

= Tropical cyclone basins =

Traditionally , areas of tropical cyclone formation are divided into seven basins . These include the north Atlantic Ocean , the eastern and western parts of the northern Pacific Ocean , the southwestern Pacific , the southwestern and southeastern Indian Oceans , and the northern Indian Ocean ( Arabian Sea and Bay of Bengal ) . The western Pacific is the most active and the north Indian the least active . An average of 86 tropical cyclones of tropical storm intensity form annually worldwide , with 47 reaching hurricane / typhoon strength , and 20 becoming intense tropical cyclones ( at least of Category 3 intensity ) .

= = Overview = =

= = Northern Hemisphere = =

= = = North Atlantic Ocean = = =

This region includes the North Atlantic Ocean , the Caribbean Sea , and the Gulf of Mexico . Tropical cyclone formation here varies widely from year to year , ranging from one to over twenty @-@ five per year . Most Atlantic tropical storms and hurricanes form between June 1 and November 30 . The United States National Hurricane Center monitors the basin and issues reports , watches and warnings about tropical weather systems for the Atlantic Basin as one of the Regional Specialized Meteorological Centres for tropical cyclones as defined by the World Meteorological Organization . On average , 11 named storms ( of tropical storm or higher strength ) occur each season , with an average of 6 becoming hurricanes and 2 becoming major hurricanes . The climatological peak of activity is around September 10 each season .

The United States Atlantic coast and Gulf Coast , Mexico , Central America , the Caribbean Islands , and Bermuda are frequently affected by storms in this basin . Venezuela , the 4 provinces of Atlantic Canada , and Atlantic Macaronesian islands also are occasionally affected . Many of the more intense Atlantic storms are Cape Verde @-@ type hurricanes , which form off the west coast of Africa near the Cape Verde islands . Occasionally , a hurricane that evolves into an extratropical cyclone can reach western Europe , including Hurricane Gordon , which spread high winds across Spain and the British Isles in September 2006 . Hurricane Vince , which made landfall on the southwestern coast of Spain as a tropical depression in October 2005 , is the only known system to impact mainland Europe as a tropical cyclone ( correction / citation needed here to mention 1842 Spain hurricane ) .

= = = Eastern Pacific = = =

The Northeastern Pacific is the second most active basin and has the highest number of storms per unit area . The hurricane season runs between May 15 and November 30 each year , and encompasses the vast majority of tropical cyclone activity in the region . In the 1971 ? 2005 period , there were an average of 15 ? 16 tropical storms , 9 hurricanes , and 4 ? 5 major hurricanes ( storms of Category 3 intensity or greater ) annually in the basin .

Storms that form here often affect western Mexico , and less commonly the Continental United States ( in particular California ) , or northern Central America . No hurricane included in the modern database has made landfall in California ; however , historical records from 1858 speak of a storm that brought San Diego winds over 75 mph ( 65 kn ; 121 km / h ) ( marginal hurricane force ) , though it is not known if the storm actually made landfall . Tropical storms in 1939 , 1976 and 1997 brought gale @-@ force winds to California .

The Central Pacific Hurricane Center 's area of responsibility ( AOR ) begins at the boundary with the National Hurricane Center ' AOR ( at 140 ° W ) , and ends at the International Date Line , where

the Northwestern Pacific begins . The hurricane season in the North Central Pacific runs annually from June 1 to November 30 ; The Central Pacific Hurricane Center monitors the storms that develop or move into the defined area of responsibility . The CPHC previously tasked with monitoring tropical activity in the basin was originally known as the Joint Hurricane Warning Center ; today it is called the Joint Typhoon Warning Center .

Central Pacific hurricanes are rare and on average 4 to 5 storms form or move in this area annually . As there are no large contiguous landmasses in the basin , direct hits and landfalls are rare ; however , they occur occasionally , as with Hurricane Iniki in 1992 , which made landfall on Hawaii , and Hurricane Ioke in 2006 , which made a direct hit on Johnston Atoll .

= = = Northwestern Pacific Ocean = = =

The Northwest Pacific Ocean is the most active basin on the planet . Annually , an average of 25 @. @ 7 tropical cyclones in the basin acquire tropical storm strength or greater ; also , an average of 16 typhoons occurred each year during the 1968 ? 1989 period . The basin occupies all the territory north of the equator and west of the International Date Line , including the South China Sea . The basin sees activity year @-@ round ; however , tropical activity is at its minimum in February and March .

Tropical storms in this region often affect China , Hong Kong , Japan , North Korea , South Korea , the Philippines , Taiwan and Vietnam , plus numerous Oceanian islands such as Guam , the Northern Marianas and Palau . Sometimes , tropical storms in this region affect Cambodia , Laos , Malaysia , Thailand and even Singapore . This is by far the most active basin , accounting for one @-@ third of all tropical cyclone activity . The coast of China sees the most landfalling tropical cyclones worldwide . The Philippines archipelago receives an average of 6 ? 7 tropical cyclone landfalls per year .

= = = North Indian Ocean = = =

This basin is divided into two areas : the Bay of Bengal and the Arabian Sea , with the Bay of Bengal dominating ( 5 to 6 times more activity ) . Still , this basin is the most inactive worldwide , with only 4 to 6 storms per year . This basin 's season has a double peak : one in April and May , before the onset of the monsoon , and another in October and November , just after . Although it is an inactive basin , the deadliest tropical cyclones in the world have formed here , including the 1970 Bhola cyclone , which killed 500 @, @ 000 people . Nations affected include India , Bangladesh , Sri Lanka , Thailand , Myanmar , and Pakistan . Rarely do tropical cyclones that form in this basin affect the Arabian Peninsula or Somalia ; however , Cyclone Gonu caused heavy damage in Oman on the peninsula in 2007 .

= = = Mediterranean Sea = = =

On rare occasions , tropical @-@ like systems , that can reach the intensity of hurricanes , occur over the Mediterranean Sea . Such a phenomenon is called a Medicanne ( mediterranean @-@ hurricane ) . Although the geographical dimensions of tropical oceans and the Mediterranean Sea are clearly different , the precursor mechanisms of these perturbations , based on the air @-@ sea thermodynamic imbalance , are similar . Their origins are typically non @-@ tropical , and develop over open waters under strong , initially cold @-@ core cyclones , similar to subtropical cyclones or anomalous tropical cyclones in the Atlantic Basin , like Karl ( 1980 ) , Vince ( 2005 ) , Grace ( 2009 ) or Chris ( 2012 ) . Sea surface temperatures in late @-@ August and early @-@ September are quite high over the basin ( 24 / 28 ° C or 75 / 82 ° F ) , though research indicates water temperatures of 20 ° C ( 68 ° F ) are normally required for development .

Meteorological literature document that such systems occurred in September 1947 , September 1969 , January 1982 , September 1983 , January 1995 , October 1996 , September 2006 , November 2011 and November 2014 . The 1995 system developed a well @-@ defined eye , and a

ship recorded 85 mph ( 140 km / h ) winds , along with an atmospheric pressure of 975 mbar . Although it had the structure of a tropical cyclone , it occurred over 61 ° F ( 16 ° C ) water temperatures , suggesting it could have been a polar low .

= = Southern Hemisphere = =

Within the Southern Hemisphere tropical cyclones generally form on a regular basis between the African coast and the middle of the South Pacific . Tropical and Subtropical Cyclones have also been noted occurring in the Southern Atlantic Ocean at times . For various reasons including where tropical cyclones form , there are several different ways to split the area between the American and African coasts . For instance the World Meteorological Organization define three different basins for the tracking and warning of tropical cyclones . These are the South @-@ West Indian Ocean between the African Coast and 90 ° E , the Australian region between 90 ° E and 160 ° E and the South Pacific between 160 ° E and 120 ° W. The United States Joint Typhoon Warning Center also monitors the whole region , but splits it at 135 ° E into the South Pacific and the Southern Indian Ocean .

= = = South @-@ West Indian Ocean = = =

The South @-@ West Indian Ocean is located within the Southern Hemisphere between the Africa 's east coast and 90 ° E and is primarily monitored by the Meteo France 's La Reunion RSMC , while the Mauritian , Australian Indonesian , and Madagascan weather services also monitor parts of it . Until the start of the 1985 ? 86 tropical cyclone season the basin only extended to 80 ° E , with the 10 degrees between 80 and 90E considered to be a part of the Australian region . On average about 9 cyclones per develop into tropical storms , while 5 of those go on to become tropical cyclones that are equivalent to a hurricane or a typhoon . The tropical cyclones that form in this area can affect some of the various Indian Ocean island nations and or various countries along Africa 's east coast .

= = = Australian region = = =

Through the middle of 1985 , this basin extended westward to 80E . Since then , its western boundary has been 90E . Tropical activity in this region affects Australia and Indonesia . According to the Australian Bureau of Meteorology , the most frequently hit portion of Australia is between Exmouth and Broome in Western Australia . The basin sees an average of about seven cyclones each year , although more can form or come in from other basins , such as the South Pacific . The tropical cyclone Cyclone Vance in 1999 produced the highest recorded speed winds in an Australian town or city at around 267 km / h ( 166 mph ) .

= = = South Pacific Ocean = = =

The South Pacific Ocean basin starts at 160 ° E and extends to 120 ° W with cyclones developing in it officially monitored by Fiji and New Zealand 's Meteorological Services . Tropical Cyclones that develop within this basin generally affect countries to the west of the dateline , though during El Nino 's cyclones have been known to develop to the east of the dateline near French Polynesia . On average the basin sees nine tropical cyclones annually with about half of them becoming severe tropical cyclones .

= = = South Atlantic Ocean = = =

Cyclones rarely form in other tropical ocean areas , which are not formally considered tropical cyclone basins . Tropical depressions and tropical storms occur occasionally in the South Atlantic , and the only full @-@ blown tropical cyclones on record were 2004 's Hurricane Catarina , which

made landfall in Brazil and 2010 's Tropical Storm Anita , which formed off the coast of Rio Grande do Sul . South Atlantic ocean is not officially classified as a tropical cyclone basin by the World Meteorological Organization and do not have a designated regional specialized meteorological center ( RSMC ) . However , the Brazilian Navy Hydrographic Center has started in 2011 to assign names to tropical and subtropical systems in this basin , when they have sustained wind speeds of at least 65 km / h ( 40 mph ) .