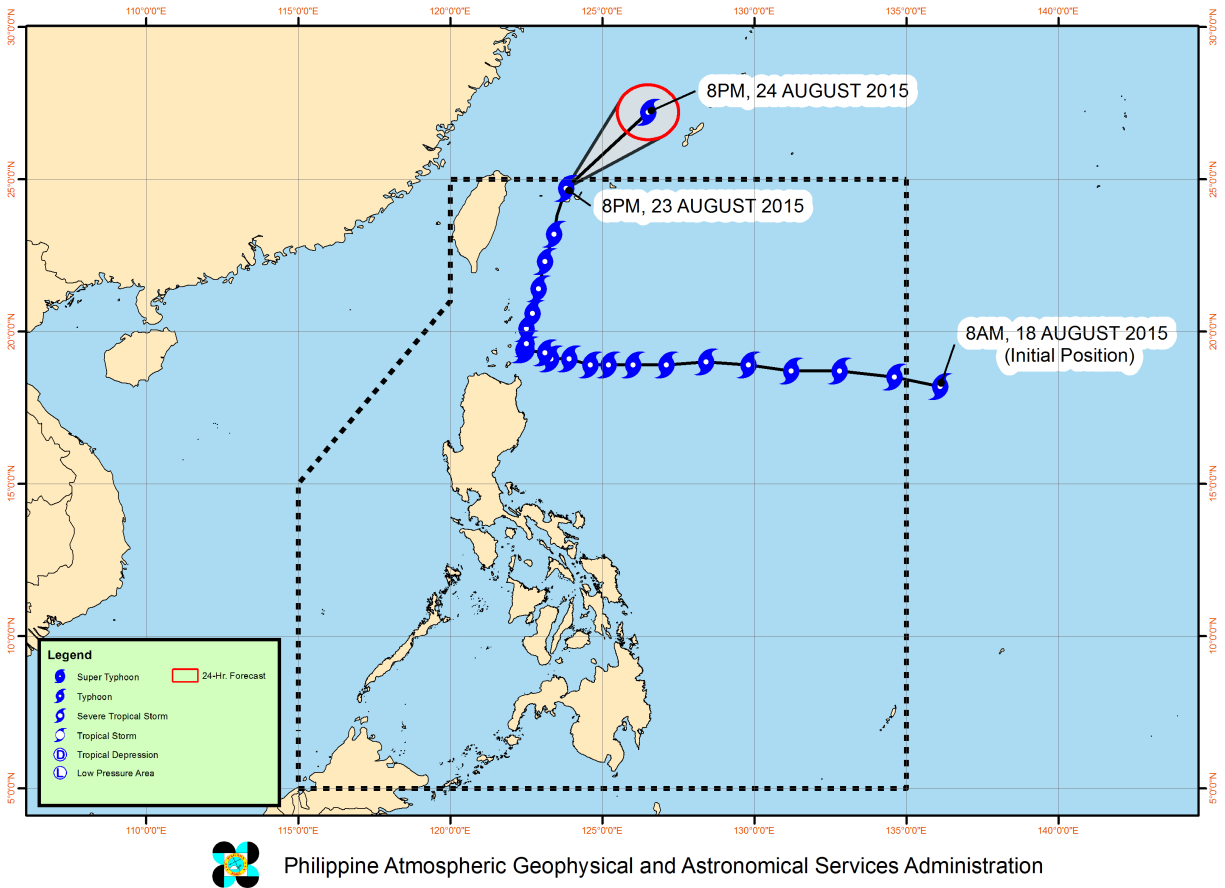
6. TYPHOON SOUDELOR (1513)

- **MAX. SUSTAINED WINDS - 195 KPH**
- **GUST-230 KPH**
-

"SOUDELOR" WAS THE TYPHOON FARTHER TO THE EAST OUTSIDE **PAR**, HAS ENTERED THE **PAR** IN THE EARLY MORNING OF 05 AUGUST AND OUT OF THE NORTHWESTERN BORDER IN THE EVENING OF AUGUST 08. **"HANNA"** DID NOT CROSS THE COUNTRY, HOWEVER IT ENHANCED THE SOUTHWEST MONSOON THAT BROUGHT OCCASIONAL RAINS AND GUSTY WINDS IN MOST PARTS OF LUZON.

- Weather Advisory Issued -2
- International Warning for Shipping Issued – 15
- Severe Weather Bulletin Issued – 14

Track of Typhoon "INENG" {GONI}



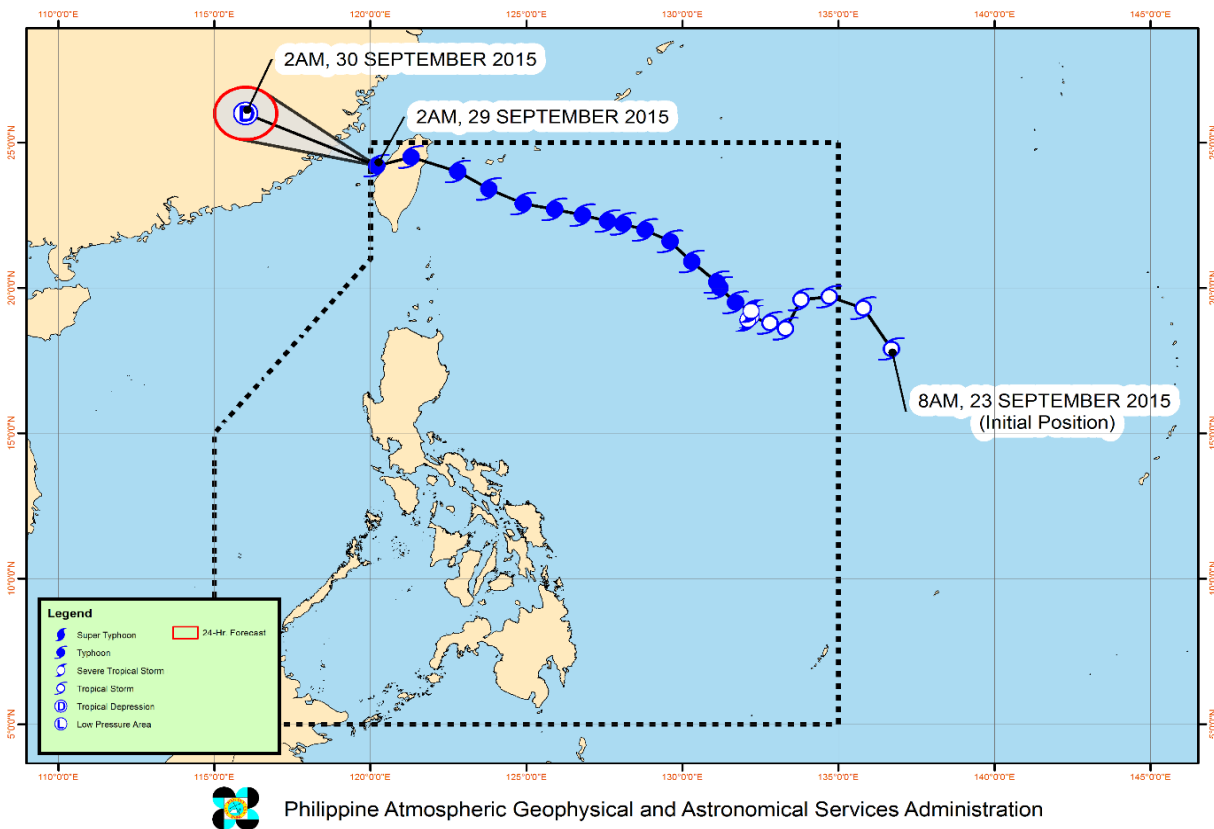
7. TYPHOON GONI (1515)

- **MAX. SUSTAINED WINDS - 180 KPH**
- **GUST-215 KPH**

"GONI" HAS ENTERED THE **PAR** IN THE MORNING OF 18TH AUGUST FROM WEST DIRECTION, HAS SLOWED DOWN AND CHANGED COURSE TO NORTH NORTHEAST OUT OF THE NORTHERN BORDER OF THE PAR MIDNIGHT OF 23 AUGUST. IT ENHANCED THE SOUTHWEST MONSOON THAT BROUGHT OCCASIONAL RAINS AND GUSTY WINDS IN MOST PARTS OF LUZON ESPECIALLY OVER THE WESTERN SECTION.

- Weather Advisory Issued -1
- International Warning for Shipping Issued – 23
- Severe Weather Bulletin Issued – 22
- Casualty – 33
- Damages – 4.4 B PhP

Track of Typhoon "JENNY" {DUJUAN}



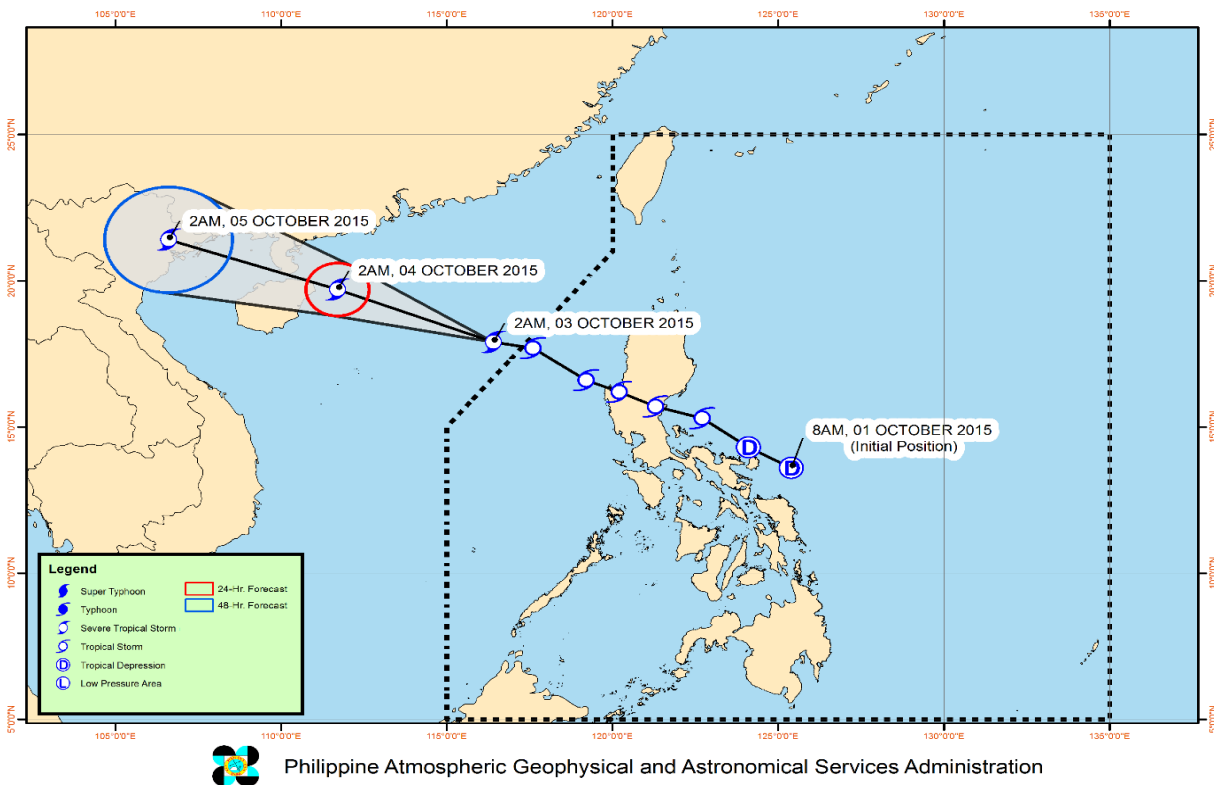
8. TYPHOON DUJUAN (1521)

- **MAX. SUSTAINED WINDS - 180 KPH**
- **GUST-220 KPH**
-

“DUJUAN” AS TS HAS ENTERED THE **PAR** IN THE AFTERNOON OF SEPT. 23, AND MAINTAINED THE WEST NORTHWEST TO NORTHWEST DIRECTIONS INDICATING THAT IT WILL SPARED THE COUNTRY. "DUJUAN" HAS ATTAINED TYPHOON INTENSITY AND MADE LANDFALL OVER NORTHERN TAIWAN OUT OF THE NORTHWESTERN BORDER OF THE **PAR** IN THE EARLY MORNING OF 29 SEP. PSWS#1 - IS IN THE EFFECT OVER BATANES GRP OF ISLAND AND ENHANCED SOUTHWEST MONSOON AND WAS EXPERIENCED IN MAJOR PARTS OF THE COUNTRY ESPECIALLY OVER THE WESTERN PARTS. PERIOD OCCURENCE OF IS FROM 5PM, 23 SEP TO 5AM OF 29 SEP 2015.

- WEATHER ADVISORY ISSUED -3
- TROPICAL CYCLONE WARNING FOR SHIPPING ISSUED – 23
- SEVERE WEATHER BULLETIN ISSUED – 17
- CASUALTY – NONE
- DAMAGES – NO DAMAGE REPORTED

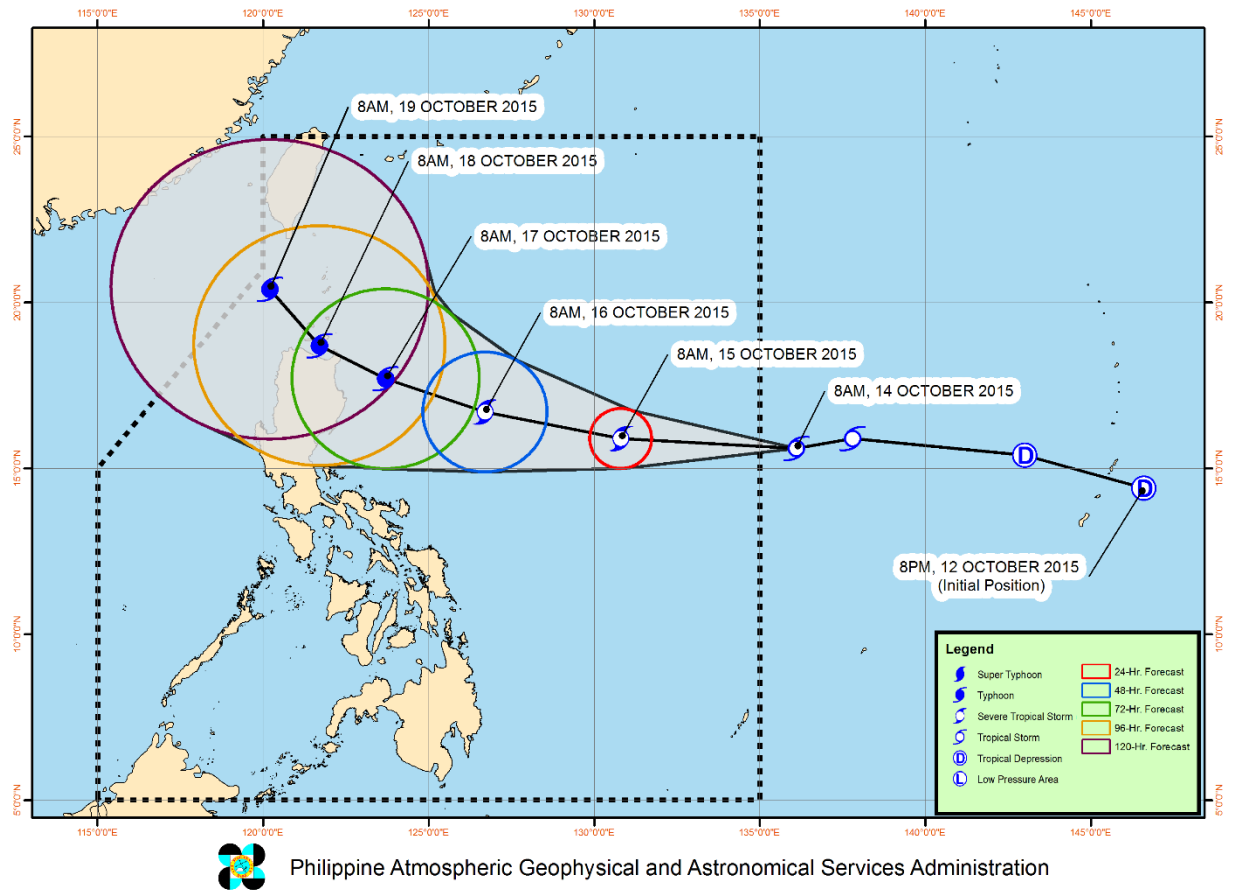
Track of Severe Tropical Storm "KABAYAN"



9. STS MUJIGAE (1522)

- **MAX. SUSTAINED WINDS - 95 KPH**
- **GUST-120 KPH**
- **"MUJIGAE" DEVELOPED INSIDE THE PAR, EAST OF BICOL IN THE MORNING OF 01 OCT 2015. IT GAINED STORM INTENSITY AND MADE LANDFALL OVER AURORA AND TRACKED ACROSS CENTRAL LUZON. EXITED THE PHILIPPINE LAND MASS THRU PANGASINAN OUT INTO THE WEST PHILIPPINE SEA. IT FINALLY EXITED THE WESTERN BORDER OF PAR IN THE EARLY MORNING OF 03 OCT. 2015 AS A SEVERE TROPICAL STORM. DURING THE PASSAGE OF "KABAYAN", PSWS#2 THE HIGHEST IS IN EFFECT TO AREAS AFFECTED AND IT SLIGHTLY ENHANCED THE SW MONSOON THAT BROUGHT LIGHT TO MODERATE RAINS AND ISOLATED THUNDERSTORMS OVE LUZON AND WESTERN SECTIONS OF VISAYAS.**
- WEATHER ADVISORY ISSUED -2
- TROPICAL CYCLONE WARNING FOR SHIPPING ISSUED – 8
- SEVERE WEATHER BULLETIN ISSUED –
- CASUALTY – 1
- DAMAGES – 6.2 M PhP

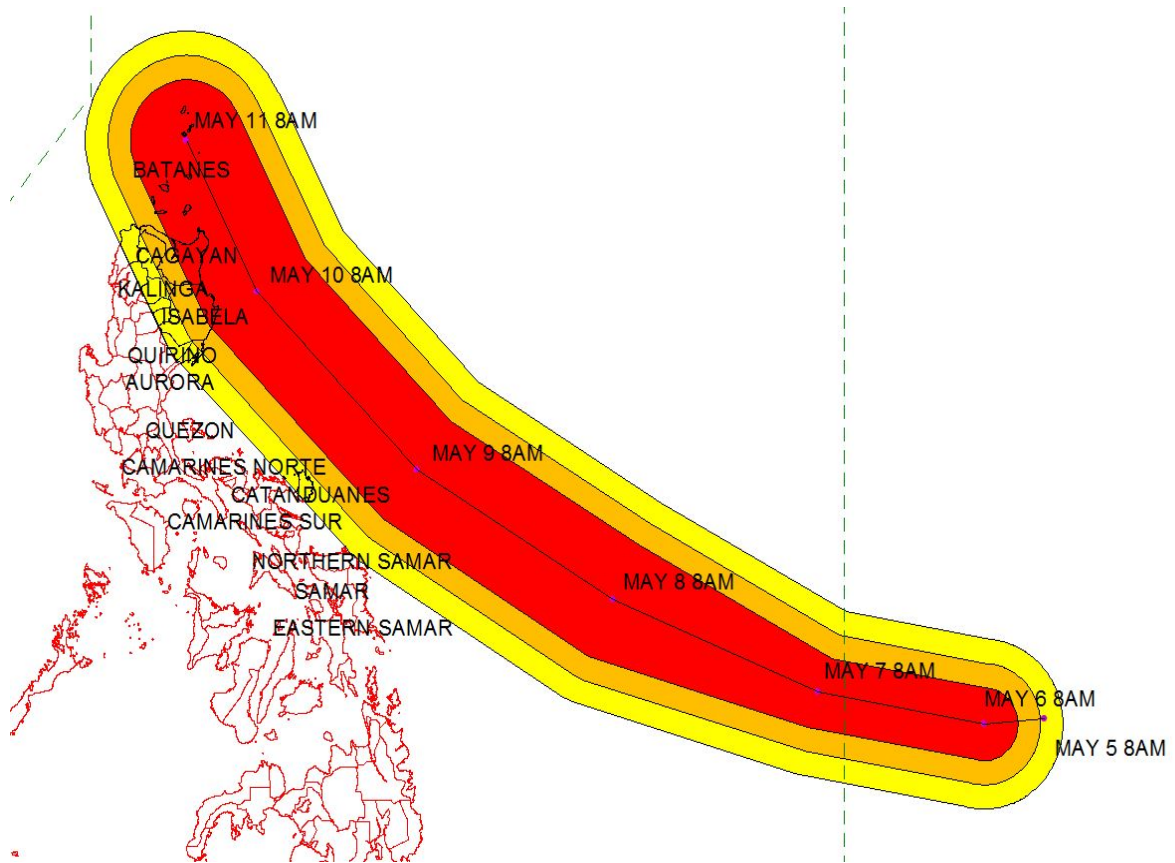
Track of Tropical Storm KOPPU



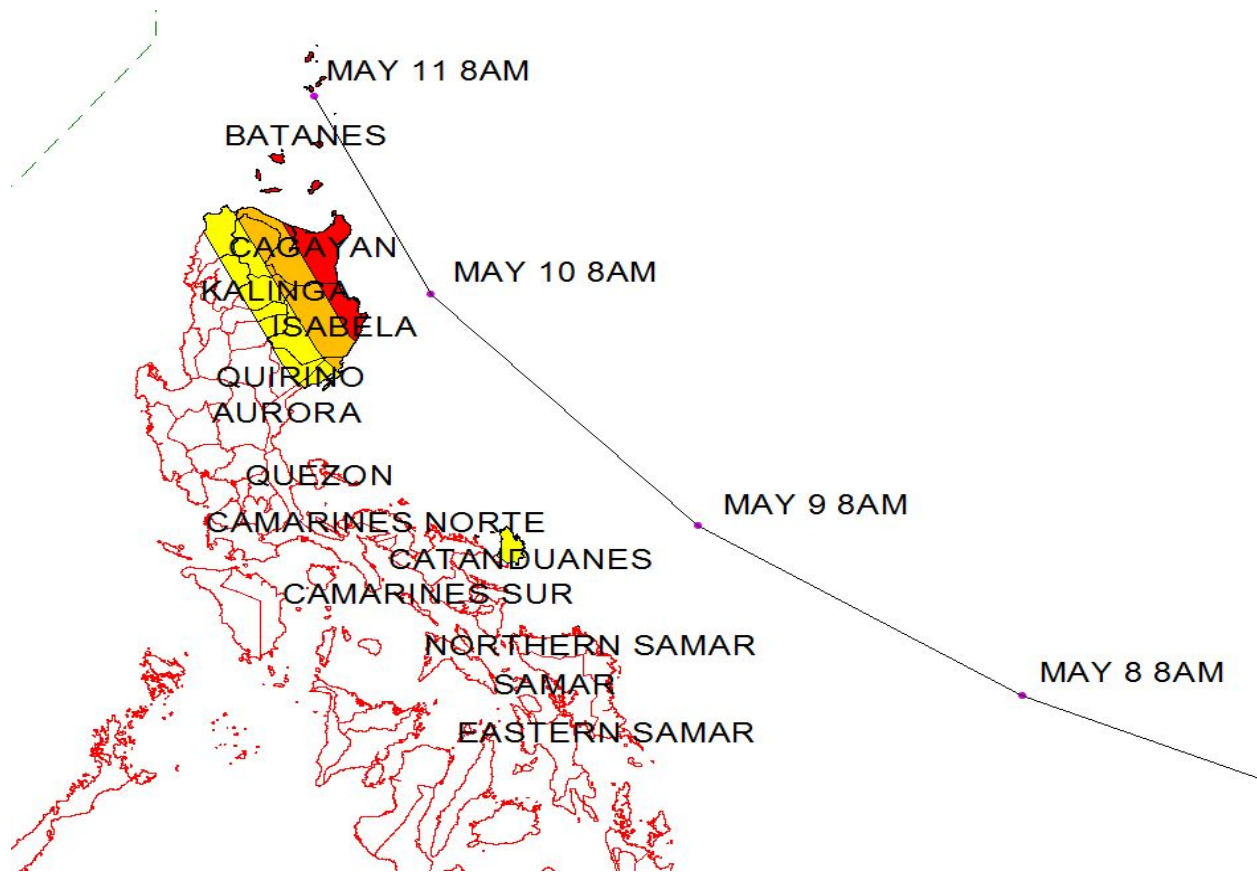
10. STORM KOPPU (1524) – SUMMARY TO FOLLOW

KEY RESULTS AREAS (KRA's)

- **Socio-Economic Assessment (highlighting socio-economic and DRR issues/ impacts)**
- The Pre-Disaster Risk Assessment (PDRA) core group led by Executive Director USEC. Alexander Pama of NDRRMC, OCD and members ASEC. Vilma Cabrera of DSWD, ASEC Raymund Liboro of DOST , Esperanza O. Cayan, Chief of Weather Division, PAGASA, Dir. Alan Tabel of DILG and other member of the National Agencies, will convened at the NDRRMC Operations Center for a meeting and conduct Risk Assessment Analysis in anticipation to every Tropical Cyclones that will enter or developed inside the Philippine Area of Responsibility (PAR) and will directly affect to any part of the country. Subsequently, NDRRMC Operations Center will sent a Memorandum to all Chairpersons, OCD-Regional DRRMCs instructing them to observe heightened alert in preparations for the possible effects of the TC and to do necessary measures to avoid casualties. DILG will also send a messages to all Local Government Units (LGUs) that will be affected by the TC, to prepare and if possible to evacuate people living in areas prone to flooding, landslide and storm surge.
- PDRA will convene whenever a tropical cyclone will enter the **PAR** especially if it is a landfalling, so that early disaster preparedness and or pre-emptive evacuation can be done in areas to be affected. This is also to pre-position relief goods, medicines and equipments in anticipation of the rescue and relief operations before, during and after the passage of TC.
- PAGASA will give the current 5-day forecast track of the TC and the areas to be directly (strong winds and heavy rains) and indirectly (enhanced WS monsoon) affected by the TC. PAGASA will also informed the group of the possible changes in the future track of the TC. This kind of procedure is very effective (based from the previous occurrence of TC) in the early warning information dissemination and early preparations in the areas to be affected by the different hazards brought about by the TC. Because of this activities, casualties were also minimized.



List of Provinces to be affected



- II. Summary of Progress in Key Result Areas
- **KRA 1: Reduced Loss of Life from Typhoon related Disasters**

- a) Conduct Information and Educational Campaign (IEC) to Media Practitioner so that they can deliver the warning message properly and accurately to the Disaster Managers and to the people living in the areas to be affected. Quad-media is also the fastest way of disseminating the warning to the people and early preparations of the different hazards can be done by the local communities.

Media Seminar-Workshop for Mindanao Mediamen; culminating activity of the “Typhoon and Flood Awareness Week”	Minkay Hotel & Restobar Initao, Misamis Occidental.	June 18-20, 2015
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- b) Conduct evacuation drill to the hazard prone areas.

Flood and Storm Surge Drill and IEC	Baseco Compound, Port Area, Manila	Aug. 18-19, 2015
El Niño Forum for Media & other Stakeholder	Sequoia Hotel, Quezon City	Sept. 30, 2015

- **KRA 1: Reduced Loss of Life from Typhoon related Disasters**

b) To reduce loss of lives from typhoon related disasters, The Weather Division of PAGASA will formulate and issue **Weather Advisory** if a Tropical Cyclone is still outside **PAR** and this will be upgraded to **Severe Weather Bulletin** (SWB) if the TC is expected to enter the **PAR** in the next few hours. If the TC formation is inside the PAR, PAGASA will immediately issue Severe Weather Bulletin.

1) **Weather Advisory** is issued when a tropical cyclone outside the Philippine Area of Responsibility (PAR) is expected to enter PAR in the next 2- 3 days.

2) **Severe Weather Bulletin Alert** Status is issued when a tropical cyclone has entered or developed inside the PAR, the Weather Advisory shall be upgraded to Severe Weather Bulletin either Alert or Warning status. No Public Storm Warning Signal hoisted in any part of the country.

3) **Severe Weather Bulletin Warning** is issued if the formation of the tropical cyclone is very near to any landmass of the country which may create a real threat or if it will affect the area in at least 36 hours, a Severe Weather Bulletin Warning shall be issued instead of the Alert status and Public Storm Warning Signals are already hoisted in some areas. The initial issuance of the Severe Weather Bulletin will be anytime depends on the available data gathered which may warrant the formation of a tropical cyclone or if it will affect the area in at least 36 hours.

- **KRA 2: Minimized Typhoon – related Social and Economic Impacts**

a) PAGASA continues to conduct Information and Educational Campaign (IEC) about the effects of TC to the communities and to the livelihood to the different Stakeholders throughout the country.

IEC for the League of Barangay in the province of Alang-Alang, Leyte attended by 35 barangay officials.	Amihan Conference Room, PAGASA, Quezon City	January 23, 2015
FORUM – “Early Warning, Early Action” - IEC and Exhibit Display for the Presidential Management Staff (PMS) officials and employees	PMS Penthouse, PMS Bldg., Arlegui St., Manila	May 25, 2015

Conducted Climate and Disaster Risk Reduction Workshop for the City of Marikina Vulnerability and Adaptation (V&A) Assessment of the Socio-Economic and Health Sectors for the Cities of San Juan, Pasig and Marikina	Amihan Conference Room, 2 nd Floor, PAGASA Central Office Building	12-13 August 2015
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- **KRA 4: Improved Typhoon-related Disaster Risk Management in Various Sectors**

- a) Providing Hazard maps and IEC to the Local Executives will help them improved typhoon-related disaster risk management.

Multi-hazard Maps IEC for LGU's in the Nueva Viscaya Province funded under the UNDP-READY II Project.	24/7 Hotel, Solano, Nueva Viscaya	May 14-15, 2015
ARLEGUI FORUM – “Early Warning, Early Action” - IEC and Exhibit Display for the Presidential Management Staff (PMS) officials and employees	PMS Penthouse, PMS Bldg., Arlegui St., Manila	May 25, 2015

b) Close coordination with government and private entities on weather and climate information.

Multi-hazard Maps IEC for LGU's in the Nueva Viscaya Province funded under the UNDP-READY II Project.	24/7 Hotel, Solano, Nueva Viscaya	May 14-15, 2015
Conducted Information, Education Campaign (IEC) for Storm Surge for the province of Cavite	Pacifico Elementary School, Barangay San Rafael 3, Noveleta, Cavite	25 September 2015

- **KRA 5: Strengthened Resilience of Communities to Typhoon-related Disaster**
- Capacity Building thru IEC, Community Drills and Preparation of Hazard Maps of the different Provinces.

Multi-hazard Maps IEC for the province of Ilocos funded under the UNDP READY II Project.	Vigan, Ilocos Sur	June 23-24, 2015
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Multi-hazard Maps IEC for LGU's in the Nueva Viscaya Province funded under the UNDP-READY II Project.	24/7 Hotel, Solano, Nueva Viscaya	May 14-15, 2015
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- **KRA 6: Improved capacity to generate and provide accurate, timely and understandable information on typhoon-related threats.**

a) In order to provide reliable typhoon-related disaster information for effective decision making in risk management in various sectors, PAGASA issue Weather Advisory and Severe weather Bulletin timely and accurately.

1) **Weather Advisory** is issued when a tropical cyclone outside the Philippine Area of Responsibility (PAR) is expected to enter PAR in the next 2- 3 days.

2) **Severe Weather Bulletin Alert** Status is issued when a tropical cyclone has entered or developed inside the PAR, the Weather Advisory shall be upgraded to Severe Weather Bulletin either Alert or Warning status. No Public Storm Warning Signal hoisted in any part of the country.

3) **Severe Weather Bulletin Warning** is issued if the formation of the tropical cyclone is very near to any landmass of the country which may create a real threat or if it will affect the area in at least 36 hours, a Severe Weather Bulletin Warning shall be issued instead of the Alert status and Public Storm Warning Signals are already hoisted in some areas. The initial issuance of the Severe Weather Bulletin will be anytime depends on the available data gathered which may warrant the formation of a tropical cyclone or if it will affect the area in at least 36 hours.

b) In order to have a very good monitoring capability of the different weather disturbance and to provide timely and accurate typhoon related information, PAGASA has installed (2) two additional Radars in Quezon, Palawan and Iloilo City. Two (2) are under construction and Four (4) more Doppler Radars will be installed in the next 2-3 years. We will also acquire two (2) additional Mobile Radars.

- Mobile radars will be used as back-up whenever one or two of the radars will not be operational due to some problems. The STRIDE Team (Storm Chaser) will also use one of the radar whenever a tropical cyclone will make landfall.



- PAGASA formed a technical working group that will do laymanization of our warning and bulletin so that our very important information will be fully understood by the people. Our PAGASA Regional Services Division (PRSD) are also translating our warning and other weather information in their local dialect or language.
- **KRA 7: Enhanced Typhoon Committee's Effectiveness, Efficiency and International collaboration.**

The Typhoon Committee is conducting a yearly Roving Seminar-workshop and Integrated Workshops to country members to enhance and capacitate meteorologist, hydrologist and DRR personnel in performing their duties in their respective country with the help of the other Member countries and other International Organizations like WMO, UNESCAP, UNDP and others.

For continuous updates, visit our website and follow PAGASA's official facebook and twitter accounts.

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