Exercise 4: Seasonal forcing

Part 1: SIR Model with seasonal forcing

Using the basic cos function form for β(t) = β0(1+amp(cos(2π(t-ϕ))), explore the impact of

a. Changing the β0 parameter value between 1 and 5

b. Changing the β1 parameter value between 0 and 1

Use your model SIR model with treatment (2) to explore the impact of different seasonal patterns in the two patches.

Part 2: Incorporating Climatic Indices

Use the sample El Niño index to adapt your cosine function. Consider how the index needs to be adjusted and the key parameters governing the strength of the function.