Environmental Modeling
Homework #3
Due on Tuesday, September 25, 2012

Problem 1. Download daily stream discharge data from 1986 to 2011 from the following USGS 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.

(1) use Matlab to make a time series plot of stream discharge (the x-axis is time in year, and the y-axis is discharge in mm/day)
(2) use Matlab to compute annual discharge and make a time series plot of the annual discharge (the x-axis is time in year, and the y-axis is annual discharge in mm)
(3) use Matlab to construct the daily flow-duration curve (the x-axis is the exceedence frequency (%), the y-axis the daily discharge in mm/day)
(4) use the constructed daily flow-duration curve to determine the flows exceeded on 10% of the days ($Q_{0.1}$), on 50% of the days ($Q_{0.5}$), and on 90% of the days ($Q_{0.9}$).