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# Revision Series

# Geography

## (Part -1)

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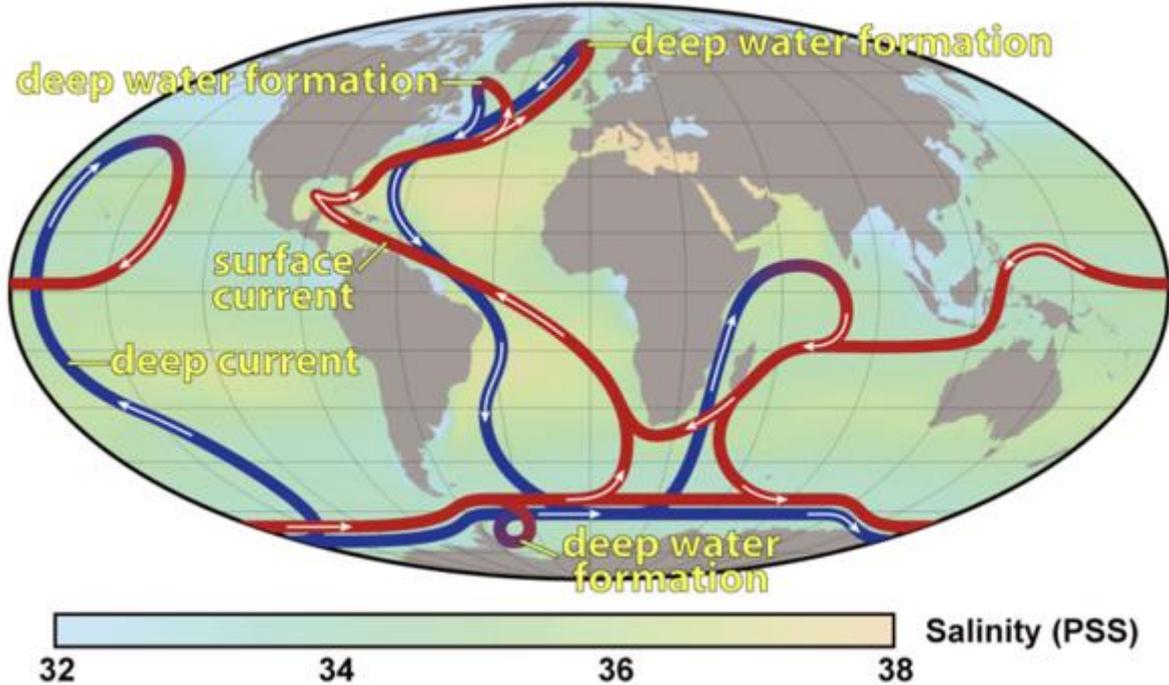
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Date	Day	Subject
9/13/2021	Monday	Geography
9/14/2021	Tuesday	History
9/15/2021	Wednesday	Polity
9/16/2021	Thursday	Economy
9/17/2021	Friday	Environment
9/18/2021	Saturday	Science & Tech
9/19/2021	Sunday	-
9/20/2021	Monday	Geography
9/21/2021	Tuesday	History
9/22/2021	Wednesday	Polity
9/23/2021	Thursday	Economy
9/24/2021	Friday	Environment
9/25/2021	Saturday	Science & Tech
9/26/2021	Sunday	-
9/27/2021	Monday	Geography
9/28/2021	Tuesday	History
9/29/2021	Wednesday	Polity
9/30/2021	Thursday	Economy
10/1/2021	Friday	Environment
10/2/2021	Saturday	International Relations
10/3/2021	Sunday	-

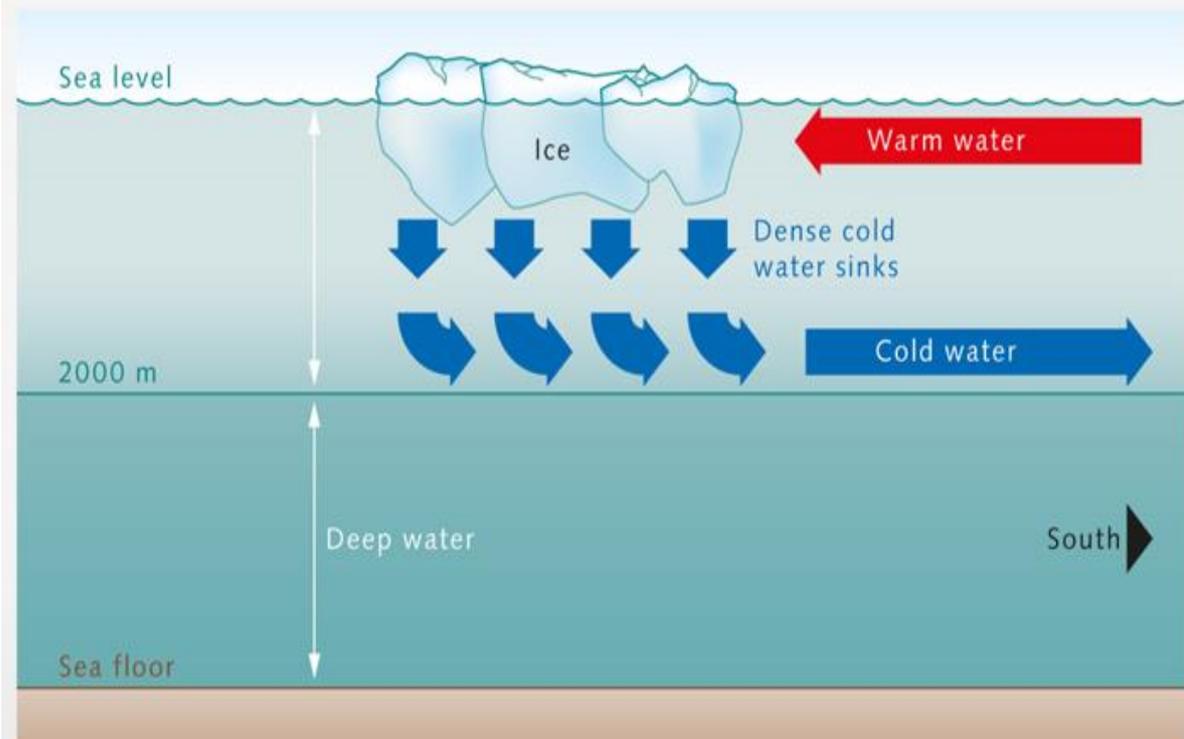
# GEOGRAPHY- 1

## Atlantic Meridional Overturning Circulation

### Thermohaline Circulation



### Concept



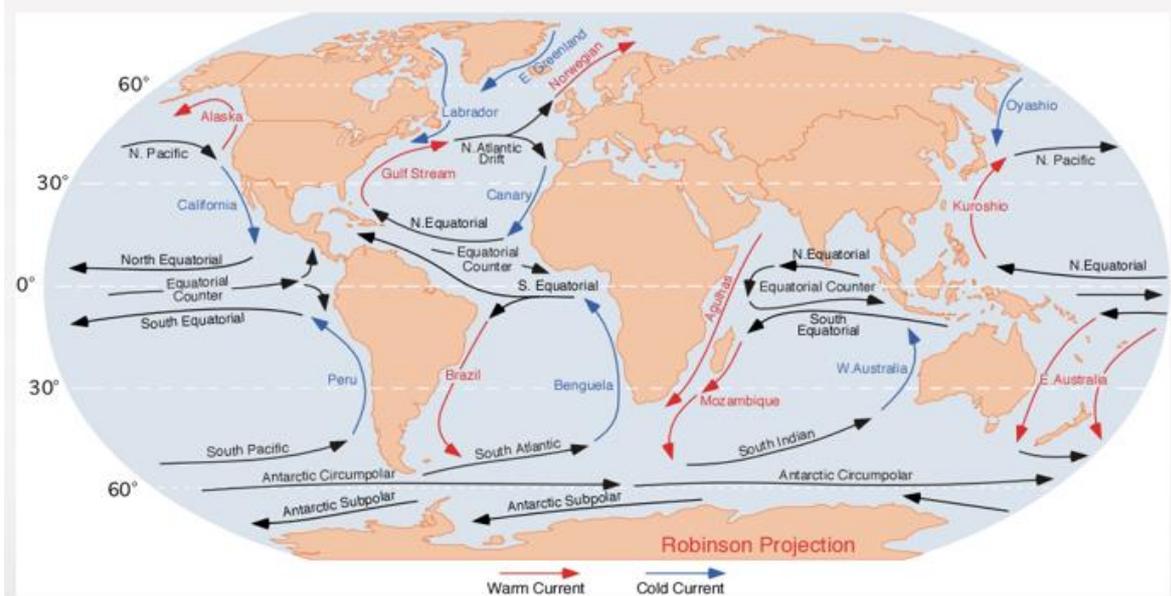
# Thermohaline Circulation



## AMOC

- It is a large system of ocean currents.
- It is the Atlantic branch of the ocean conveyor belt or Thermohaline circulation (THC), and distributes heat and nutrients throughout the world's ocean basins.
- AMOC carries warm surface waters from the tropics towards the Northern Hemisphere, where it cools and sinks.
- It then returns to the tropics and then to the South Atlantic as a bottom current.
- From there it is distributed to all ocean basins via the Antarctic circumpolar current.

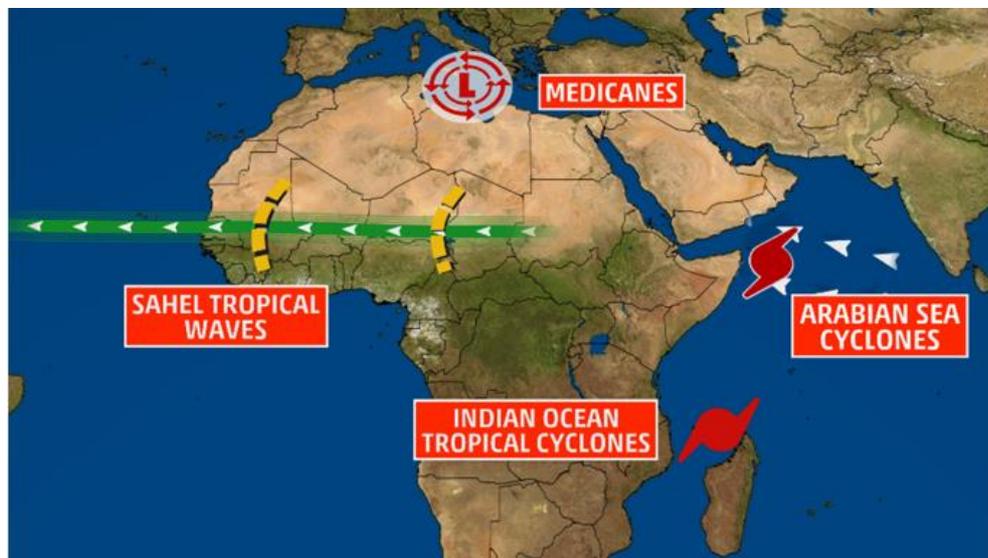
# Surface Currents



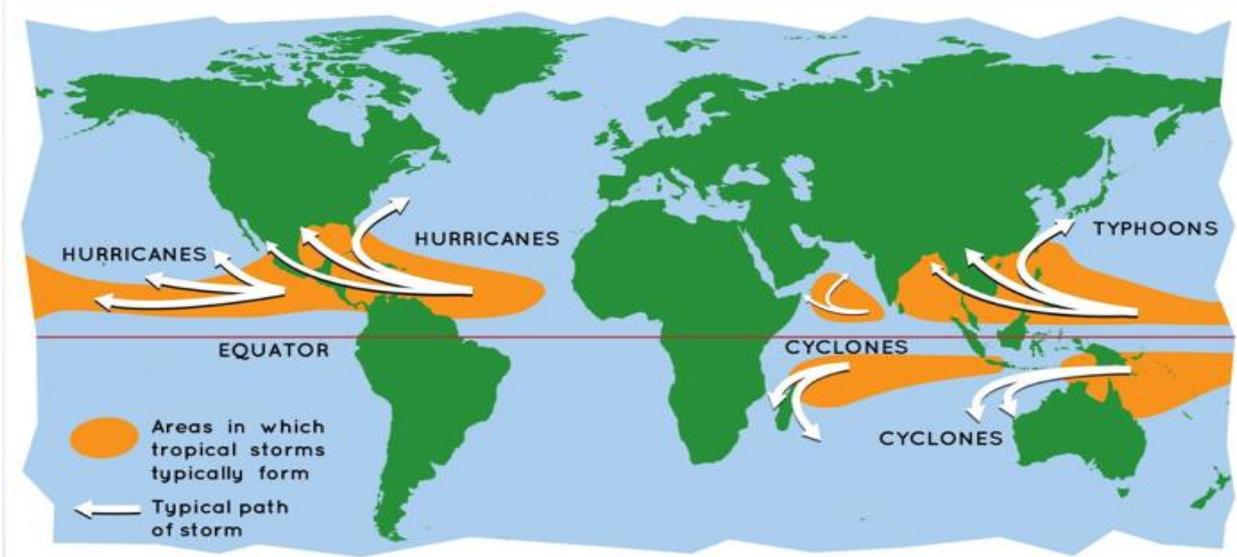
## AMOC slows down/collapses?- IMPACT

- Gulf Stream : Gulf Stream, a part of the AMOC, is a warm current responsible for mild climate at the Eastern coast of North America as well as Europe. Without a proper AMOC and Gulf Stream, Europe will be very cold.
- Modelling studies have shown that an AMOC shutdown would cool the northern hemisphere and decrease rainfall over Europe. It can also have an effect on the El Nino.
- AMOC collapse brings about large, markedly different climate responses: a prominent cooling over the northern North Atlantic and neighbouring areas, sea ice increases over the Greenland-Iceland- Norwegian seas and to the south of Greenland, and a significant southward rain-belt migration over the tropical Atlantic.

## Medicanes



## MEDICANES



# MEDICANES



- Mediterranean tropical-like cyclone.
- Due to the dry nature of the Mediterranean region, the formation of tropical, subtropical cyclones and tropical-like cyclones are infrequent and also hard to detect, in particular with the reanalysis of past data.
- The rare event of an extra tropical cyclone becoming a tropical cyclone happens because of warmer-than-usual waters in the Mediterranean Sea.
- Medicanes occur more in colder waters than tropical cyclones, hurricanes and typhoons.
- Hence, the cores of these storms are also cold, as compared to the warm cores of tropical cyclones.

## Acqua Alta



# ACQUA ALTA



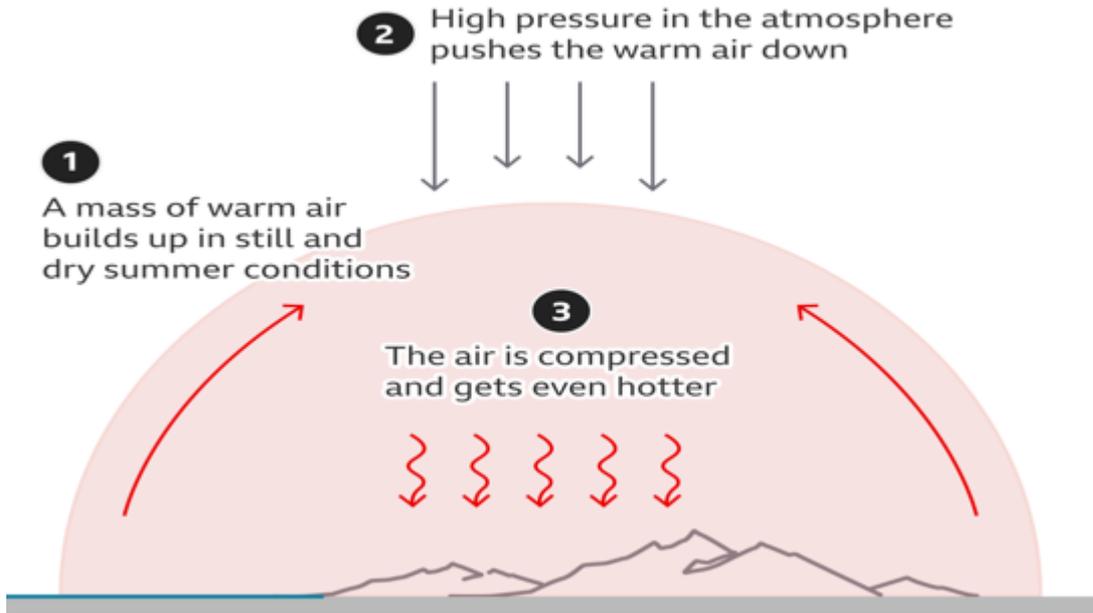
- Acqua Alta” is the name given to exceptionally high tides in the Adriatic Sea.
- The phenomenon occurs mainly when tides are reinforced by the prevailing seasonal winds.
  1. Sirocco
  2. Bora

# ACQUA ALTA

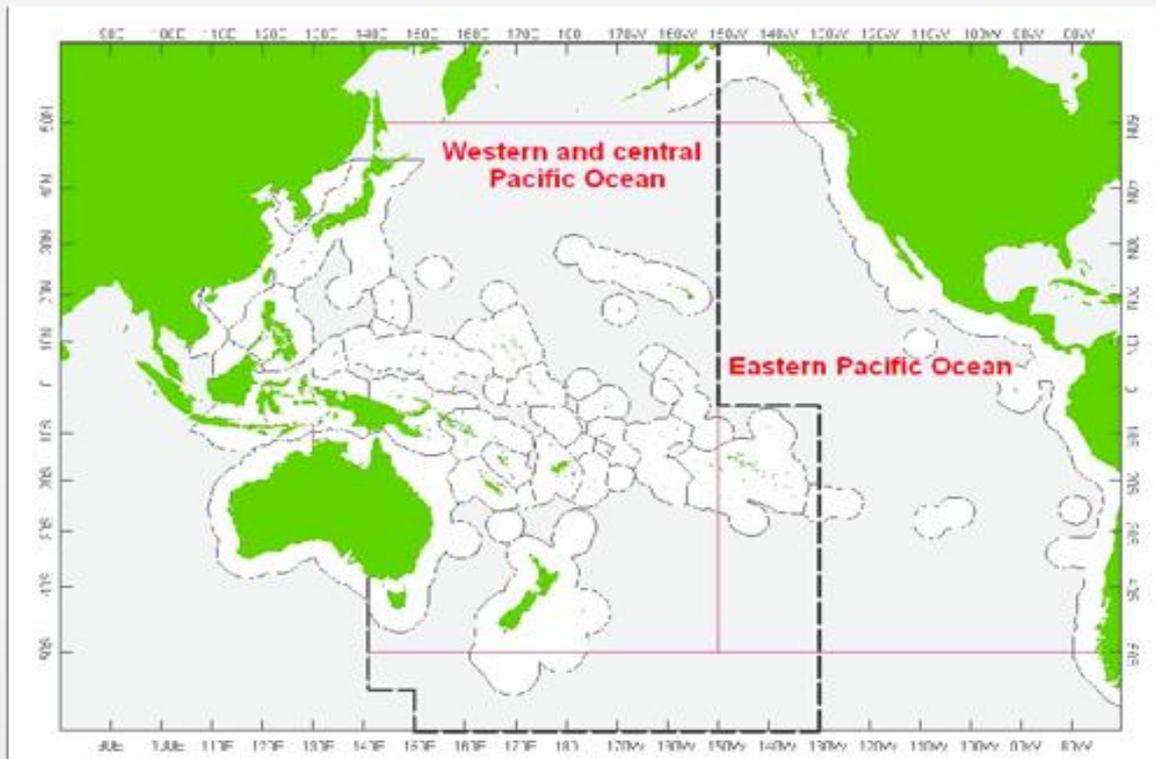


## Heat Dome

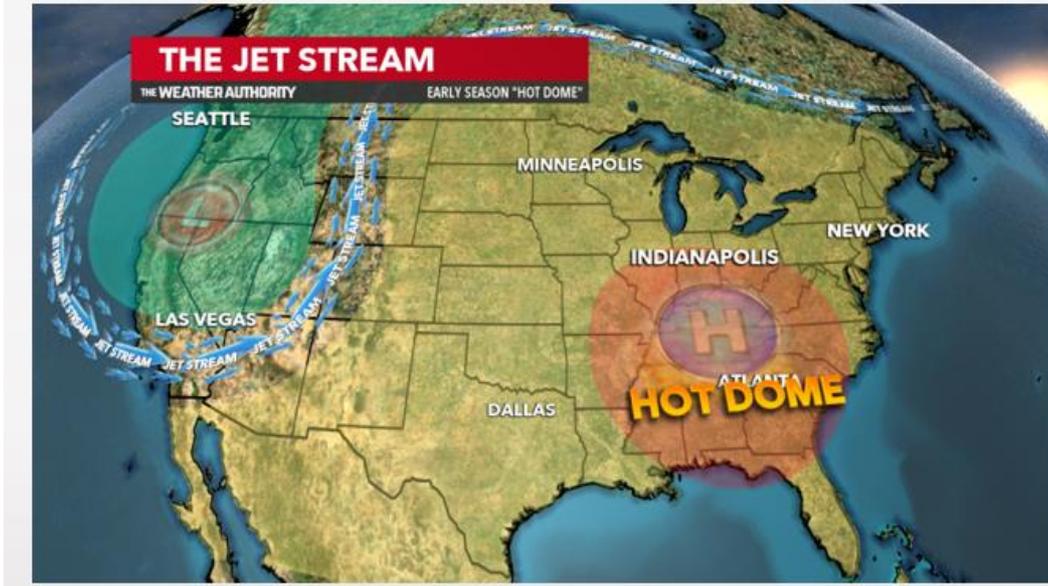
### How a heat dome forms



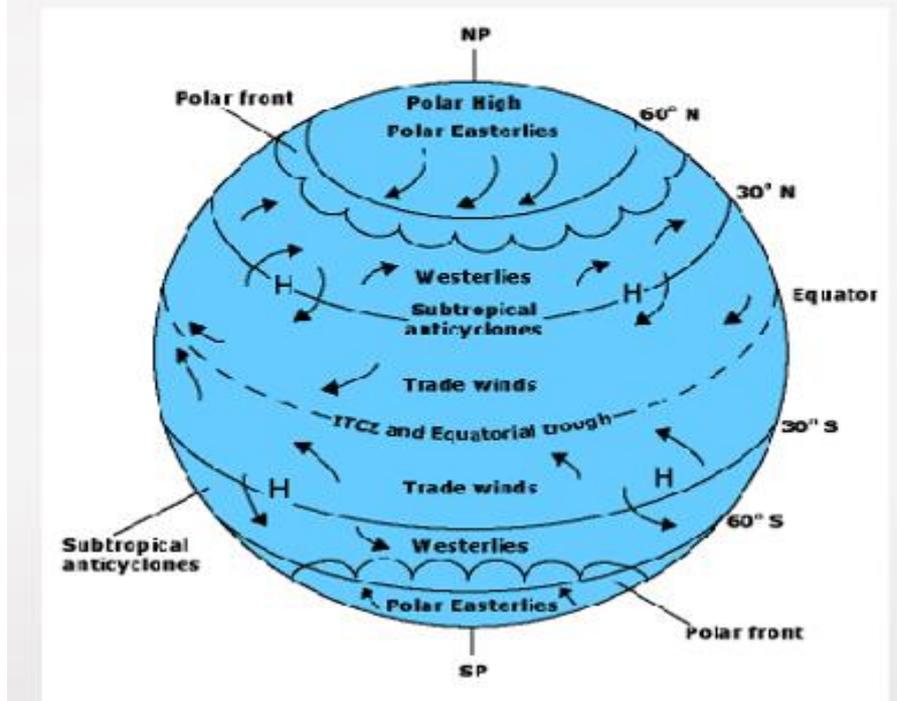
## Heat Dome



# Heat Dome



# Heat Dome

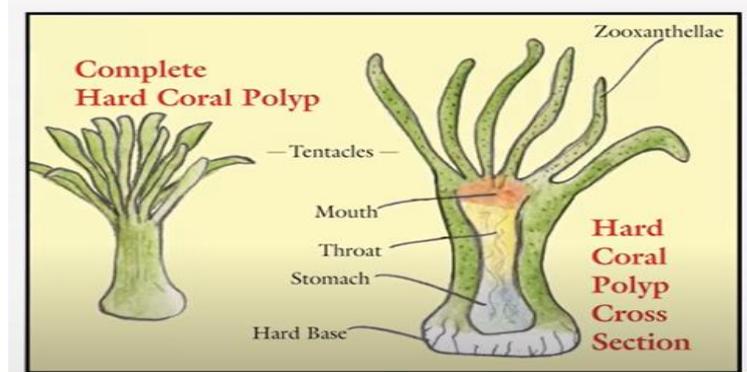


- Summertime means hot weather – sometimes dangerously hot – and extreme heat waves have become more frequent in recent decades. Sometimes, the scorching heat is ensnared in what is called a heat dome. This happens when strong, high-pressure atmospheric conditions combine with influences from La Nina, creating vast areas of sweltering heat that gets trapped under the high-pressure "dome."

## Great Barrier Reef

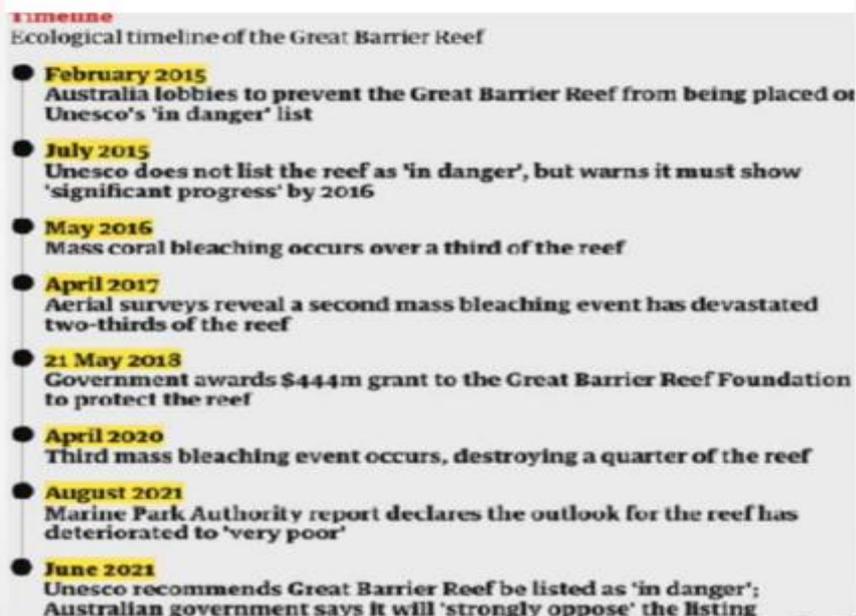


### Coral :



- The United Nations has recommended that the Great Barrier Reef be placed on a list of World Heritage sites that are "in danger," prompting a fierce reaction from the Australian government, which defended its management of one of the country's top tourist destinations.

## Great Barrier Reef



- World heritage sites are global icons and “in danger” listings are usually recommended after effects from armed conflict and war, pollution, poaching and uncontrolled urbanisation.
- Placement on the “in-danger list” is not considered a sanction.
- Some nations have their sites added to gain international attention and help to save them.

## Great Barrier Reef



### **Climate change**

Climate change is the greatest threat to the Great Barrier Reef, threatening its very existence.



### **Water quality**

Increasing sediment, nutrients and contaminants, combined with rising sea temperatures and ocean acidification are damaging the Reef.



### **Crown of Thorns Starfish**

When the coral-eating starfish appear in outbreak proportions, the impact on coral reefs can be disastrous.



### **Coastal development**

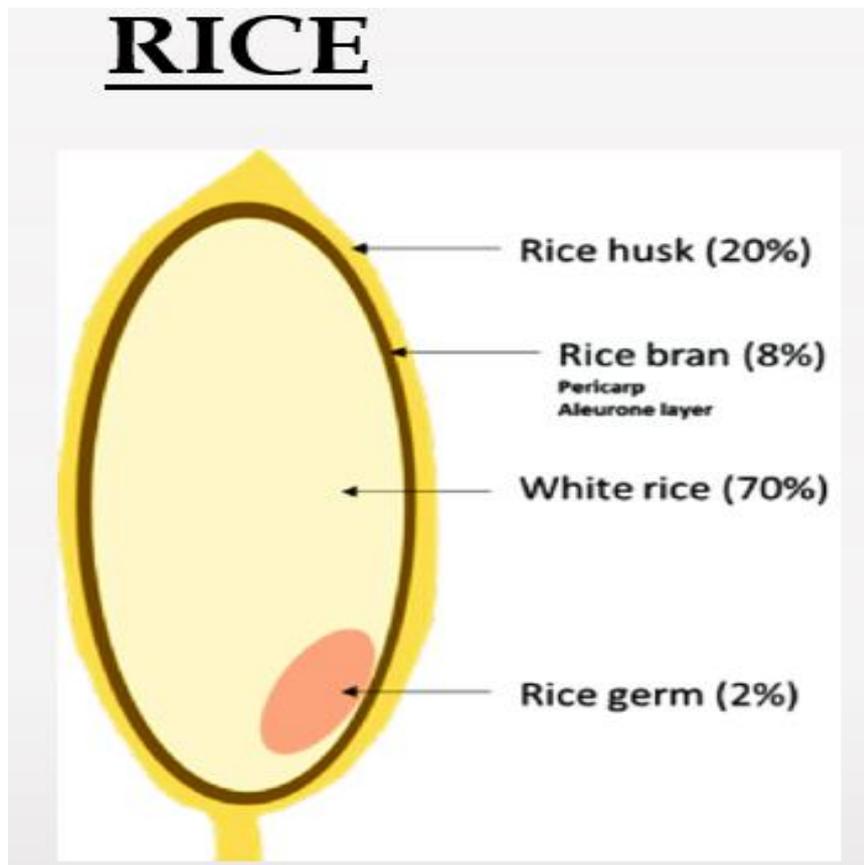
As Queensland continues to grow, so does development along the coast and islands adjacent to the Great Barrier Reef Region.

## Pusa - Yashaswi - Wheat

- Recently, the Indian Agricultural Research Institute (IARI) has released a new variety of wheat named Pusa Yashasvi.
- Pusa Yashasvi is also called HD-3226.
- It has higher genetic yield potential as compared to other varieties of wheat.
- higher content of zinc, protein, and gluten
- high levels of resistance against all major rust fungi – yellow/stripe, brown/leaf and black/stem.



## Golden Rice



- Golden rice is a variety of rice produced through genetic engineering to biosynthesize beta-carotene, a precursor of vitamin A, in the edible parts of rice.
- It is intended to produce a fortified food to be grown and consumed in areas with a shortage of dietary vitamin A.
- Issue - low shelf life - may lose its nutrients after that.

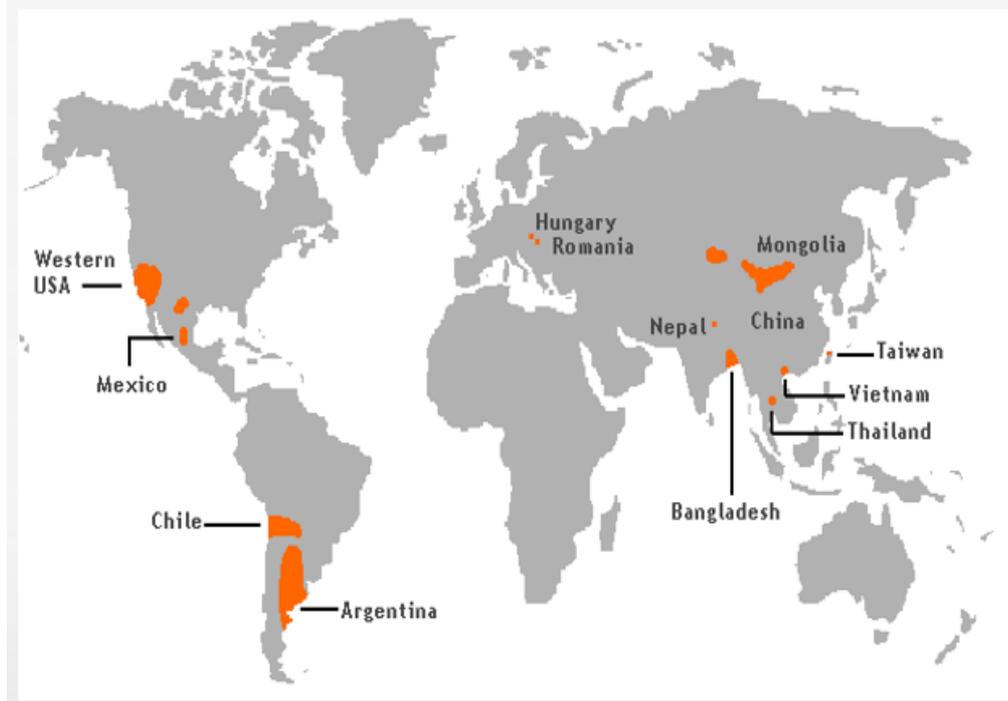
## Muktoshri – Arsenic Resistant Rice



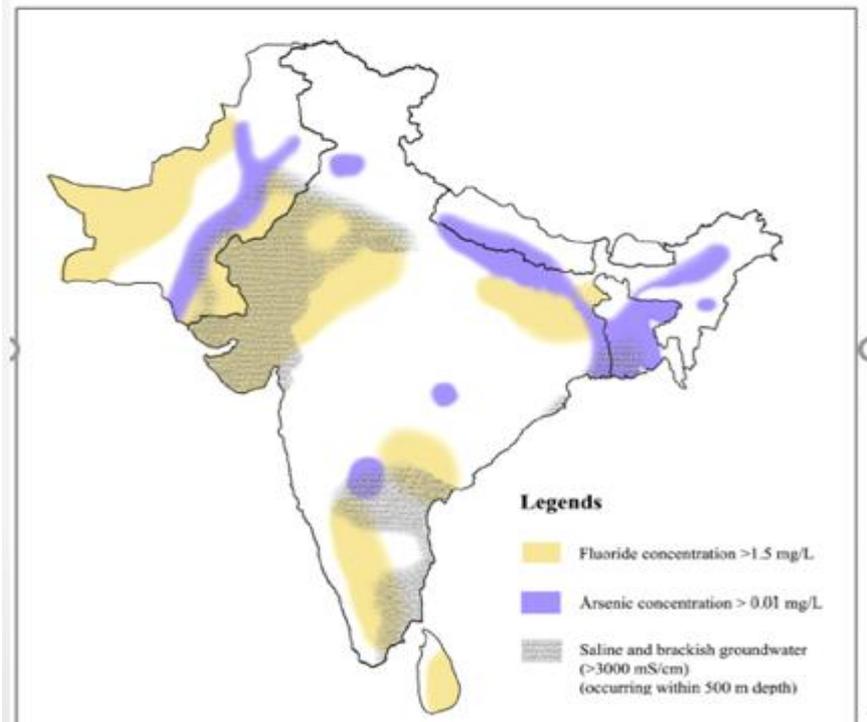
### Arsenic Contamination

- Arsenic is a natural component of the earth's crust and is widely distributed throughout the environment in the air, water and land.
- It is highly toxic in its inorganic form.

## Arsenic Contamination



# Arsenic Contamination



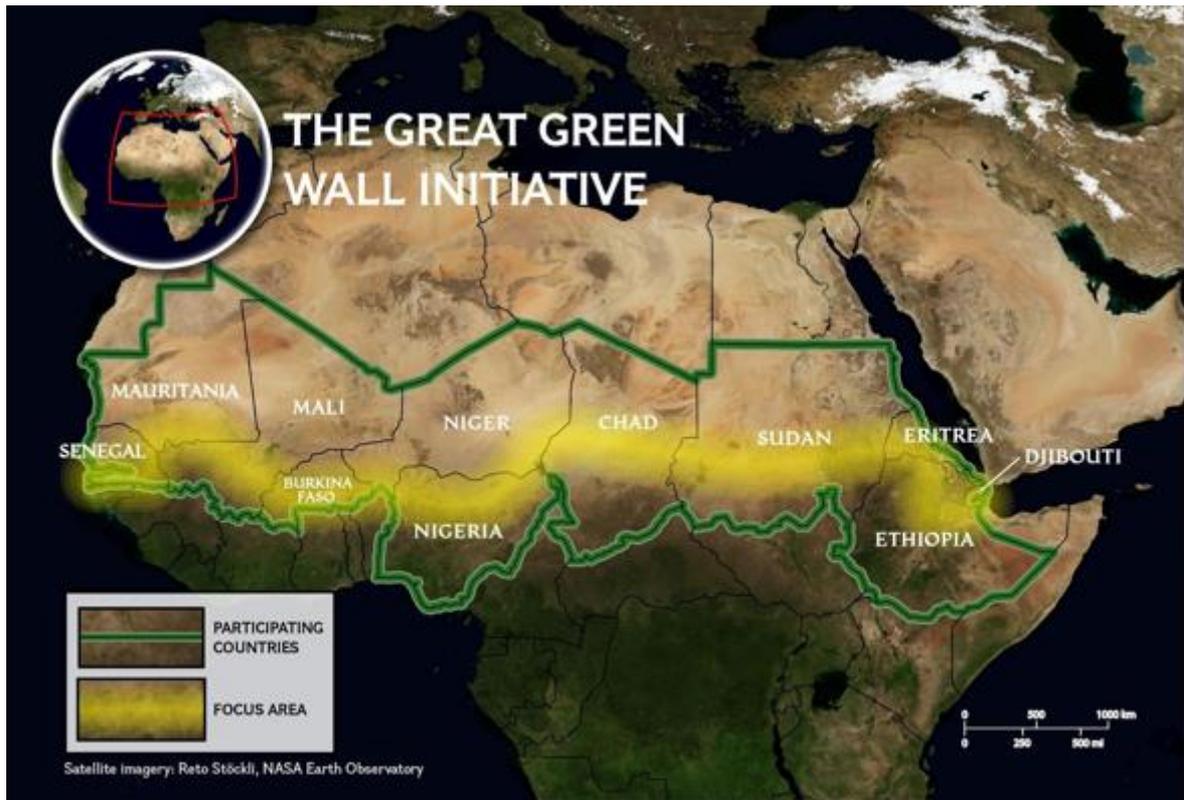
## **Arsenic Contamination**

- Arsenic, transported by the River Ganges and its tributaries from the Gondwana coal, seams in the Rajmahal trap area located at the west of the basin can be of the order of 200 ppm.
- Arsenic is transported by the north Bengal tributaries of Bhagirathi and Padma from near the Gorubathan base-metal deposits in the eastern Himalayas .
- Arsenic is transported with the fluvial sediments from the Himalayas.

## **Mukhtoshri**

- West Bengal has a high concentration of arsenic in groundwater, with 83 blocks across seven districts having higher arsenic levels than permissible limits.
- West Bengal government's rice research Centre has come up with a new variety of rice called Mukhtoshri that can be grown in arsenic prone areas.

## Great Green Wall Project



- Launched in 2007 by the African Union, this game-changing African-led initiative aims to restore Africa's degraded landscapes and transform millions of lives in one of the world's poorest regions, the Sahel.
- By 2030, the ambition of the initiative is to restore 100 million ha of currently degraded land; sequester 250 million tons of carbon and create 10 million green jobs.

### **This will support communities living along the Wall to**

- Grow fertile land, one of humanity's most precious natural assets.
- Grow economic opportunities for the world's youngest population.
- Grow food security for the millions that go hungry every day.
- Grow climate resilience in a region where temperatures are rising faster than anywhere else on Earth.

## Green Wall Project of India



Rough contours of proposed 1,400km 'green wall'

- Forest belt likely to run roughly from **Porbandar to Panipat**, covering entire Aravali range and beyond
- 'Green wall' will act as barrier for dust from west and check eastward march of Thar desert
- It will check desertification by **restoring degraded land through massive afforestation**
- Project yet to get formal nod, details to be worked out

## Aravallis



## Lonar Lake - Pink Water



- **Initially** - absence of rain + high temperature resulted in the evaporation of water ---- increased its salinity and pH.
- **Later** : increased salinity and pH facilitated the growth of halophilic microbes
- The colour of Lonar lake water in Maharashtra's Buldhana district turned pink due to a large presence of the salt-loving 'Haloarchaea' microbes.
- it was also discovered that the pink colour of the water was not permanent.
- Once the biomass of the microbes settled at the bottom, the water became transparent.

## Anthropause Period



- Researchers in the UK are set to study the “Anthropause”, a term they have coined to refer to the coronavirus-induced lockdown period and its impact on other species - Considerable global slowing of modern human activities and notably travel.
- Insights into the relationship between human-wildlife interactions in the 21st century.

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