# Vegetation modelling

Hans Verbeeck, Elizabeth Kearsley, Félicien Meunier, Marc Peaucelle

2020-05-11

# Chapter 1

# Introduction

You can label chapter and section titles using `{#label}` after them, e.g., we can reference Chapter @ref(intro). If you do not manually label them, there will be automatic labels anyway.

Figures and tables with captions will be placed in `figure` and `table` environments, respectively.

```r
par(mar = c(4, 4, .1, .1))
plot(pressure, type = 'b', pch = 19)
```
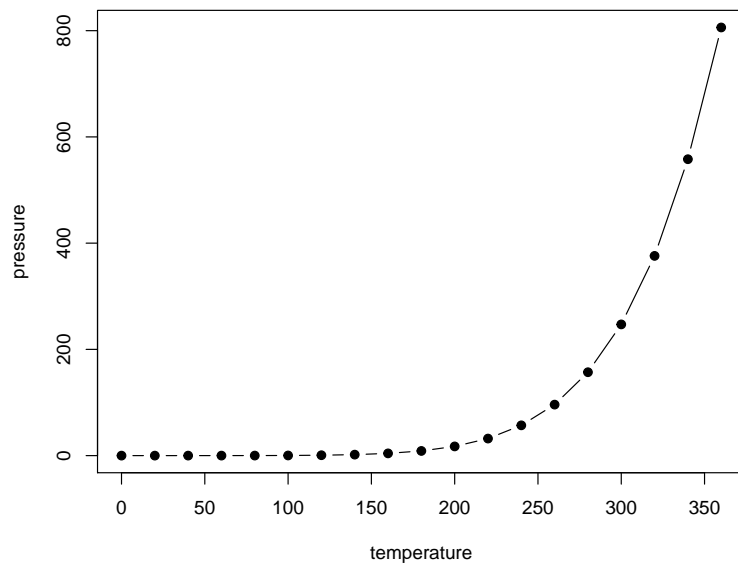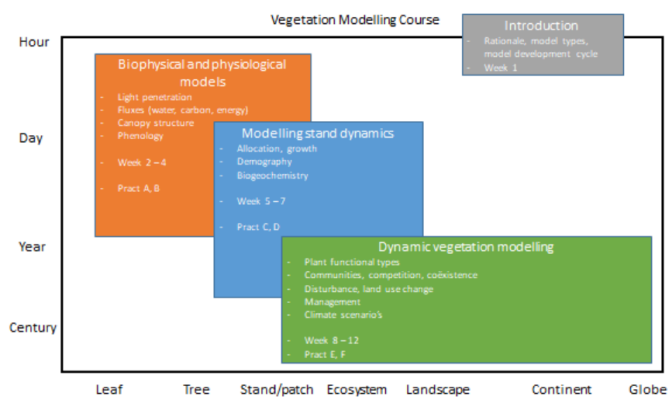
Figure 1.1: Here is a nice figure!

Figure 1.2: Here is a second figure!

$$\begin{matrix} x_{11} & x_{12} & x_{13} \\ x_{21} & x_{22} & x_{23} \end{matrix}$$

Reference a figure by its code chunk label with the `fig:` prefix, e.g., see Figure @ref(fig:nice-fig). Similarly, you can reference tables generated from `knitr::kable()`, e.g., see Table @ref(tab:nice-tab).

Table 1.1: Here is a nice table!

| Sepal.Length | Sepal.Width | Petal.Length | Petal.Width | Species |
|---:|---:|---:|---:|---|
| 5.1 | 3.5 | 1.4 | 0.2 | setosa |
| 4.9 | 3.0 | 1.4 | 0.2 | setosa |
| 4.7 | 3.2 | 1.3 | 0.2 | setosa |
| 4.6 | 3.1 | 1.5 | 0.2 | setosa |
| 5.0 | 3.6 | 1.4 | 0.2 | setosa |
| 5.4 | 3.9 | 1.7 | 0.4 | setosa |
| 4.6 | 3.4 | 1.4 | 0.3 | setosa |
| 5.0 | 3.4 | 1.5 | 0.2 | setosa |
| 4.4 | 2.9 | 1.4 | 0.2 | setosa |
| 4.9 | 3.1 | 1.5 | 0.1 | setosa |
| 5.4 | 3.7 | 1.5 | 0.2 | setosa |
| 4.8 | 3.4 | 1.6 | 0.2 | setosa |
| 4.8 | 3.0 | 1.4 | 0.1 | setosa |
| 4.3 | 3.0 | 1.1 | 0.1 | setosa |
| 5.8 | 4.0 | 1.2 | 0.2 | setosa |
| 5.7 | 4.4 | 1.5 | 0.4 | setosa |
| 5.4 | 3.9 | 1.3 | 0.4 | setosa |
| 5.1 | 3.5 | 1.4 | 0.3 | setosa |

| Sepal.Length | Sepal.Width | Petal.Length | Petal.Width | Species |
| ---: | ---: | ---: | ---: | --- |
| 5.7 | 3.8 | 1.7 | 0.3 | setosa |
| 5.1 | 3.8 | 1.5 | 0.3 | setosa |

You can write citations, too. For example, we are using the **bookdown** package (Xie 2020) in this sample book, which was built on top of R Markdown and **knitr** (Xie 2015).

# (PART) Biophysical and physiological models

# Chapter 2

# Modelling light penetration, vegetation canopy representation and energy balance

$$f(k) = \binom{n}{k} p^k (1-p)^{n-k}$$

# Chapter 3

# Modelling basic processes for growth and the carbon cycle (fluxes)

# (PART) Modelling stand dynamics

# Chapter 4

# Modelling growth, timber production and C-allocation

# Chapter 5

# Modelling vegetation dynamics and demography

# (PART) Dynamic vegetation modelling

# Chapter 6

# Representing biodiversity in vegetation models

**Functional diversity**

**Plant functional types,**

**Trait based models**

**Competition models (competition and coexistence of species/PFTs)**

**Communities**

# Chapter 7

# Spatial heterogeneity, landscape scale, metapopulations

Xie, Yihui. 2015. *Dynamic Documents with R and Knitr.* 2nd ed. Boca Raton, Florida: Chapman; Hall/CRC. http://yihui.org/knitr/.

———. 2020. *Bookdown: Authoring Books and Technical Documents with R Markdown.* https://CRAN.R-project.org/package=bookdown.