CIE5401: Spatial Tools in Water Resources Management

Assignment 2: GPM Precipitation Data

Due date: 26th February 2018 **contact: s.c.steele-dunne@tudelft.nl**

In this exercise, you will consider the value of remote sensing data.
Before you start, read **CIE5401_2018_GettingStartedAssignment2.pdf**

Part 1: Download the monthly GPM IMERG precipitation data for August 2015. Calculate the areal mean total monthly precipitation (in mm) in the Volta Basin using the GPM IMERG data, i.e. make a raster of total precipitation (in mm) and calculate the areal mean for the Volta basin.

(You will need your Volta Outline from Assignment 1)

Part 2: You will use the **Point Sampling Tool** to "install" rain gauges in the Volta basin, sample the precipitation data from GPM and use **Spatial** Interpolation and Zonal Statistics to estimate the mean areal precipitation total.

2.1: Fill your estimated areal mean precipitation total into the following spreadsheet:

https://docs.google.com/spreadsheets/d/1ANwj7OdW5yWIv4PEixIsef_9ReUNd_d-35vnGgIiRgc/edit?usp=sharing

2.2: Make maps of

1) Original GPM data
2) Interpolated monthly precipitation total based on 10 "rain gauges"
3) Interpolated monthly precipitation total based on 20 "rain gauges"
4) Interpolated monthly precipitation total based on 50 "rain gauges"

Use the same color scale on all maps (i.e. same colorramp and same classification)

2.3: What do you notice about your maps as the number of rain gauges increases?

2.4: Look at the shared spreadsheet: Why are the values estimated by your colleagues different to yours?

2.4: Look at the shared spreadsheet: What happens to the mean estimated total monthly precipitation rate as the number of rain gauges increases? Why?

2.5: Look at the shared spreadsheet: What happens to the standard deviation in the estimated total monthly precipitation rate as the number of rain gauges increases? Why?

Your report should include your maps and answers to the questions above, as well as a description of the QGIS tools used.

Please submit your report via Blackboard by 08:00 on the due date.