Response to Review-Report-Section-II-Ch-03-1

General Remarks and Observations

We know that that in viscoelasticity the fractional order introduces dissipation and proper creep and relaxation behavior. What is the physical process in the case of the epidemic equations? A sentence in the Introduction will be enough.

We added the following sentence

When fractional order derivatives are used in epidemic models, they modify the duration, peaks of infected and dead individuals per day and number of casualties in the population.

Indicate the end of the epidemic in the table.

Hacer esto de la Tabla

For instance, when you report an incubation period of 3 in Table 1. This is actually the incubation period or the incubation period power ?. In all the tables you should give the real incubation period, e.g. $(\epsilon^1)^\nu = 3$ *. This 3 is correct. Do the same for all the other parameters. Then, in ALL the tables there is no need to indicate the power , only in the equations.*

hacer esto del ν

Conclusions section. Write one, even if short.

Escribir las Conclusiones

Minor points:

Abstract,

6th line: there are two the

Done

N_0 *is not defined and in validation has a different symbol.*

Done

Introduction

(page 2), First paragraph, 5th line: still increasing at July 15th: I assume that your are updating the data. This should change after the update.

Hacer esto con las nuevas curvas

page 2 I see that you assume 100 infectious initially. What happens if you change this number?

We added the following paragraph at the end of subsection 4.2:

Concerning the chosen value of initially infectious $I(0)$, if $R_0 > 1$ increasing $I(0)$ anticipates the spread of the epidemic, so that the location of the peak of infected people depends on $I(0)$, with similar amplitude. Furthermore, if

$R_0 < 1$ an increase in $I(0)$ induces more exposed and infected individuals, but the location of the peak does not significantly change. The figures are not included for brevity.

Last paragraph, last line: I think that dead individuals is dead individuals per day

Done

Section 2 The Caputo derivative and initial value problems *(page 3) first line: Replace* $D_c^\nu(u(t))$ *by* $D_c^\nu(u(t)$ *(remove parenthesis)*

Done

Eq. (2): Replace $D_c^\nu(f(t))|_{t_{n+1}}$ *by* $D_c^\nu(f(t)|_{t_{n+1}}$ *; these expressions have an additional parenthesis*

Done

Section 3 The classical and fractional-order SEIR models

(page 4) first line of Eq.(6): λ^ν *should be* $\mu^\nu N$ *;*

Eq.(7): μ^μ *should be* μ^ν*.*

Done

Subsection 4.1 Validation of the GMMP algorithm

(page 5) firstparagraph, 2nd line: fractional orders $\nu = 1$*, 0.9 and 0.8 is* $= 0.9 and 0.8$*?*

Yes, fixed

Section 5 Analysis of the COVID-19 epidemic in the RMBA

(page 9): As mentioned above, update the analysis using data at least up to July 31st. Therefore update all the dates.

Hacer esto

Moreover, the authors should include an analysis of variations in the results associated with changes in the initial number of infected individuals;
As indicated in the **General Remarks and Observations** *part of this response a paragraph is included at the end of Section 5*

(page 10) 3rd paragraph, line 3: Complete the sentence shows a decay of the in the simulated curves;

Done

(page 14) last sentence, fix and the peak infected individuals and number of casualties increase

Done

6 Appendix

(page 16) All lines of Eq.(13): $b_{j,n+1)}$ by $b_{j,n+1}$

Done

(page 17) All lines of Eq.(14): $f_j^\nu(S_{n+1}^p, E_{n+1}^p, I_{n+1}^p, R_{n+1}^p)))$; there are additional parenthesis.

Done

(page 17): Update reference [2]

Done