

Numerical methods for modeling transient flow in distribution systems

Journal AWWA – July 2005

BY DON J. WOOD,

SRINIVASA LINGIREDDY,

PAUL F. BOULOS,

BRYAN W. KARNEY,

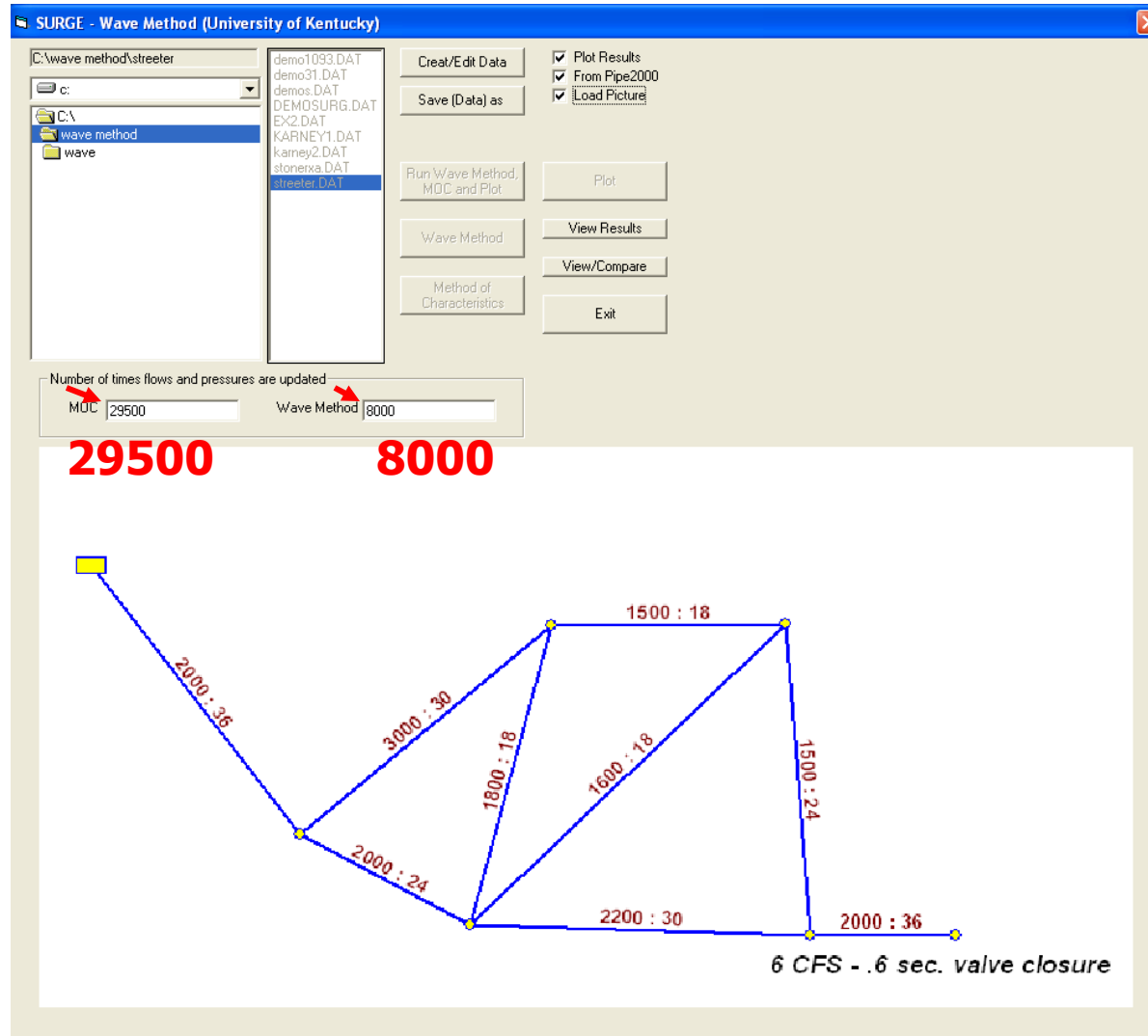
AND DAVID L. MCPHERSON

Comparing The MOC and WCM

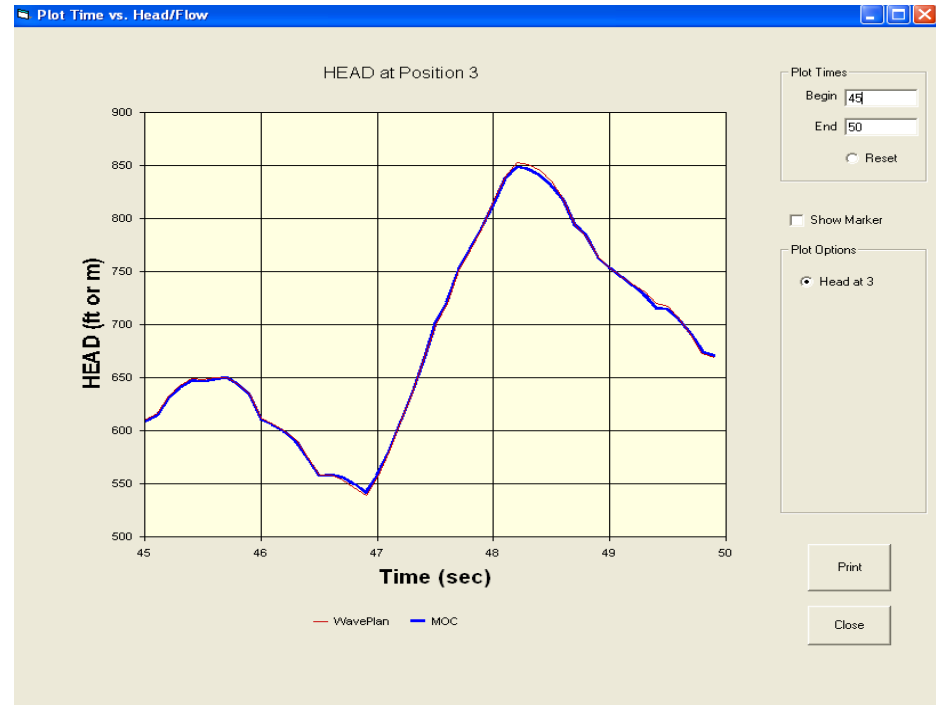
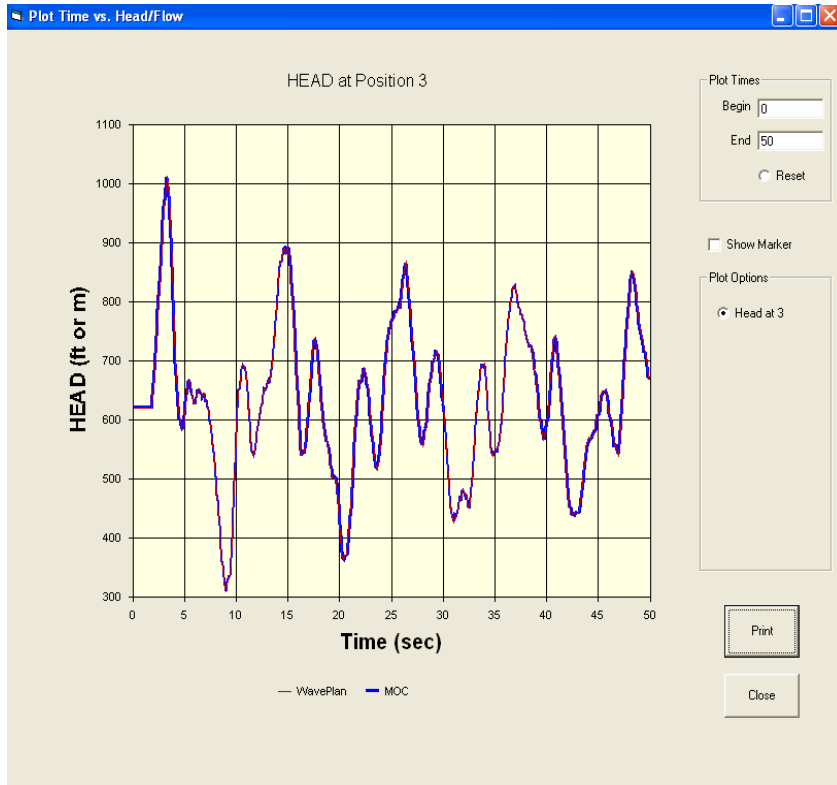
- Developed Comparison program
- Similar Calculation Routines
- Compare Number of Times Pressures and Flows are Updated at a Location
- Compare Solutions (pressure/flow history)
- Solutions Virtually Identical (as expected)
- Identical Results Using Commercial Software

Example from Streeter Text

$\Delta t = 0.1$ sec.



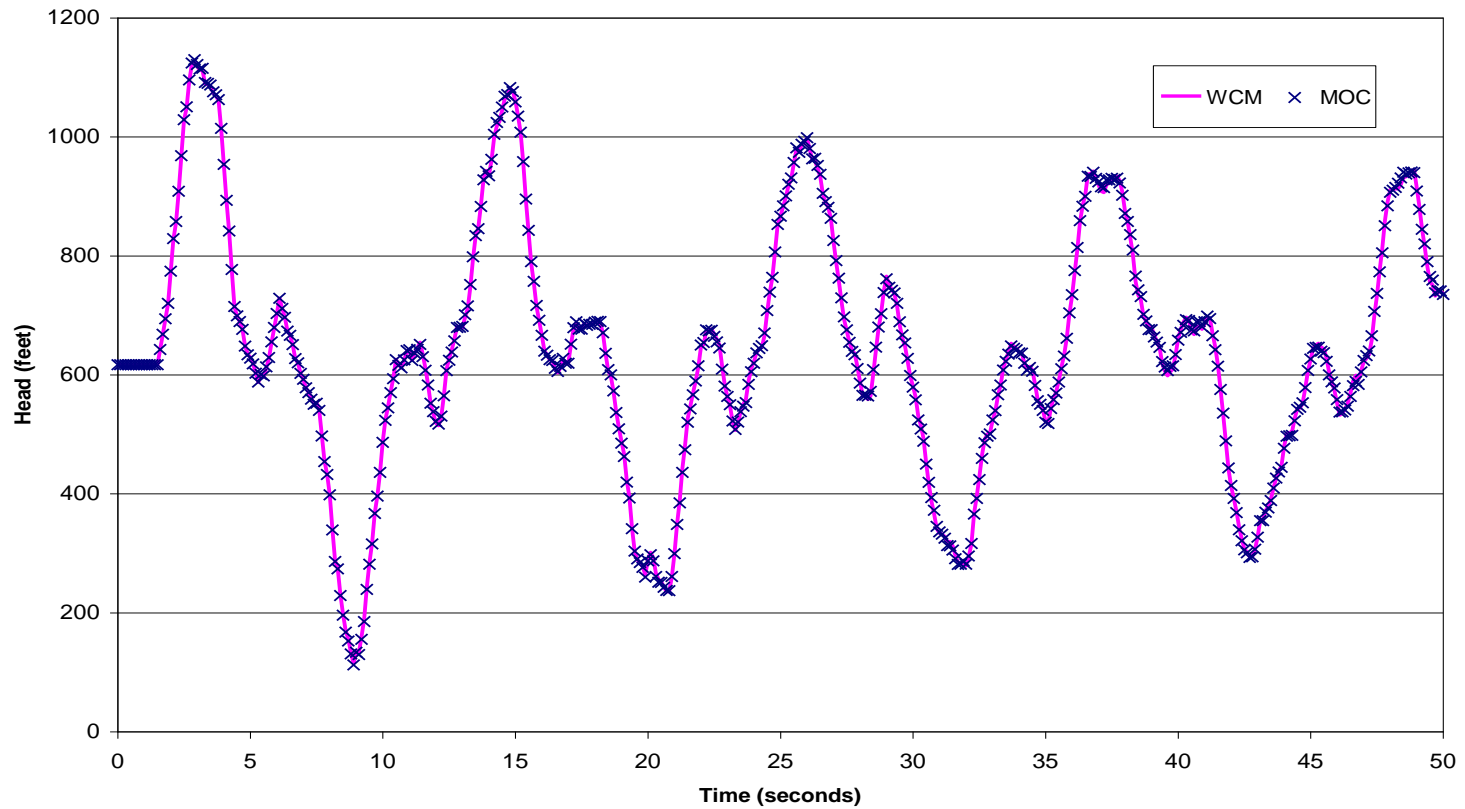
Example from Streeter Text



Comparison Using Commercial Software



Wave Characteristic & Method of Characteristics Comparison
Junction 4 (Valve Closure - 0.6 seconds)

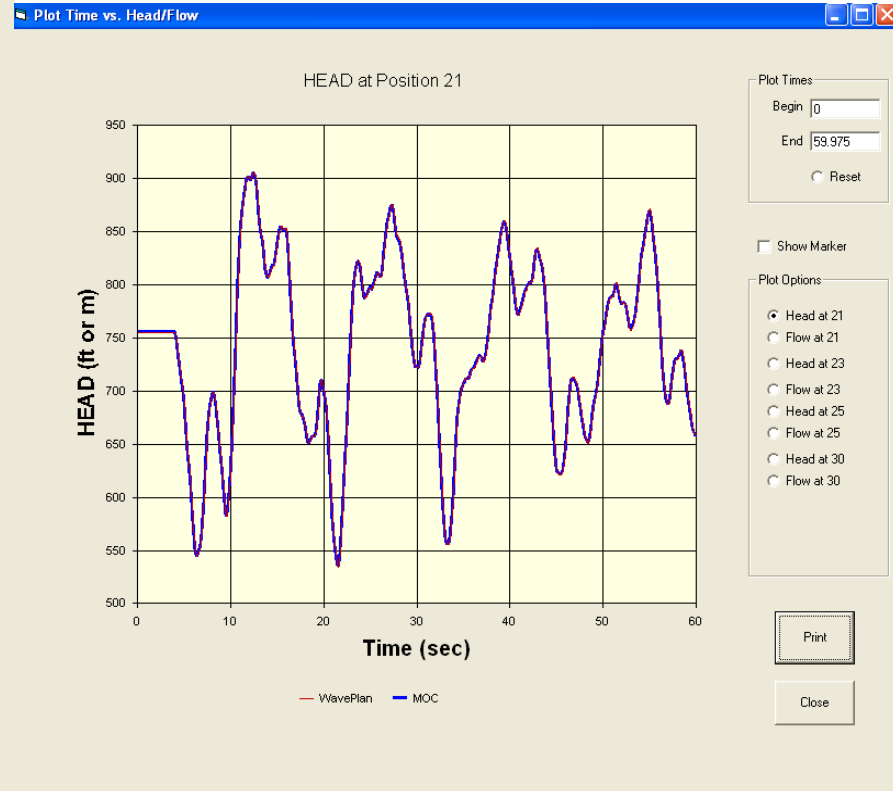


Demo Example

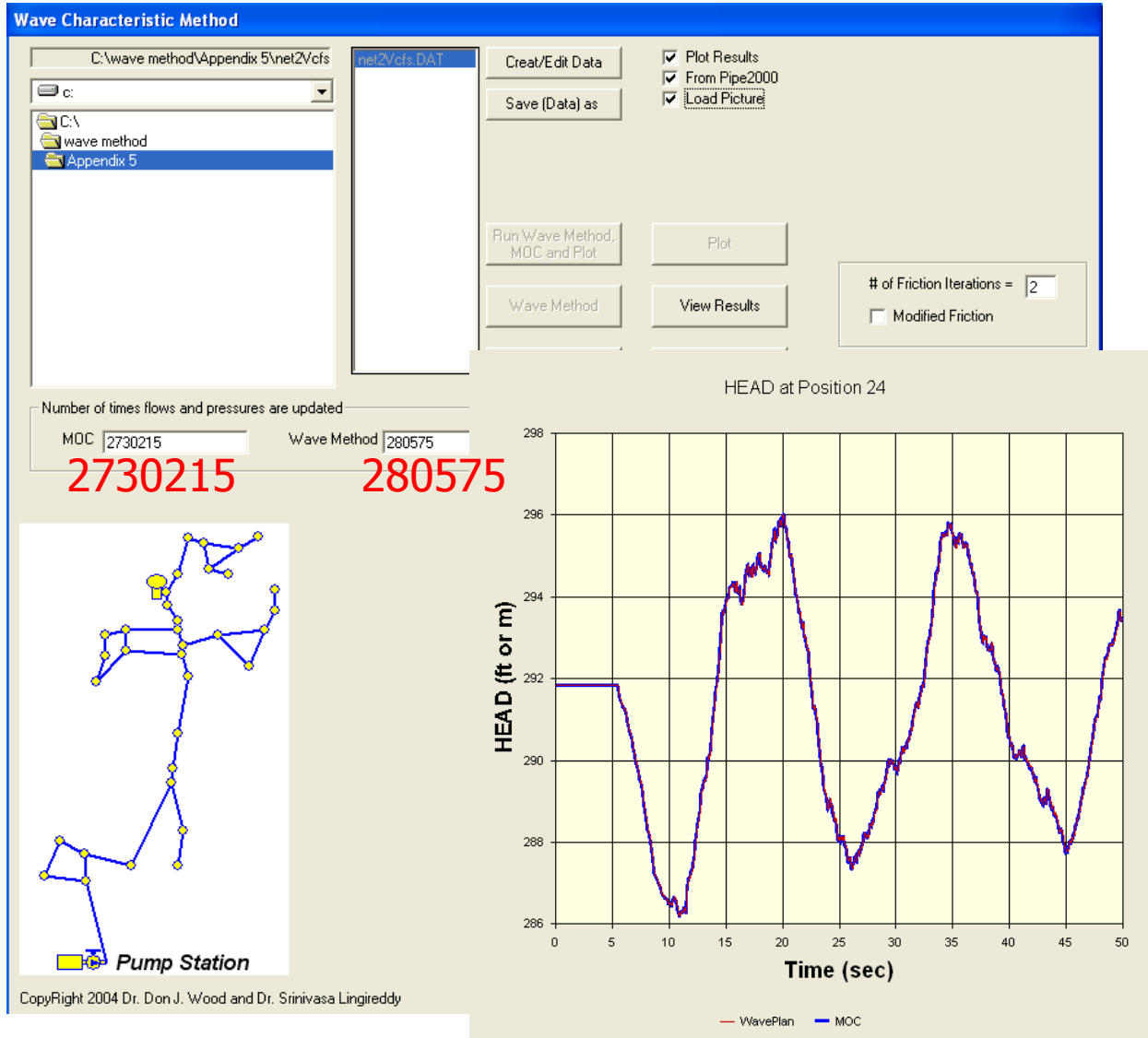
1033333
97619

Number of times flows and pressures are updated
MOC 1033333 Wave Method 97619

Tank 1
Tank 2
Clear Well



EPANet Example 2



**6 second
Pump shutdown**

Comparison Using Commercial Software

Wave Characteristic & Method of Characteristics Comparison
Node 19 - 8 Second Rundown

