Environmental Modeling
Homework #4
Due on Thursday, October 4, 2012

Problem 1. Calculate the residence times for all the global reservoirs (i.e., atmosphere, biomass, soil moisture, rivers + lakes + wetlands, groundwater, oceans, and glaciers) using Figure 3-16 and Table 3-1.

Problem 2. (1) Use Matlab and the method described in Appendix E to calculate the times of sunrise and sunset and the day length (in hour) from January 1 to December 31 of a non-leap year at this USGS stream gaging station:

USGS 08050400 Elm Fk Trinity Rv at Gainesville, TX
Latitude 33°37'27", Longitude 97°09'22" NAD27
Cooke County, Texas, Hydrologic Unit 12030103
Drainage area: 174 square miles
Contributing drainage area: 174 square miles,
Datum of gage: 700.00 feet above   NGVD29.

(2) Plot the times of sunrise and sunset and the day length versus day of year (DOY) using Matlab.