Notes 2011 vs 2012

Practice test

Probably avoid the specifics of questions 3c to 3e to avoid confusion. The differences are:

Question 3c in the practice exam refers to evaporation using the "Mass Transfer Method". This was the name used in the Bedient text used last year. In the Mays text you are using this method is named "Aerodynamic Method" and the equation involved is 7.3.15 on page 307. The Bedient text provided specific values for the vapor transfer coefficient, while in Mays you need to use equation 7.3.16 to determine the vapor transfer coefficient based on surface roughness z_o. The question has not provided a z_o value so to answer this problem you will need to assume a z_o and depending on the value you assume will get a different answer.

Question 3d refers to the Bowen Ratio method. This is not described in the Mays text so was not covered in 2012.

There are notational differences in 3e

$Q_N = R_n$ = Net Radiation

$Q_h = H_s$ = Sensible heat flux

$Q_e = E\, l_v\, \rho_w$ = Latent heat flux

Q_θ, and Q_v are energy stored in the lake and advected energy of inflow. In Mays these are all grouped in to G

Question 4. We did not cover time-area relationships

Question 5. We did not cover frequency analysis

Question 7. We did not use the Philip equation

2011 Final

In question 4 you would need to be given an initial moisture content. The way the Mays text presents this material an initial moisture content needs to be given. The way it was covered last year the assumption is that initial moisture content is the residual moisture content. In practice, if you have an initial moisture content use it, if not assume residual moisture content and evaluate the sensitivity of your answer to the assumption and work out if it is worthwhile obtaining an initial moisture content.

Also in question 4, there are multiple time steps with different rainfall rates. We did not cover the methods for doing that this year, so were I to ask a similar question this year it would need to have a single time interval with steady rainfall rate [While the extension to multiple time steps is easy, it is not covered in Mays so I will not throw it at you in a final]