



Universidade Federal do Ceará

Modelagem epidemiológica do COVID19 para o Estado do Ceará empregando o modelo SEIIR

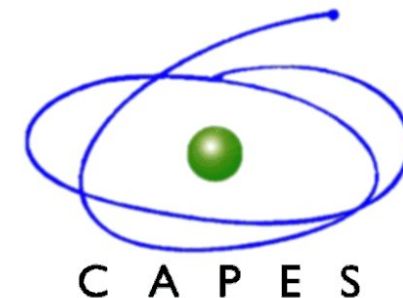
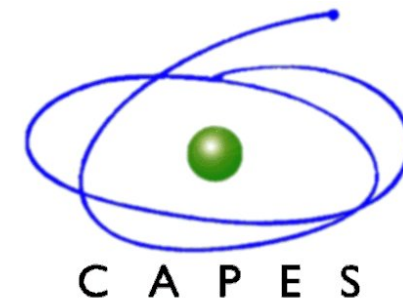
Equipe Cientista-Chefe de Dados (UFC & CAPP-IPECE):

José Soares de Andrade (UFC-Física)

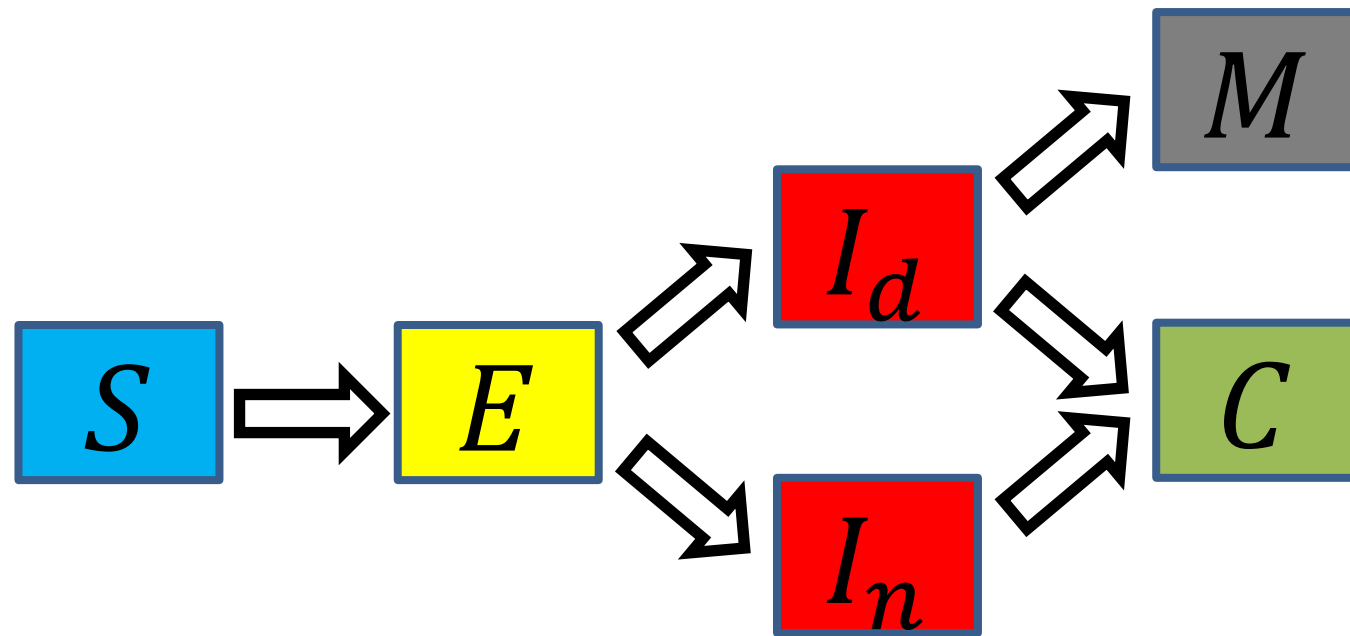
Humberto Carmona (UFC-Física)

Rilder Pires (CAPP-IPECE-SEPLAG)

Saulo Reis (UFC-Física)



Modelo SEIIR



Tipos de Populações

S - suscetíveis

E - expostos

I_d - infectado documentados

I_n - infectado não-documentados

C - curados

M - mortos

Equações Diferenciais Representativas

$$\frac{dS}{dt} = -\beta \frac{I_d}{N} S - \mu\beta \frac{I_n}{N} S$$

$$\frac{dE}{dt} = \beta \frac{I_d}{N} S + \mu\beta \frac{I_n}{N} S - \frac{E}{Z}$$

$$\frac{dI_d}{dt} = \alpha \frac{E}{Z} - \frac{I_d}{D} - \gamma I_d$$

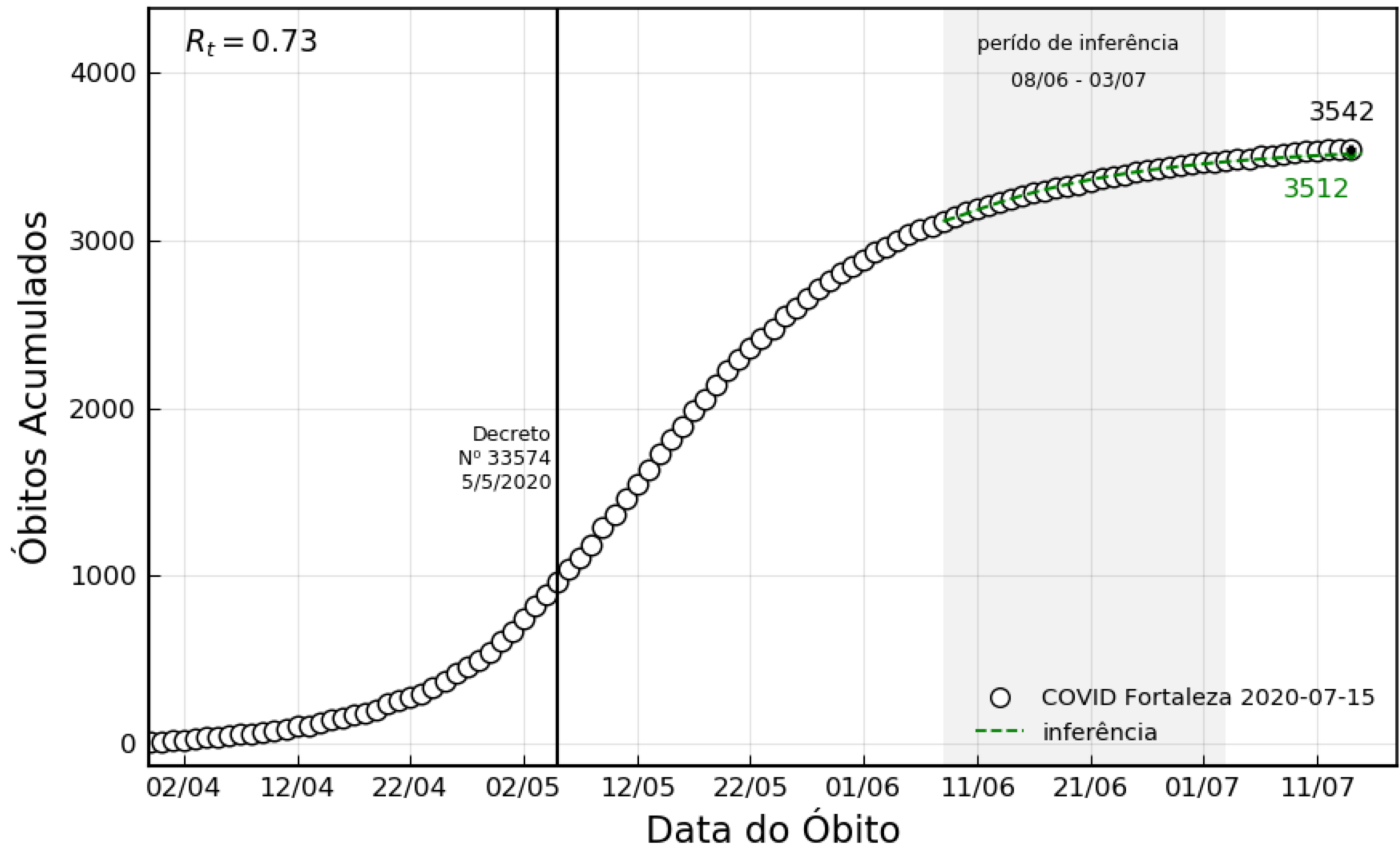
$$\frac{dI_n}{dt} = (1 - \alpha) \frac{E}{Z} - \frac{I_n}{D}$$

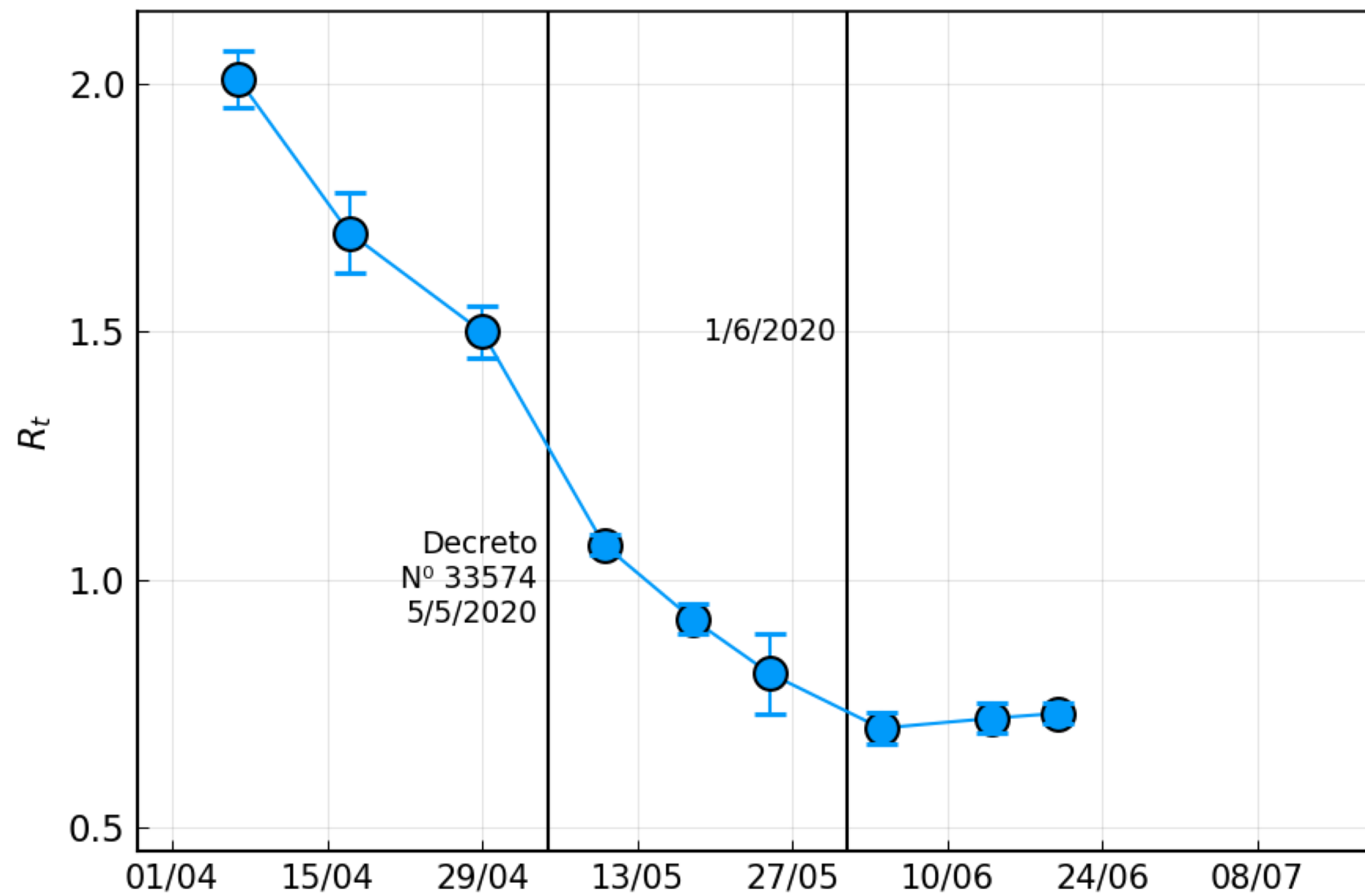
$$\frac{dC}{dt} = \frac{I_d}{D} + \frac{I_n}{D}$$

$$\frac{dM}{dt} = \gamma I_d$$

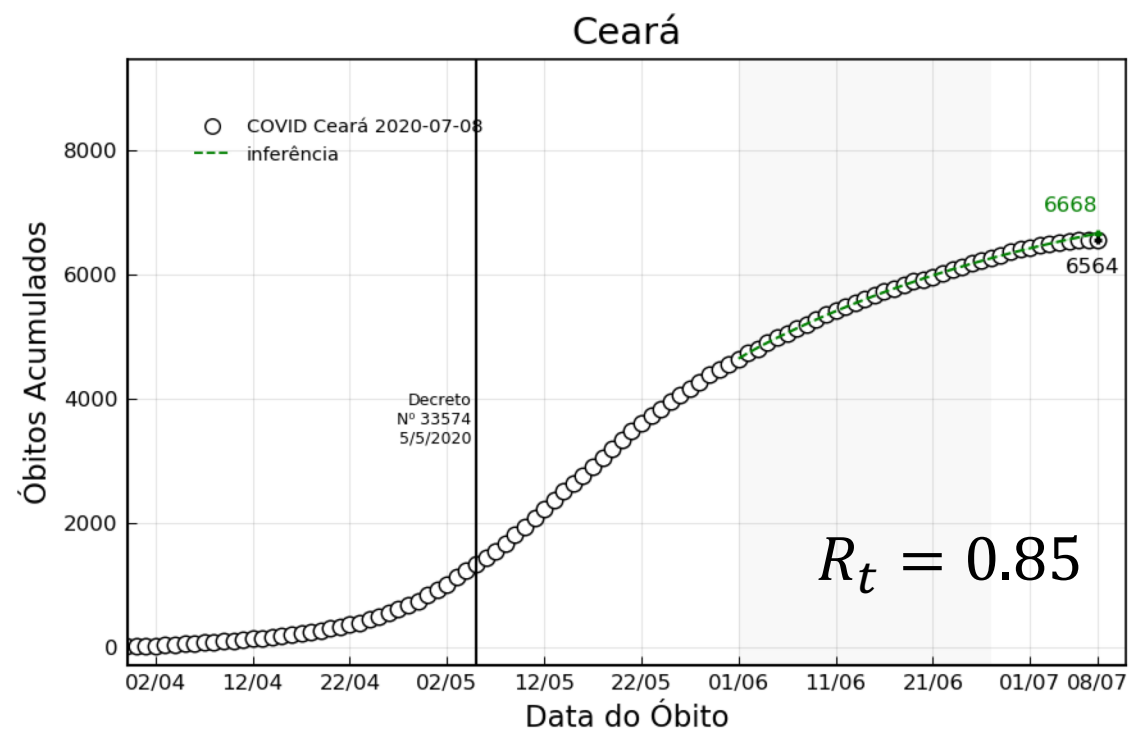
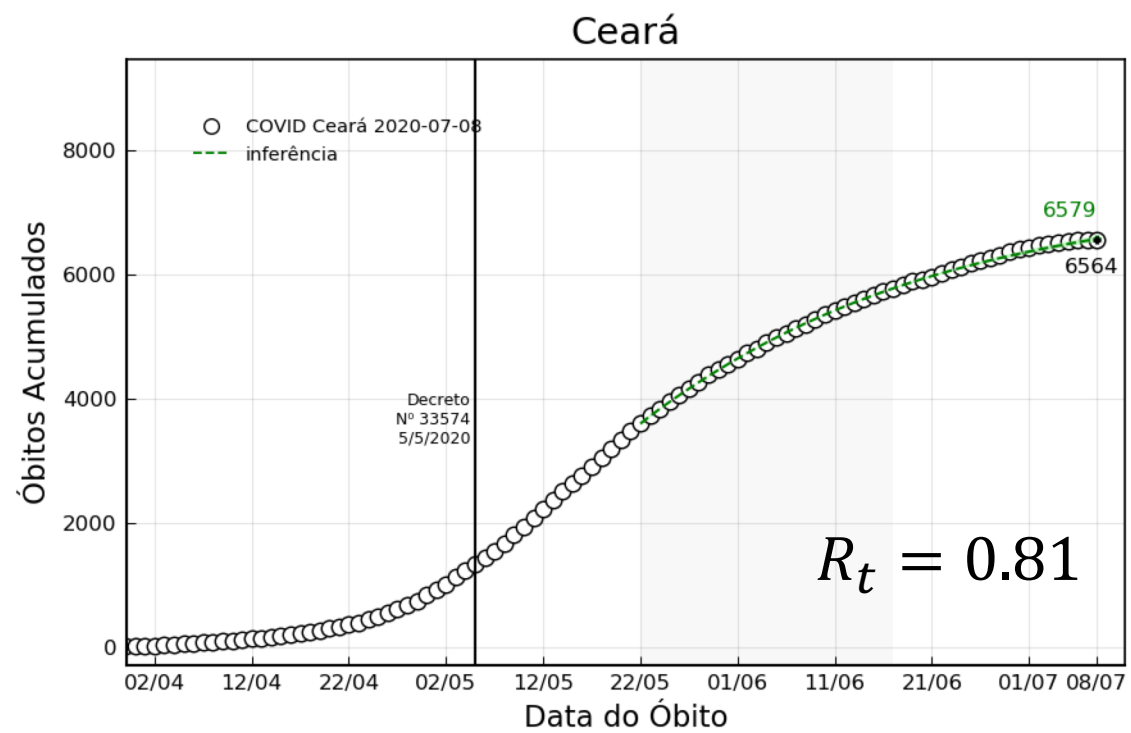
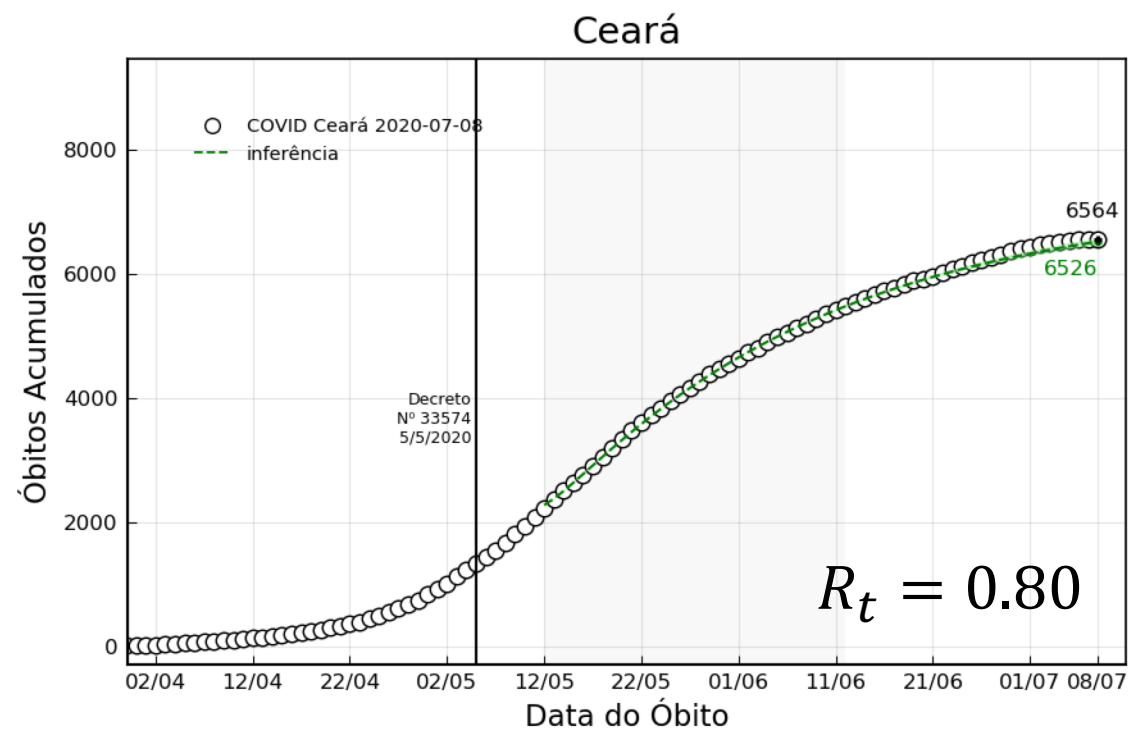
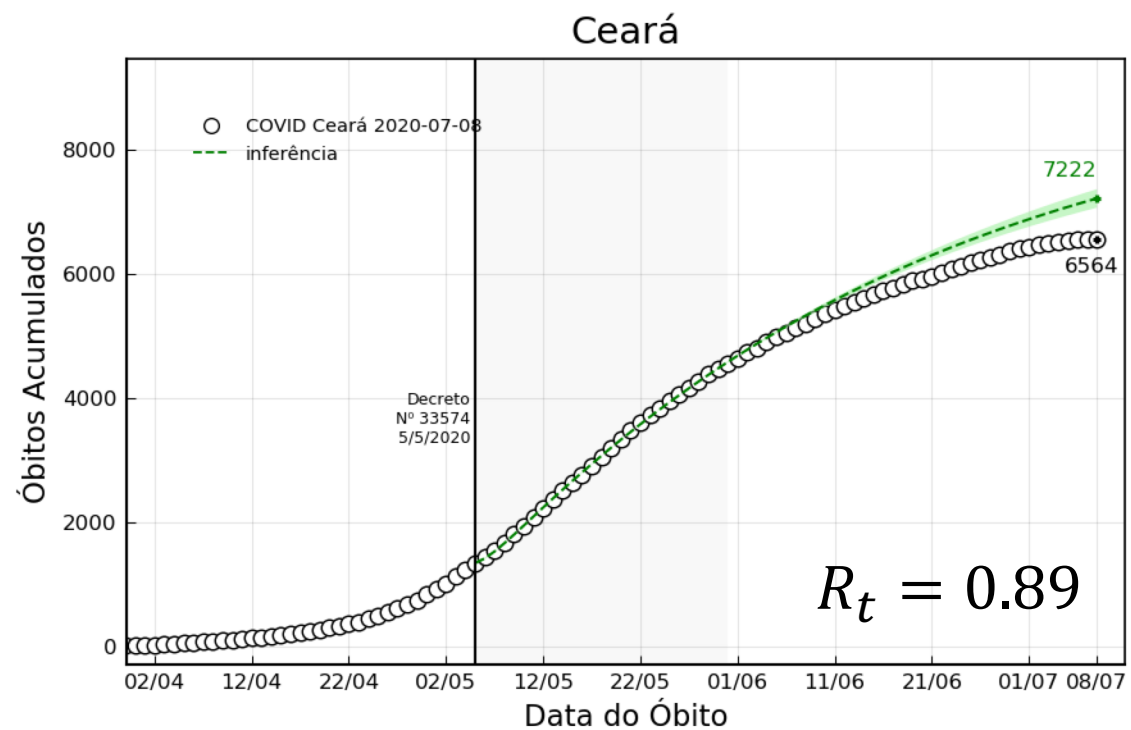
Fortaleza

Fortaleza

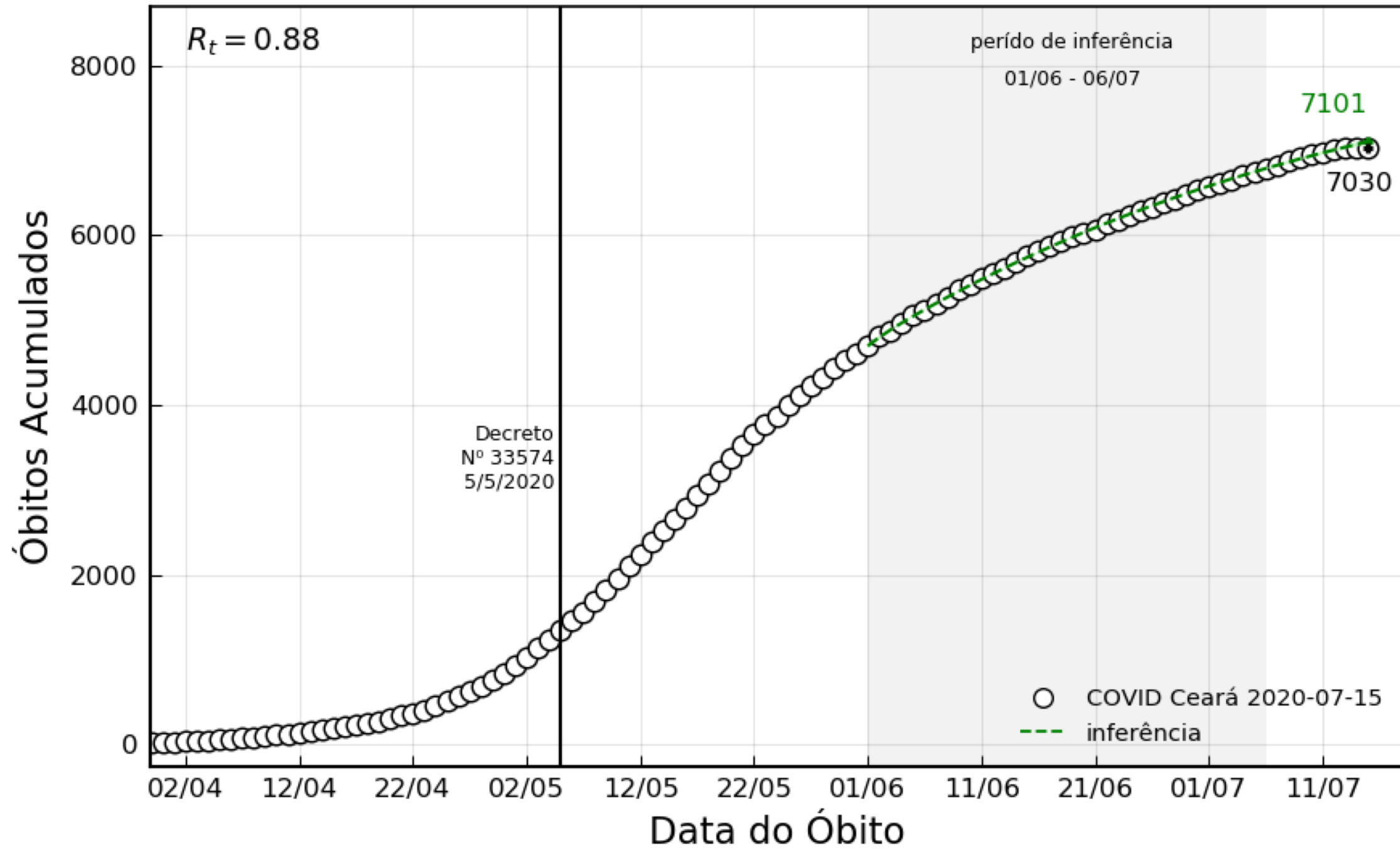




Ceará



Ceará

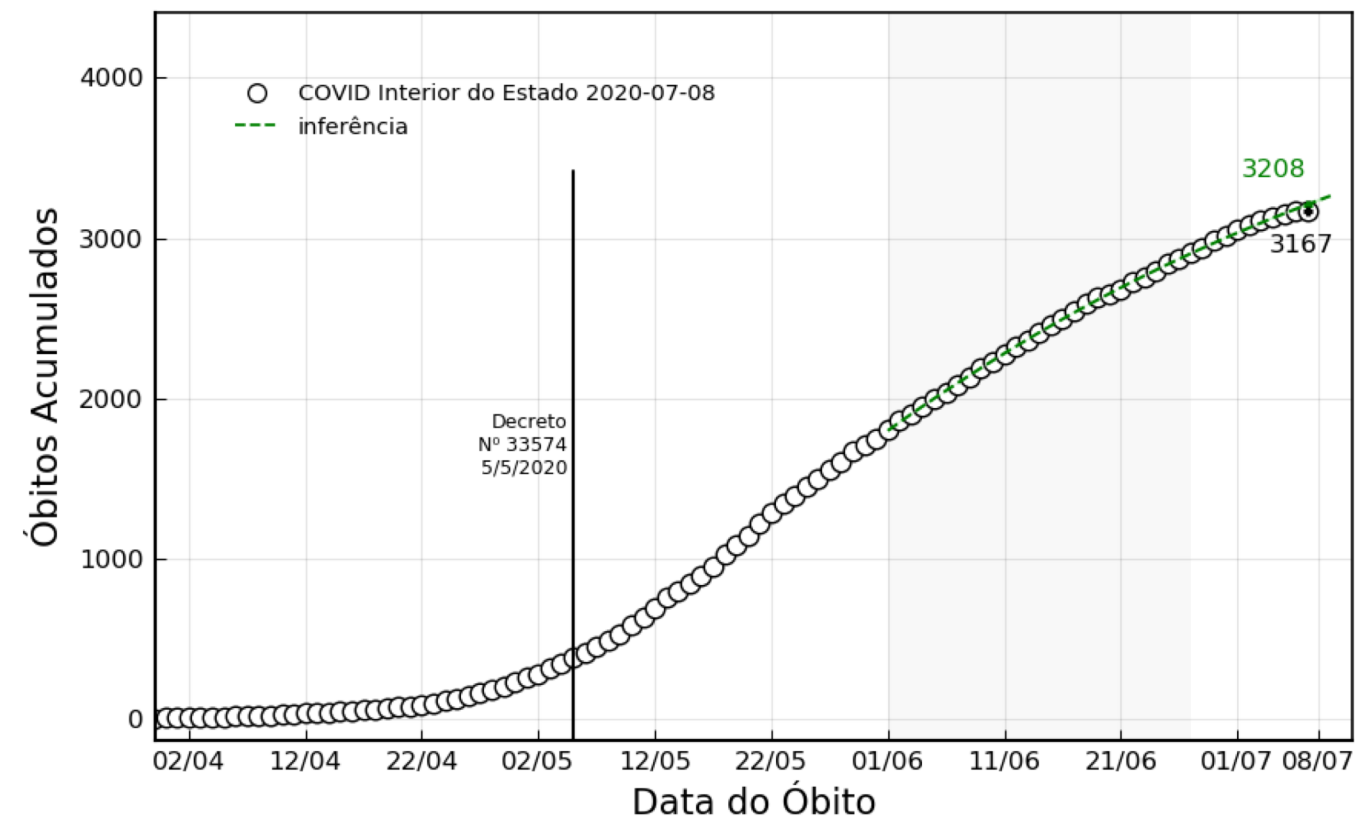


Interior

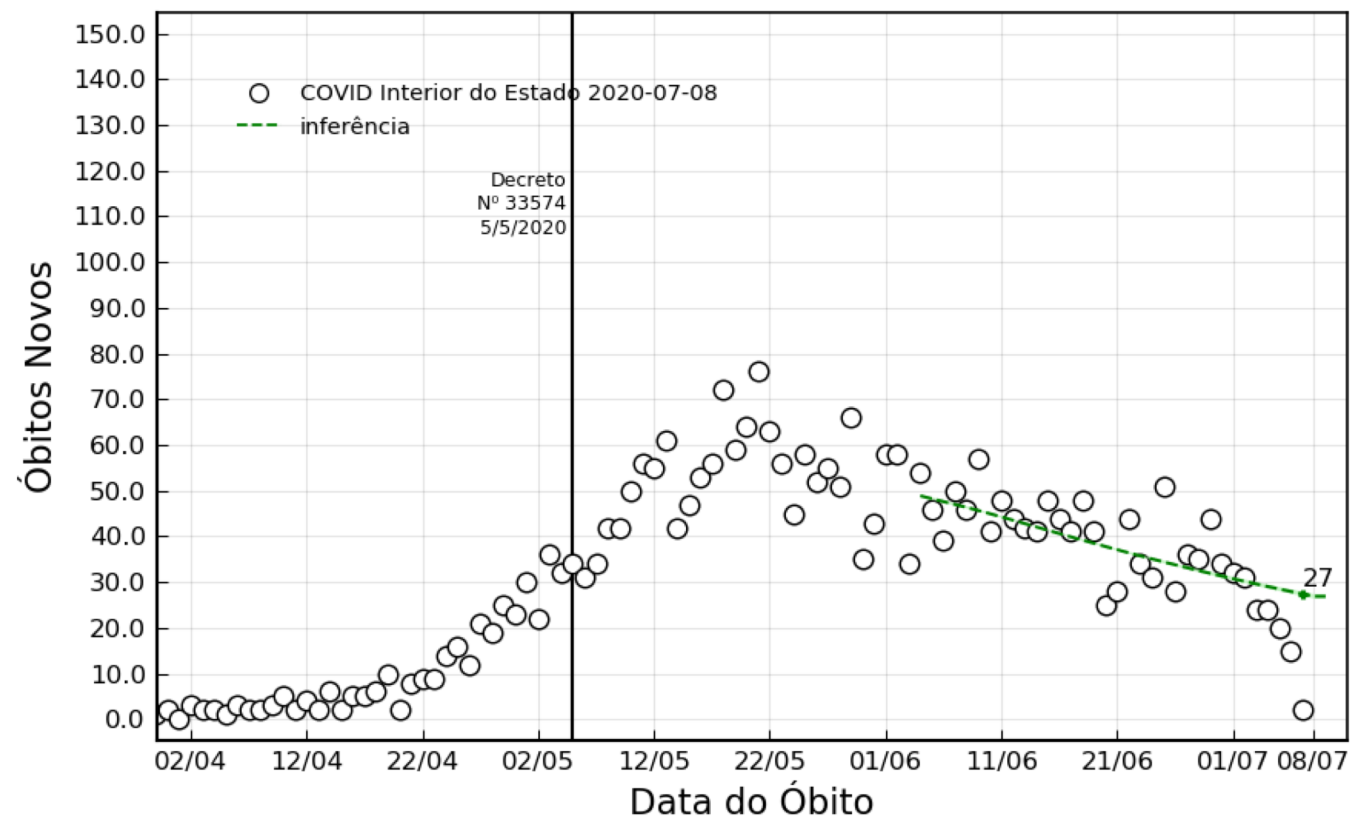
Inferência usando óbitos acumulados no período de 01/06 a 27/06/2020

Parâmetro	Média (95% CI)
Número de reprodução R_t	0.9 (0.89,0.91)

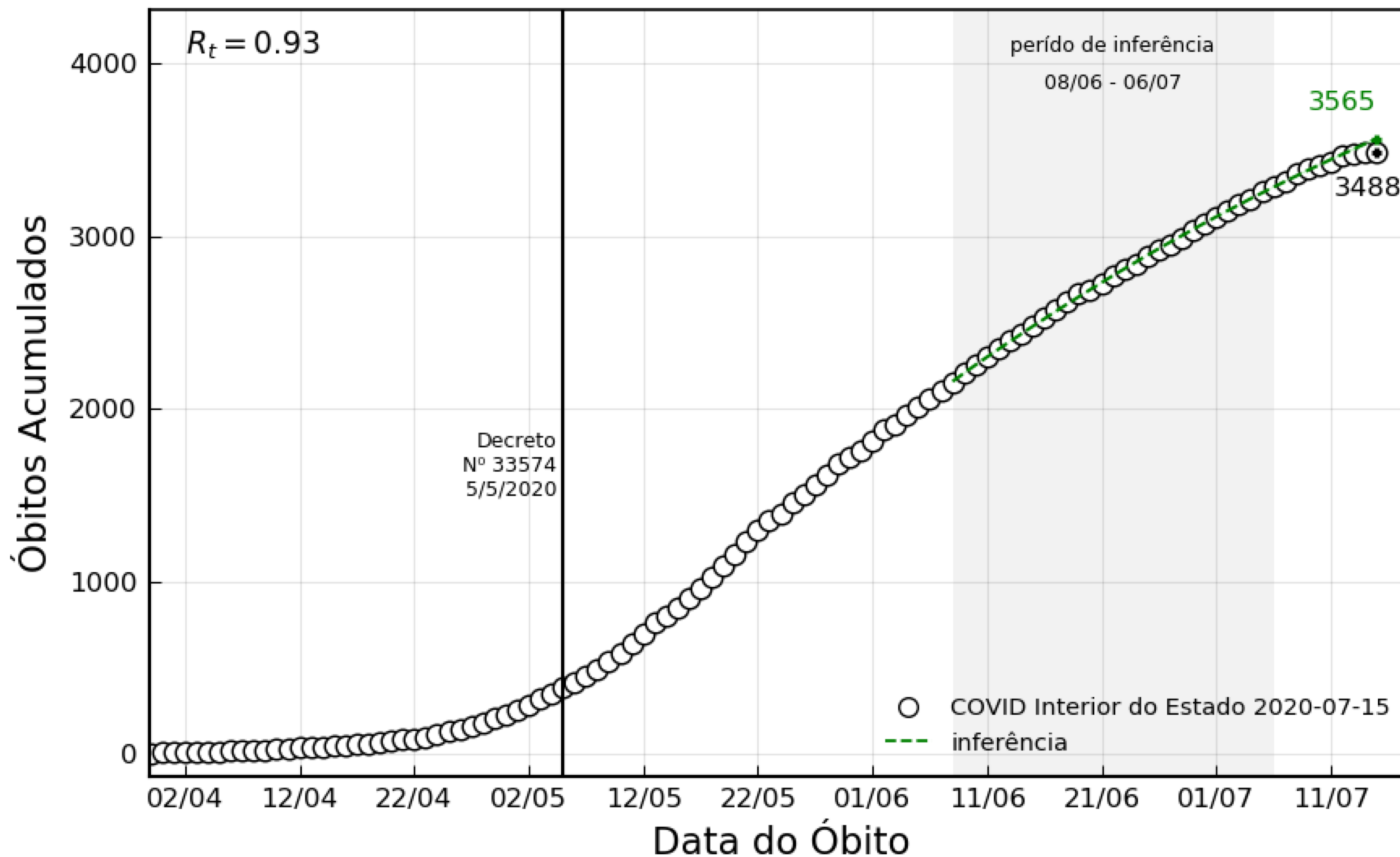
Interior do Estado



Interior do Estado

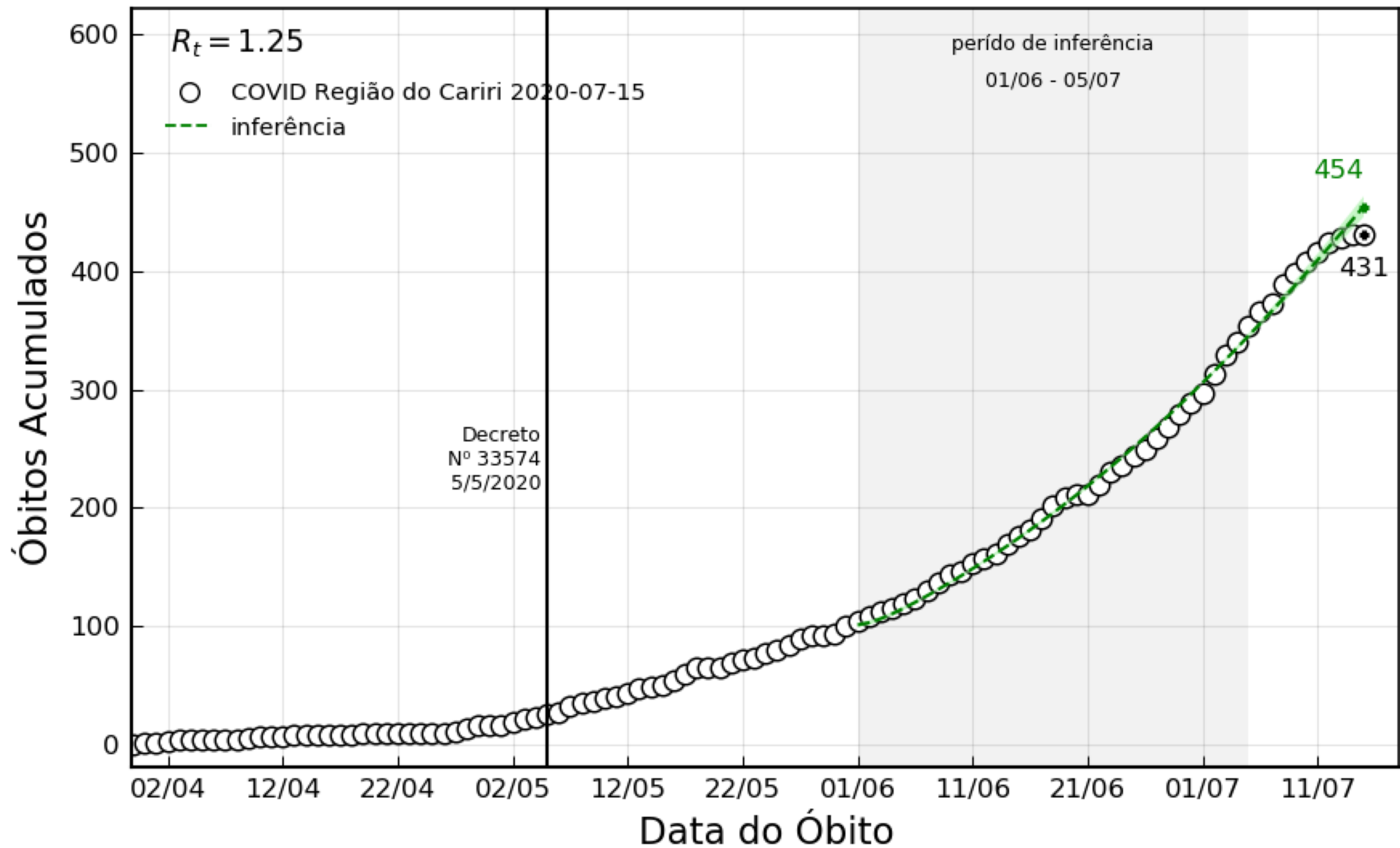


Interior do Estado



Cariri

Região do Cariri



Juazeiro do Norte

Inferência usando óbitos acumulados. Período de 20/05/2020 a 19/06/2020.

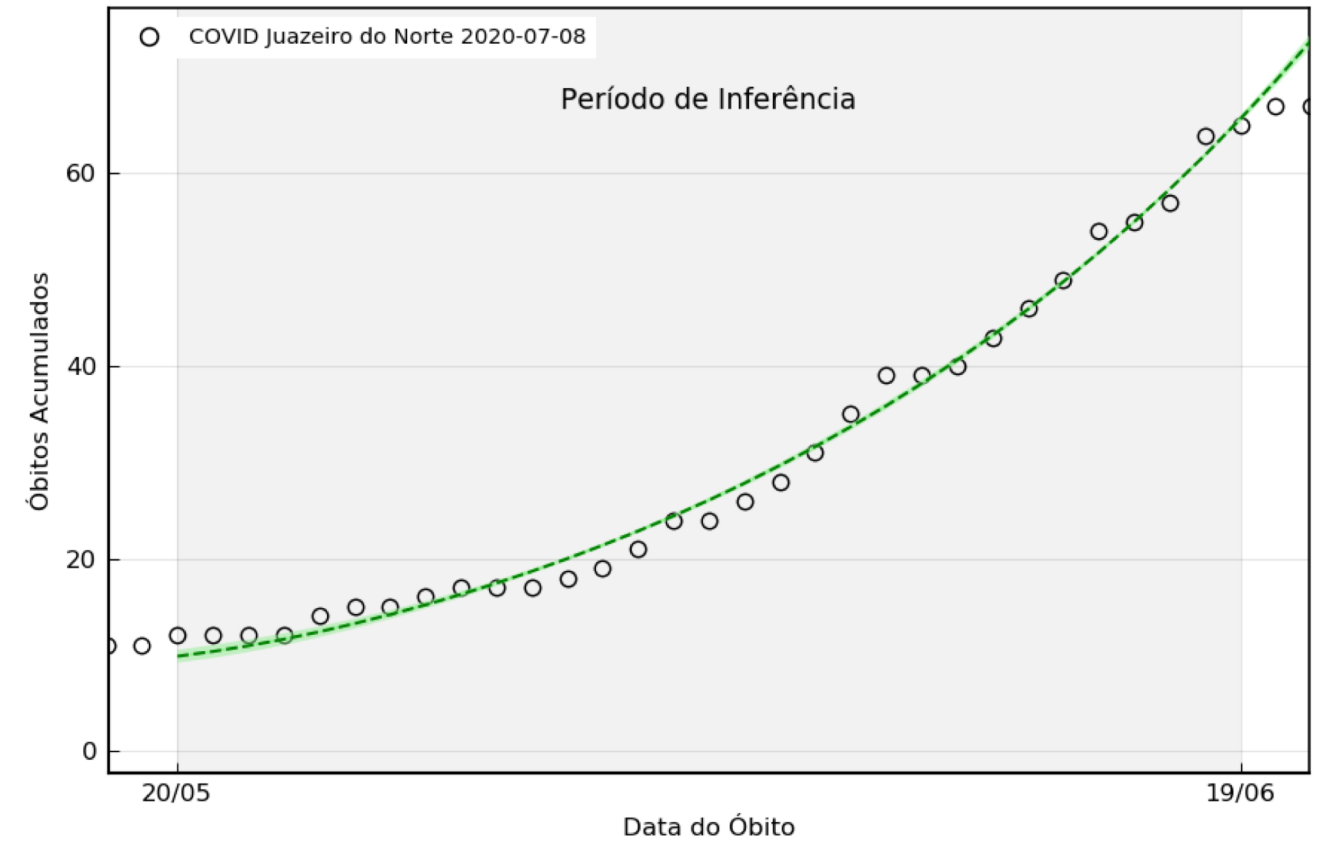
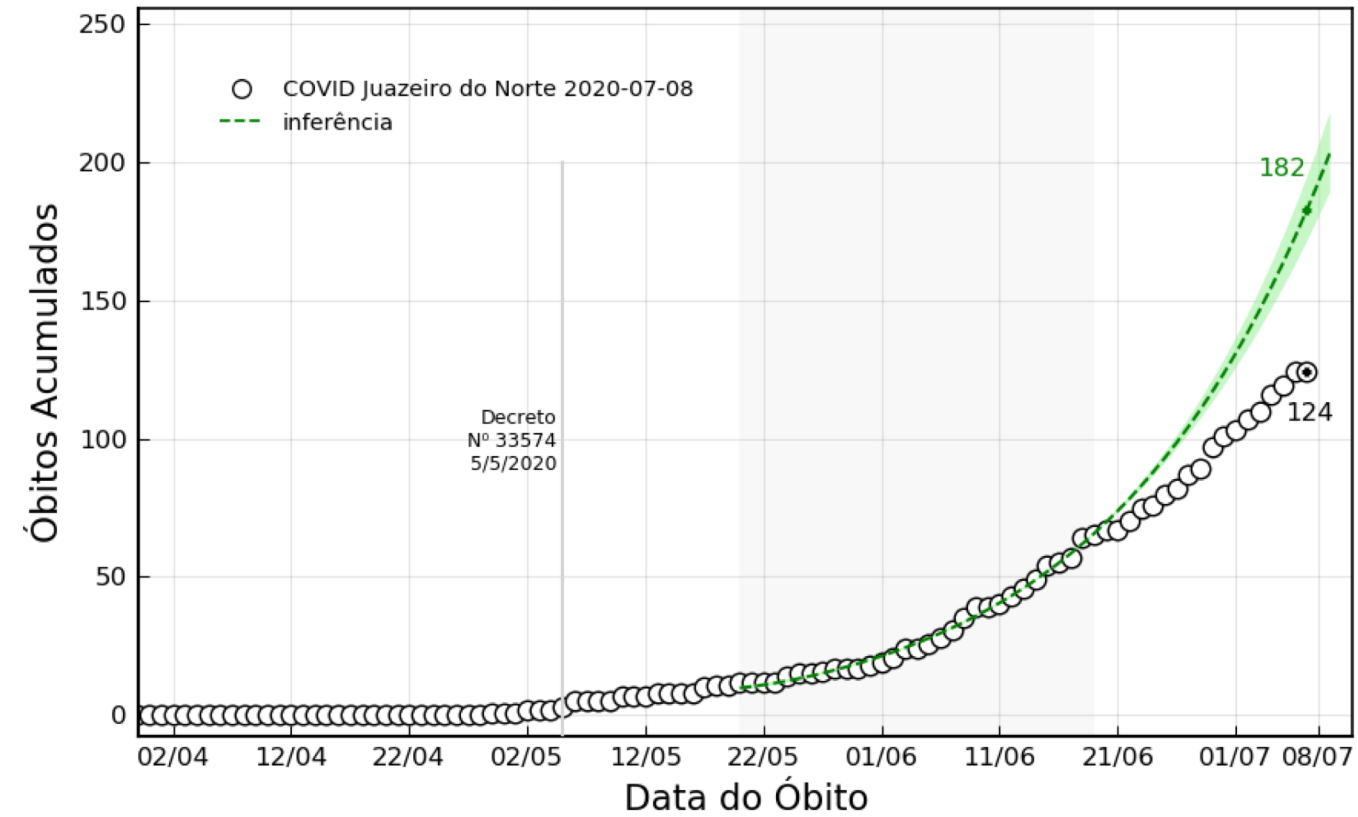
Parâmetro

Média (95% CI)

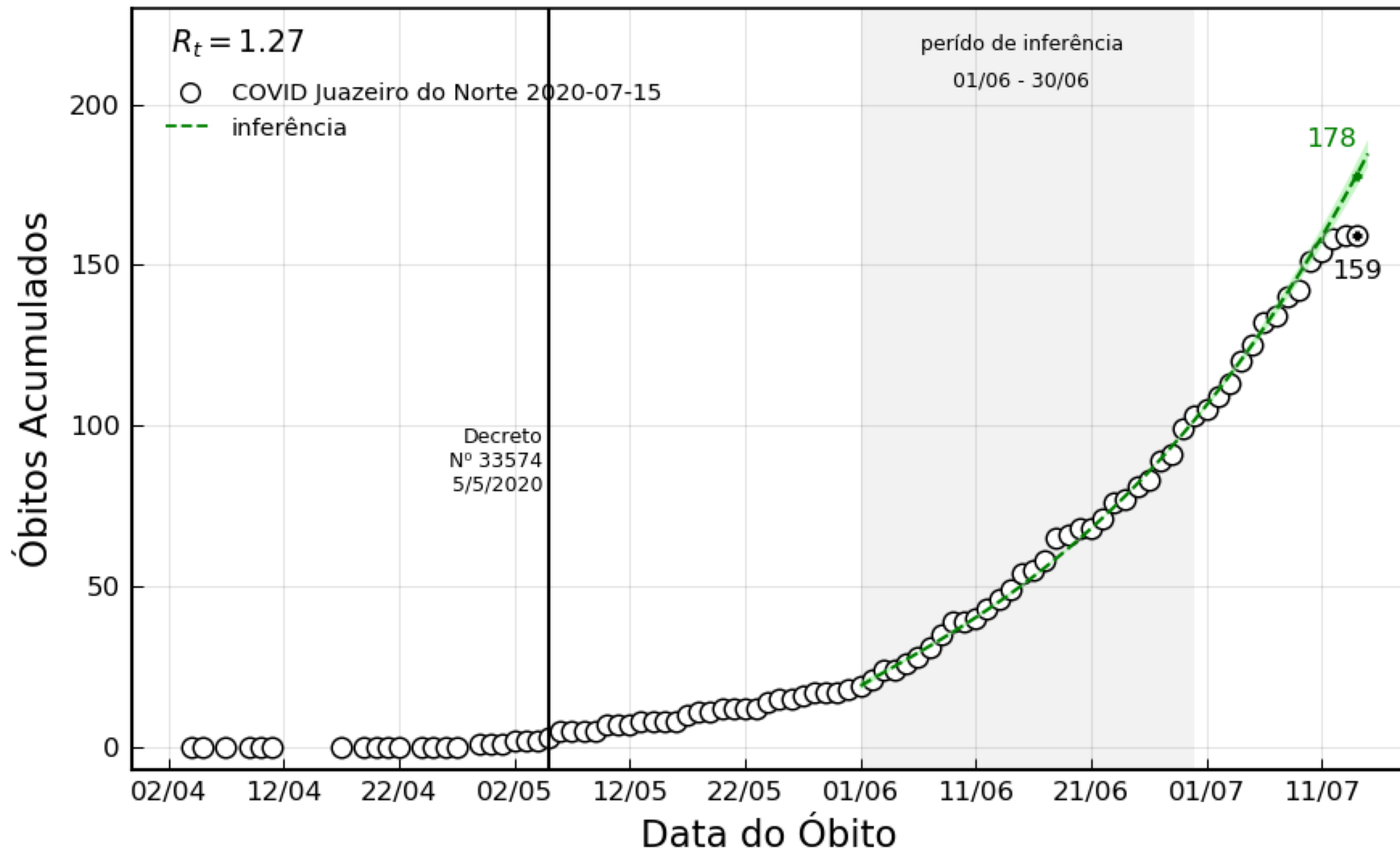
Número de reprodução R_t

1.45 (1.41, 1.49)

Juazeiro do Norte



Juazeiro do Norte

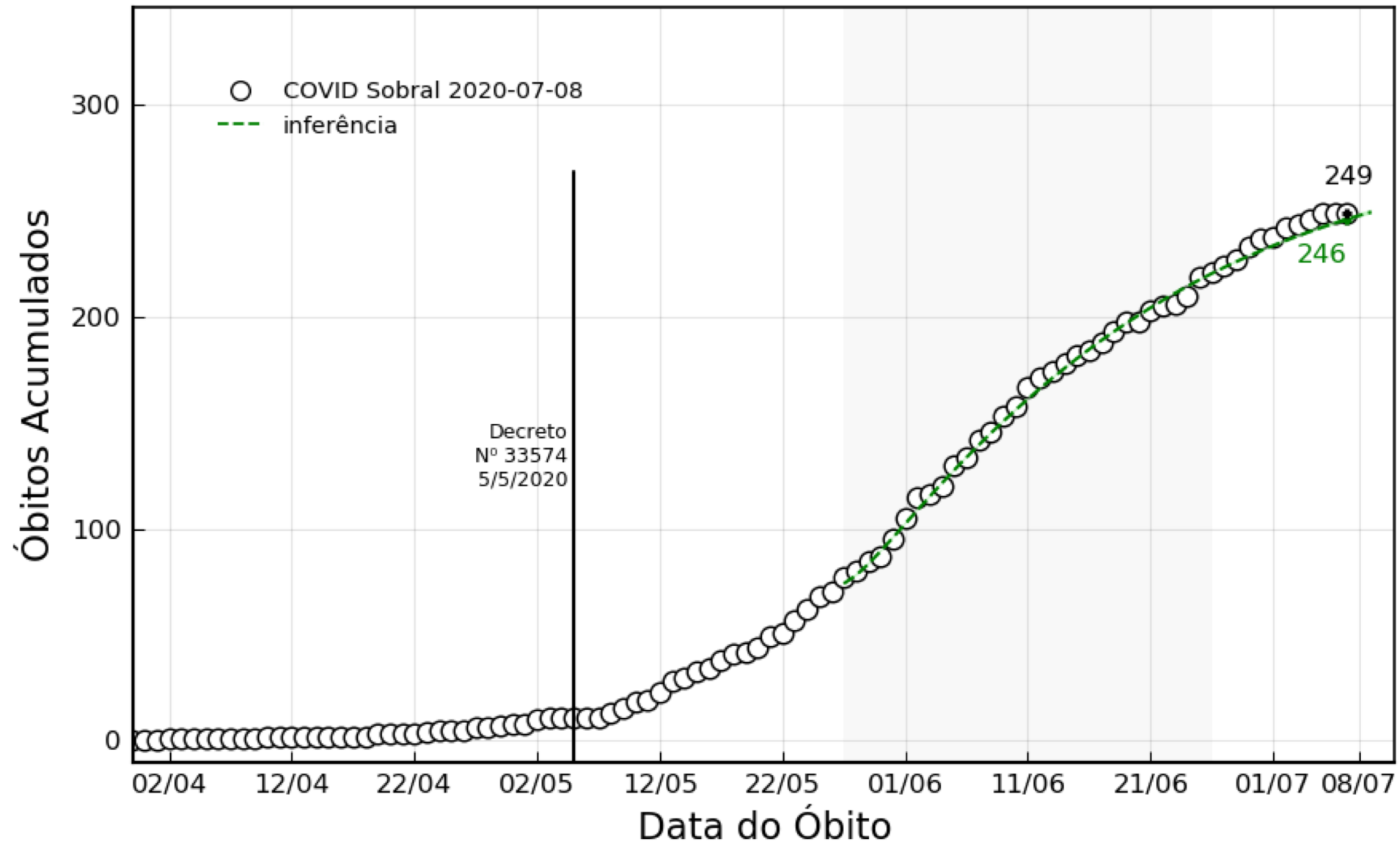


Sobral

Inferência usando óbitos acumulados. Período de 27/05/2020 a 26/06/2020.

Parâmetro	Média (95% CI)
Número de reprodução R_t	0.94 (0.93,0.95)

Sobral



Sobral

