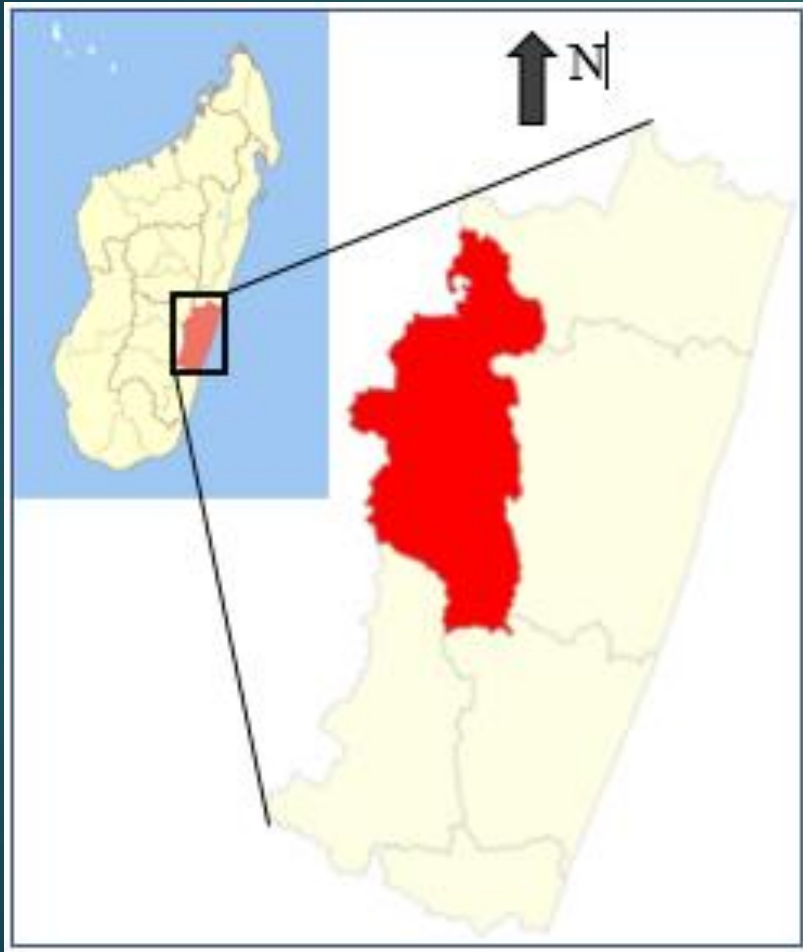


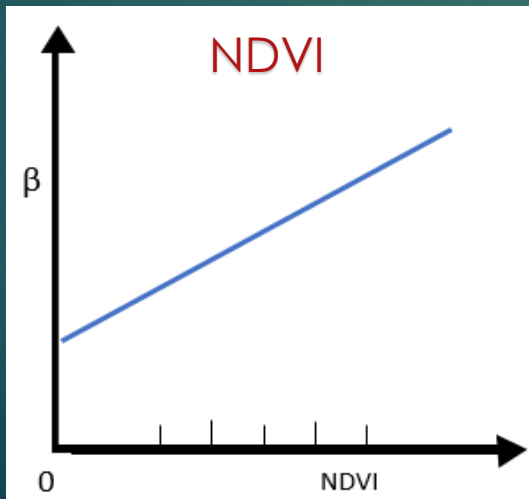
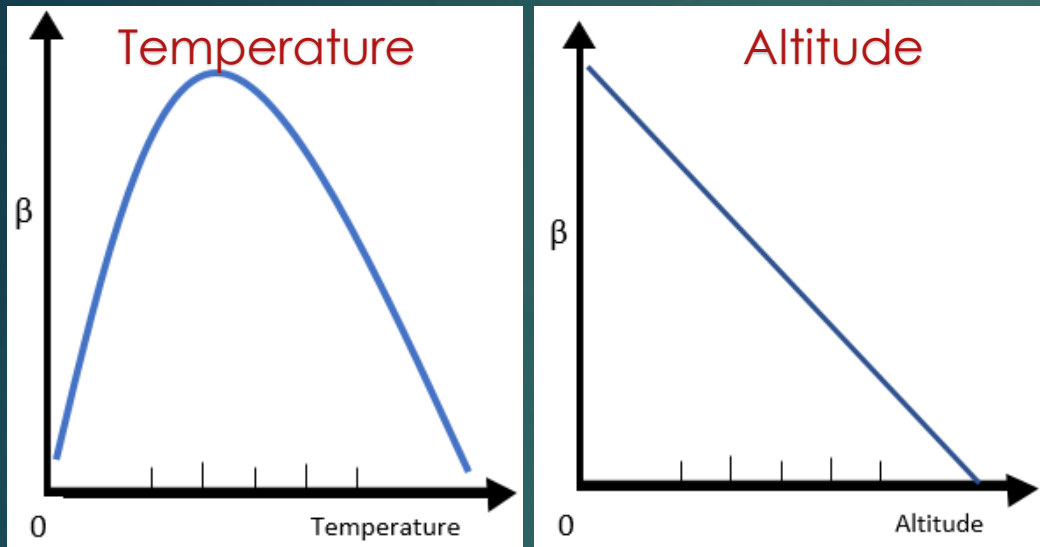
Development of a Decision Support Tool for Malaria Prevalence in Ifanadiana District



- ❖ **Background:** Malaria is endemic in Ifanadiana district, so for better interventions, we want to understand the spatio-temporal dynamics of malaria in the district.
- ❖ **Statistical Question:** What is the impact of environment on the incidence of malaria in Ifanadiana District?
- ❖ **Mechanistic Question:** How do environmental parameters impact the transmission of malaria in space and in time, in Ifanadiana District?
- ❖ **Acknowledgements:** NANTENAINA Rindra Harilanto, RAMAROSON Herilantonirina.

Statistical Question

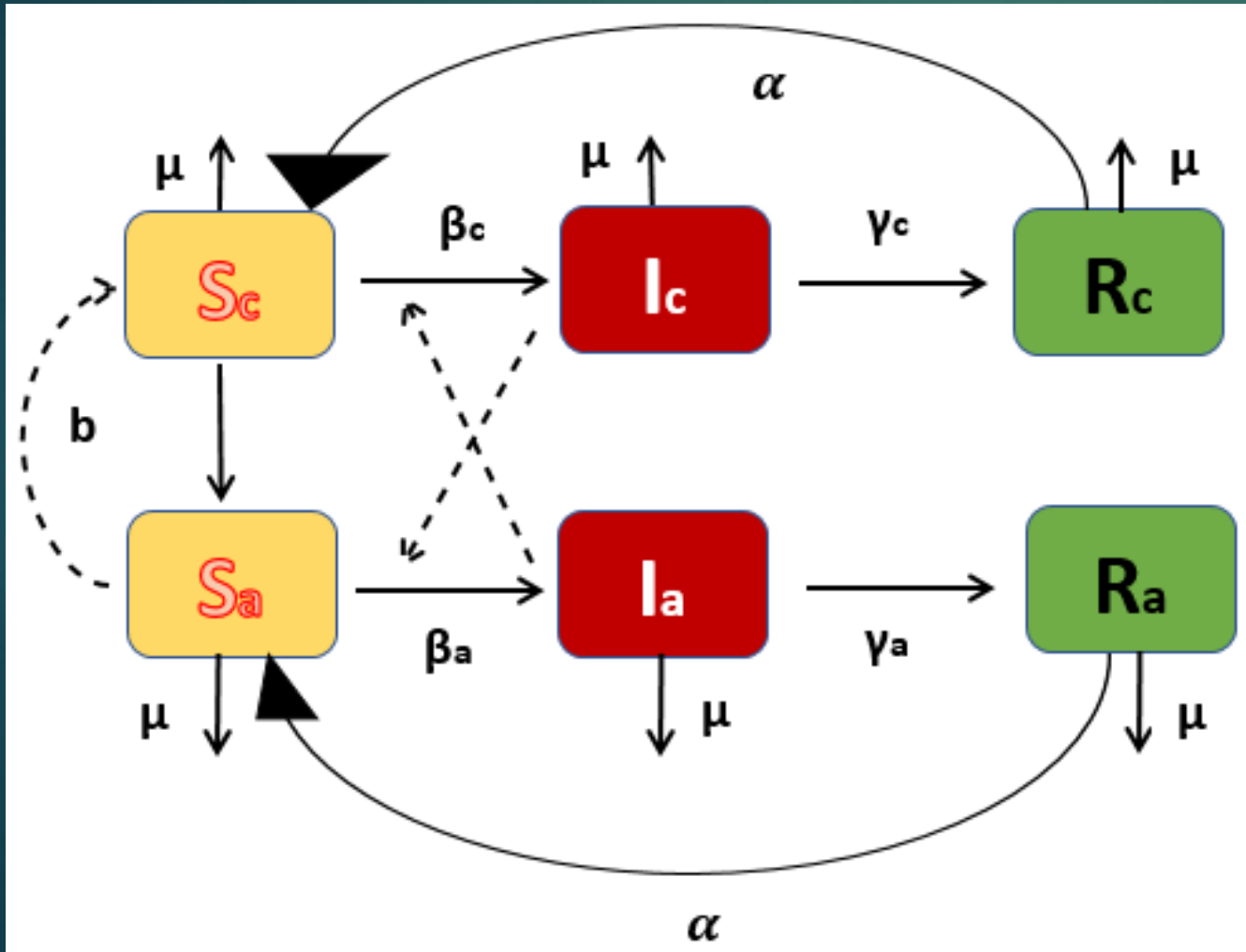
What is the impact of environment on the incidence of malaria in Ifanadiana District?



- ❖ **Response variable:** #Malaria cases (/moth/years) β
- ❖ **Predictor variables:** Environment (Temperature, NDVI, Altitude)
- ❖ **Family:** Poisson, **Link:** Log
- ❖ **Hypothesis:** Malaria cases occurrence is related on environmental variation
- ❖ **R script :** `glmer(#TDRpos ~ Temperature+ NDVI+ Altitude+ (1|FKT), data = my.data, weights = #Pop, family = « Poisson»)`

Mechanistic Question

How do environmental parameters impact the transmission of malaria in space and in time, in Ifanadiana District?



c: child
a: adult

States:

S : Susceptible

I : Infected

R: Recovered

Processes:

b: birth

μ : mortality rate

β : transmission coefficient

$\beta = \mathfrak{f}(\text{Temperature, NDVI, Altitude})$

γ : recovery rate

α : loss of immunity

Next Steps



- ❖ Follow the dynamics of paddy field which characterizes moisture, with sentinelle 1, to improve our Decision Support Tool
- ❖ Collect data from other district for use in the same tool
- ❖ Add in the tool interventions possible to automate the best choice for intervention against malaria

Thank you