

Relation Between Ocean and Climate Change



Trishit Chattopadhyay

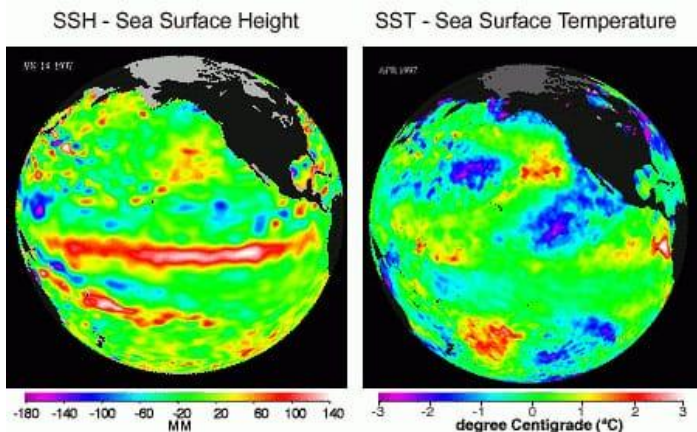
Student, B.Sc., 1st Year

Department Of Environmental Science

Asutosh College

chattopadhyaytrishit@gmail.com

As ocean is the greatest carbon sink in the world it absorbs one quarter of CO₂ that humans create and about 90% of heat generated by rising emissions. But excessive emission of CO₂ is absorbed by the surface layer of ocean causing ocean acidification. In past one or two centuries ocean water has become 30% more acidic. Due to more ocean acidification shells of marine animals can break down as it mainly composed of calcium carbonate it must react with carbonic acid.

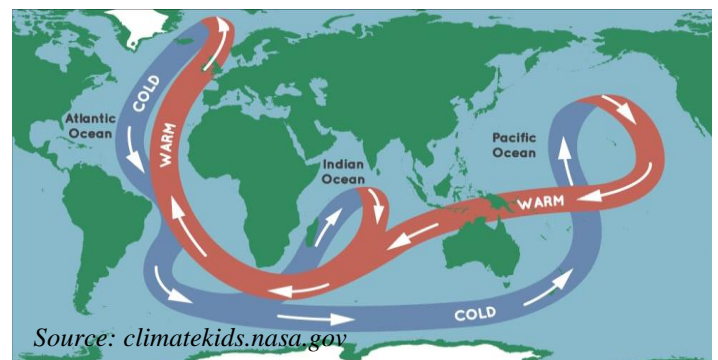


Source: science.nasa.gov

Not only that due to global warming and increasing emission of greenhouse gas temperature of ocean water is gradually increasing which will affect adversely on the whole world if we do not take necessary steps now. The effect could be – 1) Marine biodiversity and marine ecosystem will hamper. Mangroves, coral reef and 80% of marine species will extinct permanently with the rise of 2°C temperature of ocean water. 2) Glacial ice will melt in pole which will lead to rising of sea level. Sea level is rising with an average of 4.5 mm per year after 2013. If not checked now Coastal area will be submerged under sea water. 3) Marine heatwave in 2000s become more frequent, ever

intense and long lasting than ever for that reason global coral bleaching is seen. Every coral reef could bleach by the end of this century if the water continues to warm, 4) Warming of ocean speeds up ocean current by 15% after 90s. This affect migration pattern for many marine species. They are going towards pole from equatorial region.

The ocean plays a key role in regulating global climate and determine rainfall, droughts and flood. It distribute the heat absorbed from the sun through its circulation of current: this system is like a conveyor belt cycling warm water to poles and cold water to equator. Ocean current directly influence Earth's atmosphere and biosphere which depends on factors like salinity of sea water, temperature of sea water and wind flow. If amount of fresh water mixing in ocean from glacier increase, temperature and salinity of water will decrease that can hamper the normal movement of ocean current and cause weather extremities like weakening of monsoon, frequent cyclones, draught and heavy rainfall within a short period after a long gap. Without sinking of cold water the ocean current could slow down or stop in some places which can change the climate in places which have moderate climate due to warm ocean current.



Source: climatekids.nasa.gov