

Project Title

By xxx (i.e. your ID)

dd/mm/yyyy

Abstract

Include your Abstract here. This should be an unstructured abstract of 200 words, summarising the main contents of the scientific report.

Introduction

This section should convey two key pieces of information: the background information necessary to place the scientific report in context, and the clear and complete specification of the purpose(s). In particular, think about:

- What is known about the subject
- What is not know
- Why is it important to fill this research gap
- What is exactly the research question

To include citations, please refers to the practicals used in our module and the file of the Instructions.

Methods

- This section should describe:
 - (1) the study design,
 - (2) the data used,
 - (3) how these data are analysed.
- Feel free to include subsections.
- To include equations, you can refer to the R-Markdown files used during the Sessions and practicals.
- Being this scientific mini-project report structured as a paper, you should not print the R code here. However, you are asked to specify the entire R code as embedded in the report or as supplementary material, so that the reproducibility of your results can be assessed.
- In the global chunk options of this template, we set (`echo=TRUE`) so the code will shown in the final document. If you need to change it, you can modify the option in the initial line of each code chunks, or directly in global chunk options. Examples are provided in all our Practical. Here some further examples:
 - (i) As in the global chunk options we set `echo=TRUE` as well as in the chunk line, the R code and the plot will be shown in the final document:

```
set.seed(123)
x = rnorm(300)
y = 2*x + rnorm(300)
plot(x, y)
```

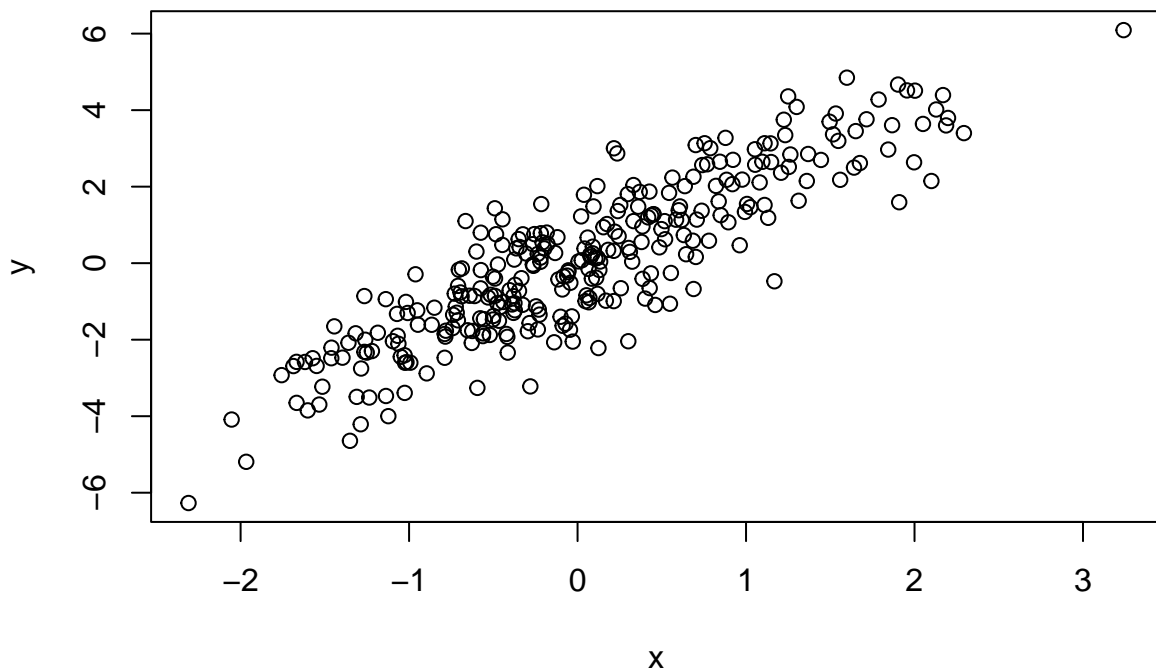


Figure 1: Figure 1: Plot of x and y

- (ii) However, if you want to change it, you can modify the current line of the code chunk setting `echo=FALSE` and the R code will not be displayed:
- (iii) Moreover, if you set `include=FALSE` in the line of the code chunk, it indicates that the chunk will be evaluated, but neither the code nor its output will be displayed.

Results

- This section should organize the results so that they follow a logical sequence. Tables and figures are precious tools to communicate your results but they should not repeat the information reported in the text.
- To include plots/maps and tables, you can refer to the R-Markdown files used during the Labs of the module. For plots/maps, feel free to choose the appropriate width and height. To modify the dimensions of the plots specified in the global chunk options, you can use options like `fig.width`, `fig.height` or `fig.cap` in the line of the code chunk.
- To include an external image, you can use the R function:

```
knitr::include_graphics("nice_image.jpeg")
```

Discussion and conclusion

This section should synthetically discuss your answer to the research question and how your findings compare or contrast with previous results. You can refer to the potential implications and future perspectives and/or application of present work. Think about:

- Your key results
- What your study adds

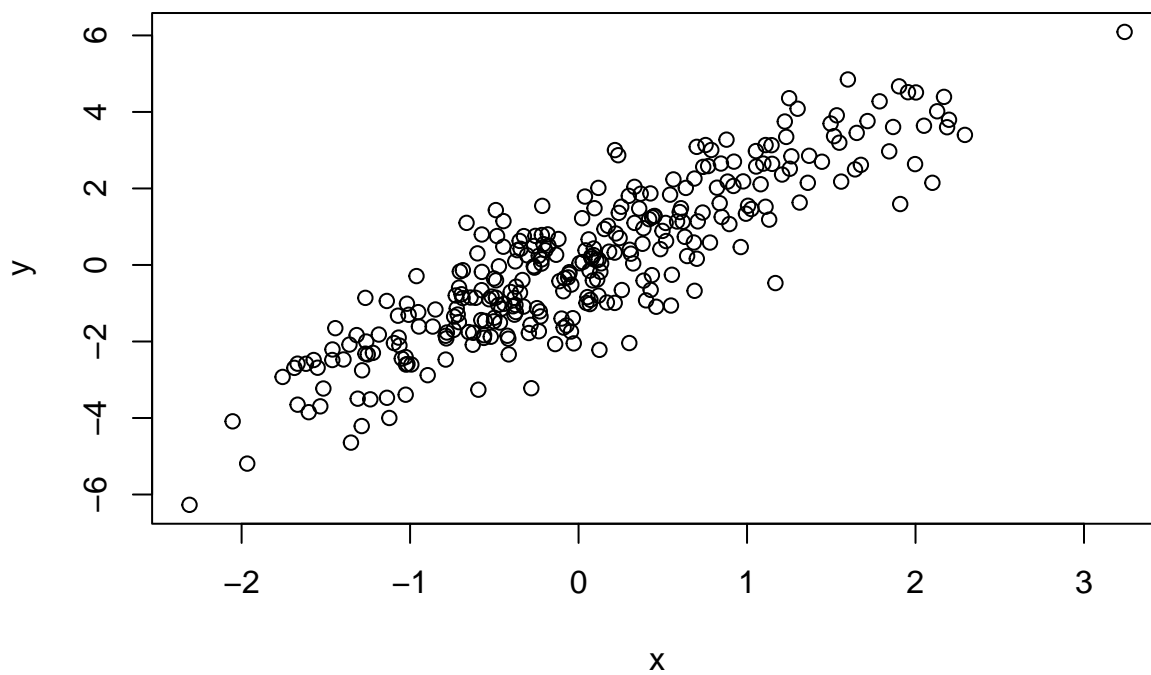


Figure 2: Figure 1: Plot of x and y



Figure 3: A nice image

- Comparison with existing literature/interpretation of findings
- Strength and weakness of your study
- Recommendation for future research and/or for policies

Supplementary material

Include here the supplementary material, such as the code (this is mandatory) or additional exploratory analyses or maps/plots. The Supplementary material is an extra session, additional to the 5-pages of actual scientific mini-project report. To include the code, you could include it into the code chunk, setting `eval=FALSE` and `echo=TRUE`. Here an example:

```
# formula
formula = y ~ -1 + Intercept + xmaxtemp + xwdsp + xrh +
  f(spatial.field,
    model = spde,
    group = spatial.field.group,
    control.group = list(model = "ar1",
                        hyper=rho_hyper))

# fit the model
fit = inla(
  formula,
  data = inla.stack.data(stack, spde = spde),
  family = "gaussian",
  control.predictor = list(A = inla.stack.A(stack,
                                           compute = TRUE),
                          control.compute = list(return.marginals.predictor = TRUE))

summary(fit)

# plot marginal posteriors for the fixed effects
modfix = fit$summary.fixed
modfix

par(mgp=c(2.2,0.45,0), tcl=-0.4, mar=c(3.3,4,2,2))
par(mfrow=c(2,2))

plot(fit$marginals.fix[[1]],type='l',xlab=expression(beta[0]),ylab="density")
abline(v = modfix[1, c(3, 5)], lty=2)

plot(fit$marginals.fix[[2]],type='l',xlab=expression(beta[max.temp]),ylab="density")
abline(v = modfix[2, c(3, 5)], lty=2)

plot(fit$marginals.fix[[3]],type='l',xlab=expression(beta[w.speed]),ylab="density")
abline(v = modfix[3, c(3, 5)], lty=2)

plot(fit$marginals.fix[[4]],type='l',xlab=expression(beta[rh]),ylab="density")
abline(v = modfix[4, c(3, 5)], lty=2)
```

References

- You should update the attached file `biblio.bib` with your references.

- The references cited in the mini-project report will be automatically inserted after this header.