

Mandapam And Its Environs

SOUVENIR

Edited

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Tropical Cyclones

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INTRODUCTION

The term 'Cyclone' derived from a Greek word meaning the coil of a snake, is used for tropical revolving storms occurring in the Bay of Bengal and the Arabian Sea. These storms are confined to definite regions of the earth and occur, for the most part, in the tropical portions of the western sides of the great oceans. The term cyclone is applied to all tropical storms although they are known as 'hurricanes' in the Atlantic and Eastern Pacific, as 'typhoons' in the Western Pacific, as 'willy willies' in the Australian Seas and as 'Baguios' in the Philippines.

MAIN FEATURES OF CYCLONE

A tropical cyclone, is a vast violent whirl 150 to 800 km across, 6 to 10 km high, spiralling around a Centre and progressing along the surface of the sea at a rate of 300 to 500 km a day. The speed of a storm can be occasionally 160 km an hour or even more, although in the storms of the Indian seas the winds are generally less. Heavy rainfall, very heavy sea and swell are experienced, in association with storms.

The average life span of tropical cyclones in the Indian sea is about 6 days, from the time they form until they dissipate. Some storms last only a few hours, while others may last as long as two weeks. The evolution of the cyclone can be broadly divided into four phases, the formative phase, the developing phase, the mature phase and the dissipating phase.

In the formative phase, the atmospheric pressure falls gradually, the wind freshens and eventually takes on a cyclonic circulation. In the developing phase the pressure fall continues, the wind speed increases, taking up a definite anti-clockwise direction of motion around a central region, the squalls increase, skies over extensive areas become heavily overcast and rainfall becomes heavier. In the mature phase a tropical cyclone is said to be 'severe' with a calm central area of 10-30 km in diameter, an inner ring of hurricane winds (90 km per hour or more) 50 to 150 km in width, an outer storm area and the outermost area of weak cyclonic circulation. Soon after the ring of hurricane winds enters a land area, the dissipating phase sets in. The increased frictional effects of the land and the lack of moisture supply from a warm oceanic surface rapidly decrease the energy supply, the winds weaken and the atmospheric pressure at the centre registers a rapid rise, although the rainfall continues to be heavy for another day or two.

AREAS OF FORMATION

Tropical cyclones originate over comparatively warm oceanic surface as feeble anti-clockwise circulations fairly close to the doldrums. In the tropics the prevailing winds to the north of the equator blow from the north-east, to the south of the equator they blow from the southeast. Between these two lies the belt of calm, so-called 'doldrums'. This belt of calm swings northward and southward with the advance and retreat of the northern summer and is more or less located over the thermal equator, the area of maximum sea surface temperatures. This thermal equator lies well in the northern hemisphere during the northern summer.

DYNAMICS OF A CYCLONE

According to the current concepts, a large mass of warm moist stagnant air becomes yet warmer and more moist and begins to rise. This rising air is replaced by air flowing in from all sides out because of the rotation of the earth, the inflowing air is deflected, and a whirling system, in which the air ascends spirally, is formed. The earth's rotation and the centrifugal force developed by the air motion along a curved path augment the process until a vigorous wind system is developed.

ENERGY SOURCE

To maintain a cyclonic circulation for a substantially long time the emerging Cyclone should be supplied with energy. The cyclone picks up this energy from the oceanic surface. The energy is released when water vapour picked up from the warm oceanic surface is condensed into rain in the storm. The heat released warms the air around it, the warmed air rises and winds rush in from all sides towards the centre.

CYCLONES IN THE INDIAN SEAS

Over Bay of Bengal and Arabian sea only 2 or 3 cyclones a year are observed. The seasonal frequency curve shows two maxima, one in May and the second in November. The cyclonic storms which form during the premonsoon and post-monsoon months, April-May and October- November are generally of great intensity and usually accompanied by very dangerous and rapid shifts of winds, torrential rains and terrific squalls. One of the destructive features of the storms in Bay of Bengal is the "storm tide" which occurs when they strike the coast. The cyclonic disturbances during the monsoon period, June to September, are usually of small intensity. The damage that these cause is mainly due to heavy rain, rather than to strong winds.

CYCLONES OF MANDAPAM AREA

Mandapam area is very often affected by storms. In the recent past, the havoc caused by the cyclones of 1964 and 1978, was very severe. During 1964 cyclone, the Pamban bridge was damaged and rail traffic to Rameswaram Island was discontinued for 64 days. One train along with passengers was washed off near Dhanushkodi. Rail traffic between Pamban and Dhanushkodi was cut off after this cyclone. The loss of property was enormous due to these two cyclones.

WARNING TO THE PUBLIC

Occurrence of cyclones cannot be prevented but precautionary measures taken in time can eliminate practically all loss of life and significantly reduce damage to property. With the growth of meteorology, the process of detection of cyclones and forecasting their intensity and movement has steadily developed on scientific lines. Ports, Railways, Posts, Telecommunication, Irrigation, Public Works Departments are warned by high priority telegrams. Ships at sea are informed by broadcasts from coastal radio stations. The public in general are warned through All India Radio, Doordharshan and newspapers. These messages are disseminated through police wireless network also. When the storm strikes the coast, the coastal districts feel the full fury of the associated gales and heavy rain and unless proper precautions are taken in time, heavy loss of life and property is unavoidable.

ROLES OF PORTS AND METEOROLOGICAL OBSERVATORY

Port Office and Meteorological observatory are situated at Pamban. On receipt of information about cyclone, the port office hoist appropriate visual signals prominently, both by day and night. Mariners and fishermen are generally aware of the meaning of these signals. Signals I to IV are for

Cautionary warning, Signals V to VII are for indicating awaiting danger by cyclone, Signals VIII TO X indicate great danger to that port area by cyclone and signal XI indicates that the communication with the meteorological centre has broken down and the local officer considers that there is danger of bad weather. The meteorological observatory collects information every 3 hours regarding wind velocity, wind direction, atmospheric pressure, maximum and minimum temperature rainfall, humidity and type of clouds. These data are sent to the Regional Director, Regional Meteorological Centre, Nungambakkam, Madras-6.

PRECAUTIONARY MEASURES

Some of the important precautions that can be observed by individuals as soon as official information regarding impending cyclones are given below.

1. Evacuate people, cattle and other live stock from low-lying areas.
2. Tie up boats and other crafts safely in sheltered places.
3. If the house is not safe against high winds and is situated in lowlying area, it is better to move to a safer area.
4. Protect doors, windows and fastening them securely.
5. Objects lying in the open and loose objects on the roof are dangerous missiles in a high wind. Take them inside the house and fasten them well to strong supports.
6. Store drinking water and food which requires little preparation or cooking and which can be preserved.
7. Do not go out in the storm. When the lull occurs and in case of emergency to go out, stay near shelter; the wind may begin again from the opposite direction all of a sudden.
8. Heed official warnings and do not believe rumours.

RELIEF MEASURES

The Government of Tamilnadu has built cyclone shelters along the coastline for providing shelter to the fishermen during cyclones. After the cyclones, Government makes all arrangements to feed the stranded people until they are resettled. The roads, power supply lines, telegraphic lines and railway lines are repaired immediately on war footing to bring the life to normal. Grants and loans are provided to those who have lost the house and other properties. Fishermen are supplied with free fishing equipments and nets. The Government employees serving in the affected area are granted interest free advance amount as a relief measure. Inspite of the Governments efforts in taking precautions and remedies, the public have their own responsibilities for taking precautions to safeguard their own properties from destruction.