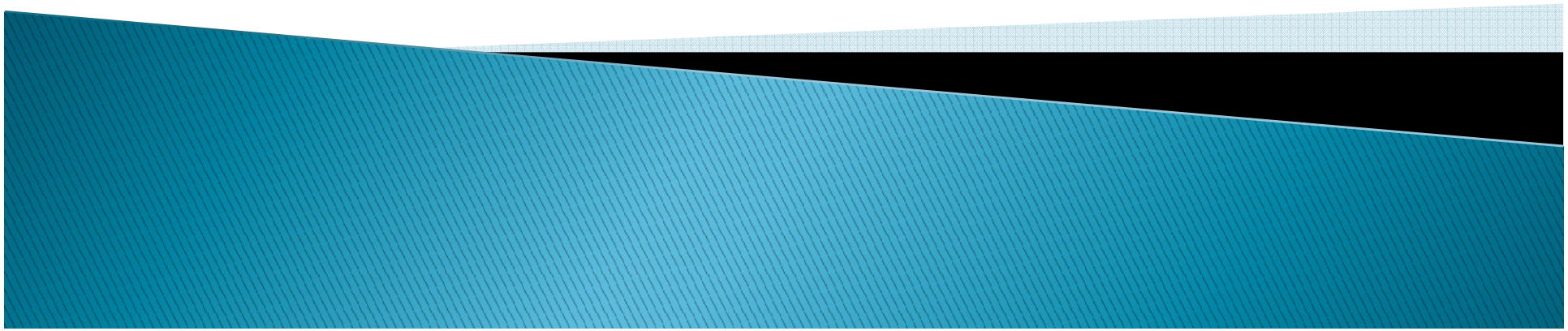
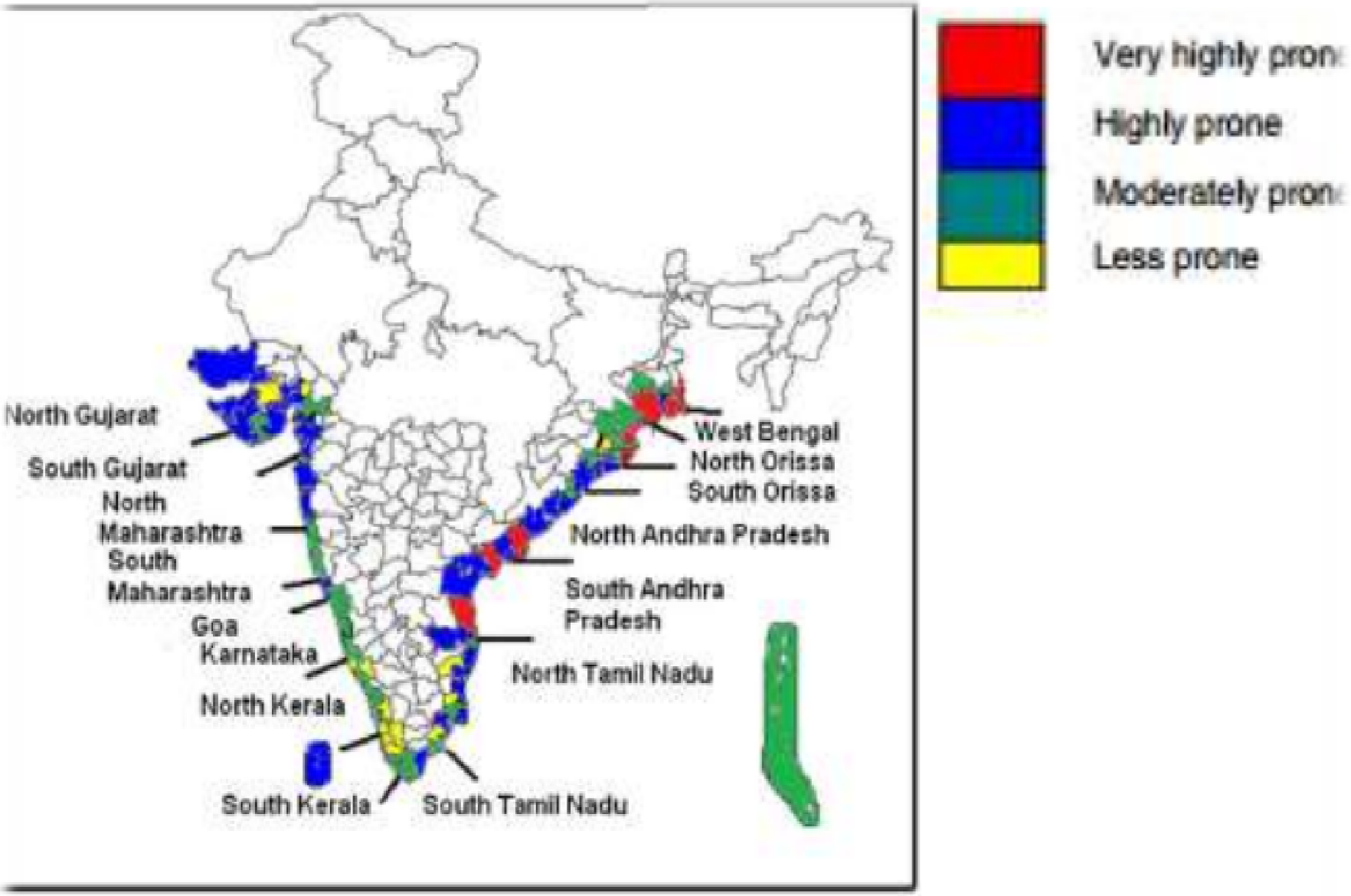
CYCLONE



CYCLONE

- A "Cyclonic Storm' or a "Cyclone" is an intense vortex or a whirl in the atmosphere with very strong winds circulating around it in anti-clockwise direction in the Northern Hemisphere and in clockwise direction in the Southern Hemisphere.
- The word "Cyclone" is derived from the Greek word 'Cyclos" meaning the coil of a snake. To Henri Piddington, the tropical storms in the Bay of Bengal and in the Arabian Sea appeared like the coiled serpents of the Sea and he named these storms as "Cyclones".
- Tropical cyclones are also referred to as 'Hurricanes' over Atlantic Ocean, 'Typhoons' over Pacific Ocean, 'Willy-Willies' over Australian Seas and simply as 'Cyclones' over north Indian Ocean (NIO).



: Cyclone hazard prone districts of India based on frequency

CLASSIFICATION OF CYCLONIC DISTURBANCES

•Cyclones are intense low pressure areas – from the center of which pressure increases outwards.

• The amount of the pressure drop in the center and the rate at which it increases outwards gives the intensity of the cyclones and the strength of winds.

• The criteria followed by the India Meteorological Department (IMD) to classify the low pressure systems in the Bay of Bengal and in the Arabian Sea as adopted by the World Meteorological Organisation

Criteria for classification of cyclonic disturbances over the North Indian Ocean

	Type of disturbance	Associated maximum sustained wind
1.	Low Pressure Area	Not exceeding 17 knots (<31 kmph)
2.	Depression	17 to 27 knots (31-49 kmph)
3.	Deep Depression	28 to 33 Knots (50-61 kmph)
4.	Cyclonic Storm	34 to 47 Knots (62-88 kmph)
5.	Severe Cyclonic Storm	48 to 63 Knots (89-117 kmph)
6.	Very Severe Cyclonic Storm	64 to 90 Knots (118-167 kmph)
7.	Extremely Severe Cyclonic Storm	91 to119 Knots (168-221 kmph)
8.	Super Cyclonic Storm	120 Knots and above (≥222 kmph)

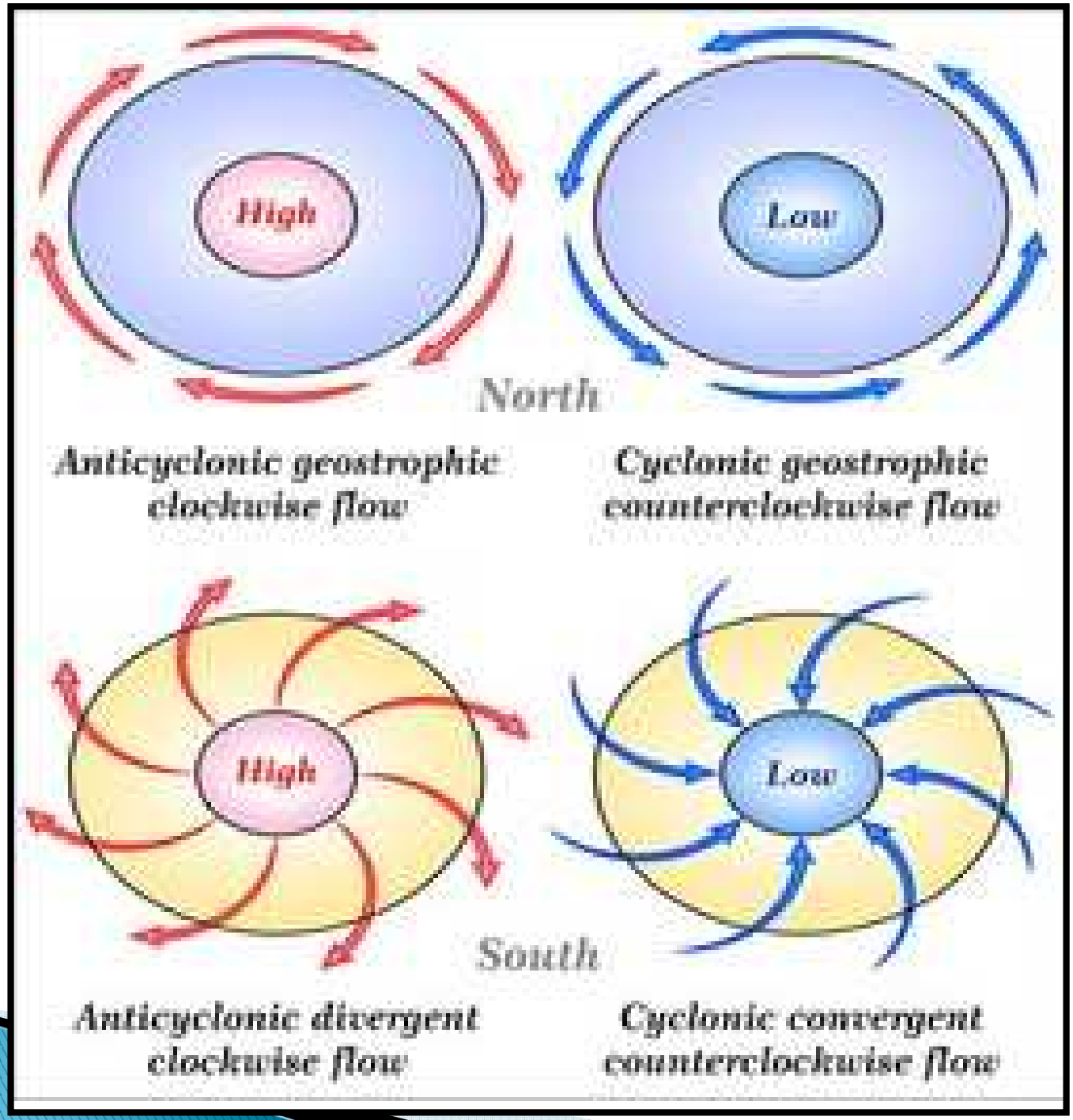
LIFE CYCLE OF TROPICAL CYCLONE

- The average life span of a cyclonic storm over the NIO is about 4 to 5 days which can be divided into four stages:
- a) Formative Stage
- b) Immature Stage
- c) Mature Stage
- d) Decaying Stage

WHAT IS CYCLONE & ANTICYCLONE???

- The storms caused by wind blowing around the low-pressure areas are called cyclones.
- Similarly, storms around the high-pressure areas are called anticyclones.
- There are types of cyclones:

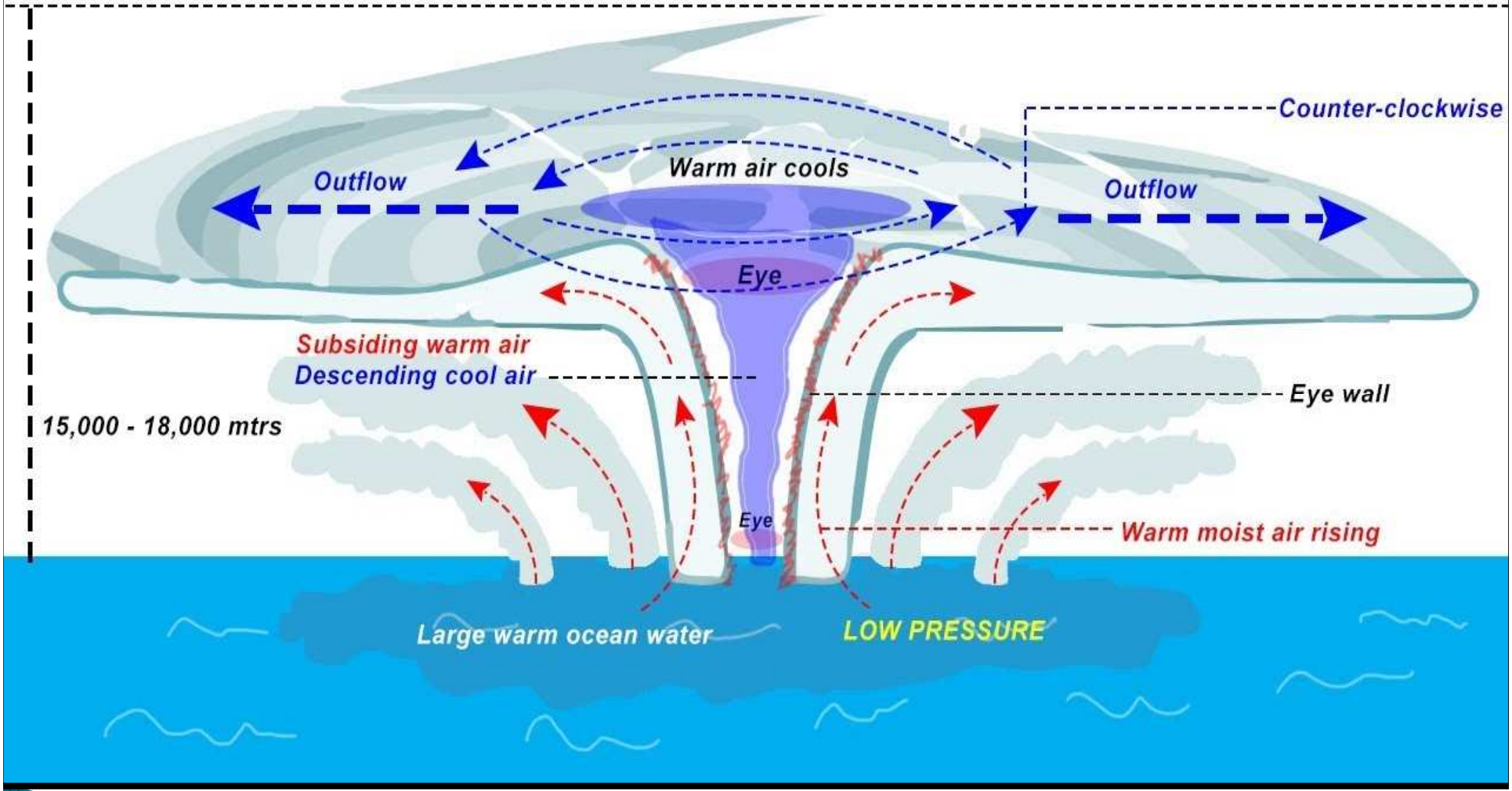
1. TROPICAL CYCLONE
2. TEMPERATE CYCLONE


High
Low
North
Anticyclonic geostrophic clockwise flow
Cyclonic geostrophic counterclockwise flow
High
Low
South
Anticyclonic divergent clockwise flow
Cyclonic convergent counterclockwise flow

TROPICAL CYCLONE

- The storms that originate over a warm tropical ocean are termed as tropical cyclones.
- Low atmospheric pressure, high winds and heavy rainfall are characteristics of these types of cyclones.
- Parts of the Atlantic region, pacific ocean, Indian ocean witness tropical cyclones affecting Gulf Coast of North America, northwestern Australia, and eastern India and Bangladesh along with other areas.

TROPICAL CYCLONE



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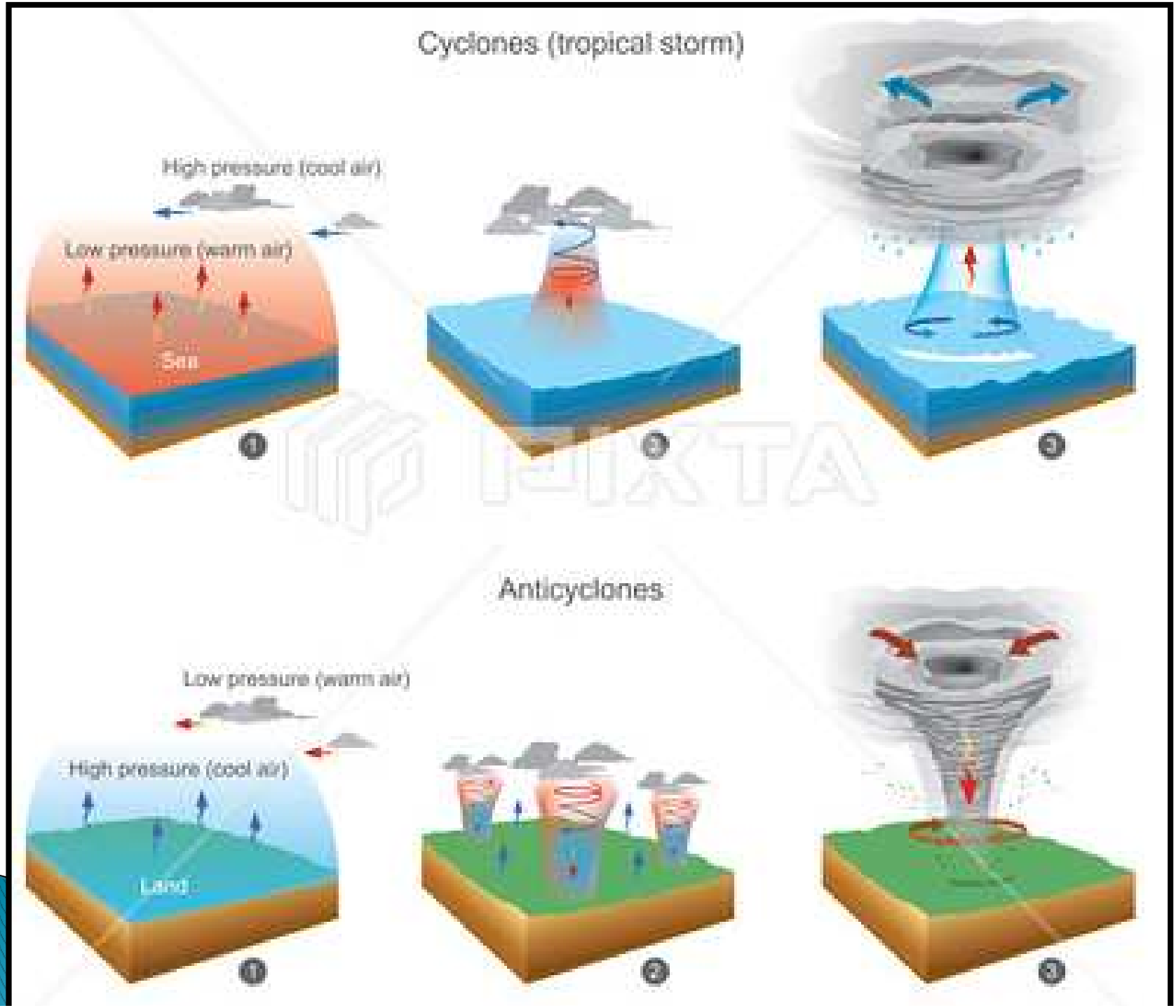
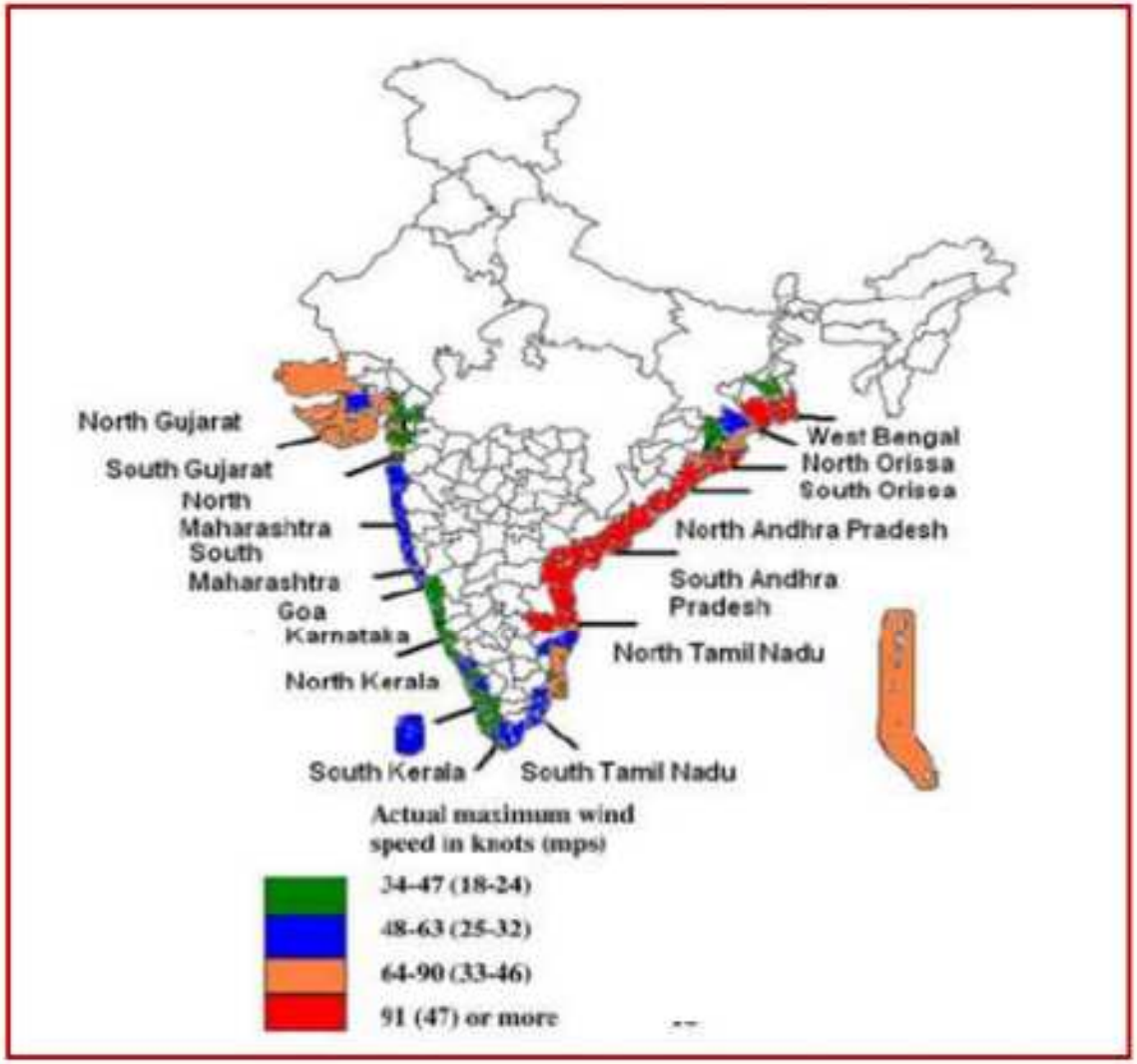
TEMPERATE CYCLONE

- These are storms that occur outside the tropics.
- These are referred to as extra tropical cyclones. Other names are frontal cyclones and wave cyclones.
- They occur in polar regions, temperate and high latitudes.


Cyclones (tropical storm)
High pressure (cool air)
Low pressure (warm air)
Sea
1
2
3
Anticyclones
Low pressure (warm air)
High pressure (cool air)
Land
1
2
3

CYCLONES IN INDIA

- India witnesses cyclones in the North Indian Ocean Cyclone Season usually between April and November.
- The Indian coastline length is around 7516 km and it is noted that 5770 km of coastline is vulnerable to natural hazards including cyclones. The east coast of India is more prone to cyclones than the western coast.
- In Indian History, there have been various cyclones that made headlines due to their effect on the country.



Maximum / Estimated MSW (in mps) that affected coastal districts of India during 1891-2008

1. Bhola Cyclone – 1970

It struck Bangladesh (Then, East Pakistan) and West Bengal in 1970.

It was the strongest cyclone of the 1970 North Indian Ocean Cyclone Season.

It is considered as the deadliest cyclone causing around 3-5 lakh deaths.

2. Odisha Cyclone – 1999

It was a very severe cyclonic storm that struck Thailand, Bangladesh, Myanmar and India.

As the name suggests, Odisha was the most affected Indian state.

According to the Indian Meteorological Department (IMD)'s data, around 9887 people lost their lives in this cyclone.

3. Cyclone Fani – 2019

After the Odisha Cyclone 1999, it was the second strongest cyclone to strike Odisha.

4. Cyclone Amphan – 2020

It was a super tropical cyclone that affected Indian states of West Bengal and Odisha; and Bangladesh.

It originated in the Bay of Bengal in May 2020.

It is noted to be the costliest tropical cyclone on record in the North Indian Ocean costing Rs. 1.03 crores economic loss.

5. Cyclone Nisarga – 2020

It was a severe cyclonic storm that formed over the Arabian Sea.

Maharashtra and Gujarat were the Indian states that were affected by this cyclonic storm.

6. Cyclone Nivar – 2020

It was a severe cyclonic storm that affected Tamil Nadu and Puducherry in November 2020.

There was no loss of life but damaged horticultural crops in about 23000 acres.

7. Cyclone Burevi – 2020

It is a cyclonic storm that affected Tamil Nadu and Kerala in India.

It followed the Nivar Cyclone and originated in the southwest region of Bay of Bengal, in December 2020.