

ESR 320
PHYSICAL ENVIRONMENTAL SYSTEMS I
Problem Set 4: Precipitation
DUE Thursday, 11/05/2009

1. The map on the next page shows a watershed and its rain gage locations. On this map, construct the Thiessen polygons that correspond to each rain gage. Count the grid squares in each polygon and in the total catchment to find the Thiessen weighting factor for each gage. The Thiessen method is described in the online “Intro Hydrology” reading in section 4.5.2.

You can also walk through the procedure online by following the nifty animated tutorial presented at:

<http://data.piercecollege.edu/weather/flash/Thiessen.swf>

A link to this site also can be found on the Course Schedule on the class website:

<http://web.cecs.pdx.edu/~fishw/ESR320-Home.htm>

2. Suppose we record the following precipitation in the gages after a storm event:

Rain Gage	Precipitation, P_i , mm
1	32
2	48
3	51
4	29
5	36
6	41

- a. What is the areal average precipitation over the watershed in mm?
- b. What is the total volume of water entering the watershed during this storm, in m^3 ?

1 ha
↓
100 m □ 100 m

