CEE3430 Engineering Hydrology

Homework 1. Introduction to Hydrology

Date: 1/9/12
Due: 1/18/12

Objective. The objective of this homework is to gain experience quantifying aspects of the hydrologic cycle and the properties of water in the soil.

1. Mays 1.1.1

2. Mays 1.1.2

3. Mays 1.6.2. Use the USGS NWIS website http://waterdata.usgs.gov/. For this gage report the following
    a) Watershed area,
    b) Mean annual discharge,
    c) Months with highest and lowest mean of monthly discharges
    d) The maximum discharge on record and the date that this occurred
    e) The ratio of highest mean monthly discharge to lowest mean monthly discharge. Comment on the seasonal cycle of discharge at this gage.
    f) Compute the mean annual runoff expressed as a depth (yearly discharge volume/area).

4. Mays 2.2.1

5. Mays 2.2.3

6. Field and oven-dry weights of a soil sample taken with a 10 cm long by 5 cm diameter cylindrical tube are given.

Field mass	g	302.5
Oven dry mass	g	264.8

Assuming ρ_m=2.65 g/cm^3, calculate the following
    a) bulk density
    b) porosity
    c) void ratio
    d) volumetric soil moisture content
    e) gravimetric soil moisture content
    f) saturation percentage