




# **Adverse impacts of climate changes on Egypt**

**By**

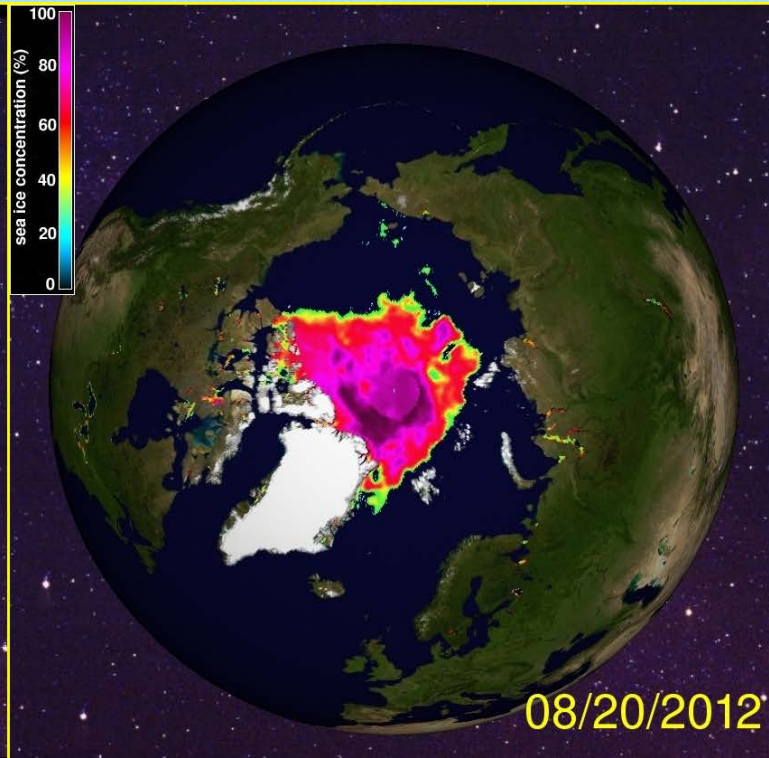
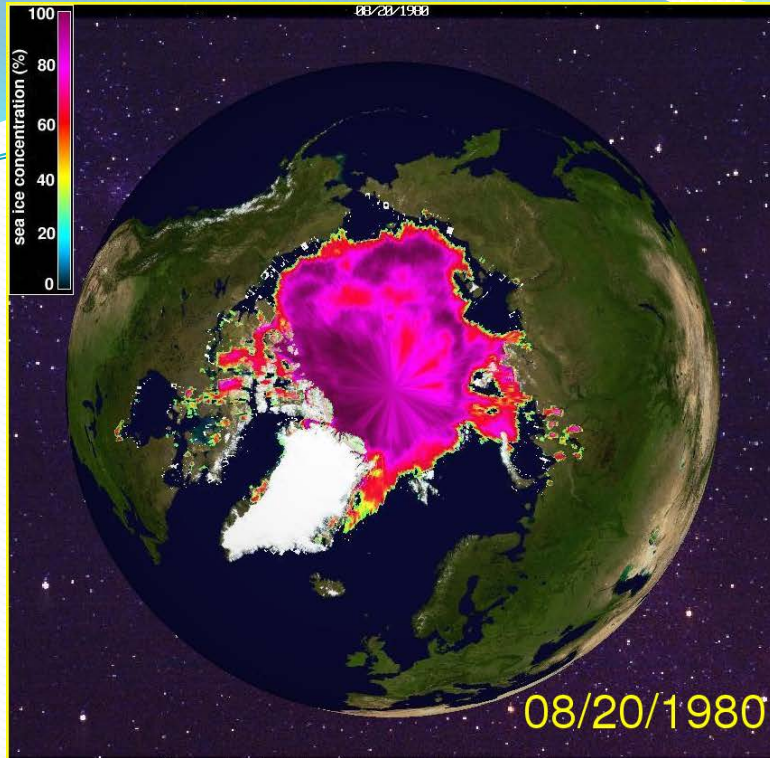
**Prof. Dr. Alaa ElNahry**

**Former vice chairman of NARSS, Egypt**



Views about climate change can be very polarised. For some, it spells inevitable **catastrophe**. For others it is a massive **hoax**.

Let us see if it is a **catastrophe** or a **hoax**



Sea level can rise by two different mechanisms with respect to climate change. First, as the oceans warm due to an increasing of global temperature, seawater expands—taking up more space in the ocean basin and causing a rise in water level. The second mechanism is the melting of ice over land, which then adds water to the ocean and seas.



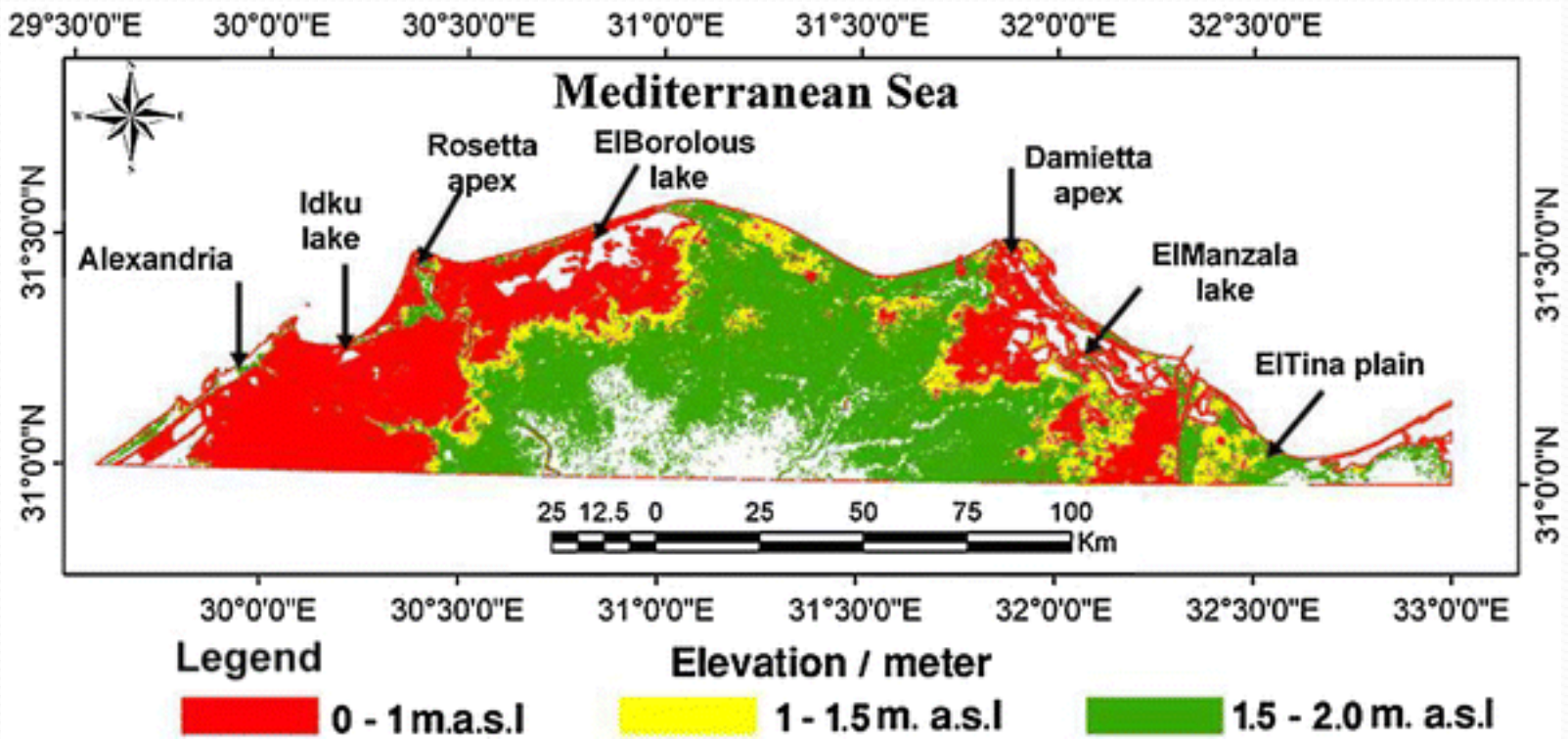
The Earth could be **1.5 degrees Celsius** warmer than the late 1800s in just coming ten years,



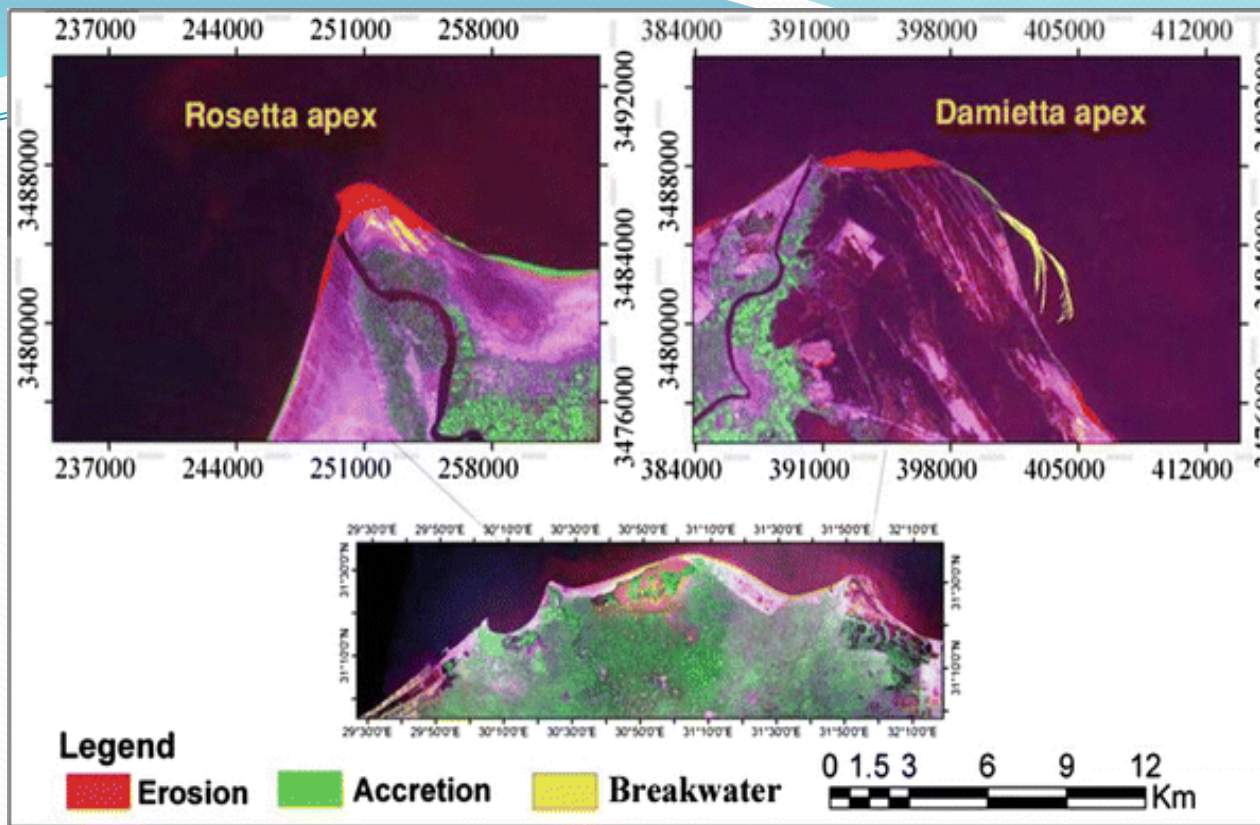


Location of the investigated area





To learn about the places exposed to drowning in the Nile Delta High resolution DEM was extracted from ASTER image supported by contour line and spot heights obtained from Maps scale 1:50000



## Erosion and accretion on the Nile Delta apexes

Process	No. of observed sites	Minimum (m <sup>2</sup> )	Maximum (m <sup>2</sup> )	Average (m <sup>2</sup> )	Sum (m <sup>2</sup> )
Erosion	169	1.11	6,044,951.64	94,768.62	16,015,896.68
Accretion	177	0.05	2,876,855.86	74,494.51	13,185,527.87
Sea barrier	16	6,374.29	877,468.27	190,238.71	3,043,819.37
Sea wall	32	192.95	919,500.18	110,628.26	3,429,476.14



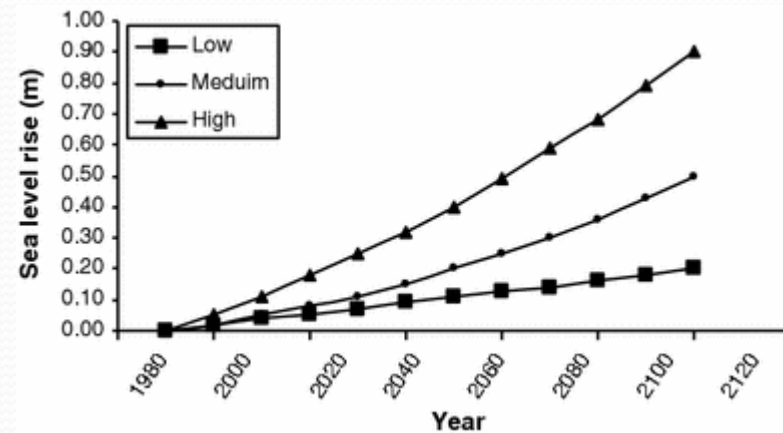
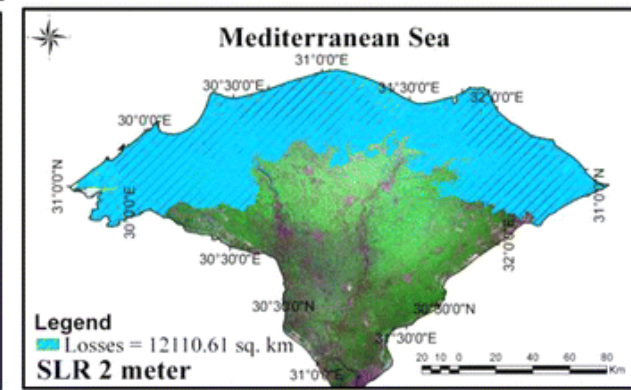
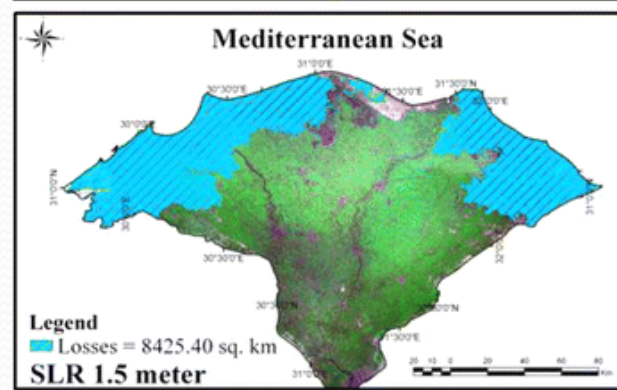
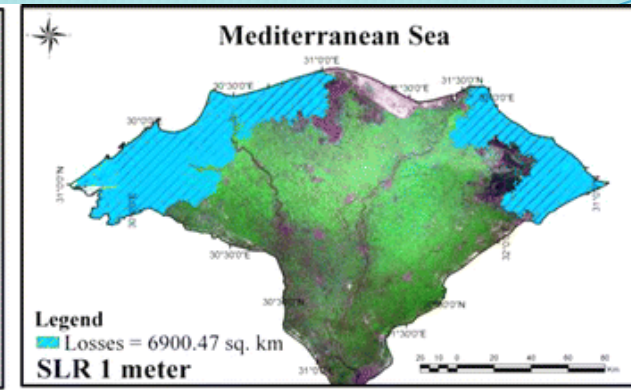
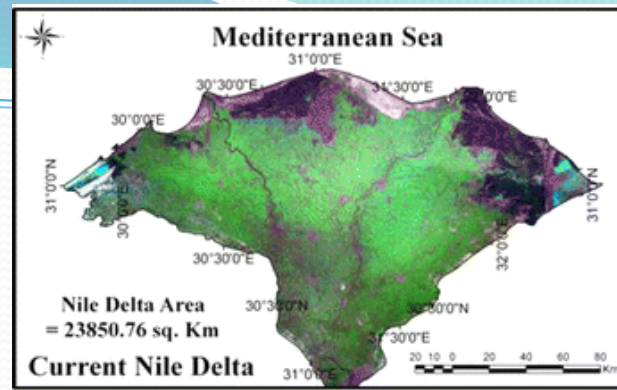
**Rosetta apex inundation**



**The first SLR scenario (1.0 meter SLR)**  
**6,900.47** km<sup>2</sup> of cropland, wetland and fish ponds representing 28.93% of the total area of the Nile Delta will disappeared .The adjacent agricultural areas will alter to salt affected soils.

**The second SLR scenario (1.5 m SLR)**  
 In addition to the above-mentioned scenario hazards, 1,524.93 km<sup>2</sup> representing 6.39% of the total area of the Nile Delta would be added to the inundated lands, therefore, the total affected area of this scenario would reach 8,425.40 km<sup>2</sup> representing 35.33% of the total area of the Nile Delta. Many villages would submerse and shortage in food might occurred.

**The third SLR scenario (2 m SLR)**  
 This scenario if occurred would be a big catastrophe for the Egyptians, as agriculture production would decline over 50%. Furthermore, coastal zone citizens would be displaced. The total loss in area if this scenario occurred would reach 121,10.61 km<sup>2</sup> representing 50.78% of the total area of the Nile Delta.



SLR scenarios by the year 2100

## The secondary impact of SLR

-Impact on livelihoods and human health. Threats to food production capacity including decline in irrigation water quality, decline in coastal crop yields, and degradation/disappearance of crucial ecosystems such as coral reefs and coastal lagoons.

-Decline in health/living standards as a result of decline in drinking water quality, threat to housing quality, associated increasing health hazards and spreading of disease vectors.

-Possible displacement and relocation of vulnerable populations

-Impacts on infrastructure ,economic activity and historical monuments.

-Decline in land and housing property values.

-Threats to major infrastructure (including strategic harbors, coastal roads, railways, health and school buildings, etc.).

-Threats to major coastal industry and services (including oil / petrochemical plants and tourism).  
Diversion of resources to adaptation responses to sea-level rise impacts.

Increasing protection costs which may not be affordable to developing countries such Egypt unless substantial aid is obtained.Can we waste our human heritage



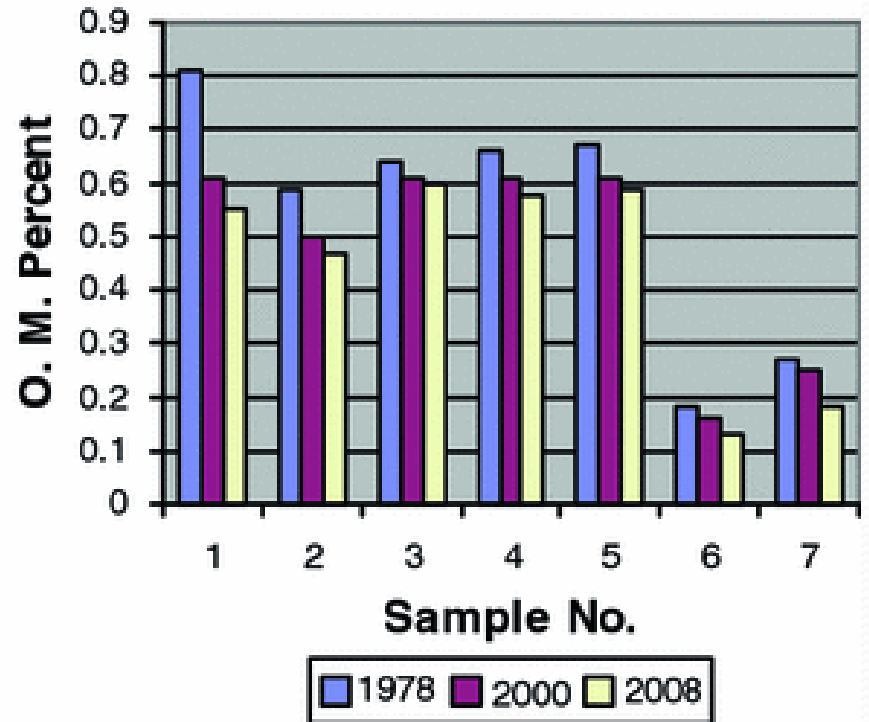
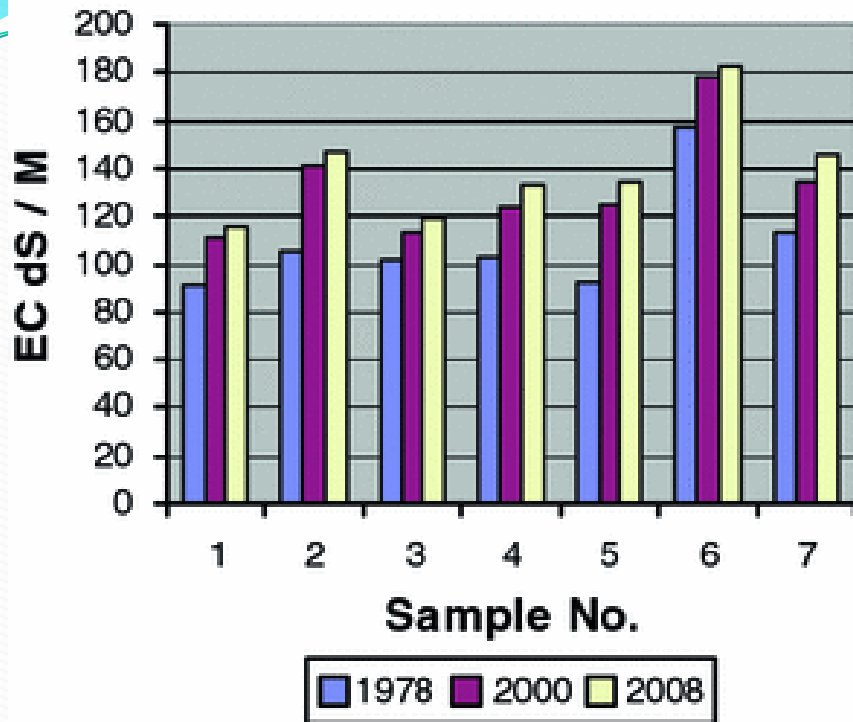
Roman theater



Alexandria library


Can we waste our human heritage





Salinity and organic matter changes during the period of 1978–2008





**Finally it is worthy to say, major industrial countries must shoulder their moral and human responsibilities towards the affected countries and provide financial and technical support to reduce climate changes effects.**



Thank you