**APPENDIX 6**
**HURRICANE/TROPICAL STORM DEFENSE PLAN**

**HURRICANE/TROPICAL STORM DEFENSE PLAN**

1. **PURPOSE**
   This plan is intended to acquaint personnel with hurricane/tropical storm hazards, to indicate the action required to overcome or minimize these hazards, and to delineate responsibility in carrying out such action.

2. **GENERAL**
   A hurricane is a cyclonic storm which, as a unit, normally travels at about 8 to 12 miles per hour and has a small center area of relative calm with an area of high wind velocity revolving counterclockwise about this central area. Hurricane winds are defined as those having a force greater than 75 MPH; however, they have been recorded well over 180 MPH.

3. **POLICY**
   A. The Incident Commander will ensure the implementation of this plan.
   
   B. All personnel not assigned to remain on campus will evacuate when tropical storm winds are imminent. Classes will be closed at the discretion of the Incident Commander upon notification that a storm threatens to hit the area. The campus will be closed within 8 hours of that notification. Campus buildings are not designated public shelters. Persons must seek shelter elsewhere.
   
   C. All University sponsored functions within the Corpus Christi geographical area are cancelled.
PRE-STORM TEAM ROLES/RESPONSIBILITIES

TRIGGER POINT #1: Beginning on May 1

- The Public Information Officer sends out a campus announcement that hurricane season begins June 1 through November 30 and requests that all departments review the TAMU-CC Hurricane / Tropical Storm Defense Plan and their Business Continuity plans. In addition, all academic departments should review their Academic Continuity plan as noted in Procedure 34.07.01.C0.02.
- Review list of hurricane supplies required to secure your areas of responsibility.
- Update your departmental Hurricane/Tropical Storm telephone tree.
- Review procurement card validity and emergency purchasing procedures.
- IT/UPD Tests all emergency notifications systems.
- Human Resources requests that all employees update emergency information in the HR system.
- SEAS requests that students update their emergency information in the student information system.
- The Liaison Officer contacts the City of Corpus Christi Emergency Management Office concerning re-entry letters.

FACILITIES SERVICES

- Commences preseason preparations.
- Checks roofs of buildings for loose debris; insures drain heads are cleared.
- Inspects supplies for adequate materials (mops, buckets, squeegees, batteries, and battery-powered lights, trash bags, kitty litter, etc.).
- Ensures adequate fuel (gasoline and diesel) is on hand for operation of emergency generators and vehicles.
- Checks inventory and replenishes emergency supplies.
- Ensures adequate supply of sandbags.

TRIGGER POINT #2:

Hurricane Risk Indicator – RPA +: StormGeo Weather’s Response Plan Activator (RPA) is a long-range tool that identifies a possible hurricane risk to your location over the next 5-7 days.

- Incident Command monitors StormGeo Weather Service and the National Hurricane Center.
- Incident Commander sends out a notice to the Incident Command staff to review storm procedures.

For additional decision guidance, consider accelerating actions if the Max Forecast HSI (Hurricane Severity Index) value is greater than 25. Consider decelerating actions if the HSI value is less than 15.
TRIGGER POINT #3:

Worst Case Scenario (WSC) 39 mph <72 hrs. and Probability of Wind Impact (PWI) 58 mph >20%: The earliest arrival of the 39-mph wind field is less than 72 hours from the location and the probability of wind impact by the 58 mph wind field is greater than 20%. The following actions should be considered.

Due to the unpredictable nature of a Hurricane/Tropical Storm, it is extremely difficult to base an action on the storm’s course and speed. Response actions indicated in this plan are based on advisories from StormGeo Weather Service, the National Hurricane Center, and the City of Corpus Christi Emergency Operations Center. National Hurricane Center forecast models have an inherent error of 200 miles on either side of the track for the 72 hours forecast period, 150 miles for the 48-hour forecast track and 75 miles for the 24-hour forecast track. The action guidelines listed may be adjusted accordingly as more information on the storm’s track becomes available.

Incident Commander
- Activates the Hurricane/ Tropical Storm Defense Plan.
- Calls for an Incident Command Staff meeting to prepare the campus for possible closure.
- Directs the Public Information Officer to announce that the campus is monitoring a storm.
- Schedules Command meetings throughout the Storm Watch to plan storm preparations.
- Obtains status report from Section Chief and Command Staff Officers.

Liaison Officer
- Implements their unit section plans.
- Notifies the State tenants, religious affiliations, CCISD, Antonio Garcia Center, Flour Bluff Building, Art Museum of South Texas, Chaparral Building and Hamlin Center to prepare for possible campus closure.

Public Information Officer
- Implements their unit section plans.
- Prepares messages for campus announcements, news, and social media.

Security Officer
- Implements their unit section plans.
- Ensures that plans are in place to close and clear occupants from campus buildings.

Safety Officer
- Implements their unit section plans.
- Identifies hazardous situations associated with the incident.
- Coordinates with IT and UPD to prepare the EOC for emergency management operations.

Finance and Administration Section Officer
- Implements their unit section plans.
- Secures hotel rooms for administrative personnel evacuating.
- Contacts FAMIS to put production of checks and reports on hold.

Academic Planning & Operations Section Chief
❑ Implements their unit section plans.
❑ Provides EHS a list of Chemical, Biohazard and Pathogens inventory for Academics and Research laboratories.
❑ Provides EHS an inventory of living animals used in research, their locations, list of responsible personnel, IACUC for animal protocol.
❑ Reviews personnel that will be on vacation.
❑ Provides a list of field trip schedules and personnel traveling out of Corpus Christi on business to Academic Planning.
❑ Provides a list of college activities, University events calendar and meetings planned to the Incident Commander.

Facilities Services Operations Section
❑ Implements their unit section plans.
❑ Prepares to secure University Buildings.
❑ Notifies contractors to secure equipment and supplies.
❑ Makes final check for loose debris, clears drain heads, secures outside furniture.
❑ Assists Art Museum in securing their priority collection.

Logistics Section Chief
❑ Implements their unit section plans.
❑ Works with campus vendors to secure University Services.
❑ Works with campus vendors to secure Food Service operations.

IT Operations Section Chief
❑ Implements their unit section plans.
❑ Releases Emergency Hotline Numbers at this time.
❑ Prepares for Web Service, contacting TAMU-San Antonio as an alternate location and secures lab computers.
❑ Alerts campus to back-up computer files located on their desktop.
❑ Performs backup of student records, library catalog, alumni records, and other relevant data.

Student Engagement and Success Operations Section Chief
❑ Implements their unit section plans.
❑ Verifies bus transportation to evacuate students.
❑ Coordinates with TAMIU for temporary shelter.

Holding Pattern: Sustained winds forecast to drop below 39 mph: Assessment Time
TRIGGER POINT #4:

Worst Case Scenario WCS 39 mph < 48 hrs. and Probability of Wind Impact PWI 58> 30%:-
The earliest arrival of the 39 mph wind field is less than 48 hours from our location and the probability of wind impact by the 58 mph wind field is greater than 30% the following checklist actions should be considered.

President notifies the Chancellor of current campus status.

**Incident Commander**
- Obtains status report from Section Chief and Command Staff Officers.
- Meets with the Incident Command members to plan for the closure.
- Decision made to close the campus.

**Public Information Officer**
- Utilizes campus announcements, social media to inform the campus community of actions being taken by the University.
- Notifies the media of the campus closure and evacuation

**Security Officer**
- Obtains incident briefing from the Incident Commander.
- All UPD personnel report to Security Officer for assignments.
- Performs final security check of campus to ensure persons not working directly with the Incident Command Team have evacuated the campus.
- Verifies that all personnel have left the campus and buildings are secured.
- Notifies the Incident Commander that the campus is closed and secured.
- Notifies City of Corpus Christi Emergency Management when the campus is fully evacuated with the exception of security personnel.
- Maintains keys to University vehicles that are stored on-site.

**Safety Officer**
- Obtains incident briefing from the Incident Commander.
- Coordinates the activation of the EOC with IT and UPD.
- Assists departments with the evacuation process.

**Finance and Administration Section Chief.**
- Increases P-Card user credit limits.
- Ensures assigned employees of F&A have laptops prior to departure.
- Issues to the Emergency Management Team
  - Activity Log
  - Disaster Time Sheets to track hours
  - Daily purchase log
**Academic Operations Section Chief**
- Notifies Deans to dismiss classes.
- Notifies Research Institutes to secure their projects.
- Coordinates securing boats and vehicles with UPD. Deliver keys to UPD.

**Facilities Operations Section Chief**
- Fuels and stores all Facilities Services vehicles.
- Verifies that utilities to all buildings have been shut off.
- Shuts down Central Plant.
- Maintains receipts of all transactions until Procurement and Disbursement Department is able to return to campus and reestablish operations.

**IT Operations Section Chief**
- All Information Technology personnel report to supervisors for hurricane team assignments.
- Prepares to activate web server at TAMU,SA
- Places a temporary phone greeting informing of the University’s status.

**Student Engagement and Success Section Chief**
- There is a time difference between when bus transportation is notified of the need and when the buses have to leave. We have to notify the transportation providers as soon as possible but no later than 60 hours prior to landfall that we need transportation. The contracts state we have to leave campus no later than 36 hours prior to landfall. TAMUS buses will depart College Station no later than 48 hours prior to landfall to ensure they have adequate time to travel to CC.
**DURING STORM**

Only authorized personnel approved by Incident Commander will stay on campus. Authorized personnel will normally consist of Law Enforcement personnel and will have re-entry letter on file with the City of Corpus Christi.

**PROCEDURES FOR THOSE THAT REMAIN ON CAMPUS**

These authorized employees will be located at the Dugan Wellness Center – Emergency Operations Center (EOC).

The EOC will be furnished with the following:

- Food supply for five (5) days
- Sleeping accommodations
- Water
- Cell phone / chargers
- Satellite phone
- 2-way radios

**PROCEDURES FOR THOSE THAT DISPATCH TO OTHER LOCATIONS**

(ICS members)

- Incident Commander will authorize travel arrangements for designated personnel to destination(s) to be determined.
- IT department Section Chief will send designated employees to Texas A&M University-San Antonio for operation of back up servers.
- Section Chiefs will review departmental plan to determine location of any other personnel.
POST-STORM

DAMAGE ASSESSMENT PLANS
The Incident Commander contacts members of the Incident Command staff to meet on campus or at a designated site to evaluate damage and develop immediate response plans.

Incident Command Team Assignments:
- Incident Command develops and carries out a plan to resume university operations.
- UPD secure campus from unauthorized access and looting.
- Facilities Services and EHS survey the campus to identify and isolate safety hazards (chemical, biological, electrical, structural, gas leaks, etc.)
- Facilities Services completes assessment of damage to campus facilities and buildings. Contact Cotton and JOC’s for remediation.
- Public Information Officer establishes media communication networks, handles immediate media inquiries.
- IT Operation Section Chief establishes emergency telephone communications, assesses damage to telecommunications systems, initiates repair procedures, establishes emergency computing stations, assesses damage to computing services and initiates repair procedures.
- Incident Commander authorizes a call for any additional personnel as needed to resume University operations.

Remaining personnel wait to report to campus upon notification by immediate supervisor or through an announcement on the local media services, campus website or University Facebook page.

- Faculty and Staff to listen to local radio/TV stations for information.
  NOTE: Listen to radio/TV for announcements of when to return to campus. Monitor University website or contact the University via the Public Information Hotline 361-825-0000. NOAA Weather Radio (Corpus Christi 162.44 MHZ).

- For information about campus status during and following the storm, call the Faculty/Staff Information Hotline: 361-825-9999 or the Toll-Free Number 888-234-4005 or the University Police: 361-825-4444. Or visit university website at http://www.facebook.com/islanduniversity

- If you are not assigned to the Emergency Management Team, do not return to Campus until contacted by the Incident Commander or his/her designee or your supervisor.

- Department Heads, once notified to return, will go through normal administrative channels, initiate surveys of department status.
HURRICANE HAZARDS AND PREVENTIVE MEASURES

A. A wind blowing against a building produces a positive pressure on the windward side and negative pressure, or suction, on the opposite side of the building. A common occurrence in hurricanes is the breaking of windows or opening of doors on the windward side of a building. Through such openings, the wind enters the building and creates a positive pressure on the underside of the roof or on the inner side of the wall. This force in combination with external suction pressure often carries off roofs or forces out the sides of buildings. It is important, therefore, that all access areas be secured as strongly as possible.

B. Electrical hazards due to downed transmission wires are a major cause of hurricane deaths. Extreme care must be exercised to avoid fallen wires.

C. Flying debris from damaged buildings and loose objects picked up and carried by the wind are responsible for much of the storm damage. Personnel must remain under cover during winds of hurricane velocity. It is required that all loose lumber, sheet metal, drums, pallets, outside trash containers, etc., be secured. Roofs of buildings in particular shall be checked and drain heads cleared.

D. Damage caused by the entry of water into buildings through leaky doors, windows, and roofs, broken windows and backed up storm drains can be expected. Sandbags deployed at selected locations, lifting items from the floor, and covering equipment are common remedies.
HURRICANE WEBSITES

1. National Hurricane Center
   www.nhc.noaa.gov/

2. Federal Emergency Management
   www.fema.gov/

3. City of Corpus Christi Hurricane Preparedness
   https://www.cctexas.com/departments/fire-department/ready-corpus-christi

   www.nws.noaa.gov/

5. Storm Tracking by Year
   http://leonardo.met.tamu.edu/weather/

6. The Weather Channel
   www.weather.com/

7. Texas Department of Public Safety
   www.txdps.state.tx.us/

8. Conrad Blucher Institute for Surveying and Science
   www.cbi.tamucc.edu/

9. StormGeo (Impact Weather)
   http://www.StormGeo.com

10. City of Corpus Christi
    www.cctexas.com/?fuseaction=main.view&page=774

11. NOAA daily weather briefing
    www.weather.gov/briefing/

12. Spaghetti Model
    http://spaghettimodels.com

13. Skeetobite Weather
    http://skeetobiteweather.com

14. Hurricane Forecast/University of Wisconsin-Milwaukee
    http://derecho.math.uwm.edu/models/
EVACUATION ROUTES

The Texas Department of Public Safety has worked out a system to ease traffic flow problems when great numbers of people leave the city, as they did during Hurricane Allen. The following highways are recommended depending upon your destination:

- Houston – U.S. 77, 77A to U.S. 59
- San Antonio or Austin – Interstate 37 or U.S. 181
- West of Corpus Christi – FM 624 west from Corpus Christi and I-35 North from Cotulla.

NOTE: Texas Highway 35 along the coast is very often impassable due to high tides pushed in front of a hurricane. This route is not recommended. Consider a route which will take you directly away from the coast, not parallel to it.

For up to date information visit:

NATIONAL HURRICANE CENTER-GLOSSARY OF TERMS

Advisory:
Official information issued by tropical cyclone warning centers describing all tropical cyclone watches and warnings in effect along with details concerning tropical cyclone locations, intensity and movement, and precautions that should be taken. Advisories are also issued to describe: (a) tropical cyclones prior to issuance of watches and warnings and (b) subtropical cyclones.

Best Track:
A subjectively-smoothed representation of a tropical cyclone's location and intensity over its lifetime. The best track contains the cyclone's latitude, longitude, maximum sustained surface winds, and minimum sea-level pressure at 6-hourly intervals. Best track positions and intensities, which are based on a post-storm assessment of all available data, may differ from values contained in storm advisories. They also generally will not reflect the erratic motion implied by connecting individual center fix positions.

Center:
Generally speaking, the vertical axis of a tropical cyclone, usually defined by the location of minimum wind or minimum pressure. The cyclone center position can vary with altitude. In advisory products, refers to the center position at the surface.

Center / Vortex Fix:
The location of the center of a tropical or subtropical cyclone obtained by reconnaissance aircraft penetration, satellite, radar, or synoptic data.

Central North Pacific Basin:
The region north of the Equator between 140W and the International Dateline. The Central Pacific Hurricane Center (CPHC) in Honolulu, Hawaii is responsible for tracking tropical cyclones in this region.

Cyclone:
An atmospheric closed circulation rotating counterclockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere.

Direct Hit:
A close approach of a tropical cyclone to a particular location. For locations on the left-hand side of a tropical cyclone's track (looking in the direction of motion), a direct hit occurs when the cyclone passes to within a distance equal to the cyclone's radius of maximum wind. For locations on the right-hand side of the track, a direct hit occurs when the cyclone passes to within a distance equal to twice the radius of maximum wind. Compare indirect hit, strike.

Eastern North Pacific Basin:
The portion of the North Pacific Ocean east of 140W. The National Hurricane Center in Miami, Florida is responsible for tracking tropical cyclones in this region.

Eye:
The roughly circular area of comparatively light winds that encompasses the center of a severe tropical cyclone. The eye is either completely or partially surrounded by the eyewall cloud.

Eyewall / Wall Cloud:
An organized band or ring of cumulonimbus clouds that surround the eye, or light-wind center of a tropical cyclone. Eyewall and wall cloud are used synonymously.

Extratropical:
A term used in advisories and tropical summaries to indicate that a cyclone has lost its "tropical" characteristics. The term implies both poleward displacement of the cyclone and the conversion of the cyclone's primary energy source from the release of latent heat of condensation to baroclinic (the temperature contrast between warm and cold air
masses) processes. It is important to note that cyclones can become extratropical and still retain winds of hurricane or tropical storm force.

**Extratropical Cyclone:**
A cyclone of any intensity for which the primary energy source is baroclinic, that is, results from the temperature contrast between warm and cold air masses.

**Fujiwhara Effect:**
Is the tendency of two nearby tropical cyclones to rotate cyclonically about each other?

**Gale Warning:**
A warning of 1-minute sustained surface winds in the range 34 kt (39 mph or 63 km/hr) to 47 kt (54 mph or 87 km/hr) inclusive, either predicted or occurring and not directly associated with tropical cyclones.

**High Wind Warning:**
A high wind warning is defined as 1-minute average surface winds of 35 kt (40 mph or 64 km/hr) or greater lasting for 1 hour or longer, or winds gusting to 50 kt (58 mph or 93 km/hr) or greater regardless of duration that are either expected or observed over land.

**Hurricane / Typhoon:**
Is a tropical cyclone in which the maximum sustained surface wind (using the U.S. 1-minute average) is 64 kt (74 mph or 119 km/hr) or more. The term hurricane is used for Northern Hemisphere tropical cyclones east of the International Dateline to the Greenwich Meridian. The term typhoon is used for Pacific tropical cyclones north of the Equator west of the International Dateline.

**Hurricane Local Statement:**
A public release prepared by local National Weather Service offices in or near a threatened area giving specific details for its county/parish warning area on (1) weather conditions, (2) evacuation decisions made by local officials, and (3) other precautions necessary to protect life and property.

**Hurricane Risk Indicator (HRI):**
StormGeo’s Hurricane Risk Indicator (HRI) is a long-range tool that identifies a possible hurricane risk to your location over the next 5-7 days.

**Hurricane Severity Index (HSI):**
StormGeo’s Hurricane Severity Index (HSI) is an enhanced hurricane rating system which more accurately defines the strength and destructive capability of a given storm than other scales currently utilized. By incorporating not only the intensity of the winds but the size of the area the winds cover.

**Hurricane Season:**
The portion of the year having a relatively high incidence of hurricanes. The hurricane season in the Atlantic, Caribbean, and Gulf of Mexico runs from June 1 to November 30. The hurricane season in the Eastern Pacific basin runs from May 15 to November 30. The hurricane season in the Central Pacific basin runs from June 1 to November 30.

**Hurricane Warning:**
An announcement that hurricane conditions (sustained winds of 74 mph or higher) are expected somewhere within the specified area. Because hurricane preparedness activities become difficult once winds reach tropical storm force, the hurricane warning is issued 36 hours in advance of the anticipated onset of tropical-storm-force winds.

**Hurricane Watch:**
An announcement that hurricane conditions (sustained winds of 74 mph or higher) are possible within the specified area. Because hurricane preparedness activities become difficult once winds reach tropical storm force, the hurricane watch is issued 48 hours in advance of the anticipated onset of tropical-storm-force winds.
Indirect Hit:
Generally refers to locations that do not experience a direct hit from a tropical cyclone, but do experience hurricane force winds (either sustained or gusts) or tides of at least 4 feet above normal.

Invest:
A weather system for which a tropical cyclone forecast center (NHC, CPHC, or JTWC) is interested in collecting specialized data sets (e.g., microwave imagery) and/or running model guidance. Once a system has been designated as an invest, data collection and processing is initiated on a number of government and academic web sites, including the Naval Research Laboratory (NRL) and the University of Wisconsin Cooperative Institute for Meteorological Satellite Studies (UW-CIMSS). The designation of a system, as invest, does not correspond to any particular likelihood of development of the system into a tropical cyclone; operational products such as the Tropical Weather Outlook or the JTWC/TCFA should be consulted for this purpose.

Landfall:
The intersection of the surface center of a tropical cyclone with a coastline. Because the strongest winds in a tropical cyclone are not located precisely at the center, it is possible for a cyclone’s strongest winds to be experienced over land even if landfall does not occur. Similarly, it is possible for a tropical cyclone to make landfall and have its strongest winds remain over the water. Compare direct hit, indirect hit, and strike.

Major Hurricane:
A hurricane that is classified as Category 3 or higher.

National Geodetic Vertical Datum of 1929 [NGVD 1929]:
A fixed reference adopted as a standard geodetic datum for elevations determined by leveling. The datum was derived for surveys from a general adjustment of the first order leveling nets of both the United States and Canada. In the adjustment, mean sea level was held fixed as observed at 21 tide stations in the United States and 5 in Canada. The year indicates the time of the general adjustment. A synonym for Sea-level Datum of 1929. The geodetic datum is fixed and does not consider the changing stands of sea level. Because there are many variables affecting sea level, and because the geodetic datum represents a best fit over a broad area, the relationship between the geodetic datum and local mean sea level is not consistent from one location to another in either time or space. For this reason, the National Geodetic Vertical Datum should not be confused with mean sea level.

Post-storm Report:
A report issued by a local National Weather Service office summarizing the impact of a tropical cyclone on its forecast area. These reports include information on observed winds, pressures, storm surges, rainfall, tornadoes, damage, and casualties.

Post-tropical Cyclone:
A former tropical cyclone. This generic term describes a cyclone that no longer possesses sufficient tropical characteristics to be considered a tropical cyclone. Post-tropical cyclones can continue carrying heavy rains and high winds. Note that former tropical cyclones that have become fully extratropical...as well as remnant lows...are two classes of post-tropical cyclones.

Preliminary Report:
Now known as the “Tropical Cyclone Report”. A report summarizing the life history and effects of an Atlantic or eastern Pacific tropical cyclone. It contains a summary of the cyclone life cycle and pertinent meteorological data, including the post-analysis best track (six-hourly positions and intensities) and other meteorological statistics. It also contains a description of damage and casualties the system produced, as well as information on forecasts and warnings associated with the cyclone. NHC writes a report on every tropical cyclone in its area of responsibility.

Present Movement:
The best estimate of the movement of the center of a tropical cyclone at a given time and given position. This estimate does not reflect the short-period, small scale oscillations of the cyclone center.

Probability of Wind Impact (PWI):
The probability of wind impact by the wind field with a given percentage.

**Radius of Maximum Winds:**
The distance from the center of a tropical cyclone to the location of the cyclone’s maximum winds. In well-developed hurricanes, the radius of maximum winds is generally found at the inner edge of the eye wall.

**Rapid Deepening:**
An increase in the maximum sustained winds of a tropical cyclone of at least 30 kt in a 24-h period.

**Relocated:**
A term used in an advisory to indicate that a vector drawn from the preceding advisory position to the latest known position is not necessarily a reasonable representation of the cyclone’s movement.

**Remnant Low:**
A post-tropical cyclone that no longer possesses the convective organization required of a tropical cyclone...and has maximum sustained winds of less than 34 knots. The term is most commonly applied to the nearly deep-convection-free swirls of stratocumulus in the eastern North Pacific.

**Saffir-Simpson Hurricane Wind Scale:**
The Saffir-Simpson Hurricane Wind Scale is a 1 to 5 categorization based on the hurricane's intensity at the indicated time. The scale provides examples of the type of damage and impacts in the United States associated with winds of the indicated intensity. The following table shows the scale broken down by winds. Visit [http://www.nhc.noaa.gov/sshws.html](http://www.nhc.noaa.gov/sshws.html) for detailed description.

<table>
<thead>
<tr>
<th>Category</th>
<th>Wind Speed (mph)</th>
<th>Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>74 - 95</td>
<td>Very dangerous winds will produce some damage</td>
</tr>
<tr>
<td>2</td>
<td>96 - 110</td>
<td>Extremely dangerous winds will cause extensive damage</td>
</tr>
<tr>
<td>3</td>
<td>111 - 130</td>
<td>Devastating damage will occur</td>
</tr>
<tr>
<td>4</td>
<td>131 - 155</td>
<td>Catastrophic damage will occur</td>
</tr>
<tr>
<td>5</td>
<td>&gt; 155</td>
<td>Catastrophic damage will occur</td>
</tr>
</tbody>
</table>

**Storm Surge:**
An abnormal rise in sea level accompanying a hurricane or other intense storm, and whose height is the difference between the observed level of the sea surface and the level that would have occurred in the absence of the cyclone. Storm surge is usually estimated by subtracting the normal or astronomic high tide from the observed storm tide.

**Storm Tide:**
The actual level of sea water resulting from the astronomic tide combined with the storm surge.

**Storm Warning:**
A warning of 1-minute sustained surface winds of 48 kt (55 mph or 88 km/hr) or greater, predicted or occurring, not directly associated with tropical cyclones.

**Strike:**
For any particular location, a hurricane strike occurs if that location passes within the hurricane's strike circle, a circle of 125 n mi diameter, centered 12.5 n mi to the right of the hurricane center (looking in the direction of motion). This circle is meant to depict the typical extent of hurricane force winds, which are approximately 75 n mi to the right of the center and 50 n mi to the left.
Subtropical Cyclone:
A non-frontal low-pressure system that has characteristics of both tropical and extratropical cyclones. This system is typically an upper-level cold low with circulation extending to the surface layer and maximum sustained winds generally occurring at a radius of about 100 miles or more from the center. In comparison to tropical cyclones, such systems have a relatively broad zone of maximum winds that is located farther from the center, and typically have a less symmetric wind field and distribution of convection.

Subtropical Depression:
A subtropical cyclone in which the maximum sustained surface wind speed (using the U.S. 1-minute average) is 33 kt (38 mph or 62 km/hr) or less.

Subtropical Storm:
A subtropical cyclone in which the maximum sustained surface wind speed (using the U.S. 1-minute average) is 34 kt (39 mph or 63 km/hr) or more.

Synoptic Track:
Weather reconnaissance mission flown to provide vital meteorological information in data sparse ocean areas as a supplement to existing surface, radar, and satellite data. Synoptic flights better define the upper atmosphere and aid in the prediction of tropical cyclone development and movement.

Tropical Cyclone:
A warm-core non-frontal synoptic-scale cyclone, originating over tropical or subtropical waters, with organized deep convection and a closed surface wind circulation about a well-defined center. Once formed, a tropical cyclone is maintained by the extraction of heat energy from the ocean at high temperature and heat export at the low temperatures of the upper troposphere. In this they differ from extratropical cyclones, which derive their energy from horizontal temperature contrasts in the atmosphere (baroclinic effects).

Tropical Cyclone Plan of the Day:
A coordinated mission plan that tasks operational weather reconnaissance requirements during the next 1100 to 1100 UTC days or as required, describes reconnaissance flights committed to satisfy both operational and research requirements, and identifies possible reconnaissance requirements for the succeeding 24-hour period.

Tropical Depression:
A tropical cyclone in which the maximum sustained surface wind speed (using the U.S. 1-minute average) is 33 kt (38 mph or 62 km/hr) or less.

Tropical Disturbance:
A discrete tropical weather system of apparently organized convection -- generally 100 to 300 NMI in diameter -- originating in the tropics or subtropics, having a nonfrontal migratory character, and maintaining its identity for 24 hours or more. It may or may not be associated with a detectable perturbation of the wind field.

Tropical Storm:
A tropical cyclone in which the maximum sustained surface wind speed (using the U.S. 1-minute average) ranges from 34 kt (39 mph or 63 km/hr) to 63 kt (73 mph or 118 km/hr).

Tropical Storm Warning:
An announcement that tropical storm conditions (sustained winds of 39 to 73 mph) are expected somewhere within the specified area within 36 hours.

Tropical Storm Watch:
An announcement that tropical storm conditions (sustained winds of 39 to 73 mph) is possible within the specified area within 48 hours.
**Tropical Wave:**
A trough or cyclonic curvature maximum in the trade-wind easterlies. The wave may reach maximum amplitude in the lower middle troposphere.

**Worst Case Scenario (WCS):**
The earliest arrival of sustained winds greater than 39 mph and greater than 58 mph.
## APPENDIX 7
### ACTIVE EMERGENCY SERVICE AGREEMENTS

<table>
<thead>
<tr>
<th>Contract Name</th>
<th>Status</th>
<th>Key Element</th>
<th>Date</th>
<th>Alarm</th>
<th>Lead</th>
<th>Short Task</th>
<th>Monetary Value</th>
<th>Key Element Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alamo Community College District on behalf of Palo Alto College (2016-2021)</td>
<td>Active Non PO Contracts</td>
<td>$ Estimated Contract Value</td>
<td>Off</td>
<td>0</td>
<td>No $ paid unless in emergency</td>
<td>$0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cottin Commercial USA, Inc. (2017-2022) (emergency services)</td>
<td>Active Non PO Contracts</td>
<td>$ Estimated Contract Value</td>
<td>Off</td>
<td>0</td>
<td>$0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
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