

## **Week 10**

### **A STORM SIMULATION IN LARGE WATERSHEDS WITH A HYDROLOGIC MODEL SYSTEM AND A MESOSCALE METEOROLOGICAL MODEL**

#### **10.1. HYDROLOGIC MODEL SYSTEM (HMS)**

Infiltration-Runoff Calculation

Soil Hydrologic Model (SHM)

Terrestrial Hydrologic Model (THM)

Channel Ground-Water Interaction (CGI) Model

Groundwater Hydrology Model (GHM)

#### **10.2. MESOSCALE METEOROLOGICAL MODEL**

MM5 is a three-dimensional, primitive-equation mesoscale meteorological model, capable of simulating and predicting a large variety of atmospheric phenomena, and of producing high-resolution, four-dimensional, dynamically consistent data set.

#### **10.3. SUBGRID SCALE SPATIAL VARIABILITY**

#### **10.4. APPLICATION OF HMS**

##### **DATA PREPROCESSING**

Precipitation

AVHRR and Landsat TM

Digital Elevation Model (DEM)

Surface Hydrologic Parameters

Subsurface Hydrogeology

##### **MODEL CALIBRATION**

##### **HYDROLOGIC SIMULATION WITH OBSERVED PRECIPITATION**

Surface Runoff Generation

Overland Flow and Channel Flow Routing

Streamflow Simulation

##### **HYDROLOGIC SIMULATION WITH MM5-SIMULATED PRECIPITATION**

#### **10.5. SUMMARY**