

quickcal

Quick Calibration

remark: step one and two are only necessary once, the calibration matrix could be stored

First: Get the cal curve, eg. from the internet (<http://www.radiocarbon.org/IntCal13%20files/intcal13.14c>)

```
con <- url("http://www.radiocarbon.org/IntCal13%20files/intcal13.14c")
calcurve<-read.csv(con,skip=11, header=F)
colnames(calcurve)<-c("CAL BP", "14C age", "Error", "Delta 14C", "Sigma")
```

Second: make a matrix out of it

```
cal_bp <- calcurve[,1]
cal_matrix <- apply(calcurve,1,function(x){dnorm(cal_bp,mean = x[2], sd = x[3])})
```

Third: get your 14C date as probability vector

```
my_date <- c(4000,20)
my_date_prob<-dnorm(cal_bp,mean = my_date[1], sd = my_date[2])
```

Fourth: Multiply Vector by Matrix

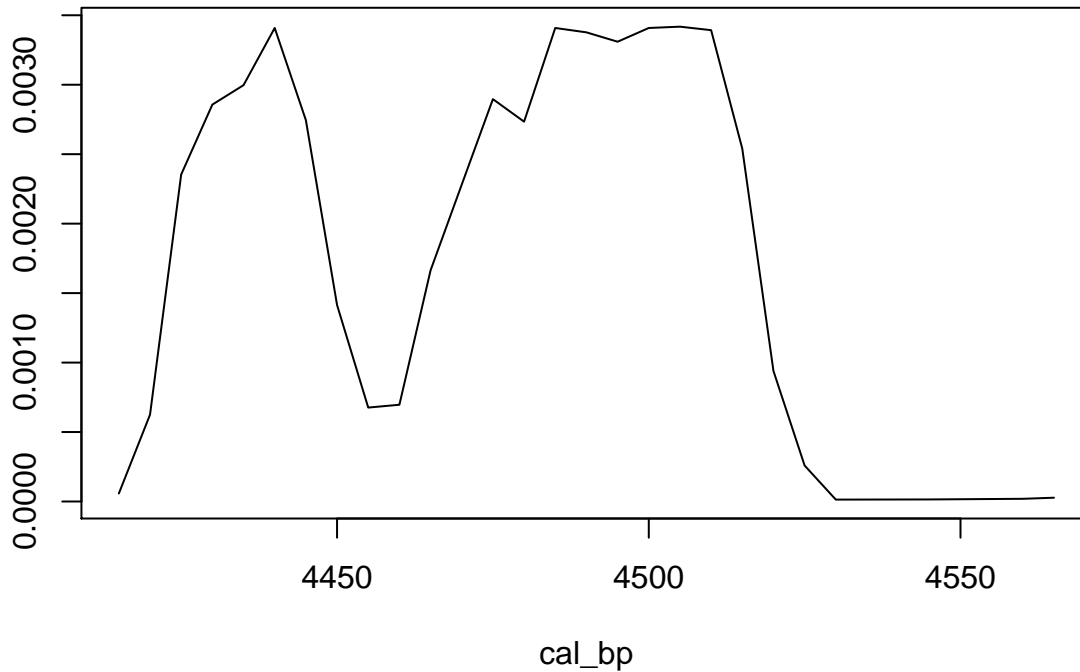
```
res <- my_date_prob %*% cal_matrix
```

Fifth: Get the result in more meaningful shape

```
res.df <- cbind(cal_bp,res[1,])
res.df <- res.df[res.df[,2]>1e-05,]
```

Sixth: Plot

```
plot(res.df,type="l")
```



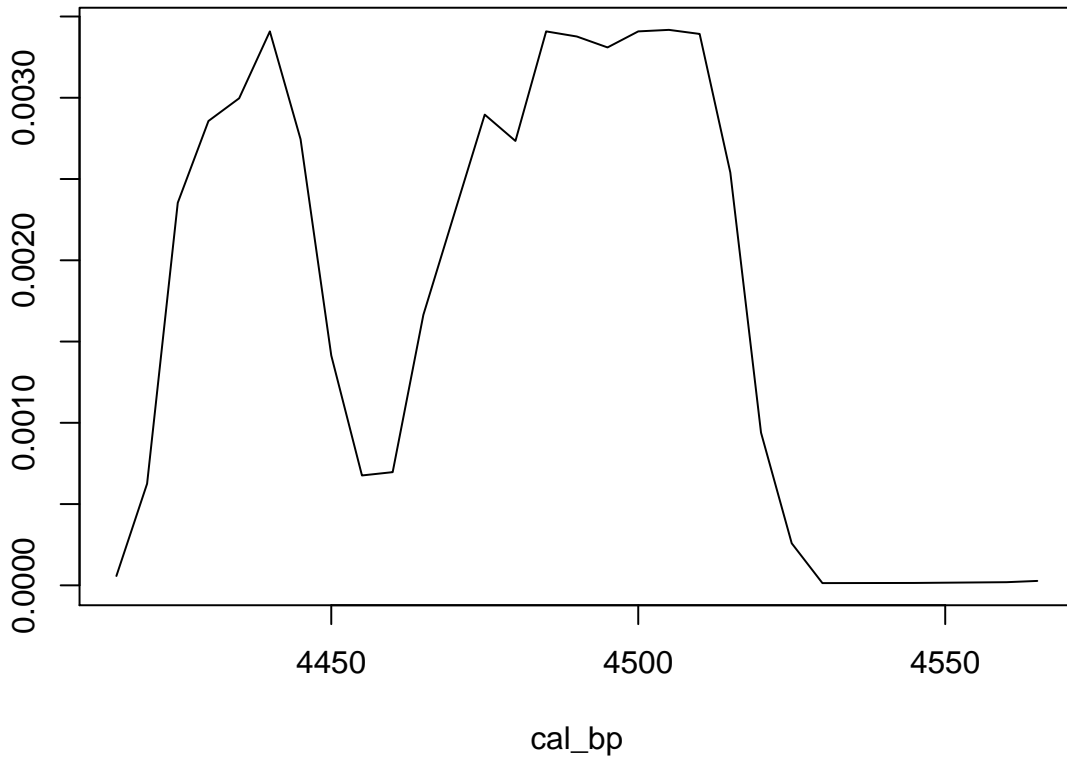
Seventh: Compare with Bchron:

```
library(Bchron)

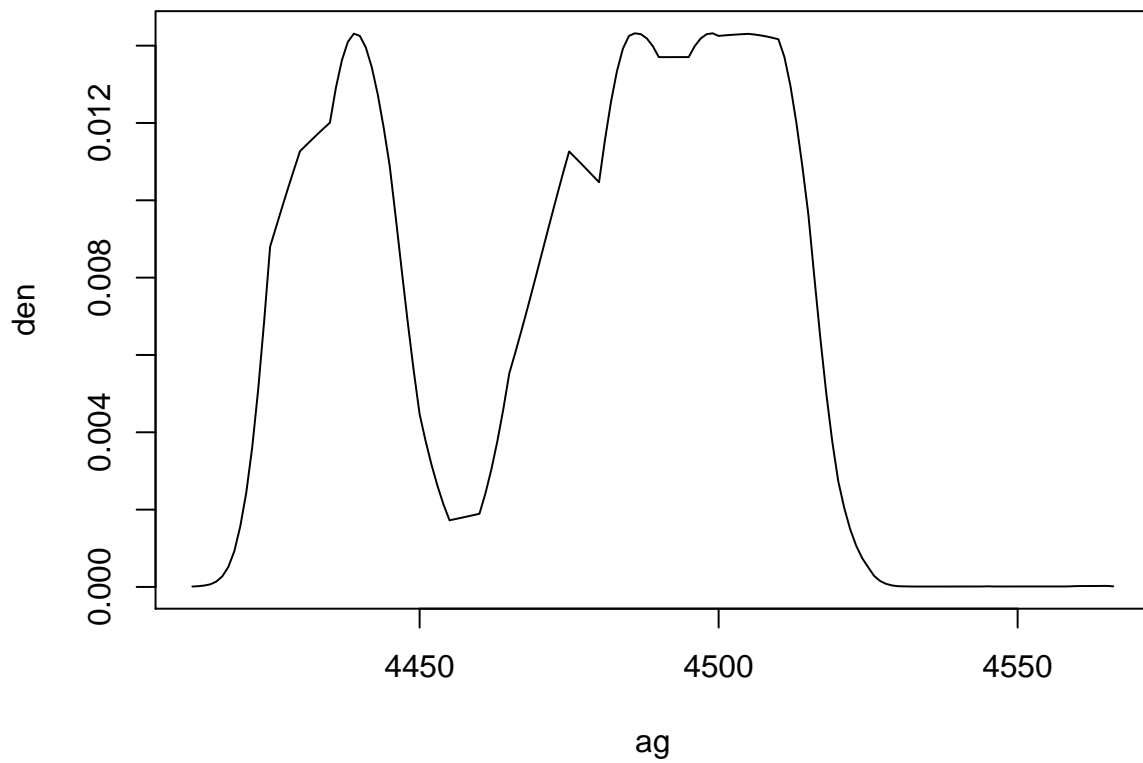
## Loading required package: inline

## Bchron v4.0 - see http://mathsci.ucd.ie/~parnell\_a/Rpack/Bchron.htm for updates

res.bchron<-Bchron::BchronCalibrate(my_date[1],my_date[2],calCurves = "intcal13")
par(mfrow=c(2,1))
plot(res.df,type="l")
plot(res.bchron)
```



date1



intcal13

```
par(mfrow=c(1,1))
```