*Oct 31, 2013*

Written examination exercises,

Course “*Forest Hydrology” and “Forest and Hillslope Hydrology*”

***Problem 1***

*For a catchment 50 km2 wide you need to compute the runoff depth following a storm with duration of 3 hours and depth of 90.0 mm. The catchment is characterised by an overall CN equal to 60, Ia=0.05 Smax.*

*Compute*

1. *the runoff depth in mm ;*
2. *the runoff coefficient. .*

*Results:*

*1. runoff depth: mm*

*2. runoff coefficient:*

***Problem 2***

*Rainfall in a catchment 50 km2 wide is monitored by a network of 3 stations, for which the point rainfall during a flood is:*

*Station 1: 200 mm*

*Station 2: 200 mm*

*Station 3: 80 mm*

*Use the Thiessen method to compute the event basin averaged rainfall. The Thiessen weights are as follows:*

*Station 1: 0.25*

*Station 2: 0.25*

*Station 3: 0.50*

*The catchment is characterised by an overall CN equal to 60, Ia=0.04 Smax.*

*Compute*

1. *the runoff depth in mm ;*
2. *the runoff depth in m3;*
3. *the runoff coefficient. .*

*Answers*

*Thiessen*

*Areal mean precipitation: mm*

*Runoff depth: mm*

*Runoff ratio: (-)*

***Problem 3***

*Repeat the computation of Problem 2 by considering the stations equally representative, and compute the corresponding runoff depth and runoff coefficient. Discuss the results you have obtained.*

*Discussion on the differences*

*Answers*

*Arithmetic average*

*Areal mean precipitation: mm*

*Runoff depth: mm*

*Runoff ratio: (-)*