The present global scenario poses multiple environmental problems associated with global warming due to the green house effect.  Anthropogenic contributions are now considered as a cause for accelerated sea level rise, changes in monsoonal rainfall pattern, increase in intensity and frequency of storms etc. Obviously, In order to foresee the future variability in climate, there is need for an increased awareness about the past climatic changes. However, climate prediction is a very delicate task and needs a thorough knowledge about the past. Past records have been maintained for not more than past 100-150 years, beyond which we would need proxies to give us information about the past climate. During the past few decades, microfossils, especially foraminifers have become the prime source to paleoclimatic reconstructions.

In order to obtain knowledge about past changes in the relative sea levels, a two-fold strategy should be adopted. We have to look for the position of past sea levels with respect to the present day sea level: (i) when sea level was higher (for this coastal areas explored for erosion or depositional features), and (ii) when sea levels was lower (for this sea floor sediments examined for shoreline movements and depth variations). Armed with the above information, we have generated an updated sea level curve for Late Pleistocene-Holocene sea level fluctuations. This corresponds to the time interval - last 15000 years. We successfully demonstrated that as compared to the present, sea level was lower by 100 m about 14,500 years BP (Before Present), and 60 m about 10,000 years BP. It has been reported that since the last 10,000 years, three major episodes of sea level variation have resulted. Similarly, we have gleaned evidences that attest to higher strands of sea level 6000 years BP. Utilising the sea level curve and occurrence of foraminifera (exclusively marine microfossils), it was conclusively established that the rectangular structure at Lothal (a Harappan Settlement, near Ahmadabad) was a dockyard (first Naval dock yard of the world as claimed by archaeologists) and not, as earlier proposed, a fresh water storage tank. Further, with the help of this sea level curve, we have explained the discovery of Neolithic settlements (at 30-40 m water depth) in the Gulf of Khambhat - the oldest civilisation site known to man, particularly in the Indian subcontinent. Similarly, occurrence of foraminifera in subsurface sediments at Dholavira (Gujarat) indicated the possibility of tsunami and knowledge of which prompted ancient Indians to built unusually thick (18m) wall around citadel – the world’s oldest tsunami protection measures.

Similarly, paleomonsoonal studies on core samples off Karwar, west coast of India showed the clear signals of marked high rainfall around 4000 and 3500 years BP and reversal of rainfall condition since 3500 B.P. with a marked low at 2000 years BP. These findings gathered support from palynological investigations of the same core and foraminiferal studies off Oman, western Arabian Sea. In addition to this, a cyclicity of approximately 77 years in concentration of drought years was deciphered which is possibly regulated by Gleissberg cycle in the radius of the sun.