

2004 Undergraduate Student Project Description

Department of Bioresources Engineering

Project Title: Rainfall estimation for hydrologic modeling

Faculty/Staff Sponsor: Carmine C. Balascio

Area of Study: hydrology

Project Description: The focus of this project is on use of kriging and multiquadric rainfall estimation techniques to improve rainfall data inputs for hydrologic models. Watershed scale hydrologic models such as HSPF and SWMM allow watershed subcatchments to be associated with data from any single rain gage. Spatial averaging methods such as kriging and multiquadric equations can be used to obtain better estimates of rainfall on a subcatchment by combining observations from multiple rain gages. The objective of this research will be to test the potential of the spatial averaging methods to improve performance of hydrologic models by improving the quality of the inputted rainfall data.

Student Qualifications: Completion of EGTE 321

2004 Undergraduate Student Project Description

Department of Bioresources Engineering

Project Title: Evaluation of the Delaware Urban Runoff Management Model (DURMM)

Faculty/Staff Sponsor: Carmine C. Balascio

Area of Study: storm-water management

Project Description:

DURMM is modeling and design software developed by William C. Lucas for integration of storm-water management BMPs into design of new storm-water management systems in New Castle County, Delaware. New Castle County is promoting its use for new submissions of storm-water management designs. In a number of respects the methodology and hydrology are significant departures from conventional design practice. As a result, practitioners have not yet developed much confidence in the results obtained by using DURMM. The objectives of this research are to investigate the theoretical foundations of DURMM and to compare designs obtained by using DURMM to those obtained by using conventional TR-20 hydrology.

Student Qualifications: Completion of EGTE 321