(a) Nutrient availability and isotopes signatures in the modern water column and surface sediments (10° S)

N > Si

- Offshore transport
  - Si depleted
  - Deepening of the thermocline

N = Si

- Si enriched
- N enriched

Deepening of the thermocline

(b) Nutrient utilization scheme

- Isotope values reflect ~ 1:1 uptake
- Isotope values reflect ~ 7:1 uptake

Stratified waters
- Plochlorococcus + Synechococcus
  - Surface waters Si depleted:
    - Uptake by Synechococcus
    - reduced diatom productivity
    - low δ^{30}Si

Coastal upwelling
- Diatoms dominating
  - moderate nutrient utilization due to continuous upwelling
  - medium utilization of N + Si
  - moderate δ^{15}N_{Bulk} + δ^{30}Si_{BSi}