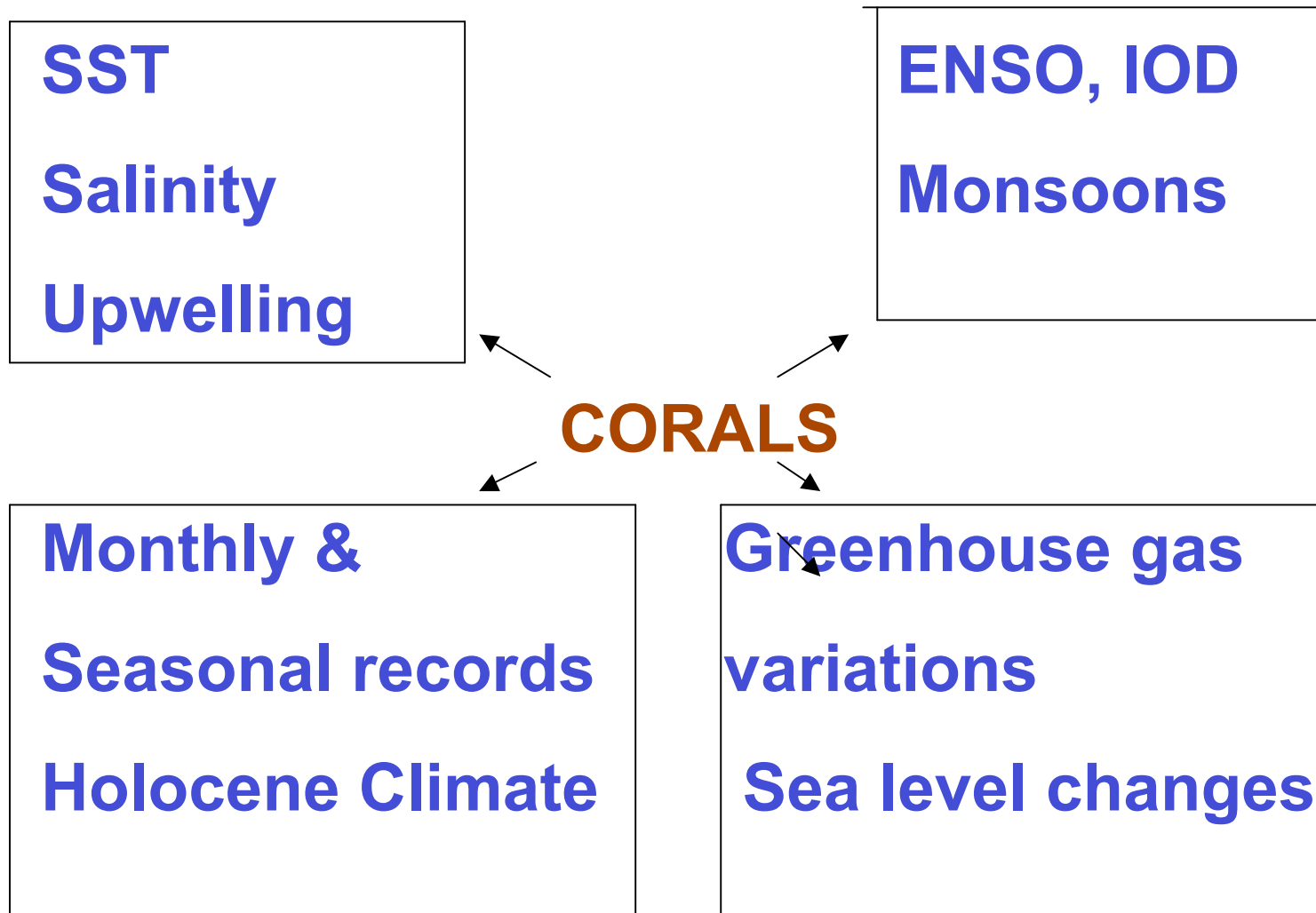


Reconstruction of past sea surface temperature (SST) in the eastern Arabian Sea from oxygen isotopic compositions of scleractinian corals

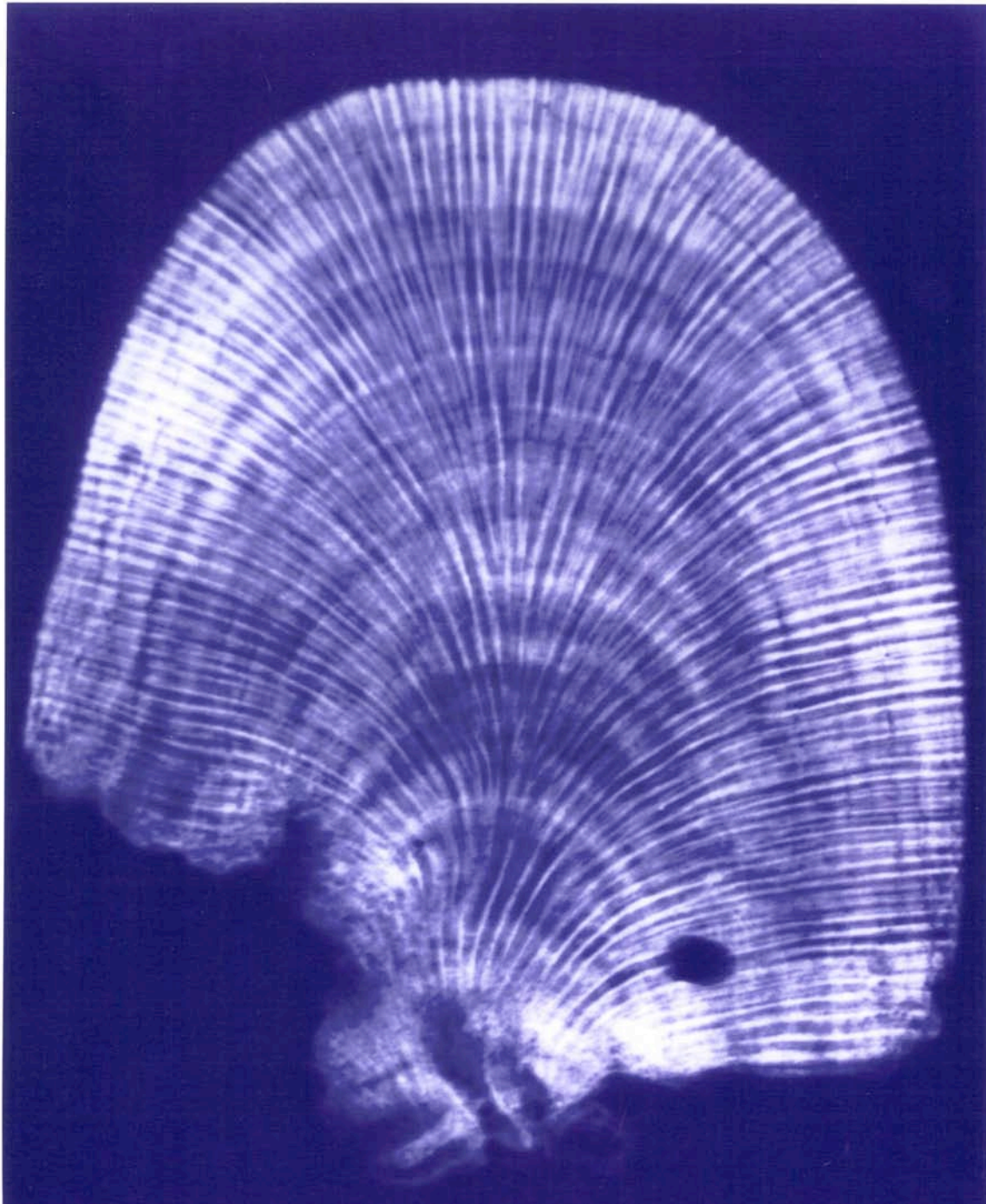
S. Masood Ahmad, V.M. Padmakumari, Waseem Raza, G. Suseela & Netramani Sagar

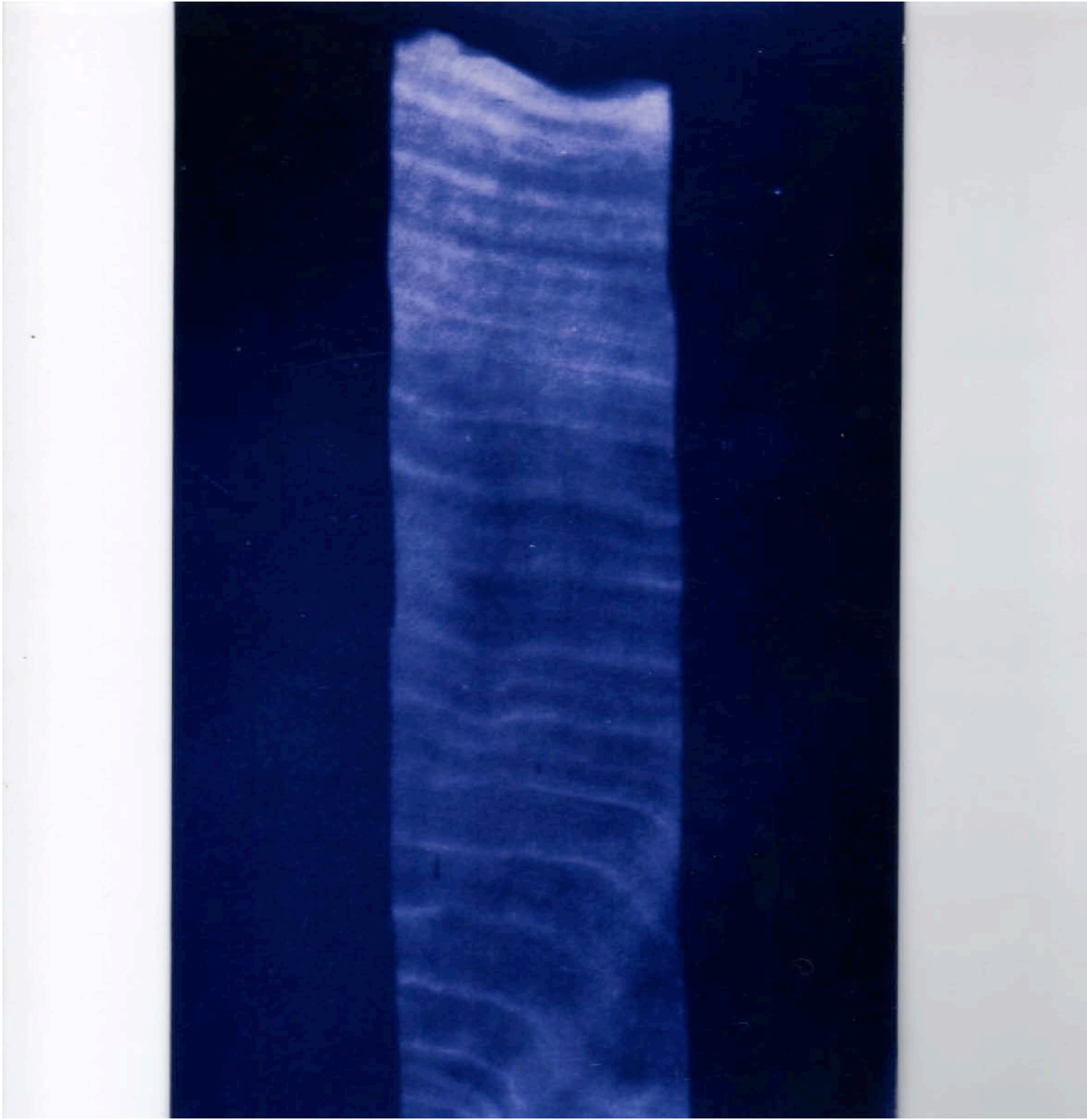
National Geophysical Research Institute (C.S.I.R.), Hyderabad, India











Equations used for calculating SST from coral's $\delta^{18}\text{O}$:

For summer months:

$$T (\text{°C}) = 3.0 - 4.88 (\delta^{18}\text{O}_{\text{coral}} - 0.28)$$

For monsoon months:

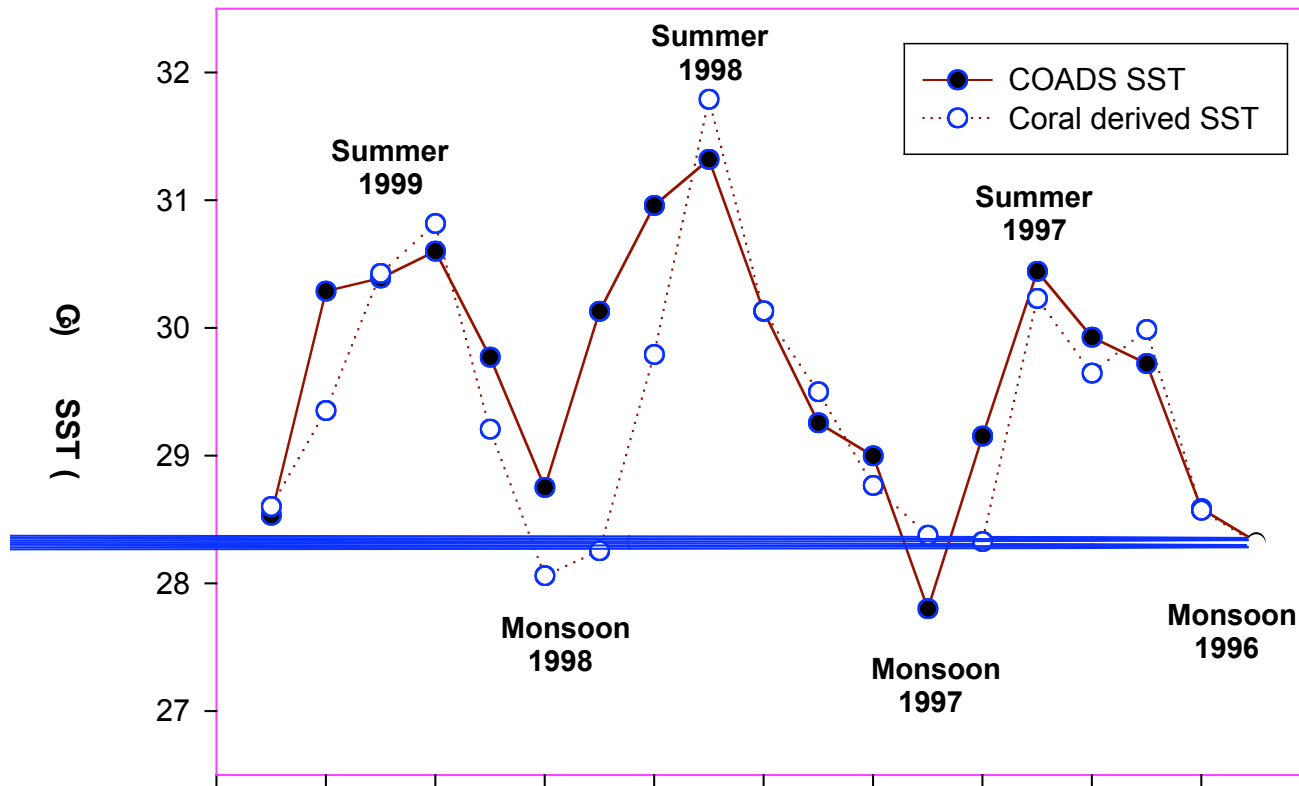
$$T (\text{°C}) = 3.0 - 4.88 (\delta^{18}\text{O}_{\text{coral}} - 0.415)$$

$$\delta^{18}\text{O} = \left\{ \left[\frac{^{18}\text{O}/^{16}\text{O}_{\text{sam}}}{^{18}\text{O}/^{16}\text{O}_{\text{std}}} - 1 \right] \right\} \times 10^3$$

Ref.: Chakraborty and Ramesh (1993)

Terra Nova

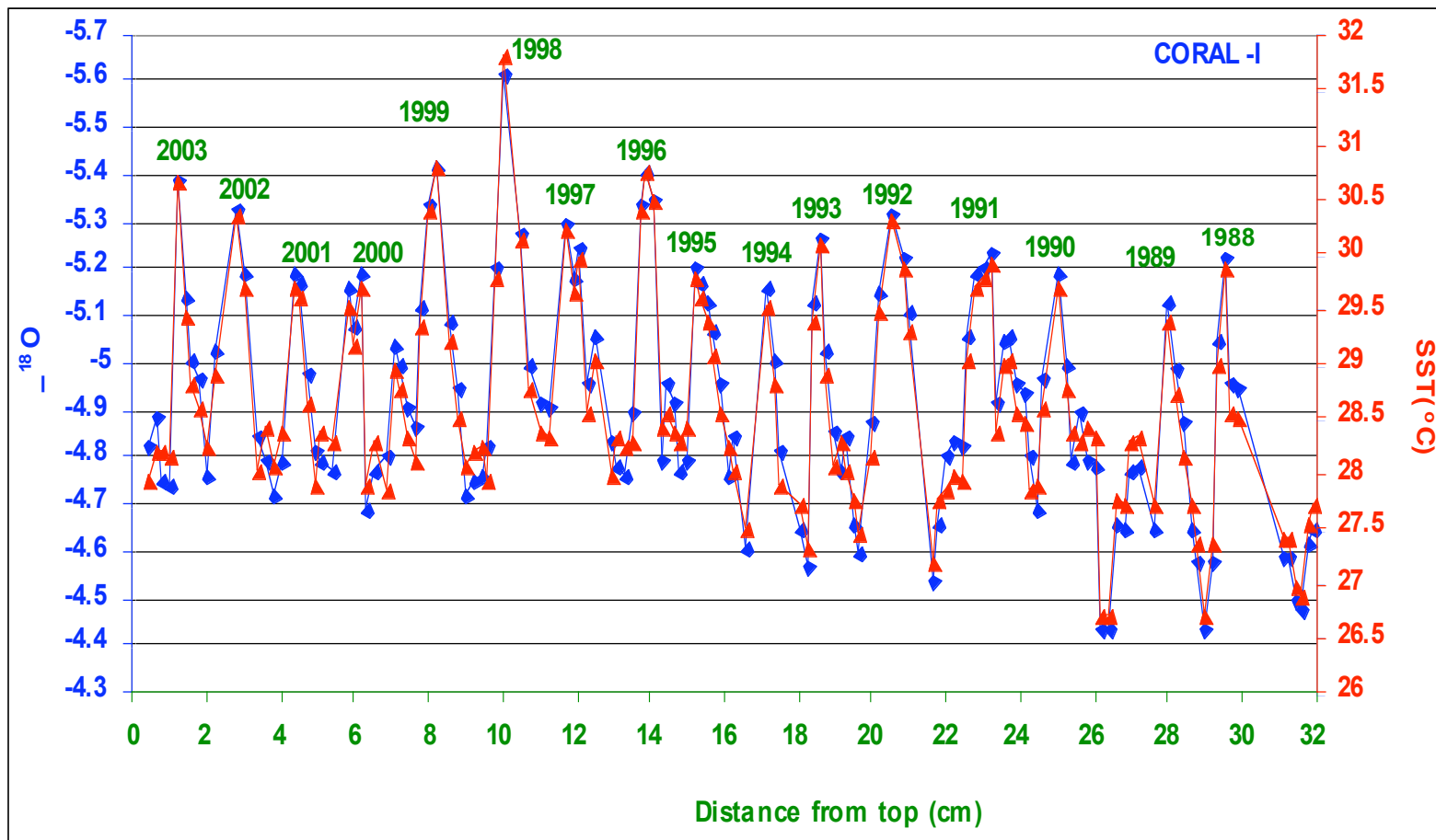


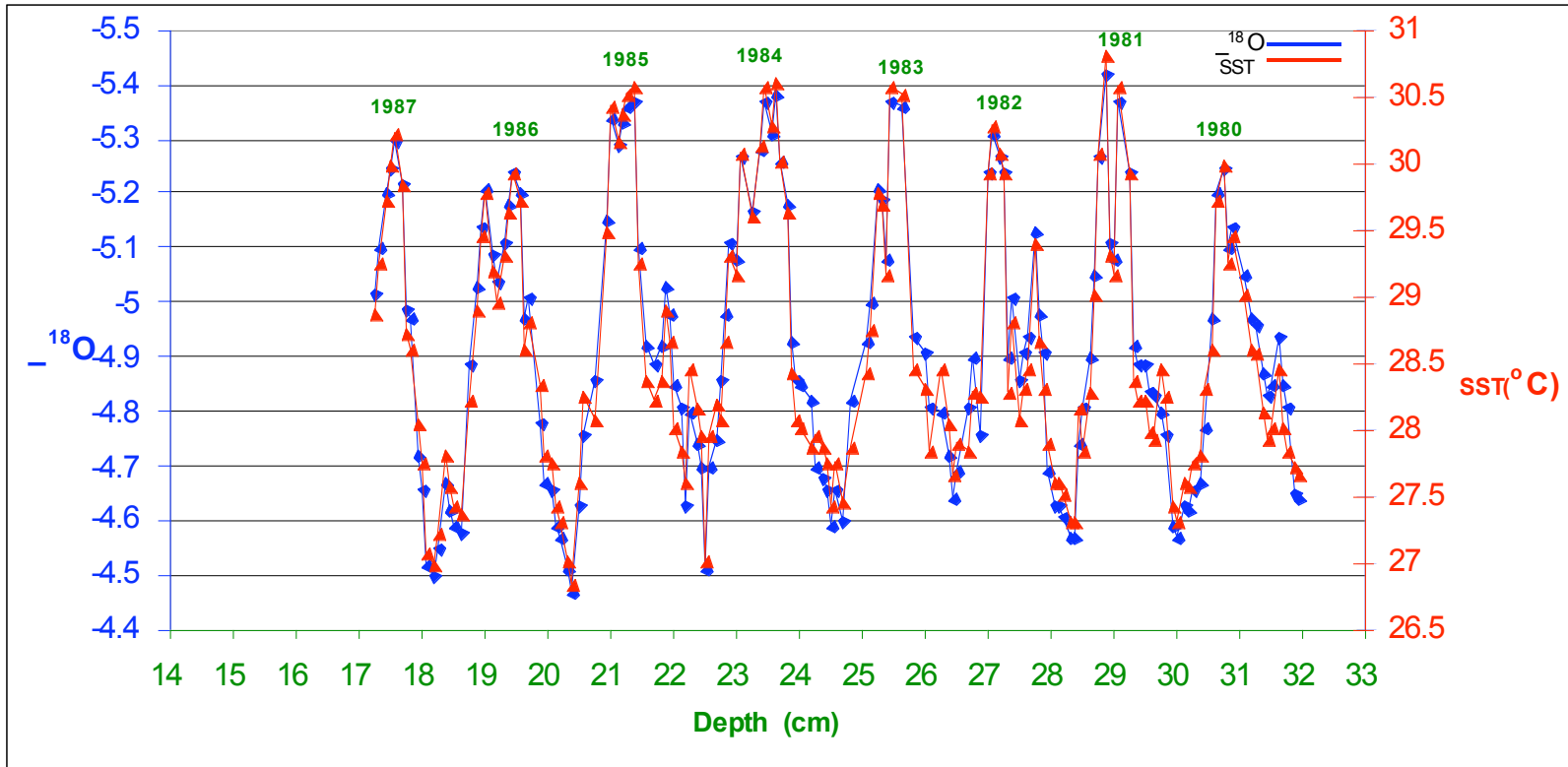


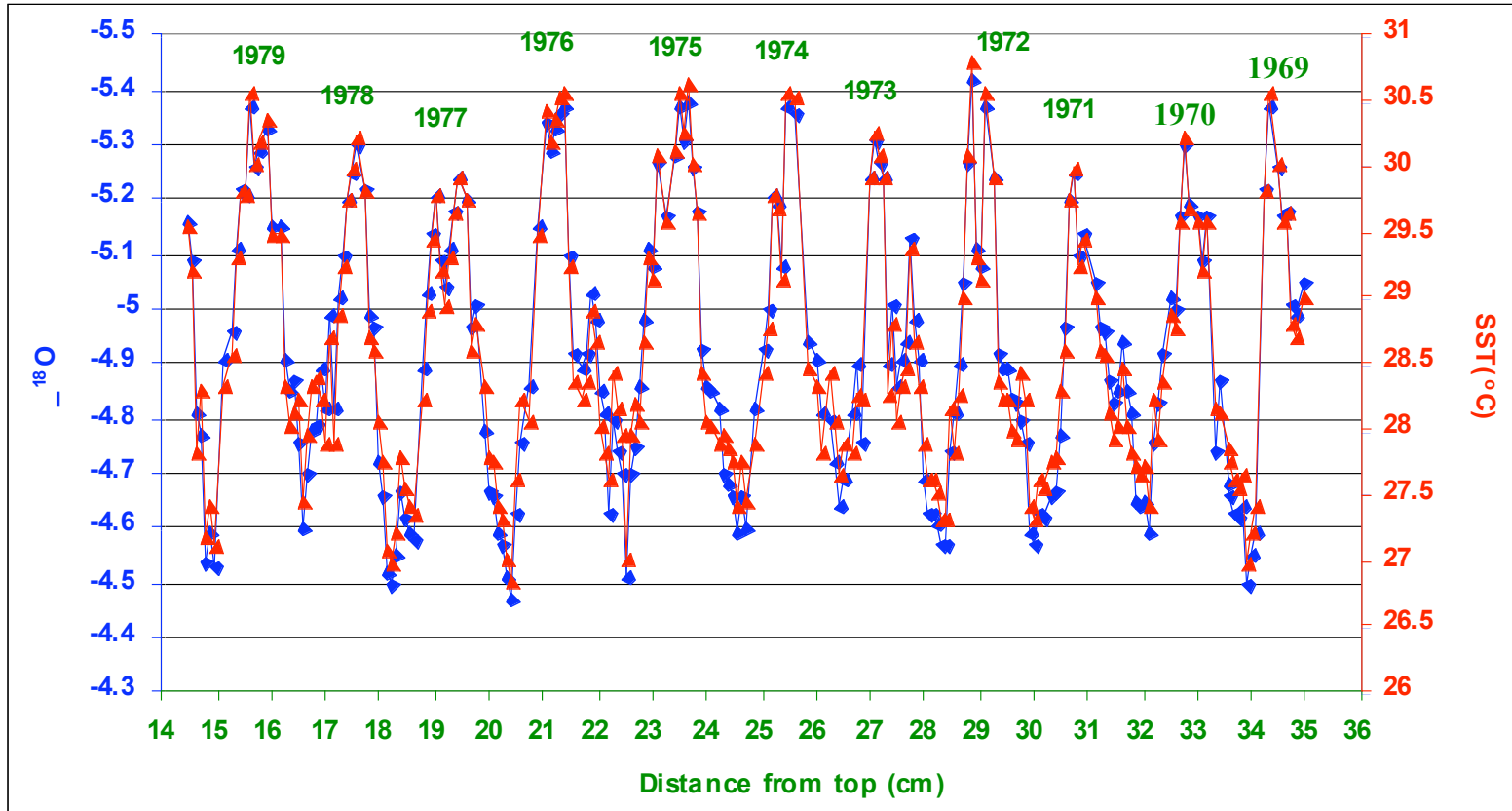
Our climatic records are based on:

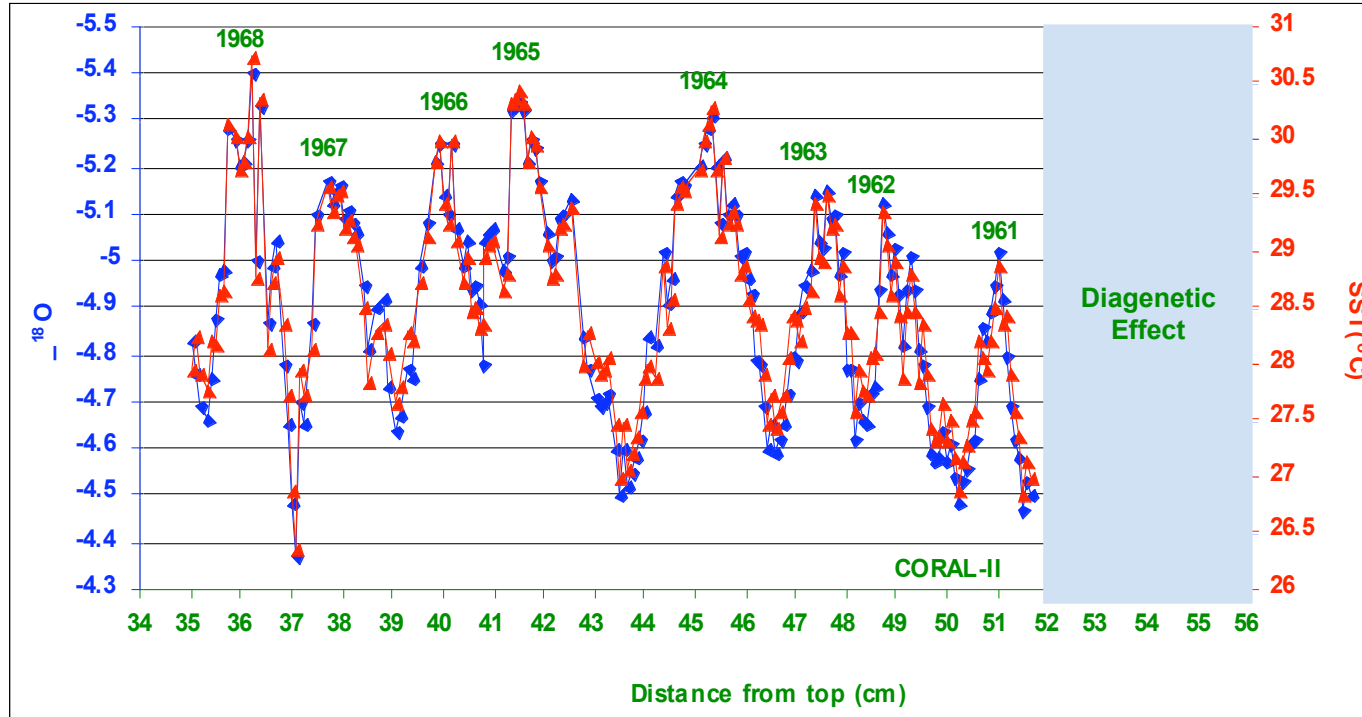
- ⇒ High-precision measurements of carbon & oxygen isotopes in 1200 samples from two coral cores collected off Kavaratti island
- ⇒ Continuous sampling at ~ 1 mm interval for high resolution measurements

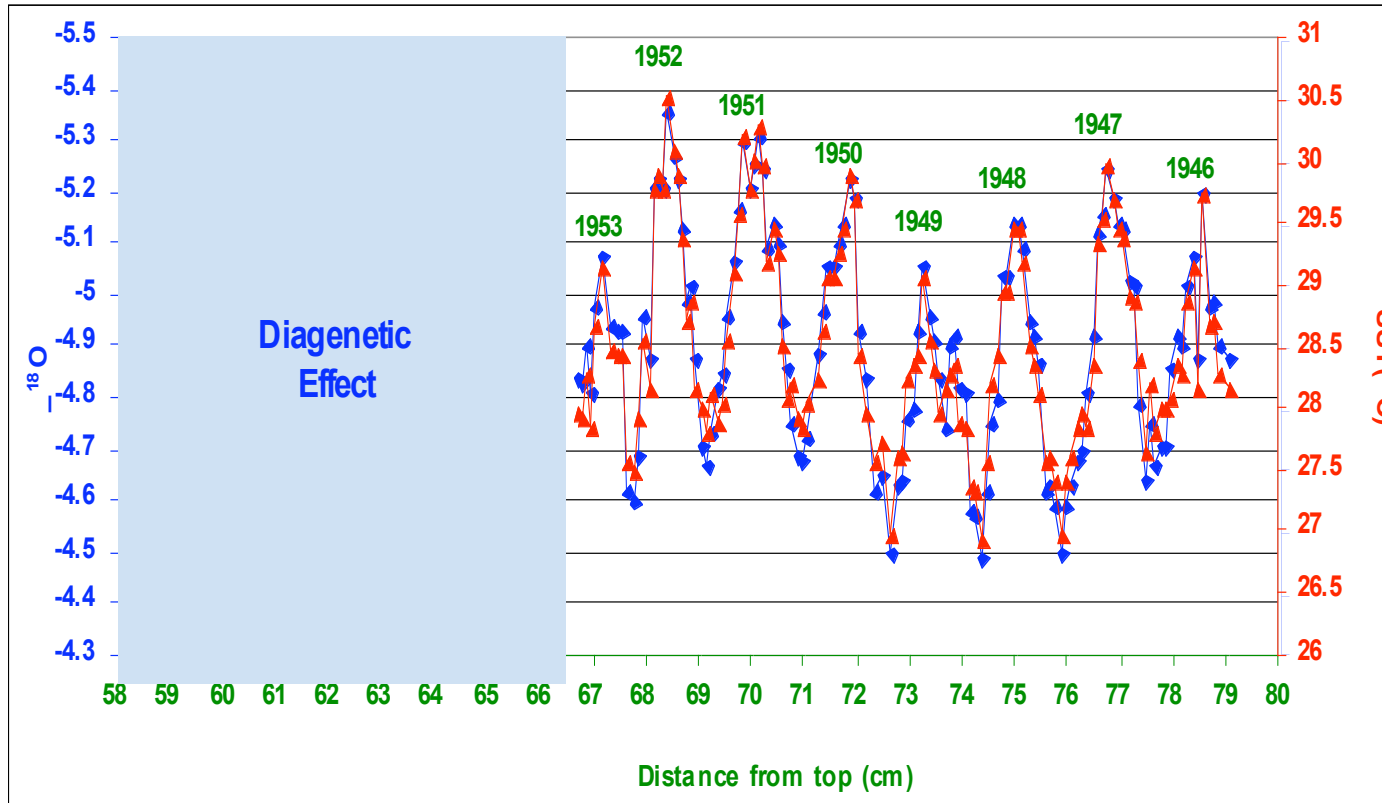


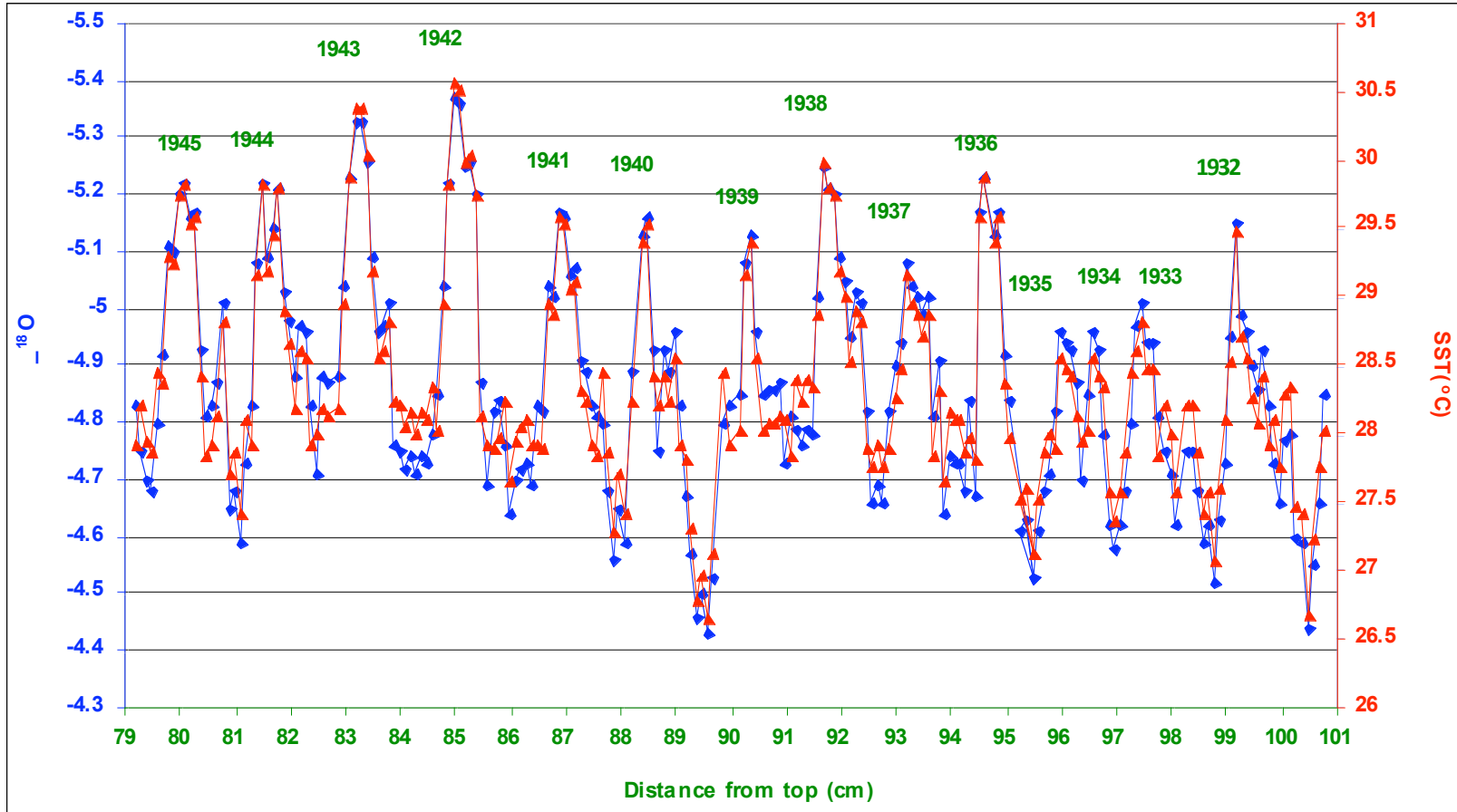


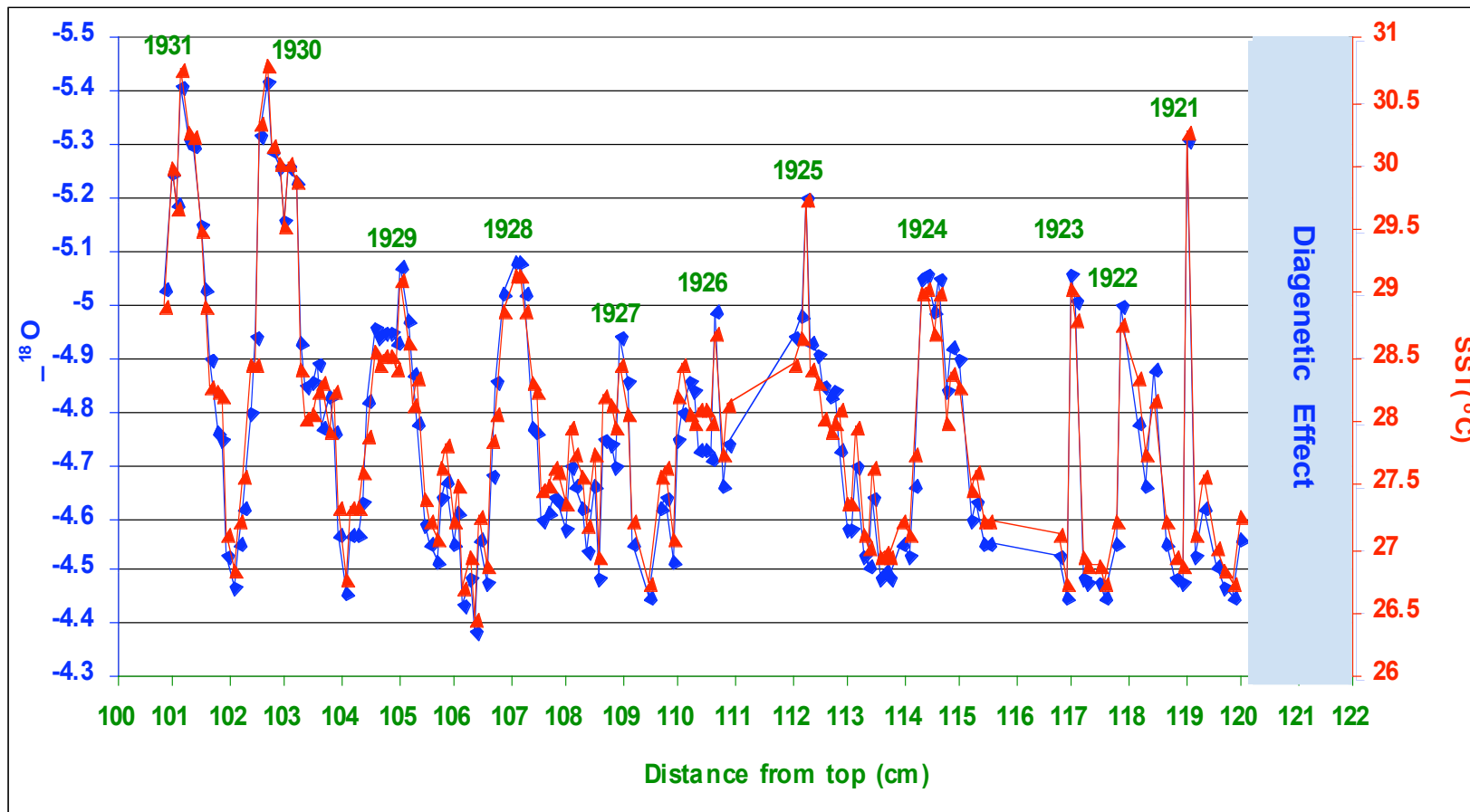


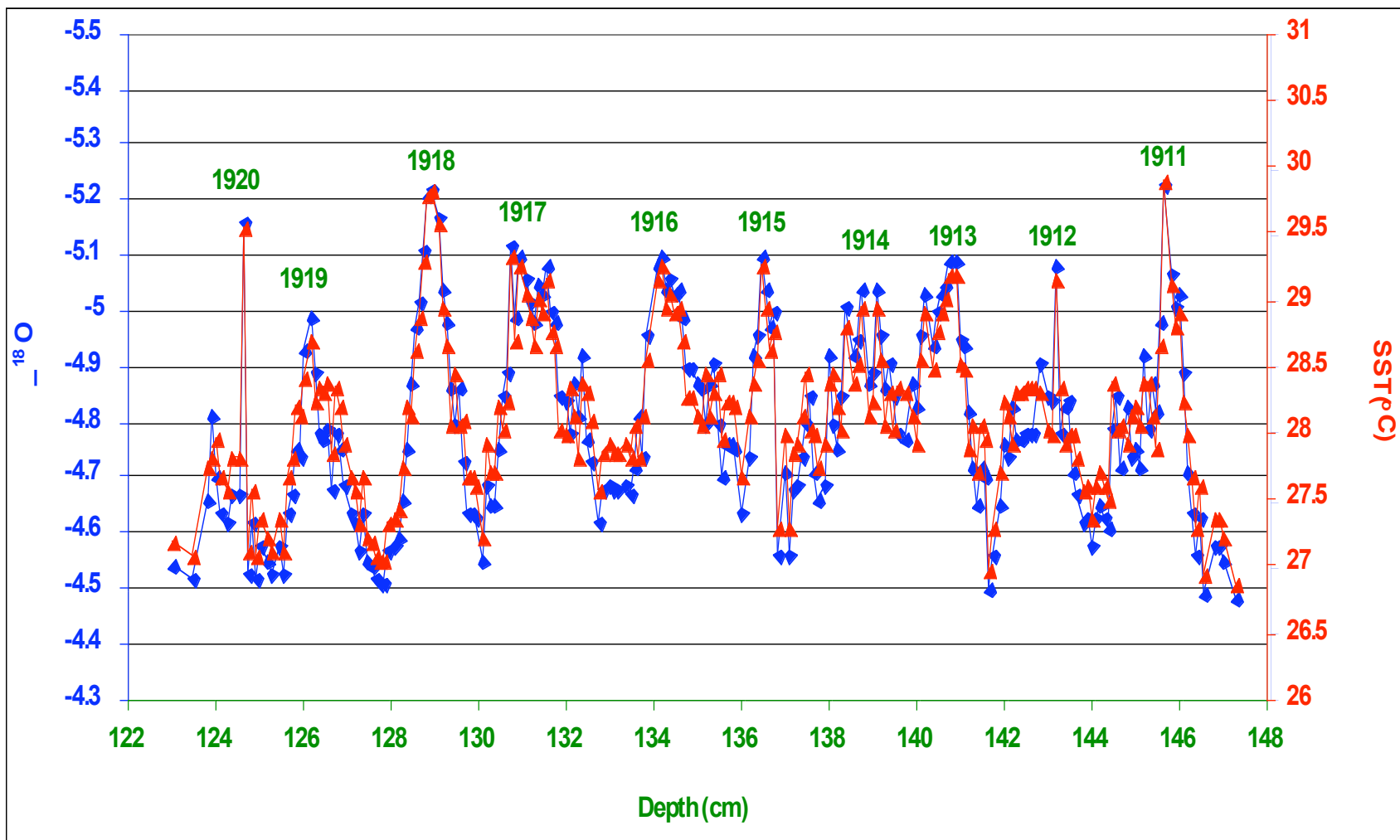


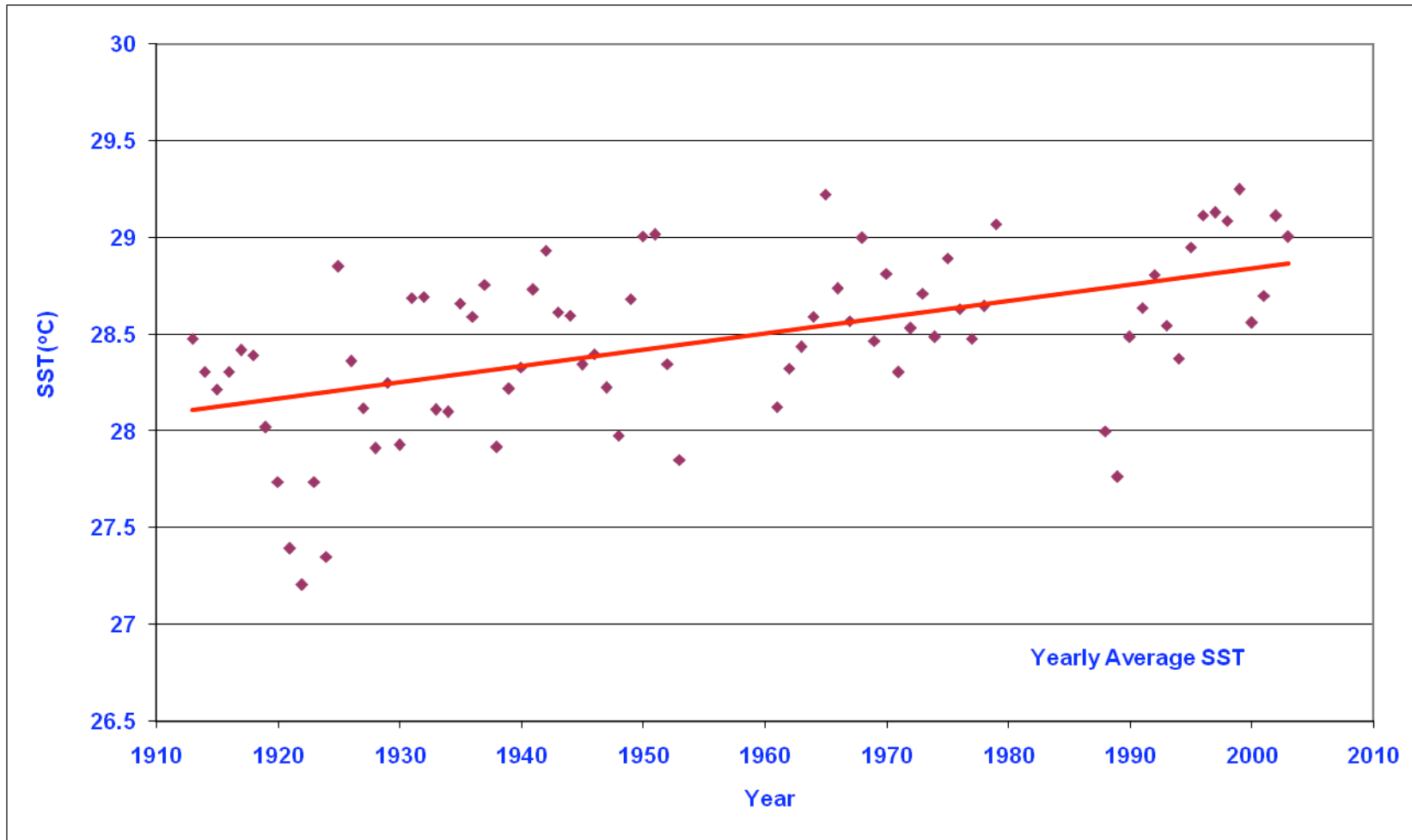


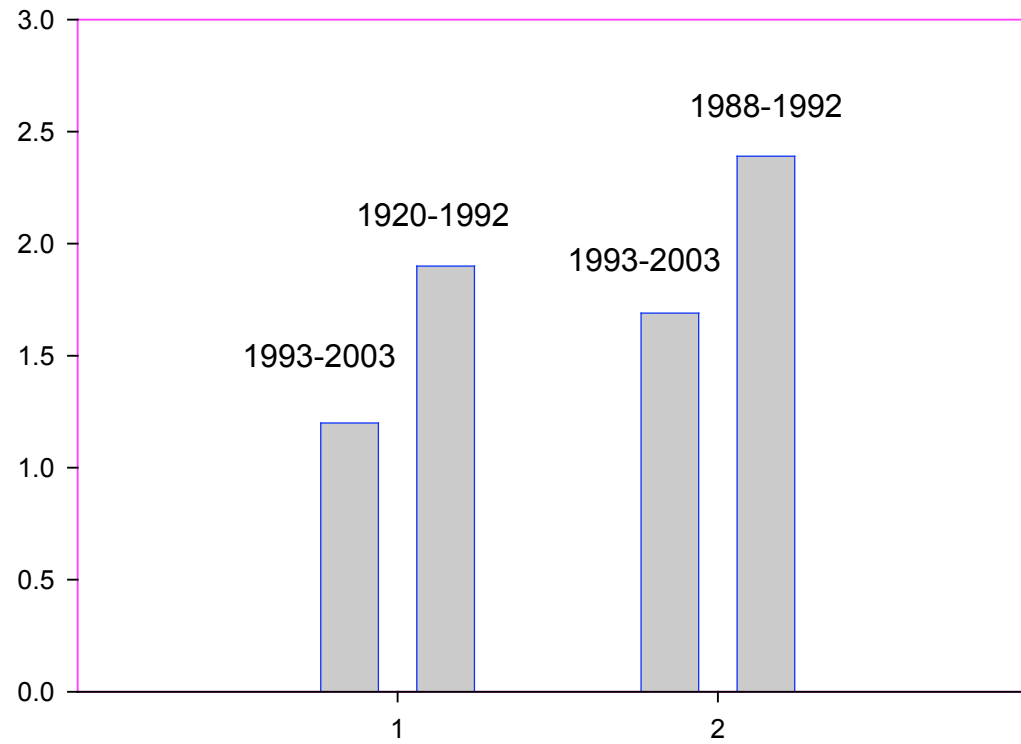












INFERENCES:

- * **The average SST around the Lakshadweep islands has increased by $\sim 0.8^{\circ}\text{C}$ during the 20th century. This increase is greater than the mean SST increase of $\sim 0.6^{\circ}\text{C}$ for the global surface temperature**
- * **This relatively higher increase in annual SST indicate decrease in monsoon-derived upwelling pattern**
- * **Lower calcification rates are reported in genus *Porites* of Lakshadweep region, probably due to the ocean acidification or global warming**
- * **Inter-decadal to decadal climate variability is seen in coral records of Lakshadweep region**



Thank You