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16. Abstract.. <p>Recent advances in computer technology have increased the ability to simulate the environment with computer numerical models. These models are typically predictive in nature, allowing engineers to perform a "what-if" analysis of an environmental scenario. Therefore continuous simulation modeling was used to provide an alternative approach to calculating stormwater runoff from storm events. This study generally was to test the ability of various design storm distributions to simulate the actual rainfall pattern in Florida. Several commonly used distributions such as the SCS 24-hour and the Suwannee River Water Management District were tested over a range of frequencies from 2 to 100 years. The location was also varied to check the effectiveness of the distributions in different parts of the state</p> <p>The approach used in this study was to compare the runoff from a design storm to the runoff that would result from actual rainfall. A total of nine rainfall gaging stations were selected around Florida with about 21 years of fifteen-minute rainfall data from four stations, and about 51 years of hourly rainfall data from five stations. The FDOT/SRWMD design distributions (storms lasting one to two hundred forty hours) were simulated over five watersheds in each gaging station. The rainfall from these stations was statistically analyzed to develop rainfall volumes for different frequencies and durations. The volumes were used with design storm distributions and allowed to "fall" on the test drainage areas to develop runoff hydrographs. Also using actual rainfall volumes and continuous simulation model -SMADA v6.25, continuous runoff hydrographs were developed. The model uses a Horton type infiltration decay rate to account for infiltration and recovery of the drainage areas. The continuous runoff hydrographs were statistically analyzed to obtain the peak discharges for various frequencies between 2 and 100 years.</p> <p>The peak discharges from the design storm hydrographs were compared with the peak discharges from the statistical analyses of continuous runoff hydrographs. This comparison assumes that computing the continuous runoff is as close as the actual runoff values from the test sites.</p>					
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