

```
##### Lets make a function that makes png images of stream profiles
##### from txt files with columns containing: x,y,z,length,accumulation
##### the units of elevation are converted from ft to m in this example
##### The user must first scan in the *.dbf file then decide a plot title
##### and upstream/downstream directions of the basin which must be entered
##### character strings in quotation marks
```

```
dbfprofileR =function (combofile,title,header,upstream,downstream,Xlim,Ylim )
{
mcombo = as.matrix(combofile)
cc=mcombo
```

```
## put in order of down stream distance
cc = cc[order(cc[,5],decreasing=TRUE),]
```

```
X = cc[,2]
Y = cc[,3]
Z = cc[,4]
L = cc[,5]
A = cc[,6]
```

```
### ft to m
Z = Z*0.3048
```

```
## this opens the plotting window in R
dev.new()
```

```
## this adds ".png" to the end of the title and defines the file name
out1=paste(title, ".png",sep="")
```

```
## this defines the dimension of the .png file in pixels
png(file=out1,width=2400,height=600)
```

```
### this defines the margins
par(mai=c(1,1.5,.7,1))
```

```
### plot the downstream distance vs. elevation
plot (-(L/1000),Z,main = header,
xlab= 'downstream distance (km)', ylab = 'elevation (m)',cex=.2,pch=.02,col='gray',
xlim= Xlim,ylim = Ylim ,cex.main=3.5,cex.axis=1.8,cex.lab=2)
#axis(4, labels=TRUE,cex.axis=1.8)
```

```
### this plots text for the directions
text (Xlim[1],.9*Ylim[2],upstream,cex=4)
text (Xlim[2],.9*Ylim[2],downstream,cex=4)
```

```

#### this counts the pixels in an inch
pin = par("pin")

#### This is the map scale
MS = ( abs (Xlim[1]-Xlim[2])*1000 ) / pin[1]

#### This is the profile scale
PS = ( abs (Ylim[1]-Ylim[2]) ) / pin[2]

#### vertical exxageration = map scale / profile scale
VE = MS/PS

#### this plots the V.E.
text(.98*Xlim[1],Ylim[1]*1.1,paste("VE =",format(VE,digits=1),"X"),cex=3)

graphics.off()
}

## try it out!
####

## you need to call the package "foreign"
library(foreign)

# The dbf file has six columns: index(useless) ,x,y,z,flowlength, and flow accum.
# The flow accumulation is not used in this code but I keep it in the dbf
# export process anyway for simplicity

## this is an example of how to execute the code

## south new river
## this assigns the name of the working directory
setwd('C:/UNC/Lineaments/R/profile_figs/test')

## this reads in the dbf file. Call it what ever you want without spaces
newsouth = read.dbf("C:/UNC/Lineaments/streams/newnorth/export/newnorth_exportcombo2.dbf")

## Run the function
dbfprofileR(newsouth,"New_south2","New River - south fork","S","N",
Xlim = c(-170,-120),Ylim = c(700,1500))

## You should see a plotting window pop up then disappear. You can find your plot
## in the working directory

```