# Natural Disasters

Flood and cyclone

- Lecture Objective:
  - Making students aware about cause, effects and control of flood and cyclone
- Lecture Outcome:
  - Students will learn about the types of floods, causes, effects and control of flood
  - Students will learn about the types of cyclone, causes, effects and management of cyclone

- The accumulation of a large quantity of water at a place or the presence of more water than can be handled by the drainage of the area is known as flood.
- Types of Floods
  - Flash floods
  - River floods
  - Coastal floods



- Flash flood
  - Flash floods are defined as those flood events where the rise in water is either during or within a few hours of the rainfall that produces the rise.
- Causes of flash flood
  - Dam failure
  - Sudden snowmelt or thawing of glaciers
  - A sudden release of water by a debris flow or ice jam
  - Steeply-slopped watershed

## Flash floods



- River flood
  - A river flood occurs when a river overspills its banks; that is, when its flow can no longer be contained within its channel.
- Causes of river Floods
  - Heavy rain
  - Snow melt in Spring
  - Deforestation
  - Weather events like cyclones

## River flood



- Coastal floods
  - When a coastal process—such as waves, tides, storm surge, or heavy rainfall from coastal storms—produces that flood, it is called a coastal flood.
- Causes of coastal floods
  - Rising Sea Levels
  - Tsunamis
  - Reclaimed Land

## Coastal floods



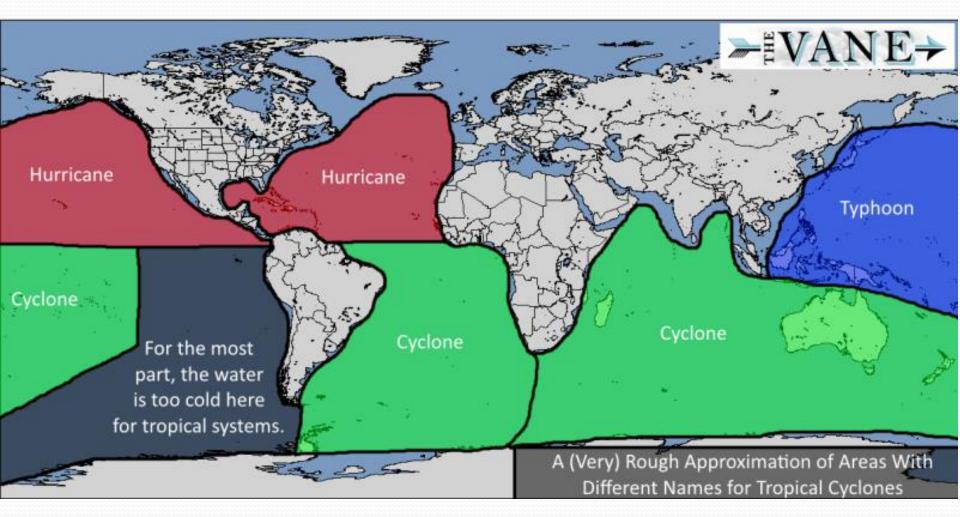
- Effects of floods
  - Damage to agricultural crops
  - Damage to life and property
  - Disturbances in transportation
  - Increase in populations of disease vectors and pathogens
  - Loss of biodiversity
  - Economic crisis

- Control of floods
  - Plantation on slopes
  - Drainage management
  - Flood plain zoning
  - Forecasting

## Cyclone

- In northern hemisphere, a cyclone refers to an area of low atmospheric pressure surrounded by a wind system in a counter-clockwise direction.
- Types of cyclone
  - Tropical Cyclones (Hurricanes, Cyclone, Typhoons and Tornadoes)
  - Mesocyclones
  - Extratropical Cyclones
  - Arctic Hurricanes

# **Tropical Cyclones**



# Tropical Cyclone



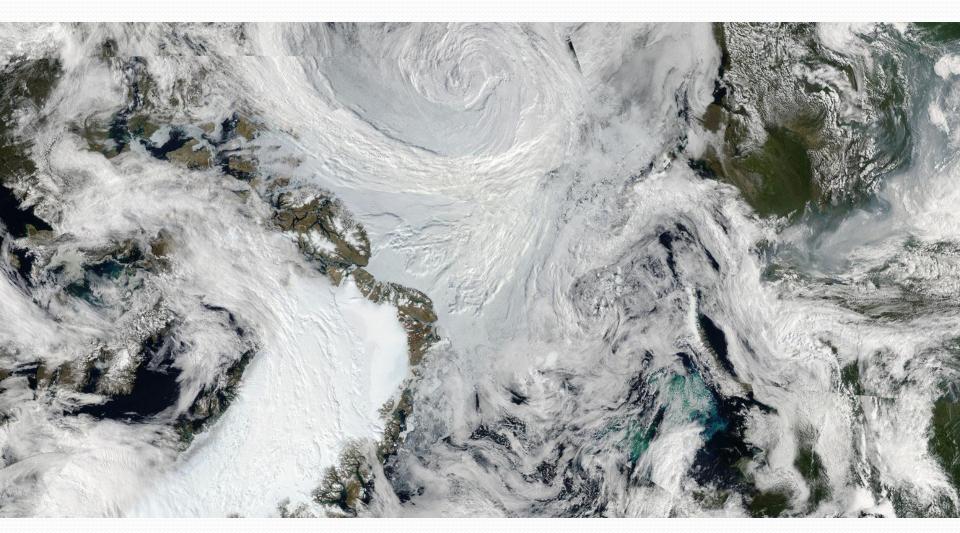
# Mesocyclone



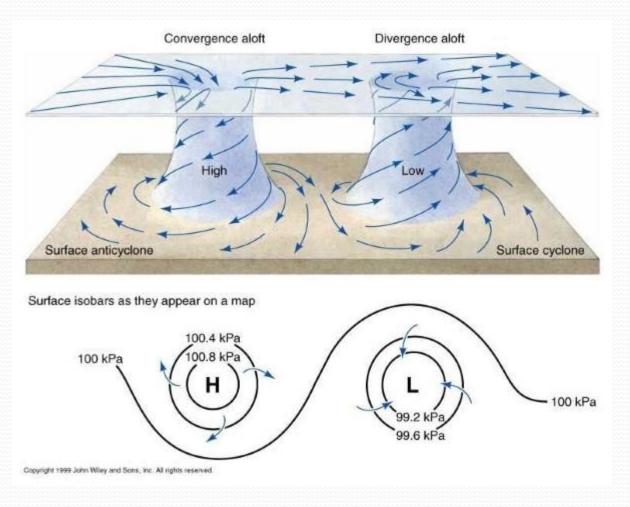
# Extratropical Cyclones



### **Arctic Hurricanes**

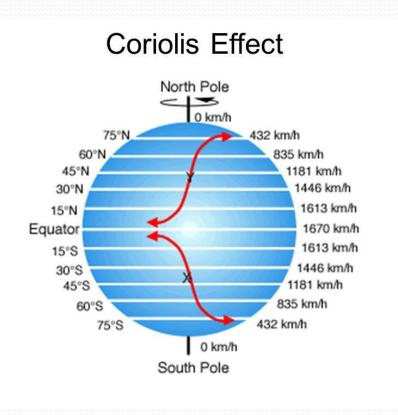


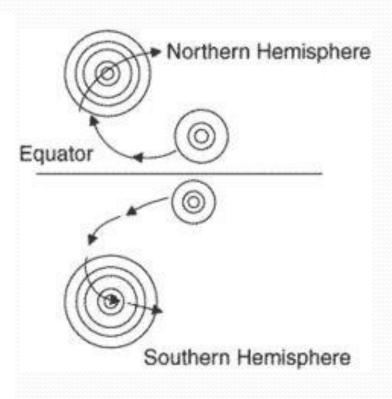
## Cyclone and Anticyclone



### Cyclone and hemispheres

- counterclockwise rotation in the Northern Hemisphere
- clockwise rotation in the Southern Hemisphere





## Cyclones

- Effects of Cyclones
  - They damage installations, communication systems, trees, etc.
  - Results in loss of life and property
  - They may cause river floods and submergence of low-lying areas
- Management of Cyclones
  - Proper construction of houses and Construction of cyclone shelters in the cyclone-prone areas
  - Relief tasks
  - Development of warning systems
  - Community preparedness at all levels to deal with emergency situations