WACL R Training

Training for air pollution data analysis in R

Will Drysdale and Jack Davison

11th & 12th Nov.

University of York

Welcome!

A course over two afternoons for beginners with R

- Brief introduction to R, RStudio and Programming for beginners
- Building a script - reading, manipulating and visualising data
- Using the `openair` package for processing air quality data
- More advanced tips & tricks to solve common problems in atmospheric science

Approaches

- Authentic, live coding
- All course material will be made available
  - This will include all data and script files produced during this course
  - A bespoke self-teaching document will also be made available
  - Useful for post-course learning
- All material used in this course will be **entirely reproducible**
  - This means that you will be able to recreate all the outputs shown during the course (and afterwards)
- Questions are encouraged, and one of us will always be at hand to solve problems

Topics to be covered

Thursday 11th November, 13:00-17:00

- Introduction to R for Air Quality Data
    - Getting familiar with R and RStudio
    - What is a package and how do you use one?
    - Reading and manipulating data in R
    - Using openair for air quality data analysis

Friday 12th November, 13:00-17:00

- Further uses of R for data handling
    - Reading and combining multiple data streams
    - Further data handling; reshaping, grouping and summarising
    - Making publication standard visualisations with ggplot2
    - Time to talk about and respond to own data challenges

Who are we?

Jack Davison

- Fourth year PhD Student working with David Carslaw
- RStudio certified `tidyverse` instructor
- Work involves extracting insight from large data sets

Will Drysdale

- Postdoc working with James Lee, previously did PhD in WACL
- Long time R user and trainer in WACL
- Work invovles a lot of timeseries and flux analysis

Who are you?

Introductions

- What is your name?
- What do you do?
- What kind of data do you use?
    - Big? Small? From the lab? Fieldwork? Modelled?
      Time-series?
- What are you hoping to get out of these sessions?

Further Help

- Learning R does not finish at the end of this short course
    - There are many R users in WACL who are happy to help, including ourselves.
    - There are lots of resources online that we'll point you to.
    - WACL has a programming Slack channel for help with R & Python.
- If there is interest, we'll look to do shorter sessions on more specific problems