

Overview

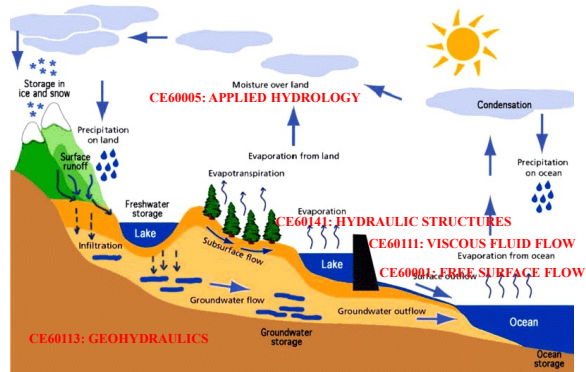
Geohydraulics| CE60113

Lecture:00

Learning Objective

To understand the importance of groundwater

The Hydrologic Cycle

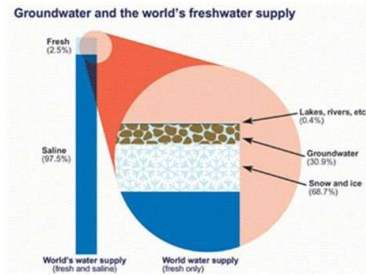


Basics

- Geology:
- Hydraulics & Hydrology:

Geohydraulics

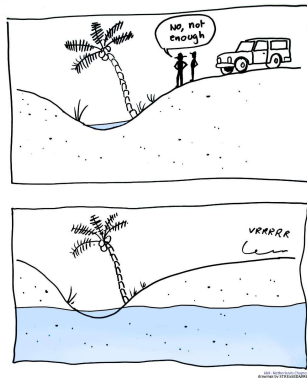
- **Geohydraulics** is the part of hydraulics that deals with the occurrence, movement and quality of **water beneath the Earth's surface**.
- Provide tools to deal with groundwater flow problems.
- Provides mathematical statement of the flow problem



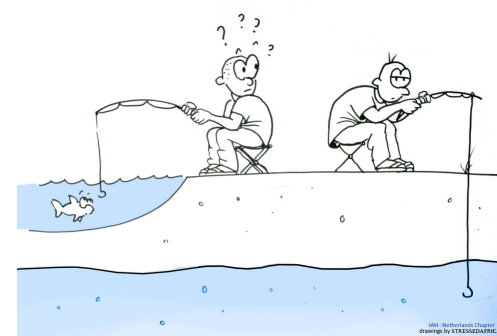
Differences between Geohydraulics and

- Groundwater Hydraulics
- Groundwater Hydrology
- Hydrogeology
- Geohydrology
- Geological Fluid Dynamics

Groundwater: the hidden resource



Groundwater: not a lake under the ground



Business of Geohydraulics

- Groundwater supply
- Groundwater contamination

Syllabus

- Aquifer properties and subsurface flow
- Mechanics of well-flow and aquifer tests
- Modelling of two-dimensional flow in aquifers
- One-dimensional flow in unsaturated zone
- Pollution transport by advection and diffusion
- Sea-water intrusion
- Finite difference and finite element methods for solving subsurface flow and transport problems
- ~~Application of conformal mapping and Schwarz-Christoffel transformation~~
- Application of professional software for modelling
- Conjunctive surface- and subsurface water system for sustainable management of regional water resources.

Evaluation Policy

- Assignments: 20%
- 2 Class Tests: 80%
 - Marks: 30 + 50

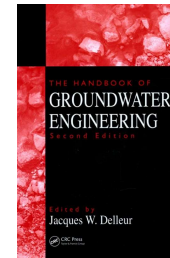
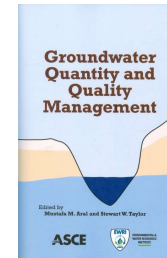
Submission of Assignments and Tests

- Institute Moodle Server
- URL: <http://kgpmoodlenew.iitkgp.ac.in/>

Text Book



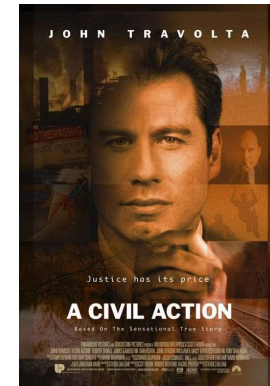
Reference Books



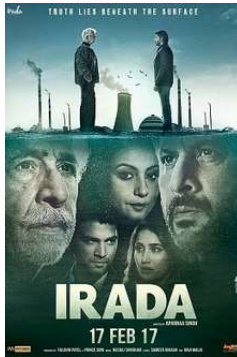
Journals



Movies



Movies



Thank you