Example data, description and intro into RMarkdown

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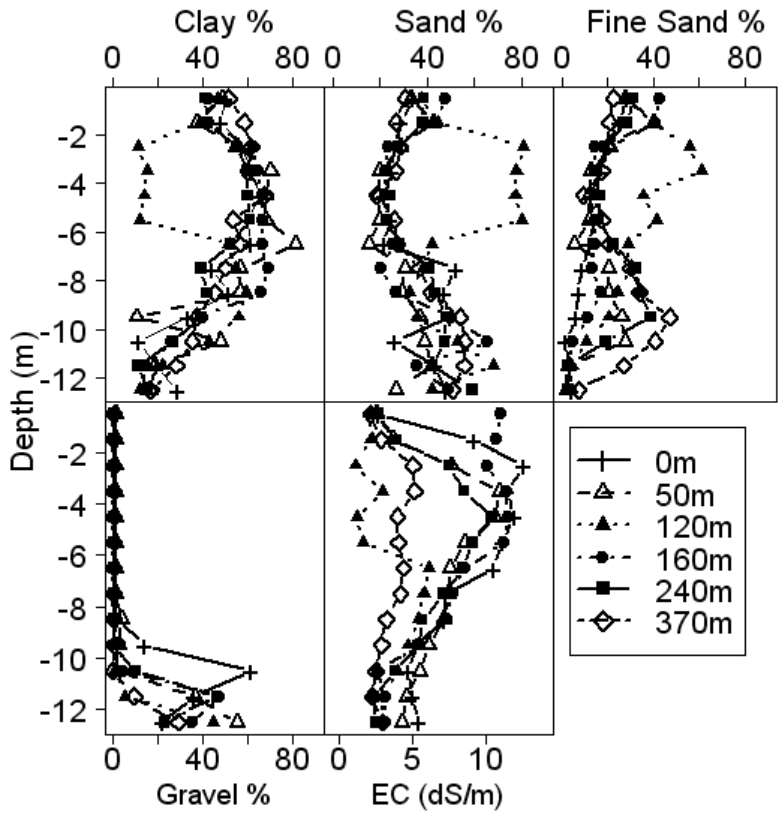
The example Palaeo channel dataset

This data set is provided to be used as an example data set for the course. reference

- Palaeochannels are remnants of ancient creeks or rivers in the alluvial landscape
- There are many in Northern NSW
- They are characterised by significantly sandier sediments in the clay landscape.

Description of the data set

- A range of different Electromagnetic Induction measurements taken at 10 m increments on a 370 m transect
- Soil sample data were collected at 6 locations along the transect, drilled to 13 m depth and sampled at 1 m increments
- The soil sample data include particle sizes, Chloride and Electrical conductivity in a 1:5 soil to water solution



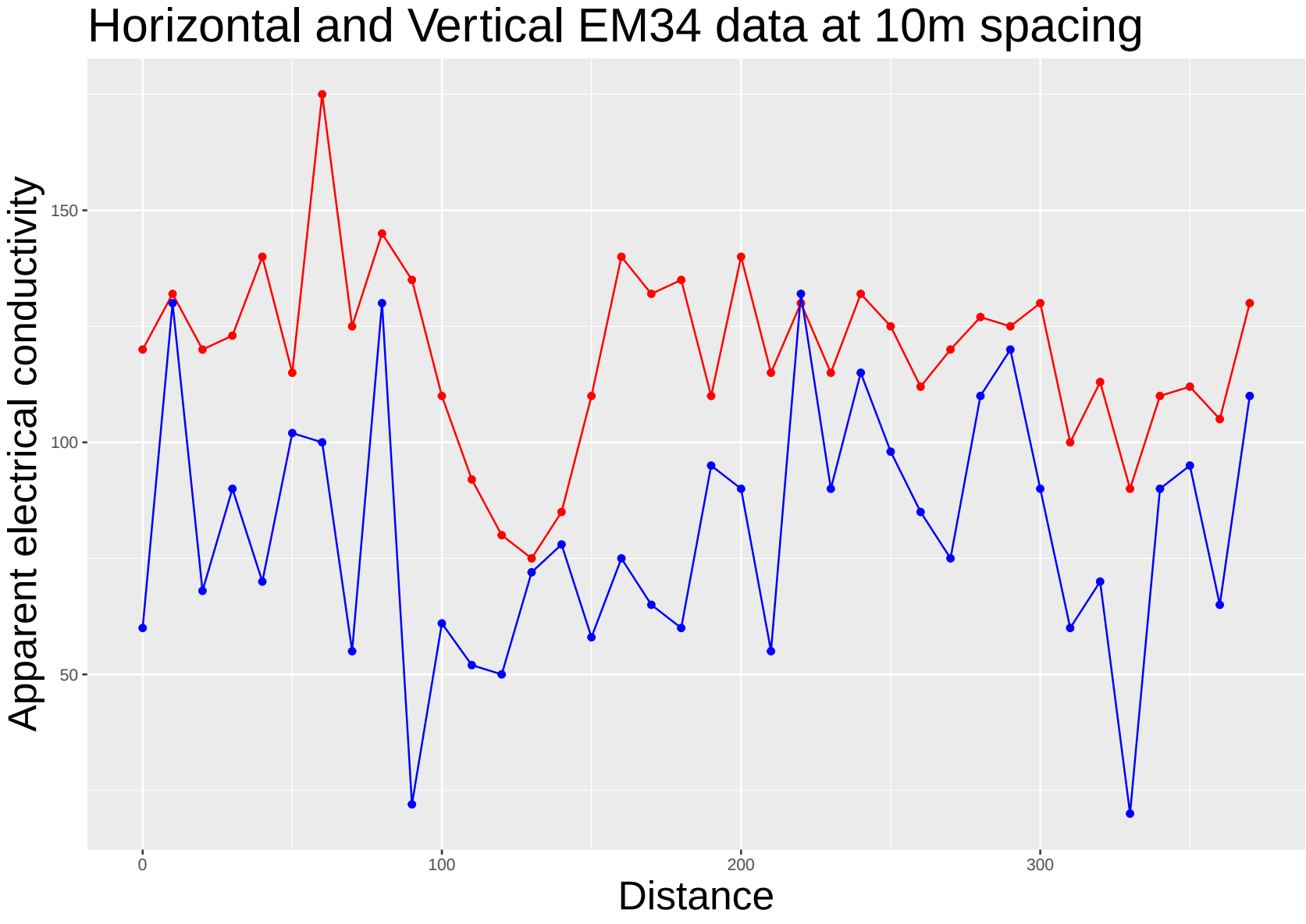
A snapshot of the EM data

```
## Parsed with column specification:
## cols(
##   .default = col_integer(),
##   H_20_10 = col_double(),
##   V_25_20 = col_double(),
##   V_30_20 = col_double()
## )

## See spec(...) for full column specifications.

## # A tibble: 5 x 5
##     Peg Distance H_10_10 V_10_10 H_10_20
##   <int>    <int>   <int>   <int>   <int>
## 1     1        0     120      60       0
## 2     2       10     132     130       0
## 3     3       20     120      68       0
## 4     4       30     123      90       0
## 5     5       40     140      70       0
```

A snapshot of the data 2



Example data set and this course

- We will use this example dataset throughout the course
- example metadata are in the readme file on the google drive
- This describes both the provenance and summary of the data and a datadictionary that expresses the contents of the different files.

```
1  Title: Geophysical and soil physical Palaeochannel data from Northern NSW
2  Authors:Vervoort, R. W., & Annen, Y. L.
3  Summary:Palæochannels, or prior streams, are strings of sandier sediments that occur frequently in the irrigated alluvial plains
   ofNorthern New SouthWales, Australia. These landscape features have been recognised as locations of substantial deep drainage losses, and
   are therefore target areas for water use efficiency. Electromagnetic induction (EM) measurements were used to identify the width and the
   depth of the palæochannel sediments in a 2-dimensional transect. In addition, soils were sampled at 6 locations down to 13 m depth at 1m
   increments and analysed for particle sizes, chloride, electrical conductivity (1:5) and soil moisture.
4  Keywords: EARTH SCIENCE > HYDROLOGY
5  Institution: The University of Sydney, Sydney Institute of Agriculture
6  References: Vervoort, R. W., & Annen, Y. L. (2006). Palaeochannels in Northern NSW: Inversion of electromagnetic induction data to infer
   hydrologically relevant stratigraphy. Australian Journal of Soil Research, 44, 35-45.
7  Conventions: ACDD-1.3
8  Datasource: sample and measurement data by authors
9  Spatial coordinates: single transect, 29.272S, 149.743E to 29.274S. 149.746E
10 Temporal coordinates: January 2001
11 Creator: R.W. Vervoort
12 Creator e-mail: willem.vervoort@sydney.edu.au
13 History: initial creation 2001, updated for publication December 2017, updated January 2018
14
15
16 Data_Dictionary_PalaeoY_project
17 EM34.csv
18 This file contains the EM34 measurements as taken in the field
19 Variable description
20 Peg, numeric, 1 - 38, indicator for each of the 10m increments
```

R markdown

- All the slides for this workshop have been written using Rmarkdown in Rstudio
- Markdown in general, and Rmarkdown allow the combination of scripting and data analysis for presentations and reports
- allows recording of workflows to for open science

Rmarkdown example

- show separately in RStudio