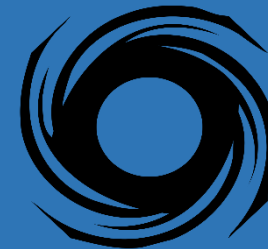




Emergency Management: A Guide for Personal & Family Preparedness: Typhoons & Tropical Storms



U.S. Naval Base Guam Emergency Management Office

Typhoons on Guam



Military quarters in the Nimitz Hill housing area on Guam, lie smashed in the aftermath of super typhoon Paka on Dec. 17, 1997. Super typhoon Paka hit the island the night before with average sustained winds of 175 mph.

Super typhoon Pongsona caused widespread destruction on Guam on Dec. 8, 2002. with sustained winds of 144 mph, with gusts up to 173 mph. Preliminary damage estimated for Guam totaled more than \$700 million.



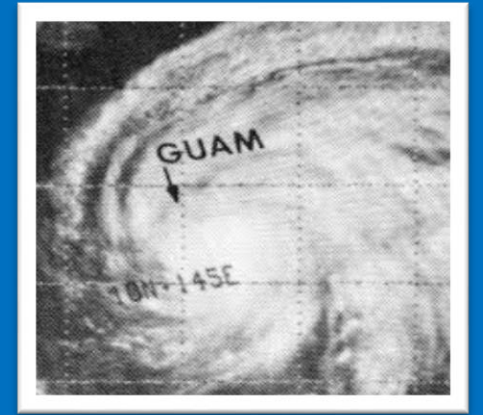
U.S. Navy Seabees assigned to Mobile Construction Battalion Forty (NMCB 40) work together to clear fallen trees from the tops of military housing on board Naval Station Marianas, Guam. Causing over \$200 million in damage and displacing over 2500 people, Super Typhoon Paka had sustained winds of 175 mph with one wind gust recorded as the strongest ever recorded on earth at 236 mph.

Typhoon History on Guam

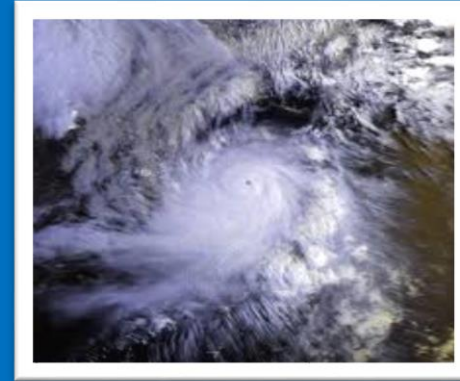
The Mariana Islands lie in a region prone to tropical cyclones (typhoons) and 70 per cent of the world's tropical cyclones form in this region of the Pacific. June through December are the most susceptible cyclone months and because of this Guam is always in TCCOR 4. Typhoons and hurricanes are the same, they are just referred to as typhoons in this part of the world. Tropical cyclones feed off of the heat which is released when humid air rises off of the ocean's surface into the atmosphere. The area surrounding Guam is ripe with these conditions from the high humidity to the water temperatures.



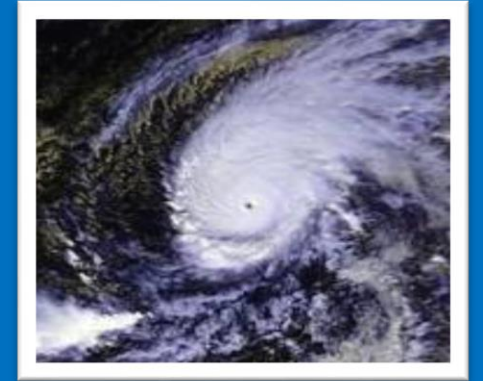
Karen 1962



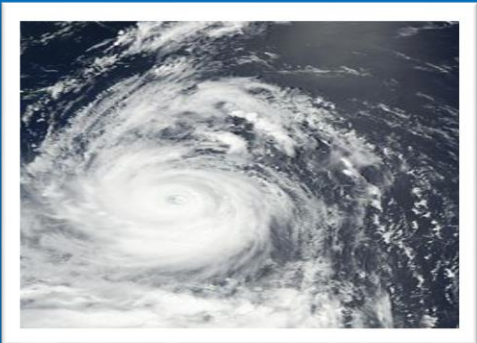
Pamela 1976



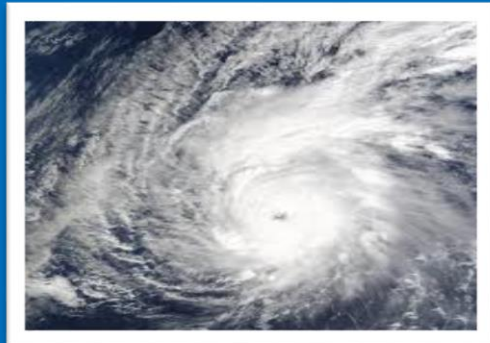
Omar 1992



Paka 1997



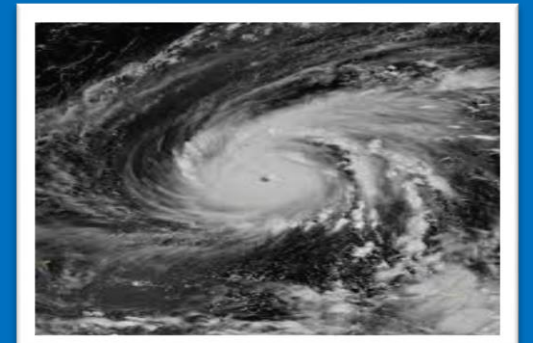
Chataan 2002



Pongsona 2002



Dolphin 2015



Yutu 2018

Know Your Typhoon Terms

Tropical Depression – A rotary circulation of clouds with winds up to 38 miles per hour.

Tropical Storm – A rotary circulation of clouds with winds between 39-73 miles per hour.

Typhoon – A tropical cyclone in the Western Pacific Ocean in which the maximum 1-minute sustained surface wind is 64 knots (74 miles per hour) or greater.

CAT 1: 74 - 95 mph (64-82 kt)

CAT 2: 96 -110 mph (83-95 kt)

CAT 3: 111 – 129 mph (96-112 kt)

CAT 4: 130 – 156 mph (113-136 kt)

CAT 5: 157 mph or higher (137 kt or higher)

Super Typhoon – A term utilized for typhoons that reach the equivalent of a Saffir-Simpson Category 4 or 5.

Storm Surge – A huge dome of water pushed on shore by a typhoon. When coupled with high tide, the storm surge will be the tide and surge will be the tide and surge combined.

Danger Zones – Tropical areas of the Western Pacific, including Hawaii, Guam, American Samoa, Saipan, and Okinawa. Low lying areas along the coastline.



A photo of storm surge damage caused by Typhoon Karen in 1962 is taken roughly a week after the storm in Asan, Guam in 1962.

Tropical Cyclone Conditions of Readiness (TCCOR)

TCCOR	How to Prepare and Steps to Take
TCCOR 4 – Winds of 50 Knots sustained or greater are possible within 72 hours.	<ul style="list-style-type: none"> • Obtain emergency supplies. Have 72 hours of food and water on hand.
TCCOR 3 – Winds of 50 knots sustained or greater are possible within 48 hours.	<ul style="list-style-type: none"> • Obtain sandbags for residence. • Remove or secure all outdoor/balcony items. • Fill vehicle gas tanks. • Keep important documents safe/accessible. • Clean debris from gutters, storm drains, sidewalks, and ditches near your quarters. • Low lying area residents relocate vehicles to higher ground.
TCCOR 2 – Winds of 50 knots sustained or greater are anticipated within 24 hours.	<ul style="list-style-type: none"> • Continue securing outside items. • Be prepared to cover broken windows. • Sandbag door sills.
TCCOR 1 – Winds of 50 knot sustained or greater are anticipated within 12 hours.	<ul style="list-style-type: none"> • Move sensitive items away from windows or cover with plastic. • Fill bathtub with water. • Turn refrigerator/freezer to highest settings. • Stay indoors until ALL-CLEAR is announced.
TCCOR All Clear Emergency - Winds of 50 knots sustained or greater are no longer forecast to occur. Strong winds may still exist.	<ul style="list-style-type: none"> • All personnel should remain indoors and stay away from windows as strong winds may still pose a threat. • Emergency and mission essential personnel only, are requested to return to work to perform facility damage assessments.
TCCOR 4 Normal Operations – The storm is over and not forecast to return.	<ul style="list-style-type: none"> • Storm damage could present a danger. • The risk of injury/damage to personnel and property has been mitigated to a safe level. • Report all damage to NBG Housing Maintenance • Personnel should remain indoors until the recovery process is complete or called into work by Unit Commander

NBG Installation Access and Preparedness Actions

TCCOR	Installation Access and Preparedness Actions
TCCOR 2	<ul style="list-style-type: none">• “Non-Essential Personnel” shall be released in an orderly manner to prepare homes and families for impending storm.• Schools may close and students may be released at the discretion of school officials.• Commissary and Navy Exchange Facilities may close or adjust hours of operation.
TCCOR 1	<ul style="list-style-type: none">• “Essential Personnel” will report for duty and/or stay on duty for the duration of the heavy weather.• Installation is limited to “Essential Personnel”.• Entry Control Points are secured for heavy weather and NBG remains closed until “All Clear” is announced.
TCCOR 1 Recovery	<ul style="list-style-type: none">• After the storm’s passing and once destructive winds have subsided and are no longer forecast to occur, storm ride-out survey and work crews are sent to determine the extent of damage, restore utilities, clear roads, and make any immediate repairs.
TCCOR All Clear Emergency	<ul style="list-style-type: none">• Emergency and mission essential personnel only, are requested to return to work to perform facility damage assessments.• The CO makes the final determination on the installation’s safety following the storm, and will make recommendations for the base to return to TCCOR 4 Normal Operations.
TCCOR 4 Normal Operations	<ul style="list-style-type: none">• Base is open for normal operations.• Base services will be open on a discretionary basis.



Typhoon Tips – Before a Storm:

- Have several gallons of purified water on hand to last up to a week per person.
- Fill a bathtub and /or large containers with water for sanitary purposes.
- Secure all loose items such as children's toys, garbage cans and other items that could become airborne during high winds.
- Remove area rugs and electronic equipment from the floor to prevent them from getting wet.
- Fill your vehicles tanks with gas.
- Secure your vehicle away from trees or structures that may topple or collapse.
- Notify your chain of command and a family member not living with you where you will ride-out the storm.
- Have an extra supply of cash on hand.
- Stock up on supplies such as canned goods, candles, flashlights, first aid kits, batteries, matches or lighters, portable stove, fuel for portable stoves and lanterns, toiletries and disposable plates and utensils.
- Secure important documents such as a birth certificates, tax papers, insurance documents and a list of valuable items.



Typhoon Tips –During a Storm:

- Stay indoors and away from windows.
- Place towels/rags around leaky doors and windows.
- Conserve water.
- Watch the television, listen to the radio, call 339-INFO (4636) or log in to Naval Base Guam's Facebook page for updates:
facebook.com/USNavalBaseGuam
- Stay indoors until the “all clear” has been announced. Do not venture out when the eye of the storm is over the island and all appears to be calm. Strong winds are soon to follow.



Typhoon Tips – After a Storm:

- Contact your chain of command and family members not living with you to let them know that you're alright.
- Do not venture onto roads unless they are declared safe.
- Do not drink or prepare food with tap water until you are certain it is potable.
- Contact your insurance to file a claim for your house or car.
- Double check to ensure that all electrical items are off.

Emergency Preparedness Kit

 Water	 Food	 Prescription Medications	 First Aid Kit	 Baby Supplies	 Pet Supplies	 Bleach & Eye-dropper
 Mylar Blanket	 Blankets	 Sleeping Bag	 Glasses & Eye Protection	 Extra Clothing	 Personal Hygiene	 Towelettes
 Towels	 Sanitation	 Emergency Guide/Plan	 Family Documents	 Backpack	 Dust Mask	 Work Gloves
 Flashlight	 Batteries	 Matches	 Candles	 Lightsticks	 Maps	 Games & Books
 Extra Keys	 Rope / Cord	 Duct Tape	 Can Opener	 Kitchen Items	 Scissors	 Cash, Travelers Checks, Coins
 Compass	 Pen & Paper	 Radio	 Cell Phone & Charger	 Whistle	 Signal Mirror	 2-way Radios

Recommended items:

- Water, one gallon of water per person per day for at least three days, for drinking and sanitation
- Food, at least a three-day supply of non-perishable food
- Battery-powered or hand crank radio and a NOAA Weather Radio with tone alert and extra batteries for both
- Flashlight and extra batteries
- First aid kit
- Whistle to signal for help
- Dust mask to help filter contaminated air and plastic sheeting and duct tape to shelter-in-place
- Moist towelettes, garbage bags and plastic ties for personal sanitation
- Wrench or pliers to turn off utilities
- Manual can opener for food
- Local maps
- Cell phone with chargers, inverter or solar charger

Keep Communication Lines Open:

- Make sure you have at least one phone with a cord at home. Cordless phones will not work in the event of a power outage.
- Keep a car charger for your cellphone in the event of a power outage.
- Plan how your family will stay in touch during an emergency.



- Program an “In Case of Emergency” number into all your cellphones.
- In case the Internet is unavailable or power is out, call the NBG Infoline at 339-INFO (4636) for emergency updates. The line will have a recorded message with updated information.

What should be in your first aid kit?

- Two absorbent compress dressings
- 25 adhesive bandages
- One adhesive cloth tape
- Five antibiotic ointment packets
- Five antiseptic wipe packets (One gram each)
- Two packets of aspirin (81 milligrams each)
- One space blanket
- One breathing barrier with one-way valve
- One instant cold compress
- Two pairs of large non-latex gloves
- Two hydrocortisone ointment packets (One gram each)
- Scissors
- One roller bandage (Three inches wide)
- One roller bandage (Four inches wide)
- Five sterile gauze pads (3x3 inches)
- Five sterile gauze pads (4x4 inches)
- Oral thermometer (Non-mercury/non-glass)
- Tweezers
- First-aid instruction booklet





**Don't get caught off guard.
Be ready for anything!**

U.S. Naval Base Guam Emergency Management Office