

Chapter 6 Groundwater Levels and Environmental Influences

6.1 Time Variation of levels : rainfall is not an accurate indicator of GW level changes

- **Secular** Variation

Over developed basins when draft exceeds recharge



downward trend of GW level

Recharge is the governing factor depends on rainfall intensity and distribution and amount of surface runoff

- **Seasonal** Variation
rainfall , irrigation
- **Short – term** Variation
primary use of GW – in a locality

6.2 Stream flow and GW levels

Gaining stream : receiving GW discharge

losing stream : recharging GW

rising water : increased in stream flow GW Fig6.6

stream fluctuation produces large variations

in magnitude and direction of local GW. flow Fig 6.7

bank storage estimation Sample

Base flow : GW discharge to stream flow : GW runoff

: sample Fig 6.8 Estimation

or by TDS, any major ion Eq. 6.1-6.3

: recession curve Fig 6.9

$$Q = Q_0 10^t$$

Factors : leaky aquifer , evapotranspiration

—————> Steeper recession curve