The example dataset *provenance\_example\_file.txt* contains tab-separated data from 6 sources and 1 detrital sample of unknown origin. Each age has a corresponding analytical error.

Source\_1 (n=27)

Source\_2 (n=22)

Source\_3 (n=65)

Source\_4 (n=71)

Source\_5 (n=23)

Source\_6 (n=20)

unknown (n=140)

To run the script, you need to download two Rfiles: *ProvenanceFinder.R* and *example\_script\_provenancefinder.R*

Open *example\_script\_provenancefinder.R*

1. In the variable *directory1* provide the location path for the file *ProvenanceFinder.R* within your computer.

2. In the variable *provenance\_file* provide the location path for the file *provenance\_example\_file.txt* within your computer.

3. In the variable *name\_target\_sample* provide the name of the “target” sample or sample with unknown origin.

Example:

directory1 <- "/Users/myname/folder1/subfolder1/*ProvenanceFinder.R*"

provenance\_file <- "/Users/myname/folder1/subfolder1/*provenance0517.txt”*

name\_target\_sample <- "unknown"

After you have provided this basic information, you can change some of the parameters of the model:

n\_points <- 1000

Number of bins used to compute probabilities. The higher the number, the more accurate (and time consuming) the computation.

plot\_PDF <- TRUE

Plot probability density function of each source.

plot\_CORR <- TRUE

Plot correlations between PDFs of different sources

calcProb <- TRUE

Calculate probability of target sample given each source (includes Mixed model)

runJK <- 1000

Run Jackknife randomizations to assess robustness of the results (set to higher value for more reliable scores).