# R4Rchaeologists: Advanced visualisation exercises

Exercise B: radiocarbon data

Basic visualisation of radiocarbon data in R is fairly straightforward using the skills in data manipulation and visualisation we have learned so far. `c14bazAAR` offers a convenient interface for retrieving dates from a large number of published datasets, and there are several packages available for calibration (e.g. `rcarbon`, `Bchron`). The key is then to transform the calibrated dates to a 'tidy' format suitable for use with `ggplot2`.

Your objectives for this exercise are to:

1. Read radiocarbon data into R
2. Calibrate a set of radiocarbon dates
3. Plot the calibrated dates
4. Produce a faceted plot of calibrated dates by site

## Data

- Use c14bazAAR to download radiocarbon dates from a region of your choice.

## R packages and functions

The following packages will be useful for this exercise:

- c14bazAAR*
- stratigraphr (`c14_calibrate()`)*
- dplyr
- ggplot2
- ggridges

* These packages are not on CRAN. You will need to install them with `devtools::install_github()`

Remember that you can open the documentation for any function with `?function_name()`. Google is also your friend – most packages have websites or GitHub repositories with extended documentation. There are also many tutorials and StackOverflow questions about common problems in R.

## Hints

- You will probably need to filter the data to 20–30 dates from 2–3 dates to get a manageable plot.
- Calibrated dates are not immediately in a format that ggplot2 can understand. You will need to use `unnest()` from dplyr.
- The dates can be seperated within the plot using either facets or `ggridges` – why might you use one or the other?