

School Safety Initiative

CYCLONE

A cyclone is a storm that occurs due to a difference in temperature and pressure of air, over the warm waters of the ocean. The warm air in the centre rises and the cold air rushes in from all sides to centre to keep moving onwards at a velocity of about 50kms per hour. It is accompanied by strong gales and lashing rain, and tidal waves that cause floods in costal areas. A cyclone can carry the power to destroy concrete buildings, blow away a cement roof, uproot trees, and wash away homes and villages.



School Safety Initiative

Stages of Cyclone Cycle

- **The Alert stage:** This warning is given 48 hours prior to the time when a Cyclone is expected to hit the land.
- **The Warning stage:** This is the stage when a cyclone gets formed. The Warning is given 24 hours before the anticipated time of arrival of a cyclone.
- Experience of warning message communication
- **Cyclone arrival:** This warning is issued 12 hours before a cyclone is due to hit the land. Warnings on storms, their intensity and the likely path they may take are regularly broadcasted by radio and television network continuously until the storm passes over

A cyclone causes heavy floods. One such cyclone was the Super Cyclone in Orissa on 29 October 1999 with torrential rain ranging from 400mm-867 mm continuously for three days and turbulent sea surged up to 7m high, with waves that rushed in and traveled up to 15-20 Kms inland. It uprooted electricity supply and telecommunication lines. Power supply was shuts down and telephones stopped functioning. The high speed winds bent and plucked out trees and plants.

Early Warning

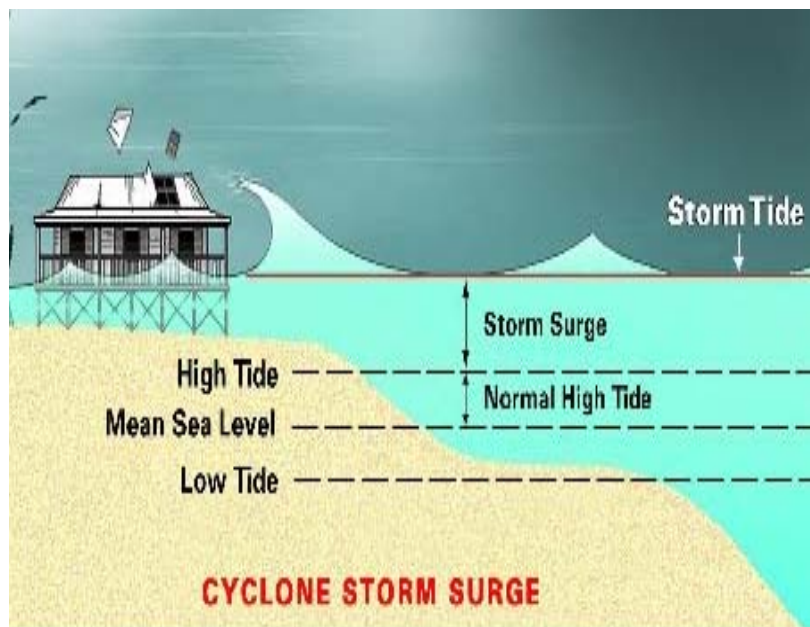
Radars and satellites can detect a Cyclone before it is expected to hit land. The meteorological Department issues warnings before 72 hours, 48 hours, and 24 hours containing information on speed and direction of wind, areas likely to be affected and path. Cyclones are unpredictable as they change their path suddenly or fade away. Hence the warning and the revised new bulletins need to be monitored closely to minimize the loss of life and property.

School Safety Initiative

Cyclone Severity Categories

A cyclone may have various degrees of wind speeds, clouds and storm surges accompanying it. Cyclones have been classified in India into the following categories based on their wind speed

1. Depression: 32- 50 Km/h
2. Deep Depression: 51-61 Km/h
3. Cyclonic Storm: 62-68Km/h
4. Severe Cyclonic Storm: 89- 117 Km/h



How does a cyclone affect us? <http://www.gsdma.org/cycpre.htm>

- A cyclone causes heavy floods.
- It uproots electricity supply and telecommunication lines. Power supply shuts down and telephones stop functioning.
- Road and rail movements come to halt because floods damage rail tracks and breach roads. Rail movements are also disrupted because of communication failure.
- The inclement weather conditions also disrupt Air services. Sea ports stop work due to high winds, heavy rains and poor visibility. Sometimes ships overturn or are washed ashore. The high speed winds bends and plucks out trees and plants.

School Safety Initiative

- A cyclone tears away wall sidings and blows off roofs of houses.
- Houses collapse and people are rendered homeless. In villages kachha houses get blown away. The speeding winds cause loose metal and wooden sheets to fly turning them to potential killers. Broken glass pieces can cause serious injuries.
- The flood waters can take time to recede.
- The flood waters can turn the fields salty.
- Bridges, dams and embankments suffer serious damages.
- Floods wash away human beings and animals and make water unfit for drinking. There can be outbreak of diseases like Cholera, Jaundice or Viral fever due to intake of impure water. Water gets contaminated because of floating corpses of animals and human beings and mixing of sewage stored food supplies, get damaged.

A cyclone tears away wall sidings and blows off roofs of houses. Houses collapse and people are rendered homeless. In villages, kachha houses get blown away. The speeding winds turn loose metal/material in to flying object posing to be potential killers. Broken glass pieces can cause serious injuries. The floodwaters can turn the fields salty. Bridges, dams and embankment suffer serious damages. Floods wash away human beings and animals and make water unfit for drinking. There can be outbreak of diseases like Cholera, Jaundice or Viral fever due to intake of impure water. Water gets contaminated because of floating corpses of animals and human beings and mixing of sewage, stored food supplies gets damaged.

School Safety Initiative

Do's and Don'ts

Before a Cyclone

- Listen to radio or TV weather reports and in case of a cyclone warning ensure that everybody is alerted. This is usually done through a loud speaker or by going home to home
- Identify safe shelters in your area. These should be cyclone resistant Pukka houses. Also find the closest route to reach hem
- Keep your emergency kit ready
- Check you house and surrounding areas to see if it is safe. Doors, windows, the roof and walls should be strengthened before the cyclone season through retrofitting and repairing.
- Store adequate food grains and water in safe places.
- Conduct Mock Drills for yourself and the community that a warning has been given

Upon a cyclone Warning

- Listen to your local radio, TV or community warning system for further information
- Close all widows and doors of the home
- Stay indoors
- Get the emergency kit ready and incase of warning of a severe cyclone, move with your family to a strong pukka house.
- Do not venture into the sea.

When a Cyclone strikes

- Stay Indoors. Stand below the most strongest part of the hose if you have not moved to the cyclone shelter
- Protect yourself with blankets ,and anchor yourself to a strong fixture or get under a strong table
- Remain indoors until advised that the cyclone has passed away

After the Cyclone

- Do not go out till officially advised that it is safe. If evacuated, wait till advised to go back. Use the recommended route to return to your home. Do not rush.
- Check for gas leaks before using the stove
- Dry electrical appliances before use
- Be careful of fallen power lines, damaged roads and houses, fallen trees
- Rescue the victims and help in the relief work

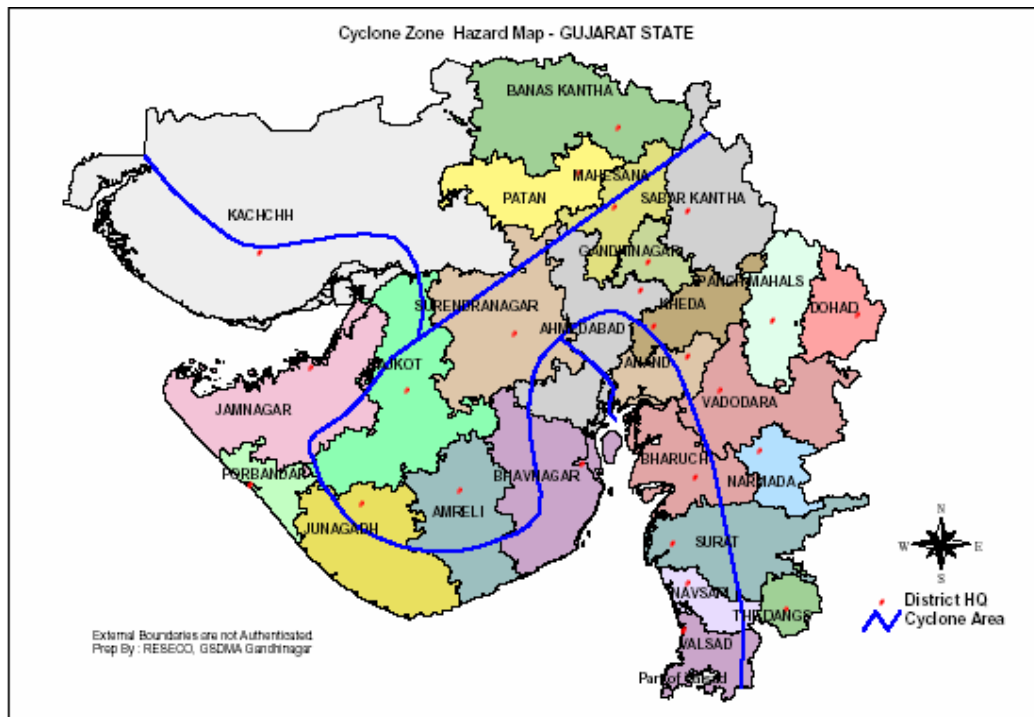
School Safety Initiative

Cyclone Vulnerability of Gujarat

Gujarat comes in the region of tropical cyclone. Most of the cyclones that have affected the state are generated in the Arabian Sea. They travel towards northeast direction and hit the coast particularly the southern region of Kutch, western and southern parts of Saurashtra and the western part of south Gujarat.

Ten districts of the Gujarat are prone to cyclone: Kutch, Rajkot, Jamnagar, Porbandar, Junagadh, Amreli, Bhavnagar, Kheda, Surat and Bharuch. The 1600 Kms long coastline of Gujarat has witnessed a number of cyclones in the last two decades.

The 1998 cyclone was one very severest cyclones affecting Gujarat, which hit Saurashtra coast. The death toll was over 3,000 and around 46 lakh people in 33 talukas in the Gujarat State were affected. The worst hit district was Kutch followed by Jamnagar, Rajkot, Porbandar, Valsad and Junagarh.



School Safety Initiative

Cyclone History of Gujarat (1970-1999)

Sr. No.	Date	Landfall/Devastation
1.	October 19-24, 1975	Crossed Saurashtra coast about 15 km to the northwest of Porbandar at 0930 UTC of October 22. The storm maintained its severe intensity inland up to Jamnagar Rajkot area. Maximum wind speeds were 160-180 (86-97 Kms) 85 people died. Thaw cyclone caused considerable damage to property (estimated to be about Rs. 75 crores.)
2.	May 31-June 5, 1976	The storm crossed Saurashtra coast on the morning of June 3. Maximum wind speed of 167 KMPH (90 kt) was reported by the Ship HAAKON MAGNUS. People killed 70; 51 villages were affected badly; 25,000 Houses were damaged; 4500 Cattle heads perished. The total damaged was estimated to be Rs. 3 crores.
3.	October 28 to November 2, 1981	Crossed Saurashtra coast close to and west of Mangrol shortly after mid-night of November 1 and moved close to Porbandar in the early morning of November 2nd. Then moving northeastwards as a severe cyclone up to Jamnagar, it weakened into a depression and lay near Radhanpur at 1200 UTC. About 5700 houses and about an equal number of huts were partially or fully damaged in Junagarh, Jamnagar districts.
4.	November 4 to 9, 1982	Crossed south Gujarat coasts 5 km west of Kodinagar (Veraval) 511 persons lost their lives. 12624 Pucca and 54549 Kutchha houses completely destroyed. Damage to crop to the tune of Rs. 127.23 crores.
5.	November 12 -15, 1993	Dissipated off Gujarat -Sind coast on 16th early morning. No loss of life or damage to property on the Indian territory as the system weakened over the sea itself.
6.	June 5-9 1998	The cyclone crossed Gujarat coast north of Porbandar at 0200 UTC of June 9. The system maintained its intensity till noon when it lay over Gulf of Kutch port. Thence onwards it moved north-eastwards and weakened gradually. Total lives lost 1173 and 1774 persons were missing. Losses incurred due to storm were of the tune of Rs. 1865 crores.
7.	May 16-22, 1999	Crossed Pakistan coast to International Border in the afternoon of May 20. The system caused severe damage in Kutch and Jamnagar districts. Loss of life: 453; Loss of property: Rs. 80 crores. Partial damage: 5153.

School Safety Initiative

N.B= only severe cyclonic storms and above its intensity have been taken into account. No severe cyclonic storms were reported in the Arabian Sea during the period 1970 to 1999

It is observed from the table that May, June, October and November are the months when cyclones form in Arabian Sea. There are two clear zones for formulation of storm via region 60-70 degree east and 15-25 degree north. Area Near Veraval in Junagarh district is most vulnerable to cyclone landfall. Out of 17 severe storms crossing coastal districts of Gujarat eleven cyclones crossed Junagarh districts.
