

CEE6400 Physical Hydrology

Homework 4. Runoff Generation and Water in Soil

Date: 9/23/13

Due: 10/2/13

This section of the course involves work from the Rainfall Runoff Processes online module at <http://www.engineering.usu.edu/dtarb/rrp.html>. Create a user account for yourself and work through the modules doing the quizzes at the end of each.

Learning Objectives.

- Be able to use the terminology used in hydrology and the study of rainfall-runoff processes (Chapter 1).
 - Be able to describe the processes involved in runoff generation (Chapter 2)
 - Be able to distinguish between infiltration excess, saturation excess and subsurface stormflow runoff generation mechanisms and identify when and where each is more likely to occur (Chapter 2)
 - Be able to describe the physical factors resulting in the occurrence of runoff by the different mechanisms (Chapter 3)
 - Be able to quantify the properties of water held in and flowing through soil (Chapter 4)
1. Work through the material in chapter 1 of this module and do the quiz at the end.
 2. Work through the material in chapter 2 and do the quiz at the end.

Write a paragraph (1/4 to 1/2 page) answering each of the following questions from this module:

- a. What are the processes by which runoff is generated by rainfall?
 - b. What are some of the mechanisms that cause the same quantity of precipitation falling in different watersheds to result in different amounts of streamflow?
 - c. How does the same quantity of precipitation falling in the same watershed at different times of year cause different amounts of stream flow?
 - d. Why does storm intensity and duration of precipitation affect stream flow amounts in different watersheds?
3. Work through the material in chapter 3 and do the quiz at the end.
 4. Work through the material in chapter 4 and do the quiz at the end.
In doing these quizzes where the online problems you get differ from the workbook, use the online problems.
 - Hand in working for problems 7 and 8. These will be similar to problems 7 and 8 in the workbook, but with different numbers.
 - Hand in your grain size distribution plot for problem 10 (numbers may be different from workbook problem 10 and 11)
 - Hand in working for problem 11