Chameleon physiology and climate change in Kirindy CNFEREF, Southwestern Madagascar

- **Climate change effects** on chameleons are **poorly known**
- **Ectotherms** are vulnerable to climate change as their **physiology** is **temperature sensitive** (Tewksbury *et al*. 2008)


Furcifer labordi

What is the relationship between climatic factors and the body size of *F. labordi* (Chamaeleonidae) in the dry forest of Kirindy CNFEREF?

How does temperature determine the body size of *Furcifer labordi* (Chamaeleonidae) in the dry forest of Kirindy CNFEREF?

Acknowledgments: Fifi, Cédrique (readers); Fandresena (presentation)

Miary Raselimanana

Statistical model

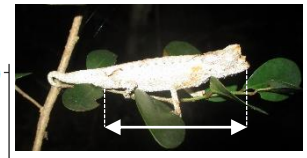
What is the relationship between climatic factors and the body size of *Furcifer labordi* (Chamaeleonidae) in the dry forest of Kirindy

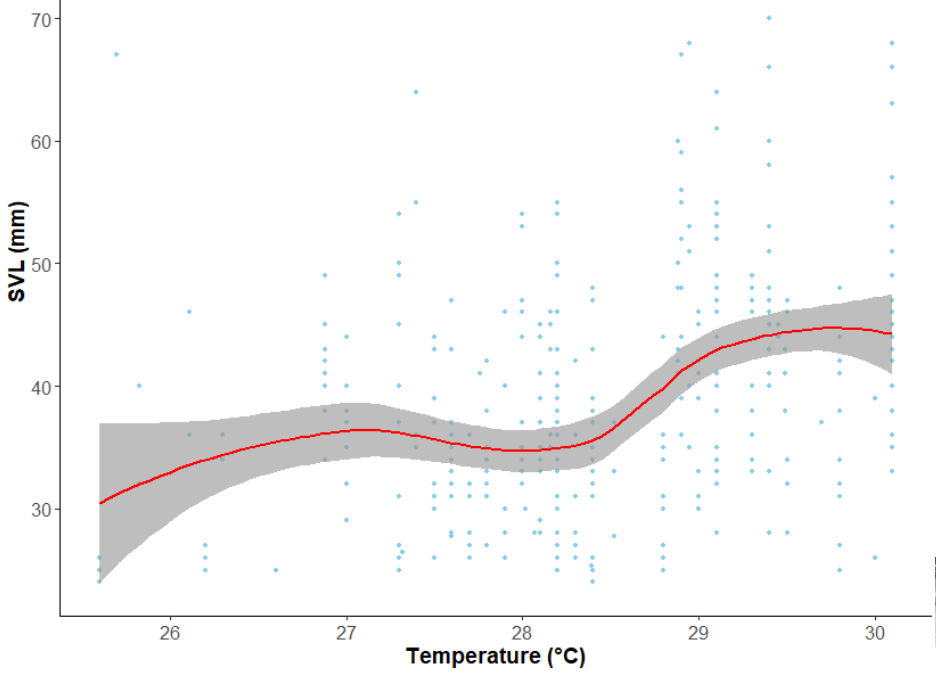
Response variable: body size (SVL)

Family: Gaussian

Link: « Identity »

Predictor variables
precipitation, temperature, year





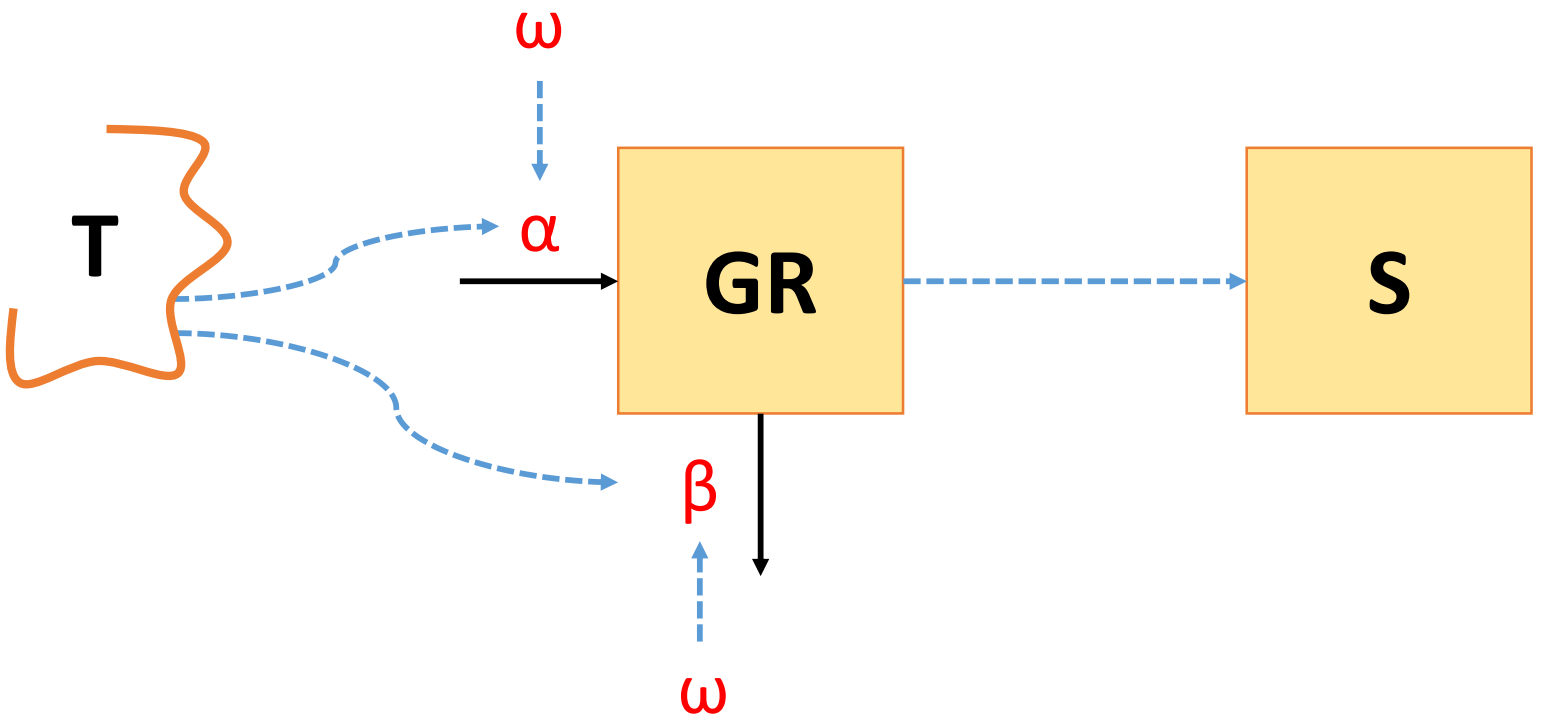
Hypothesis
Body size of *Furcifer labordi* is positively correlated with temperature

R code

glmer (SVL ~ mean_temperature + mean_precipitation + (1|year), family = "gaussian", data = my.data)

Mechanistic model

How does temperature determine the body size of *Furcifer labordi* (Chamaeleonidae) in the dry forest of Kirindy CNFEREF?



States
GR: Growth rate
S: Body size

Environment
Temperature

Processes
α: anabolism rate
β: catabolism rate
ω : body weight

What is next?

Paper publication

- Readjust the statistical analyses used in the paper and include statistical modeling to determine the relationship between climatic factors and body size of *Furcifer labordi*
- Test the correlation between climatic factors and hatching time of *Furcifer labordi* and add it to the paper (chameleon phenology and climate change)

Research

Learn how to build a model to predict the shift in hatching time of *F. labordi* within the next 25y