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## # Geography by Apurv Sir

Cyclonic wind motion developing over the surface of Inland seas normally comes under the influence of prevailing easterlies and propagate towards west over continental landmass. The advancement of cyclonic air motion over continent with Easterlies is regarded as landfall of a cyclone. The landfall of a cyclone creates devastating meteorological impact over coastal flora and fauna, and develop a dome of water near the coast called as storm surge. However when this intense cyclonic air motion enters deep inside continental landmass, they become weaker in their propagation and subsequent impact it is because there is less availability of moisture over the continent. and in the absence of moisture latent heat of condensation is also not supplied to accelerate rapid convection. In the course of time the pressure gradient between the periphery and the centre also decreases upto optimum level.

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which reduces the vibrant wind velocity over the surface. This resultant phenomena is regarded as cyclonolysis or ~~empirical~~<sup>empirical</sup> death of a cyclone. it means the formation of cyclones (cyclonogenesis) always takes place over an oceanic surface while its dis-memberment starts with its landfall. some times hurricanes or cyclones are able to propagate by acquiring north-east direction away from the continental landmass. subsequently they enter in temperate zone and merge or converge with the cold air masses of high latitudes. This resultant phenomena is regarded as recurving of a cyclone the re-curveing also lead to the ~~empirical~~<sup>empirical</sup> death of a cyclone.

A Hurricane may produce tornadoes once they reach over the surface of continental landmass nearly half of the Hurricane that makes landfall produced at least one Tornado.

Tornadoes are violent wind storms that take the form of a rotating column of air or



vortex, that extend downward from a ~~quinto~~ <sup>cumulonimbus</sup> ~~ribus~~ cloud. An important pre-condition of torondo formation is a ~~severe~~ <sup>severe</sup> thunderstorm and development of meso cyclone.

A meso cyclone is a vertical cylinder of rotating air typically about 3-10 km across, that develops in updraft of a severe thunderstorm. As meso-cyclone stretched vertically and narrowed horizontally the inward direction of moving air parcels towards the centralised low pressure also accelerate dramatically as a result a funnel shape spiral motion of vertically uplifted air column develop over continental air-mass called as Torados.

## Cyclones Over Bay of Bengal

There are two specific seasons where the intensity and frequency of cyclonic air motion remain very high over Bay of Bengal. Pre monsoon seasons, the months of april and may and post monsoon (october - november) seasons are ideal for tropical cyclone formation it is

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because in pre monsoon season after the northward shift of sun the sea surface temp could rise upto  $30^{\circ}$  -  $32^{\circ}\text{C}$ . Similarly after September with the southward shift of sun when cloudiness ~~eliminate~~ and sky become clear over Bay of Bengal the average sea surface temp could attain the same critical point for cyclone formation. It should be noted that the intensity and frequency of cyclones over Bay of Bengal remain high than Arabian sea. Because of following factors—

- ① Sea surface temp of Bay of Bengal remain high. (more than  $28^{\circ}$ ) throughout the year). it is because of the inland sea character of Bay of Bengal.
- ② Bay of Bengal has also a potential to generate high storm tides, <sup>when</sup> these tides and cyclone storm coincide~~x~~ with each other, they create a vibrant wind motion over the surface.
- ③ Low pressure cells / warm air parcels developing over the surface of south china sea able to enter in the basin of Bay of Bengal by



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prevailing Easterlies.

④ Bay of Bengal receive high precipitation and the wind velocity is also not as high to carry the surface water from one place to another. Subsequently ~~upwelling~~ <sup>upwelling</sup> of cold water does not takes place prominently to decrease the surface temperature of Bay of Bengal.

⑤ In Bay of Bengal there is a constant inflow of fresh water from Ganges and Brahmaputra and other perennial rivers of peninsular India. Subsequently the water keeps getting refreshed, making it impossible for the warm water to mix with cold water below.

⑥ During normal walker cycle convection current originating from the coast of Indonesia are subsidizing along the <sup>a</sup> coast of Africa in western Arabian sea. This phenomena create a prominent high pressure conditions and reduces the possibility of cyclone formation over western Arabian sea.

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However during El-Nino years when convection currents originates from the coast of Africa, a prominent low pressure condition develops over western Arabian sea, to increase the possibility of cyclonic air motion.

## Anti Cyclones

Anti-cyclones are common high pressure systems developing over the surface of earth by several thermodynamic factors. Under meteorological study and climatological illustrations anti-cyclones are considered as a diverging air motion from the centralised high pressure area towards peripheral low pressure isobars. They are entirely different and opposite from the cyclonic air motion, but there is a symbiotic relationship between the cyclonic and anticyclonic condition prevailing over the surface of earth. It should be noted that anti-cyclones have four basic components.

- 1 → There should be a centralised high pressure area surrounded by peripheral low pressure isobars.
- 2 → Winds are always diverging from the centralised high pressure zone to acquire clockwise and anticlockwise rotation in northern and southern hemisphere respectively.



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③ Their formation could take place <sup>over</sup> any surface i.e., continental or oceanic, and wind velocity is not as high as compared to cyclonic wind.

④ Under climatology they are mainly studies at a atmospheric condition having drastic meteorological impact over regional climatology and local weather condition.

### # Impact of Anti Cyclonic Condition or High Pressure Condition.

