

WaterViz Investigation 1

Note: Evaporation & Transpiration will be treated as 1 component since they are often measured together and they both involve the movement of water vapor.

July 2018 Rain Event Article

Introduction

Summer in New England is characterized by sunny days, occasional clouds and rain showers, big rain storms, and sometimes droughts. Here we share a two-week period from Hubbard Brook Experimental Forest, New Hampshire, when there were several days of heavy rain.

Days 1-4 (July 18 to 21, 2018)

Conditions are calm during the first 4 days. Temperatures are moderate, with highs in the 70's °F during the day and lows in the 50's °F at night. There is no rain. Streamflow is low (less than 0.006 cubic foot per second, cfs), the soil is moderately dry (average soil water = 1.8 inches), and evaporation/transpiration (measured in inches) go up and down on a daily basis.

Days 5-10 (July 22 to 27, 2018)

During the next 6 days, the weather changes from clear to rainy, with bands of rain moving through the mountains. As the rain soaks into the ground, soil water rises, and 15 hours after the start of the rain, streamflow begins to rise. After 2.8 inches of rain, stream flow peaks at 3:00 am on July 26th (at 3.3 cfs), and then begins to decrease as rainfall slows to showers and then stops. Total rainfall during this 6-day period is 3.2 inches. Soil water is also at its highest (4.3 inches) on the afternoon of July 26th and falls gently after that. Daytime high temperatures are still in the 70's °F but nighttime low temperatures are warmer, in the 60's °F. During this period, evaporation/transpiration are low.

Days 11-14 (July 28 to 31, 2018)

During the final 4 days, there are just a few showers, with total rainfall of 0.2 inches. Streamflow gradually declines to 0.02 cfs, soils continue to dry out, air temperature and evaporation/transpiration return to going up and down on a daily basis. High temperatures during the day are in the 70's °F and low temperatures at night are in the low 60's °F.

Activity Directions:

You will become an expert on temperature or one of the water cycle components. You will record observations for **one component** using the note-catcher below.

July 2018 Rain Event Note-Catcher

Component:

Days 1-4 (July 18 to 21, 2018):

Days 5-10 (July 22 to 27, 2018):

Days 11-14 (July 28 to 31, 2018):

Activity Directions:

1. As a group, discuss the main ideas about how your group's component changed during the summer rain event.
2. Chart your group's ideas in preparation for the Gallery Walk.
3. Be sure to give your chart a descriptive title.
4. Your ideas could be shared in the form of text, pictures, graphs, etc. Be creative!

Activity Directions:

As each group presents their Gallery Walk chart, record the main ideas for how each component changed during the summer rain event.

Gallery Walk Notes: Changes During the Summer Rain Event

Temperature:

Precipitation:

Streamflow

Evaporation/Transpiration:

Soil Water: