Salinity in the Red Sea
Distribution pattern

- Higher salinity in seawater occurs when evaporation exceeds precipitation.
- The average salinity of the surface waters in the open oceans is ~ 35.
The salinity in the Red Sea increases from south to north.

Salinity increases along its axes steadily, reaching 38 by about 17°N, 39 by 22°N and by 40 by 26°N.
Distribution pattern

- Salinity of 40.5 is recorded at the entrance of northern Gulfs.
- In general salinity is higher on the western side than in the east (isohaline are aligned generally from NNE to SSW.)
Distribution pattern

- The differences between the eastern and western sides in the same latitude ~ 1.
- Little is known about seasonal changes.
- Evidence that evaporation is higher in the winter than in the summer.
  
  Why??????
  
  Due to higher wind speed in winter
Distribution pattern

- Evaporation minimum in the wind convergence zone at around $18^\circ$N during the months Oct to May.

- In the southern half a small increase seems to occur in summer.

*Why????*

Due to great extent of the North-westerly winds at this time which increase the transport of more saline surface water from the north.
Sub-surface salinity

- The salinity of water mass in the Red Sea basin below 300m is constant 40.5-40.6 (Similar to the surface salinity of the Gulf of Suez i.e. its source is from the Gulf).

- Since the surface salinity increases northward, the vertical gradient is largest in the south, becomes very small by about 23 °N and is non-existent at the northern end.